

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS****Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.****SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well ☐ Oil Well ☐ Gas Well ☒ Other INJECTION		5. Lease Serial No. NMLC0069159A
2. Name of Operator RKI EXPLORATION & PRODUCTION Contact: BILL AUBREY E-Mail: baubrey@rkixp.com		6. If Indian, Allottee or Tribe Name
3a. Address 3817 NW EXPRESSWAY, STE 950 OKLAHOMA CITY, OK 73112	3b. Phone No. (include area code) Ph: 405-996-5750	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 25 T22S R28E SWSW 330FSL 330FWL		8. Well Name and No. BIG EDDY 117 SWD
		9. API Well No. 30-015-27261
		10. Field and Pool, or Exploratory EAST HERRADURA/DELAWARE
		11. County or Parish, and State EDDY COUNTY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☒ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☒ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

RKI - Exploration & Production, LLC is requesting permission to add the Summary Report to the Big Eddy 117 SWD well to comply with the "Conditions of Approval". Please see attached.

Submit completion report &

Subsequent Sundry within 30 days

Accepted for record

NMOCB

7/21/11

ACCEPTED FOR RECORD

JUN 23 2011

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #110957 verified by the BLM Well Information System
For RKI EXPLORATION & PRODUCTION, sent to the Carlsbad

Name (Printed/Typed) BILL AUBREY

Title OPERATIONS

Signature (Electronic Submission)

Date 06/20/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****



MFrac

Three-Dimensional Hydraulic Fracturing Simulator

MFrac is a trademark of Meyer & Associates, Inc.

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2130 Freeport Rd, Suite C, Natrona Heights, PA 15065 USA

MFrac version 5 50 1687

<http://mfrac.com/>

Simulation Date 6/15/2011 12 59 14 PM

Company : RKI Exploration and Production, LLC
Well Big Eddy SWD #117
Location Eddy County, New Mexico
Date: 6/15/11

Comments:

Slickwater - 3D Design

INPUT SURFACE TREATMENT SCHEDULE

Schedule Type Surface
Wellbore Fluid Type KCL2
Fraction of Well Filled 1
Recirculation Volume 0 (U S gal)

Stage No	Slurry Rate (bpm)	Stage Liquid Volume (U S gal)	Stage Time (min)	Stage Type	Fluid Type	Prop Type	Prop Conc From (lbm/gal)	Prop Conc. To (lbm/gal)	Prop Damage Factor
1	10	500	1 1905	Pre-Pad	FR01	0000	0	0	0
2	20	2500	2 9762	Acid	FR01	0000	0	0	0
3	20	4200	5 0283	Prop	FR01	0004	0 25	0	0
4	20	2500	2 993	Acid	FR01	0000	0	0 25	0 25
5	20	4200	5 0283	Prop	FR01	0004	0 25	0	0
6	20	2500	3 0098	Acid	FR01	0000	0	0 5	0 25
7	20	4200	5 0283	Prop	FR01	0000	0 25	0	0
8	20	4200	5 0565	Sweep	FR01	0000	0	0 5	0 25
9	20	100	0 11905	Flush	FR01	0000	0	0	0

Fluid Type: KCL2 - 2% KCl 1299 7 (U S gal)
Fluid Type FR01 - Slickwater - 1 gal/1000 friction reducer 24900 (U S gal)
Proppant Type 0000 - No Prop, Slug, .. 2512 5 (lbm)
Proppant Type 0004 - 20/40 Brady Sand 1050 (lbm)

SURFACE TREATMENT SCHEDULE PUMPED

Stage No	Avg Slurry Rate (bpm)	Liquid Volume (U.S. gal)	Slurry Volume (U S. gal)	Total Slurry Volume (U S. gal)	Total Time (min)	Fluid Type	Prop Type	Conc. From (lbm/gal)	Conc. To (lbm/gal)	Prop. Stage Mass (lbm)
1	10	500	500	500	1 1905	FR01	0000	0	0	0
2	20	2500	2500	3000	4 1667	FR01	0000	0	0	0
3	20	4200	4223 8	7223 8	9 195	FR01	0004	0 25	0	525
4	20	2500	2514 1	9737 9	12 188	FR01	0000	0	0 25	312 5
5	20	4200	4223 8	13962	17 216	FR01	0004	0 25	0	525
6	20	2500	2528 3	16490	20 226	FR01	0000	0	0 5	625
7	20	4200	4223 7	20714	25 254	FR01	0000	0 25	0	525
8	20	4200	4247 5	24961	30 311	FR01	0000	0	0 5	1050
9	20	100	100	25061	30 43	FR01	0000	0	0	0

Total Slurry Volume 25061 (U S. gal)
Total Liquid Volume 24900 (U S. gal)
Total Proppant Mass 3562 5 (lbm)

BOTTOMHOLE TREATMENT SCHEDULE PUMPED

Stage No	Avg Slurry Rate (bpm)	Liquid Volume (U.S. gal)	Slurry Volume (U S. gal)	Total Slurry Volume (U S. gal)	Total Time (min)	Fluid Type	Prop Type	Conc From (lbm/gal)	Conc To (lbm/gal)	Prop. Stage Mass (lbm)
Well	14 33	1263 8	1263 8	1263 8	2 0998	KCL2	0000	0	0	0
1	20	500	500	1763 8	2 695	FR01	0000	0	0	0
2	20	2500	2500	4263 8	5 6712	FR01	0000	0	0	0
3	20	4200	4223 8	8487 6	10 699	FR01	0004	0 25	0	525

Stage No	Avg Slurry Rate (bpm)	Liquid Volume (U S. gal)	Slurry Volume (U S gal)	Total Slurry Volume (U S gal)	Total Time (min)	Fluid Type	Prop Type	Conc From (lbm/gal)	Conc To (lbm/gal)	Prop Stage Mass (lbm)
4	20	2500	2514.1	11002	13 692	FR01	0000	0	0 25	312.5
5	20	4200	4223 8	15225	18.721	FR01	0004	0 25	0	525
6	20	2500	2528 3	17754	21 731	FR01	0000	0	0 5	625
7	20	4200	4223 7	21977	26.759	FR01	0000	0 25	0	525
8	20	3058 5	3083 7	25061	30.43	FR01	0000	0	0 36411	556 81
Total Slurry Volume				25061		(U S gal)				
Total Liquid Volume				24922		(U S gal)				
Total Proppant Mass				3069.3		(lbm)				

WELLBORE HYDRAULICS SOLUTION

Hydraulic Power Required	1807 7	(hhp)
Surface Pressure, Min.	2793 2	(psi)
Surface Pressure, Max	3689 3	(psi)
BHTP Pressure, Min.	5288	(psi)
BHTP Pressure, Max	5392 7	(psi)
Gravitational Head, Min	3928.1	(psi)
Gravitational Head, Max	4060 3	(psi)
Fncional Pressure Loss, Min	1434 4	(psi)
Fncional Pressure Loss, Max	2325 3	(psi)

FRACTURE PROPAGATION SOLUTION

(Calculated Values at End of Treatment)

	Zone 1	Zone 2	
Slurry Volume Injected	5434 8	19626	(U S gal)
Liquid Volume Injected	5396 3	19526	(U S. gal)
Fluid Loss Volume	2860	15547	(U.S gal)
Frac Fluid Efficiency	0 47377	0.20783	
Net Frac Pressure	51 595	83 36	(psi)
Length (one wing)	331 52	469.77	(ft)
Upper Frac Height	123.23	205 54	(ft)
Lower Frac Height	125 1	57 063	(ft)
Upper Frac Height (TVD)	4262 3	4248 5	(ft)
Lower Frac Height (TVD)	4510 6	4511.1	(ft)
Total Frac Height	248 33	262.61	(ft)
Max Frac Width at Perfs	0 048265	0 056885	(in)
Avg Hydraulic Frac Width	0.031108	0 03265	(in)

PROPPANT DESIGN SUMMARY

	Zone 1	Zone 2	
Frac Length - Created	331 52	469 77	(ft)
Frac Length - Propped	0	0	(ft)
Frac Height - Avg.	0	0	(ft)
Propped Height (Pay Zone) - Avg	0	0	(ft)
Max Width at Perfs - EOJ	0 048265	0 056885	(in)
Propped Width (Well) - Avg.	0	0 0059	(in)
Propped Width (Pay Zone) - Avg	0	0	(in)
Conc /Area (Frac) - Avg at EOJ	0 00016936	0 0050606	(lbm/ft ²)
Conc /Area (Pay Zone) - Avg at Closure	0	0	(lbm/ft ²)
Frac Conductivity (Pay Zone) - Avg at Closure	0	0	(md-ft)
Dimensionless Frac Conductivity (Pay Zone)	0	0	
Beta	0	0	(1/ft)
Avg Fracture Permeability	0	0	(darcy)
Propped Fracture Ratio (EOJ)	0 0006916	0 019648	
Closure Time	42 341	12 283	(min)
Screen-Out Time	0	0	(min)

Zone 1

FRACTURE TREATMENT SCHEDULE

Stage No.	Avg Slurry Rate (bpm)	Liquid Volume (U.S gal)	Slurry Volume (U S. gal)	Total Volume (U S gal)	Total Time (min)	Prop Conc. From (lbm/gal)	Prop Conc To (lbm/gal)	Prop. Stage Mass (lbm)
Well	0 56382	49 723	49.723	49 723	2 0998	0	0	0
1	0.34874	8 7186	8 7186	58 442	2 695	0	0	0
2	0 19917	24 896	24 896	83 338	5 6712	0	0	0
3	0.15176	31.868	32 051	115.39	10.699	0.12704	0 12704	4 0484
4	0 29174	36 423	36 674	152 06	13 692	0 15228	0 15228	5 5467
5	0.85814	180 38	181 23	333 29	18 721	0.10409	0.10409	18.775
6	4 1881	521.83	529 43	862.72	21 731	0 32221	0 32221	168 14
7	13 424	2819 2	2835 1	3697 8	26 759	0 12459	0 12459	351 25

Stage No	Avg Slurry Rate (bpm)	Liquid Volume (U S gal)	Slurry Volume (U.S gal)	Total Volume (U S gal)	Total Time (min)	Prop Conc. From (lbm/gal)	Prop Conc. To (lbm/gal)	Prop Stage Mass (lbm)
8	11 266	1723 3	1737	5434 8	30 43	0.17545	0 17545	302.36
Total Slurry Volume				5434 8	(U S gal)			
Total Liquid Volume				5396.3	(U.S gal)			
Total Proppant Mass				850 12	(lbm)			

PROPPANT TRANSPORT SUMMARY TABLE

Stage No	Interval From (ft)	Interval To (ft)	End of Job		Conc Inlet (lbm/gal)	Conc Final (lbm/gal)	Prop Width (in.)	After Closure		Conc Area (lbm/ft²)
			Height Slurry (ft)	Height Bank (ft)				Prop Ht Total (ft)	Prop Ht Pay (ft)	
8	0	202 43	208.89	0.64799	0 17553	0 21901	0	7 0267	0	0
7	202 43	331 47	82 556	0 096883	0 12445	0 057595	0	0.45395	0	0
6	331 47	331 51	0	0	0 32274	0	0	0	0	0
5	331 51	331 51	0	0	0 10409	0	0	0	0	0
4	331.51	331 51	0	0	0 15228	0	0	0	0	0
3	331 51	331.51	0	0	0.12704	0	0	0	0	0
2	331 51	331 51	0	0	0	0	0	0	0	0
1	331 51	331 51	0	0	0	0	0	0	0	0
0	331.51	331 52	0	0	0	0	0	0	0	0

Zone 2

FRACTURE TREATMENT SCHEDULE

Stage No	Avg Slurry Rate (bpm)	Liquid Volume (U S gal)	Slurry Volume (U S gal)	Total Volume (U.S gal)	Total Time (min)	Prop Conc. From (lbm/gal)	Prop Conc. To (lbm/gal)	Prop Stage Mass (lbm)
Well	13 767	1214 1	1214 1	1214.1	2.0998	0	0	0
1	19.651	491 28	491.28	1705 4	2 695	0	0	0
2	19 801	2475.1	2475.1	4180 5	5 6712	0	0	0
3	19 848	4168 1	4191.7	8372 2	10 699	0.12498	0 12498	520.95
4	19 708	2463 6	2477.5	10850	13 692	0 1246	0 1246	306.95
5	19.142	4019 6	4042 5	14892	18 721	0.12594	0 12594	506.22
6	15 812	1978.2	1998 8	16891	21.731	0 23095	0 23095	456 86
7	6.5755	1380 8	1388 7	18280	26.759	0 12584	0 12584	173.75
8	8 7344	1335.2	1346.7	19626	30 43	0.19057	0 19057	254.45
Total Slurry Volume				19626	(U S gal)			
Total Liquid Volume				19526	(U S gal)			
Total Proppant Mass				2219 2	(lbm)			

PROPPANT TRANSPORT SUMMARY TABLE

Stage No.	Interval From (ft)	Interval To (ft)	End of Job		Conc Inlet (lbm/gal)	Conc Final (lbm/gal)	Prop Width (in.)	After Closure		Conc Area (lbm/ft²)
			Height Slurry (ft)	Height Bank (ft)				Prop Ht Total (ft)	Prop Ht Pay (ft)	
8	0	157 89	230 48	3 0757	0.19057	0 23575	0 0059	124.62	41.965	0 015311
7	157 89	252 33	135 63	3 1613	0 12559	0 11975	0	10.806	0	0
6	252 33	371.36	68 62	1 8287	0 23112	0.23929	0	5 1491	0	0
5	371 36	393 99	3 3684	3 3684	0 12594	0	0	3 3684	0	0
4	393 99	469 76	1 4241	1.4241	0 1246	0	0	1 4241	0	0
3	469 76	469 76	0	0	0 12498	0	0	0	0	0
2	469.76	469 76	0	0	0	0	0	0	0	0
1	469 76	469.76	0	0	0	0	0	0	0	0
0	469 76	469.77	0	0	0	0	0	0	0	0