District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV

Energy, Minerals & Natural Resources DEC 1 4 2018 State of New Mexico

Form C-104 Revised August 1, 2011

Submit PARESUP to appropriate District Office

Oil Conservation Division 1220 South St. Francis Dr.

MENDED REPORT

1:	220 S. St. Fran	icis Dr., Sai I.						M 87505 AND AU	гно	DIZAT	ION '	TO T	TRANS	₽∩RT	
٢	¹ Operator n	ame and	Address	UESLIX	JK ALI	<u> </u>	DLE	AND AU	1110	² OGRID		ber		TORI	-
		perating . Main S								3 Peason	for Fil		229137	ctive Date	_
	Artesia,	NM 88								Reason	101 1 11		NW		-
	⁴ API Number 30 – 015-4		5 Po	ool Name		Rock Sp	ur; B	one Spring				6 Po	ol Code	52775	
	⁷ Property C	ode	8 Pr	roperty Nar								9 We	ell Numb	er	-
L	321 II. ¹⁰ Sur		 cation			Pud	lge Fe	ederal				<u> </u>		21H	_
آ	Ul or lot no.	Section	Townshi		Lot Idn	I .		North/South			the		Vest line	County	-
L	P II Bo	31	25S ole Locat	29E		615		South		760		E	ast	Eddy	_
Ī	Ul or lot no.		Townshi		Lot Idn	Feet fro	m the	North/South	Line	Feet from	the !	East/V	Vest line	County	-
	P	6	26S	29E		239	9	South		330		E	last	Eddy	_
	12 Lse Code F		cing Method Code	D	onnection ate	¹⁵ C-12	9 Perr	mit Number	16 (C-129 Effec	tive Da	ate	¹⁷ C-1	29 Expiration Date	•
L					3/18										_
Г	III. Oil a		s Transp	orters		¹⁹ Tr:		rter Name						²⁰ O/G/W	_
	OGRID						ınd Ad	ddress						O/G/W	_
						1100 [0	Tex	da na, Ste 4700						О	
	 							na, Ste 4700 ГХ 77002							-
	298751					Energy T	Fransi	fer Company						G	-
		$\overline{}$			2			reet Ste 3700 X <i>75</i> 201	0						-
						<u> </u>	uu,							·	-
													, ,		-
														······································	-
 													-		-
_															-
۲	IV. Well 21 Spud Da			ata dy Date	<u> </u>	²³ TD 1	· T	²⁴ PBTD	<u> </u>	25 Per	foratio	ns	1	²⁶ DHC, MC	-
28 1	8 6/27/18			3/18		13920' /	8441	13800 °		9203	3-13 8 0 ⁴			·	
F	²⁷ Ho	ole Size		²⁸ Casin	g & Tubir	ng Size	—	²⁹ De	pth S	et	\top			ks Cement	_
	17	1/2"			13 3/8"			4	20'				:	500 - Crc	_
	12	1/4"			9 5/8"			2787' 1220 - 6				1220 - Circ 2625 - Circ			
	8 (3/4"			5 1/2"			13	905'				2	2625 - CUC	
					2 7/8"			78	865'						
_	V. Well														_
	³¹ Date New 9/23/18			ivery Date 3/18		Test Date 0/23/18		³⁴ Test 1 24 I	Hrs	h	³⁵ Tbg.	. Press 1050	ure	³⁶ Csg. Pressure 450	
	³⁷ Choke S 24/64	ize	³⁸ (39	⁹ Water 1995		⁴⁰ C	Gas 17					41 Test Method Flowing	
t c	1 hereby cer been complied complete to the Signature:	with and e best of n	he rules of that the in my knowle	the Oil Con	iven above	Division h	nd ,	Approved by:		OIL CON	SERVA	TION	DIVISIO		_
7	Amanda Av	/ery					-	Approval Date);	<u>Dus</u>	ine	<u> </u>	(JD	Spec A	_
ļ	Regulatory E-mail Addres										/	2.0	10-4	018	-
ľ	aavery@coi		1						D	ending Bl	11122	nrour	ماد بيناا		
Ī	Date: 12/12/18			Phone: 575-748-69	962					ubsequer	•	•			

and scanned

Form 3160-4 (August 2007)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB No. 1004-0137 Expires: July 31, 2010

	WELL (COMPL	ETION C	R REC	OMPL	ETIC	N REPO	DRT		IOGI-AR	TESIA	DI COL	ase Serial N MNM1005	No. 555	
la. Type of	_	Oil Well	_	`	Dry	0						6. If	Indian, Allo	ottee or	Tribe Name
b. Type of	f Completion	⊠ N Othe		☐ Work	Over	☐ De	epen [] Plug	Back	☐ Diff. R	esvr.	7. Ui	nit or CA A	greeme	nt Name and No.
2. Name of COG O	Operator PERATING	LLC	E	-Mail: aa	Conta very@co		MANDA AV	/ERY					ase Name a		
3. Address	2208 W M ARTESIA						3a. Pho Ph: 57			area code)		9. A	PI Well No.	-	30-015-45045
4. Location	of Well (Re Sec 31	T25S R	29E Mer NN	ΛP			•					10. F	ield and Po	ol, or E	xploratory IE SPRING
At top p	ce SESE rod interval i	Lot P 615	5FSL 780FE Sec	EL 32.08 31 T25S	R29E M	er NM	P			017483 W	Lon	11. S	ec., T., R.,	M., or I	Block and Survey 25S R29E Mer NMP
At total	Sec	: 6 T26S	R29E Mer N 239FSL 330	IMP						017400 11	LOII		County or Pa	arish	13. State NM
14. Date Sp 06/27/2		ا مد ه.	Lie D	te T.D. R /13/2018	eached		16.	Date D &	Complete	ed Ready to P	rod.		Elevations (I	DF, KB 19 GL	
18. Total D		MD TVD	13920	8446	9. Plug E	Back T.		ID VD	13	800 80 -	20. Dep	th Bri	ige Plug Se		MD 13829 17 VD 8180
21. Type E	lectric & Oth	er Mechai			it copy of	each)				22. Was v	vell cored OST run?	?	M No (No (Yes	(Submit analysis) (Submit analysis)
N2 G	11: 5	l (D			11)						tional Sur	vey?	No (Yes	(Submit analysis)
	d Liner Reco			set in wei	<u> </u>	tom	Stage Cen	nenter	No. o	f Sks. &	Slurry	Vol.		[3 0 1
Hole Size	Size/G		Wt. (#/ft.)	(MD)	(N	ID)	Deptl			f Cement	(BB		Cement T		Amount Pulled
17.500 12.250	T T	375 J55 625 J55	54.5 40.0		0	420 2787				500 1220	-			0	
8.750		00 P110	17.0		_	3905		0		2625	†			290	
	<u> </u>										Ì				
													-		1 -
24. Tubing		<u>'</u>									•			-	
Size 2.875	Depth Set (M	1D) Pa 7865	acker Depth	(MD) 7855	Size	Deptl	1 Set (MD)	P	acker Der	oth (MD)	Size	De	pth Set (MI) F	Packer Depth (MD)
25. Producii		70001				26.	Perforation	Reco	rd						
	rmation		Тор		Bottom		Perfo		Interval		Size	<u> </u>	lo. Holes		Perf. Status
A) B)	BONE SP	RING		9203	1380	4			9203 TO	13804		+	780		
C)							•								
D)						\perp									./0[)
	acture, Treat		nent Squeeze	, Etc.					nount and	l Type of M	lataria!				_
	Depth Interva 920		304 SEE AT	TACHED				AI	ijouitt and	Type of M	ateriai				
 -															·
28. Producti	on - Interval	Α													
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF		/ater BL	Oil Gr.		Gas Gravity		Producti	on Method		
09/23/2018	09/23/2018	24		545.0	847	-	1995.0	ļ						GAS LI	FT
Choke Size	Tbg. Press. Flwg. 1050		24 Hr. Rate	Oil BBL	Gas MCF	В	/ater BL	Gas:Oi Ratio	il	Well Si					
24/64 28a. Produc	SI tion - Interva	450.0 I B		545	847		1995	L		<u> </u>	GW				
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF		/ater BL	Oil Gra Corr. /		Gas Gravity	ſ	al N	ly be rev	iewe	9
Choke Size	Tbg. Press. Flwg.	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF		/ater BL	Gas:Oi Ratio	il .	, b	ending whsea	uent	eq In pe _{Len} I abb _{LON}		
See Instructi	SI ons and space	es for ada	litional data	on revers	e side)	i_					subsed and so	ann	-		

29h Pro	duction - Interv	ral C									
Date First	Test	Hours	Test	Oil	Gas	Water	Oil Gravity	lc.	ns	Production Method	
Produced	Date	Tested	Production	BBL	MCF	BBL	Corr. API		ravity	Production Method	
Choke Size	Tog. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF		Gas:Oil Ratio	w	ell Status		
28c. Proc	luction - Interv	al D			•						
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF		Oil Gravity Corr. API	G:	ns ravity	Production Method	
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF		Gas:Oil Ratio	w	ell Status	<u> </u>	
29. Dispo	osition of Gas(S	Sold, usea	for fuel, veni	ted, etc.)				I			
30. Sumr	nary of Porous	Zones (In	nclude Aquife	ers):	•				31. For	mation (Log) Markers	
tests,						d intervals and all en, flowing and sh		es			
	Formation		Тор	Bottom		Descriptions	Contents et	tc		Name	Тор
			•	Bottom			, contents, ci				Meas. Depth
LAMAR BELL CA CHERRY BRUSHY BONE SF BONE SF	OF SALT	(include p	530 2609 2805 2845 3679 4968 7474 8180	edure):					BO LAI BEI CH BR BO	P OF SALT TTOM OF SALT WAR LL CANYON ERRY CANYON USHY CANYON NE SPRING 1ST NE SPRING 2ND	530 2609 2805 2845 3679 4968 7474 8180
22 Cirol	e enclosed attac	hmanta									
	e enciosed attac ectrical/Mecha		s (1 full set re	ea'd.)		2. Geologic Re	eport		3. DST Rep	oort 4. Dir	rectional Survey
	indry Notice fo	_		-		6. Core Analys	•		7 Other:	. 2.	
34. I here	by certify that	the foreg	oing and attac	hed informa	ition is co	emplete and correc	et as determin	ned from	all available	records (see attached inst	tructions):
			Elect			47434 Verified b PERATING LL				stem.	
Name	e(please print)	<u>AMAND</u>	A AVERY				Title <u>/</u>	AUTHOF	RIZED REP	RESENTATIVE	
Signa	iture	(Electro	nic Submissi	ion)			Date '	12/12/20	18		
•											
Title 18 U	U.S.C. Section lited States any	1001 and false, fic	Title 43 U.S.	C. Section 1 ulent statem	212, mak ents or re	e it a crime for an	y person kno o any matter	wingly a	nd willfully jurisdiction	to make to any departmer	nt or agency

Form 3160-5 (June 2015)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

DEC 1 4 2018

FORM APPROVED OMB NO. 1004-0137 Expires: January 31, 2018

BI	UREAU OF LAND MANAG	GEMENT				anuary 31, 2018					
SUNDRY	NOTICES AND REPO	RTS ON WE	IdeSict II-ARI	ESIA O.C.	5. Lease Serial No. NMNM100555						
Do not use thi	s form for proposals to II. Use form 3160-3 (APL	drill or to re-	enter an		6. If Indian, Allottee of	or Tribe Name	_				
SUBMIT IN	TRIPLICATE - Other inst	ructions on µ	page 2		7. If Unit or CA/Agree	ement, Name and/or No.	_				
Type of Well Oil Well	ner				8. Well Name and No. PUDGE FEDERA						
Name of Operator COG OPERATING LLC	Contact: / E-Mail: aavery@co	AMANDA AVI	ERY		9. API Well No. 30-015-45045						
3a. Address 2208 W MAIN STREET ARTESIA, NM 88210		3b. Phone No. Ph: 575-748	(include area code) 3-6940)	10. Field and Pool or ROCKSPUR; B						
4. Location of Well (Footage, Sec., T	., R., M., or Survey Description)				11. County or Parish,	State	_				
Sec 31 T25S R29E Mer NMP 32.080835 N Lat, 104.017483					EDDY COUNTY	Y, NM					
12. CHECK THE AF	PPROPRIATE BOX(ES)	TO INDICAT	E NATURE O	F NOTICE,	REPORT, OR OTH	HER DATA					
TYPE OF SUBMISSION TYPE OF ACTION											
□ Notice of Intent	☐ Acidize	☐ Deep	en	☐ Producti	on (Start/Resume)	■ Water Shut-Off					
Notice of Intent	☐ Alter Casing	☐ Hydr	aulic Fracturing	☐ Reclama	ation	■ Well Integrity					
Subsequent Report	□ Casing Repair	☐ New	Construction	□ Recomp	lete	Other					
☐ Final Abandonment Notice	□ Change Plans	☐ Plug	and Abandon	☐ Tempor	arily Abandon	Hydraulic Fracture					
	□ Convert to Injection	☐ Plug	Back	■ Water D	isposal						
If the proposal is to deepen directions Attach the Bond under which the wor following completion of the involved testing has been completed. Final At determined that the site is ready for fit 7/31/18 Test csg to 8500#. Fto 8502# Good test. 8/10/18 - 8/15/18 Perf and plu & 7,683,823 gal fluid. 8/19/18 to 8/20/18 Drilled out 8/20/18 - 8/29/18 Set 2 7/8" 6 9/21/18 Begin flowback and to 9/23/18 Date of first production 14. I hereby certify that the foregoing is	ck will be performed or provide operations. If the operation respondence on the performed or provide operation respondence on the performance of t	The Bond No. on ults in a multiple and only after all rest composite to 78,441 gal 7 ean down to F	file with BLM/BIA completion or recognition or recognition or recognition or recognition of the principle of	A. Required sub impletion in a right in a reclamation 3,829'. Tes 370,008 # sa	sequent reports must be lew interval, a Form 316 n, have been completed a	filed within 30 days 0-4 must be filed once					
14. Thereby certify that the folegoing is	Electronic Submission #4	46648 verified PERATING LL	by the BLM Wel C, sent to the Ca	ll Information arisbad	System						
Name (Printed/Typed) AMANDA	AVERY		Title AUTHO	RIZED REP	RESENTATIVE						
Signature (Electronic S	Submission)		Date 12/05/2	018							
	THIS SPACE FO	R FEDERA	L OR STATE	OFFICE US	SE						
Approved By Conditions of approval, if any, are attache certify that the applicant holds legal or equivalent would entitle the applicant to conductions.	uitable title to those rights in the act operations thereon.	subject lease		suu ccan	M approvals will M be reviewed ntly be reviewed						
Fitle 18 U.S.C. Section 1001 and Title 43 States any false, fictitious or fraudulent			son knowingly and	anu	or	agency of the United					

Pudge Federal #21H

<u>Perfs</u>	7.5% Acid (Gal)	<u>Sand (#)</u>	Fluid (Gal)
1	1512	360007	294042
2	3000	360073	291792
3	3000	359684	294858
4	2999.64	360309	296580
5	3024	360007	304122
6	3012	359938	299322
7	3012	360088	290082
8	3012	360048	294030
9	3024	360054	289002
10	3024	360091	294924
11	3012	360045	299700
12	3024	366584	313488
13	3024	360254	292488
14	4524	360001	309528
15	3000	360034	284148
16	3012	360023	291426
17	3024	360051	306646
18	3024	360271	289296
19	3024	360220	290136
20	3024	360122	286692
21	3024	360044	290976
22	3024	360367	319956
23	3024	360103	284928
24	3012	361145	294005
25	3024	361016	290976
26	3024	359429	290682
Totals	78,441	9,370,008	7,683,823

	•														
	sign i	Distance Between Perfs	Shots	 (200gh/2) 	Distance Between Perfs	Shots	ենեքը, Տ	Distance Between Perfs	Shots	Sequite	Distance Between Perfs	Shots	Տարը-15	Distance Between Perfs	Shots
	13,804	22	4	13,607	41	4	13,444	28	4	13,265	27	4	13,090	25	4
	13,782	22	4	13,592	10	4	13,423	19	4	13,248	22	4	13,073	25	4
From	13,760	23	4	13,582	23	4	13,404	25	4	13,226	22	4	13,048	22	4
Bottom to Top	13,737	22	4	13,559	22	4	13,379	20	4	13,204	23	4	13,026	24	4
1.00	13,715	22	4	13,537	22	4	13,359		4	13,181	22	4	13,002	21	4
	13,693	22	4	13,515	22	4	13,337	22	4	13,159	22	4	12,981	22	4
	13,671	23	3	13,493	21	3	13,315	23	3	13,137	22	3	12,959	22	3
	13,648		3	13,472		3	13,292		3	13,115		3	12,937		3
	Plug to Plug	92	30	lug to Plu	58	30	Plug to Plug	75	30	Plug to Plug	76	30	Plug to Plug	74	30
	Frac Plug	13,829	Total Shots	Frac Plug	13,617	Total Shots	Frac Plug	13,454	Total Shots	Frac Plug	13,280	Total Shots	Frac Plug	13,100	Total Shots
		Distance			Distance			Distance	ı	'	Distance			Distance	
	Stope &	Between	Shots	t-frago a	Between	Shots	(-((સુકુ) છે	Between	Shots	Steppen		Shots	istage (iii)	Between	Shots
		Perfs			Perfs		}	Perfs			Perfs		<u>'</u>	Perfs	
ı	12,916	21	4	12,738	24	4	12,552	29	4	12,374	29	4	12,203	22	4
 	12,892	22	4	12,710	18	4	12,536	27	4	12,358	22	4	12,180	22	4
From Bottom to	12,870	22	4	12,692	22	4	12,509	17	4	12,336	21	4	12,158	22	4
Top	12,848	23	4	12,670	22	4	12,492	22	4	12,315	23	4	12,136	22	4
1	12,825	22	4	12,648	23	4	12,470	23 22	4	12,292	19	4	12,114	22	4
1	12,803	22	4	12,625	22	4	12,447	22	3	12,273 12,247	22	3	12,092	23	3
I	12,781	19	3	12,603 12,581	22	3	12,425 12,403		3	12,247		3	12,069 12,047	- 22	3
1	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	75	30	Plug to Plu	69	30	lug to Plus	77	30
	Frac Plug	12,926	Total Shots			Total Shots	Frac Plug	12,567	Total Shot		12,384	Total Shots	·		Total Shots
		12,020	. 0		12,140	p 040. 004				1	,	p • • • • • • • • • • • • • • • • • • •		,	
		Distance			Distance		,	Distance	l		Distance			Distance	
i	នមេប្រជាជា	Between	Shots	Sitygorea		Shots	,ដោរឲ្យភាជ	Between	Shots	tife (gr. W)	Between	Shots	Bhyano.	Between	Shots
	10.007	Perfs		14 000	Perfs 21	<u> </u>	11.670	Perfs		11.404	Perfs	-	14 204	Perfs 31	-
l	12,027	20	4	11,838	31	4	11,670	23	4	11,491	22	4	11,304	31 22	4
From	12,003	26 19	4	11,825 11,802	23 22	4	11,642 11,624	18 25	4	11,469 11,447	22	4	11,291 11,269	21	4
Bottom to	11,958	24	4	11,780	22	4	11,599	19	4	11,424	20	4	11,248	24	4
Тор	11,934	20	4	11,758	22	4	11,580	24	4	11,404	24	4	11,224	25	4
	11,914	23	4	11,736	23	4	11,556	20	4	11,380	19	4	11,199	19	4
	11,891	22	3	11,713	20	3	11,536	23	3	11,361	26	3	11,180	23	3
	11,869		3	11,693		3	11,513		3	11,335		3	11,157		3
1	lug to Plu	79	30	Plug to Plu	68	30	Plug to Plug	81	30	lug to Plu	78	30	lug to Plu	66	30
	Frac Plug		Total Shots		11,848	Total Shots		11,680	Total Shot		11,502	Total Shots		11,314	Total Shots
		Distance			Distance			Distance			Distance			Distance	
	शिक्षामधि	Between	Shots	ERRIGINA	Between	Shots	Spirita	Between	Shots	i terrote de la	Between	Shots	States	Between	Shots
1	11,136	Perfs 21	4	10,949	Perfs 31	4	10,773	Perfs 29	4	10,594	Perfs 30	4	10.424	Perfs 22	4
	11,113		4	10,935						10,579	22		10.727		4
i_	11,113				1 22	Ι 4	10 757	27	Ι 4			Ι 4	10 401	1 22 1	
From	11 091	22			22	4	10,757	27 17	4			4	10,401	22	
From Bottom to	11,091	23	4	10,913	28	4	10,730	17	4	10,557	22	4	10,379	22	4
	11,091 11,068 11,046								_						4
Bottom to	11.068	23 22	4	10,913 10,885	28 17	4	10,730 10,713	17 25	4	10,557 10,535	22 23	4	10,379 10,357	22 22	4
Bottom to	11.068 11,046	23 22 22	4 4	10,913 10,885 10,868	28 17 22	4 4	10,730 10,713 10,688	17 25 20	4 4 4	10,557 10,535 10,512	22 23 17	4 4	10,379 10,357 10,335	22 22 23	4 4
Bottom to	11,068 11,046 11,024	23 22 22 23	4 4 4	10,913 10,885 10,868 10,846	28 17 22 22	4 4 4	10,730 10,713 10,688 10,668	17 25 20 22	4 4 4	10,557 10,535 10,512 10,495	22 23 17 27	4 4 4	10,379 10,357 10,335 10,312	22 22 23 22	4 4 4
Bottom to	11.068 11,046 11,024 11,001 10,980 Plug to Plu	23 22 22 22 23 21	4 4 4 3	10,913 10,885 10,868 10,846 10,824	28 17 22 22 22 22	4 4 4 4 3 3	10,730 10,713 10,688 10,668 10,646	17 25 20 22 22 22	4 4 4 3 3	10,557 10,535 10,512 10,495 10,468	22 23 17 27 22	4 4 4 4 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plu	22 22 23 22 22 22 78	4 4 4 3 3 3 30
Bottom to	11,068 11,046 11,024 11,001 10,980	23 22 22 23 21 78	4 4 4 4 3 3 3	10,913 10,885 10,868 10,846 10,824 10,802	28 17 22 22 22 22 74	4 4 4 4 3 3 3	10,730 10,713 10,688 10,668 10,646 10,624	17 25 20 22 22 22	4 4 4 3 3	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plu	22 23 17 27 22	4 4 4 4 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plu	22 22 23 22 22 22 78	4 4 4 3 3
Bottom to	11.068 11,046 11,024 11,001 10,980 Plug to Plu	23 22 22 23 21 78 11,146	4 4 4 4 3 3 3	10,913 10,885 10,868 10,846 10,824 10,802 Plug to Plu	28 17 22 22 22 22 74 10,959	4 4 4 4 3 3 3	10,730 10,713 10,688 10,668 10,646 10,624 Plug to Plu	17 25 20 22 22 22 77 10,790	4 4 4 4 3 3 3	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plu	22 23 17 27 22 69 10,604	4 4 4 4 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plu	22 22 23 22 22 22 78 10,435	4 4 4 3 3 3 30
Bottom to	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug	23 22 22 23 21 78 11,146	4 4 4 3 3 3 30 Total Shots	10,913 10,885 10,868 10,846 10,824 10,802 Plug to Plug	28 17 22 22 22 22 74 10,959	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,668 10,668 10,646 10,624 Plug to Plug Frac Plug	17 25 20 22 22 27 77 10,790	4 4 4 3 3 3 30 Total Shob	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plug	22 23 17 27 22 69 10,604	4 4 4 3 3 3 30 Total Shots	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug	22 22 23 22 22 22 78 10,435	4 4 4 3 3 3 7 Total Shots
Bottom to	11.068 11,046 11,024 11,001 10,980 Plug to Plu	23 22 22 23 21 78 11,146	4 4 4 4 3 3 3	10,913 10,885 10,868 10,846 10,824 10,802 Plug to Plu	28 17 22 22 22 22 74 10,959	4 4 4 4 3 3 3	10,730 10,713 10,688 10,668 10,646 10,624 Plug to Plu	17 25 20 22 22 22 77 10,790	4 4 4 4 3 3 3	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plu	22 23 17 27 22 69 10,604	4 4 4 4 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plu	22 22 23 22 22 22 78 10,435	4 4 4 3 3 3 30
Bottom to	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug	23 22 22 23 21 78 11,146 Distance	4 4 4 3 3 3 30 Total Shots	10,913 10,885 10,868 10,846 10,824 10,802 Plug to Plug	28 17 22 22 22 22 74 10,959	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,646 10,624 Plug to Plug Frac Plug	17 25 20 22 22 22 77 10,790 Distance Between	4 4 4 3 3 3 30 Total Shob	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between	4 4 4 3 3 3 30 Total Shots	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug	22 22 23 22 22 22 78 10,435 Distance Between Perfs 27	4 4 4 3 3 3 7 Total Shots
Bottom to	11,068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug	23 22 22 23 21 78 11,146 Distance Between Perfa	4 4 4 3 3 3 Total Shots	10,913 10,885 10,868 10,846 10,824 10,802 Plug to Plus Frac Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27	4 4 4 4 3 3 3 Total Shots	10,730 10,713 10,688 10,668 10,646 10,624 Plug to Plug Frac Plug	17 25 20 22 22 27 10,790 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plug Frac Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34	4 4 4 3 3 30 Total Shots Shots 4	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug	22 22 23 22 22 22 78 10,435 Distance Between Perfs 27 23	4 4 4 3 3 3 30 Total Shots
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug Staggazzi 10,246 10,223 10,203	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24	4 4 4 3 3 3 3 7 Total Shots Shots	10,913 10,885 10,868 10,846 10,824 10,802 10,802 Frac Plug 10,063 10,045 10,023	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21	4 4 4 4 3 3 3 3 7 Total Shots Shots 4 4	10,730 10,713 10,668 10,668 10,646 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845	17 25 20 22 22 77 10,790 Distance Between Pers 21 23 22	4 4 4 3 3 3 3 7 Total Shots Shots 4 4	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667	22 23 17 27 22 69 10,604 Distance Between Perfs 18 22	4 4 4 4 3 3 3 30 Total Shots Shots	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489	22 22 23 22 22 78 10,435 Distance Between Pers 27 23 22	4 4 4 3 3 3 3 0 Total Shots Shots 4 4 4
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug (Stiggal/2d) 10,246 10,223 10,203	23 22 22 23 21 78 11,146 Distance Between Perfs 22 22 24	4 4 4 4 3 3 3 30 Total Shots	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,023	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23	4 4 4 4 3 3 3 3 3 0 Total Shots Shots 4 4 4 4 4 4	10,730 10,713 10,688 10,668 10,646 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845 9,823	17 25 20 22 22 77 10,790 Distance Between Perfs 21 23 22 26	4 4 4 4 3 3 3 3 3 5 5 5 6 5 6 5 6 6 6 6 6 6 6 6	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,645	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22	4 4 4 4 3 3 3 3 30 Total Shots Shots 4 4 4 4 4 4	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22	4 4 4 4 3 3 3 3 3 3 5 Total Shots Shots 4 4 4 4 4 4 4 4
Bottom to Top	11.068 11,046 11,024 11,091 10,980 Plug to Plug Frac Plug 10,246 10,223 10,179 10,161	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18	4 4 4 4 3 3 3 3 3 0 Total Shots 4 4 4 4 4 4 4	10,913 10,885 10,886 10,846 10,822 10,802 10,802 10,003 10,005 10,003 10,002 10,002 9,979	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26	4 4 4 4 3 3 3 3 3 0 Total Shots Shots 4 4 4 4 4 4 4	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,891 9,895 9,823 9,923	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18	4 4 4 3 3 3 3 3 3 5 5 5 5 5 5 5 5 5 5 5	10,557 10,535 10,512 10,495 10,446 10,446 10g to Plug Frac Plug 9,700 9,685 9,667 9,645 9,623	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 22	4 4 4 4 3 3 3 3 3 0 Total Shots Shots 4 4 4 4 4 4 4	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22 22	4 4 4 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 4 4
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27	4 4 4 4 3 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 10,802 10,002 10,003 10,045 10,003 10,003 10,003 9,979 9,953	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19	4 4 4 4 3 3 3 3 3 0 Total Shots 4 4 4 4 4 4 4	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845 9,823 9,797 9,779	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23	4 4 4 4 3 3 3 3 3 0 Total Shots 4 4 4 4 4 4 4	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,645 9,623 9,598	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20	4 4 4 4 3 3 3 3 3 0 Total Shots 4 4 4 4 4 4 4	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22 22 22	4 4 4 3 3 30 Total Shots Shots 4 4 4 4
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,114 10,112	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,868 10,846 10,822 10g to Plug Frac Plug 10,063 10,045 10,023 10,0023 10,0023 10,0023 9,979 9,953	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,688 10,668 10,624 Plug to Plug Frac Plug 9,868 9,845 9,823 9,779 9,779	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18	4 4 4 4 4 4 4 3 3 3 3 3 3 4 4 4 4 4 4 4	10,557 10,535 10,512 10,495 10,468 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,665 9,662 9,598 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 22	4 4 4 3 3 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	10,379 10,357 10,335 10,335 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22 22	4 4 4 3 3 3 3 0 Total Shots Shots 4 4 4 4 4 4 4 4 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 10,980 10,980 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090	23 22 22 23 21 78 11,145 Distance Between Perfa 22 20 24 18 27 22 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,002 9,979 9,934 9,912	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,668 10,668 10,664 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,756 9,734	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 26	4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 3 3 3 3	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,645 9,623 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20 17	4 4 4 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,400 9,378	22 22 23 22 22 22 22 22 Distance Between Perfs 27 23 22 22 22 22 22 22 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,112 10,090 Plug to Plug	23 22 22 23 21 78 11,146 Distance Between Perfs 22 20 24 18 27 22 22 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,023 10,002 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22	4 4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,668 10,668 10,666 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845 9,823 9,797 9,779 9,779 9,734 Plug to Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78	4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,623 9,578 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20 17	4 4 4 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 3 3 3 3 3 3 3 3 5 4 4 4 4 4	10,379 10,357 10,355 10,315 10,210 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,440 9,378 Plug to Plug	22 22 23 22 22 22 22 21 23 22 23 22 22 22 23 22 23 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 10,980 10,980 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090	23 22 22 23 21 78 11,146 Distance Between Perfs 22 20 24 18 27 22 22 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,002 9,979 9,934 9,912	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22	4 4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,668 10,668 10,664 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,756 9,734	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 26	4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,645 9,623 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20 17	4 4 4 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 3	10,379 10,357 10,355 10,315 10,210 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,440 9,378 Plug to Plug	22 22 23 22 22 22 22 21 23 22 23 22 22 22 23 22 23 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,112 10,090 Plug to Plug	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 20 24 18 27 22 27	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,023 10,002 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22	4 4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,668 10,668 10,666 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845 9,823 9,797 9,779 9,779 9,734 Plug to Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901	4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,623 9,578 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20 17	4 4 4 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 3 3 3 3 3 3 3 3 5 4 4 4 4 4	10,379 10,357 10,355 10,315 10,210 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,440 9,378 Plug to Plug	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22 22 22 23 22 79 9,546	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 78 10,257	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,913 10,885 10,886 10,846 10,824 10,802 Plug to Plug Frac Plug 10,063 10,045 10,023 10,002 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22	4 4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3	10,730 10,713 10,668 10,668 10,666 10,624 Plug to Plug Frac Plug 9,891 9,868 9,845 9,823 9,797 9,779 9,779 9,734 Plug to Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78	4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 3 3	10,557 10,535 10,512 10,495 10,446 10,446 Plug to Plug Frac Plug 9,700 9,685 9,667 9,623 9,578 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 22 25 20 17	4 4 4 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 3 3 3 3 3 3 3 3 5 4 4 4 4 4	10,379 10,357 10,355 10,315 10,210 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,440 9,378 Plug to Plug	22 22 23 22 22 22 22 21 23 22 23 22 22 22 23 22 23 22	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 20 24 18 27 22 27	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 5 7 7 7 7 7 7 7 7 7 7 7 7 7	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 22 78 10,435 Distance Between Perfs 27 23 22 22 22 22 22 23 22 25 27 29 20 20 20 20 20 20 20 20 20 20 20 20 20	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 78 10,257 Distance Between	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 22 22 27 99,546 Distance Between Perfs 27 79	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 78 10,257 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,112 10,090 Plug to Plug Frac Plug 456,665 9,351 9,351 9,334 9,309	23 22 22 23 21 78 11,146 Distance Between Perfs 22 20 24 18 27 22 20 T8 10,257 Distance Between Perfs 27	4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 3 3 3 0 Total Shots Shots 4 4 4 4 4 4 4 4 5 3 3 3 0 Total Shots Shots 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug 9,351 9,334 9,309	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 T8 10,257 Distance Between Perfs 27 25	4 4 4 4 4 4 4 4 4 4 4 4 5 3 3 3 3 3 3 3	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,112 10,090 Plug to Plug Frac Plug 456,665 9,351 9,351 9,334 9,309	23 22 22 23 21 78 11,146 Distance Between Perfs 22 20 24 18 27 22 28 78 10,257 Distance Between Perfs 27 22 22 22 22 22 22 23 24 25 20 25 20 26 27 27 27 28 28 28 27 29 20 20 20 20 20 20 20 20 20 20 20 20 20	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug State Plug State Plug 9,351 9,334 9,399 9,287 9,245	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 T8 10,257 Distance Between Perfs 27 25 20 22 22 22 22	4 4 4 4 3 3 3 Total Shots Shots 4 4 4 4 5 3 3 3 Total Shots 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug 9,351 9,334 9,309 9,289 9,287 9,245	23 22 22 23 21 78 11,146 Distance Between Perfs 22 20 24 18 27 22 22 78 10,257 Distance Between Perfs 27 25 27 25 20 22 22 22	4 4 4 4 4 5 3 3 3 7 Total Shots 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073	4 4 4 3 3 3 30 Total Shots	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs	4 4 4 3 3 3 30 Total Shots 4 4 4 4 4 7 3 3 3 30 Total Shots	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 23 22 79 9,546 Distance Between Perfs	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,203 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug (Stagge 24) 9,351 9,334 9,309 9,287 9,245 9,223 9,203	23 22 22 23 21 78 11,146 Distance Between Perfa 22 20 24 18 27 22 22 T8 10,257 Distance Between Perfs 27 22 22 22 22 20 24 20 22 22 20	4 4 4 4 3 3 3 Total Shots 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 10,802 10,802 10,063 10,005 10,002 10	28 17 22 22 22 74 10,959 Distance Between Perfs 27 22 21 10,073 Distance Between Perfs 9203	4 4 4 4 3 3 3 Total Shots 4 4 4 4 3 3 Total Shots Shots 4 5 5 5 5 6 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	10,730 10,713 10,668 10,668 10,664 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs 0	4 4 4 4 3 3 3 Fotal Shots 4 4 4 4 5 7 7 7 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	10,557 10,535 10,512 10,495 10,446 10,446 10 ye Pluy Frac Plug 9,700 9,685 9,667 9,645 9,623 9,578 9,578 9,578 9,578 9,578 9,578 9,578 9,578	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance Between Perfs 0	4 4 4 4 3 3 3 Total Shots 4 4 4 4 4 5 3 3 3 Total Shots Shots Shots Au	10,379 10,357 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,423 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 24 78 10,435 Distance Between Perfs 27 23 22 22 23 22 79 9,546 Distance Between Perfs 0	4 4 4 3 3 3 30 Total Shots 4 4 4 4 3 3 3 30 Total Shots Shots Shots
From Bottom to Top	11.068 11,046 11,024 11,001 10,980 Plug to Plug Frac Plug 10,246 10,223 10,179 10,161 10,134 10,112 10,090 Plug to Plug Frac Plug 9,351 9,334 9,309 9,289 9,287 9,245	23 22 22 23 21 78 11,145 Distance Between Perfs 22 20 24 18 27 22 22 22 22 22 20 78	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10,913 10,885 10,868 10,846 10,822 1ug to Plug Frac Plug 10,063 10,045 10,023 10,005 10,023 10,007 9,979 9,953 9,934 9,912 Plug to Plug	28 17 22 22 27 74 10,959 Distance Between Perfs 27 22 21 23 26 19 22 71 10,073 Distance Between Perfs 9203	4 4 4 3 3 3 30 Total Shots Shots 4 4 4 4 4 4 5 3 3 30 Total Shots Shots Shots O O O	10,730 10,713 10,688 10,668 10,668 10,624 Plug to Plug Frac Plug 9,891 9,895 9,823 9,797 9,779 9,756 9,734 Plug to Plug Frac Plug	17 25 20 22 27 77 10,790 Distance Between Perfs 21 23 22 26 18 23 22 78 9,901 Distance Between Perfs 0	4 4 4 4 3 3 3 Total Shots 4 4 4 4 3 3 3 Total Shots Shots Shots O O O	10,557 10,535 10,512 10,495 10,446 10,446 10 446 10 49 Plug 9,700 9,685 9,667 9,623 9,598 9,578 9,561 Plug to Plug	22 23 17 27 22 69 10,604 Distance Between Perfs 34 18 22 25 20 17 65 9,710 Distance Between Perfs 0	4 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10,379 10,357 10,357 10,335 10,312 10,290 10,268 Plug to Plug Frac Plug 9,534 9,512 9,489 9,467 9,445 9,445 9,400 9,378 Plug to Plug Frac Plug	22 22 23 22 78 10,435 Distance Between Perfs 27 23 22 22 22 22 23 20 79 9,546 Distance Between Perfs 0	4 4 4 3 3 30 Total Shots Shots 4 4 4 4 4 4 4 7 3 3 3 3 7 7 7 7 7 7 7 7