

Sanjel

June 19, 2014

Extraction Oil & Gas, LLC
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Hiner 36NB-23W

(Xtreme 7)

Weld County, Colorado

Primary Cementing Procedure

Rev.2- Production: Lab Tests Results

Prepared by:
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Extraction Oil
Hiner 36NB-23W (Xtreme 7)

9 5/8" Surface Casing

Hole Size: 13 1/2 in
Casing Size: 9 5/8 in, 36 lb/ft, J-55, STC
Depth: 1200 ft
Excess: 25% (over gauge)

Cement Blend

Tail Cement 0:1:0 'G' + 2.0% CaCl₂ + 1/4 lb/sack Polyflake
1200 ft to Surface = 1200 ft

BHST: 100 F BHCT: 80 F

Cement Data

		<u>Tail</u>
Water Requirement	:gal/sk	5.03
Yield	:ft ³ /sk	1.15
Density	:lbs/gal	15.8
Thickening Time	:hrs:min	2:30
Compressive Strength	:psi/hrs	500/8 1052/12

Calculations:

Tail Cement
 $0.4887 \text{ ft}^3/\text{ft} \times 1200 \text{ ft} = 586.4 \text{ ft}^3$
 $586.4 \text{ ft}^3 + 25\% \text{ excess} = 733.0 \text{ ft}^3$
 $0.4341 \text{ ft}^3/\text{ft} \times 40 \text{ ft} = 17.3 \text{ ft}^3$
 $750.3 \text{ ft}^3 / 1.15 \text{ ft}^3/\text{sk} = \underline{\underline{655 \text{ sacks}}}$

9 5/8" Surface Casing Procedure

1. Make up float equipment and centralizers as required on 9 5/8 inch surface casing and run in to total depth.
2. Break circulation and condition hole and drilling fluid as required prior to cementing.
3. Rig in a Sanjel Cementing Unit, Surface treating lines and a 9 5/8 inch head to casing.
4. Pump a 20 bbl fresh water preflush and pressure test surface treating lines to 3000 psi.
5. Mix and pump:
 - A. Pump 20 bbls Fresh Water
 - B. **655 sacks** 0:1:0 'G'+ additives at 15.8 lbs/gal
6. Drop a 9 5/8 top rubber plug and displace to floats with water. Bump plug with a minimum of 500 psi over final pumping pressure.
7. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
8. If cement returns are not observed, use 0:1:0 'G' + 2% CaCl₂ cement for topout.
9. W.O.C. until it develops a minimum of 500 psi compressive strength.
10. Sanjel recommends a minimum of 12 hours prior to drill out.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time..... \$525/hr
Standby Time..... \$340/hr

Bulk Cement Unit – per unit, per hour

Standby Time..... \$285/hr

NOTE:

Travel charges are an estimate only. Invoice price will be based upon actual distance traveled. Equipment charges are for specified operating times. Hourly rates will be charged for operating times greater than specified. Federal and State taxes where applicable are additional.

5 1/2" Production Casing

Hole Size: 8 3/4 in
 Surface Casing 9 5/8 in, 36 lb/ft, J-55 @ 1200 ft
 Casing Size: 5 1/2 in, 20 lb/ft, P-110, LTC
 Depth: 11,835 ft (MD) 6,848 ft (TVD)
 Cement Top: Surface (Lead)
 5,000 ft (Tail)
 Excess: 10% (over gauge)

Cement Blends

Lead Cement 1:1:6 'III' + 0.4% CDF-4P + 0.5% CFL-2 + 0.4% FMC +
 0.15% LTR +1 lb/sk PS Flake
 5,000 ft to Surface = 5,000 ft

Tail Cement 1:1:0 'Poz:G' + 0.6% CFL-2 + 0.5% CFR + 0.6% SMS +
 0.5% LTR + 0.2% SPC-II + 1 lb/sk PS Flake
 11,835 ft to 5,000 ft = 6,835 ft

Cement Data

BHST: 200°F BHCT: 200°F

		<u>Lead</u>	<u>Tail</u>
Water Requirement	:gal/sk	9.34	4.62
Yield	:ft ³ /sk	1.78	1.12
Density	:lbs/gal	12.5	14.6
Thickening Time	:hrs:min	4:30	3:30
Compressive Strength	:psi/hrs	319/8 986/48	1472/12 2535/24 3181/48

Calculations:

Lead: 0.2526 ft³/ft x 3800 ft = 959.9 ft³
 959.9 ft³ + 10% = 1055.9 ft³
 0.2691 ft³/ft x 1200 ft = 322.9 ft³
 322.9 ft³ / 1.78 ft³/sk = **185 sks**

Tail: 0.2526 ft³/ft x 6835 ft = 1726.5 ft³
 1726.5 ft³ + 10% = 1899.2 ft³
 0.1245 ft³/ft x 40 ft = 5.0 ft³
 1904.2 ft³ / 1.12 ft³/sk = **1705 sks**

5 ½" Production Casing Procedure

1. Make up float equipment and centralizers as required on 5 ½ inch casing and run in to total depth.
2. Rig in Sanjel Cementing Unit, Surface treating lines, and a 5 ½ inch head to casing.
3. Fill Surface treating lines with water and pressure test lines to 3000 psi.
4. Mix and pump the following:
 - A. 40 bbls Mudflush
 - B. 20 bbls Water
 - C. **185 sks** 1:1:6 'III' + additives at 12.5 ppg
 - D. **1705 sks** 1:1:0 'Poz:G' + additives at 14.6 ppg
5. Drop a Top Rubber Plug and displace plug to float collar with water at 5-6 bpm slowing to 2.0 bpm for last 10 bbls. Bump plug with a minimum of 500 psi over final pumping pressure.
6. Hold pressure for 1 minute(s), then bleed back casing pressure to ensure float is holding.
7. W.O.C. a minimum of 12 hours prior to drill out.

NOTE:

This recommendation is to be used as a guide. Job conditions and field experience must dictate job procedures. Please check all calculations on location.

Extraction Oil
 Hiner 36NB-23W (Xtreme 7)

COST ESTIMATE: F.O.B. FT LUTPON, CO

PRODUCTION CASING 5 1/2 inch

SERVICES

1380	Pumping Unit Travel		50	miles	\$7.50 / mile	\$375.00
1020	Pumping Unit Base Charge		11835	feet	\$11,800.00 / 6 hours	\$11,800.00
1150	Twin Unit Surcharge				\$2,360.00 / 6 hours	\$2,360.00
1480	Bulk Cement Blending		2019	ft^3	\$3.30 / ft^3	\$6,662.70
1484	Bulk Cement Delivery		81.2	tons	\$2.55 / ton*mile	\$10,353.00
1497	SAM III - Data Acquisition		1	job	\$1,015.00 / job	\$1,015.00

PREFLUSHES AND SPACERS

3195	MUDFLUSH		1680	gals	\$2.05 / gal	\$3,444.00
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LEAD CEMENT

3002	1:1:0 'Poz:G'		185	sacks	\$22.50 / sack	\$4,162.50
3131	CFL-2	0.50 %	77	lbs	\$31.50 / lb	\$2,425.50
3147	FMC	0.40 %	62	lbs	\$46.00 / lb	\$2,852.00
3110	LTR	0.15 %	23	lbs	\$6.60 / lb	\$151.80
3250	PS Flake	1.00 lbs/sk	185	lbs	\$3.55 / lb	\$656.75
3231	Gel	6.00 %	916	lbs	\$1.00 / lb	\$916.00
3264	DF-7011	0.40 %	62	lbs	\$8.60 / lb	\$533.20

TAIL CEMENT

3002	1:1:0 'Poz:G'		1705	sacks	\$22.50 / sack	\$38,362.50
3131	CFL-2	0.60 %	844	lbs	\$31.50 / lb	\$26,586.00
3160	CFR	0.50 %	704	lbs	\$14.10 / lb	\$9,926.40
3104	SMS	0.60 %	844	lbs	\$3.60 / lb	\$3,038.40
3110	LTR	0.50 %	704	lbs	\$6.60 / lb	\$4,646.40
3220	SPC-2	0.20 %	282	lbs	\$46.00 / lb	\$12,972.00
3250	PS Flake	1.00 lbs/sk	1705	lbs	\$3.55 / lb	\$6,052.75

OTHER MATERIALS

1492	Envirobag	1	bag		\$78.00 / bag	\$78.00
3262	DF-3	1	gal		\$141.00 / gal	\$141.00

NON-DISCOUNTED ITEMS

1493	Environmental Surcharge	1	job		\$50.00 / job	\$50.00
2992	Fuel Surcharge	4	trucks		\$520.00 / truck	\$2,080.00

NON-DISCOUNTED TOTAL \$151,640.90

DISCOUNT: 57% (\$85,221.21)

GRAND TOTAL \$66,419.69

Extraction Oil
Hiner 36NB-23W (Xtreme 7)

FLOAT EQUIPMENT (NON-DISCOUNTED)						
4414	5 1/2 "	Float Shoe - L-80	1	unit	\$832.28 / unit	\$832.28
4442	5 1/2 "	Float Collar - L-80	1	unit	\$959.08 / unit	\$959.08
4418	5 1/2 "	Centralizer	40	units	\$78.00 / unit	\$3,120.00
4420	5 1/2 "	Limit Clamp	1	unit	\$48.00 / unit	\$48.00
4416	5 1/2 "	Top Plug	1	unit	\$162.00 / unit	\$162.00
4400		Threadlok	1	unit	\$78.00 / unit	\$78.00
FLOAT EQUIPMENT TOTAL						\$5,199.35

A minimum of two additional hours of pumping time per pumping operation will be charged after initial 6 hours location time. Hours will be charged as follows:

Twin Cement Pumping Unit – per unit, per hour

Pumping Time..... \$525/hr
Standby Time..... \$340/hr

Bulk Cement Unit – per unit, per hour

Standby Time..... \$285/hr

NOTE:

Travel charges are an estimate only. Invoice price will be based upon actual distance traveled. Equipment charges are for specified operating times. Hourly rates will be charged for operating times greater than specified. Federal and State taxes where applicable are additional.

Please refer to the General Terms and Conditions contained on the last page of this proposal. The provision of goods or services to the Customer, whether described in this proposal or otherwise provided, is governed by the General Terms and Conditions unless a written master service agreement is in place between the Customer and Sanjel. By accepting this proposal (either expressly or by allowing Sanjel to perform services or provide goods) the Customer agrees to be bound by the General Terms and Conditions, or where applicable, the master service agreement in place. Such acceptance shall constitute an acknowledgment by the Customer that it has reviewed and understands the General Terms and Conditions and has had the opportunity to seek independent legal advice. Such terms take precedence over any subsequent or supplemental terms provided by the Customer, including any terms found on a purchase order, which shall not apply regardless of whether or not they are signed by Sanjel.

Under these terms and conditions ("T&C's") Sanjel (USA) Inc. ("Sanjel") agrees to provide, and you agree to purchase, the goods and services in the attached proposal or work order ("goods," "services" or "goods and services"). You understand and agree that the T&Cs govern and control the provision of all goods or services Sanjel provides to you, including any goods or services Sanjel provides or performs under written or oral requests for goods or services. You accept the T&Cs by informing Sanjel or allowing Sanjel to provide goods and services, whichever is first. You cannot change the T&Cs, and Sanjel rejects any proposals on your forms or otherwise. When used in the T&Cs, "we," "us," and "our" refer to both you and Sanjel, collectively.

1. Entire Agreement. If we have signed an agreement applicable to the goods and services, that agreement will apply and the T&Cs do not. If no signed agreement exists between us, the T&Cs are our entire agreement for the goods and services, and no prior discussion, agreement, conduct, or industry practice will affect them. The T&Cs may not be changed, superseded or replaced by any other agreement (including any terms in a purchase order, service order, invoice or other similar document) unless specifically agreed by each of us in writing.

2. Acknowledgment. You understand that interpretations, research, analysis, advice or interpretational data furnished by Sanjel ("Recommendations") are opinions based on inferences from measurements, empirical relationships and assumptions and industry practice and that Recommendations are not infallible, and the opinions of professional geologists, engineers, drilling consultants and analysts may differ. Sanjel does not warrant the accuracy, correctness, or completeness of the Recommendations, or that your or any third party's reliance on the Recommendations will accomplish any particular results. You assume full responsibility for the use of and decisions based on the Recommendations, and you hereby agree to release, defend, indemnify and hold Sanjel harmless from Claims arising from the use of the Recommendations.

3. Payment. You will pay Sanjel for the goods and services at the rates in the applicable proposal or work order (which are good for 90 days) in US dollars within 30 days of receipt of performance or a correct invoice, whichever is later. Sanjel may charge interest at 18% per year on all overdue amounts, and you will bear all costs of collection of overdue accounts, including legal fees.

4. Services. You acknowledge and agree that the services Sanjel may perform are of such a nature that results cannot be guaranteed, and Sanjel makes no representations, warranties or guarantees with respect to the results of the services. Sanjel's only warranty with regard to the services is that they will conform to the material aspects of the applicable scope of work.

5. Goods. Sanjel may provide goods to you under the T&Cs or in connection with the services. Sanjel warrants that goods will (a) substantially conform to the applicable scope of work (b) be free of defects and of good quality and workmanship, and (c) not be subject to any liens, claims or encumbrances. There are no warranties, express or implied, of merchantability, use, and fitness that extend beyond those expressly stated herein.

6. Warranty Remedies. Sanjel will re-perform any non-conforming services if Sanjel is notified before leaving the work site, and will repair or replace any non-conforming or defective goods you notify Sanjel of within 30 days after Sanjel provided them to you free of charge. If Sanjel is unable to repair the non-conforming services, Sanjel will reimburse you for costs of a third party to repair such services, up to 10% of the original work order for such services. If fishing services are required to retrieve goods, Sanjel may specify the provider and be present during recovery. The remedies will not apply if damage is caused by: (i) your failure to properly store or maintain the goods, (ii) abnormal well conditions, abrasive materials, corrosion due to aggressive fluids or incorrect specifications, (iii) unauthorized alteration or repair of the goods, (iv) loss of goods while on your site due to your or any third party's negligence, vandalism or force majeure, (v) Sanjel's lack of or incorrect information regarding well conditions, or (vi) use or handling of the goods in a manner inconsistent with Sanjel's recommendations. Sanjel's warranty obligations will terminate if you fail to perform your obligations, including your failure to pay on time.

7. Delay and Cancellation. If Sanjel cannot provide goods or services to you due to circumstances beyond its control, Sanjel may charge you actual costs incurred, including but not limited to: mileage; blending; materials (including handling and hauling); return delivery and restocking charges; and all location time in excess of the location time allowance. Orders for goods or services that you cancel after Sanjel has procured the required materials may be subject to a 25% restocking fee. If Sanjel provides materials to your specifications and you cancel for any reason (including an uncontrollable event) you will be charged a cancellation fee plus actual costs incurred as a result of such cancellation.

8. Taxes. Prices are exclusive of any municipal, state, federal, special or use taxes or levies imposed on the sale of goods or services. You will be responsible for all taxes applicable to the provision of the goods or services.

9. Additional Services Requests. You will pay for services, equipment or materials not listed in a proposal but purchased or rented by Sanjel at your request at cost plus 25%. Sanjel has no liability to you for such services, equipment or materials.

10. Proprietary Rights. You acknowledge that any intellectual property Sanjel uses in connection with the T&Cs, or that is created or developed by Sanjel in the course of performing under the T&Cs, is the property of Sanjel at all times, and you understand that you are not entitled to any intellectual property rights in any of Sanjel's intellectual property, except as required to receive the benefit of the goods or services.

11. Confidentiality. Any non-public information that we learn about each other in connection with the T&Cs, including our relationship, is confidential information of the disclosing party, and neither of us may disclose confidential information of the other to any third party without the prior written consent of the disclosing party. We may each use confidential information of the other to perform under the T&Cs, and may share it only on a need-to-know basis with employees.

12. Indemnity. (A) Subject to Section 12(b) below, each of us ("Indemnitor") hereby agrees to release, defend, indemnify and hold the other, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier ("Indemnitee Group") harmless for all losses, claims, demands, causes of action, costs and expenses (including reasonable legal fees) (collectively, "Claims"), for personal injury, death and property damage to Indemnitor, its affiliates, officers, directors, agents, partners, joint venturers, employees and contractors of every tier arising out of or incident to the T&Cs or any goods or services provided hereunder, without regard to whether such Claim is caused, in whole or in part, by the negligence (whether sole, joint or concurrent, active or passive), contractual liability or other fault of any member of the Indemnitee Group or by any defect or pre-existing condition (whether known or unknown, patent or otherwise). (B) You hereby agree to release, defend, indemnify and hold Sanjel harmless for any Claims Sanjel may suffer or incur arising out of or incident to: well blowout or any uncontrolled well condition, fire, cratering, redrill or sidetracking, seepage or reservoir damage, loss or damage to the hole, pollution and contamination (except sudden and accidental pollution originating above the service of the earth and emanating from Sanjel's equipment while in Sanjel's care, custody and control), and loss or damage to Sanjel's (or its contractors') equipment while down the hole at new replacement value; even if caused in whole or in part by the sole, joint or concurrent negligence or other fault (active or passive) of Sanjel or any other person.

13. Consequential Damages Exclusion: Notwithstanding anything to the contrary, neither of us will be liable to the other for business interruptions, punitive, indirect or consequential damages relating to the goods or services (including but not limited to any loss of profit, loss of expected revenue, loss of hydrocarbons or loss of rig time).

14. Disposal of Chemicals. You will arrange and be responsible for the disposal of any used chemicals and hazardous materials related to the goods or services.

15. Insurance. Each of us will maintain, at its own cost, commercial general liability insurance covering its indemnification obligations under the T&Cs with combined single limits of at least \$5,000,000 per occurrence and in the aggregate. We will obtain insurance from carriers with AM Best ratings of at least A-VII (or equivalent), ensure the other party is named as an additional insured, and ensure that our carriers waive rights of subrogation against the other party.

16. Uncontrollable Events. Except for payment obligations, if either of us is unable to comply with the T&Cs because of events beyond our reasonable control, we will promptly notify the other in writing and will make reasonable efforts to restore our ability to perform as soon as possible. If the inability to perform continues for more than 10 days, the other party may cancel the applicable job immediately, by giving written notice to the affected party.

17. Waiver. Failure to enforce any or all of the T&Cs will not relieve either party of its rights or obligations or constitute a waiver or prevent further enforcement.

18. Assignment. You will not assign any of your rights or obligations under this PO without Sanjel's approval, which Sanjel may not unreasonably withhold. Any assignment in violation of this provision will be null and void.

19. Governing Law. We agree that the laws of the State of Colorado govern the T&Cs, without the application of choice of law rules. Each of us voluntarily submits to the jurisdiction and venue of the federal or state courts (as applicable) of the State of Colorado for the adjudication of all disputes under the T&Cs.