

Cementing Treatment



Start Date	3/11/2018	Well	15-165-22156
End Date	3/11/2018	County	
Client	H2OIL OPCO, LLC	State/Province	KS
Client Field Rep	Joe Gordy	API	15-165-22156
Service Supervisor	Erik Chavez	Formation	
Field Ticket No.		Rig	
District	Liberal, KS	Type of Job	Intermediate

WELL GEOMETRY

Type	ID (in)	OD (in)	Wt. (lb/ft)	MD (ft)	TVD (ft)	Excess(%)	Grade	Thread
Previous Casing	8.92	9.63	36.00	1,100.00	1,100.00			
Open Hole	8.75			3,822.00	3,822.00	40.00		
Casing	6.28	7.00	26.00	3,821.00	3,821.00		J-55	8rd

Shoe Length (ft): 41

HARDWARE

Bottom Plug Used?	Yes	Tool Type	Float Collar
Bottom Plug Provided By	BJ	Tool Depth (ft)	3,780.00
Bottom Plug Size	7.000	Max Tubing Pressure - Rated (psi)	
Top Plug Used?	No	Max Tubing Pressure - Operated (psi)	
Top Plug Provided By		Max Casing Pressure - Rated (psi)	4,360.00
Top Plug Size		Max Casing Pressure - Operated (psi)	2,500.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	17.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	8rd
Landing Collar Depth (ft)	3,821	Top Connection Size	7

CIRCULATION PRIOR TO JOB

Cementing Treatment



Well Circulated By	Rig	Solids Present at End of Circulation	No
Circulation Prior to Job	Yes	10 sec SGS	
Circulation Time (min)	60.00	10 min SGS	
Circulation Rate (bpm)	5.00	30 min SGS	
Circulation Volume (bbls)	300.00	Flare Prior to/during the Cement Job	No
Lost Circulation Prior to Cement Job	No	Gas Present	No
Mud Density In (ppg)	9.20	Gas Units	
Mud Density Out (ppg)			
PV Mud In			
PV Mud Out			
YP Mud In			
YP Mud Out			

TEMPERATURE

Ambient Temperature (°F)	43.00	Slurry Cement Temperature (°F)
Mix Water Temperature (°F)	61.00	Flow Line Temperature (°F)

BJ FLUID DETAILS

Fluid Type	Fluid Name	Density (ppg)	Yield (Cu Ft/sk)	H2O Req. (gals/sk)	Planned Top of Fluid (Ft)	Length (Ft)	Vol (sk)	Vol (Cu Ft)	Vol (bbls)
Spacer / Pre Flush / Flush	Fresh Water	8.3400			2,321.00				10.0000
Tail Slurry	Tail Cement	13.6000	1.9214	9.62	0.00	3,800.00	397	761.0000	135.5000
Displacement Final	Displacment	8.3400			0.00			0.0000	148.5000

Fluid Type	Fluid Name	Component	Concentration	UOM
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Cementing Treatment



Tail Slurry	Tail Cement	EXTENDER, BENTONITE	2.0000 BWOB
Tail Slurry	Tail Cement	FLUID LOSS, FL-52	0.5000 BWOB
Tail Slurry	Tail Cement	CEMENT, ASTM TYPE I	100.0000 PCT
Tail Slurry	Tail Cement	CEMENT EXTENDER, GYPSUM, A-10	6.0000 BWOB
Tail Slurry	Tail Cement	SALT,SODIUM CHLORIDE, A-5	10.0000 BWOW
Tail Slurry	Tail Cement	IntegraSeal KOL	5.0000 LBS/SK
Tail Slurry	Tail Cement	Foam Preventer, FP-25	0.2000 LBS/SK

TREATMENT SUMMARY

Time	Fluid	Rate (bpm)	Fluid Vol. (bbls)	Pipe Pressure (psi)	Annulus Pressure (psi)	Comments
3/11/2018 10:38 AM	Tail Cement	5.00	135.50	330.00		
3/11/2018 10:09 PM	Fresh Water	5.00	10.00	560.00		
3/11/2018 11:23 PM	Displacement	3.00	148.50	1,950.00		

	Min	Max	Avg
Pressure (psi)	330.00	1,950.00	946.67
Rate (bpm)	3.00	5.00	4.33

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amount of Cement Returned/Reversed	
Calculated Displacement Volume (bbls)	148.50	Method Used to Verify Returns	Visual
Actual Displacement Volume (bbls)	148.50	Amount of Spacer to Surface	
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amount Bled Back After Job	0.75
Bump Plug Pressure (psi)	1,950.00	Total Volume Pumped (bbls)	294.50
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No

Cementing Treatment



Cement returns During Job None Lost Circulation During Cement Job No

CEMENT PLUG

Bottom of Cement Plug?	Yes	Wiper Balls Used?	No
Wiper Ball Quantity		Plug Catcher	No
Number of Plugs			

SQUEEZE

Injection Rate (bpm)	Fluid Density (ppg)
Injection Pressure (psi)	ISIP (psi)
Type of Squeeze	FSIP (psi)
Operators Max SQ Pressure (psi)	

COMMENTS

Treatment Report

Job Summary

Prime Lines 2 bbls
Pressure Test 2500 psi
Spacer 10 bbls H2O
Cement 397 sks @ 13.6 ppg / 135.75 bbls
Shutdown wash equipment drop plug
Displacement / 148.50 bbls
Slow Rate @ 139 bbls
Bump Plug 500 over PLP
PLP +/- 1036 psi
Release Pressure and Check Floats

FIELD TICKET

Client H2OIL OPCO, LLC
Well 15-165-22156
Job Description Intermediate
Date March 12, 2018



Field Ticket # FT-04465-J2F2W20202-36918

Field Ticket # FT-04465-J2F2W20202-36918
Client H2OIL OPCO, LLC
1400 POST OAK BLVD STE 400,
HOUSTON, 77056

Credit Approval #
Purchase Approval #
Invoice #

Field Rep Erik Chavez
Field Client Rep Joe Gordy
District Liberal, KS
Job Type Intermediate
Job Depth (ft) 3,822.00
Gas Used On Job No

Well 15-165-22156
Well API # 15-165-22156
Well Type
Well Classification
County USA
State/Province KS
Field
Lease WAGNER UNIT

FIELD TICKET

Client H2OIL OPCO, LLC
Well 15-165-22156
Job Description Intermediate
Date March 12, 2018



Field Ticket # FT-04465-J2F2W20202-36918

MATERIALS

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
L100318	CEMENT EXTENDER, GYPSUM, A-10	LB	2,240.0000	\$0.72	\$1,612.80	70.00	\$483.84
L488168	CEMENT, ASTM TYPE I	SK	397.0000	\$44.11	\$17,511.67	70.00	\$5,253.50
L017066	CENTRALIZER, 7" NON-WELD	EA	17.0000	\$210.65	\$3,581.05	70.00	\$1,074.32
L100120	EXTENDER, BENTONITE	LB	747.0000	\$2.08	\$1,553.76	70.00	\$466.13
L016031	Float Collars with aluminum flapper, 7 in.	EA	1.0000	\$1,463.00	\$1,463.00	70.00	\$438.90
L013393	Float Shoe 7 - 8rd	EA	1.0000	\$1,226.50	\$1,226.50	70.00	\$367.95
L488015	FLUID LOSS, FL-52	LB	187.0000	\$23.28	\$4,353.36	70.00	\$1,306.01
L101196	Foam Preventer, FP-25	LB	80.0000	\$14.52	\$1,161.60	70.00	\$348.48
L415082	IntegraSeal KOL	LB	1,985.0000	\$1.20	\$2,382.00	70.00	\$714.60
L86714	PLUG, CEMENT 7.0 TOP BJPL	EA	1.0000	\$463.52	\$463.52	70.00	\$139.06
L100404	SALT, SODIUM CHLORIDE, A-5	LB	3,185.0000	\$1.04	\$3,312.40	70.00	\$993.72
Product Material Subtotal:					\$38,621.66		\$11,586.51

SERVICES

Product Code	Description	UOM	Quantity	List Price	Gross Amount	Disc (%)	Net Amount
S-100004	Cement Crew Mobilization-Demobilization Fee	EA	1.00	\$10,880.00	\$10,880.00	92.00	\$870.400
S-100475	Cement head	EA	1.00	\$2,656.00	\$2,656.00	92.00	\$212.480
S-100051	Cement pump charge, 3,001-4,000 feet/901-1,200 m	6/HR	1.00	\$5,472.00	\$5,472.00	92.00	\$437.760
S-100066	Cement pump charge, Additional Hours	HR	0.00	#Error	\$0.000	0.00	\$0.000
S-100072	Circulating Equipment	JOB	1.00	\$5,248.00	\$5,248.00	92.00	\$419.840
S-100001	Mileage - vehicle heavy weight	MI	50.00	\$18.96	\$948.000	92.00	\$75.840
S-100002	Mileage - vehicle light weight	MI	50.00	\$10.72	\$536.000	92.00	\$42.880



Customer Name H2OIL OPCO, LLC
 Well Name 15-165-22156
 Job Type Long String

District Liberal
 Supervisor Erik Chavez
 Engineer Kevin Aldridge

Seq No.	Start Date/Time	Category	Event	Equipment	Event ID	Density (lb/gal)	Pump Rate (bpm)	Pump Vol (bbls)	Pipe Pressure (psi)	Comments
1	18:00	Mobilization	Arrive on Location	Cement Pump Truck	48					
2	18:10	Operational	Safety Meeting		53					Pre-Rig up Safety Meeting
3	18:20	Operational	Rig Up		50					Equipment
4	19:20	StandBy	3rd Party Other		84					Wait on Casing
5	21:30	Operational	Safety Meeting							Operation
6		Operational	Prime Up			8.33				Fresh H2O
7	22:03						2	2	90	Rate/Volume/Pressure
8	22:05	Operational	Pressure Test						2500	Equipment
9		Operational	Pump Spacer			8.33				Fresh H2O
10	22:09						5	10	560	Rate/Volume/Pressure
11		Operational	Pumping Cement			13.6				Cmt 397 sks @ 13.6 ppq
12	22:18						5.5	50	560	Rate/Volume/Pressure
13	22:26						5.6	100	320	Rate/Volume/Pressure
14	22:38						5.5	136	330	Rate/Volume/Pressure
15	22:40	Operational	Clean Pumps and Lines							Open pit on location
16	22:42	Operational	Drop Top Plug							Weatherford Plug
17		Operational	Pump Displacement							Fresh H2O
18	22:54						5.3	20	190	Rate/Volume/Pressure
19	22:58						5.2	40	180	Rate/Volume/Pressure
20	23:02						5.3	60	430	Rate/Volume/Pressure
21	23:06						5	80	910	Rate/Volume/Pressure
22	23:10						4.6	100	1140	Rate/Volume/Pressure
23	23:15						4.2	120	1170	Rate/Volume/Pressure
24	23:20						3	139	1440	Slow Rate
25	23:23						3	148.5	1950	Bump plug 500 over PLP
26	23:28	Operational	Check Floats							Release Pressure
27	23:30	Operational	Safety Meeting							AAR/ Rig down safety meeting
28	0:30	Operational	Rig Down							Equipment
29	1:00	Mobilization	Leave Location							Journey Management
30								0		Cement back to surface
31										
32										
33										
34										
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H2OIL OPCP, LLC

15-165-22156

