WELL Patton #32-9 RD #1

COMPANY Oregon Natural Gas and Development Corp.

AREA Olney

LOCATION 2068.78'S & 1380.1'W of NE cor, Sec 9, T7N, R8W, WB&M

COUNTY, STATE Clatsop, Oregon

- WEGE -
WESTERN GEO-ENGINEERS

"A SERVICE TO THE OIL AND GAS INDUSTRY"

LITHOLOGY SYMBOLS

Sand, Clay and Shale, Siltst., Sandy Siltst., Conglomerate, Lignite or Coal, Volcanic, Intrusive, Salt, Limest., Chert

REMARKS

WELL ELEV. GL. 731'
KB. 752' (DATUM)
SALINITY IN PPM CL
FILTRATE IN CC/30 MIN.
GAS TRAP Agitator type
MUD KCL Polymer
Rovor

LEGEND

MUD DATA		OTHER DATA
W WEIGHT	S SALINITY	CB CORE BIT
V VISCOSITY	R RESISTIVITY	WLCB WIRE LINE CB
F FILTRATE	RF FILTRATE RESISTIVITY	TG TRIP GAS
FC FILTER CAKE	BIT DATA	CG CONNECTION GAS
SD SAND IN %	NB NEW BIT	C CARBIDE GAS
	RRB RERUN BIT	CR CIRCULATE RETURNS
		NR NO RETURN
		DST DRILL STEM TEST
		[DST INTERVAL
		] CORE INTERVAL

CASING

13 3/8 to 402'
9 5/8 to 2030'
to

DATE 2/7/83 to 2/18/83 DEPTH 2030 to 3914 ENGINEERS B. Thomas, J. Duvall

- WEGE - WESTERN GEO-ENGINEERS Drilling Rate In Bit Data	DEPTH	SAMPLE LITHOLOGY	OIL IN MUD or CUTTINGS Trx Fair xx Good xxx V/Gd xxxx — MUD ANALYSIS: TOTAL DITCH GAS, PET. VAP., BLENDER GAS (10 20 30 40 50 75 100 125 150 175 200)	CUTTING ANALYSIS: TOTAL GAS, PET. VAP. (25 50 75 100)	REMARKS: Mud Data, Formation Tests, Core Analysis, Surveys, E Logs

Drilling Rate Scale 300 200 150 100 50

Cut window from 2030' to 2095'. Open hole to 15" in milled interval and set plug at 2150'. Polish plug to 2030'. Kickoff at 2032' w/2° sub. Drlg 8 3/4" hole.

2000

NB#2 Sec S33S
Dynadrill run #1
16/16/16
WOB 2-8,000
RPM 90
PP 500

Note: Angle and direction are real; coordinates etc. are averaged.

CHROM=100%C1
Sltstn, lt-md gry, v sft-sft; Cly, lt-md gry, sft; sol; occ tr pyr

w 9.0
v 34

2100 VD 2100

93'/8½ hrs

SG 32u
TG=23u
CHROM=98% C1, C2 & C3 tr.
Abundant calcite

NB#3 Sec S84F
10/10/10 (2/8/83)
WOB 15,000
RPM 80
SPM 100
PP 1500

Normal drilling set-up

Basalt, dk blk, aphanitic to vfn, v hd to hd tuff/tuffaceous sltstn, lt brn to tan, fri, pyr, dark specs abnt qtz frags, coarse, ang, clr.

2200 VD 2200

SG 7u
CHROM=100%C1

6° S16E
11.80°S 2.63°E
VD 2202' (D=.47)
Sec 11.80

Sltstn, md gr-ashy, mod sft; cly, md gry, v sft, sol; tuf, vit, hrd; tr snd, fn, sbrdd; highly clctc

CG 55u
Abndnt macro-fsls

Tr lt yel fluor in cttngs; mod strng res pale yel cut; no fluor in mud

CHROM=100%C1

2/9/83

2300 VD 2300

SG 58u
Cly, md gry, v sft, sol; Sltstn, md gry, mod frm; snd, clr-wh qz, fn, sbrdd, prly srtd; pyr

7° S16E
22.03'S 5.56E
VD 2295' (D=1.1')

CG 162u
CHROM=100%C1, 255u
tr C3

w 9.0-9.1
v 34

CG 198u
207u
Cly, lt gry, sft-hd, frm, mod sol; tfcs
Sltstn, lt gry, frm, crs; pyr
220u
CG 98u v clctc
CHROM=100%C1

2400 VD 2400

CG 598u
213u
362'/21½ hrs

6°30' S6E
36.69'S 8.41E
VD 2422 (D=1.95')

X 10
CG 413u

300 200 150 100 50
NB#4 Sec S33S
10/10/10
(2/10-11/83)

WHG 520u
TG 531u

6°15' S8E
43.64'S 9.26'E
VD 2484' (D=2.3')

2500 VD 2500

CG 95u
CHROM=100%C1

DST#1 (2398-2487)
3/8" btm bn, 37 mn preflow. Max surf press 8 lbs on 3/8" surf bn, declined to 0 lbs in 2 mns.
Recovered 112' of water-cut mud.

	INSIDE	OUTSIDE
IH	1145	1189
IFP	64	94
FFP	64	94
FH	1145	1189

SAL 33,000 PPM

X1
Sltstn, lt-dk gry, v arg, calc, sft to frm, cly, slty, sft, v sol, ss, v fn, wh, slty, frm, pyr

CG 210u

2600 VD 2600

CHROM=100%C1

SG 410u
Sltstn, gry-dk gry-brn, occ lt gry, sl calc, pyr, tfacs, w/ dk incl, sft

CG 275u

6°15' S6E
56.94'S 10.78'E
VD 2606' (D=3.03)

CHROM=100%C1

CG 140u
Cly, dk gry, sft, sol, slty, occ limey, sltstn a/a

Raise mud weight to 9.4

2700 VD 2700

CG 57u
CHROM=100%C1

WOB 30,000
RPM 80
PP 1500
SPM 90

CG 50u

C=32u 40 vis
Lag=24mn 90 SPM
100cc dur 8mn

CG 52u
Sltstn, dk gry-brn, occ sndy, cly a/a
CHROM=100%C1
Snd, clr qz, fn, prly srtd, dirty, tight; sltstn, md gry, v sft-md sft, crs; cly, md gry, sft, sol

WHG 108u

2800 VD 2800

Wipe hole
6° S1W
76.77'S 11.59'E
VD 2792' (D=4.09)

CHROM=100%C1

CG 48u
Snd, clr qz, vfn-fn, sbang, mod wlsrtd, tight; sltstn, md-dk gry, mod frm; cly, md gry, sft & stky; calc; tr wh mca; v calc; occ bone frgs

2900 VD 2900

CG 45u
CG 28u
CHROM=100%C1
SS bone
SS bone

CK flow

Snd, clr qz, fn, wl srtd, sbang, ... gry, hrd; tr wh mca; occ bon frgs

300 200 150 100 50
2/12/83

SG 29u

6°45' S1E
95.67'S 11.56'E
VD 2981' (D=5.04)

CHROM=100%C1

3000 VD 3000

Snd, fn, wlsrtd
Snd, clr qz, fn-md fn, brn, prly srtd; sltstn, a/a; pyr; wh mca; v calc cmtd

WOB 30,000
RPM 80
PP 1500
SPM 90

CHROM=100%C1

Snd, clr-wh qz, fn, v bony, prly srtd; sltstn, md gry-brn, frm; cly, sft, mod stky, sol; pyr; wh mca; abndnt calc

w 9.4
v 37
F 9.6
FC 1/22
S 36,000
SD TR
SOL 5.0

3100 VD 3100

CG 19u
CHROM=100%C1

Sand/SS, clr-wh, qtz, fn to v fn, sbang to sbrnd, p srt, calc cmt, fri to mod frm

661 ft/24 hrs
RR#3B Christ R40
RR#3 Sec S84F

CG=34u
TG 31u TG=62u
Bst, dk gry-blk, v hrd, aphan; tr pyr

6°15' S2W
112.19'S 11.43'E
VD 3142.12' (D=5.88)

Discrepancy in Driller's DP tally. Depth 2487'-3150' is 8' shallower than logged. 2/13/83

CG 44
CHROM=84%C1, 16%C3
Snd, clr qz, vfn-fn, sbang, mod wlsrtd, cmtd; mnr tuf, tan-lt brn; tr wh mca; calc

Note scale change
150 100 75 50 25

3200 VD 3200

CG 19u
Bst, md-dk gry, v hrd; abndnt volc clas, clr-faint grn; qz infil, clr-wh; clcte fil, lt gry; blk mfc frgs

Adjust agitator level.

CHROM=99%C1, tr C2 & C3.

WOB 34,000
RPM 50
SPM 9000
PP 1700

Bst, a/a, snd/ss, clr, wh, qtz, fn, sbang, fr srt, fri.

CHROM=99%C1, tr C2 & C3

3300 VD 3300

WHG 27u
Bst, gry-green, trnsl, vitrious, hd, xtln, poss intrusive gabbro sill.

7°0' S5W
129.8'S 10.35'E
VD 3294' (D=6.75)
(wpe hole)

CG 7u
CHROM=99%C1, tr C2, C3

w 9.5
v 37
F 10.4
FC 11/32
S 33,000
SD ½%
SOL 6.5%

2/14/83

CG 8u
Bst/poss intrus sill a/a; occ cly strngrs, kaol, lt-md gry, sft-sft-mod frm, mod sol, stky; poss zeolites
CHROM=100%C1

WHG 15u
Snd, clr-wh qz, vfn-fn, sbang-ang, md wlsrtd; bst, blk, v hrd; cly, wh-md gry, v sft, sol; tr wh mca

Wipe hole

3400 VD 3400

CHROM=100%C1

356'/64.75 hrs
200 100 75 50 25

SS, clr-wh, qtz, w/dk mfc, trnsl, fn, sbang, calc, sry, sl slty, frm to hd.

w 9.9, v 37, f 7.5, fc 2/32, S 36,000, sd tr, sol 8%

SG 71u
Bst, dk gry grn, vitrious; xtln, vhd, cly, lt gry; v slty, v sft.

7° S
152.82'S 9.35'E
VD 3482' (D=8.31)

3500 VD 3500

NB#5 Sec S86F
10/10/11 (2/15/83)

TG 48u
CHROM=100%C1

WOB 30,000
RPM 50
PP 1700
SPM 90

Basalt, dk gry grn, xtln, v hd, fractures to sharp ang frags.

C=36u 38 vis
Lag=35mn 90 SPM
100cc dur 10mn

CHROM=100%

w 10.0, v 38
F 10.6, FC 1/32,
S 32,000, SD TR,
SOL 7%

3600 VD 3600

Bst/intrus, dk gry to occ trans, v hrd, aphan; clcte, silica fill, wh to clr w/ bst incl; clctc cmt

2/16/83

WHG 13u
Wipe hole

SS, wh-lt brn qz, fn-md, ang-sbang, unsrtd, wl cons; cly, wh-lt gry, v sft & sol, nonstky; abndnt bst chps

CG 23u
CHROM=100%C1

Clay, lt gry, v sft, v sol, ss a/a.

187'/31 3/4 hrs

6°45' S2E
175.6'S 9.75'E
VD 3670' (D=9.67)

TG 246u

RRB#3B Christ R40
10 ft/2 hrs
11/11/12 (2/17/83)
RR#5 Sec S86F

3700 VD 3700

TG 36u
CHROM=100%C1

DST#2 (3628'-3702)
3/8" btm bn, 30mn preflow. Max surf press 0lbs on 3/8" surf bn.
Recovered 392' of slightly gas-cut mud. S=*(see note)

Clay, lt gry, slty, vsft, v sol, abndt volc frags, prob altered volc ash. SS, wh-clr qtz, poss feldspar, fn to v fn, slty, sb ang, p srt, frm, calc cmt.

	INSIDE	OUTSIDE
IH	1933	1957
IF	21	94
FF	85	117
FIRST SI-15MN		
SI	638	656
(FIRST FLOW 15MN)		
(SECOND FLOW 15MN)		
IF	106	141
FF	128	164
SECOND SI-30MN		
SI	1252	1291
FH	1890	1910

*BTM: 17,400
TOP: 35,000

Calc bone
CHROM=100%C1

Cly, lt gry, v sft & sol; mnr snd, v fn-wh qz, sbrdd, wl srtd; sltstn, dk gry, volc, v sft; abndnt pyr; calc; tfacs seds

CG 28u

3800 VD 3800

WOB 30/35,000
RPM 90
PP 1500
SPM 90

CG 23u
CHROM=100%C1

Snd, v vf-fn, clr-wh qz, ang-sbang, prly srtd; cly, wh-lt gry, v sft, sol, mod stky; tufacs seds; vgt volcs

CG 28u

2/18/83

CHROM=100%C1

3900 VD 3900

205'/46 hrs

Ran Schlumberger

Driller's Total Depth 3912'

6°30' S2E
204.9'S 10.7'E
VD 3888' (D=11.5)