

dugan production corp.

FLAG-REDFERN OIL CO.
Aloha #1
1710' FSL - 790' FWL
Sec 16 T28N R11W
San Juan County, NM

APPLICATION FOR DOWNHOLE COMMINGLING
Flag-Redfern Oil Co.
Aloha #1 & #2 Wells
Unit L & D, Sec. 16, T-28-N, R-11-W
San Juan County, New Mexico
Case No. 7121
Exhibit No. 2

MORNING REPORT

- 11-7-80 MIRU Morrow Drlg. Co. Rig. Spudded 8-3/4" hole @ 10:30 a.m., 11-6-80. Drilled to 127'. Ran 3 jts 7" O.D., 23#, 8 Rd., ST&C "B" cond. csg. T.E. 123.76' set @ 125' G.L. cemented w/ 60 sx class "B". P.O.B. @ 2:00 p.m., 11-6-80. Good cement to surface. W.O.C.
- 11-8-80 Drlg. 5" hole @ 780'.
- 11-9-80 Drlg. 5" hole @ 1180'. Well kicked @ 960'. Mixed gel & starch - well is now completely under control. No mud properties available.
- 11-10-80 T.D. 1690'. Laying down drill pipe, prep to run 2-7/8" csg.
- 11-11-80 Laid down drill pipe. Ran 60 jts. 2-7/8" O.D. 6.4# CW55-10RD NEUE tbg for csg. T.E. 1692.51' set @ 1692' G.L. Had good circulation throughout job. Cemented w/ 75 sx extended slurry followed by 75 sx class "B" neat. Bumped plug w/ 1200 psi. Held OK. Shut in w/ 750 psi. Circulated trace of cement. P.O.B. 11:10 a.m. 11-10-80.
- 11-25-80 Rigged up Southwest Surveys. Ran GR/Neutron/CLL from PBTD 1657' to 850'. Rigged up FWS swabbing unit. Swabbed well down to 1100'. Perf zone 1597'-1603', 6', 1 SPF, .43" diam. hole, 6 holes w/ 2-1/8" bi-wire glass jet gun. Perf 1311'-1326', 15', 1 SPF, .43" diam hole, 15 holes w/ 2-1/8" bi-wire glass jet gun. Well unloading while pulling gun out of the hole.

- 11-28-80 Rig up FWS to run tubing. Ran Baker model D packer on 43 jts of 1½", 10R, EUE, new tubing. T.E. 1366.92 set @ 1365' GL. Set packer in tension. Well making gas on annulus. Shut in annulus. Annulus built up to 400 psi in 10 min. Tubing making slight amount of gas.

Rigged up Cementers Inc. acid truck and 3 Rivers water hauling. Pumped 150 gals 15% HCL w/ inhibitor down casing and displaced w/ 3.8 bbls of water. Breakdown pressure 1550 psi. 950 psi pressure while pumping @ 3/4 BPM. ISDP 450 psi. 0 psi in 7 mins. after shut-in. No indication of communication on annulus noted. Pumped 150 gal of 15% HCL w/ inhibitor down annulus and displaced w/ 4.1 bbls of water. Breakdown pressure 1100 psi, 750 psi pressure while pumping @ 1 BPM ISDP 550. 200 psi in 5 mins after shut in. No indication of communications w/ tubing noted. Well flowing while pulling packer. Well left open for 4 hrs. Shut in.

- 12-1-80 Rigged up the Western Co. and foam fraced the P.C. & Fruitland formations (1597-1603 & 1311-1326) w/ 70% quality foam. Pressure tested lines to 4800 psi. Placed 4000 gal pad of 70% quality foam ahead of 5000 gals of 70% quality foam w/ 1 ppg of 10-20 sand, followed by 7500 gals of 70% quality foam w/ 2 ppg of 10-20 sand. Placed 2000 gal of 70% quality foam pad and dropped 10 balls (7/8" diam, 1.3 sg) followed by 7500 gals of 70% quality foam w/ 2 ppg of 10-20 sand. Displaced w/ 340 gals of 70% quality foam. ISDP 1000 psi; 15 min shut-in 900 psi. Maximum pressure 1700 psi, minimum pressure 1400. Average pressure 1650 psi. No ball action noted. IR 15 BPM. Materials used. 194,040 SCFN₂, 35,000# 10-20 sand, 175 bbls of water, 41 gals adafoam, 182 HHP, 10 balls (7/8" diam., 1.3 sg). Well opened to atmosphere thru 5/8" choke 2 hrs after treating.

- 12-3-80 Rigged up FWS pulling unit. Rigged up wellhead. Ran and landed the following tubing string; 1 swab stop (.40'); 7 jts 1½", 10R, EUE, 2.4#/ft, J-55, new tubing (228.50'); 1 Baker model "C" packer set in tension (1.68'); 42 jts 1½", 10R, EUE, 2.4#/ft., J-55, new tubing (1364.59'). TE 1595.17' set at 1594' GL, packer set in tension at 1364' GL. No sand tagged. Annulus making gas, tubing making gas and misting soapy water. Well shut in.

NORTHWEST NEW MEXICO PACKER-LEAKAGE TEST

Revised 10/1/78

Operator Flag-Redfern Oil Company Lease Aloha Well No. 1
Location of Well: Unit L Sec. 16 Twp. 28 North Rge. 11 West County San Juan
Name of Reservoir or Pool (Oil or Gas) Type of Prod. Method of Prod. Prod. Medium (Tbg. or Csg.)
Upper Completion Pinon Fruitland Gas Flow Csg.
Lower Completion Fulcher-Kutz Pictured Cliffs Gas Flow Tbg.

PRE-FLOW SHUT-IN PRESSURE DATA
Upper Compl Hour, date Shut-in 10:00 am 12-3-80 Length of time shut-in 7 days SI press. 575 psig Stabilized? (Yes or No) NO
Lower Compl Hour, date Shut-in 10:00am 12-3-80 Length of time shut-in 7 days SI press. 482 psig Stabilized? (Yes or No) NO

FLOW TEST NO. 1
Commenced at (hour, date)* 9:00 am 12-10-80 Zone producing (Upper or Lower): lower
Time (hour, date) Lapsed time since* Pressure Upper Compl. Lower Compl. Prod. Zone Temp. Remarks
9:00am 12-10-80 0 575 482 43 Start test 1/2" choke
10:00am 12-10-80 1 hr 575 200 41
11:00am 12-10-80 2 hr 575 160 41
12:00am 12-10-80 3 hr 575 48 47

Production rate during test
Oil: 0 BOPD based on Bbls. in Hrs. Grav. GOR
Gas: 329 AOF MCFPD; Tested thru (Orifice or Meter):

MID-TEST SHUT-IN PRESSURE DATA
Upper Compl Hour, date Shut-in 10:00am 12-3-80 Length of time shut-in 14 days SI press. 575 psig Stabilized? (Yes or No) NO
Lower Compl Hour, date Shut-in 12:00am 12-10-80 Length of time shut-in 7 days SI press. 482 psig Stabilized? (Yes or No) NO

FLOW TEST NO. 2
Commenced at (hour, date)** 1:00pm 12-17-80 Zone producing (Upper or Lower): upper
Time (hour, date) Lapsed time since ** Pressure Upper Compl. Lower Compl. Prod. Zone Temp. Remarks
1:00pm 12-17-80 0 575 482 56 Start test 3/4" choke
2:00pm 12-17-80 1 hr 161 482 54
3:00pm 12-17-80 2 hr 149 482 55
4:00pm 12-17-80 3 hr 142.5 482 54

Production rate during test
Oil: 0 BOPD based on Bbls. in Hrs. Grav. GOR
Gas: 2255 AOF MCFPD; Tested thru (Orifice or Meter):

REMARKS:

I hereby certify that the information herein contained is true and complete to the best of my knowledge.

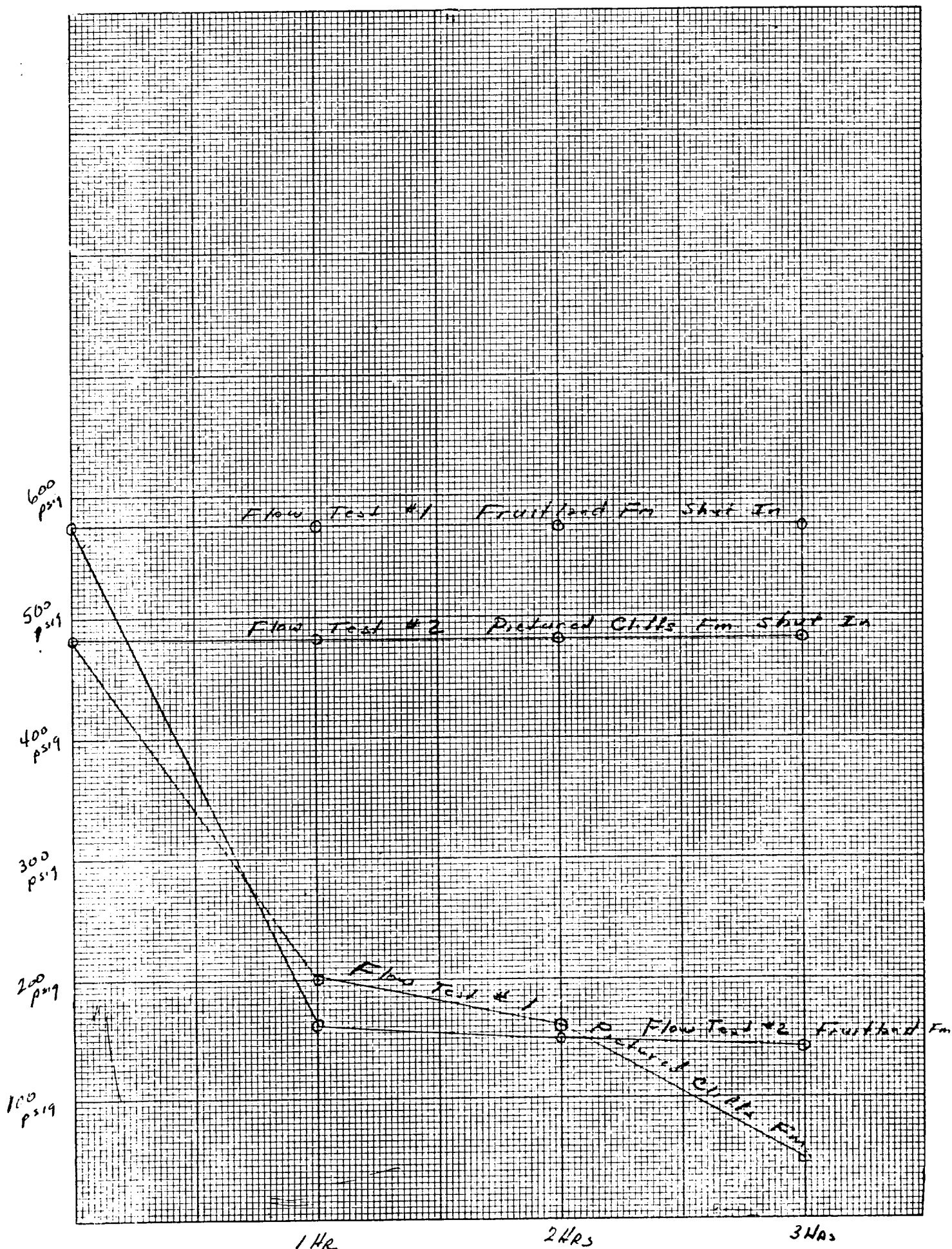
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San Juan County, New Mexico
Case No. 7121
Exhibit No. 6

Operator Flag-Redfern Oil Company
by Thomas A. Dugan
Title Agent
Date 1-13-81

NORTHWEST NEW MEXICO PACKER LEAKAGE TEST INSTRUCTIONS

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.
2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.
3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.
4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Flow test shall be continued for seven days in the case of a gas well and for 24 hours in the case of an oil well. **Note:** If, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.
5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.
6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3-hour tests: immediately prior to the beginning of each flow period, at fifteen minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the conclusion of each flow period. 7-day tests: immediately prior to the beginning of each flow period, at least one time during the flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.
- 24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges, the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.
8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Artec District Office of the Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 10-1-78, with 12 deadweight pressures indicated thereon as well as the flowing temperatures (oil zones only) and gravity and GOR (oil zones only). A pressure versus time curve for each zone of each test shall be constructed on the reverse side of the Packer Leakage Test Form with all deadweight pressure points taken indicated thereon. For oil zones, the pressure curve should also indicate all key pressure changes which may be reflected by the recording gauge charts. These key pressure changes should also be tabulated on the front of the Packer Leakage Test Form.



OIL CONSERVATION DIVISION

Form C-122
Revised 10-1-78STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 12-10-80				
Company Flag-Redfern Oil Co.				Connection					
Pool Fulcher Kutz P.C.				Formation Pictured Cliffs				Unit	
Completion Date 12-3-80		Total Depth 1690'		Plug Back TD 1657'		Elevation		Farm or Lease Name Aloha	
Csg. Size 2-7/8"	Wt. 6.4#	d	Set At 1692	Perforations: From 1597 To 1603		Well No. #1			
Tub. Size 1 1/4"	Wt. 2.4#	d	Set At 1594	Perforations: From open-end To		Unit Sec. Twp. Rge. L 16 28N 11W			
Type Well - Single - Brdenhead - G.C. or G.O. Multiple Gas-Gas-Dual					Packer Set At 1364'		County San Juan		
Producing Thru Tbg.		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press. - P _a		State New Mexico	
L	H	Gg	% CO ₂ .62 est.	% N ₂	% H ₂ S	Prover	Meter Run	Taps	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							482		575		7 days
1.											
2.											
3.	1/2" pos choke			48		46 ⁰			575		3 hrs
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcd
1							
2.							
3.	5.4315		60	1.014	.9837	1.000	325
4.							

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Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.

A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.

Specific Gravity Separator Gas _____ XXXXXXXXXX

Specific Gravity Flowing Fluid _____ XXXXX

Critical Pressure _____ P.S.I.A. _____ P.S.I.A.

Critical Temperature _____ R _____ R

NO.	P _i ²	P _w ²	P _e ²	P _e ² - P _w ²
1				
2				
3	3600		3606	240,430
4				
5				

(1) $\frac{P_e^2}{P_w^2 - P_e^2} = 1,0150$

AOF = Q $\left[\frac{P_e^2}{P_w^2 - P_e^2} \right]^n = 329$

(2) $\left[\frac{P_e^2}{P_w^2 - P_e^2} \right]^n = 1.0127$

Absolute Open Flow	329	Mcd @ 15.025	Angle of Slope @	Slope, n .85
Remarks:				

Approved By Division	Conducted By Anderson	Calculated By Jacobs	Checked By
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OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501Form C-177
Revised 10-1-78

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 12-17-80	
Company Flag-Redfern Oil Co.		Connection	
Pool Pinon		Formation Fruitland	
Completion Date 12-3-80		Total Depth 1690'	Plug Back TD 1657'
		Elevation 5641 GL	
Farm or Lease Name Aloha		Well No. #1	
Ceq. Size 2-7/8"	Wt. 6.4#	Set At 1692'	Perforations: From 1311' To 1326'
Tlg. Size 1 1/2"	Wt. 2.4#	Set At 1594'	Perforations: From annular space
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas-Gas-Dual		Packer Set At 1364'	Unit Sec. Twp. Rye. L 16 28N 11W
Producing Thru Annulus		Reservoir Temp. °F	Mean Annual Temp. °F
Baro. Press. - P _a		State New Mexico	
L	H	G _g	% CO ₂ % N ₂ % H ₂ S
Prover		Meter Run	Taps

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							482	56	573	56	7 days
1.											
2.											
3.	pos choke 3/4"			142.5		54	482	56			3 hr
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1							
2.							
3	12.365		154.5	1.006	.9837	1.104	2087
4.							
5.							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
1.					Specific Gravity Separator Gas _____	XXXXXX
2.					Specific Gravity Flowing Fluid _____	XXXXXX
3.					Critical Pressure _____ P.S.I.A.	P.S.I.A.
4.					Critical Temperature _____ R	R
5.						

NO.	P _t ²	P _w ²	P _t ² - P _w ²	(1) $\frac{P_c^2}{P_t^2 - P_w^2} =$	(2) $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n =$
1					
2					
3	23870	29.796	312.429	1.0954	1.0805
4					
5					

Absolute Open Flow _____ Mcfd @ 15.025		Angle of Slope @ _____		Slope, n .85	
Remarks: _____					
Approved by Division		Conducted by Donovan		Calculated by Donovan	
				Checked by	

APPLICATION FOR DOWNHOLE COMMINGLING

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Aloha #1 & #2 Wells

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Exhibit No. 3

DIAGRAMMATIC SKETCH
DUAL GAS COMPLETION

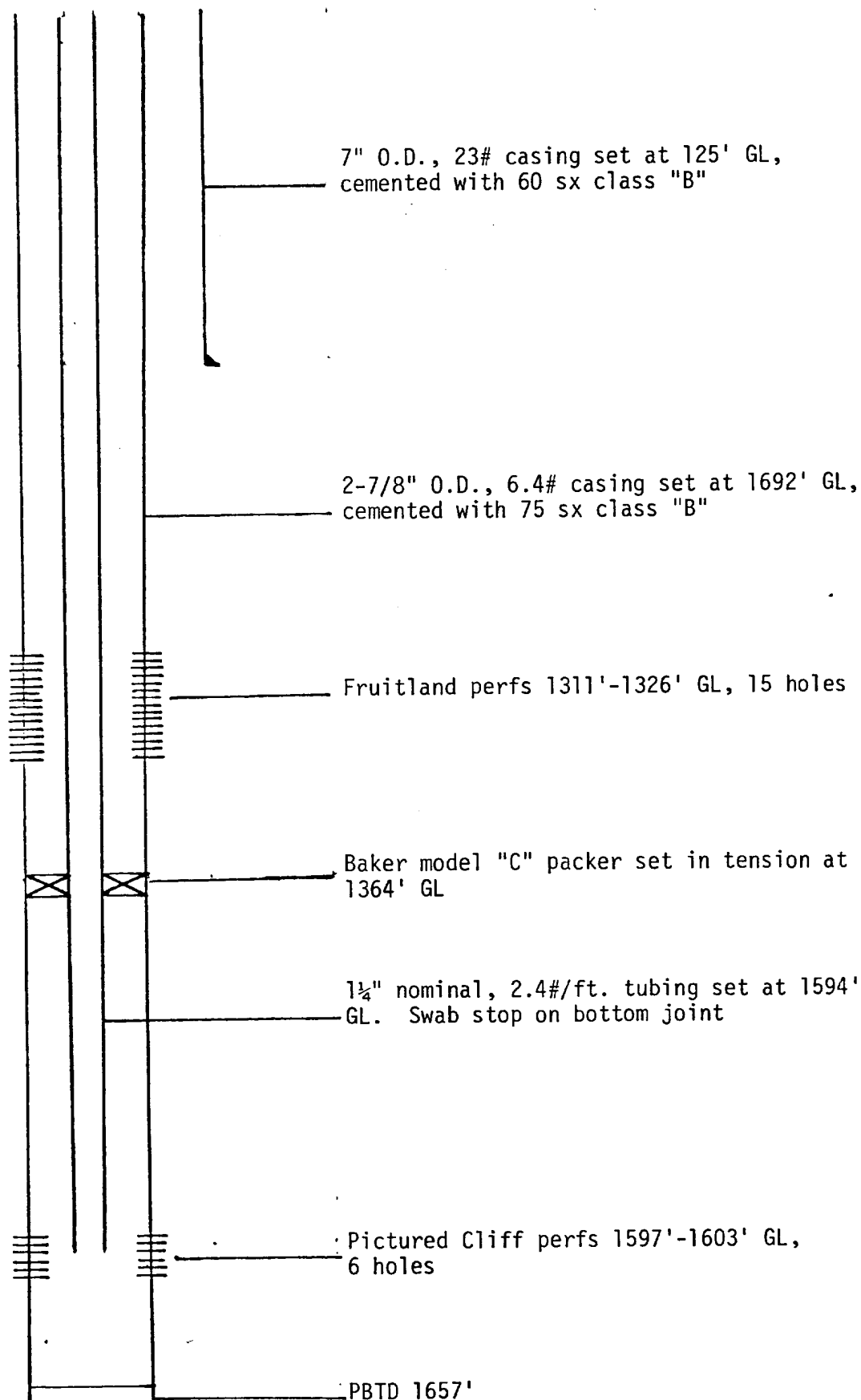
Flag-Redfern

Aloha #1

1710' FSL - 790' FWL

Sec 16 T28N R11W

San Juan County, NM



A. DEDICATED ACREAGE

Aloha #1 Well
NM 013365
Flag-Redfern Oil Co.

B. NM 013365
Flag-Redfern Oil Co.

C. NM 010063
George E. Willett
Curtis Little
Bradley Keyes

D. SF 080844
National Drilling Co.

E. NM 013365
Dugan Production Corp.

F. NM 021116
Flag-Redfern Oil Co.

G. NM 010063
George E. Willett
Curtis Little
Bradley Keyes

ALOHA #1 WELL

OFFSETTING LEASES AND OPERATORS

APPLICATION FOR DOWNHOLE COMMINGLING

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Exhibit No. 1

