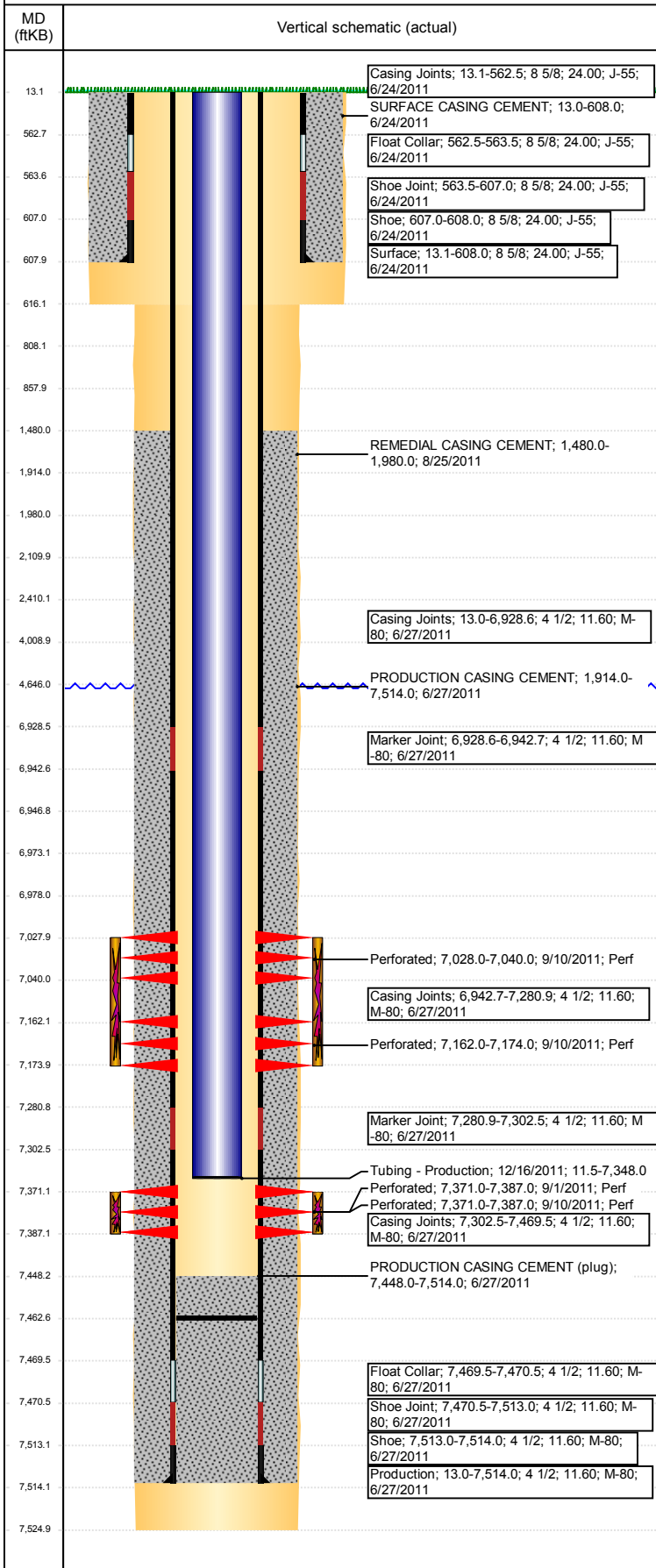


**Well Name: FIVE RIVERS K03-33D**

DEVIATED - ORIGINAL HOLE, 11/25/2017 2:22:41 PM



**Well Header**

API 05-123-32569	Business Unit DJ BASIN	District 15	Well Config DEVIATED
Original KB Elevation (ft) 4,734	KB - GL / MSL (ftKB) 13.00	Spud Date 6/23/2011	P & A Date

Comment  
318A.e. LOCATION

Directions To Well  
FROM CR 31 & 46, GO NORTH 1.10 MILES AND THEN NORTHEAST 300 FEET TO LOCATION

**Congressional Location**

Quarter 3 SW	Quarter 4 SW	Section 3	Township 4	Twnshp N/S Dir N	Range 66	Range E/W Dir W
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**Bottom Hole Location**

North-South Distance (ft) 1,400.0	From N or S Line FSL	East-West Distance (ft) 75.0	From E or W Line FWL
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**Plug Back Total Depths**

Date	Depth (ftKB)	Method	Com
6/27/2011	7,469.0	CASING TALLY	FLOAT COLLAR
7/20/2011	7,448.0	CASED HOLE LOG	DEPTH LOGGER
12/15/2011	7,462.5		DRILLED OUT CFTP AND C/O SAND TO 7462.51'...

**Wellbore Sections**

Section Des	Size (in)	Act Top, MD (ftKB)	Act Btm, MD (ftKB)
SURFACE	12 1/4	13	616
PRODUCTION	7 7/8	616	7,525

**Zone Statuses**

Zone Name	Status Date	Status	Fluid Type	Job	Prod Method
CODELL	9/12/2011	PR	Water	DRILLING/CO...	Flowing
CODELL	9/13/2011	PR			
CODELL	10/21/2011	PR			
CODELL	11/29/2016	SI			
NIOBRARA	9/12/2011	PR	Water	DRILLING/CO...	Flowing
NIOBRARA	9/13/2011	PR			

**Casing Strings**

Casing Description	Run Date	OD (in)	Wt/Len (l...)	Grade	Top, MD (ft...)	MD (ftKB)
Surface	6/24/2011	8 5/8	24.00	J-55	13.1	608.0

**Production, 7,514.0ftKB**

Casing Description	Run Date	OD (in)	Wt/Len (l...)	Grade	Top, MD (ft...)	MD (ftKB)
Production	6/27/2011	4 1/2	11.60	M-80	13.0	7,514.0

**Cement**

Description	Top Depth (ftKB)	Bottom Depth (ftKB)
SURFACE CASING CEMENT	13.0	608.0
PRODUCTION CASING CEMENT	1,914.0	7,514.0
REMEDIAL CASING CEMENT	1,480.0	1,980.0
Dump Bail	6,947.0	6,973.0
Balance Plug	4,009.0	4,646.0
Balance Plug	2,110.0	2,410.0
Shoe Plug	13.0	808.0
	808.0	858.0

**Tubing Strings**

Tubing Description	Run Date	String...	ID (in)	Wt (lb/ft)	Grade	Len (ft)	Set De...
Tubing - Production	12/16/2011	1	2 3/8	4.70	J-55	7,336.48	7,265.7

**Tubing Components**

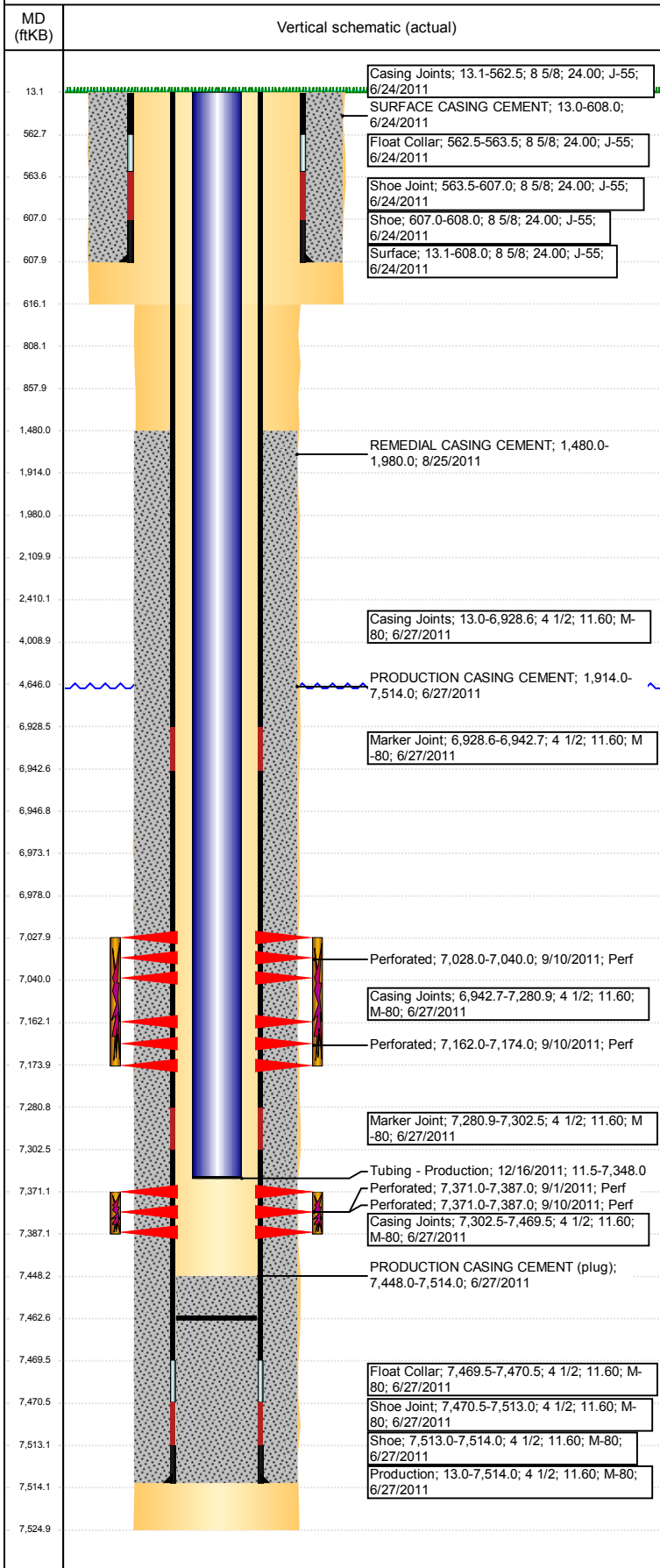
Item Des	OD (in)	Wt (lb/ft)	Grade	Jts	Len (ft)	Btm (ftKB)	Btm (TVD) (ftKB)
Tubing Pup Joint	2 3/8	4.70	J-55	1	9.70	21.2	
Tubing	2 3/8	4.70	J-55	238	7,325.28	7,346.5	
Seating Nipple	2 3/8			1	1.10	7,347.6	7,265.3
Notched collar	2 3/8			1	0.40	7,348.0	7,265.7

**Other In Hole**

Run Date	Des	OD (in)	Top (ftKB)	Btm (ftKB)
11/22/2017	Cast Iron Bridge Plug	3.99	6,973.0	6,978.0

**Well Name: FIVE RIVERS K03-33D**

DEVIATED - ORIGINAL HOLE, 11/25/2017 2:22:41 PM



Logs			
Date	Type	Top, MD (ftKB)	Btm, MD (ftKB)
6/27/2011	Caliper/Comp. Density/Neutron/GR/SP/ML	2,500.0	7,501.0
6/27/2011	DIL/GR/SP/Caliper	608.0	7,521.0
7/20/2011	CBL/CCL/GR	1,800.0	7,441.0

Perforation Data					
Linked Zone	Bnch/St g	Sum of Entered Shot Total	Top (ftKB)	Btm (ftKB)	Date
NIOBRARA, ORIGINAL HOLE	A	24	7,028.00	7,040.00	9/10/2011
NIOBRARA, ORIGINAL HOLE	B	24	7,162.00	7,174.00	9/10/2011
CODELL, ORIGINAL HOLE	01	64	7,371.00	7,387.00	9/1/2011
CODELL, ORIGINAL HOLE	01	64	7,371.00	7,387.00	9/10/2011
<b>Total (Sum)</b>		<b>176</b>			

Stimulation Intervals	
Start Date	Primary Job Type
9/9/2011	DRILLING/COMPLETION - ORIGINAL

Technical Result	Tech Result Details	Tech Result Note
Need more data		

**Comment**  
 (CODELL): NOT ABLE TO ACHIEVE HIGH ENOUGH RATE FOR HYBRID. MAX RATE REACHED WAS 20 BPM WHILE PUSHING 4900 PSI. A CROSSLINKED STAGE WAS ADDED IN THE MIDDLE OF THE SLICKWATER PAD BUT DID NOT CHANGE PRESSURE OR PRESSURE TREND. CROSSLINKED GEL WAS THEN STARTED AGAIN 100 BBLS PRIOR TO DESIGN. 0.5 PSA WAS PUMPED WHEN CROSSLINKED PAD WAS DESIGNED TO START, AND 1 PSA WAS STARTED ON SCHEDULE. PRESSURE CLIMBED AS SAND HIT FORMATION AND DID NOT BREAK OVER. A CROSSLINKED SWEEP WAS PERFORMED WHICH DID NOT CHANGE PRESSURE EITHER, SO WELL WAS FLUSHED WITH LINEAR GEL. CONSULTED WITH JAMES ROUSE AND JASON MENEGATTI AND WILL CHECK PERF DEPTHS WITH WIRELINE IN THE MORNING AND POSSIBLY RESHOOT PERFS. INITIAL ISIP - 3850, 5 MIN - 3639, FG - 0.96. REVERSE STEP ANALYSIS - 16 PERFS OPEN, NWB - 95 PSI, PERF FRIC - 188 PSI, TUBULAR FRIC - 384 psi. FINAL ISIP - 4358 PSI, FG - 1.02, 5 MIN 4019 PSI. 1466 BBLS SLURRY PUMPED (10000 LBS OF SAND). SAMPLES LOOKED GOOD AND PRESSURE WAS AN ISSUE DURING SLICKWATER AS WELL SUGGESTING NOT A FLUID ISSUE. BREAK WAS UNUSUALLY HIGH AS WELL - 4856PSI @ 5.2 BPM.

Start Date	Primary Job Type
9/10/2011	DRILLING/COMPLETION - ORIGINAL

Technical Result	Tech Result Details	Tech Result Note
Failure	Screen-Out	

**Comment**  
 (CODELL): BECAUSE OF DIFFICULTY ESTABLISHING RATE AGAINST MAX PRESSURE THE DESIGN WAS CHANGED FROM HYBRID TO STANDARD CODELL DESIGN. INITIAL ISIP 4321, FG - 1.02. NOT ABLE TO ACHIEVE ENOUGH RATE EARLY IN JOB FOR REVERSE STEP ANALYSIS. PUMPS KICKED OUT TWICE DURING JOB BECAUSE OF PRESSURE WHILE IN SAND BUT BROUGHT BACK QUICKLY. AT END OF 3 PSA RATE HAD BEEN DROPPED TO 10 BPM TO STAY BELOW PRESSURE, AT THAT POINT IT WAS DECIDED TO GO TO FLUSH. WELL WAS FULLY FLUSHED. FINAL ISIP - 4474, 5 MIN - 3930. TOTAL PROPPANT FROM BOTH ATTEMPTS ON THE CODELL IS 166,330 LBS (67%).

Start Date	Primary Job Type
9/10/2011	DRILLING/COMPLETION - ORIGINAL

Technical Result	Tech Result Details	Tech Result Note
Success	According to Plan	

**Comment**  
 (NIOBRARA B&A): SPOTTED ACID THROUGH DOWN TO PLUG, THEN DROPPED BALL FOR PLUG AND WAITED 30 MINUTES. BREAK 4180 @ 4.6 BPM, ISIP - 3650. FINAL ISIP - 3720, 5 MIN - 3701, AVG VISC 27.2, AVG PH - 10.03, AVG TEMP 69.9. TREATMENT WENT WELL.