HOBBS OCD

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AUG 1 7 2012 Form 3160-5 September 2001)	UNITED STATES		CD Hobbs		FORM APPROVED OM B No 1004-0135	
	BUREAU OF LAND MANA			5. Lease Sen	Expires January 31, al No	2004
	NOTICES AND REP	ORTS ON WE	LLS	LC-069		<u> </u>
Do not use the abandoned w	his form for proposals to rell. Use Form 3160-3 (A	odrill or to re- PD) for such pr	enter an oposals.	6. If Indiar	n, Allottee or Tribe N	lame
·····	IPLICATE- Other instru	· - · · · · · · · · · · · · · · · · · ·	rse side.	7. If Unit o	r CA/Agreement, Na	ame and/or No
1. Type of Well ✓ Oil Well□ □ [Gas Well 🗆 📄 Other	(8. Well Na	me and No.	
2 Name of Operator SandRidge I	Expl. & Prod., LLC	1		Elliott 9 API W	Federal#4	
a Address 123 Robert S. Kerr Ave., Okla	shoma City, OK 73102	3b Phone No. (inclua 405-429-6518	le area code)	30-025		
Location of Well (Footage, Sec.,				Wantz	d Pool, or Explorate ; Abo	ry Area
1285' FSL & 580' FEL, Sec 9				11 County	or Parish, State	
				Lea Co	., NM	1
12. CHECK A	PPROPRIATE BOX(ES) TO I	INDICATE NATU	RE OF NOTICE, R	EPORT, OF	ROTHER DATA	λ
TYPE OF SUBMISSION		TY	PE OF ACTION			
Notice of Intent	Acidize	Deepen Fracture Treat	Production (Sta	art/Resume)	Water Shut-O Well Integrity	
Subsequent Report	Casing Repair	New Construction Plug and Abandon	Recomplete	andon		ossible cement
Final Abandonment Notice	Convert to Injection	Plug Back	Water Disposal		squee	
annulus during frac treat circulating to surface. Ce SandRidge calculated mo	LLC respectfully requests to p ments and notes to squeeze if comment did not circulate on accounce than adequate cement to norn which we believe should still pro-	mmunication is obse nt of a severe hole ''' nally circulate to su	rved during the frac washout'' up hole nea face but the ''washou	which may o ar the bottom ut'' allowed c	ccur due to cemen of the 8 5/8'' surf ement to only rea	nt not ace casing.
Thank you for your consi	leration of our proposal.					_
	TTACHED FOR TIONS OF APPRO	VAL			PPROV Photo 13	ED manuels 2012
4 I hereby certify that the fore Name (Printed/Typed) Spence Laird	going 15 true and correct	Title R	egulatory Analyst		UREAU OF LAN	WAN FILL
Signature Sow	1 trial	Date	0	8/08/2012	UP.12	icn 1
	THIS SPACE FOR FI	EDERAL OR S	TATE OFFICE	USE	TOPAL	WH 1
onditions of approval, if any, are a	rd G. Ferman Ittached Approval of this notice do or equitable title to those rights in t	es not warrant or	PETROL	EUME	WGINEE	- <u>^</u> 1?
hich would entitle the applicant to	conduct operations thereon.			1	1	R cylofing Nafile
	43 U.S.C. Section 1212, make it a c ent statements or representations as	to any matter within it	s jurisdiction		BURFAU UP	DFIELD
Instructions on page 2)			XN	L	Unit	
			r	AUG 2	e o 2012	

CONDITIONS OF APPROVAL Sundry dated 8/8/2012

	Sundry dated 8/8/2012
OPERATOR'S NAME:	SANDRIDGE EXPLORATION & PRODUCTION
LEASE NO.:	NMLC69048
WELL NAME & NO.:	4 ELLIOT FEDERAL
SURFACE HOLE FOOTAGE:	1285' FSL & 580' FEL
LOCATION:	Section 9, T.21 S., R.38 E., NMPM
COUNTY:	Lea County, New Mexico

- 1. Surface disturbance beyond the existing pad must have prior approval.
- 2. Closed loop system required.
- 3. 3000 (3M) BOP to be used. All blowout preventer (BOP) and related equipment (BOPE) shall comply with reasonable well control requirements. A two ram system with a blind ram and a pipe ram designed for the size of the work string shall be adequate. Tapered work strings will require an additional pipe ram. The manifold shall comply with Onshore Oil and Gas Order #2 Attachment I (2M Diagrams of Choke Manifold Equipment). The accumulator system shall have an immediately available power source to close the rams and retain 200 psi above pre-charge. The pre-charge test shall follow requirements in Onshore Order #2.
- 4. Hydrogen Sulfide has been reported in this section As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.
- 5. The operator is required to <u>TAG the FRAC</u> stages with a tracer and run a tracer survey to ensure the injected Prop is not placed out of zone. Report results to BLM.
- 6. The operator shall set their <u>Pop-off valve to be set to go off at 750 psi</u>. If communication is encountered on the annulus during the FRAC treatment and the pop-off valve goes off <u>shut down and the BLM shall be notified</u> <u>before proceeding.</u> "Provide frac job documentation to BLM"
- 7. Subsequent sundry with well test and wellbore schematic required.
- 8. Work to be completed in 90 days.

NOTE to Operator the Original APD was approved for the Wantz: Abo formation not the Drinkard. The operator does not have approval to commingle the Drinkard with the Abo.

The operator shall submit a sundry notice to the BLM to requesting approval to Down hole Commingle the Abo and Drinkard formations with a copy of the C-107A and test allocations; <u>before putting well on production</u>.

EGF 081312

Well name Elliott Federal #4

 Field
 McEh an

 State, County
 New Mexco Lea

 Locatuon
 Section 5 TWP 21S RNG 38E

 TD
 8,08*

 PBTD
 7.982

 TOC
 1.0C *q*-10' bx CBL 7/26/12

 KB
 5.57

 GL
 3.565'

 Wellhead
 Larkin Head

 Misk, info
 5.5° xong fluid

 BHT
 HT

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Engineer in Charge Torrey Wetsel Office 405-429-6429, Cell 405-365-6529, twetsel @sandridgeenergy com

CSG	OD	ID	Dnft	GRADE	THD	WT/FT	TOP	BTM	# JTS	BIT SZE	DEPTH	SXS	Burst	Collapse
Surface	8 625"	8 097"	7 972"	J-55	ST&C	24 00#	0'	1,640	39	12 250"	0'	850	2,950	1 370
Prod	5 500"	4 892"	4 767"	L-80	LT&C	17 00#	0,	8 072'	195	7 875"	8075	1400	7 740	6,290
Production Tubing	2 875"	2 441"	2 347"	J-55	8 RD	0.00#	0'	00'	0	•	-		7,260	7 680

en / 20 prog 80% of 2-7/8" (bolog 80% of 2-7/8" N-80 Workstring 8,453 psig PURPOSE The purpose of this completion procedure is to complete and test the Lower and Upper Wichita Albany and Lower Clearfork in 4 Stages as detailed below All

10 20 ppg Drilling Fluid 2% KCL Water 114 'F at 7703'

stages to be stimulated via 5-1/2" casing

LOG INFORMATION

OPEN HOLE LOGS Weatherford duted 18 ЛЛ.У 2012 CASED HOLE LOGS GRAY CBL-GR-CCL ran 26 July 2012

CORRELATION Correlation of CBL and open hole logs will have to be done on location NOTE. Perforations were selected off of the open hole logs

STAGE 1. LOWER ABO (7440'-7450' & 7514'-7522' OA)

1. MIRU flow/swab testing tank and hard-line to the wellhead. ND wellhead: NU 10 000 psr-dual frae valves

2 MRU GRAY WL Correlate to GR/CCUCBL dated 26 July 2012 and PU & RIH with 5-10²² Gauge. Ring and Junk Basket to PHID PU & RIH with Dump Basker and spot 3 bibls 20% NETE HCL from -7522 to -7400¹² PU and RIH with 1-V8²⁷ TAG volume. WeEN HERO SDP-3375-411NT3 charges (25 gram, 0-42¹² entr. hole) Correlate to GRVCCDCB1 and perforts. the Lower Abor as follows (with pump in with valvet) and 5-112² causing way gas table with in mit.

STAGE 1

		LOWER	ABO		
Top Peri	Base Perl	Phasing	Feet	SPI	Lot il holes
7 440'	7 450'	60*	10'	6	60
7 514'	7 522'	60*	8'	6	-18
		Fotals	18'		108 shots

3 PU & RIH with 3-3/8" X 6* "stuck" GAS GUN solid propellant stimulation system. Correllate to Gray Wireline CBL and stimulate the Lower Abo perforated interal from 7,514'-7,520' PU & RIH with 3-3/8" X 4* "stuck" GAS GUN solid propellant stimulation system. Correllate to Gray Wireline CBL and stimulate the Lower Abo perforated interal from 7,440'-7,446'

4 Add ante-mulsion chemicals supplied by Smart Chemical Services to fractions prior to loading acid. MIRU standation service company. Hold safety meeting and test fractices and lines. Initiate breakdown by pumping treated 10# Brine Water down casing. Perform acid fracture simulation treatment of the Lower Wichts Album per the attached pumping scheduk via 5-12? casing at 30 bpm op to a maximum STP = 6200 pig. <u>Tag acid with Jrc132 Radioactive Tracer</u>. Special Note <u>Monitor the S-12? a 8-58? annulus</u>, with electronic neutronal starts <u>Part of the 14.50 pig. (Journal of 15.50 pig. Tag acid with Jrc132 Radioactive Tracer</u>. Special Note <u>Monitor the S-12? a 8-58? annulus</u>, with electronic neutronal starts <u>Part of 10.50 pig. (Journal of 15.50 pig. (Journal of 15.50 pig.)). Constrained and an attractive proceeding.</u>

Record ISIP 5 man 10 man, 15 man 20 man

5 Proceed to complete Stage 2

STAGE 2

STAGE 2 UPPER ABO (7340'-7350' OA)

6 PU & RHI with a CIBP and set at 7430 ft PU & RHI with Dump Bailer and spot 3 bbls 20% NDFL HCL from ~750' to ~7220' PU and RHI with 1-18" 1AG system - OWEN HERO SDP-3375-111713 charges (25 gram, 0.42" entry hole) Correlate to GPUCCL/CHL and perforate the Upper Abo as Inflows (with pump my sub valve(s) and 5-1/2" casing wing valve should in m)

		UPPER	<u>ABO</u>		
Top Perl	Base Perf	Phasing	Feet	SPF	Total holes
7 340	7 350'	60*	10,	6	60
		Lotals	10'		60 shots

7 PU & RiH with 3-3/8" X 6' "stick" GAS GUN solid propellant stimulation system Correllate to Gray Wireline CBL and stimulate the Upper Abo perforated interal from 7,340'-7,346'

8 Add anti-envision chemicals supplied by Smart Chemical Services to frac tanks prior to loading acid. MiRU Simulation service company. Told solety meeting and test face stack and lines Initiate breakdown by pumping treated 10# Brain. Water down casing: Perform and fracture simulation treatment of the Wichita Alkuny per the attached pumping schedule, su 5-12° casing at 25 bpm up to a maximum STP = 6200 psig. <u>Tag acid with Sci-66 Radioactive Tracer</u>. Special Note: <u>Monitor the S-12° s 3-58th annulus with selectrone previous gauge at 25 bpm up to a maximum STP = 6200 psig. <u>Tag acid with Sci-66 Radioactive Tracer</u>. Special Note: <u>Monitor the S-12° s 3-58th annulus with selectrone previous gauge at a 25 bpm up to a maximum STP = 6200 psig. <u>Tag acid with Sci-66 Radioactive Tracer</u>. Special Note: <u>Monitor the S-12° s 3-58th annulus with selectrone previous gauge at a 25 bpm. J. Communication to recommendent on annulus during frac treatment and the Ponp-Off salve goes off, Shuji-Duwn and notifs OKC Operations Engineer and BLM Casibad, NM Field Office before proceeding.</u></u></u>

Record ISIP 5 min, 10 min, 15 min 20 min Close frac valves and RD stanulation company

9 Remain SI at kast 4 hours or overrught for acid to react. Flow well-down on 16/64" ck until well-dow. ND and release trac valves

BRIDGE PLUG DRILL OUT AND RA TRACER SURVEY

10 MT unload rack and taik 2-7/8" E102 Rd 6.5 ppl N80 WS PU and RH1 with new 4-3/4" mull & DC's on 2-7/8" WS & tag top of CIBP @ 7430" RU power switel and reverse out E-tablish exclusion down annulus and up tubing 11 cannot reverse circulate RU Foam Unit to drill out CIBP at 7430" Clean out to PBTD at 7982" and circulate clean. POII and ED WS and the & DC's

SUBMIT RA TARCER TO BLM

11 MRU Slackline Unit PU & RH withthe SPECTRA Log RA tracer survey and run post frac height log across the Lower and Upper Abo intervals from PBTD 'a 7982 ft to =7000 ft Submit RA Tracer log results to BLM Califordia NM heid Office for approval to proceed with production

PUMP TEST LOWER AND UPPER ABO STAGE 1 AND 2

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Eflott Federal #4 Completion Prog xIsx

12 Put well on pump test to evaluate the production performance of the Lower and Upper Abo Stage 1 and 2 untervals as follows: MI rack & tailes new 2-7/8° EUE 8 rd 1-55.6.5 ppl production tubing: MU and TIH with production BHA (no bull plogged mud anchor will run pump with 10° dp tube usede casing) on tubing. Want SN @ -7572° and TAC @ - 7110° Note string details on report and an WellView. ND stripping head and BOP, set TAC in 15,0008 tension, NU W HJ Flange land tubing with stripping robbet; tubing slips & bool compression plate packing and harmore rap. RHI with trood string plate takes the XRD does in DO NOT RUN ANY CUIDE DR DONS. Bey use to note in WellView and on the dath report the rod manufacturer and grade. RU horse head RU KT load tubing and test pump to 500 psi with FW RDMO KT. RD WSU and POP. Report no less than 10 days of production in Well View. "NOTE: Once all stimulation flow back, water is recovered, obait in a formation water sample and vubing to the hand accessing and whom to the chick and generation to the stimulation flow back, water is recovered, obait in a formation water sample and vubing to the chick and submit to Tech Management for testing and analyse. They take and harmore to the Resonance for testing and management f analysis Have lab analysis results sent to OKC office Operations Engineer

SUBMIT REQUEST TO COMMINGLE ABO AND DRINKARD TO BLM

13 Once adequate production data has been acquired on the Abo (approx 15 days). Submit a sundry notice to BLM C-107A <u>Request Downhole Commingle Abo and Drinkard</u> intervals. Once approval to Commingle Abo and Drinkard intervals has been received from BLM, proceed to STEP 14 to complete the Drinkard

STAGE 3: DRINKARD (6785'-6795')

14 MIRU WSU POH with plunp and rods SB same NU BOP's & strapper head. Unset TAC and POH and SB production tubing

15 MIRU GRAY WL with full lubricator pump-in sub and pack off PU and RIH with CIBP and set same at +/-7300° RU KT and load casing with treated 2% KCL water and test casing and CIBP to 3000 pa surface pressure. PU & RIH with Dump Baller and spot 3 bits 20% NETE HCL from -6795 to -6667° POOH with setting tool. PU and RIH with 3/8° TAG system - OWEN HERO SDP-3375-411NT3 charges (25 gram, 0.42° entry hole). Correlate to Grav Wireline CBL and periorate the Drinkard as follows (with pump in sub valve(s) and 5-1/2" casing wing valves shut in)

STAGE 3

Ton Perl	Base Pert	Phasing	Fut	SPF	Fot y hole
6 785'	6 795	60	10'	6	60
0765	0795	Totals	10 1		60 shots

16 PU & RIH with 3-3/8" X 6' "stick" GAS GUN solid propellant stimulation system Correllate to Gray Wireline CBL and stimulate the Drinkard perforated interval 6785'-6791'

Record ISIP 5 man 10 min 15 min 20 min Close frac valves and RD stimulation company

18 Remain SI at least 4 hours or overnight for acid to react. Flow well down on 16/64" ck until well dies. ND and release frae valves

BRIDGE PLUG DRILL OUT AND RA TRACER SURVEY

Provide TIACOL Servey To Servey To BLM 19 NU BOP NU strapper hand PU and RH1 with new 4-34P mill & DC's on 2-78P WS & tag CISP @ 7300. RU priver switcel and recorse time. Attempt to reverse circulate if cannot reverse circulate. RU from Unit to drill out CISP at 7300. Clean out to PB1D at 7982 and circulate clean. POII and LD WS and bit & DC's

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20 MIRU Skekline Unit PU & RIII with the SPECTRA Log RA fracer survey and run post fixe height log across the Abo and Drinkard intervals from PB FD /// 7982 B to ~6500 ft Submit RA Tracer log results to BLM Catrisbad. NM Field Office for approval to protect with production -----

COMMINGLE ABO-AND DRMKARD

-----21 FU and FIII with production BIA (no bull plugged and anchor, will run pamp with 10° dpt tabe invide caving) on tabing. Wan SN '0' 7572' and 1AC '@ 6585'. Note viring details on report and in WIPwaw. ND stripping-bella molPMQP, set 1AC in 15 0000 (answan NU 3K WII Finge, tabla lubing with stripper tribber tubing dips & bowl comprosion plate packing and hammer cap. RHA/shift and string per attached RU ROD design. He wave to note in Well View and on the dath report the rod manufacturer and grade. RU have based RU RT lagd ubing call level packing and level packing

Well name	Elliott Federal #4	
I teld	McElvan	
State County	New Mexico Lea	
Location	Section 9 TWP 21S RNG 38E	
TD	\$ 083'	
PBID	7 982'	
roc	TOC @ 4001by CBL 7/26/13	
KB	3 578	
GL	3 565	
Wellhead	Larkin Head	
Mise info	5.5" COll annular fleid	10 20 ppg Drilling Fluid
	5.5" cesing fluid	2% KCL Watur
	ВНТ	114 °F at 7703'



Engineer in Churge Torrey Weisel Office: 405-429-6429, Cell 405-365-6529, tweisel@sandridgeenergy.com

CSG	OD	ID	Drift	GRADE	THD	W F/FT	FOP	B1M	#JTS	BIT SZE	DEPTH	SVS	Burst	Collapse
Surface	\$ 625"	\$ 097°	7 972"	J-55	ST&C	24 00#	0'	1 640'	39	12 250"	0'	850	2 950	1 370
Prod	5 500"	4 \$92*	4 767"	L-80	LI&C	17 00#	0	8 072'	195	7 875"	\$075'	1400	7 740	6 2 9 0
Production Tubing	2 875*	2 441"	2 347ª	1-55	8 RD	0 00#	0'	00'	0	-	-		7 260	7 680
80% of 5-1/2" casing b 80% of 2-7/8" tubing 80% of 2-7/8" N-80 We					6.192 5.808 8 453	psig								

PURPOSE The purpose of this completion procedure is to complete and text the Lower and Upper Wichita Albany and Lower Clearfork in 4 Stiges is defailed below. All stages to be stimulated via 5-1/2" easing

LOG INFORMATION

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Weatherford dated 18 JULY 2012 OPEN HOLE LOGS CASED HOLE LOGS GRAY CBL-GR-CCL 1 to 26 July 2012

Correlation of CBL and open hole logs will have to be done on location NOTE Performant were schered oil of the open hole logs CORPUTATION:

STAGE 1: LOWER ABO (7440'-7450' & 7514'-7522' OA)

Top Perf	Base Perf	Phasing	Feet	SPI	Fotal holes
7 440'	7,450	60"	10	6	60
7 514'	7 522'	60"	8'	6	48

		UPPER	АВО		
Top Perf	Base Perf	Phasing	Feet	SPF	Total holes
7 340'	7 3517	60*	10	6	69
		Fat 1k	10,		60 shots

9 Remain SI at least 4 hours or overnight for acid to react. Flow well down on 16/64" ck until well dies. ND and release frie valves

10 M1 unload, rack and tally 2-7/8° ELE Srd 6.5 pp1 N80 WS PU and RUL with new 4-3/4 "mill & DC's on 2-7/8" WS & tag top of CIBP (§ 7430" RU power swivel and reverse unit Establish encodation down-innulus and up tubing If cannot reverse circulate RU Loam Unit to drill out CIBP in 7430" Chan out to PBTD at 7982" and encodate eCan. POH and LD WS and bit & DC's

PUMP TEST LOWER AND UPPER ABO STAGE 1 AND 2

11. Put well on pump test to evaluate the production performance of the Lower and Upper Abo Stige 1 and 2 intervals as follows. NIL rack & talley new 2-7/8° EUE 8 rd J-55.6.5 ppt production tubing. MU and 1111 with production BITA (no bull plugged mud archar, will run pump with 10° dip tabe inside casing) on tubing. Want SN @ ~ 7572' and 1 C @ ~ 7140'. Note string details on report and in WullYiew. ND stripping fread and BOP, set FAC in 15.000+ tension. NU 33, WH Hange, land fubing with stripper rubber, tubing slipping. & bowl compression plate packing and harmer cap. RHI with rods string per attriched XROD design. DO NOT RUN ANY GUIDED RODS. Be sure to note in Well View and on the daily riport the rod manufacturer and grade. RU horse head RU KT, load tubing and set pump to 500 ps with FW. RDMO KT. RD WSD and POP. Report no less than 10 darse of production in Well View NOTE: Once all stimulation flow breck water is recovered, obstitu a form attoin water sample and submit to Fech Management for testing and inalysis. Have 11 data styrs results sent to OKC office Operations Engineer.

12 Once adequate production data has been acquired on the Abo (approx 15 days) proceed to Step 13

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Top Perl	finue Perf	Phasing	Feel	SPF	Fotal hole
6 785	6 795'	60*	10"	6	60

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WELLBORE SCHEMATIC

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Der		GL 3565' KB 3579'	WE	LL NAME API NO WI RI, Corp ID		30-0 10 80	Federal #4 025-40487 10 00000% 0 00000% 120490	SPOT LOCATION FIELD COUNTY STATE	Section 9 TW Ma	U580 FEL P 21S RNG 38E Elvan ea Межсо		PERATOR. ZONE LEVATION TD PBTD	W	idinge Energy Schila Albany 3 565' 8,083' 7,982'	SPUD DATE. RR DATE MICU COMPL DATE. AFE NO & HOLE DATA TYPE	07/08/12 07/19/12 DC11575
			CSG	ÖD	GRADE	THD	PIPE RECORD WT/FT	- TOP	BTM	# JTS	BIT SZE	DEPTH	SXS	CEMENT		тос
			Conductor Surface	14 000 ' 8 625"	H-40 J-55	ST&C ST&C	48 00# 24 00#	00	80' 1,610'	1 39	NA 12 250"	80° 1 640	NA 600 250	Least 12.9A	NA 1 BJyld, chisu C Pac 1 BJyld, Class C Pau	Surface 80
	'	TOC @ 410' C8L doted 7/26/12	Prod	5 500 '	1-35 L-80	LTAC	17 00#	00	8 072	195	7 875	8.075	600 800	Lead 50 S0 Cla	ss "H" 110 ppg 2 45 ft3/cx s "H" 110 ppg 1 01 112/cx	TOC (0 410 by CE) バンパン
		ngarz	Well tasts				<u> </u>		<u> </u>	l						
			WELL INSTONY	ļ	, <u> </u>							~				
-			DATE 07/08/12	SPUD											_	PROD RESULTS
1				1.83v1d	Class C	Poz TAH	l, J-55 STC csg. Set (ii L+250sks (75bbl) of 11	37#165yld	Class C Poz 1	Disp w/ 102 bb	ter spacer - I fresh	& LEAD,	cmt w/ 6	00sks (195bbl)	of 12 9#	
÷			07/19/12 07/20/12	RIH w/ : LEAD,	195 jts of cmt_w/ 6	f 5-1/2" 17 600sks (26:	7# L-80 LTC eag Set 26611 of 11 8 pag 2 45	ā 8073' Rig elī/sk 13-78	Reluise @ 19 Egg/sx 50 50 P	00hr 07 Class H-TA	UL enst w	7 800sks (187661) c	of 14-4 oo n. 13	1 cft/sk 5 18 gp/sx 50	50
A		1610	07/26/12	Poz Clas Run Gra	ss H, N/E is CBL-C	D BOP, sei GR-CCL [rs	slips w/ 125k & install om PBTD 7982 fi to si	tbg head clo a face w/ 1,00	ean pits, 30 psi pressure	TOC :@ 410 f						
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			Deffine N	at stamps s												
			Drifting N	intations;			4 1 -2									
			Drilling N	intations:			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 									
			Stimulation	n Treatme	Sand	Fluid	Tatal Fluid Typu	Prop Type	AIR(bpm)/	Frac Grad!		TION HIST		ZONE	SPF{count}/	
		Yunit rd-Etays 3				Fluid (bbis}	Total Fluid Type (PasiPrepadiFraciFlush)	Ргор Туре	AIR(bpm)/ AIP(psig)	Frac Gradi ISIP	PERFORM	TION HIST TOP	ORY BTM	ZONE	SPF{count}/ Phasing	Status
		7rink rd - Stags - 7865-67951 65PF	Stimulation	n Treatme	Sand		Tatsi Fluid Typo (PatiPicpatiFac/Fluch)	Ргор Турс	AIR(bpm)/ AIP(psig)					ZONE	SPF(count) Phasing	Matus
			Stimulation	n Treatme	Sand		Total Fluid Type (PadPrepadFastFluid)	Prop Type	AiR(bpm)/ AiP(psig)					ZONE	SPF(county) Phasing	Matus
			Stimulation Date	Zone	Sand (kibs)	(bbis)	(PhtiPrephdiFraciFlush)	Ргор Туре	AIR(bpm)/ AIP(psig)					ZONE	SPF(county) Phasing	Nutus
			Stimulation Date	Zone	Sand (kibs)	(bbis)	Total Fluid Type (PrdPreprdFracFlush) 	Prop Type	AiR(bpm)/ AiP(psig)					ZONE	SPF(count)/ Phasing	Yatus
		:785'-6735' 6SPF	Stimulation Date Frac Job R CIBP Reco	Treatme Zone	Sand (kibs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(count)/ Phosing	Status
		:785'-6735' 6SPF	Stimulation Date Frac Job R CIBP Reco	rd	Sand (kibs)	(bbis)	(PhtiPrephdiFraciFlush)	Prop Type	AIR(bpm)/ AIP(psig)					ZONE	SPF(count)/ Phashy	Status
		:785'-6735' 6SPF	Stimulation Date Frac Job R CIBP Reco	rd	Sand (klbs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(count)/ Phasing	Natus
		:785'-6735' 6SPF	Stimulation Date Frac Job R CIBP Reco	rd	Sand (klbs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(courit)/ Pitasing	Matus
	E.	785'-6795' 65PF	Stimulation Date Frac Job R CIBP Reco	rd	Sand (klbs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(courn() Phasing	Matus
	E.	785-6795-65PF 7 Alo (1964) = 340-7350-65PF	Stimulation Date Frac Job R CIBP Reco	rd	Sand (klbs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(count)/ Phasing	Matus
	E.	785-6795-65PF 7 Alo (1964) = 340-7350-65PF	SUmulation Date	rd	Sand (klbs)	(bbis)	(PadPicpadFiadFlush)	Prop Type	AIP(psig)					ZONE	SPF(cournl) Phasing	Matin
	E. E. E.	785'6735'65PF 7 Alo (174, 1 340'7350'65PF	Stimulation Date Frac Job R CIBP Reco Date Remarks	n Treatmen Zone Iemarks (S rd Ivends	Sand (klbs) Screenout	(bbis)	(PadPicpadFiadFlush)	Prop Type	Noics		DATE			ZONE	SPF(count)/ Phasing	Matus
		785'6735'65PF 9 Alo Cim, 2 340'7350'65PF	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Noips TUBULAR GO	ISIP	DATE	тор	BTM	Collapse'	Phasing	Tensler
		785'6755'65PF) ALO [136, 2 340'7350'65PF . Aug. * Mgo 1 440-7450'65PF	Sumulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Neics TUBULAR GO	ISIP	DATE	TOP ID (in)	BTM Drift (in)	Collapse* (psi)	Phasing Burzt (psi)	Tensle* (Kibs)
		785'4735' 65PF 7 ALo (177, 2) 340'7350' 65PF 2 Aba - *inga 1	Sumulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Noips TUBULAR GO	ISIP	DATE	тор	BTM	Collapse'	Phasing	Tensler
		785'-6795' 65PF 7 ALo (11%) 2 340'-7350' 65PF 2 Aba - * ngo 1 440 - 7450' 65PF 2 Aba - 0 1go 1	Sumulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Neics TUBULAR GO	DDS PERFORM	DATE	TOP TOP	BTM Drift (in)	Collapse* (psi)	Phasing Burzt (psi)	Tensle* (Kibs)
		785'-6795' 65PF 7 ALo (11%) 2 340'-7350' 65PF 2 Aba - * ngo 1 440 - 7450' 65PF 2 Aba - 0 1go 1	Sumulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Noies Noies TUBULAR GO Material (Hallibu	DDS PERFORM	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Burst (psi) 2,950	Tensile* (Kibs) 244,000
		7 ALO (11%) 2 2 ALO (11%) 2 340-7350 (65PF 340-7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls) ts or proble	(PadPicpadFiadFlush)		Neics Neics TUBULAR GO Material (Hallibuk 8 025 J-55 STs 5 S* L-80 LTSC * Saley Factor N	DDS PERFORM	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Burst (psi) 2,950	Tensile* (Kibs) 244,000
		7 ALO (11%) 2 2 ALO (11%) 2 340-7350 (65PF 340-7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF	Sumulation Date	n Treatmenez	Sand (klbs)	(bbls)	(PadPicpadFiadFlush)		Neics Neics TUBULAR GO Material (Hallibuk 8 025 J-55 STs 5 S* L-80 LTSC * Saley Factor N	DDS PERFORM	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Burst (psi) 2,950	Tensile* (Kibs) 244,000
		7 ALO (11%) 2 2 ALO (11%) 2 340-7350 (65PF 340-7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls)	(PadPicpadFiadFlush)	Packer Delai	Noics Noics TUBULAR GO Material (Hallbu 8 G5 J-55 STs 5 5° L-80 LTSC Safety Factor N	DDS PERFORM	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Burst (psi) 2,950	Tensile* (Kibs) 244,000
		7 ALO (11%) 2 2 ALO (11%) 2 340-7350 (65PF 340-7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF - Alo - 7450 (65PF	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls)	(PadPicpadFiadFlush)	Packer Dela	AIP(ps1g) Noics TUBULAR GO Material (Hallibular Boot) B 025 J-55 STs \$ 5° L-00 LT2C * Spicey Factor N 1	DDS PERFORM rion Handbook 2 244 174 of Include d	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Ourst (ps1) 2,950 7,740	Tentile* (Kibs) 244,000 348,000
		785'-6795' 65PF 7 ALo (11%) 2 140'-7360' 65PF 140'-7360' 65PF 2.502 - 51 150 1 514 -7522' 65PF	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls)	(PadPicpadFiadFlush)	Packer Delal	Noics Noics TUBULAR GO Material (Hallbuk 8 625 J-55 STs 5 5° L-80 LTSC Salety Factor N	ISIP	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Ourst (ps1) 2,950 7,740	Tentile* (Kibs) 244,000 348,000
		/ ALO [] //L / ALO [] //L J	SUmulation Date	n Treatmenez	Sand (klbs)	(bbls)	(PadPrepadFadFlush)	Packer Detail	Noics Noics TUBULAR GO Material (Hallbuk 8 625 J-55 STs 5 5° L-80 LTSC Salety Factor N	DDS PERFORM Tion Handbook 2 244 174 of Include d Farrey WetLeb Jukin Lynch Chad Paketron Watthew Binska	DATE	100 (In) (8 097	ВТМ —	Collapse* (psi) 1,370	Ourst (ps1) 2,950 7,740	Tensile* (Kibs) 244,000

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Elliott Federal #4 LOWER ABO (7440'-7522') Lea County, New Mexico

				Stage	#1							
	E	<u>Frac down 5-1/2", L80, 17 0 #/ft Tbg (Burst 7,740 psi)</u>	Stage	Stage	Cum	Total	Stage	Prop	BH	Clean	Clean	Cum
"			Clean	Clean	Clean	Rate	Prop	Total	Conc	Fluid Stage	Fluid Total	Time
Stage	#	Fluid Type	Vol (Gals)	Vol (Bbls)	Vol (bbls)	BPM	#'s	#"s	PPG	Vol (bbls)	Vol (bbls)	Mins
Spearhead	1	20% Slick NEFE HCI Acid + 10% Xylene	3,350	79.8	798	35.0	0	0	0	79.8	79.8	2 28
Gel Pad	2	20# Linear Guar Gel Pad	7,500	178 6	258.3	35.0	0	0	0	178.6	258 3	7.38
Gel Acid	3	20% Ultragel Acid	10,000	238 1	238.1	35.0	0	0	0	238 1	317 9	9.08
Gel Pad	4	20# Linear Guar Gel Pad	7,500	178.6	416.7	35.0	0	0	0	1786	496.4	14.18
Diversion	5	20# Linear 10 PPG Brine with 1 0 PPA GRS (option)	2,500	59 5	476 2	35.0	0	0	0	59,5	556.0	15.88
Slick Acid	6	20% Slick NEFE HCI Acid + 10% Xylene	3,350	798	317.9	35.0	0	0	0	79.8	635.7	18 16
Gel Pad	7	20# Linear Guar Gel Pad	7,500	178.6	496 4	35.0	0	0	0	1786	8143	23 27
Gel Acid	8	20% Ultragel Acid	10,000	238 1	734 5	35.0	0	0	0	238 1	1052.4	30 07
Gel Pad	9	20# Linear Guar Gel Pad	7,500	1786	913 1	35 0	0	0	0	1786	1231.0	35.17
Slick Acid	10	20% Slick NEFE HCI Acid + 10% Xylene	3,350	79.8	992 9	35.0	0	0	0	79.8	1310 7	37 45
Flush	11	2% KCL water (to bottom perf @ 7522')	7,329	174 5	1167 4	35.0	0	0	0	174 5	1485 2	42 43
						TOTAL	0				1485 2	

Gals Acid/net pay ft	500 Max Pressu	re = 6,200 psi
Gals. Acid/gross perf fl	250	
Rate/perf	0 324	
Rate/perf-ft	1.944 HHP =	4700 (liquid side w/o backup)

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Fluid Requirements

1 Heat acid to +/- 100 deg F prior to treatment.

2 All 2% KCL water & fresh water mixed with Smart Chemicals Biocide, Iron Chelating Agent, Corrosion Inhibitor, Emulsion Control

3 BHT = 111° F @ 8068 FT as per OH log.

4 Est fg = 0.9 psi/ft

Operational Considerations

ing tanks Caring The A Caring The A Charles A 5 Tanks Filled with 2% KCL water & Smart Chemicals Services anti-emulsion chemicals loaded in frac tanks prior to filling tanks

Elliott Federal #4 UPPER ABO (7340'-7350') Lea County, New Mexico

				Stage	#2							
		Frac down 5-1/2", L80, 17.0 #/ft Tbg (Burst 7,740 psi)	Stage	Stage	Cum	Total	Stage	Prop	BH	Clean	Clean	Cum
			Clean	Clean	Clean	Rate	Prop	Total	Conc	Fluid Stage	Fluid Total	Time
Stage	#	Fluid Type	Vol (Gals)	Vol (Bbls)	Vol (bbis)	BPM	#'s	#"s	PPG	Vol (bbls)	Vol (bbls)	Mins
Spearhead	1	20% Slick NEFE HCI Acid + 10% Xylene	2,500	59.5	59.5	25.0	0	0	0	59 5	59 5	2.38
Gel Pad	2	20# Linear Guar Gel Pad	4,500	107 1	166 7	25.0	0	0	0	107 1	166 7	6.67
Gel Acid	3	20% Ultragel Acid	5,000	1190	119.0	25.0	0	0	0	119 0	178 6	7.14
Gel Pad	4	20# Linear Guar Gel Pad	4,500	107 1	226 2	25.0	0	0	0	107.1	285 7	11.43
Slick Acid	5	20% Slick NEFE HCI Acid + 10% Xylene	2,500	59 5	178 6	25.0	0	0	0	59 5	345 2	13 81
Gel Pad	6	20# Linear Guar Gel Pad	4,500	107 1	285 7	25.0	0	0	0	107.1	452 4	18.10
Gel Acid	7	20% Ultragel Acid	5,000	119 0	404 8	25.0	0	0	0	119 0	5714	22 86
Gel Pad	8	20# Linear Guar Gel Pad	4,500	107 1	511.9	25.0	0	0	0	107 1	678 6	27 14
Slick Acid	9	20% Slick NEFE HCI Acid + 10% Xylene	2,500	59,5	571.4	25.0	0	0	0	59,5	738 1	29 52
Flush	10	2% KCL water (to bottom perf @ 7350')	7,162	170 5	742 0	25.0	0	0	0	170 5	908.6	36 34
						TOTAL	0				908 6	

Gals. Acid/net pay ft	875 Max Pressur	e = 11,000 psi
Gals. Acid/gross perf fl	1750	
Rate/perf	0 417	
Rate/perf Rate/perf-ft	2.500 HHP =	3400 (liquid side w/o l

backup)

Fluid Requirements

1 Heat acid to +/- 100 deg. F prior to treatment.

2 All 2% KCL water & fresh water mixed with Smart Chemicals Biocide, Iron Chelating Agent, Corrosion Inhibitor, Emulsion Control

3 BHT = 111° F @ 8068 FT as per OH log.

4. Est f.g. = 0 9 psi/ft

Operational Considerations

3 Tanks Filled with 2% KCL water & Smart Chemicals Services anti-emulsion chemicals loaded in frac tanks prior to filling tanks

Special Note: Monitor the 5-1/2" x 8-5/8" annulus with electronic pressure gauge and Pop-Off valve during frac treatment. If communication is encountered on annulus during frac treatment, flush frac, Shut-Down and notify DKC Operations Engineer for cement squeeze procedure.



UA ACID FRAC STG.2

Elliott Federal #4 DRINKARD (6785'-6795') Lea County, New Mexico

Stage #3

	<u>Fr</u>	ac down 5-1/2", L80, 17.0 #/ft Tbg. (Burst 7.740 psi)	Stage	Stage	Cum	Total	Stage	Prop	BH	Clean	Clean	Cum
			Clean	Clean	Clean	Rate	Prop	Total	Conc	Fluid Stage	Fluid Total	Time
Stage	#	Fluid Type	Vol (Gals)	Vol (Bbis)	Vol (bbls)	BPM	#'s	#"s	PPG	Vol (bbls)	Vol (bbls)	Mins
Spearhead	1	20% Slick NEFE HCI Acid + 10% Xylene	2,500	59.5	59,5	25.0	0	0	0	59.5	59 5	2.38
Gel Pad	2	20# Linear Guar Gel Pad	4,500	107 1	166 7	25.0	0	0	0	107.1	166 7	6 67
Gel Acid	3	20% Ultragel Acid	5,000	119.0	1190	25.0	0	0	0	119.0	178.6	7.14
Gel Pad	4	20# Linear Guar Gel Pad	4,500	107.1	226 2	25.0	0	0	0	107.1	285 7	11 43
Slick Acid	5	20% Slick NEFE HCl Acid + 10% Xylene	2,500	59.5	178 6	25.0	0	0	0	59 5	345 2	13.81
Gel Pad	6	20# Linear Guar Gel Pad	4,500	107 1	285 7	25.0	0	0	0	107 1	452 4	18 10
Gel Acid	7	20% Ultragel Acid	5,000	1190	404 8	25.0	0	0	0	1190	5714	22 86
Gel Pad	8	20# Linear Guar Gel Pad	4,500	107.1	5119	25.0	0	0	0	107 1	678 6	27 14
Slick Acid	9	20% Slick NEFE HCI Acid + 10% Xylene	2,500	59 5	5714	25.0	0	0	0	59 5	738.1	29 52
Flush	10	2% KCL water (to bottom perf @ 6795')	6,621	157,6	729 1	25.0	0	0	0	157 6	895 7	35 83
					•	TOTAL	0	_			895 7	

Gals Acid/net pay ft	875 Max Pressu	re = 11,000 psi
Gals Acid/gross perf fl	1750	
Rate/perf	0 417	
Rate/perf-ft	2 500 HHP =	3400 (liquid side w/o backup)

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Fluid Requirements

1. Heat acid to +/- 100 deg F prior to treatment

2 All 2% KCL water & fresh water mixed with Smart Chemicals Biocide, Iron Chelating Agent, Corrosion Inhibitor, Emulsion Control

3 BHT = 111° F @ 8068 FT as per OH log

4 Est fg = 0 9 psi/ft

Operational Considerations

3 Tanks Filled with 2% KCL water & Smart Chemicals Services anti-emulsion chemicals loaded in frac tanks prior to filling tanks

Special Note: Monitor the 5-1/2" x 8-5/8" annulus with electronic pressure gauge and Pop-Off valve during frac treatment. If communication is encountered on annulus during frac treatment, flush frac, Shut-Down and notify OKC Operations Engineer for cement squeeze procedure.

BLM



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Production String Liner	Prof String	Casing Record			Run Number Br		Recorded By	Location	Equipment Number	Time Longer on Bottom	Time Well Deads:	Max. Recorded Temp	Densily / Viscosity	Type Fluid		Bottom Logged Interval	Depth Logger	Depth Dritter	Run Number	W Fi Ca St	ompan ell eld ounty ate	, EI M Lf	LLK CEI EA	Drid Dt Fi Vali	EDEF	8AL #4					part of A					AVED
55"	3,625"	Size			Bit From	Phote Record											~			Drilling Measured From	Perntanent Datum Log Measured From	SEC			Location:	County	Field	vvell		Company	part of AMCINER	ELVIE ELLEY				
#24	245	W _I t/Ft			To S.ze	LARRY PICKERING	D CANHAM	HOBBS, NM	57	SEFIOG	410'	NA	NA	WATER	40'	7980'	2962	8083'	7-26-2012		M GC	C TWP			API≢:	LEA	MCELVAIN	ELLIOI FEUERAL #4		SANDRIDGE						
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