Form 9-331a
(May 1939)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

State Land
U.S. Land Office
Lease or permit No. M.L. 0581
W.S. McCarthy

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

June 22, 1943

Well No. 1 is located 330 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 16

NW¼ of NE¼ 16 (¼ Sec. and Sec. No.) 22 S. (Twp.) 19 E. (Range) Salt Lake (Meridian)

Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

ORIGINAL FORWARDED TO CASPER 7-3-43

GEOLOGICAL SURVEY
JUN 30 1943
OIL & GAS CONSERVATION DIVISION
SALT LAKE CITY, UTAH

The elevation of the derrick floor above sea level is 4731 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

The hole has been completed in accordance with the drilling contract and no evidence of commercial oil or gas productivity was encountered. Intend to abandon well as follows: Fill with 11 lb. brine ladened mud from bottom of well (T.D. 5249'9") to 3976 ft. (Top of salt 3976). Cement plug 3976 to 3850 with 60 sacks cement (8" hole), a hardness test of the plug will be taken in which the cement shall be sufficiently set to sustain the weight of the drill pipe. After the cement plug at the top of salt has been placed and set an attempt will be made to bail the well to a depth of 3700 ft., and if successful in reaching this depth a maximum of 24 hours will be given to test for oil and/or gas. Should commercial production be indicated by the test further plugging will be stopped and the well left for a production test to be made at a later date. If no commercial production is indicated plugging will proceed as outlined. To remove if possible about 2300 feet of the 8 5/8" casing

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

See reverse side

Company POTASH COMPANY OF AMERICA

Address First National Bank Bldg., Denver, Colorado

By [signature]

See reverse side for approval.

Title Assistant General Manager

U. S. GOVERNMENT PRINTING OFFICE 16—6437

now cemented in the well at 2780 ft. to fill with 11 lb. mud from 2850 to 1530 ; cement plug 1530 to 1430 with 60 sacks cement (10" hole). To fill with 11 lb mud from 1430 to 6 feet. To provide and cement in place 10'X4" pipe marker set 4 feet above ground and filled with cement to top of marker.
To leave 121 feet of 13" - 50 lb. surface conductor in well.

Approved June 30, 1943

C B Haughtman

District Engineer

Form 9-331a
(May 1939)

16

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

State Land
U. S. Land Office .....
Lease or permit No. M.L. 858A
W.S.McCarthy

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	X
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

JUL 14 1943 DIVISION

JUL 1 ... Copy for Bunch

July 14, 1943, 19

Well No. 1 is located 330 ft. from {N} line and 2310 ft. from {E} line of sec. 16

N.W.¼ of N.E.¼ 16 (¼ Sec. and Sec. No.) 22 S (Twp.) 19 E (Range) Salt Lake (Meridian)

Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4731 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

June 22 Reached depth of 5250 feet, drill pipe parted 4000 feet below table.
" 23 All drill pipe and tools out of hole, started bailing- got down to 1700 feet.
" 24 Lost 7" X 25' bailer; hole then bailed with 5½" X 30' bailer- lowest fluid level reached 2350 feet.
" 25 Bailed until 4:00 P.M. - fluid level 2350 feet. Fished out 7" X 25' bailer.
" 26 Filled well with fluid and ran drill pipe to 3976 feet.
" 27 Cemented at 3976 feet with 60 sax cement, cement in place at 4:00 A.M.
" 28 Top of cement plug at 3892- plug sustained weight of drill pipe. Ran drill stem test with packer set at 3610, test revealed no oil, gas nor water, packer remained set one hour.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Potash Company of America

Address First National Bank Bldg., Denver, Colorado

By G. B. Weaver

Title Superintendent

See reverse side for Approval

U. S. GOVERNMENT PRINTING OFFICE 16—8437

June	29	Cut 8 5/8" - 28 lb. casing at 2000 feet, recovered 700 feet- 1300 feet left in hole as protection to drill pipe while cementing.
	30	Hole plugged at 1530 feet with 60 sax cement. Fluid pumped down drill pipe returned to surface outside of 8 5/8" casing, approx. 150 bbls black oil displaced by this fluid, exact source not known, believed to be 1200 to 1250 feet - small flow of gas noticeable when fluid level bailed down to 700 feet - could not bail lower.
July	1	Top of last plug found to be at 1501 feet. 110 sax cement pumped in at 1500 feet - in place at 6:00 P.M.
	2	Bailed during day and night tour, could not lower fluid level below 700 feet.
	3	Bailing continued until 8:00 A.M. - could not lower fluid below 700 feet, Raised 8 5/8" casing from 1300 to 1198 feet and cemented with 100 sax cement - in place at 8:00 P.M. Small amount of gas noticeable before cementing.
	4	Waiting for cement to set.
	5	Started to drill cement plug out of casing at 9:00 P.M., cement found in casing at 1168 feet, found to extend downward to 1223 feet.
	6	Bailed down to 1000 feet when water began to rise rapidly, bailing continued but could not bail below 700 feet. No gas observed since cementing casing.
	7	Bailing stopped 1 hour and fluid level rose to 430 feet. Water obtained by bailing clear down to 1250 feet, when bailer was lowered below 1250 feet fluid obtained was muddy - indicative that water is coming in at 1200 to 1250 Bailed from bottom (1311 feet) for three hours - no oil show on bailer. Plugged back with 144 sax cement at 1311 - pulled drill pipe up to 1000 feet and washed.
	8	Ran bailer and found top of cement at 1010 feet. Waiting for cement to set.
	9	Waiting for cement to set.
	10	Drilled cement out of casing to 1170 feet, gun perforated with 40 - 3/4" holes at 1145 to 1155, bailed down to 1050 feet - no oil or gas show.
	11	Hole bailed dry at 1:00 A.M. no oil or gas show. Gun perforated with 20 holes from 1120 to 1130 - slight show oil and gas, hole bailed dry at 4:00 A.M. - 48' of fluid in hole at 6:30 A.M. Gun perforated with 20 holes from 1118 to 1132. Hole kept bailed down below perforations- no increase in gas or oil noticeable after last 20 holes shot.
	12	Kept hole bailed below perforations - no increase in oil or gas noticeable. Gave contractor instructions to move rig off of hole at 1:00 P.M. Will leave hole in present condition with valve on casing.

33.6° a.P.I.

Approved July 14, 1943

C A Hauptman

District Engineer

MEMORANDUM for the file.

Potash Company of America, Well No. 1, State Land
16-22S-19E, NW NW¼NE¼

March 9, 1943

Mr. McCarthy was in making inquiry regarding the requirements for coring and testing the Dakota and Morrison on the above well. As a result of this discussion with Mr. McCarthy, I again called upon Assistant Attorney General Huffaker, who was very much in favor that some cooperative plan be worked out between the State and the supervisory offices of the Geological Survey for inspection of the drilling and testing of the well on State Land. As a result of this conference, Mr. Huffaker contacted the members of the State Land Board and Mr. Pingree, Chairman, instructed Mr. E. H. Burdick, Geologist for the State Land Board, to take necessary steps authorizing the Geological Survey to require drilling, coring, and testing of the State well.

March 10, 1943

Mr. Burdick contacted Mr. B. W. Dyer, Wednesday evening at Price authorizing the above.

March 11, 1943

Dyer called me advising of Burdick's action authorizing him to require coring and testing of the State well. Whereupon, Mr. Dyer on Thursday afternoon notified R. A. Pierce of the Potash Company that coring would be insisted upon from their depth at that time, 1320', continuously through all formations to and including the salt, if and when encountered, and that the Potash Company was to notify me at any time if oil shows were encountered in order that I may be present to witness any drill-stem testing of the oil show. Prior to Dyer's call from Price, R. A. Pierce notified me from Thompsons that morning that the 12½" conductor was that day on lease Salt Lake 063655, being cemented from top to bottom at 123'. As a result of Dyer's conference with Mr. Pierce, Pierce agreed to follow in detail the request made by Dyer.

It is Mr. Dyer's opinion from observation of the samples taken from the State land well, that the Dakota-Morrison contact was reached at 875' + and that the drill from that point on to depth reached (1300') was in a broken shale and sandy shale. To him it was very evident that they were in the Morrison although Mr. Aurand, Geologist for the Potash Company, was of the opinion that the Morrison had been encountered at approximately between 600' and 700'.

It appears that with supervisory authority delegated to the Geological Survey, that the Potash Company is agreeable and desires to cooperate to see that adequate testing and coring is followed from 1300' to the bottom of the Morrison or contact with the salt. After which, no doubt, the Potash Company will core continuously through the salt.

C A Stauffman.

March 13, 1943

March 1943

MEMORANDUM for the file.

Potash Company of America, Well No. 1, State Land
16-22S-19E, NW NW¼NE¼

March 16, 1943

B. W. Dyer telephoned from Green River that the core barrel, which was lost on March 14 when the well was 1386' deep, was stuck 18' off the bottom and that the contractor was attempting to fish out the barrel. After two days fishing, the hole was cleared of the lost tool.

March 18, 1943

On the morning of March 18, made a trip to Crescent Junction, but found that some iron still remained at the bottom of the hole which caused some difficulty in coring. However, in the afternoon of the 18th, the hole was completely free and drilling was resumed for several feet to 1406'.

March 21, 1943

By Sunday morning, March 21, coring had reached a depth of 1489'. Whereupon, Mr. Pierce of the Potash Company of America telephone Mr. Dyer that they were contemplating making a drill-stem test of the formation which Pierce reported had a slight show at 1430'.

March 22, 1943

On Monday morning, March 22, the writer again returned to the well and found that they were reaming and would not be ready for a drill-stem test until sometime that evening. By midnight, the Halliburton packer was set at 1428' and opened, but the seat failed to hold.

March 23, 1943

The packer was pulled and re-run to 1421' where the seat apparently held for an hour and a half, from 8 to 9:30 a.m., on Tuesday, March 23. No evidence of oil or gas was found as a result of the test in the formation between 1421' - 1489'. An inspection of the cores, which were very complete of this section, appeared to the writer to be devoid of gas or oil saturation; and although the sandstone, probably the Summerville in the lower portion of the Morrison, appeared to be amply porous, it looked very much like a water sand varying from a red sandstone to white and gray lensed beds—a very questionable justification for a drill-stem test. The operator, however, insisted on making a test at this point.

It is the belief of the representatives of the Geological Survey and others more or less familiar with the geologic section, who base their opinion on the cores and saturation found in the Armstrong well at the time it was drilled, that a saturated oil sand will be encountered in this well before the salt body is reached. The District Engineer was advised by Mr. Pierce that it was too costly to continue coring, that drilling will be resumed beyond 1489' and a very careful check of even a meager saturation of the drill cuttings would be maintained as drilling proceeded. Mr. Harry Ourand was being delegated to observe this phase of the work.

OCT 1943

CONFIDENTIAL
16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

CRESCENT - Grand County

STATUS: P&A - T.D. 5250' (Visited 10-29-43) DRY HOLE, FAILURE

REMARKS: All work on the testing and abandoning of this well has been done to the satisfaction of the district engineer and the mining supervisor. As completed it is possible for a string of tools to be run through the 8 5/8" casing left in the hole in case that sometime in the future it may be necessary to drill out cement plugs and, thereafter cement the hole from top to bottom. Subsequent report of abandonment approved October 29, 1943.

OCT 1943

CONFIDENTIAL
16-22S-19E

CRESCENT - Grand County AUG 1943

NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

STATUS: Abd - T.D. 5250' PB 1170'

REMARKS: PB with cement in the hole from 1532' to 1170'. Bottom of pipe is 1198'. The operator is now preparing to place a rig over this well and further perforate and test the oil shows at 1143' - 1155' from which point it is believed the 150 bbls. of oil circulated from the hole, as reported last month, originated.

AUG 1943

CONFIDENTIAL
16-22S-19E

CRESCENT - Grand County SEP 1943

NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

STATUS: Abd - T.D. 5250' PB 1170' (W. H. Strang 9-30-43)

REMARKS: In conformity with W. H. Strang's letter of August 31, outlining the change of plans to test the oil shows above 1198' trapped in the annular space outside of the 8 5/8" casing, which plan was approved by District Engineer's letter of September 22, the operator has for the past month carried on a diligent program for determining and testing the presence of oil. This work was completed on September 27, and it appeared that the formation would produce less than a barrel of oil daily [illegible]. Details [illegible] are contained in the subsequent report of work done under date of September 28. On September 29, the operator transmitted a notice of intention to plug and abandon the well, verbal approval of which was granted by the district engineer on that day.

SEP 1943

CONFIDENTIAL
16-22S-19E

CRESCENT - Grand County
NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

JUL 1943

STATUS: Abd - T.D. 5250'

REMARKS: On June 29, the 8 5/8" 28# casing was cut at 2000' and lifted 700'. On the following day, when 60 sax cement were being spotted at 1603', the returns from the well above 1300' brought out 150 bbls. of black 33.6° A. P. I. oil, and a small flow of gas was noticeable when the fluid level was bailed down to 700'. The district engineer was not notified of the presence of this oil. Two days later he arrived at the well in company with Mr. Soyster and found this condition. As outlined in the supplementary well history approved July 14, testing of the well was carried on, but not in accordance with instructions from the district engineer. The fact that instructions had not been followed was not discovered until after all the work had been performed and the hole was in such a condition that adequate testing of the shows could not be carried on. Whereupon further testing was not insisted upon inasmuch as action looking toward cancelation of operating agreement with the P. C. A. for failure to comply with good operating practices was being considered by the lessee. No further operations have been conducted on this well. It is not known whether the hole will be mudded to the surface and a regulation marker erected, or whether testing operations may later be attempted. Well will be dropped from report until further action.

JUL 1943

satisfactory operation of the tester was concerned, but during the one hour period in which the tester was left open, the formations below failed, seven weeks after being drilled, to give up any indications whatever of oil or gas. After removing the tester from the hole, the lower joint contained only drilling mud. The 8 5/8" casing is now being cut at 2000' near the top of the cement, and being pulled. The drill pipe will be re-run and a cement plug spotted at 1530-1430'. Below and above this plug, 11# mud will be left in the hole and a regulation marker set at the surface to complete the final abandonment of the well.

1943 Cont'd.

CONFIDENTIAL CRESCENT - Grand County JUN 1943
16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

STATUS: Abd - T.D. 5250' (R. A. Pierce 6-27-43)

REMARKS: Drilling abruptly ceased June 22, at a total depth of 5250'. The last cores taken were in solid salt with no indication of oil or gas shows below the 3778' point, bottom of the hole at the time the EL was taken. The operator applied for permission to P&A the hole on June 22, but the District Engineer requested that a bailing test of the hole be made--particularly with respect to the formation at 3620-3635' and 3740-3760'. At these points, although not cored, there was evidence of gas and some emulsified oil in the returns at the mud pit. It was the opinion of those in charge of supervision that these formations be tested particularly because of indications observed from the EL. Accordingly, the Potash Company of America representative, Mr. R. A. Pierce, was requested to bail the hole, if possible to 3750'. Bailing was started June 23, but after 48 hours with 9" bailer, running off the draw works, the crew were unable to lower the fluid level below 2400', indicating that the 10.2# per gallon brine was coming in from the porous formation between the shoe of the 8 5/8" at 2780' and the 3080' point indicated on the EL as the base of the porous Moenkopi. Observing that further bailing was futile, the operator was requested to attempt a drill-stem test of the formations above mentioned. On June 27, a Halliburton representative with equipment was obtained and a cement plug was spotted from 4000' to 3892'. On the following day, the drill-stem tester was set at 3610'. A successful test was made as far as obtaining a seat and

JUN 1943

JUN 1943

CONFIDENTIAL

CRESCENT - Grand County APR 1943

16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State)
Ref. No. 8

STATUS: Drg - T.D. 3407' (L. H. Mack 4-30-43)

APR 1943

REMARKS: Drilling has continued through the normal geologic column, the members penetrated being surface to 680' Mancos Shale; Dakota, 680' to 690'; Morrison, 690' to 1370'; Summerville, 1370' to 1429'; Moab Tongue, 1429' to 1495'; Entrada, 1495' to 1565'; Carmel, 1565' to 1605'; Navajo, 1605' to 1828'; Kayenta, 1828' to 2140'; Wingate, 2140' to 2450'; Chinle, 2450' to 2700'; Moenkopé, 2700' to 3140'; Cutler, 3140' to 3407', still in a hard sandy lime. Formation has increased in density and hardness, and it is expected well soon penetrate the Hermosa in which member, immediately above the Paradox, oil saturation is definitely expected.

CONFIDENTIAL

CRESCENT - Grand County MAY 1943

16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State);
Ref. No. 8

STATUS; Drg - T.D. 3800' (G. C. Weaver 5-31-43)

MAY 1943

REMARKS: On May 17, while still drilling the very hard portion of the bottom of the Hermosa formation, the drill pipe stuck--apparently from a small boulder lodged just above the drill collar. After six days fishing, the pipe was freed and removed from the hole. The Potash Company then expected to run and cement casing without making the EL (Schlumberger) survey which had previously been requested by the [illegible] swabbing test was obtained from the survey. On May 27, ran 2780' of 8 5/8" 28# welded joint casing and cemented same with 225 sacks.

CONFIDENTIAL CRESCENT - Grand County MAR 1943
16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State)
Ref. No. 8

STATUS: Drg - T.D. 1833' (Mr. Weaver, Visited 3-31-43)

REMARKS: As a result of a conference with the State Land Board and with the State Geologist, the Geological Survey was requested by the State Geologist to exercise authority delegated the Survey to supervise the drilling of this well in a manner identical with our supervision on Federal leases. Whereupon the Potash Company was notified and wire line coring was started at 1320'. Nothing but shales and some shaly sandstone members had been penetrated up to this point. At 1386' the core barrel was inadvertently dropped into the hole and required several days fishing in order to free the hole of the lost barrel. Coring continued to a depth of 1489' in the Morrison which contained a very slight showing of oil stain at about 1430'. Although the Geological Survey did not believe a drill-stem test was warranted, the Potash Company made this test. The packer was set at 1421' and the formation tested between 1421' and 1489'. No oil or gas was evident when the drill pipe was removed although an approximate 800' of water was found in the drill pipe when pulled showing that the sand somewhere between 1421' and 1489' was water bearing. From 1489' drilling was continued without coring, but a very careful check on cuttings and other evidence for oil and gas showings has been maintained by an engineer, geologist, and others constantly giving their attention to returns at the mud pit.

1943 MAR

16-22S-19E NW NW¼NE¼, Potash Company of America, Well No. 1 (State)
Ref. No. 8

CRESCENT - Grand County FEB 1943

FEB 1943 STATUS: Drg - T.D. 350' (Mr. Weaver 2-24-43)

REMARKS: NEW DRILLING WELL. Commenced drilling February 22, 1943 by L. H. Mack, contractor, using 126' heavy-duty rotary rig. On February 24, 120' of 13" O.D. seamless casing was cemented from top to bottom by the Halliburton Well Cementing Company. Surface, Mancos shale. Will probably penetrate the Dakota at 700' to 710' and the Morrison at approximately 1300'. Both of these formations were reported to have been heavily saturated with oil in the Armstrong well approximately one-quarter mile east located in the SE corner of section 9.

Condr

C O P Y from Wm. S. McCarthy's copy

P.C.A. MCCARTHY STATE NO. 1 WELL
THOMPSON, UTAH

File Copy

Core No.	Sample No.	Cut	% K_2O	% Mg	% Carnallite	% Ca	% Cl	% SO_4	Inch Cut	Inches x % K_2O	Inches x % Carnallite
51	1	4419-9 to 4420-3	18.96	0.03	0.34	1.14	47.72	2.79	6	113.76	2.04
51	2	4420-3 to 4420-9	0.50	0.03	0.34	1.55	49.13	4.23	6	3.00	2.04
51	3	4420-9 to 4421-4	11.34	0.03	0.34	1.16	48.48	2.73	7	79.38	2.38
51	4	4421-4 to 4421-9	11.20	0.03	0.34	2.38	47.40	5.81	5	56.00	1.70
53	5	4448-6 to 4449-0	2.80	0.04	0.46	0.82	54.18	1.90	6	16.80	2.76
54	6	4449-0 to 4449-8	9.66	0.04	0.46	1.84	49.77	4.42	8	77.28	3.68
54	7	4449-8 to 4450-3	5.62	0.22	2.51	1.40	51.29	3.75	7	39.34	17.57
54	8	4450-3 to 4450-6	0.48	0.03	0.34	0.55	54.43	1.36	3	1.44	1.02
55	9	4466-10 to 4467-5	8.06	0.12	1.37	1.42	51.58	3.08	7	56.42	9.59
55	10	4467-5 to 4467-10	11.22	4.42	50.48	0.37	43.33	1.60	5	56.10	252.40
55	11	4467-10 to 4468-4	9.76	4.72	53.90	0.32	43.52	1.51	6	58.56	323.40
55	12	4469-9 to 4470-1	2.69	0.12	1.37	2.34	50.25	5.44	4	10.76	5.48
71	13	4630-4 to 4630-10	11.06	0.76	8.68	0.39	51.93	0.83	6	66.36	52.08
72	14	4630-10 to 4631-4	10.34	0.34	3.88	0.37	52.58	0.84	6	62.04	23.28
72	15	4631-4 to 4631-11	12.26	6.14	1.60	0.32	41.48	0.50	7	85.82	11.20
72	16	4631-11 to 4632-3	7.21	3.63	41.45	0.32	46.94	0.78	4	28.84	165.80
72	17	4632-3 to 4632-8	12.26	6.92	79.03	0.14	42.20	0.44	5	61.30	395.15
72	18	4634-4 to 4634-11	12.26	6.83	78.00	0.15	38.27	0.36	7	85.82	546.00
72	19	4634-11 to 4635-5	14.01	6.82	77.88	0.21	38.54	0.38	6	84.06	467.28
72	20	4635-5 to 4635-10	15.75	0.54	6.17	0.28	49.44	0.52	5	78.75	30.85
74	21	4654-11 to 4655-2	1.00	0.08	0.91	0.36	54.45	0.70	3	3.00	2.73
74	22	4655-2 to 4655-8	19.66	0.03	0.34	0.31	51.29	0.40	6	117.96	2.04
74	23	4655-8 to 4656-1	18.65	0.04	0.46	0.21	51.69	0.37	5	93.25	2.30
74	24	4656-1 to 4656-9	7.21	0.03	0.34	0.34	53.72	0.72	8	57.68	2.72

Core No.	Sample No.	Cut	% K_2O	% Mg	% Carnallite	% Ca	% Cl	% SO_4	Inch Cut	Inches x % K_2O	Inches x % Carnallite
74	25	4657-5 to 4657-10	9.18	0.15	1.71	0.24	52.69	0.50	5	45.90	8.55
74	26	4657-10 to 4658-3	12.25	0.61	6.97	0.21	51.58	0.43	5	61.25	34.85
74	27	4658-3 to 4658-9	13.77	7.22	82.45	0.10	38.67	0.23	6	82.62	494.70
74	28	4658-9 to 4659-4	14.22	7.64	87.25	0.10	37.78	0.095	7	99.54	610.75
74	29	4659-4 to 4659-9	14.22	7.86	89.76	0.02	37.70	0.029	5	71.10	448.80
74	30	4659-9 to 4660-1	13.73	7.51	85.76	0.05	38.05	0.008	4	54.92	343.04
74	31	4460-1 to 4660-8	7.80	0.03	0.34	0.49	51.78	0.10	7	54.60	2.38
74	32	4660-8 to 4661-2	13.90	0.76	8.68	0.26	51.05	0.05	6	83.40	52.08
74	33	4661-2 to 4661-6	4.39	0.20	2.28	0.32	53.85	0.71	4	17.56	9.12
75	34	4665-10 to 4666-1	0.49	0.75	8.57	0.34	57.88	0.63	3	1.47	25.71
75	35	4666-1 to 4666-5	2.70	0.06	0.69	0.40	57.19	0.87	4	10.80	2.76
75	36	4666-5 to 4666-8	0.25	0.03	0.34	0.72	57.44	1.59	3	0.75	1.02
75	37	4672-0 to 4672-4	0.00	0.11	1.26	0.68	57.92	1.49	4		6.30
75	38	4672-4 to 4672-9	29.45	0.06	0.69	0.68	52.49	1.44	5	147.25	3.45
75	29	4672-9 to 4673-4	2.75	0.10	1.14	1.09	56.27	2.51	7	19.25	7.98
76	40	4673-4 to 4673-8	18.81	0.09	1.03	0.81	53.86	1.84	4	75.24	4.12
76	41	4673-8 to 4674-1	25.74	0.07	0.80	0.69	52.80	1.51	5	128.70	4.00
76	42	4674-1 to 4674-8	17.00	0.06	0.69	0.71	54.28	1.59	7	119.00	4.83
76	43	4674-8 to 4675-2	20.06	0.05	0.57	0.67	54.74	1.52	6	120.36	3.42
76	44	4675-2 to 4675-7	20.71	0.05	0.57	0.51	54.38	1.14	5	103.55	2.85
76	45	4675-7 to 4676-0	Tr.	0.06	0.69	0.67	58.27	1.46	5		3.45
76	46	4676-0 to 4676-5	0.00	0.10	1.14	0.76	58.04	1.65	5		5.70
76	47	4676-5 to 4676-11	Tr.	0.15	1.71	1.34	55.87	2.97	6		10.26
76	48	4676-11 to 4677-4	0.00	0.11	1.26	0.62	58.09	1.24	5		6.30
76	49	4677-4 to 4677-8	9.93	0.16	1.83	0.98	53.98	2.27	4	39.72	7.32
76	50	4677-8 to 4678-3	13.14	0.06	0.69	0.72	55.44	1.71	7	91.98	4.83
76	51	4678-3 to 4678-11	9.77	0.05	0.57	0.74	55.68	1.52	8	78.16	4.56
76	52	4678-11 to 4679-6	30.09	0.05	0.57	0.31	53.32	0.73	7	210.63	3.99
76	53	4679-6 to 4680-2	41.26	0.05	0.57	0.21	50.77	0.48	8	330.08	4.56
76	54	4680-2 to 4680-11	29.93	0.40	4.57	0.24	51.98	0.57	9	269.37	41.13
76	55	4680-11 to 4681-5	26.05	0.09	1.03	0.48	53.58	1.14	6	156.30	2.88
76	56	4681-5 to 4681-11	30.58	0.24	2.74	0.32	52.17	0.68	6	183.48	16.44
76	57	4681-11 to 4682-4	12.94	0.09	1.03	0.43	55.22	1.02	5	64.70	0.45

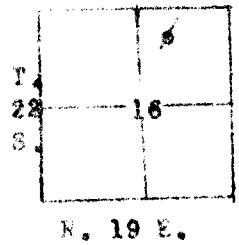
Core No.	Sample No.	Cut	% K_2O	% Mg	% Carnallite	% Ca	% Cl	% SO_4	Inch Cut	Inches x % K_2O	Inches x % Carnallite
76	58	4684-0 to 4684-6	40.13	0.05	0.57	0.20	51.23	0.38	6	240.78	3.42
77	59	4684-6 to 4685-1	14.24	0.27	3.08	0.46	55.27	1.09	7	99.68	21.56
77	60	4685-1 to 4685-6	10.68	0.19	2.17	0.32	56.04	0.67	5	53.40	10.85
77	61	4685-6 to 4686-0	4.00	0.14	1.60	0.64	57.03	1.49	6	24.00	9.60
101	62	4947-7 to 4947-11	6.31	0.45	5.14	1.26	52.41	4.02	4	25.24	20.56
101	63	4947-11 to 4948-4	6.55	1.26	14.39	1.31	51.14	2.94	5	32.75	71.95
101	64	4948-4 to 4948-10	9.22	5.55	63.38	0.55	43.48	1.48	6	55.32	380.28
101	65	4948-10 to 4949-4	8.25	4.92	56.19	0.72	44.35	1.75	6	49.50	337.14
101	66	4949-4 to 4950-0	9.71	5.76	65.78	0.56	42.96	1.23	8	77.68	526.24
101	67	4950-0 to 4950-6	8.74	5.25	59.96	0.68	43.66	1.25	6	52.44	359.76
101	68	4950-6 to 4950-10	Tr.	0.35	4.00	2.36	51.80	5.51	4		16.00
102	69	4964-0 to 4964-5	4.33	2.16	24.67	1.11	50.61	2.53	5	21.65	123.35
102	70	4964-5 to 4964-9	4.81	2.75	31.41	1.23	48.87	2.77	4	19.24	125.64
102	71	4964-9 to 4965-2	5.95	3.25	37.12	0.98	48.18	2.13	5	29.75	185.60
102	72	4965-2 to 4965-7	3.33	1.86	21.24	1.35	50.87	3.08	5	16.65	106.20
102	73	4965-7 to 4966-2	1.67	1.08	12.33	1.44	52.70	3.23	7	11.69	86.31
								Total	410	4925.17	6892.53

NOTE:
The "inches cut" as shown represents the vertical distance through the bed as cored but does not represent the true thickness of the bed. To obtain true thickness of bed the figures in inches as given must be corrected to conform to the angle at which the bed lies with the horizontal. The dips found in the sections analyzed range from 45 degrees to as much as 70 degrees which means that the figures shown must be reduced from 30 percent to 65 percent to obtain true thickness of bed. The dips for most sections can be obtained from the detailed log.

$\frac{\text{Inches x } K_2O}{\text{Inches}}$ = 12.01 Average K_2O Assay of Section

$\frac{\text{Inches x Carnallite}}{\text{Inches}}$ = 16.81 Average Carnallite Assay of Section

$\frac{\text{Average Carnallite Assay}}{11.42}$ = 1.47 Average Mg Assay of Section



Potash Company of America
McCarthy State No. 1
Sec. 16, T. 22 S., R. 19 E.
330' S. of N. line, 2970' E. of W. line
Grand County, Utah
Elevation 4724'

Began drilling Feb. 22, 1943
Completed " June 22, 1943
Top salt 3969'
T. D. 5250

Condensed Log

	Depth	Thickness	
Manes	0'- 19'	19'	Shale, black limy
	19'- 153'	134'	Shale, dark gray to black
	153'- 183'	30'	Shale, black limy, sandy
	183'- 353'	170'	Shale, black hard limy; Ferron 310'-40'
	353'- 553'	200'	Shale, dark gray, sandy
	553'- 673'	120'	Shale, dark gray, sandy, limy
680	673'- 683'	10'	Sand, light gray porous, loosely cemented
	683'- 693'	10'	Shale, light gray sandy
Dakota	693'- 703'	10'	Quartzite, light gray 50%; bentonite 50%
700	703'- 823'	120'	Shale, light greenish gray
	823'- 847'	24'	S. S.
	847'- 953'	106'	Shale, greenish gray, some lavender
	953'- 988'	35'	Shale, greenish gray, shale and clay, reddish brown
	988'-1008'	20'	Shale and clay, reddish brown; shale and clay, greenish gray
	1008'-1048'	40'	SS, grey, pinkish or greenish
	1048'-1120'	72'	Shale, green, red, maroon
	1120'-1143'	23'	SS, white gray lime cement; shale, gray green, sandy
	1143'-1164'	21'	Shale, red to maroon, sandy, greenish gray; SS white to gray
	1164'-1174'	10'	SS light gray; fine shale, green, red and mottled
	1174'-1184'	10'	Shale, red to maroon, greenish gray; SS light gray
	1184'-1194'	10'	SS, white to gray; shale, red to maroon, sandy
	1194'-1204'	10'	Shale, greenish gray, green, red; SS white to gray
Morrison	1204'-1223'	19'	SS, brown, gray to gray med.; shale red to maroon, sandy
	1223'-1363'	140'	Shale, maroon and red sandy, greenish; SS white, gray, greenish gray med.
	1363'-1379'	16'	Shale, black, slightly limy sandy, red to maroon; ls light gray and dark gray
Summerville	1379'-1383'	4'	Shale, red, light to dark, sandy; ls white to gray, greenish; SS light to dark red, pink; shale and ls greenish to gray
	1383'-1398'	15'	Shale, red to maroon, sandy; SS dark red, thin bedded
	1398'-1399'	1'	SS, red to dark red, thin bedded, fine, green gray, limy, hematite, hard
			Ls

	Depth	Thickness	
Summerville	1399'-1403'	4'	SS red to dark red, thin bedded, fine, some SS white to gray limy
1421'	1403'-1426'	23'	SS, gray to dark gray
Moab	1426'-1433'	7'	SS, greenish gray, SS white to light gray
Entrada	1433'-1488'	55'	SS, white, med., uniform, porous, carbonaceous; SS greenish, light gray
1488'			
Entrada	1488'-1519'	31'	SS, red, fine SS gray fine; Shale gray and greenish
1553'	1519'-1553'	34'	Shale, dark red sandy, light greenish gray; SS red, white
[illegible]	1553'-1603'	50'	Shale, dark red to chocolate, thin topper, greenish gray; SS green gray
	1603'-1608'	5'	Shale, greenish gray sandy, SS greenish gray, fine, med.
	1608'-1693'	85'	SS greenish-gray fine-med.
1821'	1693'-1821'	128'	SS greenish gray light tan limy med.
	1821'-1853'	32'	SS breaks conglomerate, quartzite and ls
	1853'-1863'	10'	SS white to light gray med. round
	1863'-1873'	10'	Shale and SS bright red limy; SS white to gray
	1873'-1883'	10'	SS gray and white to light yellow limy
	1883'-1903'	20'	Shale dark red sandy; SS light tan to reddish
	1903'-1913'	10'	Shale, greenish gray; SS light tan to reddish
	1913'-1933'	20'	Shale, dark red sandy; SS pale tan
	1933'-1943'	10'	SS reddish tan, pale tan, limy
	1943'-1963'	20'	Shale, dark red sandy, greenish gray, sandy
	1963'-1973'	10'	Shale, dark red sandy; SS white to light gray to tan
	1973'-1993'	20'	SS, light gray to pale tan, limy, med. round
	1993'-2033'	40'	Shale, dark red sandy, greenish gray; SS pale tan
	2033'-2073'	40'	SS pale tan, slightly limy, fine
	2073'-2083'	10'	Shale, dark red, sandy, greenish gray; SS light tan
	2083'-2103'	20'	SS pale tan limy med.
2153'	2103'-2123'	20'	Shale, dark red sandy; SS pale tan
Wingate	2123'-2423'	300'	SS pale tan, limy med. sub. to round
2443'	2423'-2443'	10'	Shale, dark red sandy; SS pale tan
	2443'-2453'	10'	SS some conglomeratic and shale
	2453'-2483'	30'	Sandstone pale tan; shale red sandy
	2483'-2503'	20'	SS and shale alternating
	2503'-2553'	50'	SS and shale alternating, mostly SS
	2553'-2563'	10'	Shale dark red; SS reddish tan
[illegible]	2563'-2573'	10'	SS tan
	2573'-2583'	10'	Shale, dark red, sandy
	2583'-2603'	20'	Shale and SS
	2603'-2623'	20'	Shale, dark red, sandy
	2623'-2633'	10'	Shale and SS; some conglomerate
2653'	2633'-2703'	70'	Shale, sandy, mostly red
	2703'-2723'	20'	Shale, red sandy, red SS streaks
	2723'-2733'	10'	Shale, dark red, sandy; SS and ls breaks
	2733'-2743'	10'	Shale, dark chocolate red, sandy; SS breaks
	2743'-2813'	10'	SS light gray
	2813'-2843'	30'	Shale, dark red sandy; thin SS
	2843'-2873'	30'	" " " " SS breaks some ls.
	2873'-2883'	10'	SS, light greenish gray to light tan, shale dk red sandy
	2883'-2893'	10'	[illegible]
	2893'-2923'	30'	[illegible]

	Depth	Thickness	
	2953'-2963'	30'	Shale, dark red; ss breaks
	2963'-2983'	20'	SS light red; shale dark red; ls stringers
	2983'-2993'	10'	Shale, dark chocolate red,sandy,quartzite SS and LS breaks
Moenkopi	2993'-3013'	20'	Shale,dark chocolate red SS streaks
	3013'-3023'	10'	SS reddish tan,shale dark purplish choc.red.
	3023'-3033'	10'	SS lt.orange-red; shale dark red
	3033'-3043'	10'	Shale,dark choc.red; SS orange-red
	3043'-3133'	90'	Shale,dark choc.red;SS & Ls breaks
	3133'-3163'	30'	Shale,red to purple,sandy,SS arkosic & conglomeratic thin Ls streaks
	3163'-3213'	60'	Shale,dark choc.red & dark purple red,sandy,SS breaks
	3213'-3266'	53'	Shale,dark red,SS & Ls light gray
	3266'-3283'	17'	SS, limy
Cutler	3283'-3293'	10'	Shale,dark red sandy, SS gray
	3293'-3343'	50'	" " " " SS & Ls breaks
	3343'-3363'	20'	Ls gray,shale,dark red sandy; SS gray
	3363'-3373'	10'	SS,breaks shale dark red; Ls gray to brown
	3373'-3393'	20'	Shale,dark red sandy; SS breaks
	3393'-3403'	10'	Shale,dark red sandy; SS and Ls breaks
	3403'-3409'	6'	Shale,red,sandy; SS streaks
	3409'-3413'	4'	Ls.bright red to dark; lt.gray to greenish; shale red sandy; SS arkosic
Rico	3413'-3433'	20'	Shale,dark red,sandy, SS gray
	3433'-3443'	10'	Shale,dark red,sandy,thin quartzitic SS and Ls beds
	3443'-3493'	50'	Shale,dark red,sandy,SS ledges,thin ls.beds
	3493'-3523'	30'	SS, gray,ls lt.gray and shale dark red breaks
	3523'-3573'	50'	Shale,dark red, SS and ls breaks
	3573'-3593'	20'	SS gray,stringers shale,dark red,sandy & ls
	3593'-3603'	10'	Shale,dark red sandy and SS gray
	3603'-3613'	10'	Shale,dark red,sandy, SS and Ls breaks
	3613'-3623'	10'	Shale,dark red,sandy
	3623'-3633'	10'	Shale,dark red,sandy,thin SS breaks
	3633'-3653'	20'	Shale,red,sandy; SS breaks and stringers of Ls. gray crystalline
	3653'-3683'	30'	SS gray,shale,dark red sandy,ls stringers
	3683'-3693'	10'	Shale,dark red,sandy; SS breaks
	3693'-3723'	30'	SS,gray,shale dark red sandy
	3723'-3733'	10'	Shale,dark red,SS and Ls breaks
Hermosa	3733'-3743'	10'	SS gray,shale dark red,Ls breaks,anhydrite
	3743'-3753'	10'	Shale,dark red sandy; SS gray and Ls gray
	3753'-3763'	10'	Shale,dark red,sandy beds;SS gray,Ls gray anhydrite
	3763'-3793'	30'	Shale,dark red,& gray limy SS and Ls breaks
	3793'-3803'	10'	Shale,chocolate red,dark gray,anhydrite, ls
	3803'-3813'	10'	Shale,chocolate red,dark gray limy ls.and anhydrite breaks
	3813'-3823'	10'	Ls lt & dk gray shale SS and anhydrite breaks conglomerate
	3823'-3833'	10'	Shale,lt red and black; Ls lt to gray; SS anhydrite conglom.breaks
	3833'-3843'	10'	Shale,dark gray,choc.brown; ls. lt. gray

	Depth	Thickness	
Morrow	3843'-3853'	10'	Ls.lt.to dark gray; shale lt.& dk gray,choc.;
	3853'-3863'	10'	Ls.lt.gray to gray; shale lt and dk gray,red, grownish gray; SS breaks
	3863'-3873'	10'	SS lt gray; shale breaks
	3873'-3883'	10'	Ls.lt and dark gray; shale and anhydrite
3886'	3883'-3893'	10'	Anhydrite,shale; SS and ls streaks
	3893'-3903'	10'	Shale,brownish red,red,gray;ls and SS and anh stringers
	3903'-3923'	20'	Anhydrite,shale,red & gray and SS stringers
	3923'-3933'	10'	Ls lt gray anhydrite SS and shale
	3933'-3953'	20'	SS ls,lt gray,anhydrite and shale breaks
	3953'-3963'	10'	SS,lt.gray;shale brownish red,dark gray; ls an breaks
	3963'-3969'	6'	Shale,gray,black,brownish red,anhydrite and ss
	3969'-4026'	57'	Halite
	4026'-4046'	20'	Shale and anhydrite
	4046'-4295'	249'	Halite
Paradox	4295'-4354'	59'	Halite - little carnallite
	4354'-4365'	11'	Halite, little sylvite
	4365-4403'	38'	Halite
	4403'-4426'	23'	Halite,little sylvite
	4426'-4432'	6'	Halite,some anhydrite
	4432'-4442'	10'	Halite,trace sylvite
	4442'-4452'	10'	Halite,some sylvite
	4452'-4467'	15'	Halite,carnallite,little sylvite,some anhydrite
	4467'-4473'	6'	Halite,little sylvite,some anhydrite
	4473'-4483'	10'	Halite,little anhydrite
	4483'-4503'	20'	Halite
	4503'-4513'	10'	Halite and some anhydrite, shale and SS
	4513'-4613'	100'	Halite
	4613'-4624'	11'	Halite,little sylvite,little carnallite
	4624'-4635'	11'	Halite and carnallite
	4635'-4645'	10'	Halite, little carnallite
	4645'-4656'	11'	Halite and carnallite, some sylvite
	4656'-4678'	22'	Halite,sylvite,little carnallite
	4678'-4690'	12'	Halite and sylvite,clay and shale
	4690'-4705'	15'	Halite
	4705'-4709'	6'	Halite,some SS anhydrite,little shale
	4709'-4778'	69'	Halite
	4778'-4784'	6'	Anhydrite and shale
	4784'-4818'	34'	Halite
	4818'-4828'	10'	Halite, little sylvite
	4828'-4865'	37'	Halite
	4865'-4895'	30'	Anhydrite,shale and SS
	4895'-4936'	41'	Halite
	4936'-4958'	22'	Halite,carnallite
	4958'-4970'	12'	Anhydrite,halite,some carn.& syl.
	4970'-5006'	36'	Halite; ss,anhydrite,sylvite,carnallite,rinneite
	5006'-5016'	10'	Anhydrite,little carnallite and rinneite
	5016'-5026'	10'	Halite and SS
	5026'-5038'	12'	Anhydrite and shale

Paradox

Depth	Thickness	
5038'-5080'	42'	Halite
5080'-5083'	3'	Anhydrite and shale
5083'-5087'	4'	Halite
5087'-5095'	8'	SS, shale and anhydrite
5095'-5116'	21'	SS and shale
5116'-5126'	10'	Anhydrite and shale
5126'-5138'	12'	Halite, anhydrite, shale and SS
5138'-5236'	98'	Halite

July 26, 1945

The above facts are reported for consideration by anyone seriously planning to drill shallow wells to the Dakota Sand in this immediate vicinity.

Wm. H. Strang

Supervising Driller.

- C O P Y -

DRILLER'S LOG OF

COMPANY: Potash Company of America
LOCATION:
GRAND COUNTY, UTAH
SPUDDED: 2-23-43

FARM: (State) McCarthy
WELL NO: 1
CONTRACTOR: MACK DRILLING COMPANY
COMMENCED: 2-19-43 COMP:

DATE 1943	DEPTH FROM	TO	FORMATION	REMARKS
2-19				Rigging up
2-20				Do
2-22				Rigging up and mixing mud & Zeogel
2-22	0	25	Surface	Dig rat hole
2-23	25	40	shale	12" Fishtail on.
2	40	65	shale	
	65	110	shale	
2-24	110	123	shale	0-90 Ream with 15-3/4" Rock bit.
				90-123 Do
				Set 5 joints 13⅜ @ 121';114 Sac.Ce
				Put on 9-7/8" Reed #627-1
2-26				Drill cem. plug.
2-27	123	145	shale	Used
	145	195	shale	change oil in Unit motors.4 sac gl
	195	262	shale & shells	put on new drill collar.
2-28	262	318	shale, lime shells	9-7/8 Reed #765-1 ream 30'
	318	376	shale	ran SLM at 390'2" O.K. Acid
	376	427	shale & shells	bottle 355' O.K. add. drill collar
				mud wt 9- vis 38
3-1	427	470	shale & shells	
	470	510	shale & shells;	rot. tab. turns 115 RPM when Eng. 800 RPM.
	510	550	shale & shells	
3-2	550	598	shale & shells	Reed -9-7/8" Bit at 508' Ream 40'.
	598	671	shale & shells	SLM at 612'2" O.K. Acid Bottle 1/2 eff.
	671	679	shale	
	679	691	sand	
	691	733	shale & shells	7½ min for returns at 679 Drained motor #2.
3-3	733	745	sandy shale	
	745	760	Green shale	
	760	789	hd shale & shells	Put on blow out preventer - Reed RB #765 at 768'
				Put on master gate; Reaming - put on control
				gate valve- started #2 pump - vis & mud 40.
3-4	789	828	Hard shale & shells	
	828	834	sand	mud vis. 38; wt. 9.2 Bit 765-2-1; Jack up RBC B
	834	849	Hd sd with calcite	bit cuts 1.5' to 2' hr. Wt mud 9.4; Vis 22.
				ran S.LM at 834'8"--835'8"; Acid B. 815'; O.K.
3-5	849	851	Hd gd & calcite	
	851	887	shale	Bit 765-3-1 @ 860. Mud vis. 38; wt. 9.4
	887	905	shale	drain oil on pump motor. mud: 9.4; vis. 38
	928	943	Morrison shale	(1 hr 928-943) reamed from 834 to 942; 12 sac
				new reed bit RD 9079 at 989.
3-6	943	974	shale & shells	
	974	992	Morrison shale	
	992	995	hard sand	
	995	997	Morrison shale	
	997	1000	shale	
	1000	1006	hd hr. shells & shale	
	1006	1014	hard shale	
3-7	1014	1040	hd shale & shells	Vis. 38, Wt. 9.4;
	1040	1047	sdy shale stky	
	1047	1065	shale	
	1065	1075	sdy shale stky	
	1075	1100	shale	
	1100	1105	shale & shells	
	1105	1128	shale & shells	Repr. propeller shaft on pump motor.
3-8	1128	1148	shale & shells	Ream 25' after new bit 1136'.
	1148	1150	shale & shells & sand	
	1150	1153	shale & sand	
	1153	1155	sand (oil show)	Put on 85-/8" core head at 1155'.
	1155	1164	Cored Sdy & shale	Rec. 9'9". Correct SLM. 1164 = 1166
	1166	1171	CORED shale	Rec. 4'7". Put on new Reed bit 1920R Reaming.
3-9	1171	1208	shale & shells	vis. 38, wt. 9.7
	1208	1216	dry sandy	
	1216	1227	shale & shells	
	1227	1235	sand & shale.	Vis. 37; Wt. 9.7

3-9	1235	1240	Sand (SSO)	
	1240	1248	shale	
	1248	1253	chert hard	Repr. clutch on pump motor. Breaking in pins on new drill colar. Ran Reed 9-7/8" SE-2D #1137.
3-10				work on drill collar;
	1253	1265	hard chert	
	1265	1280	hard chert	mud wt. 9.8 vis 43
3-11	1280	1287	chert	Make trip/9-7/8" bit SE2D 1141 at 1286;
	1287	1289	chert	mud wt. 9.8 vis 38
	1289	1310	chert	10.2 vis 45;
3-12	1310	1339	chert	SLM. Line 1291 vis 34, wt. 10.3 Bob 4 Kel. 40.6 Bit 0.8 (1335 - 1336-2).
3-13	1339	1365	chert	Vis 38, wt. 9.9 Chang. oil in pump motor.
	1365	1376	chert shale & shells	
	1376	1380	lime	SLM 1380 = 1386.
3-14	1386			Dropped wire line core barrel off; went in with overshot; fishing with 9" overshot with 7" slips; Missed with overshot; Ran taper tap. with taper tap 43 jts, 11' up kelly with overshop 41 jts. 40-6" up kelley; with double box 42 jts. & 5' up kelley. No luck with box; no luck with taper tap on bent joint Ran box with bent joint; with box 9' up on kelley; with taper tap 15' up on kelley.
3-15				Ran D-box no luck; Ran box with side; no luck; Box hot fish 9' up on kelley with 43 jts. Ran double box, NL; ran 8" joint teeth on it (Bak et) now in hole 43 jts. 8" jt & swedge & overshot with this layout top of fish 20' up on kelley (8" joint 19') Pulled 8" joint 18'6" up on top (Length 23'3". Put in 23'7"-8" Seamless Joint with swedge (24'9" overall) Went back to bottom 19'10" up on Kelley.
3-16				Ran milling shoe; 19'10" up on Ky. milling with 8" Joint with 7'1" of 9-5/8" welded to bottom of 8" joint overall 31'8". Came out with 8"; was over; went in with taper tap should hit top of fish 1'10" up on ky; contacted fish; 10' up on Ky, Tap went by; rode shoulder on top 4'4" by fish. Went in hole with winged box; hit fish top 4 jts 9' up on Ky. Put in 30'4" run on down 43 jts; 8' up on Ky. Caught core bbl.
3-17	Ran taper tap pick up fish & came out. Running basket no L. 43 jts. & 30'8" Basket 9-5/8" Ran basket NL 9-5/8" 7' up; Put longer teeth on basket 30'2" Bottom 6'6".			
3-18	Got bottom half of core bbl. Ran side wall basket went in the hole with 9-7/8 old time bit;			
	1386	1396	Junk in hole.	
3-19	1396	1404	chert (junk.	
	1404	1406	hard shale.	
	1406	1410	CORED Red shale & Sand Stone) Rec. 4'6". SHM 1½; SL at 1410. pulled 9-7/8 @ 1406; 44 jts DC. & Kelley 1410; Began coring @ 1406. Core head #A7211;	
	1410	1416	Cored Hd red sand Rec. 4'2"; Time 2 hrs 30 min.)	
	1416	1422-10	Cored - 18" gr sand hd; 5'3" hd red sand; 3 hrs 35 min. Rec. 6'9". used 3 new core bbl. heads.	
3-20	1422-10	1433	CORED Gray sd stone Rec. 9'3"; Drlg time 4 hrs.	
	1433	1441	CORED 8'0" Gray sand Rec. 3'1".	
	1441	1442	1' dry sand Rec. 6". used 3 core bbl. heads & catchers.	
	1442	1450 (Cor)	Rec. 6'7" sand (Time 9.45 to 12:30);	
	1450	1455	CORED: Rec. 2'9" (Time 1 PM to 3:30 sand. Put on two catchers;	
	1455	1460	Cored sand Rec 4'6"; 5:45 to 8:00;	
	1460	1462	Cored sand 1'3"; 8:30 to 9:30	
	1462	1465-4	Cored Sand Rec 2'8"; Time 10:00 to 11:30; used 3 core heads.	
3-21	1465-4	1467-10	Cored hd sand Rec. 1'7" (1 hr 45 min.	
	1467-10	1470-4	Cored hd sand 2'6" S.Sand___; Rec. 1'10"; 50 min.	
	1470-4	1473-4	Cored hd sd. Rec. 0'3"; 1 hr 30 min.	
	1473-4	1475	Cored sdy lime Rec 1'2"; 1 hr 55 min. Used 4 core cutter & catch. Mud wt 10.2 vis 45.	
	1475	1480	Cored sand 9:30 to 11:15 Rec 1'11" used 2 catch & heads.	
	1480	1482	Cored sand 12M to 2 PM	

3-21	1485	1488	Cored Sand 2:30 to 4:20;
	1488	1489	Cored (No Core) used 1 cutter & catcher.
3-22			Reamed 1406-1418
			Reamed 1418-1489 & washed hole; Hit bottom of 8-5/8 hole with 9-7/8" 47 jts. & 17' up on kelley. Drained core unit.
3-23			Came out of hole with pipe to run DST. Test No. 1 No good came out of hole for trip No. 2 Test No. 2 good seat; Halliburton Drill stem Test came out of hole 900' fluid in pipe - water.
	1489	1491	Hard sand (Hughes Bit #35361;) WENT IN HOLE ON BOTTOM 11 Pm. Low clutch out n Hallib. test repaired & adjusted. Light plant down 1 hour (CHARGED DAYWORK TO 8 P.M.)
3-24	1491	1508	Hard sand
	1508	1521	sand Losing returns a little faster each minute. Used 20 sacks zeogel; lost circulation 4:00 mixing mud. made trip put on new reed 4014-$ Changed Drill collar. Mud 9.8 lbs. @ 10:15.
3-25			Mix mud-used 2 loads water; mud wt. at 7 AM 10.4. Fluid level 400' From top of Rotary table at 8:00 A.M. When dropping dry clay in hole, well blubbering mising mud, put 9 sacks of zeogel; came out of hole & went back; put in 75 buckets (5 gal) dry bent. Got little return at 4 PM mud a little oily. mixing mud & washing down hole slowly; well kicking some gas & oil (Showing) added 2200 gal water to mud; Formation taking up 300 gallons hr.
3-26	Pump 20' cavings; formation taking about 500 to 600 gal hour; used 2 tanks water.		
	1521	1524	sand; First 1' - 12 min; Started drilling at 2 PM very slowly. Second foot 40 min; third ft. 45 min; still losing mud not so bad though.
	1524	1526	sand & calcite — Add 2200 gal water mixed mud came out of hole ran Halliburton tester; used 8 sacks zeogel.
3-27	1526	1527	sand & calcite — 1 hr.
	1527	1528	Do — 30 min.
	1528	1532	Do Time resp. 40 min; 40 min; 40 min; 15 min. Ran DST good seat; 300' mud in pipe no show; came out of hole & put on 9-7/8" bit. used 2200 gal water mixing mud.
	1532	1555	Sand — 3 sacks xl.;
	1555	1560	sand;
	1560	1574	sdy red shale & shells
	1574	1587	Do harder. — zeogel 4 sacks.
3-28	1587	1595	shale & shells
	1595	1607	hard sand — Pump Press. 200# at 4 AM used 2200 gal water; 6 sacks xl. pump Press 250# at 7:40 A.M.
	1607	1625	sandy & red shale
	1625	1635	red shale — 300 gal water used put in 5 or 6 # wool bark.
	1635	1663	sand & shale (strks calcite) — used 2200 gals water.
3-29	1663	1683	sand & calcite — used 1200 gal water.
	1683	1696	sand & shale
	1696	1707	shale
	1707	1739	sand & shale; put 2 lbs wool bark; used 500 gal water.
	1739	1762	sand & shale
	1762	1766	hard shale — Used 2000 gals water.
3-30	1766	1771	Hard sdy lime
	1771	1781	sand & calcite; — used 1600 gal water; Ran Bit 4831 at 1773.
	1780	1800	sand (hard & some chert)
	1800	1814	chert — Mud vis; wt 10.2; 2000 gal water used.
3-31	1814	1824	chert & sdy lime; — 1600 gal water; put on wore line drill collar make all jts up with auto cat head. Put on rubber N.side mud end of pump. worked on rot. pin. & welded flow pipe.
	1824	1833	sand & calcite — used 1500 gal water; put on new rotary chain.
4-1	1833	1836	chert — Bit 7474; took out 1 bad jt pipe; reran bit;
	1836	1842	chert; flint, etc. — mud wt 10.2; water used 1200 gals. SLM at 1841 slope 1/2 of 1 deg. at 1800.
	1842	1851	Hd sd etc. used 500 gal water;
4-2	1851	1861	chert & calcite — bit 794-R at 1851; used 2800 gal water wt md 10.1
	1861	1872	chert & red sdy shale — used 1500 gal wtr. mud wt. 10.2
	1872	1883	sdy shale, etc. — stuck pipe; made trip changed d.pipe on bottom.
4-3	1883	1894	sand & shale
	1894	1908	sand — wt. 10.3; water used 2000 gal.
	1908	1916	sand & lime
4-4	1916	1926	sandy shale & shells; — wt 10.2; 1600 gal water; put on Reed 5918 at 1916.

4-4	1926	1935	sand	wt 10.3 used no water; chang oil in Hauk motors.
	1935	1951	sand	1 load water; add 500 gal water; mud 10.4
				Bit 8463 1935; let mud in pit from reserve for c
4-5	1951	1960	hard sand	
	1960	2002	sdy shale & shells	mud wt 10.2; 2000 gal water.
	2002	2036	shale & sand	mud 10.4; water 3000
	2036	2069	sand & shaley sdy	Bit 7258; mud 10.4; vis. 50; 1000 gal water.
4-6	2069	2113	sand & shale	mud wt. 10.1; vis 38; water 2300
	2113	2132	sand	wt. 10.4; vis 74; water 1500 gals.
	2132	2177	soft sand	mud 10.3. 1500 gal water; reamed to bottom 6:12.
4-7	2177	2205	sand	Mud 10.4; water 500 gal & 3000 gal.
				ream 35' on bottom at 5:25; Run #1183 at 2179.
	2205	2238	?	tighten low clutch on Wilson DR.
	2238	2245	sand & CORED Rec 5'; SLM O.K. Used 1 cutter & catcher;	
4-8	2238	2245	Reamed; Make trip put on #9221 S.-4; Ream 15' from 2223-2238.	
	2245	2320	sand & red shale;	mud wt. 10.4 5000 gal water; Slope mm. ran on
				evening towr at 2220'; showed hole strt.
	2320	2362	sand	Float shoe size O.D. 9-5/8; I.D. 8-1/8".2000 Wat
4-9	2362	2419	sand &x	water used 5000 gal; Ran bit 168 2362.
	2419	2457	sand & red shale	
	2457	2487	sand	
	2487	2491	shale & lime shells sdy	
	2491	2494	sand & shale;	3300 gal water after 8:00; mud st 11.1.
4-10	2494	2537	shale & sand	4500 gal wtr. mud 10.8; Bit 9225 2494; Ream 25'
	2537	2629	sand & shale	Mud wt 10.1; vis 700; 4500 gal wtr. & 4400 gal.
-11	2629	2652	sand & calcite	wt. 9.7; 6500 gal water; Put on 8-5/8" Bit
				2630'8"; Bit #633; 2'8" diff in Drill collar
				& bits.
	2652	2697	sand & shale	wt. 10.1; water 4500.; layed down 1 jt 30'11;
4-12				picked up 1 jt. 31.9;
				pull liners on pump put in liners & new rods.
				& pistons.
				difference in drill collars 1'1".
	2697	2705	hard sand	mud; 6750 gals water.
	2705	2708	hard sharp sand	lost rollers on core bit) used 3 core heads 1500 gal
	2708	2713	sand (CORED)	
4-13	2713	2724	sand	mud wt 9.8; 3000 gal water; Bit #9536 85/8.
	2724	2767	sand & shale	4500 gals water.
	2767	2794	shale & sand some calcite	form. tak. mud faster; 4400 gal wt.
				added 6 lbs. palco; mud 10.3.
4-14	2794	2811	sand & calcite;	mud wt 10.7; vis 0-0; 6500 gal wtr. Bit 9535;
	2811	2850	sand &s hale	wt. 10.8;4500 gal; & 3000 gal. Bit 6603
				changed drill collars driver sub & sub bad;
				drill collar 7'-4" In. 19'4" Out.
4-15	2850	2869	sand & calcite hard	wt 10.6; vis 35; water 7500 gal; lost returns
				for 5 min. mix 5 sks sl.
	2869	2877	sand & shale	4500 gals water; shut down 9:30 A.M. to
				mix mud; put in 18 sks sl. 1 box cal flakes
				few lbs of wool bark; start drill at 2:05 P.M.
	2877	2880	sand & shale	Ran basket after bit bearings (Rec. Bearings;Rep
				rotary chain; add 2'11" float collar.
4-16	2880	2901	sand & shale	wt. 10.6; water 2200 gal. plugged bit with
				clophane; float valve cut out by sand;
	2908	2913	sand & shale	wt. 10.8; 1 load water; 2250 gal; 3 load mud.
				Bit #9537 @ 2901'; 5 sacks sl.
	2913	2941	sand & shale	Water 2200 gal; wt. 10.4; vis 42.2 loads haul.
				~~add 1 load mud.~~
4-17	2947	2963	sand & shale	wt. 10.4; vis 40; water 1500 gal; bit 9534;
	2963	2982	sand red	wt. 10.5; water 6750 gal.
	2982	3001	sand sdy shale & lime shells;	water 4400 gal; wt 10.6;6600 gal haul.
-18	3001	3029	Sand & shale & shells	mud wt 10.5; vis. 40; water 2200 g.
	3029	3067	sand & shale red;	wt 10.6; Vis 36; water 6750 gals.
	3067	3080	sand shale & shells;	wt. 10.7; vis 44; 2200 g. water
				hauled 3 loads water; bit 4337; changed drill
				pipe; out 30'11"; In 31'2". change oil lite pt.
-19	3080	3102	sand shale & shells	wt. 10.1; vis 38; 4500 gal water.
	3102	3121	sand & shale;	wt. 10.2; vis. 35; water 4500;
	3121	3133	hard shale & shells	wt. 10.3; 4000 gal wtr; bit 3036; put valve in
				float valve; new rotary chain 78 links.
				In 61.4; out 31. Dill. 30-9.
-20	3133	3145	hd shale & shells	wt 10.1; vis 37; 2200 gal wtr.
	3145	3163	hard shale & sd;	wt 10.1; vix 36; 4500 gal water.
	3163	3179	hd shale [illegible]	wt 10.1; [illegible]

.E	FROM	TO	FORMATION	REMARKS
4				
21	3179	3189	Hd shale & lime shells	mud. wt 10.3 vis 41; 500 gal water used.
	3189	3199	hard lime. (6750 gal water)	ran hughes bit 3036 Type OWS at 3179.
	3199	3205	sdy lime	10.3 vis? Water used 4400 gallons.
4				
22	3205	3225	lime	Used 5000 gal wtr & 6750 gal wtr. 10.4, vis 37. Ran Hughes 3036c W7 at 3225;
	3225	3232	sdy lime	water 1200 gal; mud 10.5
4				
23	3232	3244	lime	wt. 10.5; vis 35; used 5000 & 6750 gal water.
	3244	3249	sdy lime; Mud at 10.5	water--Hughes W7 29847. Reamed last joint.
4				
24	3249	3273	lime	Hughes Reed #177 at 3259; Used 4500-2250 gal wtr. mud 10.5; vis 35; Hughes 35158 W7 at 3267;
4				
25	EASTER SUNDAY & SHUT DOWN			
26	3273	3296	lime	Hughes W7 35333 at 3273; Run internal upset pipe 12 jts Run 7 jts with new tool jts; mud 10.4 vis 38 Hauled 2 loads mud; water 6750 & 2200 gals.
4				
27	3296	3337	lime	Hugh OWS30641;wt 10.6 vis 38; Water 4400-6750-2200
28	3337	3371	lime	Reed Ser 2959 SE2; Water 4500-4500- Wd 10.3; Vis 35.
29	3371	3397	lime	Changed drl collar and laid down 4 jts internal flush and put in 3 jts external pipe; Reed bit 7097 wt 10.1; vis 37; water 3000, 6750, 2200;
4				
30	3397	3407	lime	SLM ok Acid bottle 4 deg. Reed 8-5/8 9122 at 3397 Reamed; wt 10.2; water 5000,45000-4400. Correction in msmnt; 2'6" Put Reed 2822 at 3404.
5				
1	3407	3416	Lime	Came out hole with 27 strands; 3 Reed cutter heads & catchers to Wright #1 Well; Water 4400. Everything oiled;
5				
2	3416	3434	lime	Reed 7-7/8" #5219 at 3416; 110 jts & long Dr.Collar 111-22 up on kelly; 4000 gals. water.
5				
3	3434	3439	lime	Rotary shaft broke at 2 AM Came out of hole 7/78 Reed Bit;
	3439	3441	Black shale	Reed #3644 SEL @ 3438; mud wt 10.2;
	3441	3459	shale & lime	wt. 10.1; water 4400.
5-4	3459	3464	lime	Reed SEL #8445 at 3462; Water 2200; wt. 10; vis 37
	3464	3477	??	Water 2200, 4100; 500;
5-5	3477	3493	lime	Reed SEM 3045; 10.2, vis 39. water 6000;
	3483	3498	lime	Mud 10; vis 35; water 4500
	3498	3502	Cored li & sh li.	6-3/8 Type J Core bbl. mud 10.1; water 2200
5-6	3502	3528	lime & shale	water 4500; 6750; Wt 10. Vis 34. Type SEm #4970;
5-7	3528	3531	lime	Change drill pipe; Reed SEM 4992 at 3528; Water 2200; 2250; 2200; Put in 24 jts Bell pipe; Pipe in 719; pipe out 707 — 12' up on Ky.
5-8	3531	3547	lime	wt 10.2; water 2200;
	3547	3571	lime & shl (Bro)	water 2250; & 4400; Mud 9.9; SLM 3560 2½ deg. Reed #1233 SEL at 3560.
5-9	3571	3604	Bro lime & shale	wt. 10; vis 38; water 4400; 6750. Reed '8448 @ 3604 Box wobbled off not wided; 26'4" on kelley;
5-10	3604	3627	bkn lime & shale	wt 10; vis 34; water 4500;
	3627	3639	brkn li & sd & shale	wt 10.1; vis 34; water 6750 (3 loads);
	3639	3650	lime & shale	Reed #9562 at 3639; Water 2000 ga; Mud 10.1
5-11	3650	3669	li & shale	wt 10.1; vis 34; water 4500;
	3669	3685	lime & hd shale	wt 10; vis 34; wtr 6750;
	3685	3694	lime & shale	water 2000.
5-12	3694	3722	lime	Wt 9.9; vis 39; str 4500; 2250; Fishing. Caught Fish once lost it; caught again coming out.

	FROM	TO	FORMATION	REMARKS
5-13	3722	3728	lime	Hughes 7-7/8 #85081 - W.7. at 3728.
	3728	3750	sandy lime & shale	Water: 4500;
	3750	3767	shale & lime	water 4400;
5-14	3767	3773	lime	Twisted off 2'5" up on Kelley; water 2200; Went in hole with 7½ overshot; caught fish left one cone in hle.
5-15				Fishing -basket- no luck
5-16				fishing; water 4400 gal & 2200 gal; vis 37; wt 10. stuck pipe 12' off bottom; circulation O.K.
5-17				water; 2200, 4400 2250 gallons; trying get pipe
18-19-20-22				trying get pipe loose. wt. 9.9, vis 38; water 2200 gal; driving pipe; working up & down. wt. 9.7, vis 35; 1000 gal water; SLM bottom of pipe 3763; 2250 gallons of crude oil.; finish loading hole with crude oil; working. wt 9.1, vis 40; no water; moved pipe 4' now 12' above table.
5-22				moved pipe 2' now 14' above table; water 4400 gal working; jet pits mix 15 sks seogel; moved pipe layed down 40 jts Bell pipe; came out hole.
5-23				Spooled & tightened line; change hooks and trav.b. pull 9.7/8 reed bit from 2751; run 8-5/8" joint with baker float shoe 2200 feet; wt 9.2; vis 38.
5-24				rotary table; rigging up for setting pipe. water 6600 gal; washing hole; mix 36 sks seog.
5-25				eight new inserts in pump valves; wt. 9.4, vis 34. Hughes 7-7/8 bit & washing hole; Ran Schlumberger to 3778, corrected depth; end daywork 4 P.M.
5-26				Running casing; used all remaining seogel on 5/24/ Running casing; haul 75 sacks more cement.
5-27				Running casing; 225 sacks Ideal oil well cement. Help run 225 sacks cement Haul 6" Drill pipe & Clean around rig; formation taking about one bbls hour. waiting on cement; shut off pressure 650 lbs.
5-28			waitingon cement;	loer crown on DPc well; change flow pipe.
5-29			waiting on cement;	Put in two extra jts Bell pipe on bottom 29'9"
5-30			Waiting on cement;	& 30' 3"; Hughes RB #25889 W7; 94 jts in hole. top plug. Drilled plug & 93' of cement.
5-31	3778	3781	lime	water 4500 gal; mud wt 9.1; vis 40; water 4500 g.
	3781	3800	lime	
6-1	3800	3810	lime	hughes bit at 3800; W7 25906. Reamed four feet;
	3810	3823	anhydrite & lime	water 2200 wt. 9. water 4500; wt 9.1 vis 37
	3823	3834	do	
6-2	3834	3846	lime	Pulled hughes 25888 W7 at 3846; Wt 8-8/10; water
	3846	3852-11	lime, etc.	2250;

DATE	DEPTH FROM	DEPTH TO	FORMATION	CORED	RECOV.	REMARKS
6-3	3852-11	3861	lime	wt. 8.5 vix - water used none.		
	3861	3881	lime	wt. 8.9, vix 31;18 sax zeogel.		
6-4	3881			fishing; repr control head laying down bell pipe.		
				4500 gal water; 5 sax zeogel; W7 25914 Bit.		
6-5	3881	3933	lime	wt 9; vis 37; wt 8.9; vis 33; wt 8.9;		
				water 0, 2250, 2250. 5 sax zeogel; SLM ok Test str		
6-6	3933	3968	lime	Hughes 25968-W7; 127 jts drill collar & kelly down.		
				3966 feet; Water 6750; Wt. 9. Vis 33.		
-7	3968	3875	lime	wt 8.9; vis 37; water none.		
	3975	3996	shale & salt	Wire line drill collar 16-10; bit 1'4". Reed		
				Core head #849; getting ready to core;		
6-8	3996	4001	salt & shale	5' 0"	0' 0"	
	4001	4006	salt	5 0	4 3	
	4006	4011	salt	5 0	4 4	
	4011	4016	salt	5 0	2 11	
	4016	4026	salt	10 0	7 7	
	4026	4036	salt	10 0	7 8	wt 9.8, vis 32. water 4500 gals.
	4036	4040	salt	4 0	1 9	
	4040	4048	shale & anhy	8 0	7 6	1 ctter, 1 catcher; wt 10.2 v.33
	4048	4056	salt	8 0	3 4	SLM at 4048; Slim hole test strt
	4056	4059	shaly salt	3 0	3 4	
6-9	4059	4062	salt	3 0	0 10	wt --vis 37. wt 10.2
	4062	4069	salt	7 0	7 4	mix 100 sks salts & gunned pit.
	4069	4077	salt	8 0	6 3	1.45 to 3.00 Manure salts del 1.4
	4077	4085	salt	8 0	8 11	
	4085	4095	salt	10 0	9 7	
	4095	4105	salt	10 0	8 8	vis 37; 99 sax.mgcl in pit.
	4105	4115	salt	10 0	11 2	
	4115	4125	salt & anhy	10 0	6 8	
	4125	4132	salt	7 0	10 4	
	4132	4142	salt	10 0	9 9	
	4142	4152	salt	10 0	9 10	dumped 75 sax man salt vis 35.
	4152	4162	salt	10 0	8 6	
	4162	4170-9	salt	8 9	10 0	
	4170-9	4181-9	salt	11 0	10 7	
	4181-9	4191-9	salt	10 0	5 4	
	4191-9	4198	salt	6 3	3 10	
	4198	4206	shale & salt	8 0	8 6	
6-10	4206	4216	salt	10 0	9 5	vis 40. wt 10.7 one catcher
	4216	4222	salt	6 0	6 8	
	4222	4232	salt	10 0	10 0	
	4232	4242	salt	10 0	9 7	
	4242	4252	salt	10 0	10 1	
	4252	4262	salt	10 0	10 0	
	4262	4272	brkn salt	10 0	4 6	
	4272	4282	salt	10 0	9 8	wt 10.6 vis 35.
	4282	4292	salt	10 0	9 8	
	4292	4302	salt	10 0	10 0	
	4302	4305	salt	3 0	3 10	repairing drill collar core head No. 4084.
6-11	4305	4315	salt	10 0	9 4	one cutter wt 10.4, vis 36.
	4315	4325	salt	10 0	9 8	
	4325	4335	salt	10 0	10 7	
	4335	4345	salt	10 0	10 0	
	4345	4355	salt	10 0	9 6	
	4355	4365	salt	10 0	9 8	
	4365	4375	salt	10 0	10 5	
	4375	4385	salt	10 0	10 5	
	4385	4395	salt	10 0	10 0	mud 10.9, vis 35.
	4395	4405	salt	10 0	9 10	
	4405	4415	salt	10 0	10 2	
	4415	4425	salt & trace carn	10 0	6 10	
	4425	4432	salt	7 0	10 4	
	4432	4439	salt st shale	7 0	7 4	
	4439	4442	salt	3 0	3 0	
6-12	4442	4449	salt	7 0	6 8	
	4449	4459	salt	10 0	8 7	
	4459	4466	salt	7 0	8 4	300-50# bags mcgl added to mud
	4466	4476	salt show carn	10 0	4 11	
	4476	4481	salt	5 0	8 5	
	4481	4491	salt	10 0	10 2	380 sx mgcl; s;p wire line; add 12

DATE	DEPTH FROM	TO	FORMATION	CORED		RECOVERED		REMARKS
6 -12	4491	4501	salt	10	0	9	9	
	4501	4511	salt & shale	10	0	9	11	
	4511	4521	salt anh shale	10	0	10	4	
6 -13	4521	4531	do	10	0	10	0	
	4531	4541	salt	10	0	10	2	
	4541	4551	salt	10	0	6	6	
	4551	4555	chips salt	4	0	5	0	
	4555	4562	salt	7	0	9	7	
	4562	4572	salt	10	0	10	5	
	4572	4582	salt & anhy	10	0	8	0	
	4582	4590	salt	8	0	10	1	
	4590	4594	salt	4	0	1	6	
	4594	4604	salt	10	0	9	10	
	4604	4614	salt	10	0	10	0	
	4614	4623	salt	9	0	7	8	
	4623	4633	salt 8' carn 1'6"	10	0	9	6	wt 10.6; vis 35.
	4633	4638	carn & slt	5	0	3	6-	dumped 200 sax mgcl
	4638	4648	salt sh st carn	10	0	9	10	
	4648	4654	shale anhy salt	6	0	5	7	
	4654	4664	salt and carn	10	0	9	8	
	4664	4674	salt sylvite and carn	10	0	8	3	
6	4674	4679	salt and sylvite	5	0	6	7	
-14	4679	4684	salt & syl	5	0	3	9	
	4684	4693	salt anhy sylvite	9	0	5	3	
	4693	4698	salt anhy shale	5	0	6	0	
	4698	4701-6	salt anhy shale	3	6	0	8	
	4701-6	4711-6	salt	10	0	10	3	
	4711-6	4714-4	salt	2	10	2	10	pulled bit #4084; put core head
	4714-4	4724	salt sh anhy	9	8	9	6	#7354 FPL at 4701-6
	4724	4734	salt shale st.	10	0	9	11	
	4734	4744	salt	10	0	10	0	
	4744	4754	salt	10	0	10	2	
	4754	4756	salt	2	0	2	0	
6-15	4756	4764	salt	8	0	8	0	
	4764	4774	salt (1 piece	10	0	10	2	
	4774	4784	salt anhy str	10	0	9	2	
	4784	4891 4791	salt,hy sh sty sh carn	7	0	5	3	
	4791	4799	lime and shale sna salt	8	0	2	5	
	4799	4806	salt	7	0	7	0	
	4806	4816	salt and ahy	10	0	10	5	
	4816	4826	salt	10	0	10	0	
	4826	4836	salt	10	0	10	4	
	4836	4846	salt	10	0	9	10	
	4846	4856	salt	10	0	10	3	
	4856	4866	salt	10	0	10	0	
	4866	4872-2	salt shale anh	6	2	6	1	
	4872-2	4874-6	shale and anhy	2	4	2	4	wt 10.6 vis 34.

DATE	FORMATION	FROM	TO	FEET CORED	RECO-VERY	TIME FROM	TO	REMARKS
6-16	shale & anhy	4874-6	4880	5'6"	5'4"	10:00	3:17	
	do	4880	4890	10-0	7-0	407	645	
	do	4890	4897	7-0	4-3	733	1045	
	anhy	4897	4902	5-0	1-7	1130	110	
	salt	4902	4912	10-0-	10-9	150	258	Wt.11, vis 35. water none
	salt	4912	4922	10-0	10-2	332	458	
	do	4922	4927	5-0	5-0	1108	Reed	Core H. #7350 at 4922;
6-17	salt shaley	4927	4932	5	5-7	1200	116	2 cutter heads, 1 catcher
	do	4932	4942	10	7-1	210	338	steel from cutter head in
	salt	4942	4947	5	6-4	421	529	hole plus part catcher.
	carnallite3';salt 7	4947	4957	10	9-6	605	720	
	carn & salt	4957	4964	7	4-8	737	920	
	do	4964	4974	10	2-8	955	1000	wt 11, vis 35
	do & shale	4974	4979	5	10-6	1130	1203	
	salt,carn,sylv.any and sh.	4979	4988	9	6-7	1240	315	
	s.sh anh.salt carn	4988	4993	5	4-10	400	740	
	do	4993	4997	4	3-7	823	1200	
6-18	salt,s.sh. carn	4997	4998	1	0-0	1200	1245	
	do	4998	5005	7	5-8	140	523	
	d	5005	5008	3	3-0	606	757	
	shale sandy	5008	5010	2	1-1	757	910	
	shale & anhy	5010	5015	5	5-4	1000	1240	wt. 11, vis 34.
	do	5015	5017	2	2-0	1:47	345	1 core hd, 1 catcher;
	do	5017	5019	2	1-11	00	540	
	anh. 4' salt 1-10	5019	5025	6	5-10	817	916	
	salt & s. sh.	5025	5029	4	4-0	1000	1200	
6-19	salt & s. sh.	5029	5031	2	2-0	1200	135	1 catch; p.pres. 350#.
	shale & ?	5031	5036	5	4-10	142	440	
	shale & sd	5036	5040	4	4-0	522	747	
	shale, sand	5040	5045	5	3-6	747	910	
	salt & anhy	5045	5055	10	10-10	959	1115	
	salt	5055	5065	10	7-0	1203	126	
	do	5065	5073	8	10-7	200	250	
	do	5073	5076	3	3-0	525	350	wt 11, vis 34, water 00
	salt & sh	5076	5083	7	6-7	00	450	
	salt, ahy, shale	5083	5089	6	7-2	534	818	acid bot. at 4600'; 3 deg.
6-20	do	5089	5099	10	9-3	1255	300	Bit 3720, weld drill cellar
	shale & sdy sh.	5099	5109	10	10-1	—	758	
	sdy shale	5109	5118	9	8-9	836	1056	2 core heads 1 catcher.
6-21	bl sh & s. sh	5118	5124	6	5-0	1217	300	
	do	5124	5130	6	6-4	345	631	
	sh. anhy & salt	5130	5140	10	8-6	1020	135	pul & put 1 v. seat in disch
	salt	5140	5150	10	10-3	218	315	wt 11, vis 35, wat 0.
	salt	5150	5160	10	8-6	405	512	
	salt, shale anhy	5160	5169	9	10-7	649	653	
	salt	5169	5179	10	10-1	732	847	
	salt & shale	5179	5189	10	9-6	933	1026	
	do	5189	5198	9	9-0	1106	1150	
6-21	salt	5198	5199	1	0-11	1155	1202	
	do	5199	5209	10	10-5	1243	135	Fishing 37 jts & d.Col.
	do	5209	5219	10	988	217	300	51/8" slips.
	do	5219	5229	10	10-6	335	424	
	do	5229	5239	10	9-11	500	550	
	do	5239	5243	4	4-0	631	655	pipe in two coming out. 28-9 on kelley; 6 over shet & sug.--34-9 1 off bes 33-9 diff in jts. 9-34-6;

6-22 Bailing - lost 7x25' bailer in hole; Bailing with 5½" bailer 30' long.; fluid level not lowering.
6-23 Bailing at 2250; unable to lower fluid; fished bailer out; changing lines.
6-24 Run 30 stands in hole; drill.coll; & core bar. Rigging up to cement; Pump hole full of mud; thirty thribbles in hole; drill collar & core barrel;
6-25 run 60 sx oil well spec. cement; went in hole with DP cemented & came out; Plug at 3976 comp cement at 4 AM pulled up off at plug & washed pipe; Halliburton Co.
6-26 Ran pipe in hole to test plug;set down on plug at 3896-7; washed hole & pulled out. SLM 3867; CB 14.7; K 15; 42 stands DC & 15' kelley; top of cement plug 42 stands & collr.
6-27 & 15 on kelley; Ran Hallib. test at 3600'; Came out with Halib test 50' salt water above
6-28 packer; SLm 2021.

DATE	FORMATION	FROM	TO	FEET CORED	RECOV-VERY	TIME FROM	TO	REMARKS
6-29	Cut 8-5/8" cas at 2000' with Bassh-Roes cutting tool; pulled out of hole & rigged up to pull casing. Pull 8" casing layed down 8-50 jts 402. getting ready to cement.							
6-30	Welded lugs on 8-5/8" cas- went in hole with drill pipe; circulated cement at 1530' with 60 sacks oil well special cement by Halliburton at 500AM Pulled 56 stands in single & washed pi pe Bailing at 450' layed down some drill stem top of cement plug 1465'; Bailing to 700'.							
7-1	Bailing unable to lower fluid below 625; went in hole & getting ready to slug back 49 jts in hole; 1501'. Circulated with 110 sax at 1501; washed to 1310;							
7-2	Pulled pipe out of hole found cement plug at 1337'; bailed at 725'.							
7-3								
7-4	Shut down-							
7-5								
7-6	Laying down 4" drill stem & bailing SLM 1303'; K 19.6; TD 1322.6 Top cem plug. Bailing to 1000 feet then began to loose; gained 900'; at 2 PM shut down 2 hrs & at 3 PM							
720'	Bail mud from bottom of hole; water at all other depths; Made mud connection on casing. held pressure on intermittantly 44 hrs no circulation; Formation taking mud. bail to 480'.							
7-7	Bailing 660', shud down 1 hr fluid raised to 430'; Bailed 3 hr from bottom no showing oil; Made up 4" drill stem; bottom hole 1311; Cemented at 1311 with 150 sacks cement at 5 PM; pulled out to 1000 feet & circl. came out of hole filled hole with mud. Finished pulling up at 9 P.M.							
7-8	Run bailer & get pick on bailer from cement plug at 1010'; 10:00 AM. Started in hole at 2 PM WOC to set; finish pulling DP at 9 PM.							
7-9	Repair work - WOC; WOC;							
7-10	Went in hole to drill cement 1029-1122. plug hit top of plug at 1028'; 11 stands and DC & Kelly 1072; Cement plug; SLM at 1140'; also measured in on wire line; Gun perforated casing with fourty shots from 1145 to 1155; bailed to 1050 no showing.							
7-11	Bailed hole dry at 1:00 AM perforated from 1130 to 1120 with 20 shots ran bailer and got slight show of oil bailed hole dry at 11 AM Run bailer at 6:30 48' of fluid in hole slight skim of oil; bailed hole dry at 7:30; First shot bottom 1132' second shot 1123' bottom; started getting ready to gun perforate 11:45 AM hole kept dry. Comp 3:00 PM. Kept hole bailed dry slight showing.							
7-12	Kept hole bailed dry slight showing. Keeping hole bailed dry and repairing; layed down 4" D P. Getting ready to skid.							
7-13	Tearing down; moving.							
7-14	Moving; changing from Rig #3 over to Rig No. 2 and vice versa. Rigging up.							

Received U.S.G.S.
Salt Lake City 8-11-43
from L. M. Mack

July 16, 1943.

Potash Company of America Well No. 1 (McCarthy) State Land, McCarthy lease. section 16, T. 22 S., R. 19 E., S.L.M.

MEMORANDUM for the file.

June 29, 1943. A casing cutter was obtained and the 8 5/8" 28# casing cut at 2000'. Casing was then lifted 700' with the bottom at 1300'.

June 30, 1943. A cement plug was spotted between 1530' and 1430' using 60 sax. The returns from circulation of the cement job brought out 150 bbls. of black 33.6° A. P. I. oil on the mud pond circulated from behind the 8 5/8" casing. Bill Reeder called about noon stating that there was a good show of oil on the mud pond at this well, and at 3 p.m. L. H. Mack was contacted by phone at his field office. He estimated 75 bbls. of light gravity black oil on the mud pond. The P. C. A. had failed to notify me of this showing.

July 1, 1943. Arrived at the well at approximately 1 p.m. in company with Hale B. Soyster and observed the oil and gas show.

July 2, 1943. At the P. C. A. office in the field with G. C. Weaver, L. H. Mack and others, a program for testing was outlined which consisted of cementing from the top of the plug at 1430', acting as a seat for the anchor, to approximately 1300', the show of oil presumed to be coming from the sand at 1200 to 1250'. It was decided that the casing would be cemented at the top of the sand, 1200', and a bailing test made. If the bailing test failed, then the hole was to be cemented from the top of the cement plug 1320' up into the pipe. After the cement had set, it was to be drilled out at 10-foot intervals and shot or reamed to ascertain the source of the oil, if possible. If no oil resulted, the casing was to be perforated at 1120' to 1160', and formation there tested.

July 7, 1943. Mr. Weaver called on the telephone stating that the hole could not be bailed below 1000' because of water coming into the hole apparently from the 1200' to 1250' sand, and requested permission, if the company so choose, to remove the rotary rig and replace same with standard tools to carry on and complete testing of the well. This request was granted.

July 12, 1943. Weaver again called stating that the hole had been cemented up into the casing; that on the previous Saturday night the McCullough Service had gun perforated 40 3/4" shot holes between 1145' and 1155', and 20 holes between 1120' and 1130', and 20 holes between 1118' and 1132', with only a very small show of oil coming in after the last series of shots; that the first series of shots was performed with the hole full of fluid and after bailing down, the last series was shot in 48' of fluid with some show of oil and gas. I immediately left Salt Lake City for the well to inspect operations realizing that I had not been duly advised as requested of the operator regarding the testing of the well. Upon arrival at the well at 7 p.m., I observed gas coming from the open hole at an estimated 100,000 cubic feet daily rate which I could hear bubbling through the fluid. After realizing

that to require further testing of the well of this operator would probably be futile, permission was given Mr. Weaver to continue abandonment operations as per the notice of intention to abandon previously approved.

July 14, 1943. Upon my departure at 2 p.m., the rig had been dismantled and the derrick was almost ready for skidding to the new location about to be drilled on section 10, lease Salt Lake 063653.

COPY OF LETTER

POTASH COMPANY OF AMERICA
Carlsbad, New Mexico

August 28, 1943

C. A. Hauptman, District Engineer
Oil & Gas Leasing Division
306 Federal Building
Salt Lake City, Utah

Dear Sir:

The necessary equipment to make final tests on the McCarthy-State well is now being installed and should be ready to start work the first of next week on the tests outlined and approved by you and Mr. Strong on your last visit to Crescent Junction.

As a result of this conference, it was my understanding when subsequent test work, to be performed by the Potash Company of America as set up hereinafter under "Details of Work", is completed in a manner satisfactory to you as Supervisor for the State of Utah on this well, that you would consider adequate and complete tests had been made for commercial productivity on all formations that in the drilling and coring of the well gave evidence of carrying oil and/or gas.

Details of Work

To plug back the 8-5/8" Casing from 1171 feet to 1140 feet to squeeze cement gun perforations from 1145 to 1155 feet.

To reperforate the 8-5/8" casing as directed by supervisor from 1115 to 1140 feet and thoroughly test by bailing. If nonproductive to squeeze cement off perforations.

To gun perforate 8 5/8" casing 675 to 695 feet to test "Dakota Sand". Test to be made by bailing. If nonproductive to remove such 8 5/8" casing as may be recoverable and plug according to abandonment notice.

Should there be any changes in the work as set up or additional work required, kindly let us know by wire as we expect to start the tests by the 1st of September.

Yours very truly,

R. A. Pierce
Assistant General Manager

RAP;mc

Thompson, Utah
August 31, 1943

Mr. Chas. A. Hauptman, Dist. Engineer
Oil & Gas Leasing Division
306 Federal Building
Salt Lake City, Utah

Re: Company: Potash Company of America
Well No: McCarthy-State No. 1.
Location: NW, NE, Sec. 16; T-22S, R-19E
Grand County, Utah
NOTICE OF INTENTION TO CHANGE PLANS

Dear Mr. Hauptman:

Reference is made to the attached copy of a letter by R. A. Pierce, Supt., Potash Company of America, to yourself, dated August 28th, 1943, which, among other considerations, embrases a program of proposed work on the above named well. This letter might be accepted as a Notice of Intention to Change Plans, and is made a part hereof.

Since the plan of work mentioned in this letter is not thought of sufficient scope to locate the source of oil reported displaced on the ditch during previous plugging and testing operations; that in order to conserve the interests of both parties (Government and others) it becomes apparent that P.C.A's plan should be further extended to include other hole areas both above and below 1198 feet.

Consequentally this operator's program is orally approved to conserve time, subject to your final approval and with the following understanding:

(1) Bail water developed through shot holes 1120-1130 feet and 1118-1132 feet, and 1145-1155 feet, until such time as results are obtained to establish a final and conclusive test for this area. Thereafter, operations to be determined based upon this test and any pumping tests that may be necessary or required.

Negative results of this test shall be followed by cementing off these zones of perforations, and the corresponding plugs tested for hardness prior to making further tests.

(2) Test Dakota Sand for oil, gas, or water between 675 and 695 feet by gun perforation by stages, separating water, if found, or dry sands if found, from oil and/or gas if found by cement plugs squeezed in through tubing or drill pipe by pump pressure. Should oil and/or gas be found further operations to be determined based on this test.

(3) If at this time no oil and/or gas be located in hole area between 675 and 695 feet inclusive and the respective parties deem it advisable to further test formations between 1337 and 1198, a plan comparable to following outline, or some other plan subsequently approved shall be followed:

(4) Squeeze off perforation between 675 and 695 feet, and following test for satisfactory hardness, drill out plug at 1198 and clean out hole to 1337 feet, where log shows there to be a cement plug; test this plug for hardness and for the purpose for which it was placed. If plug is found satisfactory proceed to test formation between 1198 and 1337 feet for oil and/or gas and be thereafter governed by findings.

(5) Since it is presumed that testing procedures be carried on in all principle stages during day shift it is recommended that respective field supervisors of U. S. G. S. and Potash Company be empowered to make decisions on the drilling site as work progresses. In this way supervisors may contact their respective heads of departments following each day's work if required and thereby be governed in their decisions as to basic procedure the following day. In this way progress will be facilitated, little time lost, and interested parties commitments protected during day to day operations.

(6) Any plugging or abandonment operations or removal of well casing that may be desired following conclusive testing as outlined above shall be submitted to the District Engineer or his field representative and approved first before carrying out the proposed work.

(7) Relative to the conditionally approved program outlined above, the following information is desired by all interested parties for the purpose of clarifying undecided issues which have arisen in the field relative to reported oil displaced on ditch from hole while raising 8-5/8" pipe from 2000 feet to 1198 feet, as compared to oil used by contractors as a fishing measure to loosen drill pipe stuck on May 15, 1943, just prior to setting and cementing of 8-5/8" casing.

In this connection, I am advised that you were given a sample of oil from the McCarthy well soon after the oil was displaced on the ditch, and it is assumed that this sample was sent to Mr. Crawford at Midwest for analysis. If consistent with the policy of your office and if otherwise in order it is requested that you obtain analysis of this sample together with Crawford's opinion,

"Could a diesel fuel (34.5 A.P.I.) plus Rangley crude plus a heavy brown oil in a slightly saturated sandstone plus other Cresent Eagle, Utah, brown oils plus the presence of salt water plus a sulpherous gas result in the presence of oil of the type represented by the sample above mentioned"?

(8) If and when any hole condition develops that will justify or require ammendment of any of the foregoing conditions same shall be done by and through oral or written approval of the District Engineer's Agent on the property.

Material and equipment is being moved to the McCarthy well as of this date prepatory to doing work outlined herein.

Yours truly,

WM. H. STRANG
U. S. G. S.

c.c. Potash Company of America
Thompson, Utah
Mack Drilling Company
Wm. H. Strang
Potash Company of America
Carlsbad, New Mexico

cys to Casper
10-5-43

Form 9-331 a
(March 1942)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office
Lease No. State Land
Unit M.L.858A
W.S.McCarthy

GEOLOGICAL SURVEY RECEIVED SEP 27 1943 UTAH DIVISION

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING	X	SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

~~Notice of intention to shoot casing~~ X Notice of intention to shoot formation X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Sept., 23, 1943

Well No. 1 is located 330 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 16

NW¼ of NE¼ (¼ Sec. and Sec. No.) 16 23S (Twp.) 19E (Range) Salt Lake (Meridian)

Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4731 ft.

SEP 27 1943
ORIGINAL FORM ADDED TO CASPER

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Reference is hereby made to letters addressed to Mr. C.A. Hauptman by Mr. R.A.Pierce under date of Aug.,28-'43 and that of Mr.Wm.H.Strang under date of Aug.,31-'43. Also letter from Mr.C.A. Hauptman to Mr.Wm.H.Strang under date of Aug.,31-'43, as well as letter to Mr.R.A.Pierce under date of Sep't.,22-'43. Plans as developed thru this correspondence was followed up to and thru Sept. 22-'43. In the course or which operations we had developed a body of oil present behind 8" casing through perforations at 680-690'. After thorough bailing with formations shut off below we obtained no appreciable inflow of oil and/or gas. At this time we suggested through telephone conversation with Mr.C.A.Haptman on Sept.,22-'43 that we shoot off casing below 690', pull casing above 670',after which we would shoot formation between 679 and 681' as a further means of testing quantity of oil and/or gas showing. Subsequent notice of work done will follow.

Company Potash Company of America.

Address Thompson, Utah.

Approved Sept. 27, 1943
C.A. Hauptman
District Engineer

By Thos. S. Lard
Title Field Supt.

U. S. GOVERNMENT PRINTING OFFICE 16—3427-1

Form 9-331a
(May 1939)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

U. S. Land Office Salt Lake
Lease or permit No. M.L. 9584
Serial No. W.S. McCarthy

GEOLOGICAL SURVEY
OCT 1 1943
SALT LAKE CITY, UTAH
GAS & MINERAL DIVISION

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Subsequent Report of work done	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

ORIGINAL FORWARDED TO CASPER
OCT 7 1943

Sept. 28, 1943

Well No. 1 is located 330 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 16

NW1 - NW1 Sec. 16 (Sec. and Sec. No.) 22S (Twp.) 19E (Range) Salt Lake (Meridian)

Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4731 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Sept. 10: Rigged up Wilson portable rotary drilling unit. Hole condition: 22" 8-5/8" welded casing cemented at 1198'. Top of cement plug at 1170'. Casing perforated from 1118' to 1132' and from 1145' to 1156' with McCellough 3/4" gun perforations.

Sept. 11: Ran bailer at 11 A.M. and found fluid level at 294'. Bailed hole dry at 1170' at 5:40 P.M. Fluid - brine saturated with slight gas show; gas estimated to be approximately 4000 cu. ft. per 24 hours.

Sept. 12: Ran bailer at 8:30 A.M. - fluid at 1030'. Bailed well down at 9:30 A.M. Ran bailer each hour. Fluid comes in at approximately 16' per hour.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Potash Company of America

Address Thompson, Utah

By Geo. Stewart

Title Field Superintendent

Sept. 13: Ran bailer at 8:15 A.M. Fluid at 1030'. Bailed down at 9:05.

10:05 AM	-- 16'	fluid in bailer
11:05 AM	-- 16'	" " "
12:05 PM	-- 16'	" " "
1:05 PM	-- 7'	" " "
2:05 PM	-- 12'	" " "
3:05 PM	-- 10'	" " "
4:05 PM	-- 12'	" " "

Sept. 14: Ran bailer at 8:15. Fluid 120' off bottom. Well bailed down at 9:20. Slight rainbow of oil in fluid.

9:30 AM	-- 12'	fluid in bailer
10:20 AM	-- 16'	" " "
11:20 AM	-- 14'	" " "
12:20 PM	-- 14'	" " "
1:20 PM	-- 12'	" " "
2:20 PM	-- 12'	" " "
3:20 PM	-- 12'	" " "
4:00 PM	-- 8'	" " "

Sept. 15: Ran bailer at 8:15. Fluid 140' off bottom. Fluid bailed down at 9:20

10:20 AM	-- 18'	fluid in bailer
11:20 AM	-- 12'	" " "
12:20 PM	-- 12'	" " "
1:20 PM	-- 12'	" " "
2:20 PM	-- 12'	" " "
3:20 PM	-- 10'	" " "

Perforated from 1120' to 1125' with McCollough gun perforator with four 3/4" holes per foot. Ran bailer - no increase in flow from formation. Perforated from 1115' to 1120', ran bailer, no increase. Perforated from 835' to 840'; - these shots drained emulsified mud from behind casing - trace of oil - gas about the same. Ran bailer - fluid level 80' from bottom. Perforated 855' to 860' - ran bailer - fluid remained at 80'. Bailed hole down to 1117' leaving approximately 50' of emulsified mud in hole

Sept. 16: Ran bailer at 8:15 AM. Fluid 160' off bottom showing increase of fluid in 12 hours to be approximately 110' of fluid. Gas headed and blew slightly at 11:40 AM. Left fluid in hole. Planned to perforate Dakota sand tomorrow.

Sept. 17: Ran bailer at 8:15 AM. Fluid 380' off bottom, showing increase of 190' in 24 hours; skim of oil in top of fluid. Perforated casing with McCollough perforator from 680' to 685'. Immediately following shot fluid came in thru perforations, falling on gas saturated fluid below causing probably together with perforation impulse an emulsion of oil in small stream approximately 10' above derrick floor. Well quieted immediately. Perforated casing from 685' to 690'

with no affect. Ran bailer - oil saturated fluid level 645' off bottom. Increase of approximately 295'. Recovered approximately one barrel of oil by running bailer twice. Bailer holds approximately 41 gallons. Stopped bailing preparatory to cementing of perforations below 680' - 690' in order to test in open hole source of oil obtained in this area. Since this is the only area from which any appreciable body of oil has been found it is presumed, and so far as can be known, is the source of oil displaced in annulus behind casing when it was cut off preparatory to pulling on 6-29-43.

Sept. 18: Rigging up to cement.

Sept. 19: Set cement packer at 1087'. Started to cement thru drill pipe at that point with Halliburton Cementing unit with pressure of 400 lbs. After running 19 sacks of cement, pressure built up to 1000 lbs, and we obtained returns on ditch. Decided drill pipe was defective. Opened valve above packer and circulated cement out. Approximately 5 sacks of cement were returned, showing approximately 14 sacks of cement were pumped below packer. Closed valve and attempted to pump thru pipe again; pressure remained at 1000 lbs. Backed off of packer and pulled drill pipe to 882'. Found defective drill pipe one joint down from table.

Pumped 36 sacks of cement thru open drill pipe at 882' to cover perforations 835' - 840' and 855' - 860'. Estimate this amount of cement will bring top of plug to 777' less cement accepted by formation thru perforations.

Pulled pipe up to 702' and washed to free perforations at 680' to 690' of possible cement contamination.

Sept. 20: Rigging up to bail.

Sept. 21: Fluid level at 9:15 AM. at 571' off bottom. Cement plug or bridge found at 699'. Bailed from 9:15 to 11:00 AM with no appreciable show of oil. At 11:00 oil began to increase until a point was reached where about one-half of each bailer was emulsion. Hole was bailed down at 2:40 PM. After standing one hour 1½ bailers of fluid were recovered at 3:40 PM. Approximately 5 or 6 barrels of oil were recovered during the day. Shut down to allow hole to stand over night.

Sept. 22: Ran bailer at 8:15 AM. Fluid level 100' from plug. Bailed hole down in 9 trips. Recovered 10½ bailers full of fluid during day, or slightly less than 10 barrels with very little oil recovered.

Sept. 23: Ran bailer at 8:15 AM. Fluid level 80' from plug. Recovered 7 bailers of water with slight oil show. Parted pipe at 686' with 4 lbs. of Hercules 40% Extra. Pulled up 16' and let stand over night.

Sept. 24: Checked and found bottom of pipe at 677'. Cut off and laid down 16' of casing. Bailed hole free of water - 6 bailers full of fluid. Rigged up to pull casing higher above sand.

Subsequent Report of Work Done
M.L.8582A - McCarthy

Sept. 25: Pulled casing up 40'; cut off and laid down 40'. Shot formation with 46 lbs. of Hercules 40% Extra dynamite. Ran bailer and found bridge at 689'. Knocked out bridge and bailed mud to 695'. Recovered several pieces of sand formation in sizes ranging up to one-half the size of man's fist - sand very tight and hard. Water with slight oil rainbows coming in as before shot.

Sept. 26: Ran bailer at 8:15 AM. 12' of fluid came in during night. Washed formation with clear water batching process, using 10 barrels of fresh water on each of 3 occasions. No increase of fluid or oil egress from formation was apparent. Knocked out bridge at 690' and cleaned hole out to 790' - top of cement plug placed on 9-13-43. Left hole open for another night test.

Sept. 27: Ran bailer at 8:15 AM. Found hole bridged again at 695', show ing 12' of fluid above bridge - all water with rainbow of oil -

Ran bailer at	10:00 AM -	fluid level on bailer				12'
" "	" 11:00 AM -	"	"	"	"	10'
" "	" 12:00 Noon	"	"	"	"	10'
" "	" 1:00 PM	"	"	"	"	12'

Broke thru bentonite bridge at 695' to find hole open below to 790' - top of cement plug.

Bridged hole at 695' inside of top of 8-5/8" casing in hole, preparatory to plugging and abandonment if satisfactory to U.S.G.S - believing potential of oil source found from 679' - 691' not to be commercial.

Sept. 28: Rigging up to abandon while awaiting for O.K. from U.S.G.S. engineer in Salt Lake City - Mr. C. A. Hauptman.

Approved October 6, 1943
C. A. Hauptman
District Engineer

Form 9-331 a
(March 1942)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake
Lease No. U.L.858A
Unit W.S.McCarthy

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Notice of Intention to Plug and Abandon Well			X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Sept. 29, 19 43

Well No. 1 is located 330 ft. from {N/S} line and 2310 ft. from {E/W} line of sec. 16

NW¼ NE¼ (¼ Sec. and Sec. No.) Sec. 16 T. 22S. (Twp.) R. 19E. (Range) Salt Lake (Meridian)

Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4731 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

It being the opinion of the undersigned, while observing the progress of work done between dates of Sept. 10, 1943 and Sept. 28, 1943 on the W.S.McCarthy well mentioned above, and described in the "Subsequent Report of Work Done" filed with the U.S.G.S. District Engineer under date of Sept. 28, 1943 and accompanying this notice; that whereas, the accumulation of oil displaced at time of seperating 8-5/8" casing at 2000' on 6-29-43 and subsequently displaced when pipe was pulled and cemented at 1198' on 7-3-43 has been proved in our individual and collective opinion to have come from the "Dakota" sand located between 679' and 691' as represented by Schlumberger curve as recorded on May 25, 1943; and whereas, through tests above mentioned we have been unable to uncover any other appreciable source

(Continued on Reverse Side)

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Potash Company of America

Address Thompson, Utah

By Geo. S. Hart

Title State Superintendent

of free oil; and whereas, in our opinion there is not a sufficient egress of oil from this area to develop a commercial well at this location, we are individually and collectively of the opinion that notice to plug and abandon well is in order.

Thos Baird — Field Superintendent - Potash Company of America

S. H. Mack — Mack Drilling Company, Contractor

Well will be plugged and abandoned according to the following plan:

Bridge will be established at 695' in top of 8-5/8" casing standing in hole from 693' to 1198'.

Cement plug will be established to cover area between 670' and 695'.

8-5/8" casing will be removed.

Hole area above will be filled with dry shale to within 5' of top of surface string.

Bridge will be established at point 5' down from top of surface string.

Top 5' of surface string will be filled with cement.

Appropiate 4" marker will be placed at side of surface string, embedded in 6' of concrete and extending at least 4' above surface of surrounding ground level.

Approved by William H. Strang, subject to final approval by C. A. Hauptman, U.S.G.S. District Engineer

William H. Strang — U.S.G.S.

Approved October 6, 1943

C. A. Hauptman
District Engineer

This notice of intention to abandon supersedes the one approved on June 30, 1943

Thompson, Utah
September 30, 1943

Mr. C. A. Hauptman, Dist. Engineer
United States Geological Survey
306 Federal Building
Salt Lake City, Utah

MEMORANDUM
SUBJECT: Testing
COMPANY: Potash Co. of America
CONTRACTOR: Mack Drilling Company
WELL: McCarthy No. 1 "State"
LOCATION: NW, NE, Sec. 16, T 22S, R 19E
Grand County, Utah

Dear Mr. Hauptman:

For the purpose of clarifying recent testing proceedure in the above named well, it is thought a brief of drilling operations preceding these tests will be helpful to the reader in following the sequential order of steps taken prior to and after recent tests were made. The main body of this report therefore, is divided into two sections: First, operations prior to September 10, 1943, and Second, Recent tests subsequent to September 10, 1943.

OPERATIONS PRIOR TO SEPTEMBER 10, 1943:

(1). Available records indicate this well was spudded in Mancos shale, February 22, 1943, and finished drilling June 22, 1943 in Paradox. One hundred twenty-one (121) feet of 13" O.D. Surface casing was cemented as conductor using 114 sax. Open hole was drilled to 2780 feet where 8-5/8" O.D. casing was prematurely cemented and landed, using 225 sax, in order to arrest excessive loss of drilling fluid to formation, and to case off unstable hole conditions which tended to stick drill pipe; the actual sticking of which, on one occasion, was loosened by oil circulation, using Rangley crude in combination with diesel fuel. Open hole was continued through 8-5/8" pipe to top of salt at 3976 feet, and into the salt to a total depth of 5249 feet. The well penetrated part of the Mancos shale, the Dakota, Morrison, Summerville, Moab, Navajo, Kayenta, Wingate, Chinle, Cutler, Rico, Hermosa and 1273 feet of salt in the Paradox. The Ferron member of the Mancos shale was missing.

(2). Acting under a notice of intention to plug and abandon, approved June 30, 1943, the salt section was filled with cement introduced through drill pipe by pump pressure. On June 27, 1943, this cement plug sustained weight of drill pipe at 3892 feet, 84 feet above top of salt.

(3) In order to test a possible showing between 3610 to 3760 feet, as indicated by Schlumberger survey, a drill-stem test of one hour duration was made by Halliburton. No oil or gas was noted. -Time: June 28, 1943 - (Anhydrite).

(4) At this depth, 3892' and time, 6-28-43, the hole was full of 11 pound mud fluid.

(5) On June 29, 1943, for the purpose of further testing formation back of 8-5/8" casing and pipe salvage the 8-5/8" casing was cut under strain at 2000 feet.

(6) Immediately thereafter oil was displaced from the annulus between the 13" conductor and the 8-5/8" casing at the surface; this by reason of the difference in specific gravity between 11 lb. drilling mud the oil displaced.

(7) The purpose of the following operations were to test by stages formations above 2000 feet in open hole, in order to locate the source of oil accumulated

behind the 8-5/8" casing.

(8) The 8-5/8" casing was then pulled to 1300 feet. During this operation a small amount of oil from the annulas co-mingled with mud fluid set free in the open hole while 700 feet of 8-5/8" casing was laid on the walk.

(9) With 8-5/8" casing hanging at 1300 feet the 12" open hole was plugged with cement through drill pipe from 1605 to 1501 feet using 60 sax. During this operation a small amount of oil cut mud was displaced from annulas between drill pipe and 8-5/8" pipe at the surface. Time: June 30, 1943.

(10)On July 1, 1943, the hole was bailed for a production test of formation above 1501 feet (top of cement plug). This test failed to lower water level below 700 feet, because of water entering the hole from above.

(11) On July 2, 1943, a cement plug was placed through drill pipe from 1501 to 1337 feet. This plug stood hardness test by sustaining weight of drill pipe.

(12) In order to separate formations above 1337 feet (top of plug) from formations above 1200 feet, the 8-5/8" casing was raised from 1300 feet and cemented at 1198 feet, using 100 sax. Time: 7-3-43. A small amount of oil was displaced from the annulas at the surface during this operation.

(13) Thereafter cement job on 8-5/8" pipe was satisfactorily tested, cement plug in pipe drilled out and the hole cleaned to 1337 feet. Time 7-4-5-43.

(14) Hole from 1337 to 1198 feet was then tested by bailing. Water could not be lowered below 700 feet. No gas or oil shows worthy of further testing were noted.

(15) On July 9, 1943, open hole between 1337 feet and the bottom of the 8-5/8" casing at 1198 feet, and into the 8-5/8" casing to 1168', were filled with cement using 144 sax. This plug was cleaned out to 1170 feet, leaving 28' in the shoe joint. Hole was bailed dry. No showings of oil or gas were developed to justify further test.

(16) Having found all hole area below 1198 feet non-productive, further testing by gun perforation above 1198 feet in order.

(17) On July 10, 1943, forty 3/4" holes were placed from 1145 to 1155 feet. On the following day (7-11-43) the hole was bailed and found to be dry. No oil or gas was found.

(18) On July 11th, 1943, (1) twenty 3/4" holes were placed from 1120 to 1130 feet. A slight show of oil and gas resulted from this shot. (2) Twenty 3/4" holes were placed (overlapping) from 1118 to 1132 feet. A show of oil and gas resulted. However, water entered the hole in volume that could be bailed down, approximately 1/2 barrel per hour.

(19) Shortly after July 11, 1943, the 8-5/8" casing was shut-in at the surface and no further testing was done prior to September 10, 1943.

(20) On August 12, 1943, Messers Hauptman, Dyer, Mack, Aurand, and Strang took water samples from this well. Top of water was found at 210 feet approximately (static).

RECENT TESTS SUBSEQUENT TO SEPTEMBER 10, 1943:

(21) The following operations were conducted from September 10th to September 27th, 1943, inclusive:

September 10, 1943 - Acting under an approved plan and with adequate equipment installed, perforations were made to test cement plug in pipe at 1170 feet, gun performations at 1118-1132 feet, and from 1145 to 1155 feet.

(22) September 11th. Bailed hole down to plug at 1170 feet. Dry gas entered with salt water - gas estimated at 4000 C.F. per 24 hours.

(23) September 12th. Well shutin during night. Ran bailer at 8:30 AM. Bailed down at 9:30 AM. Ran bailer each hour. Water and dry gas entered hole at approximately 16 feet per hour. (8-5/8" pipe - 28#).

(24) September 13th. Well shut in during night. Ran bailer at 8:15 AM. Bailed down at 9:05 AM. Bailer was run during day at following intervals:

10:05 AM - 16' water in bailer
11:05 AM - 16' Do
12:05 AM - 16' Do
1:05 PM - 7' Do
2:05 PM - 12' do
3:05 PM - 10' do
4:05 PM - 12' do. Well shut in to stand over night.

(25) September 14th. Ran bailer at 8:15 AM. Water 120' off cement plug at 1170'. Well bailed down at 9:20 AM. Slight oil color on top of last bailer. Bailer was run during day at following intervals:

10:20 AM - 16' water in bailer.
11:20 AM - 14' do
12:20 PM - 14' do
1:20 PM - 12' do
2:20 PM - 12' do
3:20 PM - 12' do
4:00 PM - 8' do. Well shut in to stand over night.

(26) September 15th. Ran bailer at 8:15 AM - water at 140' off bottom. Water bailed down at 9:40 AM. No increase of water or gas - bailer run as follows:

10:20 AM - 18' water in bailer
11:20 AM - 12' do
12:20 PM - 12' do
1:30 PM - 12' do
2:20 PM - 12' do
3:20 PM - 10' do.

(a) Gun perforated 20 3/4" holes from 1125 to 1120 feet. Ran bailer. No increase in water or gas.
(b) Gun perforated 20 3/4" holes from 1120 to 1125 feet. Ran bailer. No increase in water or gas.
(c) Gun perforated 20 3/4" holes from 835 to 840 feet. Ran bailer and found oil and gas-cut mud drained from annulas above cement through shot holes. Ran bailer and found oily, gas-cut mud 80' off bottom plug (1170').
(d) Gun perforated 20 3/4" holes from 855 to 860'. Ran bailer. Fluid remained at 80' off plug. Bailed fluid down to 1117', leaving approximately 50' in hole. No increase of oil, gas or water.

(27) September 16th. Ran bailer at 8:15 AM. Found fluid 160' off plug (1170') showing increase in 13 hours of 110 feet of water from 1115 to 1132 feet and emulsion from 835 to 840 feet and 855 to 860 feet. Left fluid in hole as seal to separate from Dakota above. Plan to perforate Dakota. Gas headed and blew slightly at 11:00 AM.

(28) September 17th. Ran bailer at 8:15 AM. Fluid 350' off plug. Showing 190 feet increase in water in 24 hours. Slight show of oil at top of water.

(a) Gun perforated 20 3/4" holes from 680 to 685 feet. Oil, water and gas-cut mud behind casing, from Dakota, drained through shot-holes and a spray of oil was emitted from 8 5/8 pipe by reason of shot-concussion in open hole and asending gas (momentary duration). Well quited immediately.

(b) Gun perforated 20 3/4" holes from 685 to 690 feet. Ran bailer. Found fluid 645 feet off plut (1170'); increase of fluid appx. 295'. Ran bailer twice and recovered approximately one barrel of oil. Bailer holds appx. 42 gallons. Stopped bailing test to separate Dakota by cementing, off perforations 1115 to 1132', 1145 to 1155', and 835 to 860 feet, in order to test in open hole, fromation, 680 to 690, from which the only strong oil showing found appeared to have originated, and from which oil found behind casing came when casing was cut at 2000 feet on June 29, 1943.

(29) September 18th. Rigging up to cement.

(30) September 19th. Set cement retainer at 1087 feet on drill pipe. After running 19 sax pressure went to 1000 lbs. Opened valve above retainer and returned to surface appx. 5 sax., indicating 14 sax put away. Left cement retainer at 1087 feet and pulled drill pipe up to 882 feet. Pumped 36 sax to cover perforations 835 to 840 feet, and 855 to 860 feet. Estimate this slurry would bring top of cement plug to 777 feet. Pulled drill pipe up to 702 feet and washed free perforations 680 to 690 feet.

(31) September 20th. Rigging up to bail hole.

(32) September 21st. At 9:15 AM found fluid level at 571' off plug (1170') New cement bridges found at 699 feet. Bailed from 9:15 to 11:00 AM with slight show of oil. Thereafter, oil slightly increased and then decreased, finally followed by oil, mud, water emulsion. Hole was bailed down at 2:30 PM. at 3:30 PM, 1½ bailers of fluid was recovered. Not more than five barrels of oil was removed during the entire days bailing. Well shut down to stand over night.

(33) September 22nd. Ran bailer at 8:15 AM. Fluid level 100' appx. above cement bridge found at 699 feet. Bailed hole to 699 feet - 10 bailers - appx 10 barrels. Very little oil recovered.

(34) September 23rd. Ran bailer at 8:15 AM. Fluid level 80' from plug. Bailed hole down in seven runs. All fluid water with small show of oil. No appreciable gas. Parted pipe by shooting at 696 feet. Pulled pipe up sixteen feet and let hole stand over night.

(35) September 24th. Found bottom of pipe at 677 feet. Bailed hole free of water. appx. 5 barrels. Rigging up to pull pipe above Dakota sand. Preparatory to shooting formation.

(36) September 25th. Pulled casing up to 637' and shot Dakota with appx. 50 pounds of 40% Hercules. No response except shot consussion and slight puff of gas. Bailed mud, water, and small show oil to 695'. Recovered small amount of pebbles, sand, and broken shale. All very hard and small show of oil. Hole shut in to stand over night.

(37) September 26th. Ran bailer at 8:15 AM. Twelve feet of fluid entered during night with small amount of oil. Not over 1/8 barrel. Washed formation shot with fresh water, using batch process. Washed three times until hole was clean. No increase of oil, water or gas. Cleaned out bridge at 699 feet and cleaned out cement plug to 790 feet, where it was found solid, as placed on 9-19-43. Left hole shut in to stand over night.

(38) September 27th. Ran bailer at 8:15 AM. Found hole bridged at 695 feet. Showing 12 feet of fluid on bridge. Fluid was water with small amount of oil, estimated 5 gallons. Ran bailer at 10:00 AM - water in bailer 12'.
Ran bailer at 11:00 AM - water in bailer 10'.
Ran bailer 12:00 noon - water in bailer 10'.
Ran Bailer at 1:00 PM - water in bailer 12'. Broke through bentonite bridge at 695 feet and found hole open to 790 feet, top of cement plug. Bridged hole at 695 feet, top of stuff. 8-5/8" pipe, prepatory to plugging and abandonment.

(39) September 28th. It is the concensus of opinion of the writer, the Potash Company of America, the Mack Drilling Company, and others qualified to offer reliable opinion upon the means and methods employed, and the results obtained, concerning the above tests, that every reasonable thing was done to find the source of oil displaced on the ditch when the 8-5/8" pipe was cut at 2000 feet on June 29th, 1943, and if found to test its commercial value. This search and these tests have been made and completed as of September 28, 1943.

(40) A subsequent report of work done has been completed by the Potash Company of America, and the Mack Drilling Company. This notice effective September 29, 1943, was approved by the writer subject to final approval by Mr. Hauptman, Dist. Engineer of the Salt Lake City office of the United States Geological Survey, after having obtained his oral approval by telephone; together with a notice of Intention to Plug and abandon.

(41) EXPLANATION - OIL FOUND ON SUMP - Prior to cementing of 8-5/8" casing at 2780 feet the hole was loosing large quantities of drilling fluid to formation. This formation continued to take drilling fluid after the 8-5/8" pipe was cemented and landed. As the drilling fluid back of the casing, above the cement slurry back of the casing, was absorbed by the formation back of the casing above the cement slurry, oil from the Dakota sand followed the drilling fluid down the hole and slowly accumulated in this annulas in sufficient amount during several weeks to make a strong showing of free oil on the ditch and pit. When this oil was displaced by the mud collumn inside the 8-5/8" casing immediately after this pipe was cut at 2000 feet, as of June 29th, 1943, while plugging by stages thereafter and when cementing this pipe at 1198'. Any slight showings of oil found between 2000 feet and the base of the Dakota sand was oil sealed off or absorbed by these formations by reason of this Dakota oil having followed the receding mud collumn down the annulus back of the 8-5/8" pipe before it was cut at 2000 feet.

(42) Basing opinion upon tests made prior to September 10th, 1943, and current tests just completed, it is concluded that: (1) the source of this oil is in the Dakota sand or contact between the Dakota sand and Mancos shale; (2) not more than 10 barrels of this oil was removed during the entire testing period, and (3) this well is not capable of commercial production and is therefore a dry hole.

(43) In order to conserve manpower, time, materials, equipment, and money and to release equipment for further work elsewhere, plugging and abandonment operations were approved and allowed to proceed without further delay.

(44) A strip-log and Schlumberger Survey Chart is attached to the original herewith.

Very truly yours,

WM. H. STRANG
U. S. G. S.
September 29, 1943.

WHS/jf

enc.

copy to Casper 10-7-43

C O P Y

306 Federal Building
Salt Lake City 1, Utah

October 7, 1943.

Mr. Michael J. Foley,
Director of Production, District Four,
Petroleum Administration for War,
320 First National Bank Bldg.,
Denver 2, Colorado.

Dear Mr. Foley:

Reference is made to your letter of September 29, regarding operations of the Potash Company of America in the Crescent area, Grand County, Utah. Your visit to this office this morning in company with Mr. Weeks was very beneficial and I believe mutually helpful.

In regard to the last paragraph of your letter, this will confirm our discussion of that particular operation. I might state here that the Potash Company has about completed the last of its four-well exploratory program located on the north half of T. 21 S., R. 19 E.

The well recently drilled by the Defense Plant Corporation in the SW¼SE¼ sec. 4, T. 22 S., R. 19 E., on patented land, was taken over by the Potash Company along with other acreage acquired from the Crescent Eagle Oil Company through assignment of operating agreement. The Potash Company has already completed two wells—the first on the SW¼SW¼ of sec. 4 on oil and gas lease Salt Lake 063655, and the second on the NW¼NE¼ sec. 16, state land, both in T. 22 S., R. 19 E.—and is now drilling the third and fourth wells. The third is on the SE¼SW¼ sec. 33, T. 21 S., R. 19 E., on oil and gas lease Salt Lake 063655; and the fourth is on the NW¼NW¼ sec. 10, T. 22 S., R. 19 E., on oil and gas lease Salt Lake 063653. These last two wells have about reached their 5,000-foot objective, and thereafter it is questionable as to whether the Potash Company will continue drilling operations in the immediate future.

With the exception of the Defense plant Corporation well drilled in 1942, the four later wells have all been under the supervision of this office, including the section 16 well which was supervised by us at the request of the Utah State Land Board.

Although these wells have been drilled on oil and gas leases, there is also the incentive by the Potash Company to investigate, while drilling for oil, the extent and quality of the magnesium and potash shalts, the discovery of which is report in detail in War Minerals Report No. 12 of the Bureau of Mines. Rather than to say that the operations are being

conducted for petroleum or mineral, it is my belief that they are being conducted for both, although primarily for oil and gas.

As yet, no commercial discovery of oil or gas has been made although the Defense Plant Corporation well does have a very good show of oil. It is believed this show may soon be tested for commercial possibilities although the well has remained in a suspended status since August 3, 1942.

Very truly yours,

C. A. Hauptman,
District Engineer.

CAH:id

Form 9-331 a
(March 1942)

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake
Lease No. M.L. 858A.
Unit W.S.McCarthy

SUNDRY NOTICES AND REPORTS ON WELLS

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NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	X
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

October, 19 43.

Well No. 1 is located 330 ft. from {N} line and 2310 ft. from {E} line of sec. 16
nw1, (Block and Sec. No.) #16 T. 22S., R. 19E., Salt Lake
Crescent Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4731 ft.

NOV 1 1943
ORIGINAL FORWARDED TO CASPER

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Sept., 29th :- On contacting Mr. C.A. Hauptman, Dist. Engineer, by telephone in Casper Wyoming, we reported details of operations of test for production and ask for verbal approval to proceed with abandonment. Such verbal approvel was given. We proceeded thus: Checked bridge placed in top of 8" casing at 695' and found same secure. Dumped 35 sacks of special oil well cement in hole, after which we checked top of cement so placed at 671' with steel line measure. This cement plug completely covers Dakota sandstone. Placed 19' of dry shale in hole, bringing top of shale plug to 652'.
Sept., 30th :- Had recovered 137' of 8" casing when slips holding main string failed and let approximately 500' of 8" casing drop to top of shale plug. Top of 8" casing checked at 152' from surface. In running drill pipe inside of casing the pipe stopped 192' from surface indicating possible casing collapse at this point. Con'd page 2.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Potash Company of America

Address Thompson, Utah.

By Thos. S. Lant

Title Field Superintendent

Subsequent Report - Abandonment # 2.
M.L. 858A - W.S.McCarty
NW¼, NE¼, Sec. 16, T.22S., R.19E
Crescent Area, Grand County, Utah.
October, 19th, 1943.

Continuation of Daily Summary:

Oct., 1st

Attempts were made to secure inside of 8" casing with chain hitch without success - Bridge was established at point where casing was collapsed. 1¼" bolt was welded through 4½" sub -- this bolt's lenghh extended to within ¼" inch of the I.D. of the 8" casing. Said sub was then run on the bottom of the drill pipe where it rested on the bridge placed at the point where casing was found to be collapsed. 2½ sacks of special oil well cement was then poured in around said sub at 4 P.M.

Oct., 2nd

At 9 A.M. strain was taken on drill pipe of Approximately 22,000 lbs. this being limit of safety factor. Brake was set at this point. Within 5 minutes after pull was established, drill pipe jumped. This would indicate that casing was loosened or cement hitch had pulled loose. We recovered drill pipe and found that cement hitch, which had covered 5' above sub, had pulled loose. This affirmed our opinion that casing was damaged to the extent that further efforts toward it's recovery would not be practical or profitable. Hole was then filled to within 5' of surface with dry shale. 5' of cement was then placed in top of surface casing. 4" pipe marker was placed along side of surface pipe - imbedded in 6' of cement and extending 4' above surface of well.

Oct., 7th

Surface ground surrounding well was returned to normal contour and appearance with "Bulldozer" International Catterpiller Tractor.

Approved Oct. 30, 1943
C A Hauptman
Petroleum Engineer

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box CC
Taft, California

February 29, 1944

MEMORANDUM for Mr. Hauptman, Salt Lake City, Utah:

Subject: Supplement to Memorandum Report of September 30, 1943.
McCarthy Well No. 1, "State"
NW, NE, Section 16, T. 31 S., R. 19 E., S.L.M., Grand County, Utah.

On the final test (and prior thereto) of the above named well, a small amount of dead black oil was found after gun-perforation of casing opposite and below the Dakota Sand and the shooting of exposed Dakota Sand.

In paragraph 42 of the memorandum to you dated September 30, 1943, there appears the following statement: -------"it is concluded that: (1) the source of this oil is in the Dakota Sand or contact between the Dakota Sand and Mancos Shale."

In order that no misconception arise from the above statement, the following explanation seems pertinent to the subject matter:

(1) While drilling was in progress at approximately 2800', there was considerable loss of drilling fluid to Formations above this depth; (2) At about 2800' the drill pipe stuck, and all efforts to loosen by ordinary means of mud circulation failed; (3) thereafter, Rangley crude oil, co-mingled with diesel fuel oil was used in lieu of mud-fluid to loosen this stuck pipe; (4) Immediately thereafter, 8-5/8" casing was run and cemented at about 2800'--thereby arresting further loss of drilling fluid; (5) Completion of this 8-5/8" cementing job left about 800 feet of annulus back of the casing full of cement and the remainder to the surface full of Rangley crude + diesel fuel oil + a small amount of mud-fluid; (6) Some formations above 2000 feet continued to "take" fluid after the casing was cemented and landed; (7) Porous formations above 2000' took fluid (oil) faster than they took fluid (mud); (8) When the 8-5/8" casing was cut (under strain) at 2000' and circulation established by pump-pressure through the cut from the inside, oil was displaced on the ditch; (9) When this casing was recemented at 1198', more oil was displaced on the ditch; (10) A small amount of this flush oil still remained in the annulus above the cement back of the casing, and was absorbed by the Dakota Sand; (11) This oil, drained into the hole through gun perforations, and after shooting open Dakota Sand, was exhausted by a few runs of the bailer; (12) this oil is the same oil used in flushing loose the drill pipe stuck at 2800' and is not native to the Dakota Sand as paragraph 42 above mentioned would seem to indicate.

? Cost.

Obviously, the true source of the oil found in the ditch, drained from the annulus through gun perforations, and quickly exhausted by bailing after shooting open formation, is not the Dakota Sand, but is the Rangley Oil Field in Colorado and the refinery that produced the diesel fuel.

Copies - not in agreement.