

ENERGY SERVICES LLC

DESIGN - EXECUTE - EVALUATE - REPORT

PRODUCTION

CAZA OPERATING, LLC IGLOO 19 24 ST. FED. COM. 13H LEA, NM

PRIMARY PUMP:

2002 2040

SECONDARY PUMP:

PREPARED BY: TRAVIS KELSEY

SERVICE SUPERVISOR ARTESIA DISTRICT 1-575-748-8610

2/24/2020

WELL SUMMARY



	ENER					
COMPANY NAME:	CAZA OPERATING, LLC		DATE:	2/24/2020)	
LEASE NAME:	IGLLO 19 24 STATE FE	D COM	OPERATO	R NAME:	43	
WELL NUMBER:	13H		TICKET N	JMBER:		
API NUMBER:			AFE NUM	BER:		
SECTION:		TOWNSHIP):			RANGE:
COUNTY: LEA			STATE:	NEW MEX	ICO	
RIG NAME: NABORS I	M51	COMPANY	REP:		ACCORDING TO A STATE OF THE STA	PHONE#:
			DIRECTION	IS		
Take 82 east to 360.	turn right on 360 and ge	o to 62-180	, turn left	on 62-180 a	nd go to Ma	arathon road, turn right on
						to location. Nabors M51
8.	,		NOTES			
ENTERED 12-11-2019	9 SM					
	, 5111					
			HSE			

WORK SAFE

JOB PROCEDURE

RIG UP - TEST LINES 60 BBLS CHEMICAL WASH

10 BBLS FRESH WATER

1000 SACKS LEAD

1600 SACKS TAIL

DISPLACE CEMENT

WELL SUMMARY



ENERGY SERVICES LLC

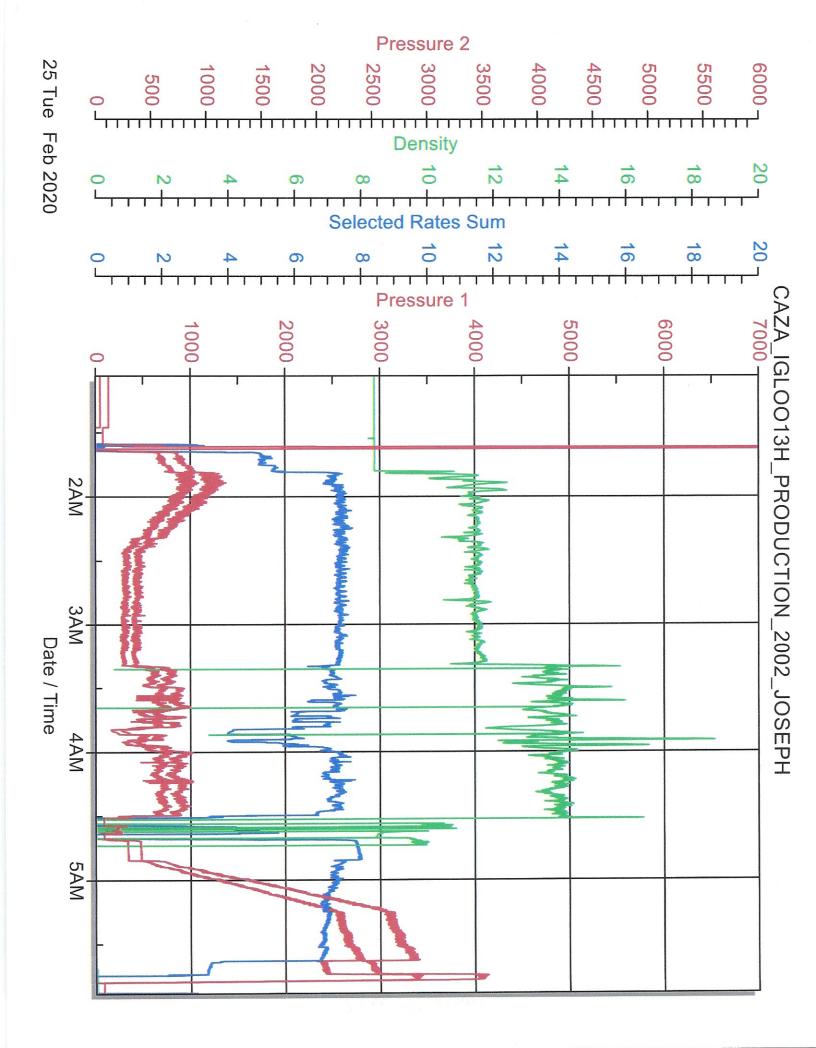
		WEL	L /CASING DATA	
JOB TYPE: PRODUCTI	ON		HOLE SIZE:	8 3/4
TVD:	10496		PREVIOUS CASING S	IZE: 9 5/8
PREVIOUS CASING LB	/FT: 40		PREVIOUS CASING D	EPTH: 5239
CASING SIZE:	5 1/2			
CASING LB/FT:	20		CASING GRADE:	P110
FLOAT COLLAR DEPTH	118850.89		SHOE JOINT LENGTH	I: 48.11
DV TOOL DEPTH:			SECOND DV TOOL D	EPTH:
TOTAL DEPTH:	18913		TOTAL CASING :	18899
		Tl	JBULAR DATA	
TBG/D.P. SIZE:			TBG/D.P. DEPTH:	
TBG/D.P. LB/FT:			TOOL DEPTH:	
PACKER OR RETAINER	3		PERF/HOLE DEPTH:	
		SURF	ACE EQUIPMENT	
CEMENT HEAD SIZE:	5 1/2		QUICK CONNECT SIZ	
DRILL PIN SIZE/TYPE:			THREAD:	BUTTRESS
TUBING SWEDGE SIZE			TAKE 2 -2 INCH REGI	ULAR TUBING SWEDGES
		CHE	MICALS NEEDED	
600# SUGAR, 600# SA	APP, 15 GALLONS PLE			
			EQUIPMENT	
SUPERVISOR:	Travis Kelsey		EQUIPMENT FIELD REPRESENTAT	IVE:
SUPERVISOR: PUMP OPERATOR:	Travis Kelsey Joseph Castillas			TIVE: 1022/2002
			FIELD REPRESENTAT	
PUMP OPERATOR:	Joseph Castillas		FIELD REPRESENTAT	1022/2002
PUMP OPERATOR: E/O:	Joseph Castillas Ivan Garcia		FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER:	1022/2002 1028/2040
PUMP OPERATOR: E/O: E/O:	Joseph Castillas Ivan Garcia Misael Gutierrez		FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER:	1022/2002 1028/2040 1012/2031
PUMP OPERATOR: E/O: E/O:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz		FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054
PUMP OPERATOR: E/O: E/O: E/O: E/O:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz	.(BWOW)(Salt)+1	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret	(BWOW)(Salt)+1 arder)+0.8%PF79	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054
PUMP OPERATOR: E/O: E/O: E/O: E/O:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O:	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 0(Chemical) 20.143 SACKS:	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2%	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 9(Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4%	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O:	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 9(Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4%	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11 2ND SLURRY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E) Setting)	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2%	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 (Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4% 6.062 SACKS:	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11 2ND SLURRY: DENSITY: 14.2	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E) Setting)	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2%	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 9(Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4%	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11 2ND SLURRY: DENSITY: 14.2 3RD SLURRY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E Setting) YIELD: 1.33	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2% MIX H2O:	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 0(Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4% 6.062 SACKS:	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11 2ND SLURRY: DENSITY: 14.2 3RD SLURRY: DENSITY: DENSITY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E Setting) YIELD: 1.33	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2% MIX H2O:	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 (Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4% 6.062 SACKS:	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti
PUMP OPERATOR: E/O: E/O: E/O: 1ST SLURRY: DENSITY: 11 2ND SLURRY: DENSITY: 14.2 3RD SLURRY: DENSITY: 4TH SLURRY:	Joseph Castillas Ivan Garcia Misael Gutierrez Steven Quiroz 50/50 PLite/H+5%PF44 Settling)+0.6%PF13(Ret YIELD: 3.339 50/50 Poz/H+5%PF44(E Setting) YIELD: 1.33 YIELD: 1.33	(BWOW)(Salt)+1 arder)+0.8%PF79 MIX H2O: BWOW)(Salt)+2% MIX H2O:	FIELD REPRESENTAT UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: UNIT NUMBER: FLUID DATA 2%PF20(Bentonite Gel)+0 0(Chemical 20.143 SACKS: PF20(Bentonite Gel)+0.4% 6.062 SACKS:	1022/2002 1028/2040 1012/2031 1019/2065 1011/2054 .4%PF153(Anti 1000 6PF17(Fluid Loss)+0.2%PF13(Retarder)+0.2%PF153(Anti

JOB LOG



COMPANY NAME: CAZA OPERATING LIC DATE: 2/24/2020

COMPANY NAME: CAZA OPERATING, LLC			LC	DATE: 2/24/2020				
LEASE NAME: IGLLO 19 24 STATE FED COM			ED COM	TICKET NUMBER: 0				
WELL NUMBER: 13H				JOB TYPE: PRODUCTION				
SCHEDULED LO	OCATION TIME		13:00	DATE LEFT LOCATION 2/25/2019				
TIME ARRIVED	ON LOCATION		1:00	TIME LEFT LOCATION 7:00				
TIME	PRESSURE	VOLUME	RATE	LOG DETAILS				
	BG OR CASING							
10:30				PRE-CONVOY MEETING				
11:30				DEPARTURE FROM YARD				
13:00				ARRIVE LOCATION				
13:13				HAZZARD ASSESMENT				
13:52				PRE-RIG UP MEETING				
1:15				SAFETY MEETING				
1:37	6000	2	2	TEST LINES				
1:39	740		5	MUD FLUSH				
1:48	860	20	5	FRESH (DYE)				
1:53	1014	604	7.5	LEAD SLURRY @ 11				
3:19	730	379	7	TAIL SLURRY @ 14.2				
4:36				SHUT DOWN/DROP PLUG/WASH ON TOP				
4:41	417	418	8	DISPLACE (KCL)				
5:37	2403	390	3.5	SLOW RATE				
5:45	3336	418	3.5	BUMP PLUG				
5:50				CHECK FLOATS/ 4.75 BBL BACK				
				CIRCULATED 168BBL OR 278 SKS TO THE PIT				





ENERGY SERVICES LLC

JOB PROCEDURE

PRE-PLANNED JOB PROCEDURE

EVENT	VOLUME(BBLS)	SACKS	WEIGHT	YIELD	GAL/SK
			6000 M	IAX PRE	SSURF
TEST LINES	2		0000 11	17 17 1 1 1 1	.0001112
MUD FLUSH	60				
FRESH DYE	20	4000	11	2.20	20.142
LEAD SLURRY	604	1000	11	3.39	20.143
TAIL SLURRY	379	1600	14.2	1.33	0.062
SHUT DOWN					
DROP PLUG	418				
DISPLACE (KCL)	390				
SLOW RATE BUMP PLUG	418			-	
CHECK FLOATS	418		7,000		
END JOB					
				+	
				_	
			DO NOT	OVER DI	SPLACE
DISPLACEMENT	TOTAL PIPE	SHOE JOINT	FLOAT COLLAR	BBL/F	
		48.11	18850.89	0.0221	
418.0561875	18899				
TOTAL DISPLACEMENT	418.0561875	<u>USE M</u>	UD SCALES ON		
CALCULATED DI	FFERENTIAL PSI	2645	TOTAL FLUID F		1481
COLLAPSE	4864	BURST	10112	C/O	
CASING SIZE	CASING5.5	CASING LB/FT	20	GRADE	P-110



Par Five Energy Services, LLC

ART20-11641-01R

11279 Lovington Hwy Artesia, NM

Phone(575)748-8610 Fax: (575) 748-8625

Customer: Caza Operating

MD: 18908

Report Date: February 03 2020

Well Name: Igloo 19 24 State Fed Com 13H

TVD: 10822

Lead

County: Lea

State: NM

BHST: 167

Production String:

Rig: Nabors M51

BHCT: 131

Blend Type:

Stage:

Pilot Blend

Salesman: Kurt Crowe

Reported By: Rodriguez, Sonny

Slurry Information

Density: 11.00 ppg

Yield: 3.39 cuft/sk

Mix Fluid: 20.143 gal/sk

Slurry Composition

Cement Blend:			50/50คโ	iteH				
	Additive			Design	Description	Lot Number		
•	_PF-044	-5.000	%	BWOW	Salt	M9CA14		
-	PF-045	- 0.400	lb/sk	BWOB	Defoamer	CJ20190814		
	PF-020	_ 12.00%	%	BWOB	Bentonite Gel	Bulk		
_	PF-153	- 0.40%	%	BWOB	Anti Settling Agent	DR119814991		
	PF-013	0.60%	%	BWOB	Retarder	MM10K-125399		
_			%	BWOB	chemical Extender / Suspension Aid	44290310A		
•	552	5.000		BWOB	Extender			
_	PF-029 PF-042	_ 0.125		BWOB	Cellophane KOLSEAL	BulK		
	11-042	- 3.000	וטן אנ	DVVOD	NOLULAL	Duit		



-	PF-029	_ 0.125	lb/sk	В١

Rheology (Average Readings)									
Temp	3	6	100	200	300	PV	YP		
80 °F	1.5	1.5	11.5	20.5	26	21.75	4.25		
167 °F	1.5	1.5	4.5	7.5	10	8.25	1.75		

	Thickening Time									
Temp	POD	30 Bc	50 Bc	70 Bc	100 Bc	Batch Time				
167 °F			\(\frac{1}{2}\)	7:00		0				
	7	Thickening	Time doe	s not inclu	ide batch	time.				

Free Fluid							
Temp	Incl.	ml Collected	Start Time	Stop Time			
167 °F	0	6 ml/250	6:04	8:04			

Comments



ENERGY SERVICES LLC

Par Five Energy Services, LLC

ART20-11641-02R

11279 Lovington Hwy Artesia, NM

Phone(575)748-8610 Fax: (575) 748-8625

Customer: Caza Operating

MD: 18908

Report Date: February 03 2020

Well Name: Igloo 19 24 State Fed Com 13H

TVD: 10822

Stage: Tail

County: Lea

State: NM

Bentonite Gel

BHST: 167

String:

Production

Rig: Nabors M51

BHCT: **131**

Blend Type:

Pilot Blend

Salesman: Kurt Crowe

Reported By:

Rodriguez, Sonny

Slurry Information

Density: 14.20 ppg

PF-013

PF-153

Temp

167 °F

Yield: 1.34 cuft/sk

Mix Fluid: 6.062 gal/sk

Slurry Composition

Cement Bl	end:	50/50	PozH	
Additive	Concent	tration	Design	Description
PF-044	 5.000	%	BWOW	Salt

PF-020 **—** 2.00% % **BWOB** PF-017

Fluid Loss 0.40% % **BWOB** - 0.20% % **BWOB** Retarder

__ 0.20% % **BWOB** Anti Settling Agent

Lot Number

M9CA14

Bulk

MM10K-125399

DR119814991



0.000	Rheology (Average Readings)									
	Temp	3	6	100	200	300	PV	YP		
	80 °F	22.5	28.5	119.5	189.5	247	191.25	55.75		

80 °F	22.5	28.5	119.5	189.5	247	191.25	55.75
167 °F	28.5	38.5	110.5	159.5	204	140.25	63.75

Thickening Time								
Temp	POD	30 Bc	50 Bc	70 Bc	100 Bc	Batch Time		
167 °F	4:38	5:03	5:24	5:38		0		

Thickening Time does not include batch time.

Free Fluid Incl. ml Collected | Start Time | Stop Time 45 0 ml/250 3:31 5:51

Comments