

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator ORNI 17, LLC Well 56-16 Sec. 16 T. 13S R. 14E
 Field Brawley County Imperial Spud Date 04/27/08
VISITS: Date Engineer Time Operator's Rep. Title
 1st 04/30/08 M. Woods (1400 to 1500) Bob Valentine Consultant
 2nd _____ (_____ to _____) _____ _____
 Contractor Barbour Drilling Rig # 77 Contractor's Rep. & Title Tim Nelson, Tool Pusher
 Casing record of well: 76.2cm(30") cem 28.3m(93'); 22" cem91.4m(300'). TD 91.4m(standing cemented).

OPERATION: **Inspecting** the blowout prevention equipment and installation. Critical well? Y N
 DECISION: The blowout prevention equipment and its installation on the 22 " casing are approved.

Proposed Well Opns: Drilling . MACP: 80 psi **REQUIRED BOPE CLASS:**
 Hole size: 26" " fr. 90 ' to 300 ' , 20" " to _____ ' & _____ " to _____ ' **II B 2M**

CASING RECORD OF BOPE ANCHOR STRING					Cement Details			Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at				Casing	Annulus
22"	114.8#	B	300'		Lead: 325 sx (Y=2.49) Versaseal @ 13.0 ppg			260'	surf
					Tail: 150 sx (Y=1.76) Elasticem @15.0ppg				

BOP STACK						TEST DATA							
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	-----	Hydril	MSP	21.25	2000		26.39						350
R	-----	Shaffer	LWS	21.25	2000		5.07						

ACTUATING SYSTEM				TOTAL: 31.46		AUXILIARY EQUIPMENT										
Accumulator Unit(s) Working Pressure <u>3000</u> psi						No.	Size (in.)	Rated Press.	Connections			Test Press.				
Total Rated Pump Output _____ gpm		Fluid Level _____		Weld	Flange				Thread							
Distance from Well Bore <u>50</u> ft.		Precharge <u>OK</u>														
Accum. Manufacturer		Capacity	Precharge	<input checked="" type="checkbox"/>	Fill-up Line											
1	Koomey	160 gal.	1000 psi	<input checked="" type="checkbox"/>	Kill Line		2	3M	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	350				
2		gal.	psi	<input checked="" type="checkbox"/>	Control Valve(s)	1		3M	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
CONTROL STATIONS				<input checked="" type="checkbox"/>	Check Valve(s)	1		3M	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	350				
<input checked="" type="checkbox"/>	Manifold at accumulator unit		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Aux. Pump Connect.		3M	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	350				
<input checked="" type="checkbox"/>	Remote at Driller's station		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Choke Line		3	3M	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	350				
<input type="checkbox"/>	Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Control Valve(s)	5		3M	<input type="checkbox"/>	<input checked="" type="checkbox"/>	350				
EMERG. BACKUP SYSTEM				<input type="checkbox"/>	Pressure Gauge				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
<input checked="" type="checkbox"/>	N ₂ Cylinders	1	L= G	"	2300	Press.	Wkg. Fluid	6.85 gal.	<input checked="" type="checkbox"/>	Adjustable Choke(s)	2	2	3M	<input type="checkbox"/>	<input checked="" type="checkbox"/>	func
<input type="checkbox"/>	Other:	2	L= G	"	2300		6.85 gal.		<input checked="" type="checkbox"/>	Bleed Line	3			<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		3	L= G	"	2300		6.85 gal.		<input type="checkbox"/>	Upper Kelly Cock						
		4	L= G	"	2300		6.85 gal.		<input checked="" type="checkbox"/>	Lower Kelly Cock	4.5	3M				
		5	L= J	"	2300		7.74 gal.		<input checked="" type="checkbox"/>	Standpipe Valve						
		6	L=	"			gal.		<input checked="" type="checkbox"/>	Standpipe Press. Gau.						
				TOTAL	35.15 gal.				<input checked="" type="checkbox"/>	Pipe Safety Valve	4.5	3M				pres
									<input checked="" type="checkbox"/>	Internal Preventer	4.5	3M				pres

HOLE FLUID MONITORING EQUIPMENT				Alarm Type		Class	Hole Fluid Type	Weight	Storage Pits (Type & Size)
		Audible	Visual						
<input type="checkbox"/>	Calibrated Mud Pit	<input type="checkbox"/>	<input type="checkbox"/>	A			Bentonite	9.0ppg	
<input checked="" type="checkbox"/>	Pit Level Indicator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<input checked="" type="checkbox"/>	Pump Stroke Counter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	B					
<input type="checkbox"/>	Pit Level Recorder	<input type="checkbox"/>	<input type="checkbox"/>						
<input checked="" type="checkbox"/>	Flow Sensor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	C					
<input type="checkbox"/>	Mud Totalizer	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	Calibrated Trip Tank	<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input type="checkbox"/>						

REMARKS AND DEFICIENCIES:

Remarks:
Blind rams and inner choke valves were tested before my arrival.

Deficiencies to be Corrected:
Change check valve before next test (slow leak).

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

Report on Operations

Karen E. Harris, Agent
ORNI 17 LLC
c/o Corporation Service Company
2730 Gateway Oaks Blvd., #100
Sacramento, CA 95833

El Centro, California
May 1, 2008

Your operations at well 56-16, API No. 025-91452, Sec. 16, T. 13S, R. 14E, SB B&M, Brawley Field, Imperial County, were witnessed on 04/30/08. M. Woods, a representative of the supervisor, was present from 1400 to 1500. Also present was Bob Valentine, company representative.

Operations Witnessed	Result	Def	Engineer	Date
<i>BOP Inspection</i>	<i>OK</i>	<i>1</i>	<i>MW</i>	<i>04/30/08</i>

DECISION: The blowout prevention equipment and its installation on the 22" casing are approved.

Remarks:

Blind rams and inner choke valves were tested before my arrival.

Deficiencies to be corrected:

Change check valve before next test (slow leak).

Hal Bopp
State Oil and Gas Supervisor

By

Geothermal District Engineer

Michael L. Woods

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator ORNI 17, LLC Well 56-16 Sec. 16 T. 13S R. 14E
 Field Brawley County Imperial Spud Date 04/27/08

VISITS: Date Engineer Time Operator's Rep. Title
 1st 05/09/08 M. Woods (1600 to 1630) Tom Turner Consultant
 2nd _____ (_____ to _____) _____ _____

Contractor Barbour Drilling Rig # 77 Contractor's Rep. & Title Jeff Cribben, Tool Pusher

Casing record of well: 76.2cm(30") cem 28.3m(93'); 22" cem91.4m(300'); 40.6cm(15") cem 595.3m(1953'). TD 595.3m(1953')(standing cemented).

OPERATION: Inspecting the blowout prevention equipment and installation. Critical well? Y N

DECISION: The blowout prevention equipment and its installation on the 16 " casing are approved.

Proposed Well Opns: Drilling . MACP: 510 psi **REQUIRED BOPE CLASS: III B 2M**
 Hole size: 26" " fr. 90 ' to 300 ' , 20" " to 1953 ' & 14.75 " to _____ ' _____

CASING RECORD OF BOPE ANCHOR STRING					Cement Details		Top of Cement	
Size	Weight(s)	Grade(s)	Shoe at	CP at			Casing	Annulus
16"	84#	K-55	1953'		Lead: 325 sx (Y=2.49) Versaseal @ 13.01 ppg		1871'	surf
					Tail: 150 sx (Y=1.76) Elasticem @15.0ppg			

BOP STACK						TEST DATA							
API Symb.	Ram Size (in.)	Manufacturer	Model or Type	Vert. Bore Size (in.)	Press. Rtg.	Date Last Overhaul	Gal. to Close	Recov. Time (Min.)	Calc. GPM Output	psi Drop to Close	Secs. to Close	Test Date	Test Press.
A	-----	Hydril	GK	16.75	2000		14.81						
Rd	4.5	Shaffer	LWS	16.75	2000		4.69						
Rd	-----	Shaffer	LWS	16.75	2000		4.13						

ACTUATING SYSTEM				TOTAL: 23.63		AUXILIARY EQUIPMENT						
Accumulator Unit(s) Working Pressure <u>3000</u> psi						No.	Size (in.)	Rated Press.	Connections			Test Press.
Total Rated Pump Output _____ gpm Fluid Level _____									Weld	Flange	Thread	
Distance from Well Bore <u>50</u> ft. OK												
Accum. Manufacturer		Capacity	Precharge									
1	Koomey	160 gal.	1000 psi									
2		gal.	psi									

CONTROL STATIONS												
	Elec.	Hyd.	Pneu.									
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>									
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									

EMERG. BACKUP SYSTEM				Press.	Wkg. Fluid							
<input checked="" type="checkbox"/>	N ₂ Cylinders	1	L= G	"	2300	6.85 gal.						
<input type="checkbox"/>	Other:	2	L= G	"	2300	6.85 gal.						
		3	L= G	"	2300	6.85 gal.						
		4	L= G	"	2300	6.85 gal.						
		5	L= J	"	2300	7.74 gal.						
		6	L=	"		gal.						
				TOTAL	35.15 gal.							

HOLE FLUID MONITORING EQUIPMENT				Alarm Type		Class	Hole Fluid Type			Weight	Storage Pits (Type & Size)	
		Audible	Visual									
<input type="checkbox"/>	Calibrated Mud Pit	<input type="checkbox"/>	<input type="checkbox"/>	A								
<input checked="" type="checkbox"/>	Pit Level Indicator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	B								
<input checked="" type="checkbox"/>	Pump Stroke Counter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	Pit Level Recorder	<input type="checkbox"/>	<input type="checkbox"/>	C								
<input checked="" type="checkbox"/>	Flow Sensor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	Mud Totalizer	<input type="checkbox"/>	<input type="checkbox"/>									
<input type="checkbox"/>	Calibrated Trip Tank	<input type="checkbox"/>	<input type="checkbox"/>									
<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input type="checkbox"/>									
<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>									
<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>									

REMARKS AND DEFICIENCIES:
Remarks:
Waived test on 5/5/08; performed inspection on 5/9/08.

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

Report on Operations

Karen E. Harris, Agent
ORNI 17 LLC
c/o Corporation Service Company
2730 Gateway Oaks Blvd., #100
Sacramento, CA 95833

El Centro, California
May 13, 2008

Your operations at well 56-16, API No. 025-91452, Sec. 16, T. 13S, R. 14E, SB B&M, Brawley Field, Imperial County, were witnessed on 5/09/08. M. Woods, a representative of the supervisor, was present from 1600 to 1630. Also present was Tom Turner, company representative.

Operations Witnessed	Result	Def	Engineer	Date
<i>BOPE Inspection</i>	<i>OK</i>	<i>0</i>	<i>MW</i>	<i>05/09/08</i>

DECISION: The blowout prevention equipment and its installation on the 16" casing are approved.

Remarks: Waived test on 5/5/08; performed inspection on 5/9/08.

Hal Bopp
State Oil and Gas Supervisor

By

Geothermal District Engineer

Michael L. Woods