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Form C-105
Revised 11-1-X

NEW MEXICO OIL CONSERVATION COMMISSION
WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5a. Indicate Type of Lease: State ☐ Fee ☒

5. State Oil & Gas Lease No.:

1a. TYPE OF WELL

b. TYPE OF COMPLETION: OIL WELL ☐ GAS WELL ☐ DRY ☒ OTHER ____ NEW WELL ☒ WORK OVER ☐ DEEPEN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ OTHER

7. Unit Agreement Name:

8. Farm or Lease Name: Santa Fe Pacific #8-19

2. Name of Operator: RIO COLORADO OIL & GAS, INC.

9. Well No.: #2

3. Address of Operator: 1546 Cole Boulevard, Golden, CO 80401

10. Field and Pool, or Wildcat: Wildcat

4. Location of Well: UNIT LETTER H LOCATED 2310 FEET FROM THE North LINE AND 990 FEET FROM THE East LINE OF SEC. 19 TWP. 17N RGE. 9W NMPM

12. County: McKinley

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Cashinghead
12-5-79	12-10-79	N/A	7061'G.L., 7065' K.B.	7061'

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
2775'	N/A	N/A	→	0-2775'	N/A

24. Producing Interval(s), of this completion — Top, Bottom, Name: N/A

25. Was Directional Survey Made: No

26. Type Electric and Other Logs Run: Schlumberger Dual Induction-SFL and Compensated Fm. Density

27. Was Well Cored: No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
7"	20#	124'	8-3/4"	80 sx. reg.w/2% CaCl2	None

29. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN
N/A				

30. TUBING RECORD

SIZE	DEPTH SET	PACKER SET
N/A		

31. Perforation Record (Interval, size and number): N/A

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
N/A	

33. PRODUCTION

Date First Production	Production Method (Flowing, gas lift, pumping — Size and type pump)	Well Status (Prod. or Shut-in)
N/A		

Date of Test	Hours Tested	Choke Size	Prod'n. For Test Period →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Gas—Oil Ratio

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate →	Oil — Bbl.	Gas — MCF	Water — Bbl.	Oil Gravity — API (Corr.)

34. Disposition of Gas (Sold, used for fuel, vented, etc.): N/A

Test Witnessed By:

35. List of Attachments: Wellsite Geologist's Well Report

36. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.

SIGNED ORIGINAL SIGNED BY D. P. McCOURT TITLE Petroleum Engineer DATE 1/8/80

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filled in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon		T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn		T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka		T. Pictured Cliffs		T. Penn. "D"	
T. Yates		T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers		T. Devonian		T. Menefee		T. Madison	
T. Queen		T. Silurian		T. Point Lookout	405'	T. Elbert	
T. Grayburg		T. Montoya		T. Mancos	1810'	T. McCracken	
T. San Andres		T. Simpson		T. Gallup	1585'	T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota	2450'	T.	
T. Blinebry		T. Gr. Wash		T. Morrison	2767'	T.	
T. Tubb		T. Granite		T. Todilto		T.	
T. Drinkard		T. Delaware Sand		T. Entrada		T.	
T. Abo		T. Bone Springs		T. Wingate		T.	
T. Wolfcamp		T.		T. Chinle		T.	
T. Penn.		T.		T. Permian		T.	
Cisco (Bough C)		T.		T. Penn. "A"		T.	

OIL OR GAS SANDS OR ZONES

1, from None to ..... No. 4, from ..... to .....

2, from ..... to ..... No. 5, from ..... to .....

3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from None to ..... feet. .....

No. 2, from ..... to ..... feet. .....

No. 3, from ..... to ..... feet. .....

No. 4, from ..... to ..... feet. .....

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	405	405	Mesa Verde Group				
405	595	190	Point Lookout Ss.				
595	827	232	Satan Tongue				
827	1585	758	Crevasse Canyon Sand				
1585	1810	225	Gallup Sand				
1810	2450	640	Mancos Shale				
2450	2767	317	Dakota Formation				
2767	2775	8	Morrison Formation				
			DST#1 2634-2670' - 36' (3rd Dakota Sand)				

RIO COLORADO OIL AND GAS, INC.

#2 Santa Fe Pacific 8-19
Section 19, T17N - R9W
McKinley County, New Mexico

CONTENTS

SUMMARY

WELL NAME:	Rio Colorado Oil and Gas, Inc. #2 Santa Fe Pacific 8-19
LOCATION:	SE NE¼ Section 19, T17N - R9W (990' F.E.L. & 2310' F.N.L.) McKinley County, New Mexico
TYPE:	Wildcat
ELEVATION:	7061 feet - Ground 7065 feet - Kelly Bushing
TOTAL DEPTH:	2775 feet - Driller 2781 feet - Schlumberger
GEOLOGIST:	Achille Vitali, Jr. 6670 West 28th Avenue Denver, Colorado 80214
CONTRACTOR:	Stewart Brothers Drilling Company Grants, New Mexico Rig #45 - Failing 2500 Pump #1 - Gardner-Denver F.X.D. Pump #2 - Gardner-Denver F.X.D. Pusher - Clarence Lucero
COMMENCED:	Spudded - 3:00 AM; December 5, 1979 Logged with Schlumberger - Decmeber 10, 1979 Plugged and Abandoned - December 11, 1979

CASING RECORD:

Surface Casing

Landed 3 joints of 24#, K-55, 7 inch casing at 124 feet kb. Cemented casing with ±80 sacks of regular cement containing 2% calcium chloride.

LOGGING RECORD:

Samples

Caught	200' - 2775'
Described	200' - 2775'

Drilling Time

Geolograph	200' - 2775'

Mechanical Logs

Schlumberger

Dual Induction - S.F.L. Log	125' - 2775'
Compensated Formation Density Log	690' - 2780'

FORMATION TOPS

FORMATION AND AGE	SAMPLE TOPS	LOG TOPS	DATUM
Cretaceous			
Mesa Verde Group	Surface	Surface	+7061'
Point Lookout Sand	400'	405'	+6660'
Satan Tongue	±540'	595'	+6470'
Crevasse Canyon Sand	±860'	827'	+6238'
Gallup Sand (Massive)	1583'	1585'	+5480'
Mancos 'Shale'	-	1810'	+5255'
Dakota Formation	2445'	2450'	+4615'
Jurassic			
Morrison Formation	2766'	2767'	+4298'

DRILL STEM TESTS

Drill Stem Test #1 2634' to 2670' (36') 3rd Dakota Sand

Halliburton Testers. Bottom Anchor Straddle. Tool opened dead - remained dead. Reopened tool with a faint blow - died in ~10 minutes.

Recovered: 323 feet fluid consisting of; 200 feet watery mud and 123 feet muddy water with slight petroliferous odor.

Rw 6.26 ohms @ 67°F. Bottom Sample.

Pressures		Time
IHP	1477#	
IFP	26/39#	15 minutes
ISIP	921#	60 minutes
2nd FP	39/135#	60 minutes
FSIP	895#	120 minutes
FHP	1477#	

BIT RECORD

NO	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS	PUMP PRESS.
1	8 3/4	HTC	Retip	140'	140'	?	?
2	6 1/4	HTC	Retip(OSC1G-J)	1120'	980'	11	600#
3	6 1/4	Smith	DT-J	1960'	840'	11 1/2	700#
4	6 1/4	Smith	DT-J	2560'	600'	9 1/2	8-900+#
5	6 1/4	Hughes	OSC1G-J	2775'	215'	8	800#

DEVIATION RECORD

No Deviation Surveys were run in this hole.

PLUGGING RECORD

Verbal permission to plug was obtained from Mr. L. Kendrick of the New Mexico Oil and Gas Conservation Commission at 3:30 PM on the 10th of December, 1979.

Mr. Kendrick recommended the following program:

Depth of Plug	Sacks of Cement
2750' - 2600'	28 sacks
2500' - 2400'	18 sacks
1600' - 1500'	18 sacks
500' - 400'	18 sacks
160' - 100'	18 sacks
Surface Marker	10 sacks

CHRONOLOGICAL SUMMARY

December 4	Rigged down and moved.
December 5	Rigged up. Spudded at 3:00 AM. Drilled surface hole. Ran surface casing. Wait on cement.
December 6	Wait on cement and nippled up. Drilled ahead at noon.
December 7 - 9	Drilling ahead. Reached T.D. at 4:30 PM.
December 10	Ran Schlumberger Logs. Ran Drill Stem Test #1.
December 11	Plugged and Abandoned hole.

REMARKS

HYDROCARBON EVALUATION

A Drill Stem Test of two porosity zones (2634-42 feet and 2654-64 feet) of the 3rd Dakota Sand bench recovered a small quantity of relatively fresh water and no hydrocarbon.

All other sands penetrated are believed to be tight and/or water bearing.

OPERATIONS

Daily operations were conducted efficiently and in good spirits.

The samples were saved and taken to Rio Colorado Oil and Gas, Inc. in Denver, Colorado for deposit and storage.

Achille Vitali, Jr.
Geologist

RIO COLORADO OIL AND GAS, INC.

#2 Santa Fe Pacific 8-19
Section 19, T17N - R9W
(2310' S of N & 990' W of E)
McKinley County, New Mexico

SAMPLE DESCRIPTION

(Note: Samples not lagged unless otherwise noted.)

FROM	TO	IN MESA VERDE FORMATION
200'	220'	40% Sandstone, white buff, very fine to coarse grain, angular, friable to hard, calcareous, heavy clay matrix, light gray and tan Chert grain, flesh colored Feldspar?, looks tight, rare Glauconite, plus 60% Shale, light to medium gray green, clay type, silty in part, grading to Siltstone, gray green, very argillaceous, occasionally finely micaceous, soft to firm, non-calcareous.
220'	240'	Siltstone, gray green as above, grading to Shale, as above, plus 20% Sandstone, buff to light brown, very fine to fine grain, predominately angular, calcareous to limy, firm to hard, rest as above, plus heavy trace Claystone, light tan, dense, hard, blocky.
240'	280'	Sandstone, light gray, very fine grain to silt size, angular, friable to firm, non-calcareous, heavy clay matrix, finely salt and pepper, occasionally finely micaceous, tight, grading to Siltstone, light to medium gray, very finely sandy, soft to firm, plus small fraction Shale, medium to dark gray, soft to firm, occasionally finely carbonaceous.
280'	300'	50% Shale, medium to dark gray, as above, plus 30% Siltstone, as above, grading to Sandstone, as above, plus 20% Dolostone, light brown, dense, hard, brittle, blocky to tabular.
300'	360'	Siltstone, medium gray, very finely sandy in part, soft to slightly firm, generally very argillaceous, occasionally finely micaceous, scattered fine Carbon particles common, grading to Shale, medium gray, soft clay type, occasionally silty, occasionally heavy traces Sandstone, as above.
360'	380'	50% Coal, black and brown black, sooty and shaly to vitreous, 50% Siltstone and Shale, as above.
380'	400'	Sandstone, medium gray, very fine grain, scattered fine grain, angular to sub-angular, friable to slightly firm, very argillaceous, salt and pepper with gray Chert and Carbon particles and debris grading to Siltstone, as above, plus some Shale, as above, plus 5 to 10% Coal, as above.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
400'	420'	50% Coal, black, vitreous to brown black, shaly, pryitic in part, plus 50% Sandstone, white, fine grain, ranges very fine to medium grain, angular, sub-angular, clean looking to heavy clay matrix, slightly calcareous, tight to good porosity and permeability, occasionally pyritic, No Show.
		POINT LOOKOUT SAND
420'	500'	Sandstone, white to very light gray, very fine to fine grain, angular, friable and loose to firm, calcareous in part, light to heavy clay matrix, salt and pepper, Glauconite common, pink and orange grains, tight with some porosity and permeability, occasionally finely micaceous.
500'	540'	Sandstone, as above.
540'	600'	Shale, medium gray, soft, silty in part, grading to Siltstone, medium gray, firm, very finely sandy, plus Shales, very light gray, medium olive green, sub-waxy, occasionally with carbonaceous debris, plus 10 to 20% (streaks?) Sandstone, white to light gray to medium gray, very fine to fine grain with some fine to medium grain, angular, friable to firm to medium hard, calcareous to very calcareous in part, heavy clay matrix, in part salt and pepper, all looks tight, No Show.
		SATAN TONGUE
600'	700'	Sandstone, light to medium gray, very fine grain to silt size, angular, friable to firm, calcareous to very calcareous, very heavy clay matrix to argillaceous, finely salt and pepper with Carbon particles, occasionally fine Glauconite grain, looks tight, No Show, grading to Siltstone, medium gray, very finely sandy, friable to firm, calcareous to very calcareous, shaly in part, occasional trace Inocermus prisms.
700'	800'	Sandstone, as above, grading to Siltstone, as above, occasionally Carbon trash, light to heavy trace Inocermus.
800'	860'	Sandstone, as above, grading to Siltstone, as above, in part becoming pyritic, trace Inocermus, plus some Sandstone, off-white to very light gray, very fine to fine grain, angular, friable, calcareous, heavy white clay matrix, looks tight, traces carbonaceous and coaly debris.

Sample Description
#2 Santa Fe Pacific

FROM	TO	CREVASSE CANYON SAND
860'	900'	Sandstone, off-white to cream, very fine to medium grain, angular, friable to firm to slightly hard, salt and pepper with light and dark gray and tan Chert, occasionally pinkish grains (feldspathic?), tight, No Show, trace Pyrite clusters, plus small fraction Sandstone and Siltstone, as above, plus traces Coal and carbonaceous debris.
900'	1000'	Sandstone, off-white to very light gray to cream, as above, in part very finely carbonaceous with Carbon particles and carbonaceous debris, interlaminated with 5 to 20% light to dark gray Siltstone, very finely sandy and carbonaceous in part, grading to Shale, medium to dark gray, silty, all calcareous, light to heavy trace Inocermus prisms, some pyritic, occasional Pyrite clusters.
1000'	1040'	Sandstone, white, fine grain, ranges very fine to fine grain, angular, friable to firm, calcareous, light white clay matrix, looks clean, slightly salt and pepper with few Carbon particles, occasional Glauconite grain, rare flesh colored grain, fair to good porosity and permeability, No Show, very pyritic, 5 to 10% Pyrite clusters.
1040'	1100'	Sandstone, very light to medium gray, very fine grain to silt size, as above in 900 to 1000 foot sample, grading to 20 to 30% Siltstone, as above, plus some Shale, medium to dark gray, soft, firm, silty in part, plus heavy trace Pyrite clusters.
1100'	1140'	Sandstone, light to medium gray, very fine grain to silt size, angular, friable to firm, very heavy clay matrix to argillaceous slightly salt and pepper, occasionally glauconitic, slightly calcareous, tight, grading to Siltstone, medium to dark gray, very finely sandy, firm, plus some Shale, medium to dark gray and medium gray brown, sub-waxy clay type.
1140'	1200'	70 to 80% Sandstone, very light gray, very fine grain, angular, friable to firm to some slightly hard, calcareous to limy, carbonaceous debris, tabular to blocky, looks tight with some questionable porosity and permeability, No fluorescence or cut, plus some Siltstone and Shale, medium gray brown and medium to dark gray, some fine carbonaceous debris, soft clay type.
1200'	1300'	Sandstone, very light gray to light gray, very fine grain, angular, firm to slightly hard, some friable, calcareous to very calcareous, heavy white clay matrix, occasionally finely pyritic, very slightly and finely salt and pepper, tight looking, No Show, occasional trace Glauconite, interlaminated with minor Shale, medium gray, soft to firm, silty in part, in part slightly carbonaceous.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
1300'	1360'	Siltstone, medium to dark gray, very finely sandy in part, calcareous, firm, in part finely carbonaceous, finely micaceous, interlaminated with 10 to 20% Sandstone, as above, and grading to Shale, medium to dark gray, firm, silty in part.
1360'	1400'	Sandstone, very light to light gray, very fine grain to silt size, angular, friable to firm to slightly hard, light to heavy clay matrix, in part shaly, calcareous to limy, interlaminated with Shale, medium to dark gray, silty, calcareous, soft to firm, 10% bright yellow-gold fluorescence, bright yellow instant cut, pinpoint light brown stain on best pieces, looks tight with some poor porosity and permeability, flood of Inocermus prisms, white to cream.
1400'	1440'	60 to 70% Shale, medium to dark gray, silty in part, soft to firm, calcareous grading to Siltstone, light to medium to dark gray, very finely sandy, firm to slightly hard, calcareous to very calcareous plus 30 to 40% Sandstone, very light to medium gray, very fine grain to silt size, angular, friable to slightly hard, calcareous to very calcareous, heavy clay matrix to shaly, tight, No Show, in part carbonaceous.
1440'	1460'	Shale and Siltstone, as above, plus Sandstone, as above, in part limy, hard, plus heavy trace Limestone, off-white to light gray, hard, brittle, blocky, plus traces Inocermus and Fossil shell fragments.
1460'	1480'	Predominately Siltstone and Sandstone, light to medium gray, very fine grain, angular, argillaceous, calcareous, finely glauconitic, tight plus Shale, as above.
1480'	1500'	Siltstone and Shale, as above, plus 15% Sandstone, as above, trace Fossil shell and Inocermus prisms.
1500'	1520'	Sandstone, off-white to light to medium gray, very fine grain, predominately some very fine to fine grain, angular, friable to firm, slightly calcareous to calcareous in part, mostly medium to heavy clay matrix, few clusters of fine grain, angular to sub-round, friable to firm, sparkly with Quartz overgrowth, light to medium clay matrix, looks tight with some porosity and permeability, bright yellow-gold fluorescence, light brown pinpoint stain, fair to good bright yellow cut, plus some Siltstone, as above, calcareous, firm.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
1520'	1580'	60% Sandstone, light to medium gray, very fine grain to silt size, angular, firm, heavy clay matrix, argillaceous, calcareous in part, occasionally some cluster, very fine to fine grain, argillaceous, all looks tight, No Show, plus Siltstone, as above, and Shale, medium to dark gray, blocky, soft to firm, trace Pyrite clusters.
		Drilling Break @ 1583' Top Massive Gallup Sand
1580'	1600'	70% Siltstone, medium to dark gray and Shale, as above, in part with carbonaceous debris plus 30% Sandstone, white to very light gray, very fine grain with some very fine to fine grain, angular to sub-angular, friable to slightly firm, in part slightly calcareous, light to medium clay matrix, fair porosity and permeability, rare piece with bright yellow fluorescence, fair bright yellow cut, plus flood (5%) Pyrite cluster with encrusted sand grains.
1600'	1610'	(Extra Sample) Sandstone, white to very light gray, predominately very fine grain to silt size, angular, friable, heavy clay matrix, looks tight, has less than 5% light yellow fluorescence, light yellow crushed cut, plus abundant scattering of loose sand grains, medium to coarse grain, angular to sub-angular, occasionally some sub-round, plus abundant Pyrite clusters.
1610'	1620'	Sandstone, white to very light gray, fine grain, angular to sub-angular, friable to slightly firm, white clay matrix, pyritic in part, some clean looking, tight to good porosity and permeability, No Show, plus abundant Pyrite clusters, some with encrusted fine grain sand, plus trace Sandstone, loose, fine to medium coarse grain as above.
1620'	1630'	(Extra Sample) Sandstone, white, predominately medium to coarse grain, ranges from fine to coarse, loose, angular to sub-angular, occasionally some sub-round, occasional cluster of very fine to fine grain, clean looking and some clusters of very fine grain with heavy clay matrix with 5% bright yellow fluorescence and trace crushed cut plus abundant Pyrite clusters.
1630'	1640'	Sandstone, white to very light gray, predominately very fine to fine grain, angular to sub-angular, friable to slightly firm, light to medium heavy clay matrix, occasionally slightly salt and pepper, looks tight, some clean looking with good porosity and permeability, plus heavy trace medium to coarse loose grains, as above, plus heavy trace Pyrite, 3 pieces with light yellow fluorescence, tight, clay filled.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
1640'	1660'	Missed.
1660'	1700'	Sandstone, white to very light gray, some light gray, very fine to fine grain, occasional cluster fine grain, angular, some sub-angular, friable to limy to slightly hard, light to heavy clay matrix, mostly calcareous, some tight looking, some clean looking with fair to good porosity and permeability, No Show, rare loose medium to coarse grain, heavy trace Pyrite cluster, plus abundant Siltstone, light to medium gray, very finely sandy in part and Shale, medium to dark gray, (interlamination?) plus heavy trace Limestone, cream, dense, blocky, plus trace Dolostone, brown, dense, hard, brittle.
1700'	1720'	Sample as above, with increase in medium to dark gray Shale.
1720'	1740'	50% Shale, medium to dark gray, soft to slightly firm, silty in part, grading to/and interlaminated with Siltstone, light to medium gray, calcareous, firm, very finely sandy in part.
1740'	1780'	50 to 60% Sandstone, very light to light to medium gray, very fine grain, angular, friable to firm to slightly hard, calcareous to very calcareous, heavy clay matrix to argillaceous in part, occasionally glauconitic grain, occasionally finely carbonaceous, looks tight, No Show, grading to/and inter-laminated with Siltstone and Shale, as above.
1780'	1800'	70% Sandstone, off-white to very light gray, very fine grain to silt size, angular, friable to firm, very calcareous to limy, pyritic, tight, No Show, plus Sandstone and Siltstone, as above.
1800'	1860'	70 to 80% Siltstone, light to medium gray, some medium to dark gray, very finely sandy in part, firm to hard, calcareous to limy, interlaminated with Shale, medium to dark gray, silty and occasionally finely sandy, soft to firm, calcareous.
1860'	1900'	50 to 60% Siltstone, as above, grading to/and interlaminated with Shale, as above, plus some Shale, medium gray brown, soft, sub-waxy, and Shale, brown black, carbonaceous, soft, plus heavy trace carbonaceous debris, plus trace limy Mudstone, tan, soft, earthy.
1900'	1920'	Sample as above.
1920'	1960'	60 to 70% Shales as above, some medium to dark gray with brown cast with scattered carbonaceous debris common, interlaminated with Siltstone, as above.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
1960'	2000'	Shale, medium gray, striped with streaks carbonaceous debris, soft and bentonitic and calcareous to dark gray, soft to slightly firm, very slightly calcareous, occasionally slightly pyritic with interlamination of Siltstone, medium gray and gray with green cast, firm to hard, very calcareous, very finely sandy and glauconitic in part.
2000'	2020'	Shale, predominately dark to very dark gray, sub-fissile to blocky, calcareous, firm.
2020'	2060'	Shale, as above, plus 40 to 50% Siltstone, very light gray to medium gray buff, very finely sandy in part, hard to very hard, calcareous to limy with abundant associated Fossil debris, amber, buff, tan.
2060'	2100'	Shale, dark gray to very dark gray to black, sub-fissile in large part, calcareous, interlaminated with 20 to 25% Siltstone, light to medium to dark gray, firm to slightly hard, calcareous, plus heavy trace Limestone, light gray, earthy looking, shaly, plus trace Fossil shell debris.
2100'	2120'	Shale, as above, plus trace Siltstone, as above, plus flood Fossil shell fragments, amber to tan.
2120'	2140'	Shale, as above, plus 10 to 15% Siltstone, light to medium gray, very finely sandy, hard, very calcareous, plus 20% Limestone, white to cream to light gray, tabular to blocky, plus abundant Fossil shell fragments.
2140'	2200'	Shale, predominately dark to very dark gray, soft to slightly firm, lumpy and soft, sub-fissile and slightly brittle, plus some Shale, medium gray, bentonitic, soft, plus trace Siltstone, as above, plus traces Fossil shell debris.
2200'	2260'	Shale, very dark gray to black, soft to slightly firm, sub-fissile to lumpy, with trace Siltstone, and Fossil shell debris.
2260'	2280'	60% Sandstone, light to medium gray, predominately very fine grain with some very fine to fine grain, angular, firm to slightly hard, salt and pepper, occasionally glauconitic, occasionally micaceous, very calcareous to limy, tight, plus Shales as above.
2280'	2300'	70% Shales as above, plus 30% Sandstone, as above, grading to Siltstone, medium gray, finely sandy, very calcareous to limy, argillaceous, plus traces Shale with tan and brown Fossil specks, very calcareous.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
2300'	2320'	Shale, as above.
2320'	2340'	60% Siltstone, medium gray green, very firm to hard, very calcareous, very finely glauconitic in part plus Shales as above.
2340'	2400'	Shales as above with heavy fraction of Shale very dark gray with brown cast, heavy with Fossil specks of tan and brown, very calcareous, plus 15 to 25% Siltstone, as above.
2400'	2440'	Shales as above, plus heavy traces Siltstone lamination as above.
		Drilling Break @ 2445' to 2473' 1st Frontier Sand
2440'	2460'	Sandstone, white to very light gray, very fine grain, angular, friable to slightly firm, slightly calcareous, light to medium white clay matrix, fair porosity and permeability, No Show.
2460'	2480'	Sandstone, as above with more of very light to light gray, more with heavy clay matrix and in part becoming slightly argillaceous, tight with some porosity and permeability, No Show.
2480'	2500'	50% Sandstone, white to light gray, very fine grain to silt size, friable to firm to hard, calcareous to very calcareous, in part argillaceous, all tight, No Show, grading to Siltstone, medium to dark gray, firm to slightly hard, very calcareous with Shale interlamination, dark gray to black, silty in part, some calcareous.
2500'	2560'	Shale, medium to dark smoky gray, bentonitic looking, occasionally finely carbonaceous, some slightly silty, interlaminated with 10 to 20% Siltstone, light to medium to dark gray, in part very finely sandy, friable to firm, calcareous to very calcareous and with heavy traces to 5% Sandstone, light to medium gray, very fine grain to silt size, angular, very heavy clay matrix to argillaceous, calcareous, tight, No Show, traces Pyrite clusters.
		Drilling Break @ 2540' to 2545' and 2548' to 2557' 2nd Frontier
		30 Minute Circulation Sample
		Sandstone, white to very light gray, very fine to fine grain, angular, friable to firm, calcareous to very calcareous, medium to heavy white clay matrix, rare Glauconite grains, sparkly with Quartz overgrowths, small fraction grading to argillaceous, looks tight with some fair and even good porosity and permeability, ±5% splochy to solid yellow fluorescence, very faint cut, good bright yellow-white crushed cut on best pieces.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
2560'	2580'	40% Siltstone, light to medium to dark gray, in part very finely sandy, calcareous, friable to firm, plus Shale, medium to dark smoky gray, Bentonite type, as above, occasional trace Sandstone, white to light gray, very fine grain to silt size, angular, heavy clay matrix to argillaceous, tight, No Show, trace Pyrite clusters, occasional trace Fossil shell debris.
2580'	2600'	80% Shale, dark gray to black, fissile, calcareous to non-calcareous, slightly brittle and some dark smoky gray, soft, calcareous, plus 20% Siltstone, as above, firm to hard, very calcareous.
2600'	2620'	40% Sandstone, white to very light gray, very fine grain to silt size, angular, friable to firm to slightly hard, very heavy clay matrix, calcareous in part, slightly silicified in part, tight, No Show, grading to/and interlaminated with fraction of Siltstone, medium to dark gray, very finely sandy in part, shaly in part, plus rest Shale, dark smoky gray, silty in part, firm, slightly calcareous, occasionally finely micaceous, bentonitic looking, soft to firm.
		Drilling Break 2625' to 2633' Drilled 1 minute per foot (7 feet)
2620'	2640'	Sandstone, white with faint buff cast, fine grain, angular, friable to slightly firm, angular to sub-angular, clean looking with some clay matrix, sparkly with Quartz overgrowths, non-calcareous, fair to good porosity and permeability, splochy to solid faint to light yellow fluorescence, very faint cut, bright yellow-white crushed cut, plus Siltstone and Shale, as above.
2640'	2660'	Predominately Shales and Siltstone as above, plus heavy trace Sandstone, as above.
		Drilling Break 2647' to 2655' (8') Drilled $\pm$1 minute per foot
2660'	2680'	Sandstone, off-white to very light gray, very fine to fine grain, friable to firm, calcareous, medium to heavy clay matrix, occasional Glauconite grain, rarely salt and pepper, occasionally slightly micaceous, looks tight with some porosity and permeability, No Show, appears interlaminated in part with Shale, medium to dark smoky gray.
2680'	2700'	50% Sandstone, white to light gray, very fine to fine grain, angular, friable to firm, heavy clay matrix, calcareous, some sparkly with Quartz overgrowths looks predominately tight with some porosity and permeability, No Show, some medium to dark gray shaly, tight, plus Siltstone, medium to dark smoky gray, finely sandy in part, plus abundant Shale, medium to dark smoky gray, as above, plus some Shale, black, carbonaceous in part, trace Pyrite clusters, and Fossil shell fragments.

Sample Description
#2 Santa Fe Pacific

FROM	TO	
2700'	2720'	Predominately Shales and Siltstone, as above, plus heavy traces to 5% Sandstone, as above trace Fossil shell, amber.
2720'	2740'	Shale, very dark gray to black, sub-fissile to fissile, slightly calcareous to calcareous, flaky and slightly brittle, plus 10 to 15% Coal and carbonaceous Shale, black, granular and sandy in part, sooty, plus Siltstone, as above, plus some Sandstone, white, fine to coarse grain, loose, angular to sub-round, quartzose.
2740'	2760'	Sandstone, white, fine to medium to coarse to mini-pebble, predominately angular to sub-angular with some sub-round and occasionally round frosted grain, loose, occasional amber and light rose grains.
		MORRISON FORMATION
2760'	2775'	Sandstone, as above, plus 10% Shale, light to medium gray green, bright green, sub-waxy to waxy, firm, slightly brittle in part, some with floating sand grains.