

NORALCO INTERNATIONAL CORP.

NORALCO

TESTING DATA SHEET
CUSTOMER UNION OIL CO
TURING DETAIL N/A

NIC 002
FIELD HAMMER HEAD
T.D. TIGHT HOLE

WELL # 1
H.P. METER RUN I.D. 4.026
L.P. METER RUN I.D.
DATE 9-8-85
PAGE 5 OF 7
FORMATION TIGHT HOLE
MUD WT.
COMPANY REPRESENTATIVE
SERVICE CO. SUPERVISOR GUIDRY - DEWALD

TYPE OF TEST												DRILL STEM TEST #1												GUIDRY - NEWALD											
TIME	TUB PRESS	WELL HEAD TEMP.	CSG. PRESS	CHOKE 64th	HEATH TEMP OF	H2O	OIL	CL	OIL	H2S	CO2	HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW MCF/D	OIL ALTER (BBL/D)	OIL RATE (BBL/D)	WATER METER (BBL/D)	H2O RATE (BBL/D)	ACCUMULATED			B.S. G.W.	G.O.R. OF A.O.R.	GAS GRAV								
						N. RATE	TEMP.	PPM	GRAY	PPM	%	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D						OIL	H2O	WATER				OIL	H2O	WATER					
1730	<100	46°	1450	FULL	136°			28,000		0	0					TRACE	51 3.75	216		291.6	40	54%	26.8	6%	1.4766										
1740				FULL	136°												52.75 4.25	275.4		293.7								SAND BBL/D							
1745	<100	48°	1475			0											59.75 4.5	291.6		311.0															
1750				FULL	130°	0											64 4.25	275.4		293.7	45.85	48%	33.04	7%	2.3866										
1800	<100	48°	1485	FULL	130°	0		26,500	19.4								69 5	176.4		518.4															
1810				FULL	122°	0		28,000																											
1815	<100	48°	1500														76.75 3.75	132.3		388.8	48.0	72%	39.24	35%	2.6928										
1820				FULL	-			-																											
1830	<100	48°	1500			NOTE: PUMPING SURGE TANK, MISSED READING, BEGAN 30 MINUTE READING																													
1845	<100	48°	1510														76.75 14.5	167.04		522.0	51.48	75%	50.21	1%	2.8378										
1900	<100	48°	1550	FULL	115°	0	86°	27,000																											
1915	<100	48°	1450			NOTE: HALLIBURTON BLEED CSG PRESS.																													
1930	<100	48°	1450	FULL	108°		84°	27,000									56 23.25	58.25		502.0	63.61	45%	60.67	3.4%	3.6283										
1945	108	46°	1475																																
2000	108	46°	1490	FULL	115°		87°	27,500									22	514.2		628.0	74.32	50%	71.67	1.3%	3.9143										
2015	108	46°	1500																																
2030	108	46°	1500	FULL	116°		89°	26,500									25.1 16	457.7		291.8	83.8	38%	77.75	2.4%	4.2983										
2045	108	48°	1510																																
2100	92	45°	1510	FULL	116°		88°	25,500	20.6								52.75 27.1	777.8		520.3	99.7	40%	88.59	1.2%	4.6235										
2115	90	44°	1510																																
2130	89	44°	1540	FULL		NOTE: NO READING: SURGE TANK PLUGGED, TAKING STRAP.												63 21.5	540.7		474.72	111.0	46%	98.48	16%										
2145	87	44°	1550																																

CONFIDENTIAL

ORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

CUSTOMER
UNION OIL CO

TESTING DETAIL
N/A

NORALCO

FIELD
HAMMER HEAD

T.D.
TIGHT HOLE

WELL #	1	H.P. METER RUN I.D.	4026	L.P. METER RUN I.D.		DATE	9-8-85	PAGE	4 of 7
FORMATION	TIGHT HOLE					INTERVAL TESTED			
MUD WT.						COMPANY REPRESENTATIVE			
						SERVICE CO. SUPERVISOR	GUIDRY - DeWALD		

TYPE OF TEST
DRILL STEM TEST #1

TIME	TUB PRESS	WELL HEAD TEMP	CSG. PRESS	CHOKE SIZE	HEATING TEMP OF	H ₂ O	O ₂	CL	OIL	H ₂ S	CO ₂	HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW MCF/D	OIL FILTER (BBL/D)	OIL RATE (BBL/D)	WATER METER (HBL/D)	H ₂ O RATE (BBL/D)	ACCUMULATED			GAS GRAY		
						N. RATE	TEMP.	PPM	GRAY	PPM	%	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D						OIL	H ₂ O	WATER			
1505	115	38°	1420													TRACE	34.25 / 1.25	174.6		5.4	13.5	3%	8.36	.1%	0.1776		
1510				Full	130°			52,000		0	0																
1515	115	38°	1420													TRACE	36.75 / 1.5	209.5		6.5	14.9	3%	8.4	.1%	0.1777		
1520				Full	120°			52,000		0	0																
1525	119	40°	1420													TRACE	36.5 / .75	104.8		3.2	15.6	3%	8.42	.1%	0.1777		
1530				Full	115°			56,500		0	0																
1535	112	40°	1420													TRACE	37.5 / 1	83.5		60.5	16.25	42%	8.84	1%	0.1778		
1540				Full	125°			63,000		0	0																
1545	100	40°	1420													TRACE	37 / 1.5	109.7		103.7	17.0	48%	9.56	1.2%	0.1958		
1550				Full	145°			63,000		0	0																
1555	100	40°	1420													TRACE	40.25 / 1.25	91.8		86.4	17.6	48%	10.2	1%	0.2053		
1600				Full	155°			61,000		0	0																
1605	112	40°	1420													TRACE	44.50 / 4.25	312.2		293.7	19.8	48%	12.24	1%	0.2508		
1610				Full	155°			N/T	13.8	0	0					TRACE	51 / 6.5	477.4		449.2	23.1	48%	15.4	1%	0.3158		
1620				Full	140°			N/T		0	0					TRACE	52.5 / 4.2	502		88.3	26.6	4.6	16.0	2.4%	0.4166		
1630	103	40°	1420	Full	135°			N/T		0	0					TRACE	59.5 / 4	374.4		187.2	29.8	-	-	-	-	-	
1640				Full	130°			N/T		0	0					TRACE	62.75 / 3.25	304.2		152.1	-	-	-	-	-	-	
1650				Full	135°			N/T		0	0					TRACE	65.5 / 5.75	538.2		269.1	35.05	31.5	20.2	2.5%	0.7416		
1700	100	44°	1420	Full	137°			32,000	13.8	0	0					TRACE	73.25 / 4.75	273.6		369.3	-	-	-	-	-	-	
1710				Full	135°					0	0					TRACE											
1715	100	46°	1420																								
1720				Full	135°					0	0					TRACE	47.25 / 3.75	216		291.6	-	-	-	-	-	-	

NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

NORALCO

CUSTOMER

TURNING DETAIL

TYPE OF TEST

UNION OIL CO.

N/A

Drill Stem Test #1

FIELD

T.D.

HAMMER HEAD

TIGHT HOLE

WELL #

HP METER RUN I.D.

LP METER RUN I.D.

DATE

PAGE

1

4026

9-8-85

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FORMATION

TIGHT HOLE

AND WT.

INTERVAL TESTED

COMPANY REPRESENTATIVE

SERVICE CO. SUPERVISOR

TIME	TUB PRESS	WELL HEAD TEMP	CSG. PRESS	CHOKE 61" IN	HEATING TEMP OF	H ₂ O	OIL	CL	OIL	H ₂ S	CO ₂	HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW	OIL	OIL	WATER	H ₂ O	ACCUMULATED			B.S.	G.O.R.	GAS				
						N. RATE	TEMP	PPM	GRAV.	PPM	%	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D	MCF/D	LBLS/D	LBLS/D	INBLS/D	LBLS/D	OIL	H ₂ O	WATER	LBLS/D	OF	R.O.R.	GRAV			
1310	132																														
1313	OPEN THRU	LINE	HEATER			*NOTE: ALL LESS THAN 100 PSI ARE DUE TO ICE AND SNOW BUILDING ON DEAD WEIGHT, READINGS ARE 50 PSI OR MORE																									
1315	<100																														
1320	<100	QUANTITIES OF GAS AND LIQUID TOO SMALL FOR MEASUREMENT.																													
1325	<100	OIL GRAVITY TAKEN; TRACES OF WATER STILL NOT BROKEN OUT; 17.1 @ 60°F																													
1330	<50																														
1334	-	BYPASS GATE VALVE ON MANIFOLD FOR OPEN FLOW.																													
1335	<50																														
1340	<50																														
1345	<50																														
1350	<100						132°	85,000	19.3	0	0	OIL GRAVITY 19.3 @ 60°F																			
1355	<100						132°	85,000	19.3	0	0					TRACE	14.5 1.5	177	-	39	1.21	18.1%	.29	1.1%	0.0165						
1400	<100																														
1405	<100																														
1410	<100				140°			94,000	-	0	0						TRACE	22 7.5	453.6		626.40	4.36	58%	4.64	2	0.1665					
1415	<100																NOTE: FLARE	WILL NOT LITE													
1420	<100				135°			94,000	-	0	0						TRACE	25 3	43.2		388.8	4.66	90%	7.34	Tr	0.1665					
1425	<100																TRACE														
1430	<100				125°			82,500	-	0	0						TRACE	28.5 3.5	447.5		56.5	7.77	11%	7.72	.2	0.1735					
1440					130°			77,500	8.5	0	0						TRACE	29.5 1	122.4		21.6	8.6	15%	7.87	.3	0.1765					
1450					145°			66,500									TRACE	32 2.5	306		54	10.7	15%	9.2	.3	0.1772					
1500	<100				140°			66,500	11.3	0	0						TRACE	33 1			18.7	11.6	13%	8.33	.3	0.1775					

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NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

NORALCO

CUSTOMER
UNION OIL CO

TURNING DETAIL
N/A

FIELD
HAMMER HEAD

T.D.
TIGHT HOLE

WELL # 1	H.P. METER RUN I.D. 4026	L.P. METER RUN I.D.	DATE 9-8-85	PAGE 2 OF 7
FORMATION TIGHT HOLE			INTERVAL TESTED	
FLUID WT.			COMPANY REPRESENTATIVE	
			SERVICE CO. SUPERVISOR	

TYPE OF TEST
DRILL STEM TEST #1

DRILL STEM TEST																				HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW	OIL METER	OIL RATE	WATER METER	WATER RATE	ACCUMULATED			D.S. G.W.	GOR OF A.O.R.	GAS GRAY
TIME	TUB PRESS	WELL HEAD TEMP.	CSG. PRESS	CHOKE SIZE	HEATER TEMP OF.	H ₂ O N ₂ RATE	OIL TEMP	CL PPM	OIL GRAY	H ₂ S PPM	CO ₂ %	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D	MCF/D	(BBL/D)	(BBL/D)	(BBL/D)	(BBL/D)	OIL	H ₂ O %	WATER											
1150	1181	32°	1400	12.5/64	OPEN	WELL THRU SEPARATOR																													
1152	1195	33°	1400	12.5/64																															
1154	1182	33°	1400	12.5/64																															
1156	1167	33°	1400	12.5/64																															
1158	1143	33°	1400	12.5/64																															
1200	1115	33°	1400	12.5/64																															
1203	OPEN	CHOKE TO		16/64																															
1205	1010	33°	1400	16/64																															
1210	804	34°	1400	16/64																															
1215	774	34°	1390	16/64																															
1220	655	34°	1390	16/64		GAS TO SURFACE																													
1225	535	34°	1390	16/64								1.750	90	28	100	804.970	N ₂																		
1230	420	34°	1390	16/64								1.750	75	8	100	397.721	N ₂																		
1235	N/A	34°	N/A	16/64								N/A																							
1240	210	34°	1400	16/64								1.500	75	8	96	316.886	N ₂																		
1245	110	34°	1400	16/64																															
1248	CHANGE	CHOKE TO		13/64																															
1250	<50	34°	1400	13/64																															
1255	<100	34°	1400	13/64																															
1300	122	34°	1425	13/64		By PASS SEPARATOR TO SURGE TANK																													
1305	140	34°	1400			OPEN ADJUSTABLE CHOKE TO 55/64																													
1309	FLUID TO SURFACE																																		

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NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

CUSTOMER

UNION OIL CO.

TURNING DETAIL

N/A

TYPE OF TEST

DRILL STEM TEST #1

NORALCO
Received
District Office

FIELD

HAMMER HEAD

T.D.

TIGHT HOLE

DEC-17-1985

Minerals Management Service
Anchorage, Alaska

WELL #

1

H.P. METER RUN IN

4026

L.P. METER RUN IN

DATE

9-8-85

PAGE

1 of 7

FORMATION

TIGHT HOLE

MUD WT.

INTERVAL TESTED

COMPANY REPRESENTATIVE

SERVICE CO. SUPERVISOR

Guidry - DeWald

TIME	TUBS PRESS	WELL HEAD TEMP	CSG. PRESS	CHOKE SIZE	HEATING TEMP OF	H ₂ O				OIL				H ₂ S				HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW MCF/D	OIL METER (BOBLS)	OIL RATE (BOBLS/D)	WATER METER (BOBLS)	WATER RATE (BOBLS/D)	ACCUMULATED			B.S. L.W.	GOR OF R.O.R.	GAS GRAY
						N. RATE	TEMP	PPM	GRAY	PPM	%	PPM	%	PPM	%	PPM	%	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D						OIL	WATER	OIL	WATER	B.S. L.W.	GOR OF R.O.R.
0526	1620	OPEN	WELL	THRU	SEPARATOR	ON	10/64	C. HOKE										(Flow # 1-24)															
0528	1570	34°	1400	10/64																													
0530	N/A	34°	1400	10/64																													
0532	1514	34°	1400	10/64																													
0534	1477	35°	1400	10/64																													
0535	OPEN	To	-	20/64																													
0536	1420			20/64																													
0538	m	OPEN	To	27/64																													
0540	1040	35°	1400	32/64																													
0542	950	35°	1350	32/64	SHUT WELL IN													(SHUT IN #1-24)															
0544	977	-			INITIAL SHUT IN																												
0612	977	-																															

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Y0849#1

COPY 1 OF 4

PART 6
WELL COMPLETION

NIC 002

NORALCO

WELL #	DATE TESTED	LOCATION TESTED	DATE	PAGE
1	4-20		9-15-85	10
FORMATION			INTERVAL TESTED	
T. INT. 10-15				
TEST LOG			COMPANY REPRESENTATIVE J. TUNER - J. LARSON GEORGE CO. SUPERVISOR GUDRY - DEWALD	

TYPE OF TEST DELL SEM TEST 23

[illegible]

NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

NORALCO

CUSTOMER
UNION OIL CO.

DRILLING DETAIL
N/A

FIELD
HAMMER HEAD

WELL
TIGHT H-15

WELL #	1	H ₂ METER NUMBER	4026	L ₂ METER NUMBER		DATE	9-15-85	PAGE	8 of 10
FORMATION	TIGHT H-15					INTERVAL TESTED			
ENGINEER						COMPANY REPRESENTATIVE	J. TINSER - J. LARSON		
						SERVICE CO. SUPERVISOR	GUDRY - DEWALO		

TYPE OF TEST
DRILL STEM TEST 2A 2B

TIME	TUB PRESS	WELL HEAD TEMP	CSD PRESS	CHECK GUN	HEATING TEMP OF	HIGH PRESSURE SEPARATOR										TOTAL GAS FLOW MOFID	OIL FILTER MOFID	OIL RATE BBL/D	WATER METER INCHES	H ₂ O RATE BBL/D	ACCUMULATED			AS SW. OF	GOR OF	G/A GR
						N ₂ N. RATE	O ₂ TEMP	CL PPM	OIL GRAY	H ₂ S PPM	CO ₂ %	ORIFICE	STATIC	DIFF	TEMP	FLOW NO. OF C					OIL	H ₂ O	WATER			
0709	805	58	1390	8.5/64																						
0714	757	58	1390	"																						
0719	720	59	1390	"																						
0724	675	58	1390	"																						
0729	629	57	1390	"																						
0734	600	57	1390	"																						
0739	565	56	1390	9/64																						
0744	532	54	1390	"																						
0749	490	53	1390	9.5/64																						
0754	452	53	1390	"																						
0759	410	52	1390	10/64																						
0804	370	51	1390	"																						
0809	302	50	1390	"																						
0814	237	49	1390	"																						
0819	192	49	1390	"																						
0824	122	48	1390	"																						
0829	60	58	1390	"																						
0833	52	66	1390	"		NOTE:	FLUID TO SURFACE	FLOW NG.	THRU SEPERATOR.																	
0839	105	68	1390	"		NOTE:	DIVERT FLUID TO SURGE TANK	CANNOT PUMP SEPERATOR																		
0841	119	68	1400	"																						
0843	132	69	1400	"																						

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WALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

CUSTOMER
UNION OIL CO.

TESTING DETAIL
N/A

NORALCO

FIELD
HAMMER HEAD

TEST
TIGHT H-15

WELL #
1

HP METER RUN ID
4026

LP METER RUN ID

DATE
9-15-85

PAGE
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FORMATION
TIGHT H-15

STANDARD WT

COMPANY REPRESENTATIVE
J. TINSER - J. LARSON

SERVICE CO. SUPERVISOR
Guiron - DeWald

TYPE OF TEST
DRILL STEM TEST #2 DST 2B

TIME	TUB PRESS	WELL HEAD TEMP	CSD PRESS	CHOKES SIZE	HEATING TEMP OF	H ₂ O	OIL	CL	OIL	H ₂ S	CO ₂	HIGH PRESSURE SEPARATOR				TOTAL GAS FLOW	OIL	OIL	WATER	HEAVY	ACCUMULATED		BS	GAS
						N. RATE	TEMP	PPM	GRAY	PPM	%	ORIFICE	STATIC	DIFF.	TEMP.	FLOW NO.	MG/D	MG/D	MG/D	MG/D	MG/D	OIL	WATER	W.
0531	1406	54°	1445	9/64																				
0533	1380	58°	1425	"																				
0535	1357	58°	1425	7/64																				
0537	1345	59°	1420	"																				
0544	1327	59°	1420	6/64																				
0549	1299	59°	1410	"																				
0554	1272	60°	1410	"																				
0559	1256	60°	1405	"																				
0604	1244	58°	1405	"																				
0609	1233	57°	1400	"																				
0614	1207	56°	1400	6-5/64																				
0619	1192	54°	1400	"																				
0624	1181	53°	1400	7-5/64																				
0629	1146	53°	1400	9/64																				
0634	1125	53°	1400	"																				
0639	1082	52°	1400	"																				
0644	1030	54°	1400	9/64																				
0649	987	56°	1400	"																				
0654	933	57°	1390	"																				
0659	885	57°	1390	"																				
0704	845	57°	1390	"																				

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NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

NORALCO

CUSTOMER
UNION OIL CO

DRILLING DETAIL
N/A

FIELD
HAMMER HEAD
TIGHT H-15

WELL #	HP METER RUN ID	LP METER RUN ID	DATE	PAGE
1	4026		9-14-85	5 of 10
FORMATION			INTERVAL TESTED	
TIGHT H-15				
MUD WT			COMPANY REPRESENTATIVE	
			J. TINSER - J. LARSON	
			SERVICE CO. SUPERVISOR	
			Guidry - DEWALO	

TYPE OF TEST
DRILL STEM TEST #2 B

DRILL STEM TEST										HIGH PRESSURE SEPARATOR					TOTAL GAS FLOW	OIL FILTER	OIL RATE	WATER METER	MUD RATE	ACCUMULATED			GAS GRAV						
TIME	TUB PRESS	WELL HEAD TEMP	CSG PRESS	CHOKER TEMP	HEATHING TEMP OF	H ₂ O N. RATE	OIL TEMP	CL PPM	OIL GRAY	H ₂ S PPM	CO ₂ %	ORIFICE	STATIC	DIFF	TEMP	FLOW	NO. OF	NO. OF	NO. OF	NO. OF	NO. OF	DIL	WATER	WATER	WATER	WATER	WATER		
1320	135	35°	1490	Full	-																								
1323	-	-	-			NOTE: OPEN WELL THRU SEPARATOR.																							
1328	-	-	-			NOTE: BY-PASS SEPARATOR TO SURGE TANK																							
1419	-	-	-			NOTE: FLUID TO SURFACE																							
4420	0	36°	1490																										
1430	-	-	-	Full	210			79,300	19.2													10%							
1445	-	-	-	"	205			164°	80,000	19.5												1.26	15%	.24	1%	.015			
1500	440	44°	1490	"	183			98°	87,300	13.2												5.77	5%	.48	-	-			
1515	640	54°	1500	"	N/T			120°	78,000	12.5												23.83	14%	3.92	1.2%	.273			
1520	N/T	N/T	N/T	"	N/T			N/A	N/A	N/A												-	-	-	-	-			
1530	N/T	N/T	N/T	"	N/T			98°	43,000	N/A												24.76	94%	21.5	1%	.458			
1538	-	-	-	"	160	NOTE: FLUID DIVERTED TO MUD TANK																							
2200	-	-	-	"	N/T	NOTE: FLUID DIVERTED TO SURGE TANK																							
2215	-	-	-	"	176			140°	125,000	N/A												27.36	90%	26.9	0	-			
2230	0	52°	1350	"	N/T	NOTE: PUMPED SURGE TANK DOWN TO 10.0 BBL										Sealed	25.0	576											
2300	56	48°	1350	"	N/T																	-	-	-	-	-			
2308	N/T	46°	0	"	N/T																	-	-	-	-	-			
2315	85	44°	0	"	N/T																	-	-	-	-	-			
2330	0	42°	0	"	N/T																	-	-	-	-	-			
2055	61	48°	0	"		NOTE: PUMPING N ₂ DOWN HOLES, FLUID RETURNING.																							
2100	72	52°	0	"		NOTE: BY-PASS SEPARATOR TO SURGE TANK																							

NIC 002

NORALCO

WELL # 1	HP METER NUMBER 4026	LP METER NUMBER	DATE 9-13-85	PAGE 3 of 10
FORMATION TIGHT NOISE			INTERVAL TESTED	
Casing WT.			COMPANY REPRESENTATIVE J. TINSER - J. LARSON	
			SERVICE CO. SUPERVISOR GUILDAY - DEWALD	

TYPE OF TEST

Drill STEM Test #213

DRILL STEM TEST 2D																				TOTAL GAS FLOW MOF/D	OIL METER (GALS/D)	OIL RATE (GALS/D)	WATER METER (INCHES)	WTO RATE (GALS/D)	ACCUMULATED			BS LVL	GOR OF AOR	GRA. GALL.		
TIME	TUG PRESS	WELL HEAD TEMP	CSG PRESS	CHCKE GAIN	HEATH TEMP OF	H ₂ O N. TREAT	OIL TEMP	CL PPM	OIL GRAY	H ₂ S PPM	CO ₂ %	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MOF/D	OIL	WATER														
0620	850	44	1500	Full		NOTE: CHANGE TO 125 ORIFICE						.250	0	9	72°	4400																
0630	0	43	1500	"								.125	0	19	70°	4,300																
0640	0	43°	1490	"								.125	0	38	70°	5,800																
0650	0	43°	1490	"								.125	0	45	68°	6,500																
0700	0	42°	1490	"								.125	0	47	68°	6,600																
0710	0	42°	1490	"								.125	0	52	68°	6,800																
0720	0	42°	1490	"								.125	0	58	67°	7,200																
0730	0	41°	1490	"								.125	0	62	66°	7,450																
0740	0	41°	1490	"								.125	0	63	66°	7,600																
0750	0	41°	1490	"								.125	0	63	67°	7,600																
0800	0	41°	1450	"								.125	0	63	67°	7,600																
0810	0	41°	1450	"								.125	0	61	67°	7,450																
0820	0	41°	1450	"								.125	0	60	67°	7,400																
0830	0	41°	1450	"								.125	0	58	67°	7,250																
0840	0	41°	1450	"								.125	0	59	67°	7,400																
0850	0	41°	1450	"								.125	0	61	67°	7,450																
0900		NOTE: CHANGE TO .250 ORIFICE										.125	0	70	67°	8,000																
0910	0	44°	1490	Full								.250	0	16	67°	6,000																
0920	0	44°	1430	"								.250	0	18	67°	6,250																
0930	0	44°	1430	"								.250	0	20	67°	6,600																
0940	0	44°	1430	"								.250	0	21	68°	6,680																

NIC 002

NORALCO

WELL II

✓

HP METER RATED
4026

U. S. AIR FORCE

DATE

DATE
9-13-85

PAGE

2 OF 10

FORMATION

² 1.9 NT No 1E

INTERVAL TESTED

COMPANY REPRESENTATIVE

J. TINSER - J. LARSON

1. SERVICE CO. SUPERVISOR

Guipry-De-Waalo

TYPE OF TEST

Drill Stem Test #2B

[illegible]

NORALCO INTERNATIONAL CORP.

TESTING DATA SHEET

NIC 002

CUSTOMER

TESTING DETAIL

TYPE OF TEST

NORALCO

Received
District Office

FIELD

T.D.

DEC 17 1985

Minerals Management Service
Anchorage, Alaska

WELL #

HP METER RUN ID

LP METER RUN ID

DATE

PAGE

FORMATION

INTERVAL TESTED

COMPANY REPRESENTATIVE

J. TINSER - J. LARSEN
SERVICE CO. SUPERVISOR

Gentry - DeWald

Drill Stem Test 2A - PRE FLOW

Drill Stem Test 2A - TFE Flow													HIGH PRESSURE SEPARATOR										TOTAL GAS FLOW		OIL FILTER	OIL RATE	WATER METER	H ₂ O RATE	ACCUMULATED			BS	GOR	GRA	
TIME	TUB PRESS	WELL HEAD TEMP	CASG PRESS	CHECK VALVE	HEATING TEMP OF	H ₂ O N. TRATE	OIL TEMP	CL PPM	OIL GRAY	H ₂ S PPM	CO ₂ %	ORIFICE	STATIC	DIFF.	TEMP.	FLOW MCF/D	MCF/D	FOULS	BBL/D	INBLS	BBL/D	INBLS	OIL	H ₂ O	WATER	100	100	100	100	100	100				
0323	1780	42°	1380	16/64		Note: OPEN WELL THRU SEPARATOR														First Flow - 08															
0325	1670	46°	1375	16/64																															
0327	1605	49°	1375	20/64																															
0329	1450	57°	1375	22/64																															
0331	1300	57°	1350	24/64																															
0333	1165	50°	1350	24/64																															
0335	1040	50°	1350	24/64																															
0336	930	50°	1340	24/64																															
0338	874	49°	N/A	24/64		Note: SHUT IN WELL														First Shut - 08															
0348	876	49°	N/A																																
0403	879	49°	N/A																																
0420	879	44°	N/A																																
																																	</		

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6.82

AREA FILE

Y0849441

COPY 1 OF 4

NORALCO

GAS FLOW RATE CALCULATIONS

OEC-882-B

TEST NUMBER 2	RATE NUMBER 2	AREA	WELL NAME OR NUMBER Hammer Head Prospect	DATE (MM/DD/YY) 9/15/85	PAGE OF 3 13
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CUSTOMER Union Oil Co	STANDARD CONDITIONS <input type="checkbox"/> 14.73 psi 60°F	<input checked="" type="checkbox"/> OTHER 15.0	ATM. PRESS P_c =	T _c =	MEAS. <input checked="" type="checkbox"/> EST. <input type="checkbox"/>	GAS SPECIFIC GRAVITY-G .561
METER TYPE Grout Oc	METER RUN SIZE (INCHES) 4026	FLOW RECORDER TYPE BARTON 2025	h _w RANGE (INCHES WATER) 0-100	STATIC PRESS RANGE (psi) 0-1500	P _u TABLE PREV. PAGE 24	G _g = $\sqrt{1/G}$ 1.33
					C ₁ = F _{II} X F _g 32.04	

DAY TIME (24 HR CLOCK)	FLOW TIME (HOURS)	STATIC PRESSURE P _i (psia)	DIFFERENTIAL PRESSURE h _w (INCHES WATER)	DOWN STREAM GAS TEMP. (°F)	$\sqrt{h_w P_i}$	ORIFICE SIZE d (INCHES)	C ₂ = F _b X F _{II} X F _{pv} X Y ₂				C ₂	C (C-C ₁ X C ₂)	CORRECTED GAS FLOW RATE Q _g = C $\sqrt{h_w P_i}$ (MSCF/D)
							F _b	F _{II}	F _{pv}	Y ₂			
1505		45	55	100°	49.74	.750	113.08	.9636	1.0018	1.0080	110.03329	3525.4	175,356
1510		45	56	100°	50.19	.750	113.08	.9636	1.0018	1.0080	110.03329	3525.4	176,943
1515		45	60	100°	51.96	.750	113.08	.9636	1.0018	1.0087	110.1097	3527.9	183,310
1520		45	62	100°	52.82	.750	113.08	.9636	1.0018	1.0089	110.13153	3528.6	186,381
1525		45	63	100°	53.24	.750	113.08	.9568	1.0012	1.0094	109.40755	3505.4	186,630
1530		45	64	102°	53.66	.750	113.08	.9568	1.0018	1.0094	109.40755	3505.4	188,102

GAS RATE AVG 1505 TO 1530 Hrs = 182,787

Accum GAS 1300hrs TO 1530 Hrs = 24,766 scf

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NORALCO

GAS FLOW RATE CALCULATIONS

OEC-882-II

TEST NUMBER 2	RATE NUMBER 2	AREA	WELL NAME OR NUMBER Hammer Head Prospect	DATE (DAY, MO, YR) 9/15/85	PAGE OF 2
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CUSTOMER UNION OIL CO	STANDARD CONDITIONS <input type="checkbox"/> 14.73 psi 60°F <input checked="" type="checkbox"/> OTHER 15.0	ATM. PRESS LAB Analysis	P _c = 24	T _c = 133	MEAS <input checked="" type="checkbox"/> EST. <input type="checkbox"/>	GAS SPECIFIC GRAVITY-G .561
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METER TYPE GROUE QC	METER RUN SIZE (INCHES) 4.026	FLOW RECORDER TYPE BARTON 202E	h _w RANGE (INCHES WATER) 0-100	STATIC PRESS RANGE (PSI) 0-1500	P ₀ TABLE PREV. PAGE 24	P ₀ = $\sqrt{1/G}$ 133	C ₁ = F ₀ X P ₀ 37.04
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DAY TIME (24 HR CLOCK)	FLOW TIME (HOURS)	STATIC PRESSURE P _i (psia)	DIFFERENTIAL PRESSURE h _w (INCHES WATER)	DOWN STREAM GAS TEMP. (°F)	$\sqrt{h_w P_i}$	ORIFICE SIZE d (INCHES)	C ₂ = F _b X F _{II} X F _{pv} X Y ₂				C ₂	C (C-C ₁ X C ₂)	CORRECTED GAS FLOW RATE Q _g = C $\sqrt{h_w P_i}$ (MSCF/D)
							F _b	F _{II}	F _{pv}	Y ₂			
405		55	57	94°	55.99	.750	113.08	.9688	1.0019	1.0067	110.49543	3540.2	198,219
410		45	55	94°	49.74	.750	113.08	.9688	1.0019	1.0080	110.63212	3544.8	176,320
415		45	53	94°	48.23	.750	113.08	.9688	1.0019	1.0079	110.62714	3544.4	173,077
420		45	51	94°	47.90	.750	113.08	.9688	1.0019	1.0075	110.57321	3543.0	169,713
425		45	49	94°	46.95	.750	113.08	.9688	1.0019	1.0074	110.57226	3542.7	166,331
430		45	50	94°	47.43	.750	113.08	.9688	1.0019	1.0074	110.57226	3542.7	168,031
435		40	56	95°	47.32	.750	113.08	.9680	1.0019	1.0087	110.62353	3544.3	167,719
440		40	60	96°	48.98	.750	113.08	.9671	1.0016	1.0101	110.64092	3544.9	173,630
445		40	61	97°	49.39	.750	113.08	.9662	1.0016	1.0102	110.54891	3541.9	174,938
450		45	59	98°	51.52	.750	113.08	.9653	1.0016	1.0087	110.28193	3533.4	182,042
455		45	57	100°	50.64	.750	113.08	.9636	1.0018	1.0067	109.89138	3520.9	178,299
500		45	55	100°	49.74	.750	113.08	.9636	1.0018	1.0080	110.03329	3525.4	175,356

GAS RATE AVG. 175,306

Accum GAS 1300 Hrs To 1500 Hrs = 17,150 SCF

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GAS FLOW RATE CALCULATIONS

Received
District Office

1151... 15
Second Flow Period
Gas Cales. - 028

Copy(1) of (4)

OEC-111-N

TEST NUMBER 2	RATE NUMBER 2	AREA DEC 17 1985	WELL NAME OR NUMBER Hammes Nord Prospect	DATE (DAY, MO, YR)	PAGE OF 1
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CUSTOMER Union Oil Co	STANDARD CONDITIONS 14.73 psi 60°F	OTHER 150	ATM. PRESS Pc =	Tc =	MEAS. EST. <input checked="" type="checkbox"/>	GAS SPECIFIC GRAVITY-G 561
METER TYPE Grout DC	METER RUN SIZE (INCHES) 4026	FLOW RECORDER TYPE BARTON 202E	hw RANGE (INCHES WATER) 0-100	STATIC PRESS RANGE (psi) 0-1500	TABLE PREV. PAGE 24	$C_1 = F_{II} \times F_D$ 3204

DAY TIME (24 HR CLOCK)	FLOW TIME (HOURS)	STATIC PRESSURE P _I (psia)	DIFFERENTIAL PRESSURE h _w (INCHES WATER)	DOWN STREAM GAS TEMP. (°F)	$\sqrt{h_w P_I}$	ORIFICE SIZE d (INCHES)	C ₂ = F _b X F _{II} X F _{pv} X Y ₂				C (C-C, X C ₂)	CORRECTED GAS FLOW RATE $Q_0 = C \sqrt{h_w P_I}$ (MSCF/D)
							F _b	F _{II}	F _{pv}	Y ₂	C ₂	
1300		60	72	80°	6572	.750	113.08	.9783	1.0033	1.0020	112.22223	236,302
305		85	88	83°	8648	.750	113.08	.9786	1.0046	1.0067	111.91374	310,091
310		60	80	86°	6928	.750	113.08	.9759	1.0031	1.0087	111.65992	247,855
315		75	72	90°	7348	.750	113.08	.9723	1.0039	1.0060	111.03272	261,418
320		75	69	92°	71.93	.750	113.08	.9706	1.0038	1.0060	110.83351	255.431
325		65	69	94°	66.97	.750	113.08	.9688	1.0032	1.0067	110.6378	237.377
330		55	69	95°	6160	.750	113.08	.9680	1.0025	1.0083	110.64529	218,372
335		55	69	95°	6160	.750	113.08	.9670	1.0025	1.0083	110.64521	218,372
340		55	70	95°	62.04	.750	113.08	.9680	1.0025	1.0083	110.64529	219,931
345		55	69	95°	6160	.750	113.08	.9680	1.0025	1.0083	110.64589	219,931
350		55	67	95°	6070	.750	113.08	.9680	1.0025	1.0080	110.61297	215,123
355		55	70	95°	62.04	.750	113.08	.9680	1.0025	1.0086	110.67821	220,003
400		55	66	95°	60.24	.750	113.08	.9680	1.0025	1.0080	109.73509	211.798
GAS RATE AVG							236.309					

Accum GAS 1300 To 1400 = 9,846 scf

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COMPLETION

NIC 002

NORALCO

WELL # 1	H.P. METER RUN ID. 4.026	L.P. METER RUN ID.	DATE 9-9-85	PAGE 7 OF 7
FORMATION TIGHT NOISE			INTERVAL TESTED	
MUD WT.			COMPANY REPRESENTATIVE	
			SERVICE CO. SUPERVISOR	

TYPE OF TEST

Drill STEM Test #/

[illegible]