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Form C-105
Revised 11-1-76

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: OIL WELL ☐ GAS WELL ☐ DRY ☒ OTHER

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

7. Unit Agreement Name

8. Farm or Lease Name: Santa Fe Pacific #7-29

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

9. Well No.: #1

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

10. Field and Pool, or Wildcat: Wildcat

4. Location of Well: UNIT LETTER G LOCATED 1820 FEET FROM THE North LINE AND 2220 FEET FROM

12. County: McKinley

THE East LINE OF SEC. 29 TWP. 17N RGE. 9W NMPM

15. Date Spudded	16. Date T.D. Reached	17. Date Compl. (Ready to Prod.)	18. Elevations (DF, RKB, RT, GR, etc.)	19. Elev. Cashinghead
11-27-79	12-3-79	N/A	7060' G.L., 7064'K.B.	6060'

20. Total Depth	21. Plug Back T.D.	22. If Multiple Compl., How Many	23. Intervals Drilled By	Rotary Tools	Cable Tools
2,690'	N/A	N/A	→	0-2690'	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, Compensated Formation Density

27. Was Well Cored: Side Wall Cored

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

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
7"	20#	132'K.B.	8-3/4"	80 sx reg. w/2% $CaCl_2$	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.)

Test Witnessed By

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

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 filled 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	350'	T. Elbert	
T. Grayburg		T. Montoya		T. Mancos	1752'	T. McCracken	
T. San Andres		T. Simpson		T. Gallup	1530'	T. Ignacio Qtzte	
T. Glorieta		T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota	2364'	T.	
T. Blinebry		T. Gr. Wash		T. Morrison		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.	
T Cisco (Bough C)		T.		T. Penn. "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from None to

No. 2, from to

No. 3, from to

No. 4, from to

No. 5, 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	350	350	Mesa Verde Group				
350	505	155	Point Lookout Sand				
505	725	220	Satan Tongue				
725	1530	805	Crevasse Canyon Sand				
1530	1752	222	Gallup Sand (Massive)				
1752	2384	632	Mancos Shale				
2384	2690	306	Dakota Sand				

RIO COLORADO OIL AND GAS, INC.

#1 Santa Fe Pacific 7-29
Section 29, T17N - R9W
McKinley County, New Mexico

CONTENTS

SUMMARY

WELL NAME:	Rio Colorado Oil and Gas, Inc. #1 Santa Fe Pacific 7-29
WELL LOCATION:	SW NE¼ Section 29, T17N - R9W (1820' F.N.L. & 2220' F.N.L.) McKinley County, New Mexico
TYPE:	Wildcat
ELEVATION:	7060 feet - Ground 7064 feet - Kelly Bushing
TOTAL DEPTH:	2690 feet - Driller 2694 feet - Schlumberger
GEOLOGIST:	Achille Vitali, Jr. 6670 West 28th Avenue Denver, Colorado 80214
CONTRACTOR:	Steward 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 - November 27, 1979 Finished Drilling - 9:20 PM; December 3, 1979 Logged with Schlumberger - December 4, 1979 Plugged and Abandoned well - December 4, 1979

CASING RECORD:

Surface Casing

Landed 3 joints of 24#, K-55, 7 inch casing at 132 feet kb. Cemented casing with 80+ sacks of regular cement containing 2% calcium chloride.

LOGGING RECORD:

Samples

Caught	200' - 2690'
Described	200' - 2690'

Drilling Time

Geolograph	140' - 2690'

Mechanical Logs

Schlumberger

Dual Induction - SFL Log	133' - 2684'
Compensate Formation Density Log	133' - 2684'

FORMATION TOPS

FORMATION AND AGE	SAMPLE TOPS	LOG TOPS	DATUM
Cretaceous			
Mesa Verde Group	Surface	Surface	+7060'
Point Lookout Sand	340'	350'	+6714'
Satan Tongue	500'	505'	+6559'
Crevasse Canyon Sand	700'	725'	+6335'
Gallup Sand (Massive)	1527'	1530'	+5534'
Mancos 'Shale'	-	1752'	+5312'
Dakota Formation	2380'	2384'	+4680'

DRILL STEM TESTS

Drill Stem Test #1 1530' to 1560' (30') Gallup Sand

Halliburton Testers. Bottom Anchor. Tool opened with an immediate strong blow. Blow continued to end. Reopened tool with a strong blow. Blow decreased to dead in 21 minutes.

Recovered: 1100 feet of fluid; 30 feet watery mud, 200 feet (slightly) muddy water, 870 feet water.

Rw 7.8 ohms @ 58°F.

Pressures		Time
IHP	758#	
IFP	207/469#	5 minutes
ISIP	483#	60 minutes
2nd FP	469/483#	30 minutes
FSIP	483#	60 minutes
FHP	730#	
Temperature	-	

No Sample Chamber was run.

Drill Stem Test #2 2485' to 2520' (35') 2nd Frontier Sand

Halliburton Testers. Bottom Anchor. Opened tool with a faint blow that increased to very weak at end (1/2 inch water). Reopened tool with a faint blow that died in 35 minutes - remained dead.

Recovered: 120 feet fluid; 60 feet mud and 60 feet of muddy water. After settling, bottle of recovery had odor and faint trace of oil.

Pressures		Time
IHP	1227#	
IFP	13/26#	15 minutes
ISIP	879#	60 minutes
2nd FP	26/66#	60 minutes
FSIP	852#	120 minutes
FHP	1193#	
Temperature	92°F.	

No Sample Chamber was run.

BIT RECORD

NO	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS	PUMP PRESS.
1	8 3/4	HTC	Retip	138'±	138'	?	?
2	6 1/4	HTC	Retip	700'	580'	10	800#
3	6 1/4	Smith	DT-J	1560'	860'	17	800#
4	6 1/4	Smith	DT-J	2220'	660'	20	800#
5	6 1/4	Smith	DT-J	2694'	474'	18	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 Commission at 1:15 PM on December 4th, 1979.

Mr. Kendrick recommended the following program:

Depth of Plug	Sacks of Cement
2350' - 2500'	27 sacks
1450' - 1550'	18 sacks
450' - 550'	18 sacks
100' - 150'	18 sacks
Surface Marker	10 sacks

CHRONOLOGICAL SUMMARY

November 26	Moved in and rigged up.
November 27	Spudded in early morning hours. Ran and cemented surface casing. Waiting on cement and nippled up.
November 28	Drilled out at 3:30 AM. Drilling ahead.
November 29	Drilling ahead.
November 30	Ran Drill Stem Test #1. Drilling ahead.
December 1	Drilling ahead.
December 2	Drilling ahead. Ran Drill Stem Test #2.
December 3	Finished Drill Stem Test #2. Drilling ahead. Finished drilling at 8:00 PM.
December 4	Ran Schlumberger Logs. Took Sidewall Cores. Plugged and abandoned hole.

REMARKS

HYDROCARBON EVALUATION

The massive Gallup Sand had only the most minor of shows in samples. A Drill Stem Test (1530-60 feet) of the uppermost 30 feet proved it to be an excellent fresh water aquifer without hydrocarbon shows.

The 2nd Dakota Sand bench (2490-2520 feet) is composed of very fine to fine grained sand. It contained a solid hydrocarbon sample show with some porosity and permeability and as a consequence warranted a Drill Stem Test. However, the recovery of 60 feet of muddy water with a faint trace of oil proved this zone to be mostly tight and water bearing.

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.

#1 Santa Fe Pacific 7-29
Section 29, T17N - R9W
(1810' F.N.L. & 2210' F.E.L.)
McKinley County, New Mexico

SAMPLE DESCRIPTION

(Note: Samples not lagged unless otherwise noted.)

FROM	TO	
		IN MESA VERDE FORMATION
200'	220'	Shale, very light gray, soft, bentonitic, plus Shale, light to medium gray, soft, silty and finely sandy in part, occasionally finely carbonaceous, plus Siltstone, very light gray, very finely sandy, soft to firm, grading to Sandstone, white to light gray, very fine to fine grain, angular, friable to slightly firm, heavy clay matrix, tight looking.
220'	240'	Sample as above, plus abundant Dolostone, light brown, silty and finely sandy, firm to hard.
240'	260'	Very poor sample, Shale, very light gray, bentonitic type?
260'	280'	Shale, very light to light gray, soft clay type, bentonitic.
280'	300'	Shale, medium gray, soft, bentonitic type, in part slightly silty, scattered carbonaceous debris common.
300'	320'	Shale, medium gray, as above, increasingly silty, carbonaceous debris becoming very common to abundant, plus trace Shale, Dark brown black, very carbonaceous.
320'	340'	Sandstone, light to medium gray, very fine to fine grain, angular, friable to firm, very argillaceous and clayey, scattered carbonaceous debris very common, tight.
		POINT LOOKOUT SAND
340'	380'	Sandstone, white to very light gray, very fine to medium grain, predominately angular with occasionally some to sub-round, loose to friable, some firm to hard and calcareous, very heavy white clay matrix, salt and pepper in part, occasionally pyritic, looks tight with some porosity and permeability.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
380'	480'	Sandstone, white, very fine grain, some to fine grain, loose, appears very clayey, finely salt and pepper with light to dark gray and tan Chert and Carbon grains, rare finely pyritic, appears tight with questionable porosity and permeability, (poor samples).
480'	500'	Sandstone, very light to medium gray, very fine to fine grain, angular, friable to firm, heavy clay matrix to very argillaceous, calcareous in part, slightly and finely salt and pepper, occasionally scattered carbonaceous debris, predominately tight with some porosity and permeability.
		SATAN TONGUE?
500'	600'	Sandstone, as above, becoming for most part firm, calcareous to very calcareous, mostly tight with some porosity and permeability, occasionally pyritic, grading to Siltstone, (small fraction) and interlaminated with Shale, very light to medium gray, soft clay type, occasionally silty and sandy.
600'	620'	50% Shale, medium gray, silty and very finely sandy, soft grading to Siltstone, light to medium gray, argillaceous and finely sandy, soft, calcareous, grading to a small fraction Sandstone, very light gray, very fine grain, angular, friable to firm, heavy clay matrix, silty in part, occasionally finely pyritic, tight with some porosity and permeability.
620'	700'	Siltstone, medium gray, argillaceous, very finely sandy, soft to slightly firm, calcareous, occasionally pyritic, grading to sandy and silty Shale, light gray, soft, interlaminated with small percent of Sandstone, very light to light gray, predominately very fine grain, friable, calcareous, white clay matrix to argillaceous, tight with some porosity and permeability, finely pyritic in part, light trace Inocermus prisms.
		CREVASSE CANYON SAND
700'	720'	Sandstone, light to medium gray, very fine to fine grain, angular, friable to firm, very heavy white clay to argillaceous, very salt and pepper, occasionally slightly glauconitic and micaceous, tight.
720'	740'	Coal, black and brown black, shaly to good rank sub-bituminous,
740'	780'	Sandstone, white to very light gray, fine grain, ranges from very fine to medium grain, angular, friable to firm, heavy clay matrix, slightly calcareous to calcareous, salt and pepper with light to dark grain and tan Chert, amber and light orange grain common, occasional green chloritic Mica, tight looking with some porosity and permeability, No Show, interlaminated in part with Shale and Siltstone, medium gray.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
780'	800'	Sandstone, white to very light gray, fine to medium grain, angular, firm to hard, calcareous to limy, tabular to blocky, salt and pepper, occasionally slightly glauconitic, occasional Carbon debris, 15% Claystone, yellow to tan, hard.
800'	820'	Sandstone, as above, with small fraction medium gray, argillaceous, carbonaceous in part, 20% Claystone, yellow to tan, as above.
820'	880'	Sandstone, white to light gray, fine grain with some medium grain, friable to firm, angular, salt and pepper, clean looking to heavy white clay matrix, some very pyritic, plus some light and medium gray, silty and argillaceous, 40 to 50% Siltstone, medium gray, finely sandy plus Shale, light to medium gray, soft clay type, in part silty, plus heavy traces Coal and Carbon debris.
880'	900'	Sandstone, white, fine to medium grain with some coarse grain, angular to sub-angular with occasionally some sub-round, light orange and pinkish grain, salt and pepper, loose, clusters have white clay matrix, fair porosity and permeability (?), No Show, heavy trace carbonaceous Shale and carbonaceous debris.
900'	920'	60% Sandstone, white to light to medium gray, very fine to fine grain, angular, friable, heavy clay matrix, becoming argillaceous in part, calcareous to very calcareous, salt and pepper, trace amber grains and occasionally chloritic Mica, looks tight, No Show, plus 40% Shale, medium to dark gray clay type, in part silty and sandy, occasionally with Carbon debris, plus heavy trace Coal, black, vitreous.
920'	940'	Sandstone, white to very light gray, fine to medium grain with some coarse grain, angular to sub-angular, occasionally sub-round, loose to very friable, white clay matrix, salt and pepper, occasional carbonaceous debris, fair to good porosity and permeability (?), No Show.
940'	960'	60% Sandstone, white to very light gray, very fine to fine grain, loose to friable to firm, occasionally some hard and limy, heavy clay matrix, calcareous, salt and pepper, traces Glauconite and chloritic Mica, looks tight with some porosity and permeability, plus 40% Shale, light to medium gray clay type, some dark gray carbonaceous, traces Inocermus prisms and Fossil debris.
960'	980'	Sandstone, white to very light gray, very fine grain with some very fine to fine grain, angular, friable to mostly firm, heavy clay matrix, calcareous to very calcareous, Glauconite grains common, very pyritic, looks tight, No Show.
980'	1000'	70% Sandstone, as above, becoming mostly light to medium gray, more argillaceous, plus 30% Shale, medium gray, soft, occasionally carbonaceous debris.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
1000'	1020'	60% Sandstone, as above, plus 40% Shale, as above, in part silty, sub-fissile, slightly calcareous.
1020'	1060'	Sandstone, white to very light gray, very fine grain, angular, firm to slightly hard, very calcareous to limy, heavy clay matrix, looks very tight, flood of Fossil debris in 1020-40 foot sample.
1060'	1100'	Sandstone, very light gray, some to light gray, rest as above, becoming slightly salt and pepper, friable to firm to slightly hard, looks tight, No Show, traces Fossil debris, plus 5 to 15% interlamination of Shale, medium gray, soft, occasionally silty, slightly calcareous.
1100'	1120'	Sandstone, as above, with 20% Shale, as above, in part with carbonaceous debris, trace Fossil debris.
1120'	1160'	50% Sandstone, very light to medium gray, very fine grain to silt size, angular, friable to firm to slightly hard, calcareous to very calcareous, heavy clay matrix, occasionally argillaceous, finely pryitic in part, very slightly salt and pepper, interlaminated with 50% Shale, medium to dark gray, soft, occasionally silty and with Carbon debris, traces Coal.
1160'	1180'	80% Sandstone, as above, firm to hard, very calcareous and limy, plus 20% Shale, as above.
1180'	1200'	50% Sandstone, light to medium gray, very fine grain to silt size, friable to firm, very calcareous, heavy clay matrix, tight, grading to Siltstone, medium to dark gray and interlaminated with 50% Shale, medium dark gray, soft, occasionally silty, slightly calcareous to very calcareous, trace Fossil debris.
1200'	1260'	50 to 60% Sandstone, as above, grading to Siltstone, as above, interlaminated with Shale, as above.
1260'	1280'	80% Sandstone, as above, grading to Siltstone, as above, with interlamination of 20% Shale, as above.
1280'	1300'	70% Sandstone, as above, grading to Siltstone, as above, with interlamination of 30% Shale, as above.
1300'	1320'	60% Sandstone, as above, grading to Siltstone, as above, with interlamination of 40% Shale, as above.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
1320'	1380'	60 to 70% Sandstone, white to very light gray, very fine grain, angular, friable, calcareous, some clay matrix, looks tight with some questionable porosity and permeability, 3 to 5% solid bright yellow fluorescence, instant bright yellow-white cut, delayed streaming cut, grading to Sandstone, very fine grain to silt and Siltstone, light to medium gray, as above, plus 15 to 20% Shale, as above, plus very heavy trace to 5% Inocermus prisms, white to cream.
1380'	1400'	60% Sandstone, white to very light gray, very fine grain to silt size, rest as above, plus fluorescence and cut as above, plus increase in Siltstone and Shale, medium to dark gray, in part silty and finely sandy.
1400'	1410'	60% Sandstone, as above, trace fluorescence as above, plus rest as above, trace Dolostone, light brown, hard.
1410'	1420'	60% Sandstone, very light to light gray, very fine grain to silt size, very heavy clay matrix to argillaceous in part, very slightly and finely salt and pepper, calcareous, friable to firm, looks tight, rare trace fluorescence as above, plus increase in Shale, medium to dark gray, soft, occasionally scattered Carbon debris.
1420'	1430'	50% Sandstone, white to light gray, No Show, as above, plus 50% Shale, dark gray, sub-fissile, occasionally with carbonaceous debris, rare trace Inocermus prisms.
1420'	1440'	80% Shale, medium dark to dark gray, soft, sub-fissile and flaky, occasionally scattered Carbon debris, trace Shale, brown-black carbonaceous, plus 20% Sandstone, as above, calcareous to very calcareous.
1440'	1450'	60% Sandstone, very light to light gray, very fine grain to silt size, angular, friable to firm to slightly hard, heavy clay matrix to slightly argillaceous, calcareous to very calcareous, tight looking, No Show, interlaminated with Shale, as above, plus heavy trace Coal, black vitreous, plus trace Fossil debris, plus trace Dolostone, light brown, dense, hard.
1450'	1470'	50 to 60% Sandstone, as above, plus 20% Sandstone, off-white to very light gray with buff cast, some fine grain, rest very fine grain, angular, heavy clay matrix, friable, salt and pepper in part, 10% has bright yellow fluorescence, bright yellow white cut, streaming delayed cut, yellow residue, pinpoint brown oil stain, looks tight with some porosity and permeability, heavy trace Pyrite, 20 to 30% Shale and Siltstone, as above, heavy trace carbonaceous Shale and debris, plus very heavy trace Inocermus and Fossil shell debris.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
1470'	1480'	Sample as above, dozen pieces with stain and fluorescence as above.
1480'	1500'	50% Sandstone, very light to medium gray, very fine grain to silt size, angular, friable to firm, very heavy clay matrix grading to argillaceous, very slightly calcareous, in part occasional carbonaceous debris, in part slightly pyritic, tight, No Show, grading to Siltstone, medium to dark gray, firm, plus 50% Shale, medium to dark gray, in part with scattered carbonaceous debris, plus trace Coal and carbonaceous debris, rare trace Inocermus.
1500'	1510'	Sample as above.
1510'	1530'	40 to 50% Sandstone, off-white to very light gray, very fine grain, angular, firm (occasionally friable), heavy clay matrix, non-calcareous to very slightly calcareous, looks tight, trace with dull yellow-gold fluorescence, delayed cut, grading to/and interlaminated with Sandstone, light to medium gray, very fine grain to silt size, angular, argillaceous, occasionally pyritic and Siltstone, medium to dark gray, scattered Carbon debris, plus Shale, dark to very dark gray, some carbonaceous, occasionally micaceous, occasionally silty, traces Coal and Carbon trash.
1530'	1540'	Sample predominately as above with heavy trace Sandstone, white, fine to coarse grain, angular, loose, Pyrite cluster.
		Drilling Break @ 1527' Top Massive Gallup
1540'	1560'	Sandstone, white, ranges from fine to medium grain with some coarse grain, predominately angular, occasionally sub-angular, Pyrite clusters common, No fluorescence, occasional cluster of Sandstone, white, very fine grain, angular, friable to slightly firm, heavy clay matrix, tight looking, has bright yellow fluorescence and yellow-white cut.
1560'	1580'	Caving.
1580'	1600'	Predominately Shale, medium to dark gray, occasionally silty, soft, plus trace Coal and carbonaceous trash, plus 20% Sandstone, white to very light gray, fine grain, angular, friable, heavy white clay matrix, non-calcareous, often pyritic, occasionally with scattered carbonaceous debris, looks tight with some porosity and permeability, No Show, plus frequent Pyrite clusters, plus Shale, dark gray, sandy with scattered carbonaceous debris, occasional trace Sandstone, white, fine to medium to coarse grain, loose.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
1600'	1680'	Predominately Shale, plus 10 to 20% Sandstone, as above, less pyritic with some becoming very fine to fine grain, occasionally glauconitic, some Sandstone, becoming light gray, slightly argillaceou, plus trace Coal and carbonaceous debris, some interlamination of Shale, medium to dark gray, silty and/or finely sandy in part.
1680'	1700'	Shale, medium to dark gray, largely silty, calcareous, plus 30% Sandstone, very light to medium gray, very fine grain to fine grain with some very fine grain to silt size, angular, heavy clay matrix, friable to slightly firm, slightly calcareous to calcareous.
1700'	1720'	40% Sandstone, as above, plus Shale, as above.
1720'	1740'	Sandstone, off-white to very light gray, very fine grain to silt size, angular, friable to firm, calcareous to very calcareous, heavy clay matrix, tight looking, No Show, plus abundant Shales as above, plus 15% Coal, black, vitreous.
1740'	1760'	Sandstone, as above, with some becoming light to medium gray, argillaceous, grading to Siltstone, medium gray, shaly, calcareous, plus Shale, as above.
		MANCOS 'SHALE' (?)
1760'	1800'	Predominately Shale, dark gray, silty and finely sandy, firm, very calcareous with 15 to 20% Sandstone, as above, predominately argillaceous type.
1800'	1820'	Shales and Siltstone, plus 15% Coal, black, vitreous.
		(Lost Circulation @ 1820' and 1880')
1820'	1900'	Predominately Shale, dark to very dark gray, silty and very finely sandy at top becoming only slightly silty at bottom, soft to firm, lumpy and blocky, very calcareous with interlamination of Siltstone, medium to dark gray, finely sandy, firm, calcareous, trace Limestone, in 1860-80 foot sample, medium gray brown, flaky, plus trace Dolostone, light to dark brown-black, dense, hard.
1900'	1960'	Shale, dark to very dark gray, slightly silty in part, thickly tabular to blocky, soft to slightly firm, calcareous to very calcareous, interlamination of Siltstone, light gray, very finely sandy in part, very firm to hard, calcareous.
1960'	2000'	Shale, with increase in Siltstone in 1960-80 foot sample as above, plus heavy traces to 5% Limestone, medium to dark gray, gray brown with olive cast, hard, dense, brittle, shaly in part, plus very heavy trace Fossil shell fragments, amber to off-white and rusty translucent brown, trace Inocermus prisms.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
2000'	2020'	Shale, as above, plus heavy trace Fossil shell fragments.
2020'	2040'	Shale, as above with flood Fossil shell fragments, amber to light brown, plus heavy traces Siltstone, medium gray, firm, very calcareous.
2040'	2100'	Shale, very dark gray to black, in part silty and blocky, soft and calcareous, rest sub-fissile and flaky to tabular, firm, brittle, slightly calcareous plus light to heavy trace Bentonite, light to medium gray, very soft, plus trace Fossil debris.
2100'	2120'	Predominately Shale, medium gray, very bentonitic and mushy.
2120'	2200'	Shales, as above, light to heavy trace Siltstone, as above, plus light to heavy trace Fossil debris and Inocermus prisms, plus traces to 5% Bentonite, very light gray, very soft, occasional trace Calcite, milky.
2200'	2220'	60% Siltstone, light to medium gray with slight green cast, very finely sandy, angular, firm to hard, slightly calcareous, mostly silicified?, plus rest Shales, as above, plus heavy traces Fossil shell fragments and occasional Pyrite clusters.
2220'	2280'	30 to 50% Siltstone, as above, interlaminated with 50 to 70% Shale, medium dark to very dark gray, silty in part, rest sub-fissile, calcareous, some have tan and brown Fossil specks plus some Bentonite, light gray, soft.
2280'	2300'	80% Shale, predominately dark gray with slight brown cast, light to heavy freckled with tan and brown specks, soft, very calcareous, plus some Shale, as above, plus 10% Siltstone, as above.
2300'	2320'	Shale, as above.
2320'	2380'	Shale, very dark gray to black, sub-fissile to fissile, flaky, slightly brittle, plus some Shale, very dark gray to black with Fossil specks as above, plus traces to small fraction of Siltstone, light to medium gray, firm to slightly hard, calcareous, plus Inocermus prisms, cream, plus trace Limestone, light gray buff, dense, brittle, tabular.
2380'	2400'	Shale, and rest as above, plus 10 to 20% Sandstone, white to very light gray, very fine grain, angular, very friable, heavy clay matrix, slightly calcareous, slightly salt and pepper, looks tight with some porosity and permeability, No Show.

Sample Description
#1 Santa Fe Pacific

FROM	TO	DAKOTA FORMATION
		Drilling Break @ 2380' (Lost partial returns)
2400'	2410'	Sandstone, white to very light gray, very fine grain, angular, friable, calcareous, white clay matrix, interlaminated with medium gray Shale, soft, slightly silty, dozen pieces with faint yellow fluorescence, light yellow-white crushed cut, No stain.
2410'	2420'	Sandstone, as above, very slightly and very finely glauconitic, trace fluorescence as above.
2420'	2430'	30% Sandstone, as above, No Show with rest Shale, medium to dark gray, silty and sandy to soft to very firm, slightly calcareous to calcareous, some with carbonaceous debris.
2430'	2450'	Shales, medium to dark gray, some with slight buff to brown cast, silty and slightly sandy in part, interlaminated with Siltstone, light to medium gray, firm to hard, calcareous and Sandstone, very light to light gray, very fine to fine grain, angular, friable to firm, heavy clay matrix to argillaceous, tight, No Show, calcareous to very calcareous.
2450'	2460'	90% Shale, as above, grading to Siltstone, in part plus 10% Sandstone, (laminations), white to very light gray to medium gray, very fine grain, angular, firm to slightly hard, white clay matrix to argillaceous, calcareous, occasionally pyritic, looks tight, No Show, heavy trace Pyrite clusters.
2460'	2480'	Shales as above, in part very sandy, interlaminated with small fraction of Siltstone and Sandstone, as above with Sandstone becoming more argillaceous plus trace Calcite, milky and trace Fossil shell fragments.
2480'	2490'	Predominately Shales as above, in large part silty and finely sandy, occasionally glauconitic, interlaminated with Siltstone, as above, grading to 5% Sandstone, white to light gray, very fine grain, angular, friable to firm, heavy clay matrix, slightly glauconitic in part, calcareous in part, occasionally finely pyritic, tight looking, No Show, trace Inocermus and Fossil shell fragments.
2490'	2500'	10 to 15% Sandstone, very light to light gray, very fine grain, some very fine to fine grain, angular, friable to firm to slightly hard, calcareous in part, heavy clay matrix, occasionally slightly glauconitic, looks tight, No Show, plus rest Shales and Siltstone, as above, plus trace Inocermus and Fossil shell fragments.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
		Drilling Break @ 2480' to 2505' 2nd Dakota Sand Bench
2500'	2510'	Sandstone, white to very light gray, very fine to fine grain, angular, very friable to slightly firm, white clay matrix, occasional Glauconite grain, some porosity and permeability, splochy to solid yellow-white fluorescence, light brown pin-point stain, streaming bright yellow white cut.
2510'	2520'	Sample as above.
2520'	2530'	50% Shale, medium smoky gray, soft, in part silty, grading to/and interlaminated with 50% Siltstone, light to medium smoky gray, soft to firm, finely sandy in part, occasionally finely micaceous, slightly pyritic.
2530'	2540'	80% Shale, dark smoky gray, sub-fissile in large part, rest as above, grading to/and interlaminated with Siltstone, as above, plus 10% Sandstone, white to light gray, very fine grain, angular, firm, very heavy clay matrix, tight looking, No Show, plus traces Pyrite clusters.
2540'	2560'	95% Shale, as above, plus 5% Siltstone, light gray, very firm to hard, calcareous, in part grading to Sandstone, as above.
2560'	2570'	70% Shales as above, plus 25% Siltstone, as above, plus 5% Sandstone, as above.
2570'	2580'	60% Shales and Siltstone, as above, plus 40% Sandstone, white to light gray, very fine grain, angular, friable to firm, calcareous to very calcareous, white clay matrix to argillaceous in part, tight, No Show.
2580'	2600'	80% Shales, mostly dark gray, fissile and some medium to dark smoky gray, plus some Siltstone, as above, plus 5 to 10% Sandstone, as above with some to fine grain, heavy clay matrix to argillaceous, No Show.
2600'	2610'	Sample as above, plus trace Pyrite clusters.
2610'	2620'	40% Sandstone, white, very fine grain to silt size, friable to slightly firm, slightly calcareous, light to heavy clay matrix, plus 15% Siltstone, medium gray, very finely sandy in part, plus Shale, dark to very dark gray, fissile, plus some medium to dark gray, slightly silty, calcareous.
2620'	2640'	60% Shales, as above, plus 40% Siltstone, light to medium to dark gray, in part finely sandy, grading to Sandstone, white to light gray, very fine grain, occasionally fine grain, angular to sub-round, very heavy clay matrix, some salt and pepper, calcareous, friable to hard, looks tight, No Show, plus occasional trace Fossil shell fragments.

Sample Description
#1 Santa Fe Pacific

FROM	TO	
2640'	2660'	Shales and Siltstone as above, heavy trace Pyrite clusters, plus heavy trace Sandstone, white, very fine to fine grain, angular, light clay matrix, clean looking, slightly calcareous in part, sparkly with Quartz overgrowths, fair to good porosity and permeability, No Show.
2660'	2690'	Shales and Siltstone as above, plus heavy trace to 5% Sandstone, white to very light gray, predominately very fine grain, some very fine to fine grain, angular to sub-angular, friable to firm, medium to heavy clay matrix, slightly calcareous to very calcareous, in part looks tight with some fair porosity and permeability, No Show, trace Pyrite clusters.
2690'	2694'	Sandstone, white, medium to coarse to mini-pebble, predominately clear Quartz with occasional tan and rose Chert, angular, sub-angular to sub-round, appears set in clay matrix, occasional cluster, fine to medium grain, sub-angular to sub-round, very heavy clay matrix, very tight, No Show, abundant Pyrite clusters, plus Shale and Siltstone as above, plus one large piece of Mother of Pearl.

Side-wall Cores: Shot 9 side-wall cores - Recovered 4 side-wall cores.

2645' & 2646½'	Sandstone, white, fine grain, some very fine to fine grain, angular to sub-angular, friable to firm, light clay matrix, very sparkly with Quartz overgrowths, occasional pinkish and light rose grain, fair to good porosity and permeability, No Show.
2666½' & 2670'	Sandstone, white to very light gray, very fine grain to fine grain, angular with some to sub-angular, friable to firm, heavy white clay matrix, slightly sparkly with Quartz overgrowth, looks tight with some porosity and permeability, No Show.