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CORRECTED COPY
OIL & GAS CONS. COMM

check w/ partners

Proposed Completion Program
Polfam Government #2-10
Rio Blanco County, Colorado

Date: August 10, 1986
Rangely Field

1. Level location, set guyline anchors. Install wellhead. MIRU well service unit. TIH with 4½" bit, casing scraper, 2 7/8" 6.5# J-55 EUE tubing. NU BOP. Drill out DV tool at 3821'. Continue TIH, drill out shoe joint to 6564'. TOH, lay down bit and scraper.
2. Run GR-CBL-CCL from PBTD to TOC at \pm 5600'. Also log 2nd stage cement from 3821' to \pm 3500'. Pressure test casing to 2000 psi. Swab fluid level down to 4000'.
3. Perforate lower Weber sands as follows:
6550'-6554' (4 feet-5 shots)
6484'-6488' (4 feet-5 shots)
Use 4" casing gun with 23 gram charges. Use pack-off while perforating.
4. TIH with packer to 6560'. Spot 100 gallons 7½% HCl acid across perfs. Set packer at 6400'. Acidize perfs as follows:
250 gallons 7½% HCl acid
125 gallons 7½% acid with 12 ball sealers (1.1 s.g. RCN balls)
250 gallons 7½% HCl acid
Acidize at 6 BPM.
All acid to contain appropriate surfactant, non-emulsifier, iron chelating agent, clay stabilizer, and inhibitor. Swab test for "after-acid" production entry rate.
5. If oil productive, frac perfs with 20,000 gallons crosslinked gelled water, 45,000 lbs. 20/40 sand. Maximum rate to be 16 BPM. Maximum sand concentration to be 6 ppg. Detailed frac program to be supplied by service company at a later date. Swab test for "after-frac" production entry rate.
6. Release packer, swab fluid level in annulus down to 4000'. TOH.
7. Perforate 6400'-6406' (6 feet-7 shots). Use 4" casing gun with 23 gram charges. Use pack-off while perforating.
8. TIH with packer and retrievable bridge plug. Set RBP at 6450'. Spot 100 gallons 7½% HCl acid across perfs. Set packer at 6350'. Acidize perfs with 500 gallons 7½% HCl acid. Drop 5 ball sealers each 3 barrels acid. Acidize at 6 BPM. Swab test for "after-acid" production entry rate.

NOTE: Because of the thickness and high porosity of this zone from 6400' to 6440', there are several options to consider at this stage of the completion. If the zone is water bearing, squeeze with cement, drill out,

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and continue the completion as described in step #9. If the zone is oil productive and has good deliverability, consideration should be given to an extended pumping/production test. This will determine whether this interval will remain oil productive, or will water out. If the zone is oil productive, a pump test will determine whether it will sustain its productivity or need to be frac stimulated.

If the zone is oil productive but does not appear able to sustain high deliverability, continue the completion as described in step #9, but include this zone in the proposed frac procedure for the upper Weber sands. This will require alteration of the following steps to accommodate a lower RBP setting, increased frac volume, and increased frac rate in order to achieve limited entry with this frac design.

9. Move RBP to 6380'. Swab fluid level inside casing down to 4000'. TOH.
10. Perf upper Weber sands as follows:

6351'-6352'	(2 feet-2 shots)	
6316'-6328'	(12 feet-7 shots)	
6287'-6288'	(2 feet-2 shots)	
6261'-6269'	(8 feet-5 shots)	
6226'-6234'	(8 feet-4 shots)	18 shots total.

Use 4" casing gun with 23 gram charges. Use pack-off while perforating.
11. TIH with packer to 6355'. Spot 150 gallons acid across perfs. Set packer at 6175'. Acidize with 1000 gallons 7½% HCl acid. Drop 4 ball sealers each 3 barrels acid. Acidize at 12 BPM. Swab test for "after-acid" production entry rate.
12. Load casing with pre-pad frac fluid. TOH with packer. Frac upper Weber perfs down casing using limited entry frac procedure. Estimated volume is ±80,000 gallons crosslinked gelled water, 200,000 lbs. 20/40 sand. Frac rate must exceed 2 BPM per perforation to achieve true limited entry. Detailed frac program to be supplied by service company at a later date. Procedure will be altered to include zone at 6400'-6408' if it is to be included in this treatment.
13. TIH, retrieve RBP, TOH. Run production tubing, seating nipple, and anchor. Set tubing intake below all productive perfs, place anchor above all productive perfs. Run rods and pump. Place well on production.

GEOLOGICAL WELL REPORT

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OPERATOR: Polfam Exploration Co.

WELL NAME: Federal #2-10

Location: NW NE Section 10-1N/102W, Rio Blanco Co.,
Colorado.
255' FNL and 1865' FEL of Section.

Elevation: 5268' Ground; 5281' KB

Spudded: 5 PM, 7/13/86

Drill Rig Released: 9 AM, 8/05/86

Status: Waiting on Completion Rig, as of 8/05/86

Total Depth: 6577' Driller; 6570' Gearhart (prior to drilling
an additional 4')

Casing: 14 jts 24# J-55 8-5/8" @ 590' KB w/160 sx
157 jts 17# K-55 5-1/2" @ 6564' KB w/280 sx

Hole Size: 12-1/4" to 600'; 7-7/8" 600' to T.D.

Drilling Contractor: Shelby Drilling Inc., Rig 53 E

Mud Engineering: Davis Mud & Chemical Co.,
Nathan Parker, Engr.

Mud Logger: Melton Enterprises Inc., Art Melton, Engr.

Consulting Geologist: Ted Sheldon

Consulting Engineer: Matt Rohret

Logs: Gearhart Dual Induction-Laterolog
w/SP & GR 590-6568'
Gearhart CDL-CNL w/SP, GR & CGR 3700-6568'
Gearhart Spectral GR 3700-6568'
Gearhart WEL computed Laserlog 3700-3906'
5440-5660'
6195-6568'

Lost Circulation: Minor while drilling Weber,
50 to 75 bbls estimated.

Junk in Hole: None

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FORMATION TOPS (Gearhart Logs)

Cretaceous

Frontier Ss	3506'	(+1775)
Mowry Sh	3599'	(+1682)
Dakota Ss	3739'	(+1542)
Cedar Mtn Fm	3768'	(+1513)

Jurassic

Morrison Fm	3828'	(+1453)
Salt Wash Fm	4326'	(+ 955)
Curtis Fm	4473'	(+ 808)
Entrada Ss	4580'	(+ 701)
Carmel Fm	4722'	(+ 508)

Jurassic - Triassic

Navajo	4773'	(+ 508)
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Triassic

Chinle Fm	5363'	(- 82)
Shinarump Cgl	5506'	(- 307)
Moenkopi Fm	5576'	(- 295)

Permian - Pennsylvanian

Weber Ss	6206'	(- 925)
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HISTORY

			7/13/86	7/14/86
Depths	COLO. OIL & GAS CONS. COMM		40-150	150-552
Drilling Hours			7 hrs	22 1/2 hrs
Circulating Hours				
Repairing Hours				
Other Operations and hours			Rig up 10 hrs	Surveys 1-1/2 hrs
Remarks			Spudded 5 PM	
Hole Size			12-1/4"	12-1/4"
Weight on Bit				4-8,000
Pump Pressure				700
Rotary RPM				100-125
Hole Deviation		SEE SEPARATE PAGE		

MUD PROPERTIES

Weight			8.3	8.6
Viscosity			27	27-33
Water Loss				
pH			7.5	10.5
Salinity			190	330
Gel Strength				2/6

MUD ADDITIVES

SPA 50# sx Gel - 100# sx			48 sx	45 sx
Caustic - 50# sx			1 sx	
Soda Ash - 100#sx				
Raykrome CLS 50#sx				
Lime - 50# sx			2 sx	3 sx
Barite - 100# sx				
Lignite 50# sx				

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HISTORY

	7/15/86	7/16/86	7/17/86	7/18/86	7/19/86
Depths	552-600'	600-1705	1705-2767	2767-3304	3304-3609
Drilling Hours	3-3/4 hr	14-1/2 hr	22-1/4 hr	22 hr	22-1/2 hr
Circulating Hours	3/4 hr				
Repairing Hours					
Other Operations and hours	Rn 14jts 24", J55 8-5/8" to 590' cem w/160, 3hr WOC, nplug	WOC & pres up 7 1/2 hrs Surveys 2 hrs	Surveys & Chk BOP 2-3/4 hr	Surveys & Chk BOP 2 hrs	Surveys 1-1/2 hr
Remarks					
Hole Size	12-1/4"	7-7/8"	7-7/8"	7-7/8"	7-7/8"
Weight on Bit		18-30,000	10-30,000	6-10,000	3-30,000
Pump Pressure		1400-1500	1500	1500	1500
Rotary RPM		70-100	125	125-150	120-150
Hole Deviation			SEE SEPARATE PAGE		

MUD PROPERTIES

Weight	8.6	8.7-8.8	8.8-9.0	8.9-9.0
Viscosity	28-34	33	33-37	36-39
Water Loss		17.8	12.6	10.8
pH	10.5	11.0	10.5	10.5
Salinity	300	300	300	300
Gel Strength		2/6	2/7	4/13

MUD ADDITIVES

SPA - 50#sx		3 sx	1 sx	1 sx
Gel - 100# sx	12 sx	178 sx	58 sx	65 sx
Caustic - 50# sx		2 sx	1 sx	2 sx
Soda Ash - 100#sx				
Raykrome CLS 50#sx				2 sx
Lime - 50# sx	5 sx	6 sx	1-1/2 ax	1 sx
Barite - 100# sx				
Lignite 50# sx			2 sx	3 sx

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HISTORY

Depths

Drilling Hours

Circulating Hours

Repairing Hours

Other Operations

and hours

Remarks

Hole Size

Weight on Bit

Pump Pressure

Rotary RPM

Hole Deviation

7/20/86

7/21/86

7/22/86

COLD OIL & GAS CONS

7/23/86

3609-3889

3889-3920

3920-4203

4203-4567

4567-5240

20 hrs

14 hrs

19 hrs

21-1/2hrs

20-1/4 hrs

3/4 hr (for trip)

Pkup Dyna

Ream 3342-

Surveys

Surveys

Surveys

drl@3650'

3890'=10hr

2 hrs

2-1/2 hr

3-3/4 hrs

1/2 hr.

Surveys

Dynadrill

Ream 3890-

2-2/3hrs

out @3920'

3920'=3hrs

0'

7-7/8"

7-7/8"

7-7/8"

7-7/8"

7-7/8"

10-12,000

30,000

30-35,000

18-30,000

1100-1500

1450

1500

1500

1500

150/Dyna

Dynadrill

70-80

70-80

70-75

SEE SEPARATE PAGE

MUD PROPERTIES

Weight

Viscosity

Water Loss

pH

Salinity

Gel Strength

9.0-9.2

9.1-9.2

9.1-9.2

9.2-9.3

9.2-9.3

38-42

36-41

35-39

37-40

36-39

9.6

10.4

8.6

8.0

7.4

10.5

10.5

10.5

10.5

10.5

300

300

300

300

300

5/17

4/21

4/15

3/13

4/12

MUD ADDITIVES

SPA 50#sx

Gel - 100# sx

Caustic - 50# sx

Soda Ash - 100#sx

Raykrome CLS 50#sx

Lime - 50# sx

Barite - 100# sx

Lignite 50# sx

1 sx

30 sx

2 sx

3 sx

10 sx

2 sx

2 sx

2 sx

78 sx

2 sx

1-1/2 sx

71 sx

2 sx

1-1/2 sx

119 sx

2 sx

1 sx

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HISTORY

	7/25/86	7/26/86	7/27/86	7/28/86	7/29/86
Depths	5240-5382	5382-5446	5446-5581	5581-5790	5790-6040
Drilling Hours	23 hrs	23-1/4hrs	23 hrs	22-1/2 hr	22 hrs
Circulating Hours					
Repairing Hours					
Other Operations and hours	Surveys 1 hr	Surveys 3/4 hr	Surveys 1 hr	Surveys 1-1/2 hr	Surveys 2 hr
Remarks	Ream 45' to bot on	Cut drlg line 90'	Trppd to find hole		
Hole Size	5240' trp 7-7/8"	7-7/8"	7-7/8"	7-7/8"	7-7/8"
Weight on Bit	8-10,000	10-15,000	20-30,000	30,000	30,000
Pump Pressure	1500	1500	1500	1500	1500
Rotary RPM	80	70-95	65-90	65	80
Hole Deviation			SEE SEPARATE PAGE		

MUD PROPERTIES

Weight	9.2-9.3	9.2-9.3	9.2-9.3	9.2-9.3	9.0-9.2
Viscosity	38-39	37-38	36-40	40-52	37-49
Water Loss	7.8	8.0	7.8	7.6	8.8
pH	10.5	10.5	10.0	10.0	8.5
Salinity	300	300	300	300	300
Gel Strength	3/11	3/10	3/9	5/14	6/19

MUD ADDITIVES

SPA - 50# sx	2 sx	1 sx	2 sx	2 sx	3 sx
Gel - 100# sx	92 sx	40 sx	50 sx	10 sx	5 sx
Caustic - 50# sx	2 sx	1 sx	2 sx	2 sx	3 sx
Soda Ash - 100#sx			1 sx	2 sx	4 sx
Raykrome CLS 50#sx					
Lime - 50# sx					
Barite - 100# sx		15 sx			
Lignite 50# sx					4 sx

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HISTORY

	7/30/86	7/31/86	8/1/86	8/2/86 8/2/86	8/3/86 8/3/86
Depths	6040-6274	6274-6384	6384-6390	6390-6565	6565-6573
Drilling Hours	23 hrs	15-1/2 hr	1-1/2 hr	22-1/4 hr	4-1/2 hr
Circulating Hours			5 hrs	3/4 hr	10-1/2 hrs
Repairing Hours					
Other Operations and hours	Surveys 1 hr	Surveys 1/2 hr Cone off Bit 6384 & Fish 8 hrs	Fish for cone 17 1/2 hr rec w/magnet	Survey 1 hr Went on daywk @ 12:15PM 7-7/8"	Logging 9 hrs Logged 7:30 AM to 4:30 PM
Remarks					
Hole Size	7-7/8"	7-7/8"	7-7/8"	7-7/8"	7-7/8"
Weight on Bit	30-35,000	35,000	25-30,000	30,000	30,000
Pump Pressure	1500	1500	1500	1500	1500
Rotary RPM	70-80	70	65	65	65
Hole Deviation			SEE SEPARATE PAGE		

MUD PROPERTIES

Weight	9.0-9.1	9.0-9.1	9.1	9.2-9.3	9.3
Viscosity	39-46	38-40	50	40-55	57-58
Water Loss	9.2	9.8	8.6	7.4	6.8
pH	8.5	10.0	10.0	10.5	11.0
Salinity	300	500	500	500	500
Gel Strength	8/23	4/12	5/21	4/10	5/21

MUD ADDITIVES

SPA - 50# sx	2 sx	2 sx		3 sx	
Gel - 100# sx		110 sx	75 sx	121 sx	6
Caustic - 50# sx	4 sx	3 sx		4 sx	1
Soda Ash - 100#sx	3 sx	4 sx	4 sx	2 sx	
Raykrome CLS 50#sx	4 sx	3 sx			
Lime - 50# sx					
Barite - 100# sx	32 sx				
Lignite 50# sx	2 sx				

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HISTORY

Depths
 Drilling Hours
~~Circulation Hours~~
 Repairing Hours
 Other Operations
 and hours
 Remarks
~~XXXXXX~~
~~Weight on Bit~~
~~Pump Pressure~~
~~Flow Rate~~
~~Hole Deviation~~

8/4/86

6577'

Prep rn csg
 & rnnng csg
 24 hrs

Drld 4'
 while cond
 hole to rn
 csg. Ran
 157 jts
 5½" 17#
 K-55 LT&C
 to 6564KB

8/5/86

6577'

3 hrs cem
 Bumped last
 plug @ 3AM
 Rig dn 6 hours

Rig released
 9 AM after
 cem 5½" in
 2 stages.
 DV tool @
 3821'. 1st
 stage 240 sx
 Class H; 2nd
 stage 40 sx
 High Fill.

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OIL & GAS CONS. COMM

MUD PROPERTIES

Weight
 Viscosity
 Water Loss
 pH
 Salinity
 Gel Strength

MUD ADDITIVES

Gel - 100# sx
 Caustic - 50# sx
 Soda Ash - 100#sx
 Raykrome CLS 50#sx
 Lime - 50# sx
 Barite - 100# sx
 Lignite 50# sx

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DRILLING EQUIPMENT

COLORADO OIL & GAS CONS. COMM

Contractor: Shelby Drilling Co.

Rig: National 370 drawworks, electric powered,
550 HP

Power: 2 - Kato Revolving field AC generators, each
powered by Caterpillar 3412 engine, 620 KW each

Pumps: 2 - National K500A w/5½" liners, 15" stroke,
electric powered, 550 HP

Mast: Draco 127' rated @ 380,000#

Drill Pipe: 4½" XH

Drill Collars: 458 6¼" x 2¼"

Pusher: Larry Howard

Drillers: Frank J. Gustason
Ronald Covington
Charles Ogden
Ed Kitchen

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HOLE DEVIATION

COLD. OIL & GAS CONS. COMM

128'	1/2°		3729'	4-3/4°	N 1°W
221'	1-3/4°		3822'	3-1/2°	N 13°E
324'	3°		3885'	2-1/2°	N 18°E
437'	3-3/4°		3944'	1-3/4°	N 8°E
573'	5-1/2°		4005'	1-1/2°	N 3°E
728'	5-3/4°	N 16°E	4067'	1-3/4°	N
941'	5-1/4°	N 10°E	4130'	2°	N 7°E
1160'	5-1/2°	N 8°E	4192'	2°	N 3°E
1376'	6°	N 8°E	4253'	2°	N 3°E
1594'	6°	N 1°E	4314'	2°	N 2°E
1809'	6-1/2°	N 4°E	4405'	2-1/2°	N 5°W
2271'	7-1/4°	N 6°E	4497'	3°	N 1°W
2552'	7-1/4°	N 3°E	4744'	3-1/2°	N 4°E
2678'	6-3/4°	N 1°W	4898'	3-1/2°	N 4°W
2802'	6-1/4°	N 2°E	4991'	4°	N 4°W
2924'	6-1/4°	N 2°W	5084'	4-1/4°	N 2°W
3046'	5-3/4°	N 2°W	5176'	5°	N 1°E
3168'	5-3/4°	N 1°E	5299'	5°	N 1°E
3291'	5-1/4°	N 8°W	5364'	4-3/4°	N 2°E
3354'	5-1/4°	N 11°W	5422'	5°	N 3°E
3447'	5-3/4°	N 11°W	5484'	5°	N 8°E
3539'	6-1/2°	N 16°W	5546'	4-3/4°	N 8°E
3600'	6-1/4°	N 10°W	5640'	5-1/4°	N 7°E
3631'	6-1/2°	N 12°W	5735'	5-3/4°	N 8°E
3666'	5-1/2°	N 5°W	5828'	6-1/4°	N 9°E
			5922'	6-1/2°	N 9°E
			6014'	7-1/4°	N 9°E
			6110'	7-1/4°	N 9°E
			6200'	7-3/4°	N 7°E
			6298'	7-3/4°	N 9°E
			6477'	7-1/4°	N 4°E

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BIT RECORD

COLO. OIL & GAS CONS. COM.

<u>Bit#</u>	<u>Size</u>	<u>Make</u>	<u>Type</u>	<u>JET Size</u>	<u>DEPTH Out</u>	<u>Feet</u>	<u>Hours</u>
1s	12¼	B&B rr		3-14/32	437	407	27
2s	12¼	Sec rr		3-14/32	600	163	
3	7-7/8	Hughes	R-1	2-11/32	2506	1906	19
				1-10/32			
4	7-7/8	Hughes	J-1	2-11/32	3488	982	39
				1-10/32			
5	7-7/8	Hughes	J-2	2-11/32	3650	162	15¼
				1-10/32			
6	7-7/8	Hughes	J-22	2-11/32	3920	270	15½ (Dyna Drill
				1-10/32			
7	7-7/8	Hughes	J-22	2-11/32	5240	1320	55¼
				1-10/32			
8	7-7/8	Hughes	J-33H	2-11/32	5382	142	18½
				1-10/32			
9	7-7/8	Hughes	J-2	2-11/32	5442	60	12-3/4
				1-10/32			
8 rr	7-7/8	Hughes	J-33H	2-11/32	6050	608	83½ (total
				1-10/32			
9	7-7/8	Hughes	J-33H	2-11/32	6384	334	32 (lost cone)
				1-10/32			
10	7-7/8	Hughes	J-3	2-11/32	6384	0	(used to brl cone)
				1-10/32			
11	7-7/8	Hughes	J-33H	2-11/32	6573	189	24½ (bald cond)
				1-10/32			

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SAMPLE DESCRIPTION - Unlagged Depths

COLO. OIL & GAS CORP. COAM

- 6150-60' Silt-sh pale rdsh brn to loc dk rdsh brn, occ grysh org pnk stks calc. Trc siltst, v lt gry, qtzse w/ some vf frosted qtz grains, tt, calc cem.
- 6160-70' Silt-sh a/a but stg trc grysh yl grn siltst w/rndd vf/f qtz grains, tt.
- 6170-80' Silt-sh, a/a, still trc grysh yl grn siltst but sli trc grysh rd clt-sh.
- 6180-90' Silt-sh a/a, still trc grysh yl grn siltst and sli trc grysh rd clt-sh but sli trc pl red and pl grn clyst; sli trc v lt gry vf/f qtzse ss, sub ang/sub rnd, m sort, tt, anhy cem; sli trc ls crm to grysh ol, micrite, pt rewkd, floating qtz silt grains, tt and sli trc lt gry microxln to earthy anhy.
- 6190-6200' Silt-sh a/a, sli incr in vf/f ss non calc, apprs dolc/ anhydritic cem, poor p & p.
- 6200-10' Silt-sh, a/a, sli trc vf/f ss a/a but appr silic and sli calc cem, sli incr in pl grn clyst a/a, ftg vf qtz grains.
- 6210-20' Silt-sh a/a but stg trc ss, vf/m, m sort sub ang/sub rnd, qtzse, anhy/dolic cem to 100% silic cem, poor to trc gd por, trc ss "dirty" apprg silty w/ol blk mtlg and mod yel stng.
- 6220-30' ss, v lt gry/ crm "cln" qtzse ss to rdsh brn silty "dirty" ss, scat brnsh blk hydrocarbon material in "cln" ss, sort m/w, sub ang/sub rndd frosted in pt, w/occ coarse frosted qtz grains floating in vf/f mtz calc and qtz cem, occ sub ang clysts pl grn clyst in ss, poor to fair por. Smpl approx 60% ss and 40% silt-sh a/a. Pl yel wh strmg flu cut fr pieces ss w/brnsh blk hydrocarbon material.
- 6230-40' ss, a/a, 80% smpl, remainder silt-sh, a/a. Silic cem pred, 40% of ss has brnsh blk hydrocarbon material scat between grains, poor to fair por, pl yel wh strmg flu cut, no flu w/o solvent. Trc chky ls and ylsh gry micro xln lmy dolo, tt.
- 6240-50' ss and silt-sh a/a, 10% of ss lt brn, no flu or flu cut. Smpl 60% ss and 40% silt-sh. Decr in brnsh blk hydrocarbon material and frags that give pl yel wh strmg flu cut to approx 25% of ss, decr in por.
- 250-60' ss, a/a, pred vf/f, p/f por, some gd por w/wk brn oil stng yel wh flu and gd strmg yel wh flu cut. Stg trc ss brnsh blk due to high hydrocarbon content. Fair to gd reservoir rk 30% of smpl. Rdsh brn sh a/a approx 20% of smpl.
- 6260-70' sh, pred rdsh brn silt-sh and grnsh gry clt-sh, a/a, 90% of smpl. ss, vf/f a/a, 10% of smpl, sli trc vf glauc lt gry ss (cvgs?). Stg trc only ss w/brnsh blk hydrocarbon material, yel wh flu strmg cut.

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SAMPLE DESCRIPTION - Unlagged Depths
Continued

- 6270-80' Sh, a/a, cly-sh pred over silt-sh, rdsh brns pred over grysh grns, some med gry sh cvgs from Cretaceous. Less (cvgs?), few pieces w/brnsh blk hydrocarbon and flu cut (carryover?).
- 6280-90' Sh, a/a w/trc ss, a/a, only few pieces ss w/shows a/a (carryover?).
- 6290-6300' Sh, a/a, sli trc ang rdsh gry cht frags, sli ol gry micritic dolic ls, trc tan micritic dolo, sli trc clr calc vnlt, gry sh cvgs continue fr Cretaceous. Sli trc ss a/a, couple pieces w/shows a/a, (carryover?).
- 6300-10' Sh, a/a, trc mtld grysh pnk and rdsh brn. Apprx 5% smpl ss, vf/f lt gry a/a to m well sorted to loc crs m/p sorted ss. Med grained well sorted ss has good to excellent por, friable no brnsh blk hydrocarbon material, no visable stng but has good yel wh flu and gd strmg yel wh flu cut (cvgs). Friability of ss could cause breakup of sandstone, so that it could be higher percentage of interval than represented by sample.
- 6310-20' Sh, a/a, some rdsh brn micro mtld w/grysh grn. Ss 5% of smpl pred f/m, sub ang, s & p, qtz cem in pt, no brnsh blk hydrocarbon material but gd yel wh flu and gd strmg yel wh flu cut; ss percentage could be higher due to friable nature a/a (cvgs?).
- 6320-30' Sh, a/a, 95% of smpl. Less than 5% ss, all vf/f, low p & p a/a, nil f/m ss (2 pieces) present in 6300-20' smpls, nil shows.
- 6330-40' Sh, a/a, 95% of smpl. Ss, 5% of smpl in pt f/m cln qtzse v lt gry ss, trc brnsh blk hydrocarbon material w/gd yel wh flu and gd strmg yel wh flu cut (cvgs?). Ss percentage could be higher due to friable nature a/a fr 6300 to 6320' smpls. Sli trc micro pyritic dkr gry ss (cvgs?).
- 6340-50' Sh, a/a, only trc ss a/a, frac face found on one piece ss, qtz cem, nil shows a/a.
- 6350-60' Sh, a/a, 95% of smpl rdsh brn predominate. Ss a/a 5% of smpl, a/a, couple pieces m grained clr ss a/a w/yel wh flu and strmg yel wh flu cut. V sli trc clr chert frags.
- 6360-70' Sh, a/a, with only trc ss a/a, one piece m grained clr ss a/a w/yel wh flu.
- 6370-80' Sh, a/a, with only sli trc ss a/a, nil shows.
- 6380-90' Sh, a/a, rdsh brns and trc dusky red. Smpl pred trip cvgs, nil ss. NOSF.
- 6390-6400' Sh, a/a, rdsh brns, stg trc rdsh brn vf qtzse ss, poor to nil eff p & p. Nil shows.
- 6400-10' Sh, a/a, incr in dusky reds-grysh reds, stg trc w/v lt gry dolic anhydrite. 5% vf/f qtzse ss, clr/v lt gry to orange pink, weak yel wh flu cut from few pieces that have visible por, poor show and v poor res rk.

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SAMPLE DESCRIPTION - Unlagged Depths
Continued

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- 6410-20' Sh, a/a w/stg trc anhy a/a. 5% vf/f qtzse ss a/a, couple pieces cln ss w/ f/g pot that give gd yel wh flu strmg cut, frac faces evident w/trc brnsh blk carb material on faces.
- 6420-30' Ss, f grained, well sorted, sub ang/sub rndd, even lt brn oil stng, silic cem, good/ v good p & p., dull golden yel wh strmg flu cut. Smpl 30% Sh a/a w/trc tt ss and anhy a/a, carryover. Good reservoir rock, very good show!
- 6430-40' Ss, a/a but only 30% of smpl, balance sh a/a, w/trc tt ss and anhy a/a. Incr in cavings. Sli trc lt gry vf/f tt ss w/no shows (in place?). Shows in ss w/p & p continue a/a, continuation of zone.
- 6440-50' Ss, a/a but decr to 15% of smpk, lt brn oil stng cont, bal smpl pred dusky red sh w/some pl grnsh gry mtlg. Trc lt gry tan limy dolo, micrite, tt. Trc anhy a/a. Trc med grnd clr qtzse ss, well sorted w/excel p & p, no stng but gives good strmg yel wh flu cut. Lt brn stnd ss still gives strmg flu cut a/a but apprs not as strong, may be p & p function.
- 6450-60' Sh, dusky reds-grysh reds pred over brnsh reds, trc wh/lt gry anhy a/a; est 1/3 of smpl "true" cuttings, balance cvgs w/a little of everything represented. Nil lt brn o stnd ss a/a, trc med grained clr qtzse ss a/a w/wk ol wh flu cut.
- 6460-70' Sh, pred cly-sh dusky red-grysh red and Sdy siltst to silty Ss, mod org pnk to mod rdsh org, silic cem minor calc cem, frac faces evident mtz tt, nearly equal amts sh and sdy siltst/silty ss. Trc pl ol gry dolo micrite. Nil ss w/ p & p, nil shows. Apprx 1/3 smpl composed of cvgs.
- 6470-80' Sh, a/a, and Sdy siltst/silty ss a/a. Trc anhy and dolo a/a, some mtlg w/clastic seds. Nil ss w/eff p & p, nil shows. Apprx 1/5 smpl composed of cvgs.
- 6480-90' Sh, a/a, and Sdy siltst/silty ss a/a. Trc anhy and dolo a/a. Apprx 15% smpl cvgs. Nil m/w sorted clr/gry ss, nil w/eff p & p, and nil shows.
- 6490-6500' Ss, vf/f, well sorted, qtzse, sub ang/aub rndd, some frosted grains, fair to good p & p, gen even to loc spotty lt brn ol stng, lt yel flu and strmg yel wh flu cut, comprises 30% of smpl. Bal of smpl Sh & Sdy siltst a/a plus cvgs, a/a, still trc dolo and anhy a/a.
- 6500-10' Ss, vf/f, cln m sorted, qtzse, wh/v lt gry/clr, sub ang pred, silic cem, poor p & p, no oil stng, no flu cuts 40% of smpl. Ss, vf/f, well sorted, lt brn oil stnd, a/a only stg trc in smpl. Bal smpl Sh, a/a, grysh reds and grysh grns, nrly equal amts. Trc anhy and dolo a/a.

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SAMPLE DESCRIPTION - Unlagged Depths
Continued

- 6510-20' Sh, pred rdsh org, some rdsh brn and grysh red, minor grysh grnsh, both silt-sh and cly-sh. Stg trc clr/wh/lt gry vf/f ss a/a; nil o stnd ss a/a. Trc anhy and dolo a/a; minor cvgs.
- 6520-30' Ss, vf/f, clean m sorted, qtzse, wh/v lt gry/clr, micro/mica, pred sub ang, silic cem, generally poor p & p, no oil stng, no flu cuts, approx 30% of smpl. Bal of smpl sh, a/a, grysh reds & grysh grns pred, plus med/lt gry sh cvgs. Incr in wh limy dolo a/a, still trc anhy a/a.
- 6530-40' Ss, a/a but some with good p & p lt brn oil stng, dull gold yel flu and strmg yel wh flu cut, smpl 25% of smpl w/apprx 1/3 of ss o stnd. Anhy, wh/v lt gry, sli calc, apprx 35% of smpl; trc limy dolo a/a. Bal smpl Sh, pred grysh red, trc dusky red mtld w/grysh grn, med gry sh cvgs cont a/a.
- 6540-50' Ss, a/a, still 25% of smpl, less than 1/6 of ss has lt brn oil stng or brn blk hydrocarbon specks, some of ss mod org, pnk to grysh org pnk. Bal smpl wh anhy a/a and sh, a/a; med gry sh cvgs cont a/a.
- 6550-60' Ss, a/a, 35% of smpl, about 1/5 of ss has lt brn oil stng and yel wh flu strmg cut ttly silic cem ss devoid of shows. Anhy, wh, sli calc, soft, dissolves apprx 30% of smpl; remainder sh, pred grysh red, and cvgs a/a.
- 6560-70' Ss, a/a, 35% of smpl, about 1/4 of ss has lt brn oil stng and yel wh flu strmg cut, dull golden flu. Some very good porosity w/very good shows!. Balance ss is wh/lt gry/grysh org pnk. Silic cem, wh anhy in pt, org pnks are silty. Oil shows restricted to Ss w/effective por. Anhy a/a, apprx 35% of smpl; bal Sh, a/a and cvgs a/a.
- 6573+30min. Ss, a/a, 35% of smpl, only trc ss has lt brn oil stng and give yel wh flu cut, eff por poor. Anhy, wh a/a 30% of smpl; bal Sh, a/a and cvgs a/a.
- 6573+60min. Ss, a/a, 40% of smpl, only stg trc ss has lt brn oil stng and give yel wh flu cut. Anhy, wh a/a, 30% of smpl; bal Sh a/a and cvgs a/a.