KLAM 57310

WELL I.D. # L L 150701 {assigned via app Jan 2023}

(1) LAND OWNER Well Number OIT-7
Name Oregon Institute of Technology
Address 3201 Campus Drive
City Klamath Falls State OR Zip 97601

(2) TYPE OF WORK
☑ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☑ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☑ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☑ No Depth of Completed Well 5288 ft.
Explosives used ☐ Yes ☑ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
		see attachments				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	see attachments				☐	☐	☐	☐
Liner:					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☐ Outside ☐ None
Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☐ Perforations Method see attachmts
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Klamath Latitude 42° 15' 15.97" Longitude -121° 46' 59.92"
Township 38 N or (S) Range 9 (E) or W. WM.
Section 20 NW 1/4 NE 1/4
Tax Lot Lot Block Subdivision
Street Address of Well (or nearest address)

(10) STATIC WATER LEVEL:
303 ft. below land surface. Date 4/24/2009
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found

From	To	Estimated Flow Rate	SWL
see attachments			

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
see attachments			

Date started 1/23/2009 Completed 3/5/2009

SOURCE OF DATA/INFO File G-17303

COMPILED BY: Michael J. Zwart

DATE: March 18, 2010

WELL INFORMATION REPORT 11/16/2000

KLAM 57310

OREGON WATER RESOURCES DEPARTMENT
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301
(503) 986-0900
www.oregon.gov/owrd

Application for Well ID Number

RECEIVED
JAN 6 2023
OWRD

Do not complete if the well already has a Well Identification Number.

I. OWNER INFORMATION

Current Owner Name *(please print)*: Oregon Institute of Technology

Mailing Address: 3201 Campus Dr.

City, State, Zip: Klamath Falls, OR 97601

Mail Well ID to: ☒ SAME AS ABOVE ☐ In Care Of (C/O)

Name & Address:

City, State, Zip:

II. WELL LOCATION INFORMATION *(Please fill out as completely as possible)*

Township: 38 S (North / South) Range: 9 E (East / West) Section: 20 NW 1/4 of the NE 1/4

Tax Lot (usually last 3-5 numbers of Tax Map #): 4900 County Klamath

GPS Coordinates: Latitude: 42.25443611; Longitude: -121.78331111

Street Address of Well, City: 3201 Campus Dr

If the property had a different street address in the past: N/A

III. GENERAL WELL INFORMATION *(Please fill out as completely as possible, AND attach copy of Well Report, if available)*

Use of Well (domestic, irrigation, commercial, industrial, monitoring): Geo-thermal

Date Well Constructed (or property built): 3-5-2009 Total Well Depth: 5288' Casing Diameter: 20"

Owner at time the well was constructed (if known): OIT Well Report # (if known): KLAM 57310

Other Information: Well Information Report only on file - no well driller's construction report

SUBMITTED BY *(please print)*: Thom Darrah

PHONE: 541-885-1661 **EMAIL &/or FAX:** thom.darrah@oit.edu

To send the completed application, you may MAIL it to: Oregon Water Resources Dept. 725 Summer St NE, Suite A, Salem, Oregon 97301. Or EMAIL the completed PDF form to: Ladeena.K.Ashley@water.oregon.gov, or FAX it to: (503) 986-0902.

For Official Use Only by the Oregon Water Resources Department:

Received Date:	Well Report Number:	Well Identification #:
1-6-23	KLAM 57310	L-150701

KLAM 57310

TECTON GEOLOGIC

COMPANY Oregon Institute of Technology
WELL #7
FIELD
COUNTY/STATE Klamath Falls Oregon
WELL HEAD COORDINATES
42 15'15.97"N/121 46'59.92"W
ELEVATION 4390'
SPUD DATE 1/23/2009
TD DATE 2/26/2009
TOTAL DEPTH 5310'
TRUE VERTICAL DEPTH 5215'
TD LOCATION 51.57' S, 594.99'W
CONTRACTOR/RIG Thermasource Rig 105
COMPANY REPRESENTATIVE Bill Doubleday

LOG INTERVAL

DATE LOGGED	1/23/2009	TO	2/26/2009
DEPTH LOGGED	52'	TO	5310'
MUD DRILLING	52'	TO	5310'
AIR DRILLING		TO	
LOG SCALE	1:600	UNIT NO.	WC
LOGGING GEOLOGISTS			

HOLE

26"	TO	322'
17.5"	TO	2500'
12.25"	TO	5310'
	TO	
	TO	
	TO	

CASING

20"	FROM	0'	TO	322'
13.375"	FROM	0'	TO	2476'
9.625"	FROM	2070'	TO	5008'
	FROM		TO	
	FROM		TO	

ABBREVIATIONS

NB	New Bit	**BHT**	Bottom Hole Temp
RRB	Re-run Bit	**C**	Carbide Test
CB	Core Bit	**NR**	No Returns
WOB	Weight On Bit	**LAT**	Logged After Trip
SPM	Strokes per Minute	**CFM**	Cubic Feet per Min
PP	Pump Pressure	**BUT**	Bottoms Up Temp
RPM	Revolutions per Min		

SYMBOLS

- Wireline Log
- Casing Shoe
- Steam/Water Entry
- Flow Test
- Deviation Survey
- Cored Interval
- No Recovery

LITHOLOGY

- Clay
- Sand
- Gravel
- Sandstone
- Siltstone
- Argillite
- Phyllite
- Schist
- Veining
- Silicic Breccia
- Quartzite
- Tuff Seds
- Tuff
- Basalt
- Andesite
- Hornfels
- Basaltic Andesite
- Altered Zone

REMARKS

All depths from KB
KB = 22.0' (4412')
Aerated mud F/3286'

SECONDARY MINERALS

Q	= Quartz	Rare	<< 1%
C	= Calcite	Trace	< 1%
P	= Pyrite	Minor	1% to 4%
Pr	= Pyrrhotite	Common	4% to 7%
H	= Hematite		

AIR DRILLING TD

LOG SCALE 1:600 UNIT NO. WC

LOGGING GEOLOGISTS

Mike McLaughlin, Eric Booker

Darrick Boschmann, Tim Blazina

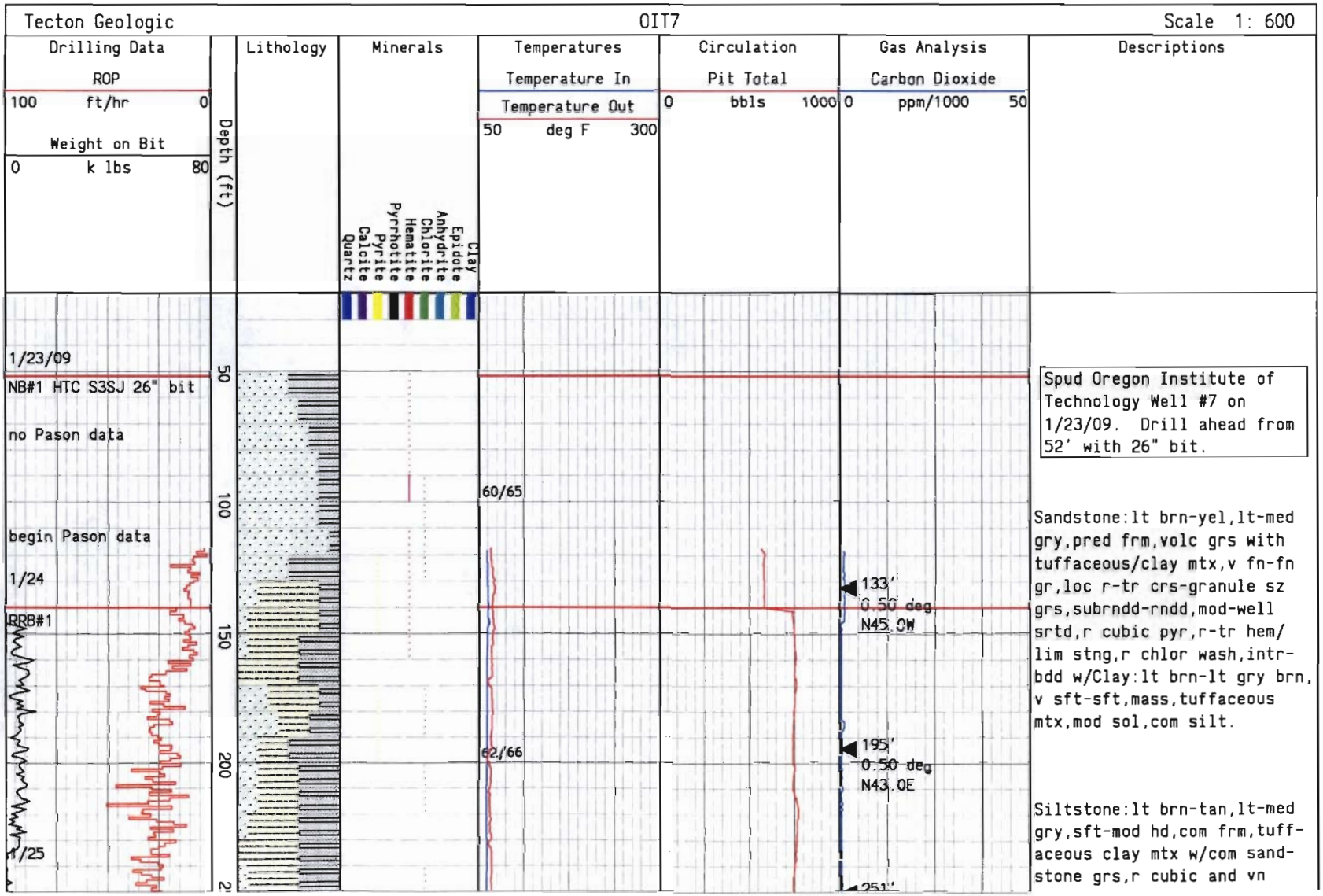
KLAM-57310

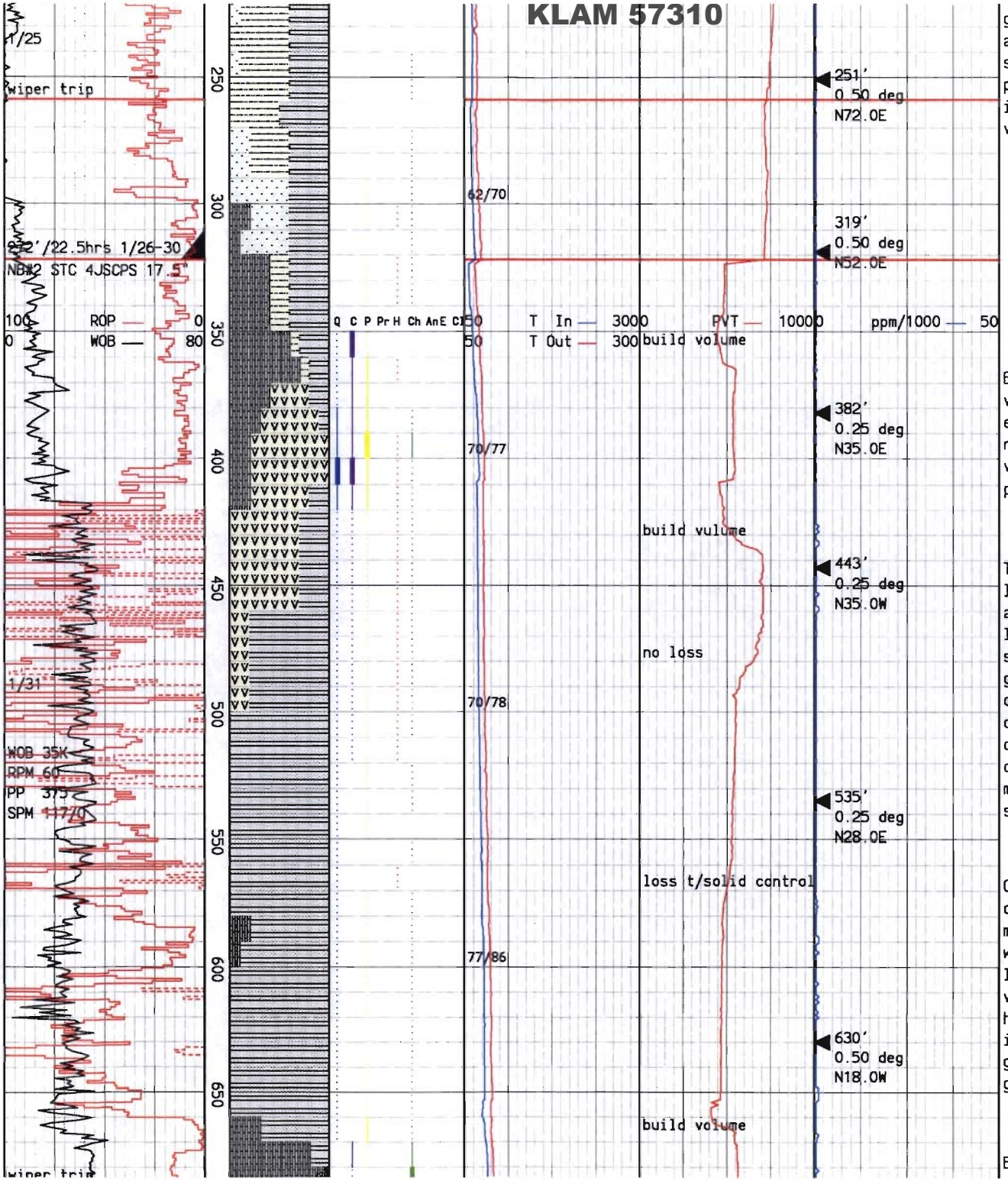
Schist
Basaltic Andesite
Veining
Altered Zone
Dike

C = Calcite
P = Pyrite
Pr = Pyrrhotite
H = Hematite
Ch = Chlorite
An = Anhydrite
E = Epidote
Cl = Clay

Rare << 1%
Trace < 1%
Minor 1% to 4%
Common 4% to 7%
Abundant 7% to 10%
> 10%

Tecton Geologic — OIT7 — Scale 1: 600





gry,sft-mod hd,com frm,tuff-aceous clay mtx w/com sand-stone grs,r cubic and vn pyr,r hem stng,r chlor wash, intrbdd w/Clay:lt brn,lt gry, v sft,tuffaceous.

Drill 26" hole to 322'. Run 7 jnts of 20",94#,grade K-55,buttress casing to a depth of 322'. Drill ahead with 17.5" bit.

Basalt:tan-lt brn,lt gry,hd-v hd,fresh,aphan,microxln,r euhed phenos,occ brecc appr, r qtz amygds,r-tr inststit & vn calc,r-tr disem/vn/cube pyr,loc r hem,r chlor.

Tuff:tan,wht,v lt brn,frm-loc hd,pred microxln tuff-aceous mtx w/microxln-v fn lithic frags,loc tr xtl tuff, sl-occ mod calc,loc mnr devit glass,mnr brecc appr,loc mnr orng siliceous sinter/agate,r chalcedony amygds,loc r euhed qtz xtls,r-mnr intrstit & occ clr/wht calc vn frags,r-loc mnr disem/vn/cube pyr,r hem stng,r-tr chlortzd grs.

Clay:lt brn,lt-med gry,v sft, occ firm,sl sticky,sl-pred mod sol,tuffaceous(sediments) w/com-abun silt/sandstone/ lithic grs/frags,r qtz,r calc vng,r-tr disem/vn/cube pyr,r hem stng,r chlor wash,occ intrbdd w/Basalt:tan,lt-med gry,hd-v hd,aphan microxln grndmass,r cube pyr,r chlor.

Basalt:med gry,med-dk grn,

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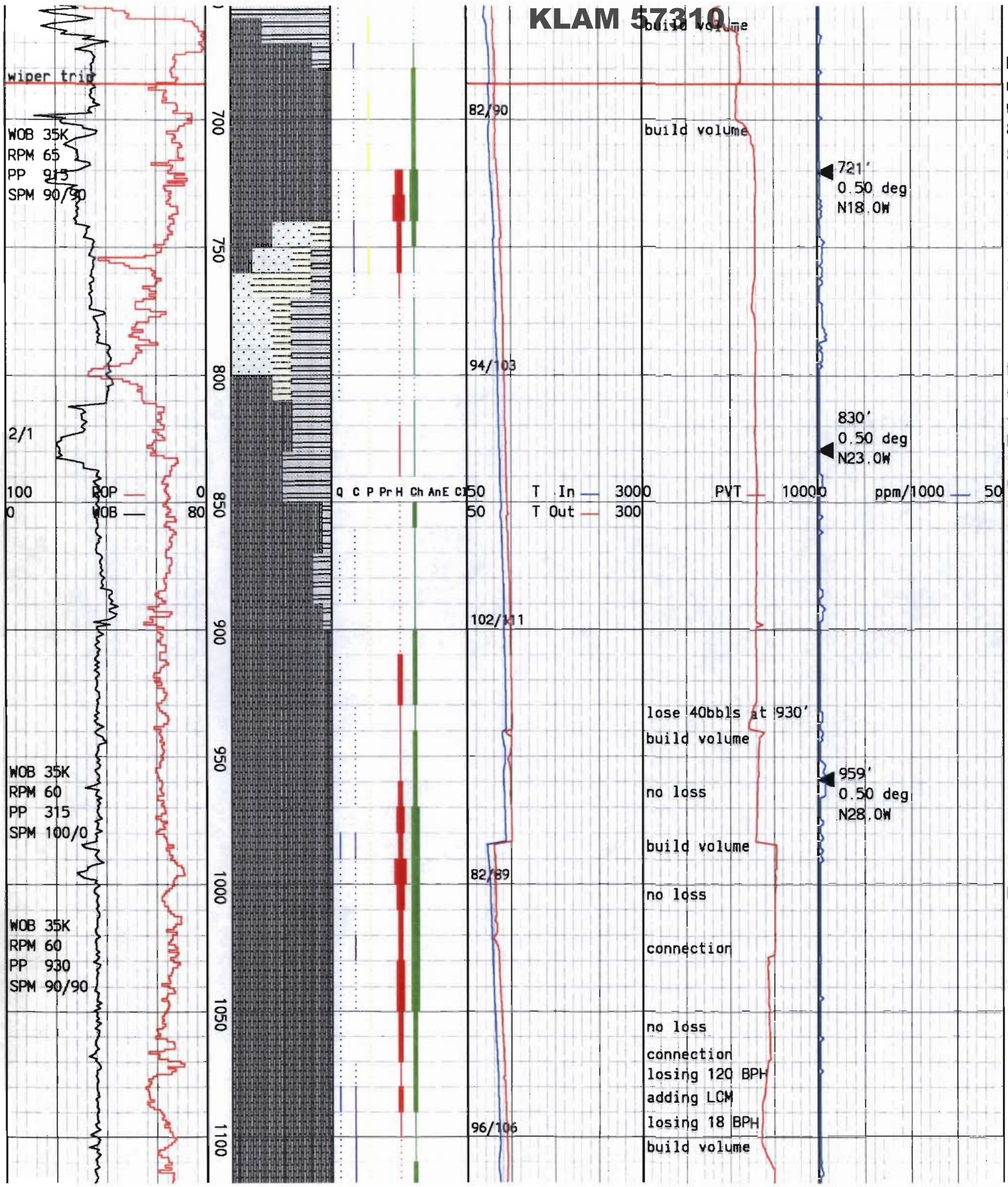

Basalt:med gry,med-dk grn, med brn,microxln grndmass w/tr-mnr serptnzd olivine & chlortzd mafic phenos, pred fresh v fn felds xtls, r qtz,r wht calc vng/vn frags,r-tr disem & vn pyr, tr-mnr chlortzd mafics,bcmg fri & mod-loc str altrd f/730' w/com-abun hem/chlor altrn.

Basalt:med-dk gry,occ grn, microxln grndmass,tr serptnzd olivine,r-mnr chlortzd mafic phenos,r qtz vng,r wht calc vng,r disem & vn pyr,tr-mnr chlortzd mafics,r-mnr hem & chlor altrn,intrbdd w/Siltstone & Sandstone:lt brn-tan, lt-med gry,sft,com frm, tuffaceous clay mtx.

Note:lose 40 bbls at 930'. Spotty returns after svy & cnx @982'. Add saw dust LCM & build volume. No or small loss while drilling, begin losing mud with occ spotty returns when pick up off bottom.

Basalt:dk gry brn,red brn, orng,pred hd,pred mod-incr str hem/chlor altrn,microxln grndmass w/tr-occ mnr serpntzd oliv w/loc serp vng & mnr-com chlortzd mafic phenos,sl incr grndmass/felds clay altrn,r-loc tr clr/wht qtz amygds,r wht qtz vng,r-tr wht calc vng,r disem & vn pyr,mnr-abun hem altrn, mnr-com chlortzd mafics, loc r sft wht anhyd,r red iddingsite altrn rims on

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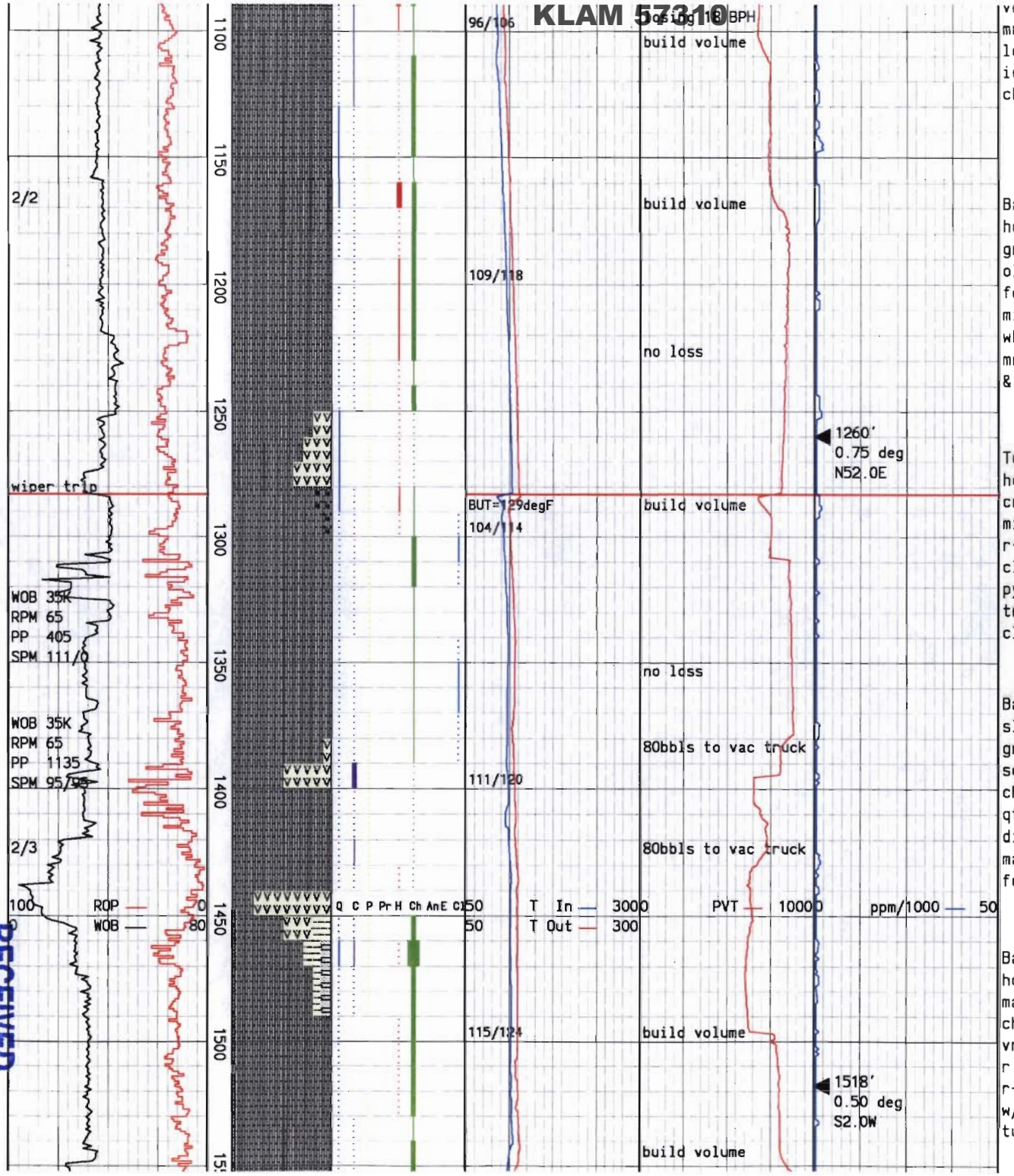


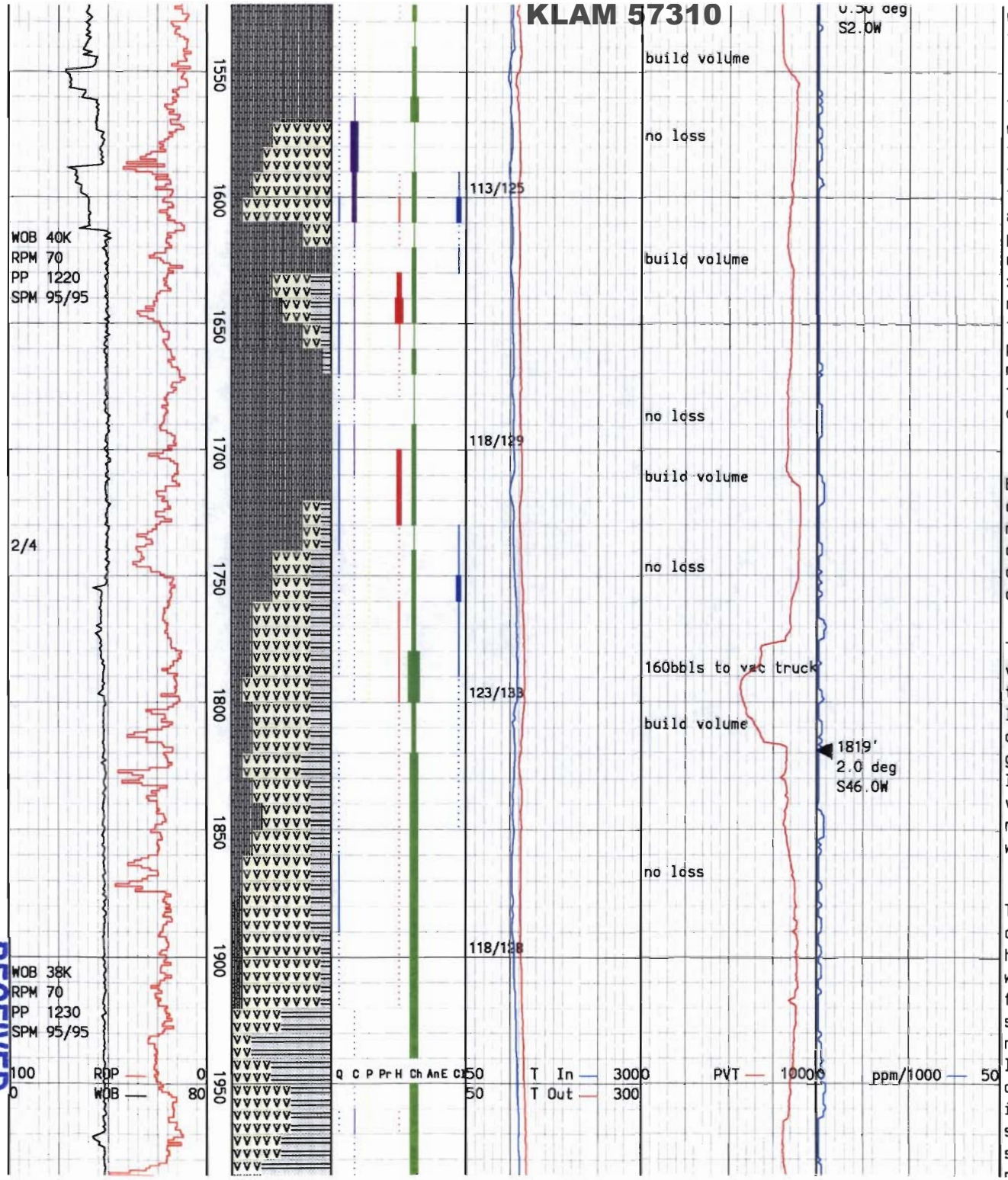
vn pyr,mnr-abun hem altrn, mnr-com chlortzd mafics, loc r sft wht anhyd,r red iddingsite altrn rims on chlortzd oliv xtls.

Basalt:lt-dk gry,grn,brn,mod hd-v hd,com britt,microxln grndmass,r-abun serptnzd olivine,tr lath & acic shaped felds,r-mnr chlortzd mafic min,r-tr qtz vng & vn frags,r wht calc vng,r disem pyr,tr-mnr chlortzd mafics,r-mnr hem & chlor altrn.

Tuff:red,pink,red orng,hd-v hd,brit,str-v str silicic, crypto-microxln w/tr-com microxln felds/lithic frags, r-loc mnr clr qtz vng,r euhed clr qtz xtls,r disem/vn/agg pyr,mod hem stained mtx,r-tr euhed clr anhyd vng & xtl clusters,loc r sinter appr.

Basalt:dk gry-dk gry brn,hd, sl-mod altrd,microxln-v fn gr gran grndmass w/r-mnr serptnzd/chlortzd oliv & chlortzd mafic phenos,r clr qtz vng,r wht calc vng,r disem pyr,tr-mnr chlortzd mafics,r-tr wht clay altrd felds,tr serp.

Basalt:lt-dk gry,grn,brn,mod hd-v hd,microxln-fn gr grnd-mass,r-abun serpentine,r-mnr chlortzd mafic xtls,r-tr qtz vng & vn frags,r wht calc vng r disem/agg pyr,r hem altrn, r-abun chlorite altrn,intrbdd w/Siltstone:gry,lt brn,w/ tuffaceous clay matrix.



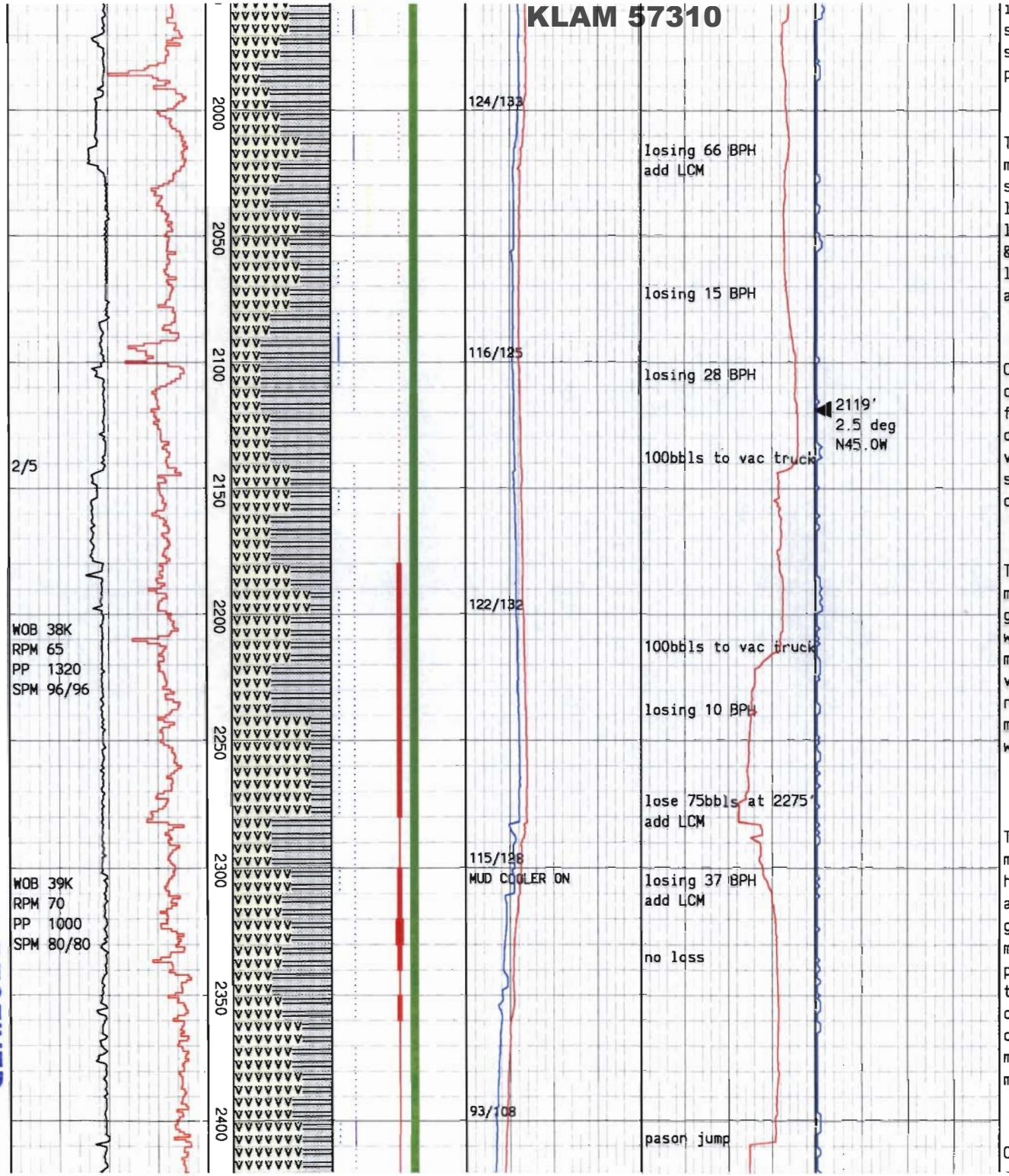
w/Siltstone:gry,lt brn,w/ tuffaceous clay matrix.

Tuff:tan,lt-occ med brn,off wht,lt-med grn,red,mod hd-hd, frm,occ sl silic,microxln tuffaceous mtx w/microxln-v fn lithic frags,bcmg mod-str altrd w/str chlortzd mtx & perv clay altrd felds(prob reworked by water),loc mnr xtl tuff,com-abun brecc appr, r qtz vng,r-tr intrstit calc, tr-mnr wht calc vng,r disem pyr,r-mnr chlortzd mtx,r-loc mnr hem,r sft wht anhyd & r-tr euhed clr anhyd,w/str hem clay f/1640'.

Basalt:lt gry,brn,grn,mnr-com chlortzd mafic xtls & grnd-mass,absnt relic text,r-tr qtz vng,r wht calc vng,r disem pyr,r-tr hem altrn,abun chlor altrn.

Tuff:med-dk grn,occ brn,tan, v sft-frm,occ mod hd, tuffaceous clay mtx w/fn gr lithic frags,sticky,v str chlorite altrn w/str chlortzd grs & mtx,perv divit,loc mnr lt brn tuff brecc,r-tr qtz vng,r-tr calc vng & vn frags, r disem pyr,r-tr hem,r sft wht anhyd.

Tuff:lt-med grn,occ dk grn, occ grn brn,sft-frm,occ mod hd,microxln tuffaceous mtx w/microxln-fn gr devit glass frags & lithic frags,str-v str chlortzd mtx,r wht qtz, r-tr wht calc vng & vn frags, loc r disem & occ cube pyr, com chlor,r sft wht anhyd, intrbdd w/Clay:lt-med grn,v sft-sft,mod sticky,mod-v sol, sl-mod plastic,str chlortzd, prob reworked devit ash tuff



intrbdd w/Clay:lt-med grn,v sft-sft,mod sticky,mod-v sol, sl-mod plastic,str chlortzd, prob reworked devit ash tuff.

Tuff:lt-med grn,frm-mod hd, microxln tuffaceous mtx w/ silt-v fn gr sz devit ash/ lith frags,str chlortzd mtx, loc r qtz,r-tr wht calc vng & vn frags,loc r disem pyr, loc hem altrn,com perv chlor altrn,r wht anhyd.

Clay:lt-med grn,lt-med gry, com red brn,v sft-sft,occ firm,sticky,tuffaceous seds, com glass shards,r qtz,r calc vng,r-mnr hem stng,r-mnr hem stng,com chlortzd mtx/abun chlor wash.

Tuff:med-dk grn,red brn,frm-mod hd,lithic frags & divit glass,v str chlorite altrn w/str chlortzd grs & mtx,loc mnr lt brn tuff brecc,r qtz vng,r calc vng & vn frags, r-mnr hem stng,com chlortzd mtx/abun chlor wash,r sft wht anhyd.

Mud Cooler on at 2305'.

Tuff:lt-med grn,occ dk grn, med red brn,frm-mod hd,loc hd/sl silicic,microxln tuff-aceous mtx w/lithic & devit glass/ash frags,str chlortzd mtx w/occ str hem staining, perv chlor altrd grs/mtx,loc tr-mnr hem altrd grs,loc r clr/wht qtz amygds,r wht calc vng,occ sl calc mtx,tr-mnr hem stng,com chlortzd mtx/chlor wash,r wht anhyd.

Clay:lt-med grn,lt gry,v sft-

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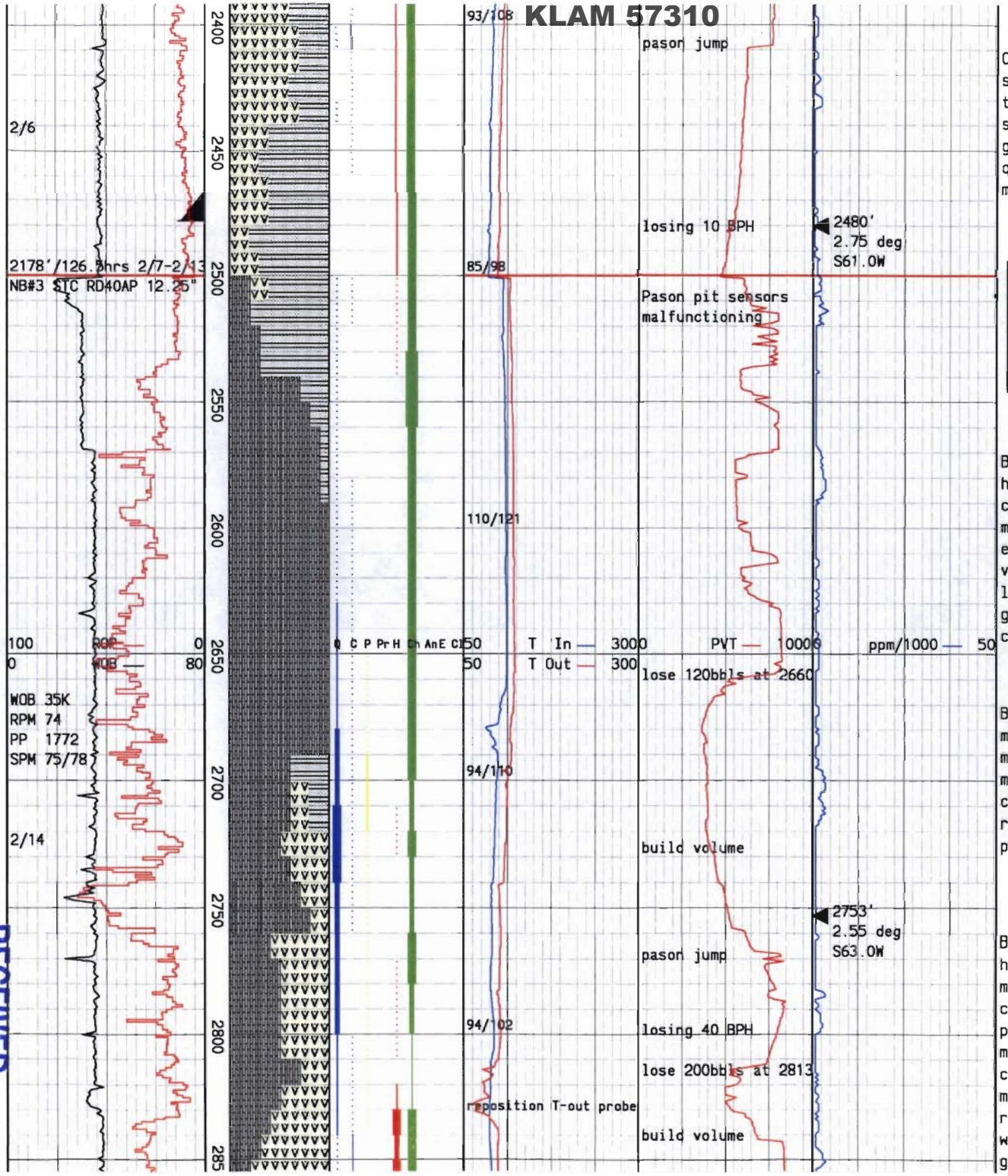


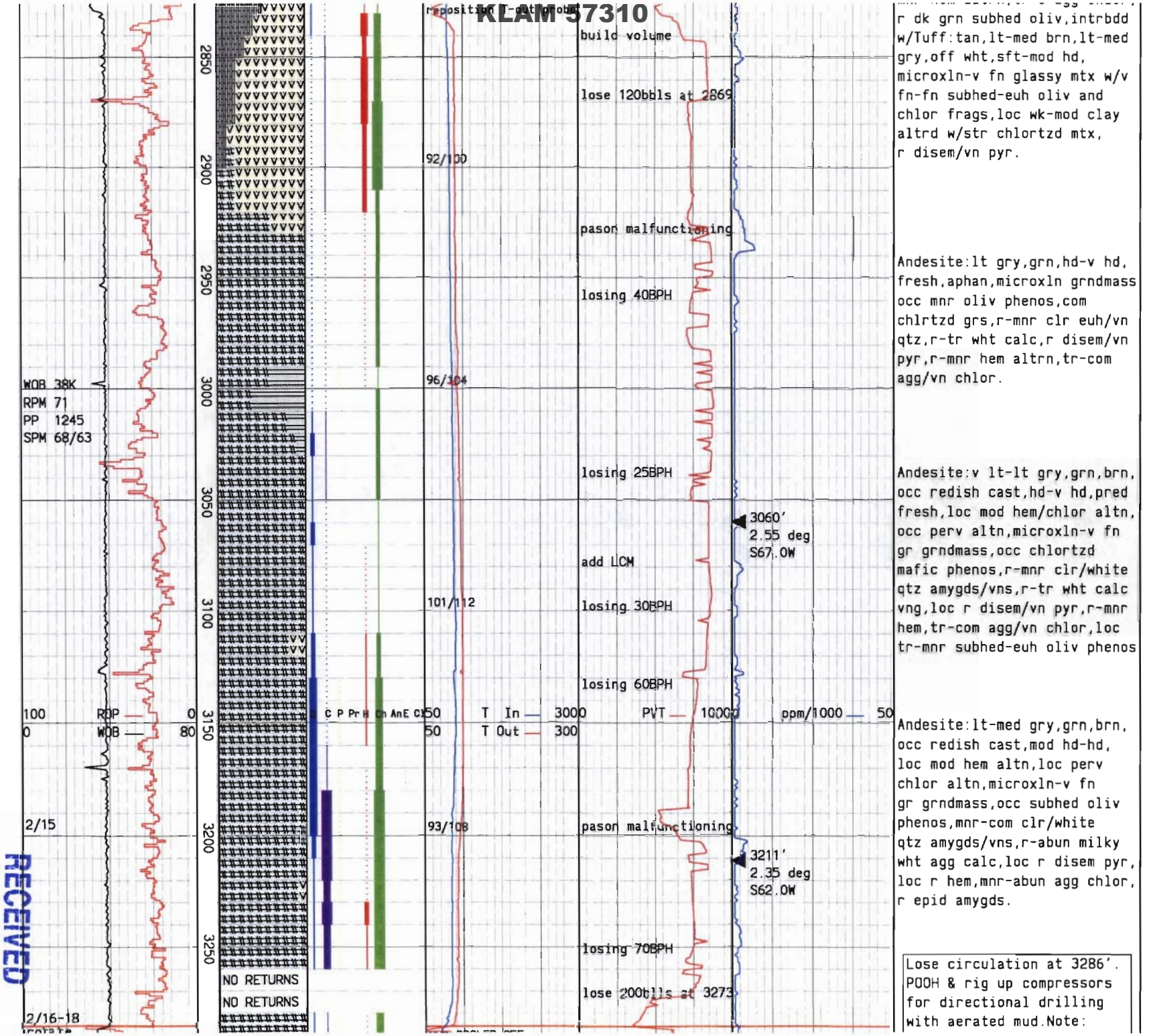
Clay:lt-med grn,lt gry,v sft-sft,occ firm,lt-mod sticky, tuffaceous seds w/com-abund silt & sand sized grs,occ glass shards,com devit grs,r qtz,r calc vng,r-mnr hem stng mod chlortzn.

Drill 17.5" hole to 2500'. Run 67 jnts of 13-3/8" 68# K-55 buttress casing to a total depth of 2476'. Clean out cement and drill ahead w/12.25" bit.

Basalt:med-dk gry,med brn,grn hd-v hd,microxln grndmass,com chlortzd grs,r-mnr chlortzd mafic phenos,r-tr qtz vng,r euh qtz,r calc vng,r dissem/vn pyr,loc perv chlor altrn, loc perv altd to Clay:lt-med grn,med gry,sft-v sft,r-tr calc vng,com-abun chlor.

Basalt:dk gry-blk,dk brn,grn, mod hd-vhd,pred fresh, microxln-v fn grn grndmass, mnr-com chlrotzd xtls, mnr-c clr euh qtz,r-tr clr qtz vng, r milky wht calc,r-tr disem pyr,mnr-c chlortzd mafic min.

Basalt:lt gry-blk,brn,grn, hd-vhd,fresh,aphan,friable, microxln grndmass w/r chlortzd mafic and oliv phenos,com chlortzd grs,tr-mnr clr euh/vn qtz,r wht calc,r-tr disem/vn pyr,r-mnr hem altrn,tr-c agg chlor, r dk grn subhed oliv,intrbdd w/Tuff:tan,lt-med brn,lt-med gry,off wht,sft-mod hd,



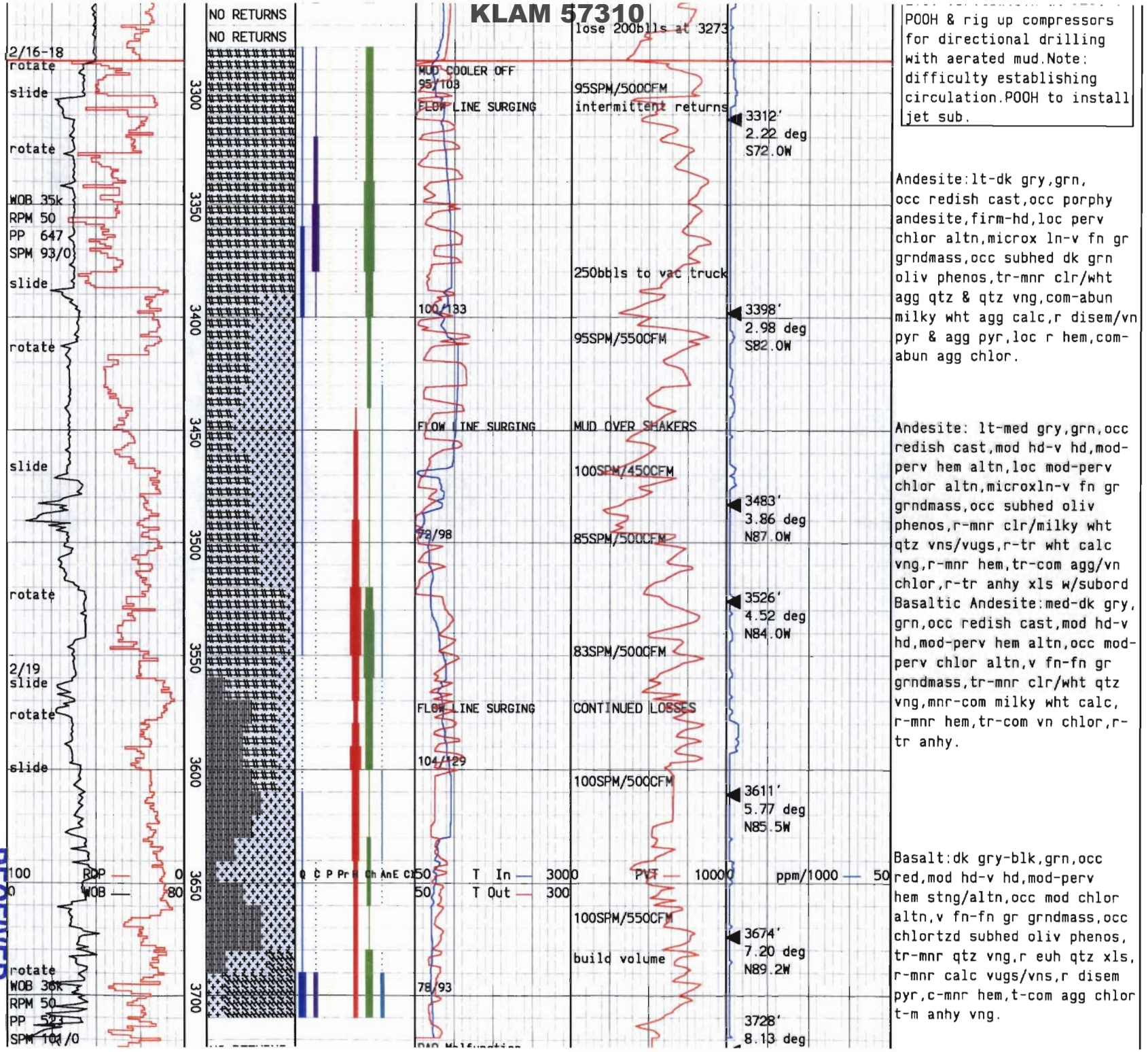
r dk grn subhed oliv,intrbdd w/Tuff:tan,lt-med brn,lt-med gry,off wht,sft-mod hd, microxln-v fn glassy mtx w/v fn-fn subhed-euh oliv and chlor frags,loc wk-mod clay altrd w/str chlortzd mtx, r disem/vn pyr.

Andesite:lt gry,grn,hd-v hd, fresh,aphan,microxln grndmass occ mnr oliv phenos,com chlrtzd grs,r-mnr clr euh/vn qtz,r-tr wht calc,r disem/vn pyr,r-mnr hem altrn,tr-com agg/vn chlor.

Andesite:v lt-lt gry,grn,brn, occ redish cast,hd-v hd,pred fresh,loc mod hem/chlor altn, occ perv altn,microxln-v fn gr grndmass,occ chlortzd mafic phenos,r-mnr clr/white qtz amygds/vns,r-tr wht calc vng,loc r disem/vn pyr,r-mnr hem,tr-com agg/vn chlor,loc tr-mnr subhed-euh oliv phenos

Andesite:lt-med gry,grn,brn, occ redish cast,mod hd-hd, loc mod hem altn,loc perv chlor altn,microxln-v fn gr grndmass,occ subhed oliv phenos,mnr-com clr/white qtz amygds/vns,r-abun milky wht agg calc,loc r disem pyr, loc r hem,mnr-abun agg chlor, r epid amygds.

Lose circulation at 3286'. POOH & rig up compressors for directional drilling with aerated mud.Note:

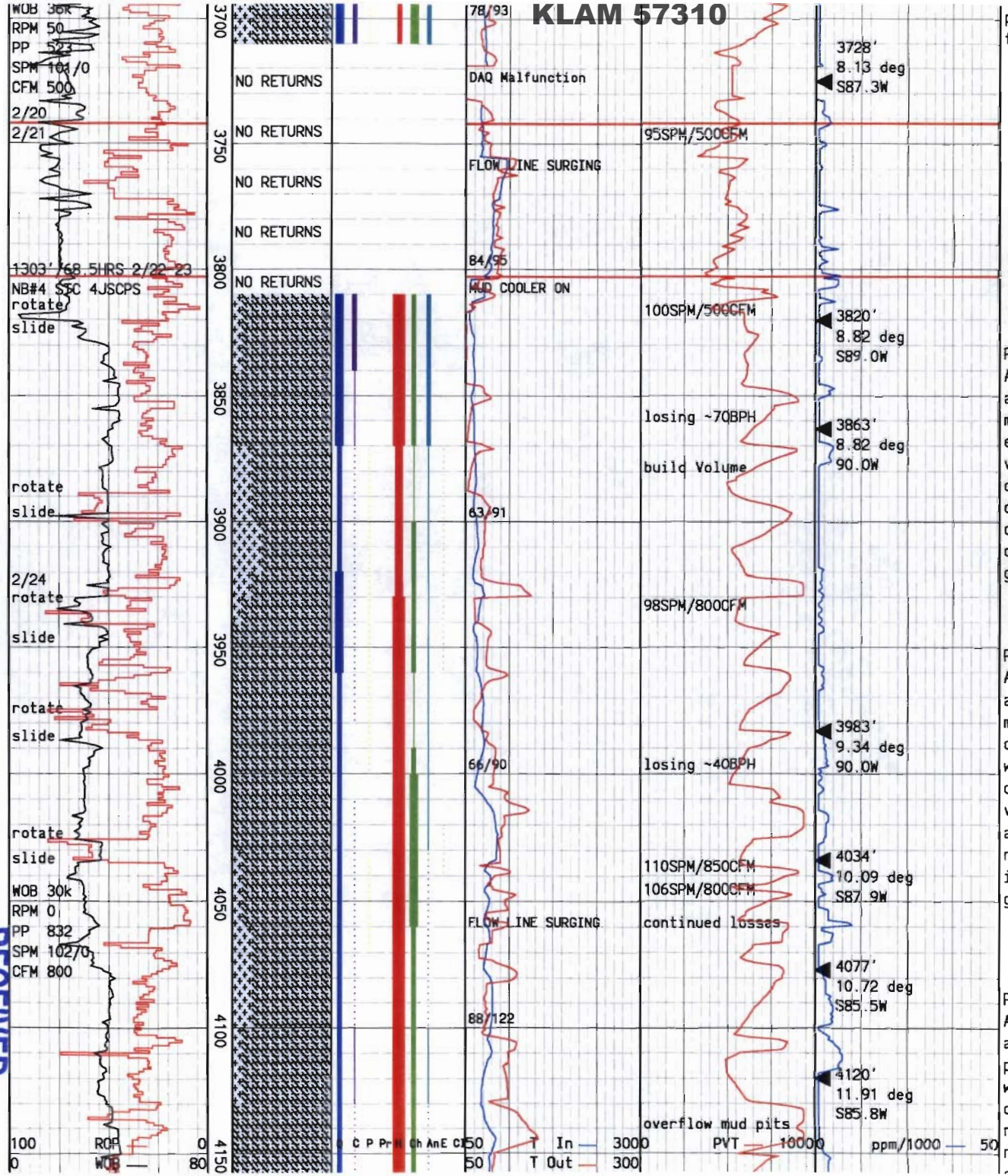


POOH & rig up compressors for directional drilling with aerated mud.Note: difficulty establishing circulation.POOH to install jet sub.

Andesite:lt-dk gry,grn, occ redish cast,occ porphy andesite,firm-hd,loc perv chlor altn,microx ln-v fn gr grndmass,occ subhed dk grn oliv phenos,tr-mnr clr/wht agg qtz & qtz vng,com-abun milky wht agg calc,r disem/vn pyr & agg pyr,loc r hem,com-abun agg chlor.

Andesite: lt-med gry,grn,occ redish cast,mod hd-v hd,mod-perv hem altn,loc mod-perv chlor altn,microxln-v fn gr grndmass,occ subhed oliv phenos,r-mnr clr/milky wht qtz vns/vugs,r-tr wht calc vng,r-mnr hem,tr-com agg/vn chlor,r-tr anhy xls w/subord Basaltic Andesite:med-dk gry, grn,occ redish cast,mod hd-v hd,mod-perv hem altn,occ mod-perv chlor altn,v fn-fn gr grndmass,tr-mnr clr/wht qtz vng,mnr-com milky wht calc, r-mnr hem,tr-com vn chlor,r-tr anhy.

Basalt:dk gry-blk,grn,occ red,mod hd-v hd,mod-perv hem stng/altn,occ mod chlor altn,v fn-fn gr grndmass,occ chlortzd subhed oliv phenos, tr-mnr qtz vng,r euh qtz xls, r-mnr calc vugs/vns,r disem pyr,c-mnr hem,t-com agg chlor t-m anhy vng.



pyr,c-mnr hem,t-com agg chlor t-m anhy vng.

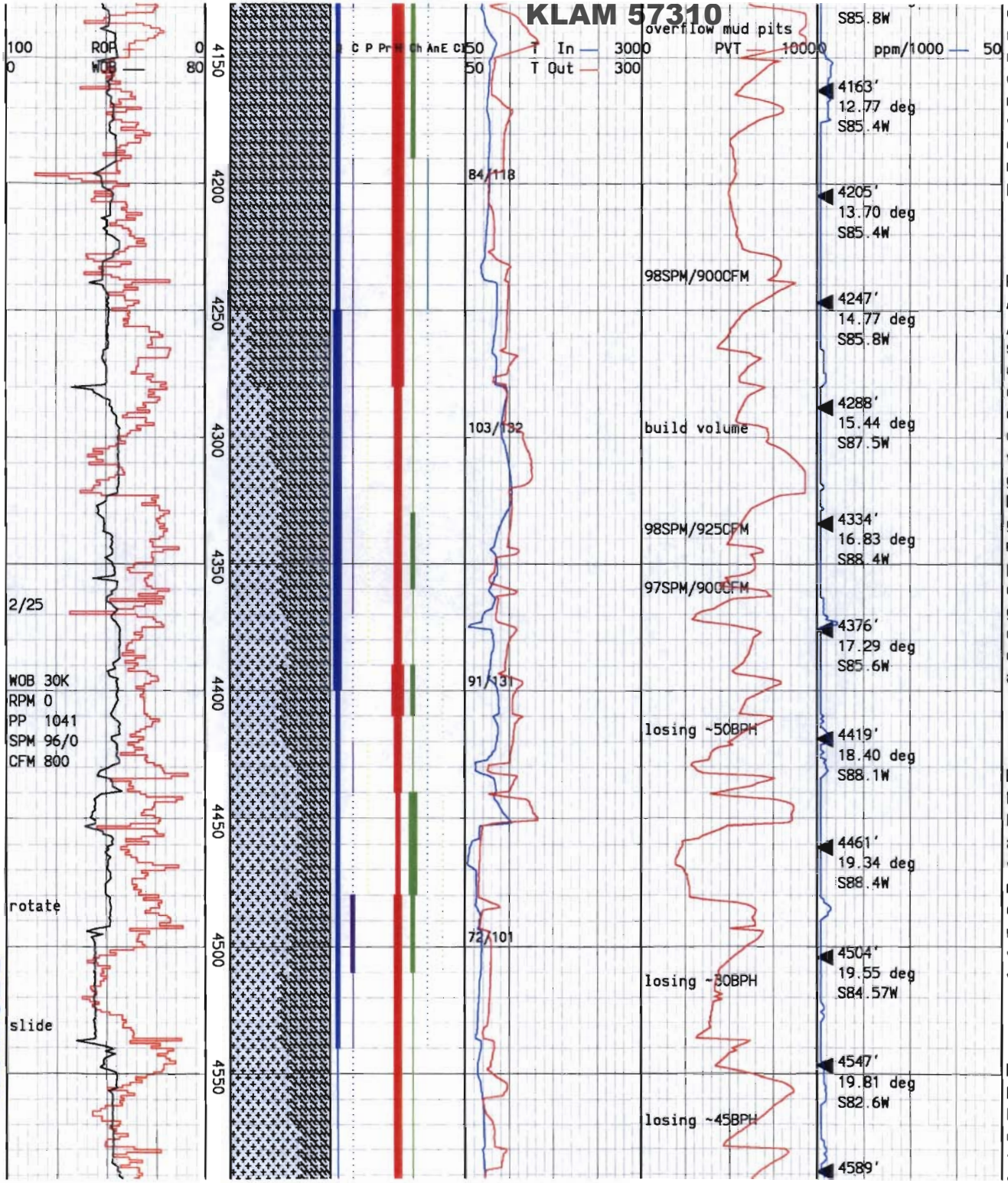
Short trip to reposition jet sub & clean hole.Note: Tight spot at 3730'.

POOH to inspect bit/MWD tools.Bit/BHA packed off w/fines from mud pits.Note: remove jet sub.

Perv Mineralization/ Alteration Zone:perv hem altn/stng,perv chlrtzn,com micrxln qtz vns/vugs,com clr euh qtz,tr-mnr clr/wht calc vng,r disem pyr,mnr-abun disem hem,mnr-com vn/agg chlor,mnr dissem/vn anhyd,r disem yel epid,com iron oxidzd mafic phenos & grndmass.

Perv Mineralization/ Alteration Zone:perv hem altn/stng,occ chlrtzn,com micrxln qtz vns/vugs,mnr-com clr subhed qtz, r milky wht agg calc,r dissem pyr, com-abun disem hem,tr-mnr vn/agg chlor,tr disem/vn anhyd,r blue-grn agg anhyd, r dissem yel epid,com-abun iron oxidzd mafic phenos & grndmass.

Perv Mineralization/ Alteration Zone:perv hem altn/stng,com chlrtzn,com perv silicification,milky wht qtz vns/amygd,mnr-com clr subhed-euhed qtz xls, r-tr milky wht vn/agg calc, r clr calc,r disem/agg pyr,

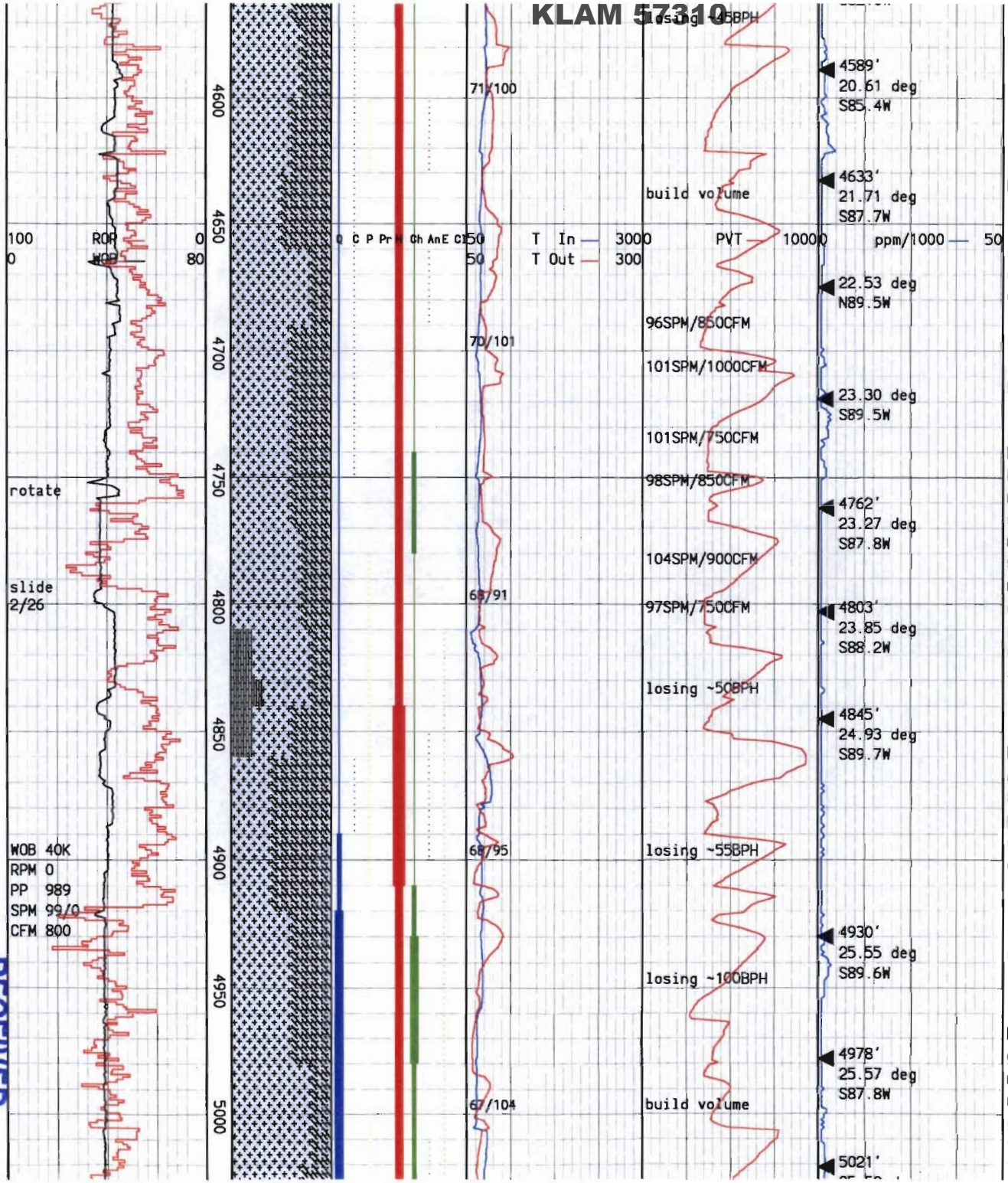


clr subhed-euhed qtz xls, r-tr milky wht vn/agg calc, r clr calc,r disem/agg pyr, com-abun disem/agg hem,tr-mnr vn/agg chlor,r-tr agg/vn anhyd,occ r disem yel epid,loc r brn-blk biot mica,abun iron oxidzd mafic phenos & grndmass.

Perv Mineralization/Alteration Zone:perv hem altn/stng,tr-com chlrtzn,occ perv silicification,mnr-com wht qtz vng,mnr-com clr subhed qtz xls,r-tr wht vn/agg calc, occ r disem pyr,com-abun dissem hem,tr-mnr chlor,r-tr vn anhyd,abun iron oxidzd grndmass,grading into Basaltic Andesite:lt-med gry, grn,red,mottled,mod hd-v hd, mod-perv hem stng/altn,com perv silicification,occ mod chlor altn,v fn-fn gr grndmass,tr-mnr qtz vng,r euh qtz xls,r-mnr calc vugs/vns,r disem pyr,c-mnr hem,t-com agg chlor,t-m anhy vng.

Basaltic Andesite:lt-dk gry, brn,grn,mod hd-hd,mod-perv hem altn,occ mod-perv chlor altn,occ-perv silicification, v fn-fn gr grndmass,subhed mafic and oliv phenos,tr-mnr clr/wht qtz vng,r-tr milky wht calc,mnr-abun hem,tr-com vn chlor,r-tr anhy,r yel agg/vn epid.

Basaltic Andesite:lt-med gry, brn,grn,red,occ dk gry-blk, hd-v hd,mod-perv hem altn,com chlrtzn,occ silicification,v fn-fn gr grndmass,subhed oliv



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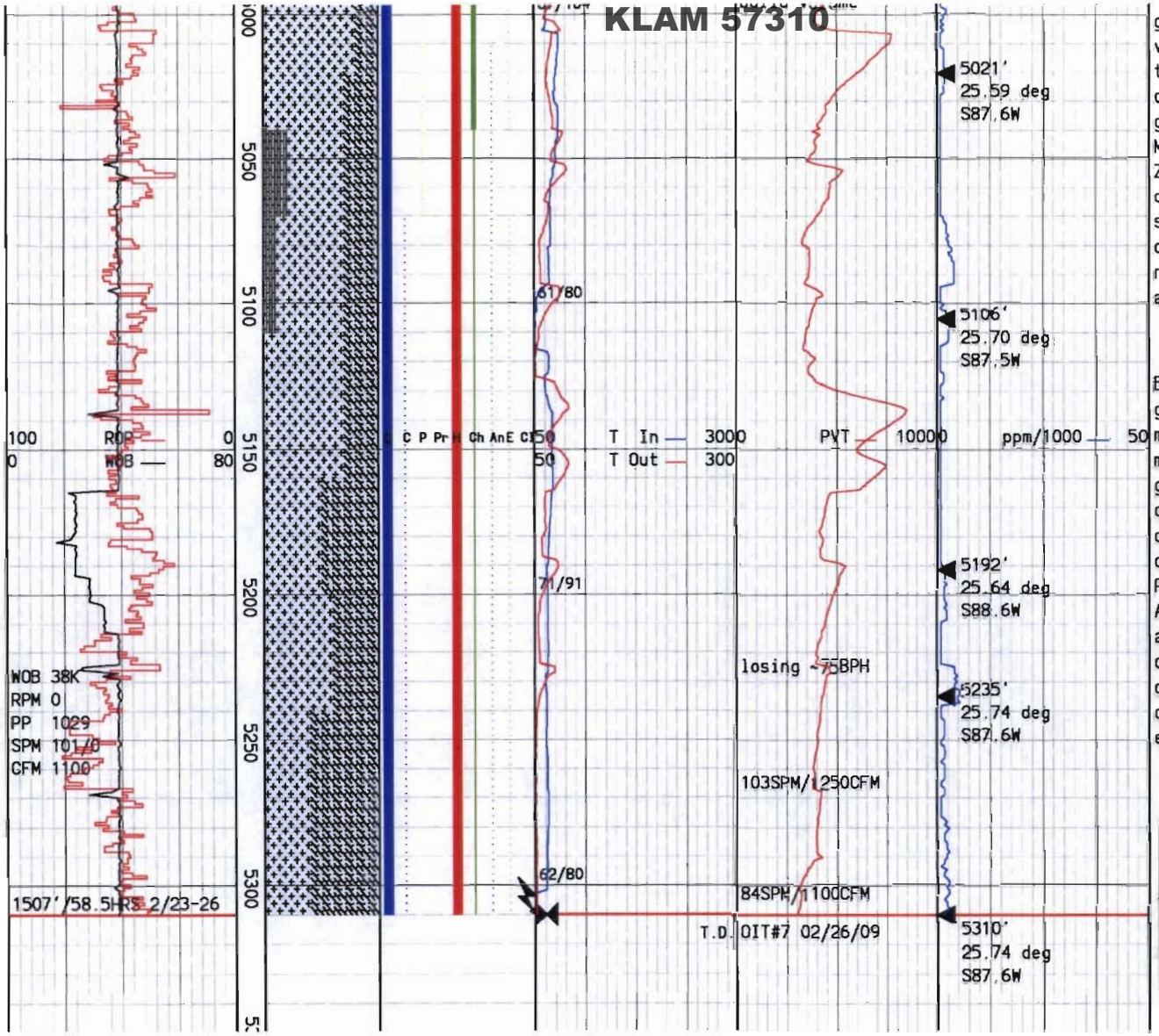
Basaltic Andesite:lt-dk gry, brn,grn,occ blk,mod hd-v hd, mod-perv hem altn,com chlrtzn,occ silicification, microxln-fn gr grndmass,r subhed oliv phenos,tr subhed mafic phenos,tr clr/wht vn qtz,r clr qtz xls,r disem pyr,com disem hem,tr blu/grn agg chlor,r yel/grn epid amygds.

Perv Mineralization/ Alteration Zones:perv hem altn/stng,tr-com chlrtzn,loc perv silicification,tr wht qtz vng,tr clr subhed qtz xls occ r disem pyr,tr-mnr chlor grading into Basalt: black,hd v hd,microxln,v fn grndmass subhed oliv phenos,r clr/wht qtz vning,r-tr hem stng.

Basaltic Andesite:lt-med gry, grn,brn, occ tan,mod hd-v hd, mod-perv hem stng/altn,occ mod chlor altn,microxln-fn gr grndmass,tr-mnr clr/wht qtz vng,com clr/wht agg qtz, tr-com lt-dk blue/grn agg



grndmass,tr-mnr clr/wht qtz vng,com clr/wht agg qtz, tr-com lt-dk blue/grn agg chlor,r disem/agg epid, grading into Perv Mineralization/Alteration Zone:perv hem altn/stng,mnr-com chlrtzn,occ mod silicification,mnr-com wht qtz vng,r clr/wht qtz amygds, r-tr chlor vng,r dk grn chlor amygds.

Basaltic Andesite:lt-med gry, grn,brn,red,org,mod hd-hd, mod-perv hem stng/altn,occ mod chlortzn,microxln-fn gr grndmass,com clr/wht vn/agg qtz,r clr/wht calc vng/amygd, com disem hem,tr disem/agg chlor,r clr anhy,grading into Perv Mineralization/ Alteration Zones:perv hem altn/stng,occ mod chlortzn, com clr/wht vn qtz,r-tr calc, com disem hem,tr disem/agg chlor,r clr anhy,r disem yel epid.

Drill 12.25" hole to 5310'. Run wireline log.Run 73 jnts of 9-5/8" 40ppf K-55 BTC perforated liner to a depth of 5008'.Liner hanger at 2070'.Perform flow test. T.D. OIT#7 02/26/09, 5310'.

Bore Hole Schematic Report

Well ID: OIT #7 - OIT $

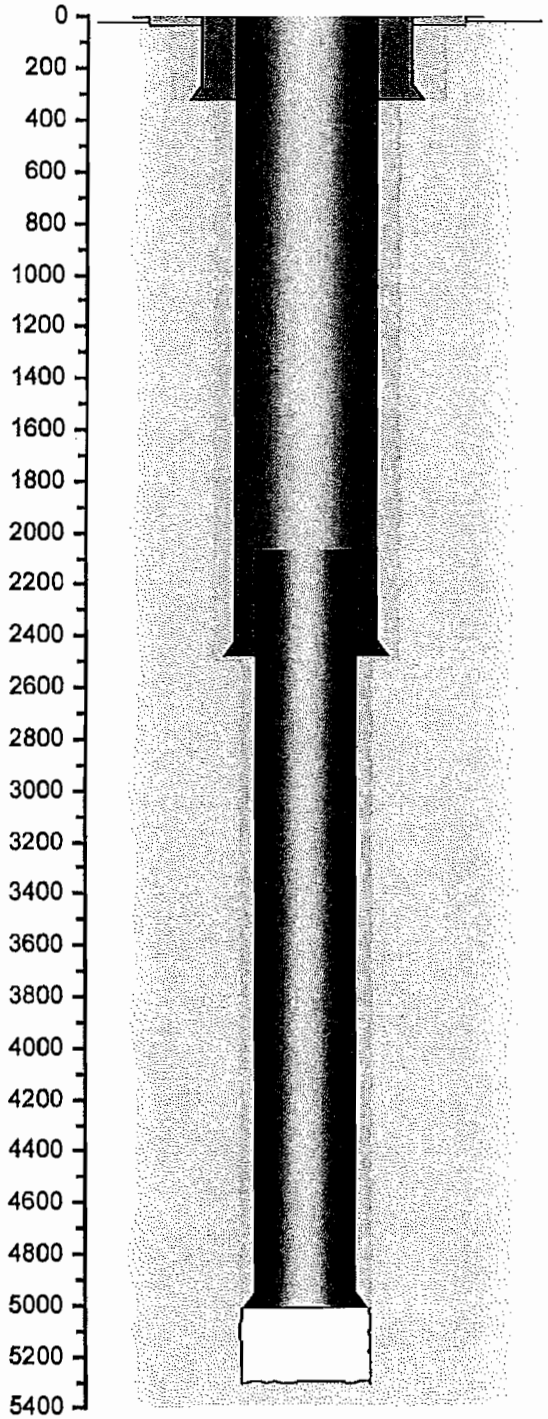
Field: Oregon

ThermaSource

Well Name: OIT #7

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Actual Data



All Depths are relative to the Original RKB Elevation
Original RKB Elevation at 22ft above Ground Level
Ground Level
30.000ins Casing set at 38ft on 09-Jan-09

20.000ins Casing set at 322ft on 26-Jan-09

9.625ins LINER, Top set at 2,070ft

13.375ins Casing set at 2478.28ft on 07-Feb-09

9.625ins Liner set at 5008.75ft on 03-Mar-09

Open Hole Diameter 12.250ins
Total Depth 6,310ft

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | **Well Name: OIT #7**

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
1	16-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue moving onto OIT Campus pad.	X
		07:00	17:00	10	0	RIGU	Commence operations at daylight, re-position draw works skid w/Northern Cranes, assemble derrick while spotting mud tanks, fuel tanks, generator house, set derrick on bases/derrick stand, rigging up derrick hoses, hydraulic lines, cables, set in miscellaneous components, re-build ramps for moving equipment with Bellet Construction, shut down for darkness.	
		17:00	00:00	7	0	WOW	Wait on daylight to continue rigging up, spotting of final rig components.	X
2	17-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue moving rig, rigging up.	X
		07:00	17:30	10.5	0	RIGU	Continue moving in rig componentssuch as generator house, lower dog house, fuel tank, thaw out frozen lines, welders continued to make modifications to sub bases to accomodate 21-1/2" stack, rig up, prepare to raise derrick, raise derrick, rig up portable generator to run derrick lights, beacon on crown, shut down for dark.	
		17:30	00:00	6.5	0	WOW	Wait on daylight to continue rigging up.	X
3	18-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue with rig move and rigging up.	X
		07:00	17:30	10.5	0	RIGU	Held pre-tour safety meeting with all parties involved in moving and rigging up operations, continue setting in all components for rig, continue with welders modifications on sub bases to accomodate 21-1/2" Annular/single gate BOP set-up, rigging up lines, scope sub bases, dog house,	
		17:30	00:00	6.5	0	WOW	Shut down for dark, wait on daylight to continue rigging up operations.	X
4	19-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue with rig move and rigging up.	X
		07:00	17:30	10.5	0	RIGU	Continue rigging up ThermaSource Rig # 105, install wind walls, string up survey lines, connect up all fuel, electrical lines, receive fuel, remove 2 trees in front of mud tanks to accomodate solids catct bins, install solids bins, continue working with welders on modifications of sub bases, rigging up.	
		17:30	00:00	6.5	0	WOW	Shut down for darkness, wait on daylight.	X
5	20-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue rigging up ThermaSource # 105.	X
		07:00	17:30	10.5	0	RIGU	eld pre-job safety meeting with crews for rigging up, building pitcher nipple, riser, flow line, slip and cut all bad drill line (+/- 800 ft) drain hydraulic system, replace with synthetic Royal Purple, start and test motors, test air lines for leaks,(OK)	
		17:30	00:00	6.5	0	WOW	Shut down for dark, wait on daylight.	X
6	21-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue with final details of rig-up.	X
		07:00	07:30	0.5	0	OTHER	Pre-tour safety meeting with all crews involved in rig up operations. Discussed operations for continue rigging up.	
		07:30	17:30	10	0	RIGU	l flow line with welders, weld miscellaneous brackets for equipment, install/repair wind wall brackets, place K-railings along low side of location for spill control, erosion control, test hydraulic unit, power swivel, (would only turn in reverse), re-trace all lines, valves, corrected problem, power swivel tested OK, shut	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							down for dark.	
		17:30	00:00	6.5	0	WOW	Shut down for dark, wait on daylight to continue rig up, operations.	X
7	22-Jan-09	00:00	07:00	7	0	WOW	Wait on daylight to continue rigging up ThermaSource # 105.	X
		07:00	07:30	0.5	0	OTHER	held pre-tour safety meeting with all personnel involved in rigging up operations.	
		07:30	18:00	10.5	0	RIGU	Test all pumps and centrifugals on mixing/transfer system, build containment barriers with K-ralls, plastic and sand bags, rig up water line to take on water in mud pits and water tank, clear location, unload 9 joints 20" casing, welders completed modifications to flow-line, added flow sensor flange, Pason installed rotary RPM sensor, flow sensor, completed rigging up of Mud Loggers and Mud Engineer equipment, install Munser diesel heating system for mud pits, pumps,install tarps around sub bases.	
		18:00	00:00	6	0	WOW	Shut down for darkness, wait on daylight to break tour.	X
8	23-Jan-09	00:00	04:00	4	0	WOW	Wait on daylight to commence operations.	X
		04:00	08:00	4	0	CIRC	Mix mud and circulate over hole to condition mud throughout pits.	
		08:00	12:00	4	0	OTHER	Transfer drill collars and drill pipe from off location to pipe racks.	
		12:00	16:00	4	0	BHAOP	Measure BHA, mix mud and condition.	
		16:00	18:30	2.5	0	BHAOP	Make up 26 inch bit, BHA, unable to run stabilizers due to restriction in iron roughneck size	
		18:30	19:00	0.5	0	TRPI	RIH to 60 feet (Bottom of conductor from RKB.	
		19:00	23:30	4.5	0	DRILR	Drill from 60 ft to 112 ft, rotating. Plugging of flow-line is a problem, having to jet flow line every 5-10 feet.	
		23:30	00:00	0.5	0	CIRC	Swap mud pumps due to pressure loss. Investigate pressure loss.	
9	24-Jan-09	00:00	00:30	0.5	112	CIRC	Clean out flow line.	
		00:30	02:30	2	125	DRIL	Drill from 112 ft to 125 ft control drilling due to heavy clay in formation causing flow line to plug. (6.5 feet per hour average ROP)	
		02:30	03:00	0.5	125	CIRC	Clean out flow line.	
		03:00	04:30	1.5	140	DRIL	Drill from 125 ft to 140 ft clearing flow line as needed. (10 feet per hour average ROP)	
		04:30	05:30	1	140	CIRC	Circulate and rig up survey tool, hang sheeve in derrick.	
		05:30	07:00	1.5	140	SURV	Attempt to survey, Monel sensor not detecting Monel drill collar.	
		07:00	07:30	0.5	140	SURV	Run single shot directional survey at 133 feet. (0.50 degrees N-45-West.)	
		07:30	08:30	1	140	TRPO	POOH to 35 feet	
		08:30	09:00	0.5	140	OTHER	Strap 20 inch casing.	
		09:00	12:00	3	140	OTHER	Attend OIT groundbreaking ceremony at OIT campus.	
		12:00	15:00	3	140	OTHER	Attend spud meeting at OIT campus with ThermaSource personnel and OIT representatives, all crews.	
		15:00	16:00	1	140	REPR	Replace head in # 1 mud pump, function test through bleeder.	X
		16:00	16:30	0.5	140	TRPI	RIH to 140 feet.	
		16:30	20:30	4	197	DRIL	Drill from 140 ft to197 ft. (14.25 feet per hour average	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							ROP.)	
		20:30	21:30	1	197	CIRC	Circulate and clean hole/flow line.	
		21:30	22:00	0.5	197	SURV	Run single shot directional survey at 195 feet. (0.5 degrees N-43-West)	
		22:00	00:00	2	197	DRIL	Drill from 197 ft to 228 ft. (15.5 feet/hour average ROP.)	
10	25-Jan-09	00:00	01:30	1.5	259	DRIL	Drill from 228 ft to 259 ft (Average ROP 20.66 feet/hour)	
		01:30	02:00	0.5	259	SURV	Single shot deviation survey at 251 feet. (0.50 degrees N-72-East)	
		02:00	03:00	1	259	TRPO	Wipe hole to 50 feet, hole very free, no drag.	
		03:00	03:30	0.5	259	TRPI	Run in hole to 259 feet.	
		03:30	10:30	7	322	DRIL	Drill from 259 ft to 322 ft (Average ROP 9 feet/hour) Hit harder formation at 302 feet.	
		10:30	11:00	0.5	322	SURV	Single shot deviation survey at 319 feet. (0.50 degrees N-52 E)	
		11:00	12:30	1.5	322	TRPO	POOH wiping hole to surface. Hole pulled free.	
		12:30	13:30	1	322	SERV	Perform complete rig service, Idrill ine inspection, inspect crown/sheeves, winches, air manifold valves, service all backyard equipment, centrifugals, check fluid levels in all equipment.	
		13:30	14:30	1	322	TRPI	RIH to 292 feet, hole free.	
		14:30	00:00	9.5	322	CIRC	Safety ream from 292 feet to 322 feet, no fill, circulate and wait on casing tongs and crew.	
11	26-Jan-09	00:00	02:30	2.5	322	TRPO	POOH from 322 feet, reak bit, bit sub, stab in sub and cushion sub.	
		02:30	03:00	0.5	322	OTHER	Held pre-job safety meeting with crews, crane operators and casing crews for running casing.	
		03:00	07:00	4	322	CASE	Rig up to run 20 inch 94#/foot K-55 casing, weld on float, shoe	
		07:00	17:00	10	322	CASE	Pick up first joint casing, make up float, shoe, weld connections on float and shoe, weld bottom of first 3 couplers on casing, run 7 joints 20 inch 94 #/foot casing, tagged up at 310'.	
		17:00	18:30	1.5	322	CIRC	M/U circulating swage, circulating line, circulate and work casing past what appeared to be a ledge, set elevators on spider at 322 feet.	
		18:30	20:00	1.5	322	CASE	Rig down and tear out casing tongs, back-up tongs, assorted equipment with crane.	
		20:00	00:00	4	322	REPR	Attempt to rig up iron roughneck, hydraulic lines to iron roughneck frozen, attempting to thaw lines for hydraulic system.	X
12	27-Jan-09	00:00	07:00	7	322	REPR	Fix iron roughneck hydraulics, thaw out power swivel, mud pumps, 2 inch lines on standpipe manifold.	X
		07:00	08:00	1	322	BHAOP	M/U stab-in assembly on drill pipe.	
		08:00	09:30	1.5	322	TRPI	RIH with stab-in assembly, stab into float collar.	
		09:30	12:30	3	322	CIRC	Circulate and condition mud/hole while waiting on Halliburton cementers to thaw out pumps/lines on cementing unit.	
		12:30	13:00	0.5	322	OTHER	Held pre-job safety meeting with all crews and cementers to discuss cementig operations.	
		13:00	14:30	1.5	322	CMTD	Pump 1 bbl water, test lines to 2,000 psi with cement unit, pump 50 bbls water, 30 bbls Sepeolite viscous spacer, 130 bbls (380 sacks/733 cubic feet) Halliburton Thermachem cement with 3% CaCl2	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | **Well Name: OIT #7**

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							added. (Lost returns at 92 bbls cement away, continued to pump remainder of 130 bbls, had traces of cement to surface, displace with 3 bbls H2O, bled off, float held, (CIP at 14:02 hours.)	
		14:30	15:30	1	322	TRPO	Unsting, POOH with drill pipe, stab in tools, L/D tools	
		15:30	16:00	0.5	322	OTHER	Held pre-job safety meeting with all crews/Halliburton cementers to perform top job.	
		16:00	16:30	0.5	322	CMTD	Run 1 inch stinger between conductor and 20 inch casing to 65 feet, tagged semi-solid cement, mix and pump 15 bbls(60 sacks 14.5 Thermachem cement with 3% CaCl2 added, had good cement to surface. (CIP at 16:30 hours.)	
		16:30	17:30	1	322	CMTD	Tear out cementers, flush lines.	
		17:30	21:30	4	322	OTHER	Rig up 2 inch jetting lines on flow line to flush out, clean cellar, catch bins for solids, clean cellar, sub bases for welders while waiting on cement.	
		21:30	00:00	2.5	322	WOC	Wait on cement, organize location, clear and clean rig floor.	
13	28-Jan-09	00:00	07:30	7.5	322	WOC	Cleaning rig floor, dog house, upper tool house while waiting on cement.	
		07:30	09:30	2	322	BOPNU	Cut off 30 inch conductor, rough cut 20 inch casing, lay down 20 inch cut-off, remove 30 inch riser cut-off.	
		09:30	11:00	1.5	322	BOPNU	Clean out cellar, final cut 20 inch casing to height for well head	
		11:00	17:30	6.5	322	BOPNU	Final cut 20 inch casing to height for well head, set in well head with welders. weld on well head, test void to 500 psi.	
		17:30	00:00	6.5	322	BOPNU	Start nipple up of BOP's picking up annular and hanging it off under rig floor, M/U single gate blind rams to mud crossinstall single gate and mud cross.	
14	29-Jan-09	00:00	03:30	3.5	322	BOPNU	Nipple up BOP's	
		03:30	07:30	4	322	BOPNU	Assisting welder with fabrication of pitcher nipple.	
		07:30	09:00	1.5	322	BOPNU	Install pitcher nipple, connect all control lines to Koomy unit, connect flow-line and kill line.	
		09:00	11:30	2.5	322	BOPNU	Function test blind rams, annular Hydrill, good	
		11:30	12:00	0.5	322	BOPNU	Install check valve on kill line.	
		12:00	14:00	2	322	OTHER	Attend spud meeting at OIT facility with OIT representatives Dr. John Lund and Toni Boyd discussing basic scope and goals of this project.	
		14:00	17:30	3.5	322	BOPT	Fill conductor, close blind rams, test to 300 psi, failed due to leak between well head and flange, re-tighten bolts on flange, pressure test to 300 psi, pass, pressure to 600 psi, had leak at lock down studs for wear busning/ test plug on well head, bled off, re-tighten studs, re-test to 600 psi, pass, pressure to 1135 psi, held for 30 minutes, pass., bleed off pressure.	
		17:30	00:00	6.5	322	BHAOP	Re-arrange pipe on location to begin picking up BHA, M/U bit, bit sub, stabilizer, shock sub, stabilizer, monel drill collar, stabilizer, 6 drill collars, drilling jars running in hole to 242 feet at midnight.	
15	30-Jan-09	00:00	00:30	0.5	322	TRPI	RIH to 311 feet, tagged cement.	
		00:30	02:00	1.5	322	BOPT	L/D single, test Hydrill to 500 psi for 30 minutes, good test.	
		02:00	06:30	4.5	322	CUTDL	Slip and cut 30 feet drill line, observed bad spot on drill line, re-slip and cut an additional 90 feet to	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | **Well Name: OIT #7**

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							remove bad area.	
		06:30	07:30	1	322	REPR	Thaw out hydraulic lines to pipe handler.	X
		07:30	08:30	1	322	CIRC	Circulate and condition thick mud in casing, unplug flow line.	
		08:30	10:00	1.5	322	DRIL	Drill out cement, float and shoe from 311 ft to 322 ft.	
		10:00	17:30	7.5	405	DRIL	Drill from 322 ft to 405 ft running light weights on bit to control direction until sufficient hole has been drilled for directional controlling the well vertically. (ROP 11.06 feet per hour)	
		17:30	18:00	0.5	405	CIRC	Circulate clean for survey, adjust rollers on blocks.	
		18:00	18:30	0.5	405	SURV	Run deviation survey at 405 feet, tool depth 385 feet.	
		18:30	19:00	0.5	408	DRIL	Drill from 405 ft to 408 ft, stopped drilling because survey did not take.	
		19:00	21:00	2	408	REPR	Packing in power swivel leaking, remove and replace/repack swivel.	X
		21:00	21:30	0.5	408	SURV	Re-take deviation survey at 405 feet, survey results 0.25 degrees N-53-W.	
		21:30	00:00	2.5	491	DRIL	Drill from 408 ft to 491 ft. (ROP 33.2 feet per hour.)	
16	31-Jan-09	00:00	01:30	1.5	558	DRIL	Drill from 491 feet to 558 feet. Average ROP: 44.66 feet/hour.	
		01:30	02:00	0.5	558	SURV	Deviation survey at 535 feet Angle 0.25 degrees N-28-W.	
		02:00	06:00	4	653	DRIL	Drill from 558 feet to 653 feet.	
		06:00	06:30	0.5	653	SURV	Deviation survey at 630 feet Angle 0.50 N-18-W.	
		06:30	12:00	5.5	685	DRIL	Drill from 558 feet to 685 feet. Average ROP: 5.8 feet pper hour drilling Basalt.	
		12:00	13:30	1.5	685	TRPO	Wipe hole from 685 feet to 317 feet, maximum overpull 25K. up, 15K down. Switch to Gen Set # 2.	
		13:30	14:00	0.5	685	TRPI	RIH to bottom, maximum drag 15K running in. Fill string.	
		14:00	19:30	5.5	746	DRIL	Drill from 685 feet to 746 feet. Average ROP: 11.1 feet/hour.	
		19:30	21:00	1.5	746	SURV	deviation survey at 721 feet. Angle: 0.25 degrees N-28-W	
		21:00	00:00	3	822	DRIL	Drill from 746 feet to 822 feet. Average ROP 25.33 feet/hour.	
17	01-Feb-09	00:00	01:30	1.5	853	DRIL	Drill from 822 feet to 853 feet. Average ROP: 20.66 feet per hour.	
		01:30	02:00	0.5	853	SURV	Deviation survey at 830 feet tool depth. Angle 0.50, N-23-W.	
		02:00	09:00	7	988	DRIL	Drill from 853 feet to 988 feet. Average ROP: 19.82 feet per hour.	
		09:00	10:30	1.5	988	SURV	Deviation survey at 959 feet tool depth. Angle 0.50 degrees, N-28-W	
		10:30	13:30	3	988	LOST	Lost circulation at 988 feet following survey. Mixed 100 bbls mud with 30 lbs per barrel LCM materials, spot on bottom, allow to soak while rebuilding new volume in pits. Laid out one joint after spotting pill, working pipe while building volume.	X
		13:30	00:00	10.5	1162	DRIL	Drill from 988 feet to 1,162 ft at 24:00 hours. Average ROP: 16.57 feet per hour.	
18	02-Feb-09	00:00	06:30	6.5	1283	DRIL	Drill from 1,162 feet to 1,283 feet Average ROP: 18.61 feet per hour.	
		06:30	07:00	0.5	1283	CIRC	Circulate clean for survey and wiper trip.	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | Well Name: OIT #7

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		07:00	08:00	1	1283	SURV	Run deviation survey at 1,260 feet. First survey no good, re-run survey. Angle 0.50 degrees, N-52-W	
		08:00	10:30	2.5	1283	TRPO	Wipe hole from 1,283 feet to 320 feet. Had 25-30K spot drag.	
		10:30	12:00	1.5	1283	SERV	Rig service, re-string survey line.	
		12:00	13:00	1	1283	TRPI	RIH to 1,240 feet.	
		13:00	13:30	0.5	1283	REAM	Safety ream from 1,240 feet to 1,283 feet. (NOTE: Had 129 degrees flow-line temperature at bottoms up after wiper trip)	
		13:30	00:00	10.5	1424	DRIL	Drill from 1,283 feet to 1,424 feet. Average ROP: 13.42 feet per hour.	
19	03-Feb-09	00:00	10:30	10.5	1541	DRIL	Drill from 1,422 feet to1541 feet. Average ROP 11.33 feet per hour.	
		10:30	11:30	1	1541	SURV	Deviation survey at 1,518 feet. (Angle 0.50 degrees, S-02-W)	
		11:30	12:00	0.5	1541	REPR	Repair survey line.	X
		12:00	00:00	12	1541	DRIL	Drill from 1,541 feet to 1,740 feet. Average ROP: 16.58 feet per hour.	
20	04-Feb-09	00:00	05:00	5	1842	DRIL	Drill from 1,740 feet to 1,842 feet. Average ROP 20.10 feet per hour.	
		05:00	06:00	1	1842	CIRC	Circulate clean for deviation survey.	
		06:00	06:30	0.5	1842	SURV	Deviation survey at 1,819 feet. (Angle 2.0 degrees S-46-W)	
		06:30	23:00	16.5	2142	DRIL	Drill from 1,842 feet to 2,142 feet. Average ROP 18.18 feet per hour.	
		23:00	00:00	1	2142	CIRC	Circulate for deviation survey.	
21	05-Feb-09	00:00	00:30	0.5	2142	SURV	Deviation survey at 2,119 feet. (Angle 2.5 degrees S-45-W)	
		00:30	08:30	8	2282	DRIL	Drill from 2,142 feet to 2,282 feet. (Averge ROP 17.5 feet per hour)	
		08:30	11:30	3	2282	LOST	Lost 100 bbls, P/U, L/D 1 single, work pipe filling hole from top, build 100 bbls mud with 35 sacks Prima-Seal Medium, 25 Sawdust (30 lbs/bbl LCM), spot in open hole, L/D 1 single, work pipe and allow LCM to soak.	X
		11:30	00:00	12.5	2282	DRIL	Drill from 2,282 feet to 2,450 feet at 24:00 hours. (Average ROP: 13.44 ft/hour)	
22	06-Feb-09	00:00	07:30	7.5	2500	DRIL	Drill from 2450 feet to 2500 ft Average ROP 6.67 feet per hour.	
		07:30	08:30	1	2500	CIRC	Circulate clean for survey	
		08:30	09:30	1	2500	SURV	Deviation survey at 2,480 feet Angle 2.75 degrees S-61-W.	
		09:30	13:00	3.5	2500	TRPO	POOH to shoe at 322 feet. Spot drag from 15-30 K maximum.	
		13:00	16:30	3.5	2500	TRPI	RIH to 2,500 feet.	
		16:30	17:00	0.5	2500	REAM	Safety ream from 2,482 ft to 2,500 feet. No fill	
		17:00	18:00	1	2500	CIRC	Circulate hole clean, condition mud for running casing.	
		18:00	00:00	6	2500	TRPO	POOH to run casing, lay down drill collars.	
23	07-Feb-09	00:00	01:30	1.5	2500	TRPO	POOH, handle BHA, L/D bit.	
		01:30	02:00	0.5	2500	TRPO	Clear rig floor, tear out pipe handler	
		02:00	08:00	6	2500	CASE	R/U hydraulic V-door, rig up casing tongs, tools, hydraulic power unit., weld bottom three couplers.	
		08:00	08:30	0.5	2500	OTHER	Held Pre-job safety meeting for running casing.	
		08:30	09:30	1	2500	CASE	M/U shoe, weld on first joint, make up float, weld on shoe track joint.	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ — **Well Name: OIT #7**

Field: Oregon — Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		09:30	18:30	9	2500	CASE	Run 64 joints 13-3/8 inch K-55 BT&C 68 lb/foot casing to 2,478 feet.	
		18:30	23:00	4.5	2500	CASE	R/D tongs, hydraiulic V-door, rig up pipe handler jaws, lines, P/U cushion sub, slips, spider for running inner string.	
		23:00	00:00	1	2500	TRPI	Repair iron roughneck, replace dies.	
24	08-Feb-09	00:00	01:00	1	2500	TRPI	M/U cushion sub, saver sub, safety clamp on power swivel.	
		01:00	08:00	7	2500	TRPI	M/U Stab-in sub, replace seals, install centralizer, P/U drill pipe and RIH to stab in depth of 2436 feet, stab into float collar.	
		08:00	09:30	1.5	2500	CIRC	Circulate hole clean, condition mud, rig up Halliburton.	
		09:30	10:00	0.5	2500	OTHER	Hold Pre-job safety meeting for cementing casing.	
		10:00	13:00	3	2500	CMTP	Pump 20 bbls H2O, 30 bbls Sepeolite high viscosity spacer, pump 5 bbls water, mix and pump 371.6 bbls 13.5 ppg Tuned Light lead cement, followed by 94 bbls 15.0 ppg ThermaChem Tuned tail cement, displaced with 41 bbls water, check float-held, turn over to rig. (Lost circulation at 146 bbls away(97.2 bbls outside shoe), partial returns came back at 240 bbls away, lost circulation again at 260 bbls away, regained partial circulation at 337 bbls away, lost returns again at 357 bbls away, regained partial returns at 27.9 bbls away on tail cement. While pumping displacement, pressures as follows: first 10 bbls @ 6.2 bbls/min 425 psi, second 10 bbls @ 6.2 bbls/min 475 psi, 3rd 10 bbls 580 psi. Final pressures at 1.8-2.0 bbls/min 377 psi. CIP at 12:41 pm. No cement to surface.	
		13:00	14:00	1	2500	CMTP	Rig down Halliburton cementers	
		14:00	19:00	5	2500	TRPO	POOH with stab-in sub laying down drill pipe	
		19:00	19:30	0.5	2500	TRPO	Break out saver sub, cushion sub.	
		19:30	20:00	0.5	2500	OTHER	Clean rig floor.	
		20:00	00:00	4	2500	CUTDL	Slip and cut 130 feet drilling line. Waiting on cement, waiting on Halliburton cement for top job.	
25	09-Feb-09	00:00	01:30	1.5	2500	CUTDL	Finish slip and cut drilling line.	
		01:30	13:30	12	2500	WOC	Waiting on cementchange oil and filters in # 2 light plant, HP unit, clean and organize all rig houses.	
		13:30	16:00	2.5	2500	CMTS	Rig up Halliburton cementing, run 1 inch tubing into annulus to 160 feet, secure tubing.	
		16:00	16:30	0.5	2500	CMTS	Held Pre-job safety meeting for performing top job.	
		16:30	17:00	0.5	2500	CMTS	Mix/pump total of 76 bbls 14.5 ppg Tail blend Class G cement with 2% CaCl2 down 1 inch tubing. Gained returns at 46 bbls, continue pumping cement to total of 76 bbls(300 sacks). Final returns were contaminated drilling mud and cement interface. CIP at 17:00 hours.	
		17:00	00:00	7	2500	WOC	Wait on cement, monitor fall back.	
26	10-Feb-09	00:00	03:30	3.5	2500	WOC	Waiting on cement.	
		03:30	04:00	0.5	2500	OTHER	R/U Halliburton, hold Pre-job safety meeting prior to pumping cement.	
		04:00	04:30	0.5	2500	CMTS	Mix and pump 20 bbls class G Neat with 2% CaCl2 (80 sacks). Gained returns at 8 bbls, pumped remaining 20 bbls with final 6-7 bbls returns as green and good cement, shut down cementing,	
		04:30	20:00	15.5	2500	WOC	Wait on cement, clean pits under shale shakers, sand	

Operations Activity Detail — **ThermaSource**

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Field: Oregon — Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							traps, settling pit, unload 4 loads 9-5/8" liner off location.	
		20:00	00:00	4	2500	BOPND	Nipple down BOP's, lift Pitcher Nipple to cut off casing, rough cut casing.	
27	11-Feb-09	00:00	06:00	6	2500	BOPND	P/U 4-way slings, nipple down BOPs, install cart system for transporting BOPs from under sub-base, lift pitcher nipple, make high cut on 13-3/8" casing, lay out cut-off, lift annular, single gate, remove all 21-1/2" BOP components, assist welders in cutting off old 20" wellhead, remove same, perform final cut on 13-3/8" casing.	
		06:00	16:00	10	2500	BOPNU	Install and weld in place new 13-3/8" 400 wellhead, wait on wellhead to cool down prepare all 12.9" 3M BOP components, test wellhead void with Nitrogen at 500 psi for 15 minutes (charted), chain up forklift, tear out welders.	
		16:00	00:00	8	2500	BOPNU	Test wellhead void with Nitrogen at 500 psi for 15 minutes (charted), chain up forklift, tear out welders, install Master valve, DSA, 17" spool, double gate, Hydril, M/U 24" spool, 16" spool on Rotating Head.	
28	12-Feb-09	00:00	08:00	8	2500	BOPNU	Nipple up BOP's, make up rotating head on spacer spool, Annular preventer, hammer up all connections from well kill valve to flow-line, wait on welder to trip flow nipple from rotating head to fit to flow-line, connect flow line to dresser sleeve, connect all lines to double gate and annular, function test(all working properly), Install handle on Master valve, install chains on BOP stack to center with well and secure, install 3 inch kill line on well head,	
		08:00	15:30	7.5	2500	REPR	Thaw out all mud lines between mud pumps and power swivel, hard lines and bumper hoses frozen during nipple up operations.	X
		15:30	16:30	1	2500	BHAOP	Off load drill collars, HWDP and BHA components, work on draw works motor with Cat mechanic. Arrange BHA to be picked up.	
		16:30	20:00	3.5	2500	BOPNU	Woork on draw works motor with mechanic, install sub base supports, test blind rams for 30 minutes at 1,000 psi, held, test master valve 1t 500 psi for 15 minutes, held good, adjust dresser sleeve and tighten to stop leak at flow-line.	
		20:00	00:00	4	2500	BHAOP	P/U and make up 12-1/4 inch bit, install cushion sub, X/O sub, safety clamp, star sub, start making up BHA at midnight.	
29	13-Feb-09	00:00	06:30	6.5	2500	TRPI	PJSM, service power swivel, repair lines from stand pipe to blocks, service and repair iron roughneck, RIH to 2,444 feet, tag cement, pick up off bottom, fill drill string.	
		06:30	10:00	3.5	2500	BOPT	Test pipe rams to 1,000 psi for 30 minutes as per Oregon regulations, test good, attempt to test Annular Preventer to 500 psi for 30 minutes, bled off, circ to remove trapped air in annular, assure hole filled, re-rtest Annular Preventer to 500 psi for 30 minutes, good test.	
		10:00	11:30	1.5	2500	BOPO	Install rotating rubber on drill pipe in Grant head.	
		11:30	12:00	0.5	2500	CIRC	Circulate and condition mud.	
		12:00	14:30	2.5	2500	CMTD	Drill out cement, float collar, shoe track cement, drill out shoe at 2,486 feet.	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | Well Name: OIT #7

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		14:30	00:00	9.5	2725	DRIL	Drill from 2,500 feet to2,725 feet at 24:00 hours. (Average ROP 23.7 feet per hour)	
30	14-Feb-09	00:00	02:30	2.5	2784	DRIL	Drill from ,725 feet to 2,784 feet. Average ROP: 23.6 feet per hour.	
		02:30	03:00	0.5	2784	CIRC	Circulate clean for deviation survey.	
		03:00	03:30	0.5	2784	SURV	Run deviation survey at 2,753 feet. Angle 2.55 degrees S-63-W. Temperature 138 degrees.	
		03:30	18:00	14.5	3124	DRIL	Drill from 2,784 feet to 3,124 feet. Average ROP: 21.3 feet per hour.	
		18:00	18:30	0.5	3124	CIRC	Circulate hole clean for deviation survey.	
		18:30	19:00	0.5	3124	SURV	Deviation survey at 3,060 feet. Angle: 2.55 degrees S-67_W. Temperature: 136 degrees.	
		19:00	00:00	5	3197	DRIL	Drill from 3,124 feet to 3,197 feet. Average ROP: 24.3 feet per hour.	
31	15-Feb-09	00:00	04:00	4	3286	DRIL	Drill from 3,197 feet to 3,286 feet. Average ROP 22.25 feet per hour. Lost total returns.	
		04:00	04:30	0.5	3286	CIRC	Build volume in mud pits.	
		04:30	06:00	1.5	3286	TRPO	POOH to shoe.	
		06:00	06:30	0.5	3286	WOO	Waiting on decision for air drilling and directional drilling.	X
		06:30	12:30	6	3286	TRPO	POOH to drill collars, change slips to 8 inch, L/D rotating head rubber.	
		12:30	13:00	0.5	3286	REPR	Repair pipe handler, change out ram, 1 J-hook.	X
		13:00	14:00	1	3286	TRPO	POOH with drill collars, L/D stabs, bit.	
		14:00	00:00	10	3286	OTHER	Begin rigging up to drill with aireated mud, set in air jammers equipment, cap possom bellies on shakers with weldermove retaining wall to outside of air drilling compressors, set in Pensinger trailer for directional drillers, rig up trailer.	
32	16-Feb-09	00:00	07:30	7.5	3286	OTHER	Transfer directional tools from top location to rigsite, put mud motor in pipe handler, picture all directional BHA, assist air jammers with rigging up air compressors, lines, assist Swaco Representative in taking measurements for possible installation of Mud Gas Seperater, change out manifold to be able to drill with aireated mud, install check valve on flow-line.	
		07:30	08:30	1	3286	SERV	Clean top dog house, rig floor, tool room, dog house, HPU., service rig (crown, blocks, pipe handler, draw works.	
		08:30	15:00	6.5	3286	BHAOP	Make up bumper sub to float collar, float sub to mud motor, pick up and make up bit, directional tools, orient MWD, motor directional tools.	
		15:00	20:00	5	3286	TRPI	RIH, install rotating rubber on DP, RIH to shoe, repair dead man, RIH to 2,702 feet, take temperature survey. temp at 2,702 feet = 132.21 degrees, RIH to 3,286 feet, take temperature survey. temperature at 3,286 feet = 146 degrees.	
		20:00	20:30	0.5	3286	REPR	Test air lines to 1,000 psi.	X
		20:30	00:00	3.5	3286	CIRC	Attempt to establish circulation with aireated mud, injecting air at stand pipe @ 100 cfm, 200 cfm, no returns, lost all surface volume to hole, shut down, building pit volume at 24:00 hours.	
33	17-Feb-09	00:00	01:30	1.5	3286	CIRC	Attempt to establish circulation with aereated mud pumping 70-70 on both pumps, CFM at 350, increase CFM to 400, pumps to 75 strokes each, Unable to get circulation established.	

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Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		01:30	09:00	7.5	3286	TRPO	3,286 feet, L/D rotating rubberchange out slips for DC's, POOH to 137 feet,.	
		09:00	12:30	3.5	3286	TRPI	RIH to 1,204 feet, repair block height sensor, install rotating rubber, RIH to 1,591 feet, wait on jet sub.	
		12:30	18:30	6	3286	OTHER	wash and clean rig, clean dog house, clean up all water on locationbuild volume, repair iron roughneck, fill hydraulic tank.	
		18:30	19:30	1	3286	OTHER	Repair iron roughneck, fill with hydraulic oil.	
		19:30	21:30	2	3286	TRPI	Install corrosion ring below jet sub, RIH to 3,259 feet, tag fill.	
		21:30	00:00	2.5	3286	CIRC	Attempt to establish circulation at 90 stroke on mud pump, 500 CFM, circulate and regulate flow, shut down for connection, change out rotating head rubber, re-establish circulation. Running 90 strokes per minute, 500 CFM.	
34	18-Feb-09	00:00	00:30	0.5	3302	DRIL	Directionally drill from 3,286 feet to 3,302 feet. running 90 strokes/minute, 500 CFM air.	
		00:30	01:00	0.5	3302	CIRC	Establish circulation at 500 CFM air and 95 strokes/minute.	
		01:00	07:00	6	3408	DRIL	Directionally drill from 3,302 feet to 3,408 feet. Average ROP: 17.67 feet per hour.	
		07:00	07:30	0.5	3408	CIRC	Shut down drilling due to xcessive flow, build burms to contain overflowing fluid returns, clean location.	
		07:30	08:00	0.5	3408	CIRC	Re-establish circulation at 88 strokes per minute, 600 CFM air.	
		08:00	08:30	0.5	3411	DRIL	Directionally drill from 3,408 feet to 3,411 feet, re-establish returns, increase air to 550 CFM.	
		08:30	14:30	6	3495	DRIL	Re-establish circulation, directionally drill from 3,411 to3,495 feet. Average ROP: 14.0 feet per hour.	
		14:30	18:30	4	3495	CIRC	Build volume.	
		18:30	20:00	1.5	3515	DRIL	Directionally drill ahead from 3,495 feet to 3,515 feet. Average ROP: 13.33 feet per hour.	
		20:00	22:00	2	3515	REPR	Repair hydraulic hose on power swivel.	X
		22:00	00:00	2	3550	DRIL	Directionally drill from 3,515 feet to 3,550 feet at 24:00 hours. ROP: 17.5 feet per hour.	
35	19-Feb-09	00:00	06:00	6	3603	DIR	Directionally drill from 3,550 feet to 3,603 feet. Average ROP: 8.83 feet per hour.	
		06:00	12:00	6	3603	CIRC	Circulate, build sweeps to circulate 10-15 feet fill before connection.	
		12:00	20:30	8.5	3732	DIR	Directionally drill from 3,603 feet to 3,732 feet. Average ROP: 15.18 feet per hour.	
		20:30	22:30	2	3732	CIRC	Build sweeps to clean hole, circulate 125 bbls very high vis sweep around cleaning hole, having problems keeping fluid levels, hole sticky.	
		22:30	00:00	1.5	3732	TRPO	POOH to shoe to build more volume. Plan to build 900 bbls in pits and additional reserve of 500 bbls in Baker tank.	
36	20-Feb-09	00:00	02:00	2	3732	CIRC	Build mud volume, increas viscosity in surface system to 45+ seconds/quart.	
		02:00	04:00	2	3732	TRPI	Run in hole to 3,686 feet.	
		04:00	05:00	1	3732	REAM	Wash and ream circulating out fill from 3,719 feet to 3,732 feet.	
		05:00	07:00	2	3744	DIR	Attempt to slide, directionally drill from 3,732 feet to 3,744 feet. pipe stuck, work free.	
		07:00	18:00	11	3744	OTHER	Flow line parted at Dresser Sleeve due to a big air	

Operations Activity Detail

ThermaSource

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Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
							surge. shut in well via pipe rams, repair flow line, dresser sleeve, weld on safety chains, reattach dresser sleeve, re-attach covers on possom bellies at shakers.	
		18:00	20:00	2	3744	TRPO	POOH to jet sub 17 joints drill pipe above HWDP so as to re-position jet sub higher in string.	
		20:00	21:30	1.5	3744	BHAOP	Replace saver sub, corrosion ring in string, replace leaking hose on iron roughneck.	
		21:30	00:00	2.5	3744	TRPI	RIH from 1,591 feet to 3,729 feet, wash out fill to 3,744 feet at midnight.	
37	21-Feb-09	00:00	01:00	1	3744	CIRC	Clean out fill from 3,732 feet to 3,744 feet.	
		01:00	02:00	1	3755	DIR	Directionally drill from 3,744 feet to 3,755 feet,	
		02:00	04:00	2	3755	CIRC	Clean out fill from 3,732 feet to 3,755 feet.	
		04:00	10:00	6	3803	DRIL	Attempt to slide, not able, rotary drill from 3,755 feet to 3,803 feet.	
		10:00	11:00	1	3803	REAM	Attempt to wash out fill from 3,783 feet to 3,790 feet, continually getting stuck, working free, circulat and condition.	
		11:00	12:00	1	3803	CIRC	Attempt to ream hole from 3,732 feet to 3,750 feet, continued to be tight, stuck pipe, worked free several times.	
		12:00	18:00	6	3803	TRPO	POOH to inspect bit, mud motor due to irratic behavior. When bit to surface, broke off, bit and bottom portion of mud motor packed with cuttings. Plugged.	
		18:00	21:30	3.5	3803	BHAOP	Pick up new bit, mud motor, tried to swap top motor sub to sub with 6-5/8 regular thread, motor housing top threads different than top sub needed. No mud motor to run, called for new motor.	
		21:30	00:00	2.5	3803	WOE	Waiting on new mud motor, carry on with maintenance items, slip and cut 100 feet drilling line, clean pits to remove excessive solids from tanks.	X
38	22-Feb-09	00:00	12:00	12	3803	WOE	Wait on new Scientific Mud Motor from Bakersfield, California. Cleaning pits, slip and cut 100 drilling line	X
		12:00	17:30	5.5	3803	BHAOP	Pick up anew 12-1/4 inch bit, new mud motor, M/U BHA. gage bit, measure and picture motor, scribe/orient directional equipment, antenna failed, pull MWD tools, re-install new antenna, re-scribe tools, install RBOP, RIH with BHA, install corrosionring at top of drill collars.	
		17:30	20:30	3	3803	TRPI	RIH to casing shoe.	
		20:30	21:00	0.5	3803	CIRC	Fill drill string, test MWD tools.	
		21:00	22:00	1	3803	TRPI	RIH to 3,641 feet.	
		22:00	00:00	2	3803	REAM	wash and ream to 3,803 feet at 24:00 hours.Hole taking up to 18-20K bit weight.	
39	23-Feb-09	00:00	00:30	0.5	3803	REAM	Wash and ream from 3,727 to 3,803 feet.	
		00:30	02:00	1.5	3816	DIR	Directionally drill from 3,803 feet to 3,816 feet, hole tight,	
		02:00	04:00	2	3816	TRPO	POOH, work tight hole from 3,806 feet to 3,732 feet.	
		04:00	06:00	2	3816	CIRC	Build volume in surface pits, Baker tank.	
		06:00	07:00	1	3816	TRPO	POOH, hole tight from 3,768 feet to 3,732 feet	X
		07:00	08:30	1.5	3816	REPR	Repair safety clamp on power swivel.	X
		08:30	10:00	1.5	3816	TRPO	POOH to jetting sub at 2,306 feet.	
		10:00	12:00	2	3816	BHAOP	Work on jetting sub.	
		12:00	12:30	0.5	3816	TRPI	Trip in hole to 3,725 feet without jetting sub.	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ | Well Name: OIT #7

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		12:30	13:00	0.5	3816	REAM	Wash and ream from 3,725 feet to 3,767 feet.	
		13:00	14:30	1.5	3816	CIRC	Circulate clean, hole, got 140 bbls on final circulation, good cuttings.	
		14:30	18:00	3.5	3816	CIRC	Build surface volume in Baker tank and mud pits. Adjust brakes on draw works, linkage.	
		18:00	18:30	0.5	3816	CIRC	Establish circulation, adjust air, wash from 3,767 feet to 3,816 feet.	
		18:30	22:30	4	3816	DRIL	Drill from 3,816 feet to 3,930 feet, had high flow, temperature increase.	
		22:30	00:00	1.5	3816	CIRC	Pick up off bottom, monitor well, casing pressures. Casing side pressured to 155 psi from air. Monitor pressure. Had to shut in due to no more room in tanks and continued flow from well.	
40	24-Feb-09	00:00	01:00	1	3930	TRPO	Work out of hole from 3,930 feet to 3,800 feet, very tight hole.	
		01:00	02:00	1	3930	WASH	Wash and ream from 3,800 feet to 3,930 feet.	
		02:00	12:30	10.5	4145	DRIL	Directionally drill from 3,930 feet to 4,145 feet. Well unloaded.	
		12:30	14:00	1.5	4145	OTHER	Shut in well, monitor pressures, had an abundance of returns to surface, clean fluids from location, remove volume from pits with vacuum truck.	
		14:00	14:30	0.5	4145	OTHER	Attempt to open bleed off line on well head, valve washed, open annular, bled down pressure, well static.	
		14:30	15:30	1	4145	STUK	Lay out one single, work pipe free, circulate hole clean, wash to bottom at 4,145 feet.	X
		15:30	00:00	8.5	4145	DRIL	Directionally drilling from 4,145 feet to 4,368 feet at report time. Hole unloading approximately every hour, no problems.	
41	25-Feb-09	00:00	04:30	4.5	4451	DRIL	Drill from 4368 fEEt to 4451 feet. Average ROP 18.44 feet per hour.	
		04:30	05:30	1	4451	OTHER	Shut in well due to excess flow from air. Monitor well, bleed off air.	
		05:30	07:00	1.5	4451	REAM	Work tight hole, pull 40-45K over, work free.	
		07:00	08:00	1	4451	TRPO	Wipe hole to 4280 feet.	
		08:00	09:00	1	4451	REAM	Wash and ream from 4,280 feet to 4,451 feet.	
		09:00	00:00	15	4802	DRIL	Drill from 4,451 feet to 4,802 feet Average ROP 23.4 feet per hour.	
42	26-Feb-09	00:00	16:00	16	4802	DRILR	Drill 12 1/4 hole 4802 to 5310 with 40k 40 - 50 rpm 600 - 700 scfm air 7 - 10 bbl /min fluid partial surge returns to 5100 '. after no returns	
		16:00	18:00	2	4802	CIRC	Circ hole clean,no fluid returns till air bypassed. returned apx. 350 bbls fluid	
		18:00	00:00	6	4802	TRPO	Trip out of hole,drill pipe connections tight.	
43	27-Feb-09	00:00	00:30	0.5	4802	POH	Trip into 13 3/8 casing shoe pipe connections tight	
		00:30	02:30	2	4802	CUTDL	Slip and cut 130' Drillilg line	
		02:30	11:00	8.5	4802	POH	Trip out of hole and lay down directional tools, Connectionsd tight DP & DC's	
		11:00	15:00	4	4802	LOG	Rig up Cogco Wireline and run Gamma and temp. logs. Tool stopped 3737. Add Stand-off centralizer and run In to 5060 total depth 5310	
		15:00	18:00	3	4802	WOO	Wait on orders. Servic rig and Equipment. Dress new rotating head rubber	X
		18:00	00:00	6	4802	RIH	Make up reaming assembly and trip in hole to 2700'	
44	28-Feb-09	00:00	02:00	2	4802	TRPI	Trip in hole to 3931' Started taking weight	

Operations Activity Detail

ThermaSource

Well ID: OIT #7 - OIT $ — **Well Name: OIT #7**

Field: Oregon — Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

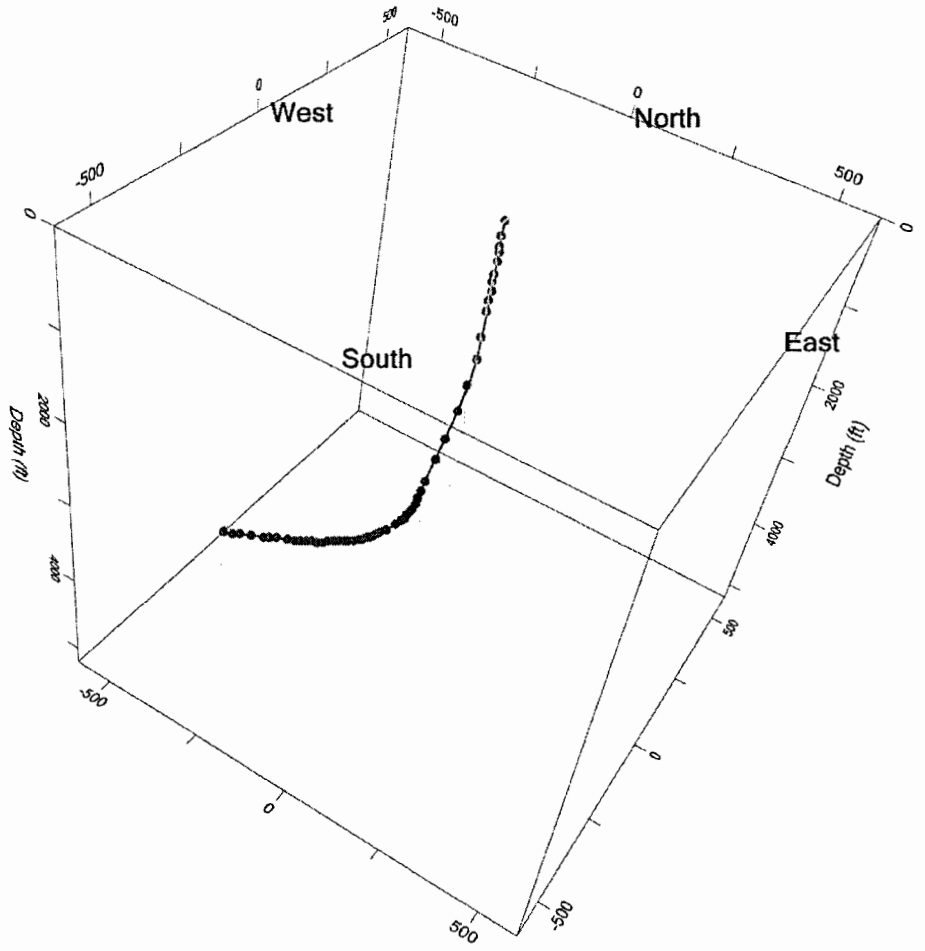
Rpt. No.	Date	Time	To	Hrs	End MD	Ops Code	Activity Description	Non-Prod.
		02:00	15:30	13.5	4802	REAM	Ream hole with NBS and 3 pt. reamer from 3931 to 4844 with 7 - 9 bpm fluid 600 - 650 scfm air 70 rpm 2 - 10 wt, 500 - 900 psi	
		15:30	19:30	4	4802	KILL	Shut in well on Ann. Preventor .Surface volume full, had air bubble unload hole.Dispose of fluid to sump.Bleed off air cap.	X
		19:30	00:00	4.5	4802	REAM	Ream hole with NBS and 3 pt. reamer from 4844 to 4973 with 7 - 9 bpm fluid 600 - 650 scfm air 70 rpm 2 - 10 wt, 500 - 900 psi	
45	01-Mar-09	00:00	09:00	9	5310	REAM	Ream hole from 4973 to 5310 550 - 600 scfm air 6.5 - 9 bpm fliud 2 - 10 k 70 rpm	
		09:00	11:00	2	5310	CIRC	Circ with High vis sweep and fluid at 6 - 8 bpm 550 scfm air, Hole unloaded several times,good amount of cuttings each time. Kill pipe	
		11:00	15:00	4	5310	POH	Trip out of hole to shoe, Hole in good cond.	
		15:00	18:00	3	5310	CUTDL	Slip and cut 85' drilling line	
		18:00	00:00	6	5310	POH	Trip out and clear out drilling tools, Prepair location. to run casing	
46	02-Mar-09	00:00	00:00	24	5310	CASE	Held good through Safety meeting with all personel on running casing.Rig up equipment to run 9 5/8 liner.Run 73 jts 2927' 40# 9 5/8 .Make up Weatherford 9 5/8 x 13 3/8 hanger and run in to 5008'	
47	03-Mar-09	00:00	00:30	0.5	5310	CASE	Set liner @ 5008,top of hanger at 2070, unable to work hanger past 5008,pumped 500 bbls fliud @ 9 bpm trying to work liner.	
		00:30	01:00	0.5	5310	REPR	Repair dump valve on swivel	X
		01:00	02:30	1.5	5310	POH	Trip out and lay down running tool	
		02:30	18:30	16	5310	EVAL	Rig up chokke manifold, prepair location for flowing well	
		18:30	20:30	2	5310	TRPI	Trip in to 1028' with dp.	
		20:30	00:00	3.5	5310	EVAL	Pump 400 scfm air to 270 psi flowed back apx 180 bbl fluid.Run in to 1498 put 400 scfm air pressured up to apx 400 psi.	
48	04-Mar-09	00:00	01:00	1	5310	EVAL	Put air on at 1297 pressured up to apx 380 psi, bleed off stand pipe	
		01:00	01:30	0.5	5310	POH	Trip out to 1000'	
		01:30	19:00	17.5	5310	EVAL	Put air on hole @ 300 scfm 270 - 278 psi.Well surging and kicking air. After stabilized out well flowing 200 - 280 barrels per hour. 158 - 160 deg avg temp. .mostly clean water	
		19:00	21:30	2.5	5310	POH	Trip out of hole to run PTS log	
		21:30	00:00	2.5	5310	LOG	Rig up and run PTS log to 5005'	
49	05-Mar-09	00:00	03:00	3	5310	LOG	Run TPS log . Shut in well @ 02:00, Rig down Tiger Wireline	
		03:00	16:00	13	5310	BOPND	Nipple donw BOPE, Clean pits and tanks	
		16:00	00:00	8	5310	RIGD	Rig Released 16:00 3-5-09	

Directional 3D Report — **ThermaSource**

Well ID: OIT #7 - OIT $ — **Well Name:** OIT #7

Field: Oregon — Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Well Bore: All Well Bores



Directional Elevation Report

ThermaSource

Well ID: OIT #7 - OIT $

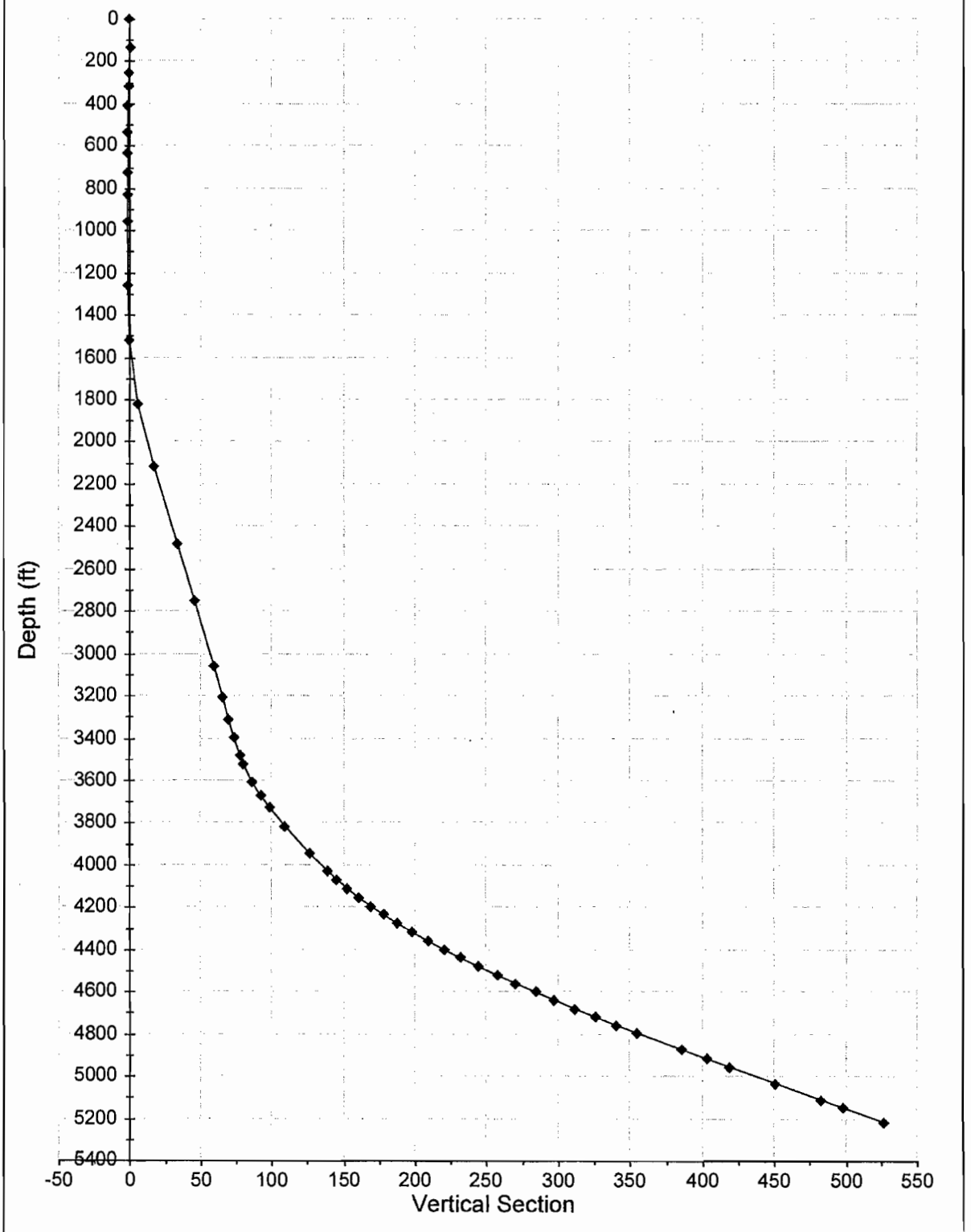
Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Well Bore: All Well Bores

Plane of Vertical Section: 237.0

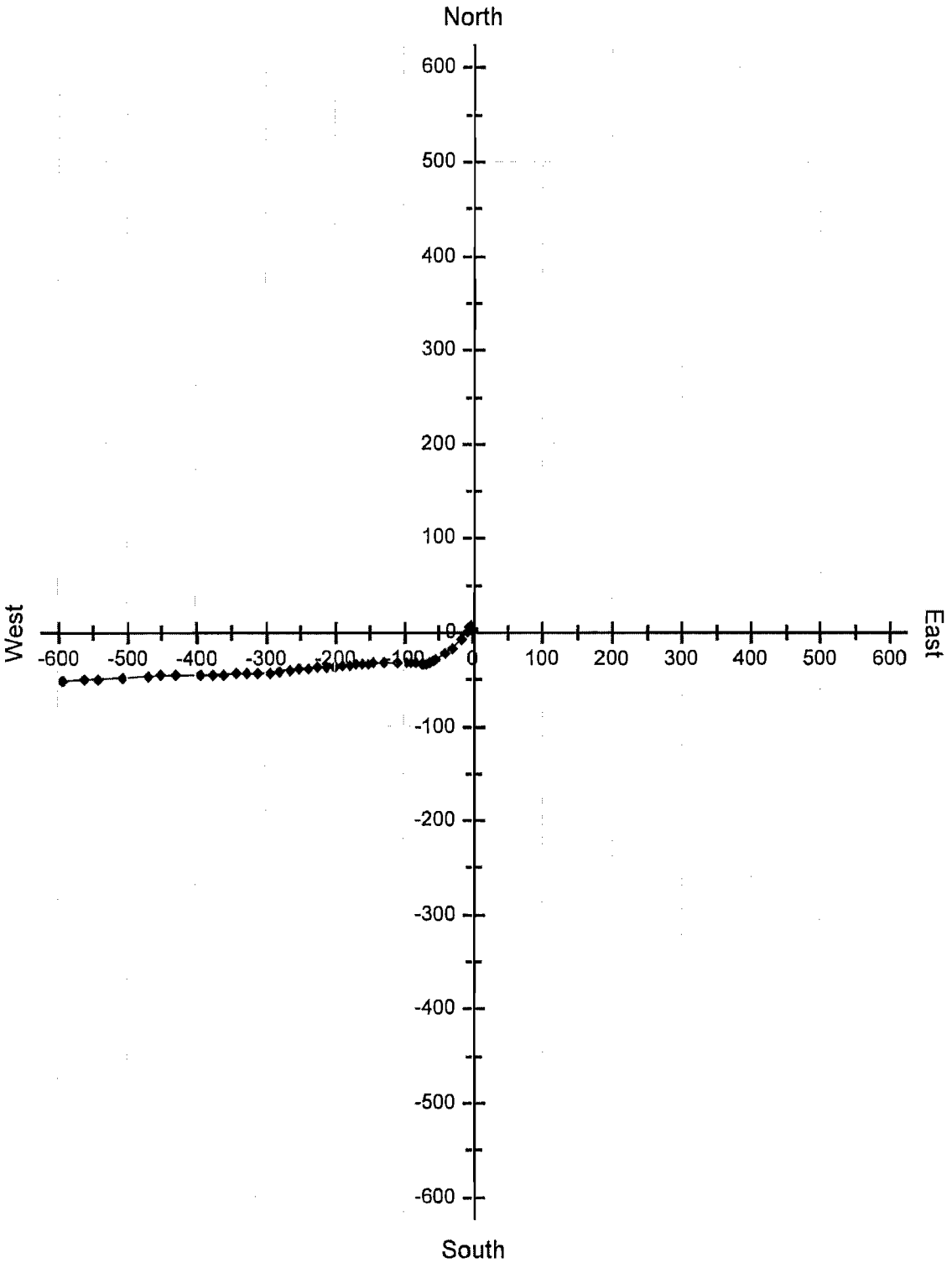


Directional Plan Report — **ThermaSource**

Well ID: OIT #7 - OIT $ — **Well Name:** OIT #7

Field: Oregon — Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

Well Bore: All Well Bores



KLAM 57310

ThermaSource
GEOTHERMAL CONSULTING AND DRILLING

FINAL PLOT

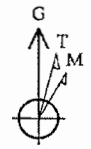
Field: KLAMATH FALLS
Site: O. I. T.
Well: OIT DEEP
Wellpath: OIT DEEP SUR
Survey: OIT DEEP

WELLPATH DETAILS

OIT DEEP SUR
SINGLE SHOT TO 3060'

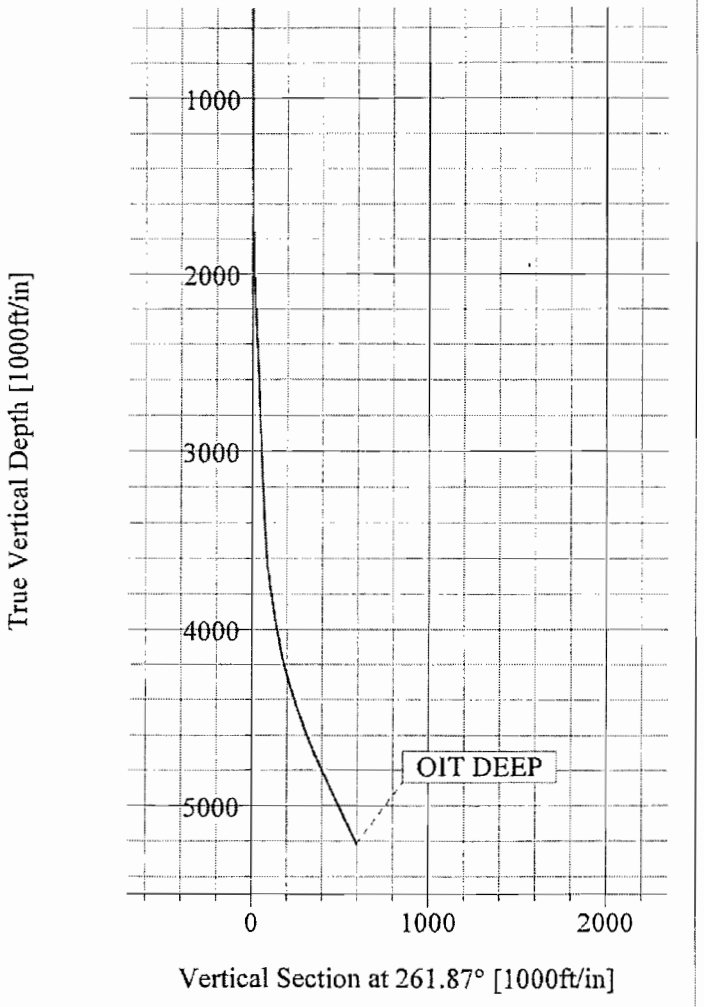
Rig: THERMA 105
Ref. Datum: THERM 105 4412.00ft

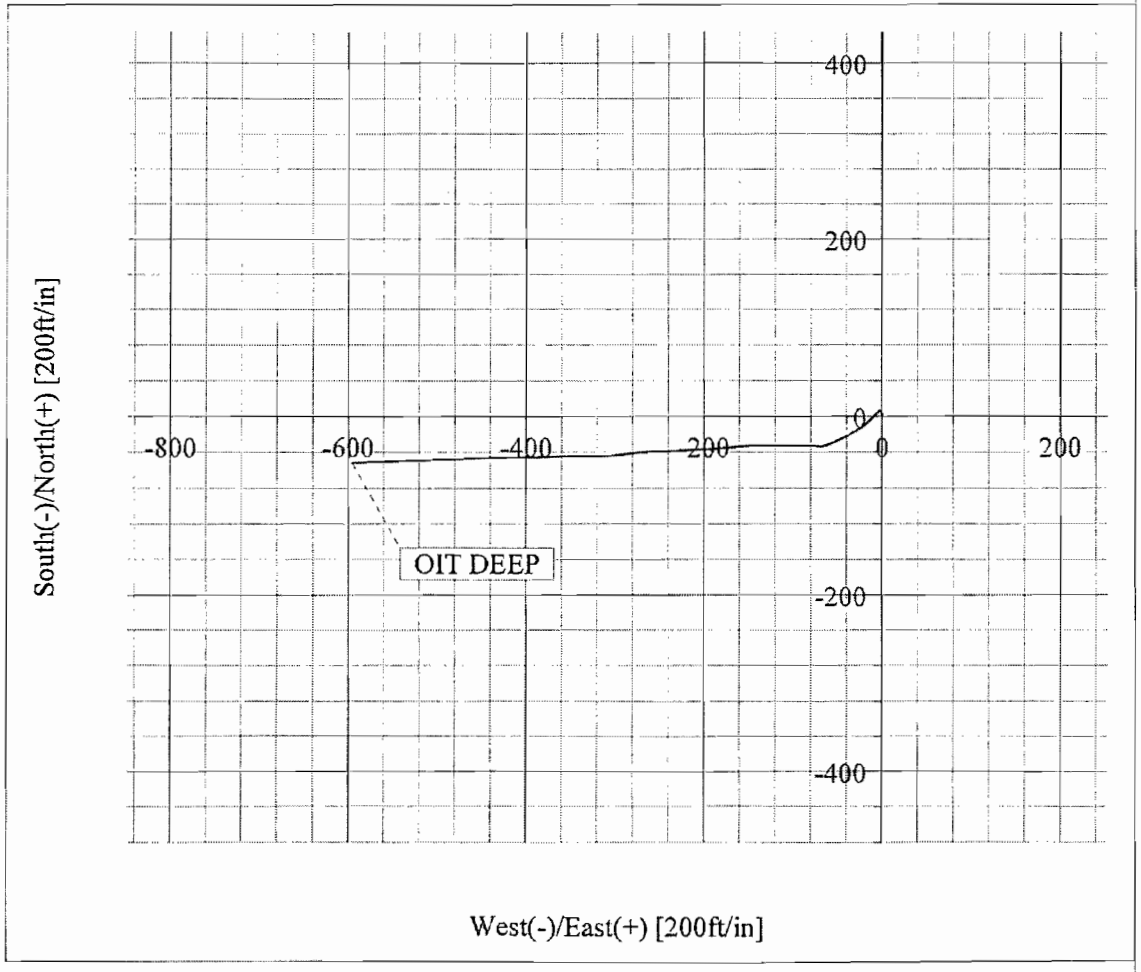
V.Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
261.87°	0.00	0.00	0.00



Azimuths to Grid North
True North: 0.87°
Magnetic North: 16.37°

Magnetic Field
Strength: 51826nT
Dip Angle: 65.15°
Date: 2009/01/13
Model: igrf2005





THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS SUPPORTED BY ACTUAL FIELD DATA.

Chandler M. Smith.....COMPANY REPRESENTATIVE

Scientific Drilling
West Coast Operations

KLAM 57310

ThermaSource
GEOTHERMAL CONSULTING AND DRILLING

FINAL PLOT

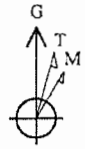
Field: KLAMATH FALLS
Site: O. I. T.
Well: OIT DEEP
Wellpath: OIT DEEP SUR
Survey: OIT DEEP

WELLPATH DETAILS

OIT DEEP SUR
SINGLE SHOT TO 3060'

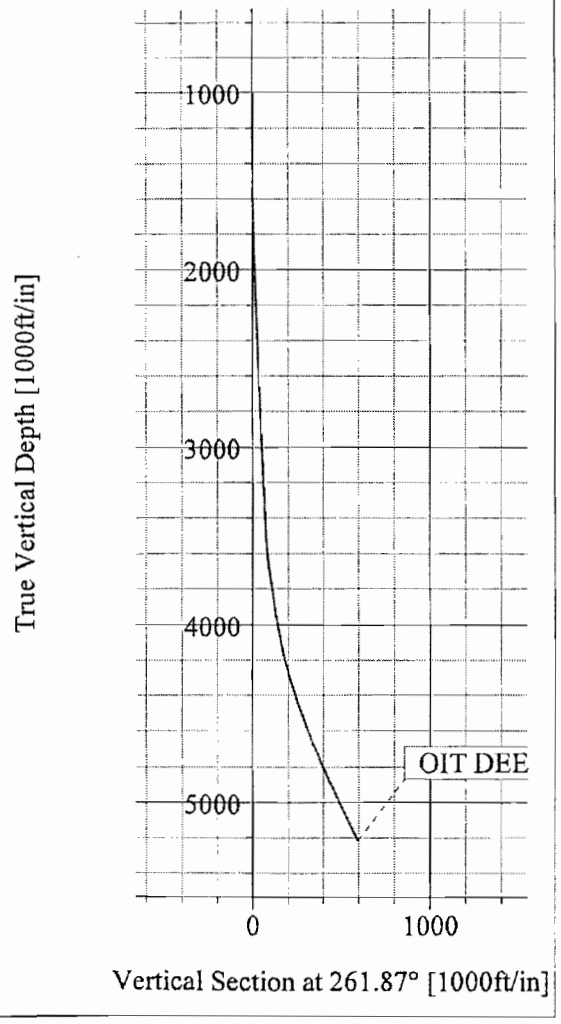
Rig:	THERMA 105	
Ref. Datum:	THERMA 105	4412.00ft

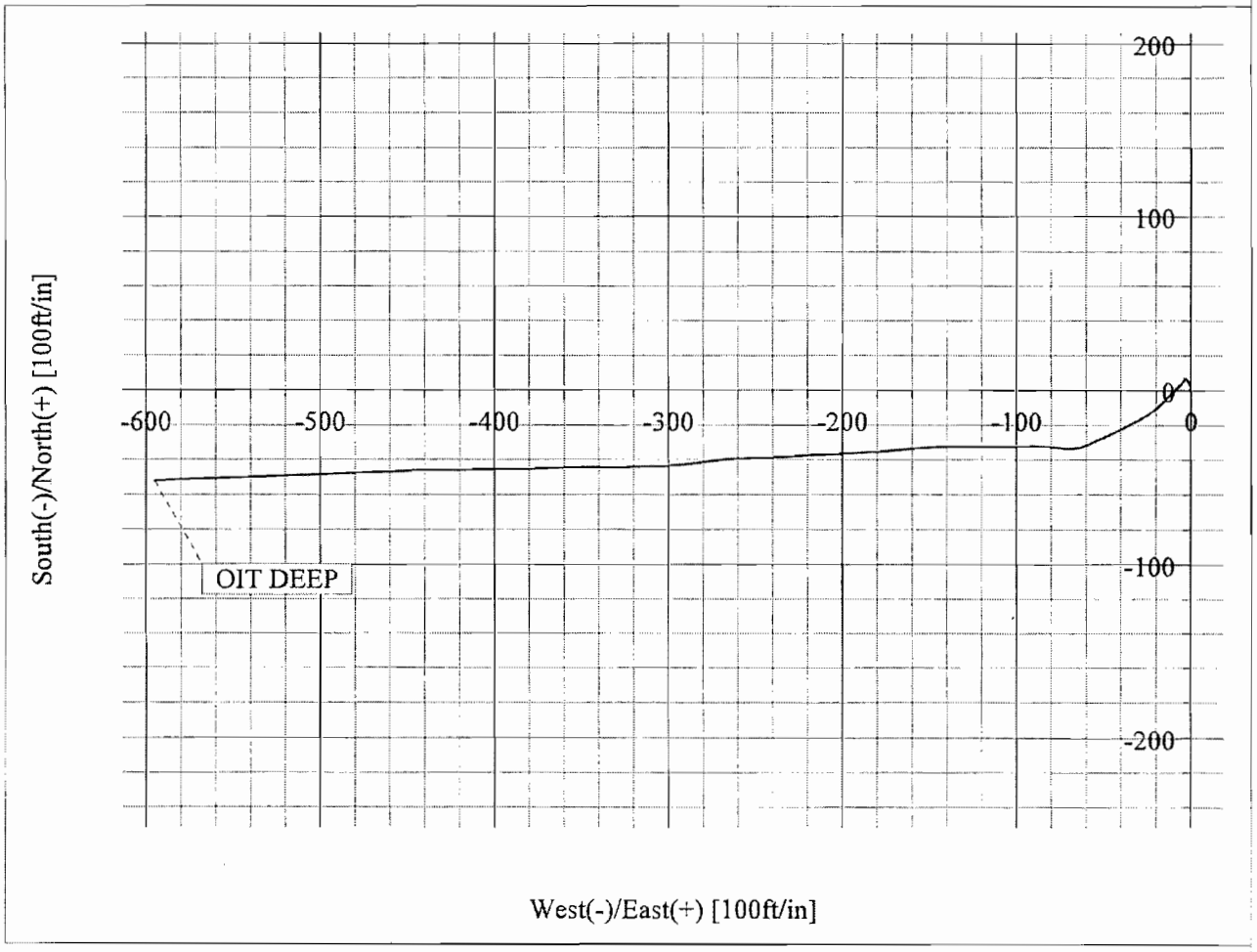
V.Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
261.87°	0.00	0.00	0.00



Azimuths to Grid North
True North: 0.87°
Magnetic North: 16.37°

Magnetic Field
Strength: 51826nT
Dip Angle: 65.15°
Date: 2009/01/13
Model: igrf2005





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Scientific Drilling
West Coast Operations

ThermaSource
GEOTHERMAL CONSULTING AND DRILLING

SCIENTIFIC DRILLING
FINAL REPORT

Scientific Drilling
West Coast Operations

Company:	THERMASOURCE	**Date:**	2009/04/28	**Time:** 09:46:44	**Page:** 1
Field:	KLAMATH FALLS	**Co-ordinate(NE) Reference:**	Well: OIT DEEP, Grid North		
Site:	O. I. T.	**Vertical (TVD) Reference:**	THERM 105 4412.0		
Well:	OIT DEEP	**Section (VS) Reference:**	Well (0.00N,0.00E,261.87Azi)		
Wellpath:	OIT DEEP SUR	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Survey:	OIT DEEP MSS	**Start Date:**	2009/02/15
Company:	SCIENTIFIC DRILLING	**Engineer:**	TOM WISE
Tool:	MAG;MAG	**Tied-to:**	From Surface

Field:	KLAMATH FALLS OREGON U.S.A.		
Map System:	US State Plane Coordinate System 1983	**Map Zone:**	Oregon, Southern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	igrf2005

Site:	O. I. T. OREGON, U.S.A. KLAMATH FALLS				
Site Position:		**Northing:**	209118.82 ft	**Latitude:**	42 14 0.000 N
From:	Geographic	**Easting:**	4578219.10 ft	**Longitude:**	121 45 59.999 W
Position Uncertainty:	0.00 ft			**North Reference:**	Grid
Ground Level:	0.00 ft			**Grid Convergence:**	-0.87 deg

Well:	OIT DEEP SURFACE LOC. IS APPROX.				**Slot Name:**	
Well Position:	**+N/-S**	0.00 ft	**Northing:**	209118.82 ft	**Latitude:**	42 13 59.999 N
	+E/-W	0.00 ft	**Easting:**	4578219.10 ft	**Longitude:**	121 45 59.999 W
Position Uncertainty:		0.00 ft				

Wellpath:	OIT DEEP SUR SINGLE SHOT TO 3060'			**Drilled From:**	Surface
				Tie-on Depth:	0.00 ft
Current Datum:	THERM 105	**Height**	4412.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	2009/01/13			**Declination:**	15.50 deg
Field Strength:	51826 nT			**Mag Dip Angle:**	65.15 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0.00	0.00	0.00	261.87

Survey

Stn	CLen	MD	Incl	Azim	TVD	VS	N/S	E/W	DLS	Build	Turn	ClsD	ClsA
	ft	ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	ft	deg
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	133.00	133.00	0.50	315.00	133.00	0.35	0.41	-0.41	0.38	0.38	0.00	0.58	315.00
3	118.00	251.00	0.50	72.00	251.00	0.15	0.93	-0.28	0.72	0.00	99.15	0.98	343.04
4	68.00	319.00	0.50	52.00	318.99	-0.40	1.21	0.23	0.26	0.00	-29.41	1.23	10.84
5	86.00	405.00	0.25	307.00	404.99	-0.59	1.55	0.38	0.71	-0.29	-122.09	1.60	13.66
6	130.00	535.00	0.25	332.00	534.99	-0.30	1.97	0.02	0.08	0.00	19.23	1.97	0.51
7	95.00	630.00	0.50	342.00	629.99	-0.15	2.55	-0.21	0.27	0.26	10.53	2.56	355.34
8	91.00	721.00	0.25	332.00	720.99	-0.02	3.10	-0.42	0.28	-0.27	-10.99	3.13	352.22
9	109.00	830.00	0.50	337.00	829.98	0.18	3.75	-0.72	0.23	0.23	4.59	3.82	349.11
10	129.00	959.00	0.50	332.00	958.98	0.52	4.77	-1.21	0.03	0.00	-3.88	4.92	345.81
11	301.00	1260.00	0.50	308.00	1259.97	1.88	6.73	-2.86	0.07	0.00	-7.97	7.32	337.01
12	258.00	1518.00	0.50	182.00	1517.96	2.85	6.30	-3.78	0.35	0.00	-48.84	7.35	329.02
13	301.00	1819.00	2.00	226.00	1818.89	7.34	1.34	-7.61	0.56	0.50	14.62	7.72	279.99
14	300.00	2119.00	2.50	225.00	2118.66	16.82	-6.92	-16.00	0.17	0.17	-0.33	17.43	246.60
15	361.00	2480.00	2.75	241.00	2479.28	31.21	-16.69	-29.14	0.21	0.07	4.43	33.58	240.20
16	273.00	2753.00	2.55	243.00	2751.99	43.07	-22.62	-40.28	0.08	-0.07	0.73	46.20	240.68
17	307.00	3060.00	2.55	247.00	3058.69	56.14	-28.39	-52.65	0.06	0.00	1.30	59.82	241.67
18	151.00	3211.00	2.35	242.19	3209.55	62.30	-31.15	-58.48	0.19	-0.13	-3.19	66.26	241.96
19	101.00	3312.00	2.22	252.72	3310.47	66.18	-32.69	-62.18	0.43	-0.13	10.43	70.25	242.27
20	86.00	3398.00	2.98	262.30	3396.38	70.06	-33.49	-65.99	1.02	0.88	11.14	74.00	243.09
21	85.00	3483.00	3.86	273.00	3481.23	75.08	-33.63	-71.03	1.27	1.04	12.59	78.60	244.66
22	43.00	3526.00	4.52	276.99	3524.11	78.13	-33.35	-74.16	1.68	1.53	9.28	81.32	245.79
23	85.00	3611.00	5.77	274.54	3608.77	85.54	-32.61	-81.75	1.49	1.47	-2.88	88.01	248.25
24	63.00	3674.00	7.20	270.76	3671.36	92.53	-32.30	-88.85	2.37	2.27	-6.00	94.54	250.02

ThermaSource
GEOTHERMAL CONSULTING AND DRILLING

SCIENTIFIC DRILLING
FINAL REPORT

Scientific Drilling
West Coast Operations

Company:	THERMASOURCE	**Date:** 2009/04/28 **Time:** 09:46:44	**Page:** 2
Field:	KLAMATH FALLS	**Co-ordinate(NE) Reference:**	Well: OIT DEEP, Grid North
Site:	O. I. T.	**Vertical (TVD) Reference:**	THERM 105 4412.0
Well:	OIT DEEP	**Section (VS) Reference:**	Well (0.00N,0.00E,261.87Azi)
Wellpath:	OIT DEEP SUR	**Survey Calculation Method:**	Minimum Curvature **Db:** Sybase

Survey

Stn	CLen ft	MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	ClsD ft	ClsA deg
25	54.00	3728.00	8.13	267.31	3724.88	99.67	-32.44	-96.05	1.92	1.72	-6.39	101.38	251.34
26	92.00	3820.00	8.16	269.95	3815.95	112.61	-32.75	-109.08	0.41	0.03	2.87	113.89	253.29
27	43.00	3863.00	8.82	270.00	3858.48	118.90	-32.75	-115.42	1.53	1.53	0.12	119.98	254.16
28	86.00	3949.00	9.90	270.64	3943.34	132.73	-32.67	-129.41	1.26	1.26	0.74	133.47	255.83
29	34.00	3983.00	9.84	270.52	3976.83	138.49	-32.61	-135.24	0.19	-0.18	-0.35	139.11	256.44
30	51.00	4034.00	10.09	267.90	4027.06	147.24	-32.73	-144.06	1.02	0.49	-5.14	147.73	257.20
31	43.00	4077.00	10.72	265.48	4069.36	154.98	-33.19	-151.81	1.78	1.47	-5.63	155.40	257.67
32	43.00	4120.00	11.91	265.83	4111.52	163.40	-33.82	-160.22	2.77	2.77	0.81	163.76	258.08
33	43.00	4163.00	12.77	265.00	4153.53	172.57	-34.56	-169.38	2.04	2.00	-1.93	172.87	258.47
34	42.00	4205.00	13.70	265.43	4194.41	182.17	-35.36	-178.97	2.23	2.21	1.02	182.43	258.82
35	42.00	4247.00	14.77	265.80	4235.12	192.47	-36.15	-189.26	2.56	2.55	0.88	192.69	259.19
36	41.00	4288.00	15.44	267.50	4274.70	203.12	-36.77	-199.93	1.96	1.63	4.15	203.28	259.58
37	46.00	4334.00	16.83	268.20	4318.89	215.83	-37.25	-212.70	3.05	3.02	1.52	215.94	260.07
38	42.00	4376.00	17.29	265.58	4359.04	228.10	-37.92	-225.00	2.13	1.10	-6.24	228.18	260.43
39	43.00	4419.00	18.40	268.00	4399.97	241.23	-38.65	-238.16	3.10	2.58	5.63	241.27	260.78
40	42.00	4461.00	19.34	268.40	4439.72	254.73	-39.07	-251.73	2.26	2.24	0.95	254.75	261.18
41	43.00	4504.00	19.55	264.57	4480.27	268.99	-39.95	-266.01	3.00	0.49	-8.91	269.00	261.46
42	43.00	4547.00	19.81	262.61	4520.75	283.46	-41.57	-280.40	1.65	0.60	-4.56	283.47	261.57
43	42.00	4589.00	20.61	265.40	4560.17	297.96	-43.08	-294.83	2.98	1.90	6.64	297.96	261.69
44	44.00	4633.00	21.71	267.70	4601.20	313.78	-44.03	-310.68	3.13	2.50	5.23	313.78	261.93
45	42.00	4675.00	22.53	270.00	4640.11	329.48	-44.34	-326.49	2.84	1.95	5.48	329.49	262.27
46	44.00	4719.00	23.30	269.45	4680.64	346.45	-44.42	-343.62	1.82	1.75	-1.25	346.48	262.63
47	43.00	4762.00	23.27	267.83	4720.14	363.33	-44.83	-360.61	1.49	-0.07	-3.77	363.39	262.91
48	41.00	4803.00	23.85	268.17	4757.72	379.62	-45.40	-376.99	1.45	1.41	0.83	379.71	263.13
49	42.00	4845.00	24.93	269.70	4795.97	396.83	-45.72	-394.33	2.98	2.57	3.64	396.97	263.39
50	85.00	4930.00	25.55	269.60	4872.86	432.74	-45.94	-430.57	0.73	0.73	-0.12	433.02	263.91
51	48.00	4978.00	25.57	267.00	4916.16	453.32	-46.55	-451.27	2.34	0.04	-5.42	453.66	264.11
52	43.00	5021.00	25.59	267.61	4954.94	471.80	-47.43	-469.82	0.61	0.05	1.42	472.20	264.24
53	85.00	5106.00	25.70	267.47	5031.57	508.41	-49.00	-506.57	0.15	0.13	-0.16	508.93	264.47
54	86.00	5192.00	25.64	268.62	5109.08	545.44	-50.28	-543.80	0.58	-0.07	1.34	546.12	264.72
55	43.00	5235.00	25.74	267.63	5147.83	563.97	-50.89	-562.43	1.02	0.23	-2.30	564.73	264.83
56	75.00	5310.00	25.74	267.63	5215.39	596.38	-52.23	-594.97	0.00	0.00	0.00	597.26	264.98

KLAM 57310

Casing Information Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CASING INFORMATION

Run Date/Time:	09-Jan-09 11:00		
Well Section:	COND	**String Type:**	FULL
String Top MD (ft):	0.00	**String Top TVD (ft):**	38.00
Casing Shoe MD (ft):	38.00	**Casing Shoe TVD (ft):**	
String Nominal OD (ins):	30.000	**String Nominal ID (ins):**	
Bit Diameter (ins):		**Avg. Open Hole Diam. (ins):**	
Centralizers: No:		**Manufacturer/Type:**	
Depths:			
Hanger Type:		**Manufacturer:**	

Comments: Drilled by Roger Chancellor Waterwell drilling rig.

STRING COMPONENT DETAILS

Joints		Item	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque
	1	JOINT	38.00	30.000	20.000	124.0	H-40	OTHER	
Totals:	1		38.00						

Casing Tally Run Summary Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

String Nominal OD (ins): 30.000 **String Type: FULL**

Items Run:	1	Length Run:	38.00	Top Depth:	0
Items Excluded:	0	Length Excluded:	0.00	Bottom Depth:	38.00
Items Tallied:	1	Length All Items:	38.00	Cut Off Length:	0.00

Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom
1	1	38.00	38.00												

KLAM 57310

Casing Information Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CASING INFORMATION

Run Date/Time:	26-Jan-09 17:00		
Well Section:	SURF	**String Type:**	FULL
String Top MD (ft):	0.00	**String Top TVD (ft):**	322.00
Casing Shoe MD (ft):	322.00	**Casing Shoe TVD (ft):**	322.00
String Nominal OD (ins):	20.000	**String Nominal ID (ins):**	19.124
Bit Diameter (ins):	26.000	**Avg. Open Hole Diam. (ins):**	26.250
Centralizers: No:	4	**Manufacturer/Type:** DAVIS	Bow spring
Depths:	280 ft,		
Hanger Type:		**Manufacturer:**	
Comments:	Difficult time running with the rig design.		

STRING COMPONENT DETAILS

Joints		Item	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque
	1	F SHOE	2.69	20.000	19.124	94.0	K-55	BUTT	
	1	FLOAT	2.50	20.000	19.124	94.0	K-55	BUTT	
	7	JOINT	317.83	20.000	19.124	94.0	K-55	BUTT	
Totals:	9		323.02						

Casing Tally Run Summary Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

String Nominal OD (Ins): 20.000 **String Type: FULL**

Items Run:	**9**	**Length Run:**	**323.02**	**Top Depth:**	**0**
Items Excluded:	**2**	**Length Excluded:**	**93.49**	**Bottom Depth:**	**323.02**
Items Tallied:	**11**	**Length All Items:**	**416.51**	**Cut Off Length:**	**0.00**

Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom
3	9	46.19	323.02												
4	8	45.79	276.83												
5	7	46.75	231.04												
6	6	44.12	184.29												
7	5	44.11	140.17												
8	4	46.79	96.06												
9	3	44.08	49.27												
10	2	2.50	5.19												
11	1	2.69	2.69												
Excluded Joints															
1	11	46.75													
2	10	46.74													

Casing Information Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CASING INFORMATION

Run Date/Time:	07-Feb-09 18:30		
Well Section:		**String Type:**	FULL
String Top MD (ft):	0.00	**String Top TVD (ft):**	
Casing Shoe MD (ft):	2,478.28	**Casing Shoe TVD (ft):**	
String Nominal OD (ins):	13.375	**String Nominal ID (ins):**	
Bit Diameter (ins):		**Avg. Open Hole Diam. (ins):**	
Centralizers: No:		**Manufacturer/Type:**	
Depths:			
Hanger Type:		**Manufacturer:**	
Comments:	Transferred from Casing Tally Detail on 10-Feb-09 09:10		

STRING COMPONENT DETAILS

Joints	Item	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque
67	JOINT	2,478.28	13.375	12.415	68.0	K-55	BUTT	
Totals: 67		2,478.28						

KLAM 57310

Casing Tally Run Summary Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

String Nominal OD (ins): 13.375 **String Type: FULL**

Items Run:	**67**	**Length Run:**	**2,478.28**	**Top Depth:**	**0**
Items Excluded:	**5**	**Length Excluded:**	**191.32**	**Bottom Depth:**	**2,478.28**
Items Tallied:	**72**	**Length All Items:**	**2,669.60**	**Cut Off Length:**	**0.00**

Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom
6	67	38.15	2,478.28	43	30	38.01	1,069.25								
7	66	38.53	2,440.13	44	29	38.37	1,031.24								
8	65	38.18	2,401.60	45	28	38.03	992.87								
9	64	38.23	2,363.42	46	27	38.08	954.84								
10	63	38.50	2,325.19	47	26	38.03	916.76								
11	62	38.57	2,286.69	48	25	38.06	878.73								
12	61	38.21	2,248.12	49	24	38.07	840.67								
13	60	38.54	2,209.91	50	23	38.10	802.60								
14	59	38.20	2,171.37	51	22	38.10	764.50								
15	58	38.15	2,133.17	52	21	38.06	726.40								
16	57	38.53	2,095.02	53	20	38.12	688.34								
17	56	38.17	2,056.49	54	19	38.05	650.22								
18	55	38.20	2,018.32	55	18	38.45	612.17								
19	54	38.20	1,980.12	56	17	38.38	573.72								
20	53	38.20	1,941.92	57	16	37.93	535.34								
21	52	37.82	1,903.72	58	15	38.05	497.41								
22	51	37.26	1,865.90	59	14	38.03	459.36								
23	50	38.70	1,828.64	60	13	38.03	421.33								
24	49	37.58	1,789.94	61	12	37.38	383.30								
25	48	37.35	1,752.36	62	11	38.08	345.92								
26	47	37.96	1,715.01	63	10	37.44	307.84								
27	46	37.94	1,677.05	64	9	37.44	270.40								
28	45	38.04	1,639.11	65	8	37.43	232.96								
29	44	38.04	1,601.07	66	7	38.33	195.53								
30	43	38.04	1,563.03	67	6	38.07	157.20								
31	42	38.01	1,524.99	68	5	38.05	119.13								
32	41	38.03	1,486.98	69	4	38.44	81.08								
33	40	38.02	1,448.95	70	3	2.42	42.64								
34	39	37.84	1,410.93	71	2	38.34	40.22								
35	38	38.04	1,373.09	72	1	1.88	1.88								
36	37	38.02	1,335.05	**Excluded Joints**											
37	36	38.05	1,297.03	1	72	38.18									
38	35	38.40	1,258.98	2	71	38.21									
39	34	38.04	1,220.58	3	70	38.22									
40	33	37.62	1,182.54	4	69	38.19									
41	32	37.67	1,144.92	5	68	38.52									
42	31	38.00	1,107.25												

Casing Information Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CASING INFORMATION

Run Date/Time:	03-Mar-09 00:00		
Well Section:		**String Type:**	LINER
String Top MD (ft):	2,070.00	**String Top TVD (ft):**	
Casing Shoe MD (ft):	5,008.75	**Casing Shoe TVD (ft):**	
String Nominal OD (ins):	9.625	**String Nominal ID (ins):**	8.835
Bit Diameter (ins):		**Avg. Open Hole Diam. (ins):**	
Centralizers: No:		**Manufacturer/Type:**	
Depths:			
Hanger Type:		**Manufacturer:**	WTHRFD

Comments: Transferred from Casing Tally Detail on 04-Mar-09 03:01

STRING COMPONENT DETAILS

Joints	Item	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque
1	SHOE	0.75	10.625				BUTT	
73	JOINT	2,924.39	9.625	8.835	40.0	K-55	BUTT	
1	LHANG	8.50	10.625	8.835			BUTT	
Totals: 75		2,933.64						

KLAM 57310

Casing Tally Run Summary Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

String Nominal OD (ins): 9.625 **String Type: LINER**

Items Run:	**75**	**Length Run:**	**2,933.64**	**Top Depth:**	**2,074**
Items Excluded:	**0**	**Length Excluded:**	**0.00**	**Bottom Depth:**	**5,008.00**
Items Tallied:	**75**	**Length All Items:**	**2,933.64**	**Cut Off Length:**	**0.00**

Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom	Run#	Jnt#	Len.	Bottom
1		0.75	5,008.00	38	37	38.53	3,542.25	75		8.50	2,082.86				
2	1	38.60	5,007.25	39	38	38.54	3,503.72								
3	2	43.22	4,968.65	40	39	38.67	3,465.18								
4	3	42.86	4,925.43	41	40	41.50	3,426.51								
5	4	38.55	4,882.57	42	41	39.35	3,385.01								
6	5	38.50	4,844.02	43	42	43.95	3,345.66								
7	6	38.12	4,805.52	44	43	38.60	3,301.71								
8	7	41.70	4,767.40	45	44	38.55	3,263.11								
9	8	39.13	4,725.70	46	45	41.50	3,224.56								
10	9	43.15	4,686.57	47	46	41.56	3,183.06								
11	10	42.48	4,643.42	48	47	39.70	3,141.50								
12	11	41.90	4,600.94	49	48	41.26	3,101.80								
13	12	39.10	4,559.04	50	49	42.53	3,060.54								
14	13	38.44	4,519.94	51	50	43.60	3,018.01								
15	14	37.93	4,481.50	52	51	39.85	2,974.41								
16	15	38.55	4,443.57	53	52	39.55	2,934.56								
17	16	38.60	4,405.02	54	53	38.59	2,895.01								
18	17	42.48	4,366.42	55	54	38.60	2,856.42								
19	18	38.55	4,323.94	56	55	38.55	2,817.82								
20	19	43.64	4,285.39	57	56	38.57	2,779.27								
21	20	41.25	4,241.75	58	57	38.10	2,740.70								
22	21	42.55	4,200.50	59	58	38.60	2,702.60								
23	22	39.80	4,157.95	60	59	38.12	2,664.00								
24	23	43.20	4,118.15	61	60	38.60	2,625.88								
25	24	42.54	4,074.95	62	61	38.62	2,587.28								
26	25	40.10	4,032.41	63	62	38.58	2,548.66								
27	26	42.52	3,992.31	64	63	38.60	2,510.08								
28	27	41.19	3,949.79	65	64	38.54	2,471.48								
29	28	42.55	3,908.60	66	65	38.56	2,432.94								
30	29	40.15	3,866.05	67	66	38.52	2,394.38								
31	30	42.57	3,825.90	68	67	38.57	2,355.86								
32	31	39.27	3,783.33	69	68	38.56	2,317.29								
33	32	39.12	3,744.06	70	69	38.57	2,278.73								
34	33	41.31	3,704.94	71	70	42.10	2,240.16								
35	34	40.35	3,663.63	72	71	38.55	2,198.06								
36	35	42.43	3,623.28	73	72	38.12	2,159.51								
37	36	38.60	3,580.85	74	73	38.53	2,121.39								

KLAM 57310

Cementing Report

Well ID: OIT #7 - OIT $
Field: Oregon

ThermaSource
Well Name: OIT #7
Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CEMENT JOB INFORMATION

Start Date/Time:	27-Jan-09 16:30	**Well Bore:**	Original Well Bore
Job Type:	SECONDARY	**String OD (ins):**	20.000
Well Section:	SURF	**String Type:**	FULL
Cementing Co:	HALLBTN	**Cementing Engineer:**	Edwin Paez

SECONDARY JOB DETAILS

Remedial Type:	ZONE	**No. of Attempts:**	1
Breakdown Pressure (psi):		**Breakdown Rate (bbls/min):**	
Init. Injectn Pressure (psi):		**Initial Injectn Rate(bbls/min):**	
Final Injectn Pressure (psi):		**Final Injectn Rate (bbls/min):**	
Init. Shut In Pressure (psi):			
Hold Pressure (psi):		**Hold Time:**	
Bleed Back Volume (bbls):			

SLURRY INFORMATION

Type	Density	Yield	Sacks	Volume	Rate	Additives
TAIL	14.50	1.93	60	15.0	1.3	Thermachem cement, 3% Cacl2, Silica Flour.

POSTJOB INFORMATION

Liner Top Test (lbs/gal):		**Job Success?**	Yes
Shoe Test (lbs/gal):		**CBL Bond Quality:**	
Actual Top of Cmt (ft):	0		

Misc. Comments: Pumped 15 bbls Halliburton Thermachem cement as top job. Had full returns to surface.

Cementing Report

ThermaSource

Well ID: OIT #7 - OIT $ | **Well Name: OIT #7**

Field: Oregon | Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CEMENT JOB INFORMATION

Start Date/Time:	08-Feb-09 17:00	**Well Bore:**	Original Well Bore
Job Type:	PRIMARY	**String OD (ins):**	13.375
Well Section:		**String Type:**	FULL
Cementing Co:	HALLBTN	**Cementing Engineer:**	Dean Glatt

PRIMARY JOB DETAIL

	Volume (bbls)	Pump Time	Rate (bbls/min)	Pressure (psi)
Conditioning Data:		180	8.1	550
Cement Data:	465.0	25	4.8	479
Displacement Data:	43.0	5	6.2	377
Calc. Displacement Vol:	43.0			

☐ **Batch Mix?** ☐ **Bump Plug?** **Bump Pressure:**

Returns to Surface: PARTIAL ☐ **Reciprocate Pipe?** ☐ **Cement at Surface?**

Calc Top of Cement (ft): 65 **Excess (%):** 50.00 % **Avg. Hole Size (ins):** 17.500

SLURRY INFORMATION

Type	Density	Yield	Sacks	Volume	Rate	Additives
FLUSH	8.34	1	0	20.0	5.5	none
FLUSH	10.50	1	7	30.0	5.0	Sepeolite Sea Mud sacked.
OTHER	8.90	1	15	15.7	2.4	FLO-check LCM chemical
LEAD	13.50	2.14	975	371.0	3.0	Silica Flour 200 mesh, CaCl2,
TAIL	15.00	1.76	300	94.0	5.0	ThermaChem Tail blend
DISPLACE	8.35	1	1	43.0	6.2	Fresh water

POSTJOB INFORMATION

Liner Top Test (lbs/gal):		**Job Success?**	No
Shoe Test (lbs/gal):		**CBL Bond Quality:**	
Actual Top of Cmt (ft):			

Misc. Comments: Pump 20 bbls H2O, 30 bbls Sepeolite high viscosity spacer, pump 5 bbls water, mix and pump 371.6 bbls 13.5 ppg Tuned Light lead cement, followed by 94 bbls 15.0 ppg ThermaChem Tuned tail cement, displaced with 41 bbls water, check float-held, turn over to rig. (Lost circulation at 146 bbls away(97.2 bbls outside shoe), partial returns came back at 240 bbls away, lost circulation again at 260 bbls away, regained partial circulation at 337 bbls away, lost returns again at 357 bbls away, regained partial returns at 27.9 bbls away on tail cement. While pumping displacement, pressures as follows: first 10 bbls @ 6.2 bbls/min 425 psi, second 10 bbls @ 6.2 bbls/min 475 psi, 3rd 10 bbls 580 psi. Final pressures at 1. 8-2.0 bbls/min 377 psi. CIP at 12:41

KLAM 57310

Cementing Report

ThermaSource

Well ID: OIT #7 - OIT $

Well Name: OIT #7

Field: Oregon

Sect: 20 Town: 38S Rng: 9E County: Klamath State: OR

CEMENT JOB INFORMATION

Start Date/Time:	09-Feb-09 16:30	**Well Bore:**	Original Well Bore
Job Type:	SECONDARY	**String OD (ins):**	13.375
Well Section:		**String Type:**	FULL
Cementing Co:	HALLBTN	**Cementing Engineer:**	Dean Glatt

SECONDARY JOB DETAILS

Remedial Type:		**No. of Attempts:**	
Breakdown Pressure (psi):		**Breakdown Rate (bbls/min):**	
Init. Injectn Pressure (psi):		**Initial Injectn Rate(bbls/min):**	
Final Injectn Pressure (psi):		**Final Injectn Rate (bbls/min):**	
Init. Shut In Pressure (psi):			
Hold Pressure (psi):		**Hold Time:**	
Bleed Back Volume (bbls):			

SLURRY INFORMATION

Type	Density	Yield	Sacks	Volume	Rate	Additives
TAIL	14.50	1.41	300	76.0	1.6	2% CaCl2 in Neat G cement.
TAIL	14.50	1.41		20.0	1.6	2% CaCl2 in Neat G cement.

POSTJOB INFORMATION

Liner Top Test (lbs/gal):		**Job Success?**	Yes
Shoe Test (lbs/gal):		**CBL Bond Quality:**	
Actual Top of Cmt (ft):			
Misc. Comments:			