District I. 1625 N. French Dr., Hobbs, NM 88240 District II

1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

Form C-101 May 27, 2004

NOTIFY OCD OF SPUD & TIME TO WITNESS CEMENTING OF SURFACE CASING

State of New Mexico

Submit to appropriate District Office

☐ AMENDED REPORT

	Operator Name and Address CHAPARRAL ENERGY LLC 701 CEDAR LAKE BLVD OKLAHOMA CITY, OK 73114			MAY 2 4 2006			30 - O S - 3 - 8 - 7						
3 Propa	rty Code				⁵ Property		- MM-1-1	=01%	30 - 0	5-348	39.7		
Prope	7.24				ROBER'					***	AII NO.		
~~	ر رجا	9	Proposed Pool 1	120		13 13	<u> </u>	•			Y		
Ruers	<u>. de ,</u>	Merr	من	838	80			CEM	ENT TO CO	OVER ALI	OIL,		
								GAS.	and wate	ER BEARI	∀ G		
					⁷ Surface	Locat	ion	ZONI	ES				
UL or lot no.	Section	Township	Range	Lot Idn	Feet fi	rom the	North/S				unty		
G	13	178	26E	G		570	FN		1620	FEL	EDDY		
			⁸ Propo	sed Bottom	Hole Loca	tion If l	Differen	t From S	Surface				
UL or lot no.	Section	Township	Range	Lot Idn	Feet fi	rom the	North/So	outh line	Feet from the	East/West line	County		
		<u> </u>		Addi	tional W	ell Info	rmatic	nn					
11 Work	Гуре Code		12 Well Type Cod			le/Rotary			Lease Type Code	15 Gro	und Level Elevation		
	<u> </u>		GAS						STATE		3306		
	ultiple		¹⁷ Proposed Dept 9100'	h		rmation RROW			19 Contractor		²⁰ Spud Date 5/18/2006		
Depth to Grou	<u> </u>	<u>L</u>		Distance from	om nearest fre	sh water	well		Distance from	nearest surface v	vater		
Pit: Liner:	Synthetic	10' n	nils thick Clay	Pit Volu	me: bb	ls	Dr	illing Meth	nod:				
	d-Loop Sys			_				-	Brine Diesel	/Oil-based □ G	as/Air 🗍		
	• • •		21	Proposed	Casing a	and Ce							
Hole S	78	Cas	ing Size	Casing w			etting De		Sacks of Cer	ment	Estimated TOC		
SURF		· · · · · · · ·	20'	94	<u> </u>		120	pui	375	nent	SURFACE		
NTE			5/8"	30			1500		1010		SURFACE		
PRO	D	- 4	3 1/2"	17	7#			9100			340		6500
						<u> </u>							
² Describe th	e proposed	program. I	f this application i	is to DEEPEN	l or PLUG B	ACK giv	e the data	on the nr	esent productive zo	ne and proposed	new productive zone.		
			gram, if any. Use				· dut.	on the pro	boont productive 20	no una proposea	new productive zone.		
PROPOS	ED BLO	DMOU1	PREVENT	ION PRO	GRAM,	TYPE	E: DO	UBLE	RAM, WOR	KING PRE	SSURE: 5000,		
TEST PR	ESSUR	E: 5000), MANUFA	CTURE	R: CAM	ERON	l.			n pits are us			
CEMEN'	Γ PROC	GRAM (ON PG. 2							•	rilling of this		
3 T L	i.G. ah at ah a	· i	n given above is tr		1-4-4-4						mit must be		
			n given above is u irther certify tha			<u></u>	····	OIL C	obtained	prior to pit	construction.		
			guidelines 🔲, a	general pern	nit 🔲, or	Approv	ved by:						
an (attached) alternative OCD-approved plan .								BRYAN G.		~ ucer			
Printed name: EVELYN P. SMITH				Title:		88 A.V	DISTRICT						
Title: ENGINEER TECH				Approv	al Date:	WHI 2	4 2006 Ex	piration Date:	AY 2 4 2007				
E-mail Addres	s: EVELY	N.SMITH@	CHAPARRAL.CO	OM .									
Date: 5/16/06			Phone: (405)						ached				
		<u></u>	- kc. 70 c -	To A	CBI	<u> </u>	831	۶٬٬ ۲۰	esing if	DV 1	I is		
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DISTRICT I 1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

DISTRICT IV

State of New Mexico Energy, Minerals, and Natural Resources Department Form C-102

Revised August 15, 2000

Submit to Appropriate District Office

State Lease - 4 copies

1301 W. Grand Avenue, Artesia, NM 88210

OIL CONSERVATION DIVISION 1220 South St. Francis Dr.

Fee Lease - 3 copies

AMENDED REPORT

DISTRICT III 1000 Rio Brazos Rd., Aztec, NM 87410

Santa Fe, New Mexico 87505

1220 S. St. Francis Dr., Santa Fe, NM 87505 WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	Pool Code	3 Pool Name	
⁴ Property Code	8 7 8 80	Froperty Name ROBERTS 3	6 Well Number #1.
OGRID No.	СНАРАІ	8 Operator Name RRAL ENERGY, LLC.	Selevation 3306'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	13	17 SOUTH	26 EAST, N.M.P.M.		1570'	NORTH	1620'	EAST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
12 Dedicated Acres 13 Joint or Infill 14 Consolidation Code 15 Order No.									
320	1 1/								
200			!	1					

NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD LINIT HAS BEEN APPROVED BY THE DIVISION

	NON-STANDARD UNIT HAS BEEN		
16	NAD 27 NME ZONE X = 500642 Y = 668700 LAT.: N N 32.8383433 LONG.: W 104.3312445	/	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature Printed Name Date 18 SURVEYOR CERTIFICATION I hereby certify that the usell loggiful thousand on this plat was plotted from field notes of detail surveying and correct in the best of my belief.
	320 c c res		FEBRUARY 3, 2006 Date of Survey Signature and September 200 AND S

CASING PROGRAM

STRING TYPE	CSG SIZE	INTERVAL	LENGTH FT.	WI/FT	GRADE	CPLG	THD	TORQUE FT- LBS
Surface	20"	0' - 120'	120′	94#	J-55	STC	8rd	
Intermediate	8-5/8"	0' -1500'	1500'	32.0	J-55	LT&C	8rd	4170
Production	5 1/2"	0' - 9,100'	9,100'	17.0	N-80	LT&C	8rd	3480

CEMENTING PROGRAM

20" Surface Casing	Lead: 375 sx Premium Plus: 1/4 lbm/sk Flocele, 2% CaCl2	1.35	14.8	Surface
8 5/8" Stage #1 Intermediate Casing	Lead: 380sx Light Premium Plus: 1/4 lbm/sk Flocele	1.78	12.9	350'
8 5/8" Stage #1 Intermediate Casing	Tail: 200sx Light Premium Plus: 1/4 lbm/sk Flocele	1.35	14.8	350'
8 5/8" Stage #2 Intermediate	Tail: 430 sx Premium Plus: 1/4 lbm/sk Flocele	1.35	14.8	Surface
Casing	Stage Tool @ 350'	1.35	14.8	Surface
5.1/2" Production	Lead: 115 sx Light Premium: 1/4 lbm/sk Flocele	2.00	13.2	6500'
Casing	Tail: 225 sx Super H Cement: 0.5% LAP-1, 1/4 lbm/sx D-AIR 3000, 0.4% CFR-3, 0.2% HR-7, 3 lbm/sx Salt	1.64	13.2	7500'

Permit Conditions of Approval

Operator: CHAPARRAL ENERGY LLC, 4115

Well: ROBERTS 13 #001

API: 30-015-34832

OCD Reviewer	Condition
BArrant	Pit construction and closure must satisfy all requirements of your approved plan, O.C.D. Rule 19.15.2.50, and the Pit and Below-Grade Tank Guidelines
BArrant	As noted, operator to drill surface and intermediate hole with 'fresh water' mud.
BArrant	Please notify OCD time of spud and time to witness the surface and intermediate casing strings.



April 26, 2006

Mr. Bryan Arrant State of New Mexico OCD 1301 W. Grand Ave Artesia, NM 88210

(30-015-34832-

Re:

Roberts #1-13 Section 13-17S-26E Eddy Co., NM

Gentlemen:

This letter accompanies our Application for Permit to Drill the above referenced well. In order to comply with the NMOCD rules and guidelines Chaparral Energy, LLC will utilize a closed loop mud system. Drilling mud will be contained within the drilling rig's steel pits. Drill cutting will be collected in steel bins to be hauled off location to an approved site. Both fresh and bring water for drilling will be stored in steel tanks. A self contained sanitation system for drilling personnel will be utilized.

Since a closed loop system will be used, no earthen pits will be constructed other than a burn pit for drilling flares. Therefore, we have not submitted a NM Form C-144 for approval

Respectfully,

Chaparral Energy, LLC

Charles Warne
Drilling Engineer

/dk





April 26, 2006

Mr. Bryan Arrant State of New Mexico OCD 1301 W. Grand Ave Artesia, NM 88210

Re:

Roberts #1-13

Section 13-17S-26E Eddy Co., NM

Gentlemen:

This letter is in reference to the OCD's requirements for H2S contingency plan for the above referenced well. No H2S is expected in the drilling of the above referenced well. H2S detection equipment will be installed prior to the top of the Delaware formation as a precautionary measure.

Respectfully,

Chaparral Energy, LLC

Charles Warne Drilling Engineer

/dk



Chaparral Energy Inc 701 Cedar Lake Boulevard Oklahoma City, Oklahoma 73114

Roberts 1-13

Eddy County, New Mexico United States of America

Cementing Cost Estimate

Prepared for: Rene St. Pierre

April 17, 2006 Version: 1

Submitted by: Mark R. Briney Halliburton Energy Services 6155 W Murphy Odessa, Texas 79763 432.661.3578

HALLIBURTON

Halliburton appreciates the opportunity to present this proposal and looks forward to being of service to you.

Foreword

Halliburton Energy Services is pleased to have this opportunity to present this proposal for your consideration. We earnestly request the service work to be performed on this well.

These Service Coordinators can be reached in our Customer Service Center, at the following phone numbers:

432-682-4305 or 1-800-844-8451

CEMENTING:

Joe Briseno

Steve Luscombe Basil Hacker Scott Kerby

STIMULATION:

Mel Holt

Larry Staples
Larry Roberts

LOGGING &

PERFORATING:

Allen Avera

COILED TUBING

& NITROGEN:

Michael Ybaben

TOOLS & TESTING, PROD. SVCS., TCP,

COMPL. PRODUCTS:

Steve Engleman

DRILL BITS,

Bill Stark

SECURITY DBS:

PREPARED BY:

Mark R. Briney

We look forward to working with you to provide the very best quality services available in the Permian Basin.

Mark R. Briney, Lead Technical Professional

Job Information

Surface Casing

Roberts 1-13

Surface Hole	0 - 320 ft (MD)
Inner Diameter	17.500 in
Job Excess	100 %

Surface Casing 0 - 320 ft (MD) Outer Diameter 13.375 in

Inner Diameter 12.515 in Linear Weight 48 lbm/ft Thread STC Casing Grade H-40

Calculations

Surface Casing

Spacer:

Total Spacer	=	112.29 ft ³
	=	20.00 ьы

Cement: (320.00 ft fill)

320.00 ft * 0.6946 ft³/ft * 100 % $= 444.57 \text{ ft}^3$ **Primary Cement** $= 444.57 \text{ ft}^3$ = 79.18 bbl

Shoe Joint Volume: (40.00 ft fill)

 $40.00 \text{ ft} * 0.8543 \text{ ft}^3/\text{ft}$ $= 34.17 \text{ ft}^3$ $= 6.09 \, bbl$ Tail plus shoe joint $= 478.74 \text{ ft}^3$ = 85.27 bblTotal Tail = 355 sks

Job Recommendation

Surface Casing

360 sks

Install floating equipment, run casing to bottom, and circulate minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid 1: Pump 20 bbl

Fresh Water Fluid Density: 8.33 lbm/gal

Fluid Volume: 20 bbl

Proposed Sacks:

Fluid 2: Mix and Pump 360 sks

Premium Plus Cement Fluid Weight 14.80 lbm/gal 94 lbm/sk Premium Plus Cement Slurry Yield: 1.35 ft³/sk 0.25 lbm/sk Flocele (Lost Circulation Additive) Total Mixing Fluid: 6.38 Gal/sk

2 % Calcium Chloride (Accelerator) Top of Fluid: 0 ft

Calculated Fill: 320 ft
Volume: 85.27 bbl
Calculated Sacks: 355.15 sks

Cost Estimate

Surface Casing

Mtrl Nbr	Description	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI Number of Units	120 1	MI	5.14	616.80
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT	120	MI	8.74	1,048.80
1	Number of Units	120	1711	0.74	1,040.00
	0% disc. on surcharge(s) & permit(s)	•			
7	ENVIRONMENTAL SURCHARGE	1	EA	120.00	120.00
86955	FUEL SURCHG-HEAVY TRKS >1 1/2 TON/PER	120	MI	0.40	48.00
00755	MI	120		00	70.00
	Number of Units	1			
86954	FUEL SURCHG-CARS/PICKUPS<1	120	MI	0.13	15.60
	1/2TON/PER/MI				
	Number of Units	1			
87605	FUEL SURCHG-CMT & CMT ADDITIVES/PER	60	MI	0.13	134.94
	TNM				
	NUMBER OF TONS	17.3			
372867	Cmt PSL - DOT Vehicle Charge, CMT	2	EA	215.20	430.40
16091	ZI - PUMPING CHARGE	1	EA	3,596.00	3,596.00
	DEPTH	320			
	FEET/METERS (FT/M)	FT			
16092	ADDITIONAL HOURS ON LOC (AS APPLY)	0	EA	828.00	0.00
	HOURS	1			······································
139	ADC (AUTO DENSITY CTRL) SYS, /JOB,ZI	1	EA	2,031.00	2,031.00
	NUMBER OF UNITS	1			
361922	LO TORC?VLV 2",W/HES,/DAY,ZI	1	EA	74.50	74.50
	TOTAL NUMBER	1			
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			
381901	Rotary Steel Hose 2", w/HES,per day, CMT	4	EA	78.00	312.00
	TOTAL NUMBER	1			
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			
361923	LEAD-OFF SWING,2",W/HES,/DAY,ZI	4	EA	43.40	173.60
	TOTAL NUMBER				
74020	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			1 100 00
74038	PLUG CONTAINER RENTAL	1 1	EA	0.00	1,180.00
	DAYS OR FRACTION (MIN1)	1			
101235693	25% disc. on plug(s) PLUG,CMTG,TOP,13 3/8,HWE,11.79 MIN/12.72	1		901.00	901.00
101233693			EA	891.00	891.00
·	PREMIUM PLUS CEMENT	360	SK	34.51	12,423.60
100005049	FLOCELE	90	LB	6.16	554.40
100005053	CALCIUM CHLORIDE HI TEST PLT	9	SK	199.30	1,793.70
76400	ZI MILEAGE, CMT MTLS DEL/RET MIN	60	MI	2.99	3,103.62
3965	NUMBER OF TONS HANDLE&DUMP SVC CHRG,	17.3		4.00	1.045.00
3703	CMT&ADDITIVES,ZI	377	CF	4.90	1,847.30
	NUMBER OF EACH	1			}
	Total			USD	30,395.26
	Less 51% Discount			USD	14,887.98
	Discounted Total			USD	15,507.28

Casing/Sales Equipment

Surface Casing

Mtrl Nbr	Description	<u>Qty</u>	<u>U/M</u>	Unit Price	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI	120	MI	5.14	616.80
	Number of Units	1			
86954	ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON	120	MI	0.13	15.60
	Number of Units	1			
101314697	SHOE,CSG,TIGER TOOTH,13-3/8 8RD	1	EA	1,321.00	1,321.00
100004705	V ASSY,INSR FLOAT,13 3/8,8RD	1	EA	1,273.00	1,273.00
100004487	CENTRALIZER-13 3/8"-CSG-17 1/2"-HINGED	4	EA	253.00	1,012.00
100004631	CLAMP - LIMIT - 13-3/8 - HINGED -	1	EA	71.40	71.40
100005045	KIT,HALL WELD-A	2	EA	66.30	132.60
	Total			USD	4,442.40
	Less Discount			USD	1,883.81
	Discounted Total			USD	2,558.59

Job Information

Intermediate Casing

Roberts 1-13

Surface Casing 0 - 320 ft (MD)

Outer Diameter 13.375 in
Inner Diameter 12.515 in
Linear Weight 48 lbm/ft
Thread STC
Casing Grade H-40

Intermediate Hole 320 - 1500 ft (MD)

Inner Diameter 11.000 in Job Excess 100 %

Intermediate Casing 0 - 1500 ft (MD)

Outer Diameter 8.625 in Inner Diameter 7.921 in Linear Weight 32 lbm/ft

Calculations

Intermediate Casing

Spacer: Total Spacer	$= 224.58 \text{ ft}^3$ $= 40.00 \text{ bbl}$
Spacer:	2
Total Spacer	$= 56.15 \text{ ft}^3$
	= 10.00 bbl
Cement: (1200.00 ft fill)	
$320.00 \text{ ft} * 0.4485 \text{ ft}^3/\text{ft} * 0 \%$	$= 143.53 \text{ ft}^3$
880.00 ft * 0.2542 ft ³ /ft * 100 %	$= 447.42 \text{ ft}^3$
Total Lead Cement	$= 590.94 \text{ ft}^3$
	= 105.25 bbl
Sacks of Cement	= 332 sks
Cement: (300.00 ft fill)	
300.00 ft * 0.2542 ft ³ /ft * 100 %	$= 152.53 \text{ ft}^3$
Tail Cement	$= 152.53 \text{ ft}^3$
	= 27.17 bbl

Shoe Joint Volume: (40.00 ft fill)40.00 ft * 0.3422 ft³/ft $= 13.69 \text{ ft}^3$ = 2.44 bbl $= 166.22 \text{ ft}^3$ Tail plus shoe joint = 29.60 bbl**Total Tail** = 123 sks

Job Recommendation

Intermediate Casing

Install floating equipment, run casing to bottom, and circulate minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid :	l: Mix	and.	Pump	40 bbl
177	XX7-4	-	D:31	

Fresh Water Gel Pill 2.5 lbm/bbl WG-19 (Gelling Agent) Fluid Density:

8.33 lbm/gal

Fluid Volume:

40 bbl

Fluid 2: Pump 10 bbl

Fresh Water

Fluid Density:

8.33 lbm/gal

Fluid Volume:

10 bbl

Fluid 3: Mix and Pump 335 sks

Halliburton Light Premium Plus 0.25 lbm/sk Flocele (Lost Circulation Additive) Fluid Weight Slurry Yield:

12.90 lbm/gal $1.78 \text{ ft}^3/\text{sk}$

Total Mixing Fluid:

9.54 Gal/sk

Top of Fluid:

0 ft 1200 ft

Calculated Fill: Volume:

105.25 bbl

Calculated Sacks:

331.62 sks

Proposed Sacks:

335 sks

Fluid 4: Mix and Pump 125 sks

Premium Plus Cement

94 lbm/sk Premium Plus Cement 0.25 lbm/sk Flocele (Lost Circulation Additive)

2 %

Calcium Chloride (Accelerator)

Fluid Weight

14.80 lbm/gal

Slurry Yield: Total Mixing Fluid: $1.35 \text{ ft}^3/\text{sk}$ 6.38 Gal/sk

Top of Fluid:

1200 ft

Calculated Fill:

300 ft 29.60 bbl

Volume: Calculated Sacks:

123.31 sks

Proposed Sacks:

125 sks

Cost Estimate

Intermediate Casing

Mtrl Nbr	Description	Qty	<u>U/M</u>	Unit Price	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI Number of Units	120	MI	5.14	616.80
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	120 1	MI	8.74	1,048.80
11941	FIELD STORAGE BIN DELIVERY Number of Units	120 1	MI	8.74	1,048.80
	0% disc. on surcharge(s) & permit(s)				
7	ENVIRONMENTAL SURCHARGE	1	EA	120.00	120.00
86955	FUEL SURCHG-HEAVY TRKS >1 1/2 TON/PER MI	120	MI	0.40	96.00
	Number of Units	2			
86954	FUEL SURCHG-CARS/PICKUPS<1 1/2TON/PER/MI Number of Units	120	MI	0.13	15.60
87605	FUEL SURCHG-CMT & CMT ADDITIVES/PER TNM	60	MI	0.13	167.70
	NUMBER OF TONS	21.5			
372867	Cmt PSL - DOT Vehicle Charge, CMT	2	EA	215.20	430.40
16091	ZI - PUMPING CHARGE DEPTH	1500	EA	3,596.00	3,596.00
	FEET/METERS (FT/M)	FT			
16092	ADDITIONAL HOURS ON LOC (AS APPLY) HOURS	0 1	EA	828.00	0.00
139	ADC (AUTO DENSITY CTRL) SYS, /JOB,ZI NUMBER OF UNITS	1 1	EA	2,031.00	2,031.00
16115	FIELD STORAGE BIN >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	1 1	EA	1,200.00	1,200.00
361922	LO TORC?VLV 2",W/HES,/DAY,ZI TOTAL NUMBER HR/DAY/WEEK/MTH/YEAR/JOB/RUN	1 1 DAY	EA	74.50	74.50
381901	Rotary Steel Hose 2", w/HES,per day, CMT TOTAL NUMBER HR/DAY/WEEK/MTH/YEAR/JOB/RUN	4 1 DAY	EA	78.00	312.00
361923	LEAD-OFF SWING,2",W/HES,/DAY,ZI TOTAL NUMBER	4	EA	43.40	173.60
74038	HR/DAY/WEEK/MTH/YEAR/JOB/RUN PLUG CONTAINER RENTAL DAYS OR FRACTION (MIN1)	DAY 1 1	EA	0.00	1,180.00
	25% disc. on plug(s)	-			
101227839	PLUG,CMTG,TOP,8 5/8,HWE,7.20 MIN/8.09 MA	1	EA	339.00	339.00
100003638	WG-19	100	LB	23.69	2,369.00
14241	HALLIBURTON LIGHT PREMIUM PLUS	335	SK	29.20	9,782.00
100005049	FLOCELE	115	LB	6.16	708.40
100012205	PREMIUM PLUS CEMENT	125	SK	34.51	4,313.75
100005053	CALCIUM CHLORIDE HI TEST PLT	3	SK	199.30	597.90
76400	ZI MILEAGE,CMT MTLS DEL/RET MIN NUMBER OF TONS	60 21.5	MI	2.99	3,857.10
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES,ZI	500	CF	4.90	2,450.00

Mtrl Nbr	Description	Oty	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
	NUMBER OF EACH	1			,
	Total			USD	36,528.35
	Less 51% Discount			USD	18,118.18
	Discounted Total			USD	18,410.17

Casing/Sales Equipment

Intermediate Casing

Mtrl Nbr	Description	<u>Otv</u>	<u>U/M</u>	Unit Price	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI Number of Units	120 1	MI	5.14	616.80
86954	ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON Number of Units	120 1	MI	0.13	15.60
101242322	SHOE,FLT,TROPHY SEAL,8 5/8 8RD	1	EA	552.00	552.00
101235370	CLR,FLT,TROPHY SEAL,8-5/8 8RD	1	EA	760.00	760.00
100004483	CENTRALIZER ASSY - API - 8-5/8 CSG X	8	EA	174.00	1,392.00
100004628	CLAMP - LIMIT - 8-5/8 - HINGED -	1	EA	50.70	50.70
100005045	KIT,HALL WELD-A	1	EA	66.30	66.30
	Total			USD	3,453.40
	Less Discount			USD	1,553.59
	Discounted Total			USD	1,899.81

Job Information

Production Casing (Option 1)

Roberts 1-13

Intermediate Casing 0 - 1500 ft (MD)

Outer Diameter 8.625 in Inner Diameter 7.921 in Linear Weight 32 lbm/ft

Production Open Hole 1500 - 9100 ft (MD)

Inner Diameter 7.875 in Job Excess 30 %

Production Casing 0 - 9100 ft (MD)

Outer Diameter 5.500 in Inner Diameter 4.892 in Linear Weight 17 lbm/ft

Calculations

Production Casing (Option 1)

Spacer:			
Брассі.	593.00 ft * 0.1733 ft ³ /ft * 30 % Total Spacer	=	133.56 ft ² 133.63 ft ² 23.80 bbl
Spacer:	125.00 ft * 0.1733 ft ³ /ft * 30 % Total Spacer	=	28.15 ft ³ 28.07 ft ³ 5.00 bbl
Cement	: (1000.00 ft fill) 1000.00 ft * 0.1733 ft ³ /ft * 30 % Total Lead Cement	=	225.23 ft ³ 225.23 ft ³ 40.12 bbl
	Sacks of Cement	=	112 sks
Cement	: (1600.00 ft fill) 1600.00 ft * 0.1733 ft ³ /ft * 30 % Tail Cement	=	360.37 ft ³ 360.37 ft ³ 64.18 bbl
	int Volume: (40.00 ft fill)		5 00 C3
	40.00 ft * 0.1305 ft ³ /ft	=	5.22 ft ³ 0.93 bbl
	Tail plus shoe joint		365.59 ft ³ 65.11 bbl
	Total Tail		223 sks

Job Recommendation

Production Casing (Option 1)

Install floating equipment, run casing to bottom, and circulate minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Fluid 1: Mix and Pump 1000 gals

MUD FLUSH Fluid Density: 8.40 lbm/gal

Fluid Volume: 23.80 bbl

Fluid 2: Pump 5 bbl

Fresh Water Fluid Density: 8.33 lbm/gal

Fluid Volume: 5 bbl

Fluid 3: Mix and Pump 115 sks

Halliburton Light Premium Fluid Weight 12.40 lbm/gal 0.25 lbm/sk Flocele (Lost Circulation Additive) Slurry Yield: 2.00 ft³/sk

Total Mixing Fluid: 11.20 Gal/sk
Top of Fluid: 6500 ft

Calculated Fill: 1000 ft
Volume: 40.12 bbl

Calculated Sacks: 112.45 sks

Proposed Sacks: 115 sks

Fluid 4: Mix and Pump 225 sks

Super H Cement Fluid Weight 13.20 lbm/gal 0.5 % LAP-1 (Low Fluid Loss Control) Slurry Yield: 1.64 ft³/sk 0.25 lbm/sk D-AIR 3000 (Defoamer) Total Mixing Fluid: 8.47 Gal/sk 0.4 % CFR-3 (Dispersant) Top of Fluid: 7500 ft 0.2 % HR-7 (Retarder) Calculated Fill: 1600 ft 3 lbm/sk Salt (Salt)

bm/sk Salt (Salt) Volume: 65.11 bbl
Calculated Sacks: 223.19 sks
Proposed Sacks: 225 sks

These cement volumes are based on field experience in the area and should be recalculated if a caliper log should become available.

Note: Actual retarder concentrations to be determined through lab testing.

Cost Estimate

Production Casing (Option 1)

Mtrl Nbr	<u>Description</u>	Qty	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI Number of Units	120	MI	5.14	616.80
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	120	MI	8.74	1,048.80
11941	FIELD STORAGE BIN DELIVERY	120	MI	8.74	1,048.80
	Number of Units 0% disc. on surcharge(s) & permit(s)				
7	ENVIRONMENTAL SURCHARGE	1	EA	120.00	120.00
86955	FUEL SURCHG-HEAVY TRKS >1 1/2 TON/PER MI	120	MI	0.40	96.00
	Number of Units	2			
86954	FUEL SURCHG-CARS/PICKUPS<1 1/2TON/PER/MI	120	MI	0.13	15.60
87605	Number of Units FUEL SURCHG-CMT & CMT ADDITIVES/PER	60	MI	0.13	121.37
87005	TNM NUMBER OF TONS	15.56	1711	0.13	121.57
372867	Cmt PSL - DOT Vehicle Charge, CMT	3	EA	215.20	645.60
16091	ZI - PUMPING CHARGE	$\frac{1}{1}$	EA	8,992.00	8,992.00
10071	DEPTH FEET/METERS (FT/M)	9100 FT		3,27 = 100	.,.
16092	ADDITIONAL HOURS ON LOC (AS APPLY) HOURS	0	EA	828.00	0.00
139	ADC (AUTO DENSITY CTRL) SYS, /JOB,ZI NUMBER OF UNITS	1 1	EA	2,031.00	2,031.00
16115	FIELD STORAGE BIN >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	1 1	EA	1,200.00	1,200.00
361922	LO TORC?VLV 2",W/HES,/DAY,ZI TOTAL NUMBER HR/DAY/WEEK/MTH/YEAR/JOB/RUN	1 1 DAY	EA	74.50	74.50
381901	Rotary Steel Hose 2", w/HES,per day, CMT TOTAL NUMBER HR/DAY/WEEK/MTH/YEAR/JOB/RUN	4 1	EΑ _Ų	78.00	312.00
361923	LEAD-OFF SWING,2",W/HES,/DAY,ZI TOTAL NUMBER	DAY 4 1	EA	43.40	173.60
74038	PLUG CONTAINER RENTAL DAYS OR FRACTION (MIN1)	DAY 1 1	EA	0.00	1,180.00
· · · · · · · · · · · · · · · · · · ·	25% disc. on plug(s)				
101237390	PLUG,CMTG,TOP,5 1/2,HWE,4.38 MIN/5.09 MA	1	EA	185.00	185.00
13383	MUD FLUSH	1000	GAL	1.93	1,930.00
12311	HALLIBURTON LIGHT PREMIUM	115	SK	28.11	3,232.65
100005049	FLOCELE	29	LB	6.16	178.64
14532	PERMIAN BASIN SUPER H CEMENT	225	SK	56.55	12,723.75
100012766	LAP-1	98	LB	19.92	1,952.16
101007446	D-AIR 3000	57	LB	8.99	512.43
100003653	CFR-3	79	LB	12.89	1,018.31
100003695	SALT,CEM GR	675	LB	0.43	290.25
100005055	HR-7 CEMENT RETARDER	40	LB	4.59	183.60

Mtrl Nbr	Description	Qty	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
76400	ZI MILEAGE,CMT MTLS DEL/RET MIN	60	MI	2.99	2,795.05
	NUMBER OF TONS	15.58			
3965	HANDLE&DUMP SVC CHRG,	467	CF	4.90	2,288.30
	CMT&ADDITIVES,ZI				
	NUMBER OF EACH	1			
	Total			USD	44,966.21
	Less 51% Discount			USD	22,423,52
	Discounted Total			USD	22,542.69

Casing/Sales Equipment

Production Casing (Option 1)

Mtrl Nbr	Description	Qty	<u>U/M</u>	Unit Price	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI	120	MI	5.14	616.80
	Number of Units	1			
86954	ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON	120	MI	0.13	15.60
	Number of Units	1			
100004895	SHOE,FLOAT,5 1/2 8RD,2 3/4 SUPER SEAL	1	EA	680.00	680.00
100004769	CLR,FLT,5-1/2 8RD,14-23PPF,2-3/4	1	EA	797.00	797.00
100004624	CLAMP - LIMIT - 5-1/2 - HINGED -	1	EA	43.20	43.20
100005045	KIT,HALL WELD-A	1	EA	66.30	66.30
	Total			USD	2,218.90
	Less Discount			USD	917.44
	Discounted Total			USD	1,301.46

Job Information

Production Casing (Option 2)

Roberts 1-13

Intermediate Casing 0 - 1500 ft (MD)

Outer Diameter 8.625 in Inner Diameter 7.921 in Linear Weight 32 lbm/ft

Production Open Hole 1500 - 9100 ft (MD)

Inner Diameter 7.875 in Job Excess 30 %

Production Casing 0 - 9100 ft (MD)

Outer Diameter 5.500 in Inner Diameter 4.892 in Linear Weight 17 lbm/ft

Multiple Stage Cementer 7500 ft (MD)

 $40.00 \text{ ft} * 0.1305 \text{ ft}^3/\text{ft}$

Tail plus shoe joint

Total Tail

Calculations

Production Casing (Option 2)

Stage 1 Spacer:			
~pacca.	593.00 ft * 0.1733 ft ³ /ft * 30 %	=	133.56 ft ³
	Total Spacer	=	133.63 ft ³
		= ;	23.80 bbl
Spacer:			
•	125.00 ft * 0.1733 ft ³ /ft * 30 %	= :	28.15 ft ³
	Total Spacer	= ;	28.07 ft ³
	•	= .	5.00 bbl
Cement	: (1800.00 ft fill)		
	1800.00 ft * 0.1733 ft ³ /ft * 30 %	= 4	405.42 ft ³
	First Stage Lead Cement	= 4	405.42 ft ³
	-	= '	72.21 bbl
Shoe Jo	int Volume: (40.00 ft fill)		

 $= 5.22 \text{ ft}^3$ = 0.93 bbl

 $= 410.64 \text{ ft}^3$ = 73.14 bbl

= 250 sks

Stage 2

Spacer:

593.00 ft * 0.1733 ft³/ft * 30 % = 133.56 ft³ Total Spacer = 133.63 ft³ = 23.80 bbl

Spacer:

125.00 ft * 0.1733 ft³/ft * 30 % = 28.15 ft³ Total Spacer = 28.07 ft³ = 5.00 bbl

Cement: (706.00 ft fill)

 $706.00 \text{ ft} * 0.1733 \text{ ft}^3/\text{ft} * 30 \%$ = 159.01 ft³ Total Second Stage Lead Cement = 159.01 ft³ = 28.32 bbl Sacks of Cement = 116 sks

Cement: (294.00 ft fill)

294.00 ft * 0.1733 ft³/ft * 30 % = 66.22 ft^3 Second Stage Tail Cement = 66.22 ft^3 = 11.79 bbl

Shoe Joint Volume: (0.00 ft fill)

 $0.00 \text{ ft} * 0.1305 \text{ ft}^3/\text{ft}$ = 0.00 ft^3 = 0.00 bbl

Tail plus shoe joint $= 66.22 \text{ ft}^3$ = 11.79 bbl= 50 sleep

Total Tail = 50 sks

Job Recommendation

Production Casing (Option 2)

Install floating equipment, run casing to bottom, and circulate minimum of 2-3 hole volumes prior to cementing as follows:

Fluid Instructions

Stage 1

MUD FLUSH Fluid Density: 8.40 lbm/gal Fluid Volume: 23.80 bbl

Fluid 2: Pump 5 bbl

Fresh Water Fluid Density: 8.33 lbm/gal

Fluid Volume: 5 bbl

Fluid 3: Mix and Pump 255 sks

Super H Cement Fluid Weight 13.20 lbm/gal 0.5 % LAP-1 (Low Fluid Loss Control) Slurry Yield: 1.64 ft³/sk

0.4 %CFR-3 (Dispersant)Total Mixing Fluid:8.46 Gal/sk0.25 lbm/skD-AIR 3000 (Defoamer)Top of Fluid:7300 ft3 lbm/skSalt (Salt)Calculated Fill:1800 ft

0.7 % HR-7 (Retarder) Volume: 73.14 bbl
Calculated Sacks: 250.24 sks
Proposed Sacks: 255 sks

DV Tool 7500 ft (MD)

Circulate a minimum of 4 hours between stages.

Stage 2

Fluid 1: Mix and Pump 1000 gals

MUD FLUSH Fluid Density: 8.40 lbm/gal Fluid Volume: 23.80 bbl

Fluid 2: Pump 5 bbl

Fresh Water Fluid Density: 8.33 lbm/gal

Fluid Volume: 5 bbl

Fluid 3: Mix and Pump 120 sks

50/50 Poz Premium Fluid Weight 13.80 lbm/gal 0.3 % Halad(R)-322 (Low Fluid Loss Control) Slurry Yield: 1.37 ft³/sk

Total Mixing Fluid: 6.62 Gal/sk

Top of Fluid: 6500 ft

Calculated Fill: 706 ft

Volume: 28.31 bbl

Calculated Sacks: 116.26 sks

Proposed Sacks: 120 sks

Fluid 4: Mix and Pump 50 sks

Premium Plus Cement Fluid Weight 14.80 lbm/gal 94 lbm/sk Premium Plus Cement Slurry Yield: 1.33 ft³/sk

Total Mixing Fluid: 6.34 Gal/sk

Top of Fluid: 7206 ft

Calculated Fill: 294 ft

Volume: 11.81 bbl

Calculated Sacks: 50 sks
Proposed Sacks: 50 sks

These cement volumes are based on field experience in the area and should be recalculated if a caliper log should become available.

Note: Actual retarder concentrations to be determined through lab testing.

Cost Estimate

Production Casing (Option 2)

Mtrl Nbr	<u>Description</u>	<u>Oty</u>	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI	120	MI	5.14	616.80
	Number of Units	1			
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT	120	MI	8.74	1,048.80
	Number of Units	1			
11941	FIELD STORAGE BIN DELIVERY	120	MI	8.74	1,048.80
	Number of Units	1			
	0% disc. on surcharge(s) & permit(s)				
7	ENVIRONMENTAL SURCHARGE	1	EA	120.00	120.00
86955	FUEL SURCHG-HEAVY TRKS >1 1/2 TON/PER MI	120	MI	0.40	96.00
	Number of Units	2			
86954	FUEL SURCHG-CARS/PICKUPS<1	120	MI	0.13	15.60
	1/2TON/PER/MI				
	Number of Units	1			
87605	FUEL SURCHG-CMT & CMT ADDITIVES/PER	60	MI	0.13	149.68
	TNM				
	NUMBER OF TONS	19.19			
372867	Cmt PSL - DOT Vehicle Charge, CMT	4	EA	215.20	860.80
16093	MSC PUMP CHARGE (1ST STAGE), ZI	1	EA	8,992.00	8,992.00
	DEPTH	9100			
	FEET/METERS (FT/M)	FT			
16	MULTIPLE STAGE CEMENTING	1	STG	4,138.00	4,138.00
	Number of Units	1			
17	MSC ON SITE,ADD HR,ZI	0	H	696.00	0.00
	Number of Units	1			
139	ADC (AUTO DENSITY CTRL) SYS, /JOB,ZI	1	EA	2,031.00	2,031.00
	NUMBER OF UNITS	1			
16115	FIELD STORAGE BIN >8 HRS,DAY,ZI	1	EA	1,200.00	1,200.00
	DAYS OR PARTIAL DAY(WHOLE NO.)	1			
116	BOOSTER PUMP-SKID,/DAY,ZI	1	EA	1,216.00	1,216.00
	NUMBER OF DAYS	1			
361922	LO TORC?VLV 2",W/HES,/DAY,ZI	1	EA	74.50	74.50
	TOTAL NUMBER	1			
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			
381901	Rotary Steel Hose 2", w/HES,per day, CMT	4	EA	78.00	312.00
	TOTAL NUMBER	1			
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			
361923	LEAD-OFF SWING,2",W/HES,/DAY,ZI	4	EA	43.40	173.60
	TOTAL NUMBER	1			
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN	DAY			
74038	PLUG CONTAINER RENTAL	1	EA	0.00	1,180.00
	DAYS OR FRACTION (MIN1)	1			
13383	MUD FLUSH	2000	GAL	1.93	3,860.00
14532	PERMIAN BASIN SUPER H CEMENT	255	SK	56.55	14,420.25
100012766	LAP-1	111	LB	19.92	2,211.12
100003653	CFR-3	89	LB	12.89	1,147.21
101007446	D-AIR 3000	64	LB	8.99	575.36
100003695	SALT,CEM GR	765	LB	0.43	328.95
100005055	HR-7 CEMENT RETARDER	156	LB	4.59	716.04

Mtrl Nbr	Description	Oty	<u>U/M</u>	<u>Unit Price</u>	Gross Amt
12302	50-50 POZ (PREMIUM)	120	SK	24.64	2,956.80
100003646	HALAD-322	31	LB	16.58	513.98
100012205	PREMIUM PLUS CEMENT	50	SK	34.51	1,725.50
76400	ZI MILEAGE,CMT MTLS DEL/RET MIN	60	MI	2.99	3,442.69
	NUMBER OF TONS	19.19			
3965	HANDLE&DUMP SVC CHRG,	562	CF	4.90	2,753.80
	CMT&ADDITIVES,ZI				
	NUMBER OF EACH	1			
	Total			USD	57,925.28
	Less 51% Discount			USD	28,908.45
	Discounted Total			USD	29,016.83

Casing/Sales Equipment

Production Casing (Option 2)

Mtrl Nbr	Description	<u>Oty</u>	<u>U/M</u>	Unit Price	Gross Amt
2	MILEAGE FOR CEMENTING CREW,ZI	120	MI	5.14	616.80
	Number of Units	1			
86954	ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON	120	MI	0.13	15.60
	Number of Units	1			
100004895	SHOE,FLOAT,5 1/2 8RD,2 3/4 SUPER SEAL	1	EA	680.00	680.00
100004769	CLR,FLT,5-1/2 8RD,14-23PPF,2-3/4	1	EA	797.00	797.00
100013917	CMTR,TY P ES,5-1/2 LG 8RD,17-23 LBS	1	EA	7,945.00	7,945.00
100004672	PLUG SET - FREE FALL - 5-1/2 8RD &	1	EA	965.00	965.00
100004624	CLAMP - LIMIT - 5-1/2 - HINGED -	1	EA	43.20	43.20
100005045	KIT,HALL WELD-A	2	EA	66.30	132.60
	Total			USD	11,195.20
	Less Discount			USD	4,328.44
	Discounted Total			USD	6,866.76

Conditions

NOTE

The cost in this analysis is good for the materials and/or services outlined within. These prices are based on Halliburton being awarded the work on a first call basis. Prices will be reviewed for adjustments if awarded on 2nd or 3rd call basis and/or after 30 days of this written analysis. This is in an effort to schedule our work and maintain a high quality of performance for our customers.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. A copy of the latest version of our General Terms and Conditions is available from your Halliburton representative or at:

http://www.halliburton.com/hes/general_terms_conditions.pdf for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.

Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.

If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice.

Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.