

# HALLIBURTON

iCem® Service

## **ENERPLUS RESOURCES**

Ft. Lupton District, COLORADO

## **ENERPLUS PRINCE ALBERT 7-66-3-10-6C**

Sincerely,

**Andrew McIntosh**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Prince Albert 7-66-3-10-6C** cement **Production** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

**Approximately 30 bbls of cement were returned to surface.**

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

**Halliburton Fort Lupton**

*The Road to Excellence Starts with Safety*

Sold To #: 357635	Ship To #: 3848894	Quote #: 0022672839	Sales Order #: 0906236169
Customer: ENERPLUS RESOURCES (USA) CORP-EBUS		Customer Rep: HANS CARY	
Well Name: PRINCE ALBERT		Well #: 7-66-3-10-6C	API/UWI #: 05-123-46147-00
Field: WATTENBERG	City (SAP): PIERCE	County/Parish: WELD	State: COLORADO
Legal Description: SE SE-34-8N-66W-436FSL-1107FEL			
Contractor: CYCLONE		Rig/Platform Name/Num: CYCLONE 37	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB41307		Srvc Supervisor: Mitchell Camper	
<b>Job</b>			

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>			<b>BHST</b>
<b>Job depth MD</b>	17051ft	<b>Job Depth TVD</b>	7551
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>	4
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

Well Data										
Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing	0	9.625	8.921	36		J-55	0	1651	0	1651
Casing	0	5.5	4.892	17		HCP110	0	17051	0	7551
Open Hole Section			8.5				1651	17071	1651	7551

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
						<b>Top Plug</b>	5.5	1	ANT
<b>Float Shoe</b>	5.5	1	CDL	17051		<b>Bottom Plug</b>	5.5	1	INV
<b>Float Collar</b>	5.5	1	CDL	17013					
						<b>Plug Container</b>	5.5	1	HES

Fluid Data									
Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Tuned Prime Cement Spacer Base - RKS/SE	TUNED PRIME CEMENT SPACER SYS	80	bbl	11.5	3.79	23.53	8	2788
148.1240 lbm/bbl		<b>BARITE, BULK (100003681)</b>							
0.60 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>							
0.60 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>							
36.09 gal/bbl		<b>FRESH WATER</b>							

1 lbm/bbl		<b>FE-2, 2000 LB BAG - (1005549)</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	ElastiCem	ELASTICEM (TM) SYSTEM	2680	sack	13.2	1.6	7.67	8	20555
7.67 Gal		<b>FRESH WATER</b>							
0.10 %		<b>SUPER CBL, 50 LB PAIL (100003668)</b>							
0.35 %		<b>SCR-100, 1200 LB BAG - (1126328)</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	MMCR Displacement	MMCR Displacement	20	bbl	8.48				
0.50 gal/bbl		<b>MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
4	Displacement	WATER	375	bbl	8.34				
<b>Cement Left In Pipe</b>	<b>Amount</b>	37 ft			<b>Reason Shoe Track</b>			<b>Shoe Joint</b>	
<b>Mix Water:</b>	pH 7	<b>Mix Water Chloride:</b> <300 ppm			<b>Mix Water Temperature:</b> 54°F				
<b>Cement Temperature:</b>		<b>Plug Displaced by:</b> 8.33lb/gal prd water			<b>Disp. Temperature:</b> 55°F				
<b>Plug Bumped?</b>	Yes	<b>Bump Pressure:</b> 2810psi			<b>Floats Held?</b> Yes				
<b>Cement Returns:</b>	30 bbl	<b>Returns Density:</b>			<b>Returns Temperature:</b>				
<b>Comment</b>									
Plug bumped at calculated displacement, final circulating pressure of 2810 psi, held for 5 min at 3750 psi, floats held, 5 bbl back to the truck. 30 Bbl of cement to surface									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	1/29/2020	18:00:00	USER					CREW CALLED OUT AT 1800 1/29/2020, REQUESTED ON LOCATION 00:00 1/30/2020. CREW PICKED UP CEMENT, CHEMICALS (20 GAL D-AIR, 45 GAL MUSOL-A, 45 GAL DUAL SPACER-B, 20 GAL MMCR), 100 LBS SUGAR, PLUG CONTAINER AND MANIFOLD FROM FORT LUPTON,CO. BULK 660: 11670365/11764052, PUMP ELITE: 11897034/11645460
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/29/2020	21:20:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	3	Crew Leave Yard	Crew Leave Yard	1/29/2020	21:30:00	USER					STARTED JOURNEY MANAGEMENT.

Event	4	Arrive At Loc	Arrive At Loc	1/29/2020	22:30:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1651', CASING: 5.5" 17# @ 17051', 38' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 7551', 9.8 PPG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	5	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	1/29/2020	22:40:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	1/29/2020	22:50:00	USER					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Safety Meeting - Pre Job	Pre-Convoy Safety Meeting	1/30/2020	01:00:00	USER	55.00	8.55	0.00	7.60	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	1/30/2020	01:04:49	COM6	59.00	8.55	0.00	0.00	START JOB DATA RECORDING
Event	9	Drop Bottom Plug	Drop Bottom Plug	1/30/2020	01:07:26	USER	1236.00	8.69	0.00	1.70	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN

Event	10	Test Lines	Test Lines	1/30/2020	01:07:28	COM6	1243.00	8.70	0.00	1.70	KICKOUTS SET @ 500 PSI, KICKED OUT @ 700PSI, 5TH GEAR STALL OUT @ 1530 PSI. PRESSURE TESTED IRON TO 4670 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	1/30/2020	01:09:57	COM6	215.00	8.67	0.00	1.70	PUMP 80 BBLS OF TUNED SPACER @ 11.5 LB/GAL, ADDED 45 GAL MUSOL-A, 45 GAL DUAL SPACER-B, 10 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Cement	Pump Cement	1/30/2020	01:23:01	COM6	592.00	13.23	8.40	86.00	PUMP 2680 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.60 YIELD, 7.67 GAL/SK, 764BBLS, CALCULATED TOC @ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Shutdown	Shutdown	1/30/2020	03:02:26	COM6	198.00	13.86	0.00	813.50	SHUTDOWN TO DROP TOP PLUG AND CLEAN PUMPS AND LINES
Event	14	Drop Top Plug	Drop Top Plug	1/30/2020	03:11:44	COM6	68.00	8.20	0.00	824.80	TOP PLUG WAS LOADED DIRECTLY INTO LANDING JOINT, VERIFIED BY COMPANY MAN
Event	15	Pump Displacement	Pump Displacement	1/30/2020	03:14:04	COM6	67.00	8.18	0.00	0.00	BEGIN CALCULATED DISPLACEMENT 395BBL FRESH/BRINE WATER. 10 GAL MMCR IN FIRST 20 BBL,

Event	16	Bump Plug	Bump Plug	1/30/2020	04:11:10	COM6	3587.00	7.98	0.00	404.60	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF 2810 PSI. BROUGHT PRESSURE TO 3750 FOR 3 MIN CASING TEST. 30BBL OF CEMENT TO SURFACE.
Event	17	Check Floats	Check Floats	1/30/2020	04:12:19	USER	3562.00	7.99	0.00	404.60	RELEASED PRESSURE BACK TO THE TRUCK, FLOATS HELD, 5 BBL BACK
Event	18	End Job	End Job	1/30/2020	04:14:03	COM6	94.00	8.18	0.00	0.00	END JOB DATA RECORDING.
Event	19	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	1/30/2020	04:15:00	USER	89.00	8.09	0.00	0.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	20	Rig-Down Completed	Rig-Down Completed	1/30/2020	05:30:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	21	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/30/2020	06:30:00	USER					DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	22	Crew Leave Location	Crew Leave Location	1/30/2020	06:40:00	USER					THANK YOU FOR USING HALLIBURTON - MITCHELL CAMPER AND CREW.

## 3.0 Attachments

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3.1 ENERPLUS PRODUCTION PRINCE ALBERT 7-66-3-10-6C-Custom Results.png

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