COLLIER RESOURCES COMPANY

April 6, 2015

The Board of County Commissioners
Attn: Chairman Tim Nance
3299 Tamiami Trail East
Suite 303
Naples, FL 34112

Dear Chairman Nance:

Periodically since May of 2014 Collier Resources has found it necessary to fact check statements made to the Board during commission meetings. During public comment at your most recent meeting on March 24, 2015, a representative of the Conservancy of Southwest Florida made a statement regarding oil and gas legislation under consideration in the current legislative session. The statement made was that the proposed definition of "high pressure well stimulation" which would now require a permit would not have captured the activities at the Collier-Hogan well.

The proposed definition encompasses a minimum fluid injection of 100,000 gallons. The Conservancy claimed only approximately 90,000 gallons had been proposed to be used at the Collier-Hogan well. From the attached data it is clear that the 90,000 gallon statement is wrong. The work over procedure submitted by Dan A. Hughes to the Department of Environmental Protection in December 2013 was for 636,363 gallons. The attached completion data confirms the volume of fluids used during the procedure.

Clearly the bills under consideration would require a permit approval from DEP for the activities that took place at the Collier-Hogan well. We support the passage of the bills with the proposed definition. Having meaningful legislation pass this session to update oil and gas regulations is a first step in providing our community the assurance they need that oil and gas resources can be developed safely in the future as they have been in the past.

Please contact me at 403-6805 if you having any questions or comments.

Sincerely,

Tom Jones

Tom Jones
Sr. Vice President

Cc:
Commissioner Donna Fiala
Commissioner Georgia Hiller, Esq.
Commissioner Penny Taylor
Commissioner Tom Henning
County Manager Leo Ochs, Jr.

2600 Golden Gate Pkwy, Suite 112 ❖ Naples, FL 34105 ❖ Tel: (239) 262-0900 Fax: (239) 262-7378

Dan A. Hughes Company, L.P.

COMPLETION PROCEDURE

Collier-Hogan #20-3H 12/22/13
Permit #1349H
Sec. 20 T47S R28E
API#: 09-021-20211 GL Elev.:20.6'
Collier County, Florida KB Elev.: 46.1'

The subject well was drilled horizontally to a final measured depth of 16,215'/ 11,948'TVD with a 6-1/8" bit. Intermediate Casing of 7" 26# L80/P110 LT&C casing was set @ 12,440' MD/11,942'TVD. The drilling rig was released on 5/10/13 and the well was completed as an openhole completion from 12,440'-16,215' (3775').

On September 29, 2013, the wellbore was completed with a 4½" 13.5# P110 Hyd 563 casing was set from 0'-16,215' MD. Openhole packers were ran on the 4-1/2" casing and the packers were set & inflated at depths of 15,701'; 15,191'; 14,692'; 14,180'; 13,666'; 13,125'; & 12,644'. The well was perforated from 16,100'-103'; 16,000'-003'; 15,900'-903'; & 15,800'-803' and treated with acid.

DIRECTIONS from Naples, Florida: From the intersection of I-75 & Immokalee road go 20 miles East to intersection of Oil Well Grade Road. Turn left onto to Oil Well Grade Road & go 1 mile & turn left onto to new lease road with gate guard at entrance. Go thru gate guard to location.

BILLING INFORMATION:

Dan A. Hughes Co. LP
208 E. Houston Street
P.O. Drawer 669
Beeville, Texas 78104-0669

SAFETY AND ENVIRONMENTAL CONTACTS:

Emergency: 911
Collier Co. Sheriff's office ..... (239)354-2377
Fire Dept.....(239)695-2000
FDEP-Fort Meyers Office .....(239)229-4293 Paul Atwood
(239)229-1738 Pierre Bruno

CASING AND TUBULAR DATA

STRING	SIZE	WEIGHT/GRADE	DEPTH	THREAD	TOC
Surface	13 3/8"	54.5#/J-55	1715'	BTC	Surface
Intermediate	9-5/8"	47#/P-110	3964'	BTC	Est 3500'
Intmd Casing	7"	26#/L80/P-110	0 – 12,440'MD	LTC	Est 9,000'
Prod Casing	4 ½"	13.5#/P-110	0'-16,215' MD	Hyd 563	none

PRESSURE AND DIMENSIONAL DATA (Book data – no safety factor applied)

SIZE	WEIGHT	GRADE	BURST	COLLAPSE	Drift ID
4 ½"	13.5#	P-110	12,410#	10,680#	3.795"

Safety of all personnel is the highest priority! Ensure attendance of all personnel at each safety meeting prior to each step of the operation.

The following completion procedure is recommended:

1. Install 4-1/16", 10k full-opening valve. NU 4-1/16", 10k stack with cross, 2-1/16" 10k double wing valves, 4-1/16" x 3" 10K line connections and top lubricator connection. NU wellhead isolation tool. Test stack to 10,000 psi. ND isolation tool.

2. MI & RU six (6) working tanks and water transfer lines.

3. RU equipment. Re-Acidize Stage #1 down 4 ½" casing. Flush to the top perfs and shut well in. Record ISIP, 5 min, 10 min & 15 min SICPs.

4. RU wireline unit with 10k lubricator and mast truck.

5. PU & RIH with 3-1/8" dummy guns and plug with same OD and tool length as planned assembly. Pump tools down to 15,750' to ensure clearance and determine required pump rate and pressures. POH and LD dummy tools.

6. PU & RIH with 4 ½" 13.5# 10K Magnum composite plug and 3-1/8" casing guns loaded with Owen: SDP-3125-411 NT4 "Hero" charges at 6JSPF (21 gm charge, 0.35" EHD, 34" pene per RP19B). RIH with guns and plug to the curve and begin

pumping @ 2 BPM. Gradually increase pump rate to 5-6 BPM as guns run through the curve section. Pump guns out to 15,700' and wash plug with 3-5 Bbls. Set the plug at *15,700'*. PUH and perforate STAGE #2 interval as follows:

15,250'-253'	6 JSPF
15,350'-353'	6 JPSF
15,450'-453'	6 JSPF
15,550'-553'	6 JSPF
15,650'-653'	6 JSPF

POH with casing guns. RD WL and lubricator.

Acid stimulate Stage #2 down 4 ½" casing. Flush to the top perfs and shut well in. Record ISIP, 5 min, 10 min & 15 min SICPs.

8. RU wireline truck, crane and lubricator.

9. RIH with 4 ½" 13.5# 10K Magnum composite plug and 3-1/8" casing guns loaded with Owen: SDP-3125-411 NT4 "Hero" charges at 6JSPF (21 gm charge, 0.35" EHD, 34" pene per RP19B). RIH with guns and plug to the curve and begin pumping @ 2 BPM. Gradually increase pump rate to 5-6 BPM as guns run through the curve section. Pump guns out to 13,345' and wash plug with 3-5 Bbls. Set the plug at *15,200'*. PUH and perforate STAGE #3 interval as follows:

14,750'-753'	6 JSPF
14,850'-853'	6 JPSF
14,950'-953'	6 JSPF
15,050'-053'	6 JSPF
15,150'-153'	6 JSPF

POH with casing guns. RD WL and lubricator.

10. Acid stimulate Stage #3 down 4 ½" casing. Flush to the top perfs and shut well in. Record ISIP, 5 min, 10 min & 15 min SICPs.

11. PERF & ACID STIUMLATE AS FOLLOWS:

PLUG DEPTH	STAGE #	PERFS
14,700'	4	14,250'-253';14,350'-353';14,450'-453';14,550'-553'; 14,650'-653'
14,200'	5	13,750'-753';13,850'-853';13,950'-953';14,050'-053'; 14,150'-153'
13,700'	6	13,250'-253';13,350'-353';13,450'-453';13,550'-553'; 13,650'-653'
13,175'	7	12,675'-678';12,775'-778',12,875'-878';12,975'-978';13,075'-078'

12. RD equipment and move off location (MOL).

13. MI & RU 2" coiled tubing unit, injector head and crane. PU & RIH with 3-3/4" blade mill, bit sub, downhole motor package with safety disconnect sub on 2" coiled tubing. Circulate well with N_2 as required to clean hole.

14. Drill out the composite plugs @ 13,175'; 13,700'; 14,200'; 14,700'; 15,200'; & 15,700' and push to bottom (PBTD @ 16,214'). Circulate wellbore clean using treated water and gel sweeps as necessary. POH with 3-3/4" bit, sub motor and 2" coiled tubing. Circulate while coming out of the wellbore.

15. RU wireline unit with 10K lubricator and crane truck. RIH with Arrowset II 10K double-grip packer, nipple, and ceramic disk sub on wireline setting tool with CCL. Set packer at ~11,300' ensuring the tool is not in a collar. POH with setting tool. RD wireline unit and crane truck.

16. Blow well down and check to ensure packer and plug are holding.

17. MI & RU completion unit.

18. ND stack. NU 10K BOP. RIH with on/off tool for Arrowset packer & 2-3/8" 4.7# L80 EUE 8rd tubing to top of packer.

19. Space out tubing string with tubing subs. Engage on/off tool and slack-off 25 pts on packer. Land tubing with tubing hanger in the wellhead and set pins to secure and seal annulus.

20. ND BOP. Flange up wellhead.

21. RU slickline & RIH & break ceramic disc. Flow well back to flowback tank for cleanup. Dispose of fluids into a commercial disposal well. Swab well in if necessary to establish flow.

22. RD and MOL.

Jeffery R. Ilsenz, P.E.

Operations Manager
Dan A. Hughes Company, L.P.

BAKER HUGHES

Proposal No: 10011647960

DAN A HUGHES CO
COLLIER-HOGAN #20-3H

7 Stg Sunniland
API # 09-021-76040-0000
WILDCAT Field
20-47S-28E
Collier County, Florida
December 23, 2013

Well Proposal

Prepared for:
Mr. Jeffery R. Illseng, P.E.
Operations Manager

Prepared by:
Michael S Morgan
Account Manager

Service Point:
BJS, Shreveport

Service Representatives:
HARRY E GARVEY
Account Manager

Powered by
PowerVision

G14166

CONFIDENTIAL TRADE SECRET

Operator Name:	DAN A HUGHES CO
Well Name:	COLLIER-HOGAN #20-3H
Job Description:	Job 1 - Day 1 - Stage 1 and Set up Charges
Date:	December 23, 2013

Proposal No: 1001164796D

JOB AT A GLANCE

Surface Treating Pressure (max)		5,093 psi
Total Rate (max)		15.00 bpm
Estimated Pump Time (HH:MM)		02:39
Acid	3,000 gals	10% HCl
Load Hole	28,001 gals	Aqua Care 3000
Pad	20,000 gals	Lightning D 3000
Proppant Laden	30,000 gals	Lightning D 3000
Flush	9,908 gals	Aqua Care 3000
Proppants	49,500 lb	Sand, White, 30/50

**** Notice ****
The customer has request 100% redundency with white sand proppant
We will have 346,500 lbs of 30/50 white sand AND 346,500 lbs of 20/40 white sand on location

Sand King should be loaded as follows
Compartment 1 - 20/40 White (Approx. 110k lbs)
Compartment 2-4 - 30/50 White (Approx. 220k lbs)

130% Excess Chemicals are Required to be loaded
- - Except for Parasorb & AsphaltSorb 1200, 0% excess required

Have more questions? You can find us at:
http://www.bakerhughes.com/products-and-services/pressure-pumping

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WELL DATA

RESERVOIR DATA

Formation	Lower Sunniland
Formation Type	Limestone
MD Depth to Middle Perforation	16,008 ft
TVD Depth to Middle Perforation	11,784 ft
Stimulation Gradient	0.80 psi/ft
Bottom Hole Stimulation Pressure	9,427 psi
Bottom Hole Static Temperature	200 ° F

PERFORATED INTERVAL

DEPTH(ft)		Shots per Foot	Perf Diameter (in)	Total Perfs
MEASURED	TRUE VERTICAL			
15,800 - 15,803	11,784 - 11,784	6	0.35	18
15,900 - 15,903	11,784 - 11,784	6	0.35	18
16,000 - 16,003	11,784 - 11,784	6	0.35	18
16,214 - 16,215	11,784 - 11,784	6	0.35	6

Total Number of Perforations	60
Total Feet Perforated	10 ft

TUBULAR GEOMETRY

				Top	Bottom
Casing	4 1/2" O.D.	(3.920" .I.D)	13.5 # P-110	0	16,218

Pump Via Casing

Have more questions? You can find us at:
http://www.bakerhughes.com/products-and-services/pressure-pumping

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WELL DATA (Continued)

*All tubular specifications (size, weight, depths) should be confirmed on-site with operator's representatives.

Perforation Schedule (6 JSPF)
Stage 1 -
16,100 - 16,103'; 16,000 - 16,003'; 15,900 - 15,903'; 15,800 - 15,803'
Stage 2 -
15,250 - 15,253'; 15,350 - 15,353'; 15,450 - 15,453'; 15,550 - 15,553'; 15,650 - 15,653'
Stage 3 -
14,750 - 14,753'; 14,850 - 14,853'; 14,950 - 14,953'; 15,050 - 15,053'; 15,150 - 15,153'
Stage 4 -
14,250 - 14,253'; 14,350 - 14,353'; 14,450 - 14,453'; 14,550 - 14553'; 14,650 - 14,653'
Stage 5 -
13,750 - 13,753'; 13,850 - 13,853'; 13,950 - 13,953'; 14,050 - 14,053'; 14,150 - 14,153'
Stage 6 -
13,250 - 13,253'; 13,350 - 13,353'; 13,450 - 13,453'; 13,550 - 13,553'; 13,650 - 13,653'
Stage 7 -
12,675 - 12,678'; 12,775 - 12,778'; 12,875 - 12,878'; 12,975 - 12,978'; 13,075 - 13,078'

CONFIDENTIAL TRADE SECRET

FLUID SPECIFICATIONS

Acid: 10% HCl

3,000 Gallons

Components:

5 gpt	Ferrotrol 300L	Iron Control Product
4 gpt	CI-31	Corrosion Inhibitor
4 gpt	NE-945, tote	Non-Emulsifier

Load Hole: Aqua Care 3000

28,001 Gallons

Components:

7.5 gpt	GW-3LDF	Gelling Agent
1 gpt	NE-945, tote	Non-Emulsifier
0.5 gpt	ALPHA 1427	Bacteria Control Product
0.5 ppt	GBW-23	Gel Breaker

Pad: Lightning D 3000

20,000 Gallons

Components:

7.5 gpt	GW-3LDF	Gelling Agent
2 gpt	BF-9L, 300 gal tote	Buffers/pH Control Product
1.25 gpt	XLW-30G, tote	Crosslinker
1 gpt	NE-945, tote	Non-Emulsifier
1 ppt	GBW-23	Gel Breaker
0.5 gpt	ALPHA 1427	Bacteria Control Product
0.5 gpt	Enzyme G-I	Gel Breaker
0.3 gpt	XLD-1	Crosslink Modifier

CONFIDENTIAL TRADE SECRET

FLUID SPECIFICATIONS (Continued)

Proppant Laden: Lightning D 3000

30,000 Gallons

Components:

7.5 gpt	GW-3LDF	Gelling Agent
2 gpt	BF-9L, 300 gal tote	Buffers/pH Control Product
1.5 gpt	BC-3 (4.0 ppg stage)	Gel Breaker
1.25 gpt	XLW-30G, tote	Crosslinker
1 gpt	BC-3 (3.0 ppg stage)	Gel Breaker
1 gpt	NE-945, tote	Non-Emulsifier
1 ppt	GBW-23	Gel Breaker
0.75 gpt	BC-3 (2.0 ppg stage)	Gel Breaker
0.5 gpt	ALPHA 1427	Bacteria Control Product
0.5 gpt	Enzyme G-I	Gel Breaker
0.5 ppt	GBW-5 (Run on last Sand stage)	Gel Breaker
0.3 gpt	XLD-1	Crosslink Modifier
1,500 lbs	ParaSorb 5000	Paraffin Control Product
500 lbs	AsphaltSorb 1200	StimPlus Products

Flush: Aqua Caro 3000

9,908 Gallons

Components:

7.5 gpt	GW-3LDF	Gelling Agent
1 gpt	NE-945, tote	Non-Emulsifier
1 ppt	GBW-23	Gel Breaker
1 ppt	GBW-5	Gel Breaker
0.5 gpt	ALPHA 1427	Bacteria Control Product

Proppants	49,500 lb	100%	Sand, White, 30/50

*Exact breaker, crosslinker, and buffer loadings to be determined by field laboratory testing.
*Exact polymer concentration in flush will depend on volume of fluid remaining in hydration tank.

*Operator to supply tanks filled with 2% KCl water or fresh water as necessary.

CONFIDENTIAL TRADE SECRET

Operator Name:	DAN A HUGHES CO
Well Name:	COLLIER-HOGAN #20-3H
Job Description:	Job 1 - Day 1- Stage 1 and Set up Charges
Date:	December 23, 2013

BAKER HUGHES

Proposal No: 1001164796D

ACIDIZATION STIMULATION TREATMENT SCHEDULE

INPUT PARAMETERS

TVD Depth (Mid Perforation)	11,784 ft
MD Depth (Mid Perforation)	16,008 ft
Perforations Number	60
Perforation Diameter	0.350 in
Bottom Hole Stimulation Pressure	9,427 psi
Bottom Hole Static Temperature	200 ° F

				Top	Bottom
Casing	4 1/2" O.D.	(3.920" I.D.)	13.5 # P-110	0	16,218

CALCULATED RATES, PRESSURES & HHP REQUIREMENTS

	Maximum	Minimum	Average
Surface Treating Pressure (psi)	5,093	3,908	4,796
Slurry Rate (bpm)	15.0	15.0	15.0
Proppant Rate (lbs/min)	2,135	309	968
Slurry Hydraulic Horsepower	1,873	1,437	1,764

PROCEDURE

Stage	Fluid Type	Fluid Volume (gal)	Proppant Conc. (ppa)	Proppant Type	Proppant Stage (lbs)	Proppant Cum (lbs)
1	Aqua Care 3000	12000		Load Hole		
2	10% HCl	3000		Acid		
3	Aqua Care 3000	10000		Breakdown		
4	Aqua Care 3000	6000		Fet		
5	Aqua Care 3000	1		Shut-In For Fet		
6	Lightning D 3000	20000		Pad		
7	Lightning D 3000	5000	0.500	100%Sand, White, 30/50	2500	2500
8	Lightning D 3000	6000	1.000	100%Sand, White, 30/50	6000	8500
9	Lightning D 3000	7000	1.500	100%Sand, White, 30/50	10500	19000
10	Lightning D 3000	7000	2.000	100%Sand, White, 30/50	14000	33000
11	Lightning D 3000	3500	3.000	100%Sand, White, 30/50	10500	43500
12	Lightning D 3000	1500	4.000	100%Sand, White, 30/50	6000	49500
13	Aqua Care 3000	9908		Flush		49500
Total		90909				49500

Have more questions? You can find us at:
http://www.bakerhughes.com/products-and-services/pressure-pumping

CONFIDENTIAL TRADE SECRET

Operator Name:	DAN A HUGHES CO
Well Name:	COLLIER-HOGAN #20-3H
Job Description:	Job 1 Day 1- Stage 1 and Set up Charges
Date:	December 23, 2013

BAKER HUGHES

Proposal No: 1001164796D

ACIDIZATION STIMULATION TREATMENT SCHEDULE

TREATMENT SCHEDULE

Stage	Surface Treating Pressure (psi)	Rates Slurry (bpm)	Rates Clean Fluid (bpm)	Rates Prop. Rate (lb/min)	Volume Slurry Stage (bbls)	Volume Slurry Cum. (bbls)	Volume Fluid Stage (bbls)	Volume Fluid Cum. (bbls)	Stage Pump Time hh:mm:ss
1	4686	10.0	10.0		285.7	285.7	285.7	285.7	00:28:34
2	4686	10.0	10.0		71.4	357.1	71.4	357.1	00:07:08
3	4966	15.0	15.0		238.1	595.2	238.1	595.2	00:15:52
4	4966	15.0	15.0		142.9	738.1	142.9	738.1	00:09:31
5	4356	1.0	1.0		0.0	738.1	0.0	738.1	00:00:01
6	5093	15.0	15.0		476.2	1214.3	476.2	1214.3	00:31:44
7	4924	15.0	14.7	308.0	121.7	1336.0	119.0	1333.4	00:08:06
8	4762	15.0	14.4	602.7	149.3	1485.4	142.9	1476.2	00:09:57
9	4606	15.0	14.0	885.0	178.0	1663.3	166.7	1642.9	00:11:51
10	4456	15.0	13.8	1155.5	181.7	1845.1	166.7	1809.5	00:12:06
11	4171	15.0	13.2	1664.2	94.6	1939.7	83.3	1892.9	00:06:18
12	3908	15.0	12.7	2134.0	42.2	1981.9	35.7	1928.6	00:02:48
13	4966	15.0	15.0		235.9	2217.8	235.9	2164.5	00:15:43
							Total Pump Time:		02:39:46

Have more questions? You can find us at:
http://www.bakerhughes.com/products-and-services/pressure-pumping

CONFIDENTIAL TRADE SECRET

POST-STIMULATION REPORT

DAN A HUGHES

Collier-Hogan 20-30H (Stages 1-7)
Lower Sunniland Formation
Collier County, Florida

API # 09-021-76040-0000

Treatment Dates: 12/30/13-01/01/14
Treatment Type: Lightning
Field Receipt No.: 10011035177; 10011035182; 10011035178; 10011035179; 10011035180; 10011035183; 10011035181
Proposal No.: 1001164796D
Service District: Shreveport, LA

Prepared For:
Mr. Jeffery R. Illseng

Prepared By:
Jason G McDonald
Field Engineer
Shreveport, LA
Jason.McDonald@BakerHughes.com
http://www.bakerhughes.com | *Advancing Reservoir Performance*

BAKER HUGHES

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WELLBORE DATA

Tubulars

Type	O.D.	Weight	From Depth	To Depth
Casing	4.5"	13.5#	0	16,218

Perforations

Stage	MD	TVD	Perf. Dia.	No. of Perfs
1	16,103' – 15,803'	11,784	0.35	60
2	15,653' – 15,250'	11,784	0.35	60
3	15,153' – 14,750'	11,784	0.35	60
4	14,653' – 14,250'	11,784	0.35	60
5	14,153' – 13,750'	11,784	0.35	60
6	13,653' – 13,250'	11,784	0.35	60
7	13,078' – 12,675'	11,784	0.35	60

TREATMENT SUMMARY

Stage Timing

Stage	Date	Start Time	End Time
1	12/30/13	2:02 PM	5:39 PM
2	12/31/13	8:22 AM	10:11 AM
3	12/31/13	1:28 PM	3:27 PM
4	12/31/13	6:18 PM	8:04 PM
5	12/31/13	11:14 PM	1:08 AM
6	1/1/14	6:38 AM	9:49 AM
7	1/1/14	2:25 PM	4:29 PM

Treatment Parameters

Stage	Opening Pressure (psi)	Break-down Pressure (psi)	Average Treating Pressure (psi)	Average Treating Rate (bpm)	Average HHP	Clean Volume (bbls)	Proppant Total (lbs)	Final ISIP (psi)	Frac Grad (psi/ft)
1	1,555	7,802	8,287	17.3	3,513	2,256	60,164	7,652	1.08
2	7,270	8,006	8,388	24.5	5,036	1,702	49,500	7,590	1.07
3	7,195	8,770	8,310	28.2	5,743	2,414	99,000	7,425	1.06
4	7,190	8,629	8,397	27.6	5,681	2,031	85,800	7,722	1.08
5	7,137	8,509	8,325	27.2	5,550	2,282	100,625	7,598	1.07
6	7,120	7,975	8,371	26.3	5,396	2,738	166,389	8,029	1.11
7	7,594	8,641	8,390	26.1	5,367	2,348	137,642	7,955	1.10

MATERIAL USAGE

Proppant Totals

Stage	30/50 White	20/40 White
1	60,164	0
2	49,500	0
3	49,500	49,500
4	49,500	36,300
5	49,500	51,125
6	40,174	100,335
7	50,082	87,560

Fluid Totals

Stage	Acid (bbls)	AquaCare 3000 (bbls)	Lightning 3000 (bbls)	Slickwater (bbls)
1	71	641	1,360	184
2	71	350	1,055	226
3	71	350	1,776	217
4	71	279	1,469	212
5	71	195	1,811	205
6	71	252	2,217	198
7	71	198	1,891	188

Chemical Additive Totals

Stage	GW-3LDF (gals)	BF-9L (gals)	XLW-30G (gals)	XLD-1 (gals)	GBW-23 (gals)	Enzyme G (gals)	Alpha 1427 (gals)	NE-945 (gals)	GBW-5 (gals)	BC-3 (gals)
1	800	130	87	22	100	36	43	101	10	18
2	450	96	66	11	100	25	38	91	30	15
3	750	160	97	18	100	40	52	112	10	25
4	600	125	99	14	75	35	44	86	10	7
5	600	168	99	16	75	35	46	97	10	20
6	900	216	122	20	100	45	58	132	10	27
7	750	175	95	22	100	45	50	97	30	22

Stage	AsphaltSorb 1200 (lbs)	ParaSorb 5000 (lbs)	FRW-18 (gals)	ES4A (gals)	Ferrotrol 300L (gals)	CI-31 (gals)	NE-945 (gals)
1	500	1,500	7	50	15	12	12
2	500	1500	14	0	15	12	12
3	500	1500	8	47	15	12	12
4	500	1500	3	42	15	12	12
5	500	1500	11	0	15	12	12
6	500	1500	11	0	15	12	12
7	500	1500	11	50	15	12	12

TREATMENT SCHEDULE

Designed

Stage	Fluid		Proppant			
	Type	Volume (gal)	Conc. (ppa)	Type	Stage (lbs)	Cum (lbs)
1	Aqua Care 3000	12000		Load Hole		
2	10% HCl	3000		Acid		
3	Aqua Care 3000	10000		Breakdown		
4	Aqua Care 3000	6000		Fet		
5	Aqua Care 3000	1		Shut-In For Fet		
6	Lightning D 3000	20000		Pad		
7	Lightning D 3000	5000	0.500	100%Sand, White, 30/50	2500	2500
8	Lightning D 3000	6000	1.000	100%Sand, White, 30/50	6000	8500
9	Lightning D 3000	7000	1.500	100%Sand, White, 30/50	10500	19000
10	Lightning D 3000	7000	2.000	100%Sand, White, 30/50	14000	33000
11	Lightning D 3000	3500	3.000	100%Sand, White, 30/50	10500	43500
12	Lightning D 3000	1500	4.000	100%Sand, White, 30/50	6000	49500
13	Aqua Care 3000	9908		Flush		49500
Total		90909				49500

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Actual

Stage 1	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	2:07pm	AquaCare 3000	3.7	6,588	38	38	1,600	0
Acid	2:20pm	10% HCL Acid	5.3	7,722	61	61	2,600	0
Breakdown	2:34pm	AquaCare 3000	14.1	8,281	340	340	14,300	0
X-Link Pad	3:01pm	Lightning 3000	20.2	8,523	448	448	18,800	0
.5# 30/50 White Sand	3:25pm	Lightning 3000	20.3	8,653	110	108	4,500	2,139
1.0# 30/50 White Sand	3:31pm	Lightning 3000	19.6	8,488	109	104	4,400	4,166
Sweep	3:52pm	AquaCare 3000	13.2	8,854	252	252	10,600	0
.5# 30/50 White Sand	4:47pm	Lightning 3000	20.7	8,475	98	93	3,900	4,178
1.0# 30/50 White Sand	4:52pm	Lightning 3000	20.8	8,310	166	159	6,700	6,608
1.5# 30/50 White Sand	5:01pm	Lightning 3000	20.8	8,339	159	149	6,300	9,386
2.0# 30/50 White Sand	5:10pm	Lightning 3000	20.9	8,234	163	149	6,300	12,532
3.0# White Sand	5:18pm	Lightning 3000	20.2	8,115	83	73	3,100	9,192
4.0# White Sand	5:23pm	Lightning 3000	20.8	7,999	85	73	3,100	11,063
Flush	5:27pm	Slickwater	19.5	8,391	210	210	8,800	0
End of Stage	5:39pm			TOTALS:	2,320	2,256	94,700	59,264

Stage 2	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	8:26am	AquaCare 3000	4.2	7,430	7	7	300	0
Acid	8:27am	10% HCL Acid	5.7	7,569	71	71	3,000	0
Breakdown	8:41am	AquaCare 3000	12.7	8,132	344	344	14,400	0
X-Link Pad	9:11am	Lightning 3000	24.0	8,543	425	425	17,800	0
.5# 30/50 White Sand	9:31am	Lightning 3000	24.9	8,517	109	107	4,500	2,232
1.0# 30/50 White Sand	9:36am	Lightning 3000	24.9	8,469	133	127	5,400	5,329
1.5# 30/50 White Sand	9:42am	Lightning 3000	25.0	8,351	157	147	6,200	9,280
2.0# 30/50 White Sand	9:49am	Lightning 3000	25.0	8,234	164	150	6,300	12,559
3.0# White Sand	9:56am	Lightning 3000	25.0	8,150	85	75	3,100	9,384
4.0# White Sand	10:00am	Lightning 3000	24.9	8,046	50	44	1,800	5,238
Flush	10:02am	Slickwater	23.8	8,423	205	205	8,600	0
End of Stage	10:12am			TOTALS:	1,749	1,702	71,500	44,022

Stage 3	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	1:29pm	AquaCare 3000	4.1	7,333	4	4	200	0
Acid	1:30pm	10% HCL Acid	6.0	7,430	71	71	3,000	0
Breakdown	1:44pm	AquaCare 3000	18.2	8,373	345	345	14,500	0
X-Link Pad	2:05pm	Lightning 3000	26.1	8,324	431	429	18,000	1,846
.5# 30/50 White Sand	2:23pm	Lightning 3000	28.3	8,345	108	105	4,400	2,200
1.0# 30/50 White Sand	2:27pm	Lightning 3000	27.4	8,259	135	129	5,400	5,398
1.5# 30/50 White Sand	2:33pm	Lightning 3000	28.6	8,251	158	148	6,200	9,277
2.0# 30/50 White Sand	2:39pm	Lightning 3000	28.9	8,188	161	148	6,200	12,398
3.0# 30/50 White Sand	2:45pm	Lightning 3000	29.0	8,052	161	142	6,000	17,824
.50# 20/40 White Sand	2:51pm	Lightning 3000	28.9	8,116	109	106	4,500	2,441
1.0# 20/40 White Sand	2:56pm	Lightning 3000	28.8	8,482	134	129	5,400	5,364
1.5# 20/40 White Sand	3:01pm	Lightning 3000	28.8	8,391	160	150	6,300	9,398
2.0# 20/40 White Sand	3:07pm	Lightning 3000	28.7	8,275	162	149	6,300	12,487
3.0# 20/40 White Sand	3:13pm	Lightning 3000	28.9	8,163	85	75	3,100	9,350
4.0# 20/40 White Sand	3:17pm	Lightning 3000	28.8	7,973	100	85	3,600	13,849
Flush	3:20pm	AquaCare 3000	28.0	8,451	197	197	8,300	0
End of Stage	3:20pm			TOTALS:	2,521	2,411	101,300	101,832

Stage 4	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	5:50pm	AquaCare 3000	4.7	5,311	10	10	400	0
Acid	6:21pm	10% HCL Acid	5.9	7,492	72	72	3,000	0
Breakdown	6:35pm	AquaCare 3000	16.2	8,264	224	224	9,400	0
X-Link Pad	6:50pm	Lightning 3000	26.0	8,429	432	432	18,100	306
.5# 30/50 White Sand	7:09pm	Lightning 3000	27.9	8,478	108	106	4,500	2,222
1.0# 30/50 White Sand	7:13pm	Lightning 3000	28.0	8,386	135	129	5,400	5,401
1.5# 30/50 White Sand	7:18pm	Lightning 3000	28.0	8,291	160	150	6,300	9,432
2.0# 30/50 White Sand	7:25pm	Lightning 3000	28.1	8,206	164	151	6,300	12,659
3.0# 30/50 White Sand	7:31pm	Lightning 3000	28.1	8,065	178	157	6,600	19,704
.50# 20/40 White Sand	7:38pm	Lightning 3000	28.0	8,175	111	108	4,600	2,487
1.0# 20/40 White Sand	7:42pm	Lightning 3000	27.9	8,534	133	127	5,300	5,325
1.5# 20/40 White Sand	7:48pm	Lightning 3000	27.9	8,474	64	60	2,500	3,890
2.0# 20/40 White Sand	7:50pm	Lightning 3000	27.9	8,433	36	33	1,400	3,056
3.0# 20/40 White Sand	7:52pm	Lightning 3000	27.9	8,366	22	20	800	2,501
4.0# 20/40 White Sand	7:53pm	Lightning 3000	27.9	8,193	71	61	2,500	9,972
Flush	7:55pm	AquaCare 3000	26.3	8,482	192	192	8,100	0
End of Stage	8:04pm			TOTALS:	2,114	2,031	85,300	76,955

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Stage 5	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	11:15pm	AquaCare 3000	3.8	7,280	2	2	100	0
Acid	11:15pm	10% HCL Acid	6.0	7,420	71	71	3,000	0
Breakdown	11:29pm	AquaCare 3000	17.4	8,317	194	194	8,100	0
X-Link Pad	11:42pm	Lightning 3000	25.3	8,326	431	430	18,100	145
.5# 30/50 White Sand	12:01am	Lightning 3000	25.3	8,339	116	114	4,800	1,931
1.0# 30/50 White Sand	12:06am	Lightning 3000	25.3	8,239	133	127	5,300	5,325
1.5# 30/50 White Sand	12:12am	Lightning 3000	25.4	8,049	162	150	6,300	11,552
2.0# 30/50 White Sand	12:19am	Lightning 3000	27.4	8,143	161	148	6,200	12,420
3.0# 30/50 White Sand	12:25am	Lightning 3000	28.7	8,080	112	99	4,100	12,393
.50# 20/40 White Sand	12:30am	Lightning 3000	28.8	8,160	109	106	4,500	2,322
1.0# 20/40 White Sand	12:34am	Lightning 3000	28.7	8,500	134	128	5,400	5,363
1.5# 20/40 White Sand	12:39am	Lightning 3000	28.7	8,413	160	150	6,300	9,451
2.0# 20/40 White Sand	12:45am	Lightning 3000	28.7	8,248	230	211	8,900	17,706
3.0# 20/40 White Sand	12:54am	Lightning 3000	28.7	8,141	105	93	3,900	11,865
4.0# 20/40 White Sand	12:58am	Lightning 3000	28.6	7,926	84	74	3,100	10,152
Flush	1:02am	Slickwater	27.6	8,348	186	186	7,800	0
End of Stage	1:09am			TOTALS:	2,391	2,283	95,900	100,625

Stage 6	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	6:38am	AquaCare 3000	3.9	7,256	8	8	300	0
Acid	6:40am	10% HCL Acid	5.4	7,295	71	71	3,000	0
Breakdown	6:55am	AquaCare 3000	14.7	7,899	129	129	5,400	0
X-Link Pad	7:05am	Lightning 3000	24.7	8,237	431	431	18,100	34
.5# 30/50 White Sand	7:24am	Lightning 3000	25.0	8,218	113	110	4,600	2,710
1.0# 30/50 White Sand	7:29am	Lightning 3000	25.1	8,156	134	128	5,400	5,386
1.5# 30/50 White Sand	7:35am	Lightning 3000	25.8	8,136	162	152	6,400	9,468
Sweep	7:43am	AquaCare 3000	14.5	7,648	117	117	4,900	0
.5# 30/50 White Sand	8:37am	Lightning 3000	24.8	8,589	46	45	1,900	1,000
1.0# 30/50 White Sand	8:39am	Lightning 3000	24.9	8,604	18	17	700	695
1.5# 30/50 White Sand	8:40am	Lightning 3000	25.0	8,573	6	6	200	337
.5# 30/50 White Sand	8:40am	Lightning 3000	24.8	8,560	3	3	100	237
2.0# 30/50 White Sand	8:40am	Lightning 3000	25.1	8,230	164	151	6,300	12,657
3.0# 30/50 White Sand	8:48am	Lightning 3000	26.8	8,156	61	54	2,300	6,669
.50# 20/40 White Sand	8:50am	Lightning 3000	27.1	8,263	107	104	4,400	2,572
1.0# 20/40 White Sand	8:55am	Lightning 3000	27.1	8,576	134	129	5,400	5,362
1.5# 20/40 White Sand	9:00am	Lightning 3000	27.1	8,489	158	148	6,200	9,309
2.0# 20/40 White Sand	9:07am	Lightning 3000	27.1	8,350	358	328	13,800	27,513
3.0# 20/40 White Sand	9:21am	Lightning 3000	27.1	8,316	229	210	8,800	18,030
4.0# 20/40 White Sand	9:31am	Lightning 3000	27.1	8,152	261	221	9,300	37,003
Flush	9:41am	Slickwater	26.3	8,492	177	177	7,500	0
End of Stage	9:49am			TOTALS:	2,887	2,738	115,000	138,982

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Stage 7	Stage Start Time	Fluid System	Avg. Rate (bpm)	Avg. Pressure (psi)	Slurry Volume (bbls)	Clean Volume (bbls)	Clean Volume (gals)	Stage Proppant Amount (lbs)
Breakdown	2:26pm	AquaCare 3000	5.6	7,553	7	7	300	0
Acid	2:27pm	10% HCL Acid	7.0	7,592	71	71	3,000	0
Breakdown	2:39pm	AquaCare 3000	15.9	8,339	142	142	6,000	0
X-Link Pad	2:49pm	Lightning 3000	24.6	8,371	431	431	18,100	73
.5# 30/50 White Sand	3:09pm	Lightning 3000	25.3	8,378	111	109	4,600	2,641
1.0# 30/50 White Sand	3:13pm	Lightning 3000	26.6	8,373	133	127	5,300	5,323
1.5# 30/50 White Sand	3:19pm	Lightning 3000	27.1	8,347	162	152	6,400	9,577
2.0# 30/50 White Sand	3:26pm	Lightning 3000	27.1	8,301	163	150	6,300	12,604
3.0# 30/50 White Sand	3:32pm	Lightning 3000	27.2	8,220	66	58	2,400	7,261
.50# 20/40 White Sand	3:35pm	Lightning 3000	27.0	8,262	108	106	4,500	2,262
1.0# 20/40 White Sand	3:39pm	Lightning 3000	22.8	8,207	28	27	1,100	874
Sweep	3:43pm	AquaCare 3000	14.8	8,229	49	49	2,000	0
1.0# 20/40 White Sand	3:47pm	Lightning 3000	23.3	8,569	115	111	4,600	4,483
1.5# 20/40 White Sand	3:52pm	Lightning 3000	25.9	8,363	159	149	6,200	9,368
2.0# 20/40 White Sand	3:59pm	Lightning 3000	27.1	8,270	182	166	7,000	14,655
3.0# 20/40 White Sand	4:07pm	Lightning 3000	27.1	8,080	221	195	8,200	24,630
4.0# 20/40 White Sand	4:16pm	Lightning 3000	27.2	7,961	153	130	5,400	21,968
Flush	4:22pm	Slickwater	26.2	8,357	169	169	7,100	0
End of Stage	4:30pm			TOTALS:	2,472	2,348	98,600	115,719