State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-4 or 3160-5 form.

Operator Signature Date: 6-19-15
Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW
30-043-21234-00-00	CHACON JICARILLA	602H	ENERGEN RESOURCES CORPORATION	O	N	Sandoval	J	M	23	23	N	3	W	892	S	775	W

Drilling/Casing Change

Conditions of Approval:
(See the below checked and additional conditions)

✓ Notify Aztec OCD 24hrs prior to casing & cement.

✓ Hold C-104 for directional survey & "As Drilled" Plat

✓ Hold C-104 for ✓ NSL, ☐ NSP, ☐ DHC

☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned

☐ Ensure compliance with 19.15.17

☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string

✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

* **ADDITIONAL REQUIREMENTS SEE NEXT PAGE**

- Adjust plugs accordingly to cover tops once open hole logs are completed.
- All open hole plugs are required to be woc'd and tagged.
- The 13 3/8 inch casing string will not be considered conductor pipe and will be required to be pressure tested in accordance with 19.15.16.10I

Katherine Pickford

NMOCD Approved by Signature

6-30-15
Date

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CONFIDENTIAL
TIGHT HOLE

FORM APPROVED
OMB NO. 1004-0137
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.

RECEIVED

SUBMIT IN TRIPLICATE - *Other instructions on page 2*

JUN 22 2015

Farmington Field Office
Bureau of Land Management

5. Lease Serial No.
Jicarilla Apache 183

6. If Indian, Allottee or Tribe Name
Jicarilla Apache

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
[X] Oil Well [ ] Gas Well [ ] Other

8. Well Name and No.
Chacon Jicarilla 602H

2. Name of Operator
Energen Resources Corporation

9. API Well No.
30-043-21234

3a. Address
2010 Afton Place, Farmington, NM 87401

3b. Phone No. (*include area code*)
(505) 325-6800

10. Field and Pool, or Exploratory Area
West Lindrith Gallup Dakota

4. Location of Well (*Footage, Sec., T., R., M., or Survey Description*)
SHL - 861' FSL 802' FWL Sec. 23 T23N R03W (M) SW/SW
BHL - 790' FSL 200' FWL Sec. 22 T23N R03W (M) SW/SW

11. County or Parish, State
Sandoval NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
[x] 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
	[x] 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 final site is ready for final inspection.)

Based on a gyro-directional survey conducted on the Chacon Jicarilla D #13, Energen would like to move the SHL of the Chacon Jicarilla #602H to 892' FSL, 775' FWL. See attached Amended C-102.

Also, Energen would like to propose the following changes to the well design of the Chacon Jicarilla #602H:

- Drill thru in a manner to achieve an optimal departure to log and core the Mancos. See attached directional plan.
- Plug back the drill thru to a KOP of 2888' TVD.
- Build and land the curve.
- Set conductor casing- 13-3/8", H-40, 48#, to 200'MD/200'TVD.
- Change 9-5/8" csg Grade to K-55, set depth at 2000'MD/2000'TVD. Change 4-1/2" from 7050'-12025'MD/ 5492'-6454'TVD to 7100'-12085'MD/5492'-6454'TVD.

OIL CONS. DIV DIST. 3

JUN 26 2015

14. I hereby certify that the foregoing is true and correct
Name (*Printed/Typed*) Anna Stotts
Title Regulatory Analyst
Signature Anna Stotts
Date 06/19/15

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by William Tambekou
Title Petroleum Engineer
Date 06-23-2015
Office FFO

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.

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes 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.

NMOCD AV

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TIGHT HOLE

RECEIVED
JUN 22 2015
Farmington Field Office
Bureau of Land Management

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☑ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-043-21234	39189	WEST LINDRITH GALLUP DAKOTA

[4] Property Code	[5] Property Name	[6] Well Number
313467	CHACON JICARILLA	602H

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	7457'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	23	23N	3W		892'	SOUTH	775'	WEST	SANDOVAL

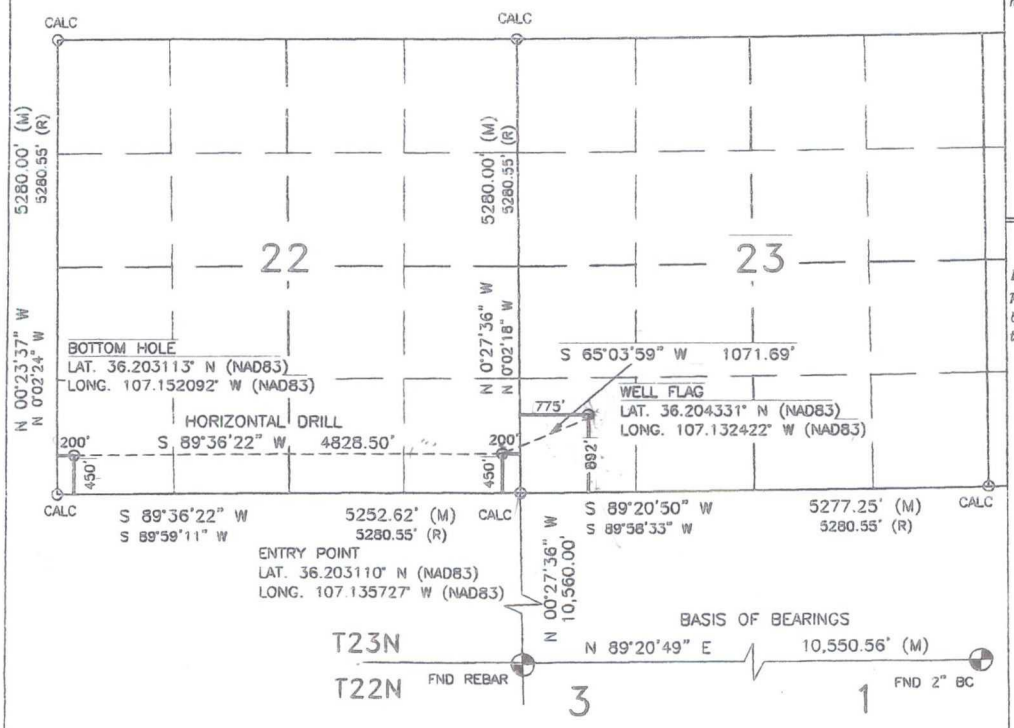
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	22	23N	3W		450'	SOUTH	200'	WEST	SANDOVAL

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
PROJECT AREA			

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

16



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Anna Stotts 6/19/15
Signature Date

Anna Stotts
Printed Name

astotts@energen.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 12, 2015
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number 11393

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Drilling Plan

Energen Resources Corporation

Revised 5/11/15

Chacon Jicarilla #602H
Surface Location: 861 FSL, 802 FWL
Legal Description: Sec 23, T23N, R3W (36.20425° N, 107.13233° W – NAD83)
Bottom Hole Location: 790 FSL, 200 FWL
Legal Description: Sec 22, T23N, R3W (36.20405° N, 107.15217° W – NAD83)
Sandoval, NM

1. The elevation of the unprepared ground is 7,457 feet above sea level.
2. The geological name of the surface formation is the San Jose
3. A rotary rig will be used to drill the well to a Final Proposed Total Depth of 6,592' TVD/12,085' MD.
4. Estimated top of important geological markers:

Formation	Depth (TVD) (ft)	Depth (MD) (ft)
San Jose	Surface	Surface
Nacimiento	1,472	1,472
Ojo Alamo	2,729	2,729
Kirtland	2,883	2,883
Fruitland	3,041	3,045
Pictured Cliffs	3,133	3,138
Huerfanito Bentonite	3,464	3,475
Chacra	3,959	3,985
Cliff House	4,653	4,691
Menefee	4,697	4,735
Point Lookout	5,233	5,275
Mancos	5,543	5,586
Mancos/Niobrara "C"	6,487	6,534
Total Depth	**6,592**	**12,085**
Greenhorn	7,263	7,312
Graneros	7,321	7,370
Dakota	7,457	7,507

5. Estimated depth at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Formation	Depth (TVD)(ft)	Water/HydroCarbon
Fruitland	2,870	Gas
Pictured Cliffs	3,120	Gas
Cliffhouse	4,640	Gas
Point Lookout	5,220	Gas
Mancos	5,530	Oil/Gas

6. All proposed casing is new and the program is as follows:

Casing	Size	Depth		Grade	Weight	Connection	PSI		x1000 lb
		MD	TVD				Burst	Collapse	Tension
Conductor	13-3/8"	0-200	0-200	H-40	48.0	STC	1730	770	322
Surface	9-5/8"	0-2000	0-2000	K-55	36.0	LTC	3520	2020	394
Intermediate	7"	0-7,275'	0-5,492'	L-80	26.0	DQX Ultra	7240	5410	830
Production	4-1/2"	7,100'-12,085'	5,492' - 6,454'	P-110	11.60	DQX Ultra	10690	7560	367

7. Cementing Program:
   a. 17-1/2" hole x 13-3/8" casing at 200' will have cement circulated to surface with 240 sks (100% excess true hole) Class H Cement with 1.0 % $CaCl_2$, ½ #/sk Poly-E-Flake15.8 ppg, 1.17 ft^3/sk. Note: CEMENT MUST BE CIRCULATED TO SURFACE. STANDARD BOW SPRING CENTRALIZERS SHALL BE PLACED ON THE FIRST 3 (BOTTOM 3) JOINTS OF CASING (1 PER JOINT) AND 1 EVERY 3RD JOINT TO SURFACE. 20 BBLS OF WATER AHEAD OF CEMENT AS SPACER

   b. 12-1/4" hole x 9-5/8" casing at 2000' will have cement circulated to surface with 358 sks (50% excess true hole) of VERSACEM™ SYSTEM with 3 % HR-5. ¼ #/sk Poly-E-Flake, 5 #/sk Kol-Seal (Gilsonite) – 12.3 ppg, 1.97 ft^3/sk followed 200 sks (50% excess true hole) Class H Cement with 1.0 % $CaCl_2$, ½ #/sk Poly-E-Flake15.8 ppg, 1.17 ft^3/sk. Note: CEMENT MUST BE CIRCULATED TO SURFACE. STANDARD BOW SPRING CENTRALIZERS SHALL BE PLACED ON THE FIRST 3 (BOTTOM 3) JOINTS OF CASING (1 PER JOINT) AND 1 EVERY 3RD JOINT TO SURFACE. 20 BBLS OF WATER FOLLOWED BY 20 BBLS OF MUDFLUSH AHEAD OF CEMENT AS SPACER

   c. 8-3/4" hole x 7" casing at 7,275'. Cement will be circulated to surface with 775 sks (50% excess true hole) of VERSACEM™ SYSTEM with 3 % HR-5. ¼ #/sk Poly-E-Flake, 5 #/sk Kol-Seal (Gilsonite) – 12.3 ppg, 1.97 ft^3/sk followed by 175 sks (100% excess true hole) VARICEM ™ CEMENT with 0.20% Versaset, 0.30% HALAD-567 – 13.5 ppg, 1.28 ft^3/sk. ONE CENTRALIZER PER JOINT FOR THE FIRST 3 JOINTS, THEN EVERY 3RD JOINT TO SURFACE. 10 BBLS OF WATER FOLLOWED BY 30 BBLS OF MUDFLUSH AHEAD OF CEMENT AS SPACER. Test Intermediate Casing to 1500 psi. Cement Additives Subject to Change Based on Wellbore Conditions and Cement Design Criteria

   d. 6-1/4" hole x 4-1/2" liner at 12,085'. A fluid caliper will be run to determine base slurry cement to have TOC at 7,100'. Base slurry to consist of 575 sks VARICMENT ™ CEMENT with 2.5 lb/sk Kol-Seal, 0.20 % Halad-9, 0.05 % SA-1015, 0.70 % Halad-567 – 13.3 ppg, 1.33 ft^3/sk (50% excess). CENTRALIZERS TO BE USED AT DISCRETION IN LATERAL TO ACHIEVE 70% STAND OFF. PACKOFF SEAL ASSEMBLY TO BE USED FOR LINER TOP ISOLATION. Cement Additives Subject to Change Based on Wellbore Conditions and Cement Design Criteria. Liner to be Pressure Tested During Completion Operations.

8. Pressure Control Equipment

   a. BOPE to be installed prior to Surface Casing drillout.
   b. Pressure control equipment will be used to meet 2,000 (2M) psi specifications.
   c. BOPE working pressure of 3,000 psi.
   d. Function test and visual inspection to be done at each casing size change prior to drill out.
   e. BOP annular to be tested to 85% of working pressure.
   f. All BOP and related equipment will be tested in accordance with the requirements outlined in Onshore Order No. 2 and Notice to Operators dated May 27, 2005.
   g. BOP remote controls to be located on rig floor and readily accessible, master control on ground at accumulator will be able to function all preventors.
   h. Kill line will be 2 in min and have two kill line valves, one being a check valve.

i. Choke line will be 2 in min and have two choke line valves, choke manifold with have two adjustable chokes, one manual and one remote. All choke lines will be as straight as possible. Any turns will be properly targeted using block and/or running tees. Choke line and manifold to be pressure tested to 1,500 psi.
j. Float sub and TIW valve will be on the rig floor at all times.
k. If high pressure co-flex hoses are used, they will be run as straight as possible and anchored to prevent whip.
l. The main discharge line (panic line) will be at least 100' from the choke manifold and discharged into an appropriately sized discharge facility.

9. Mud Program:

0' - 2000'	Fresh water/Spud Mud. Paper for losses and seepage. 8.5 to 9.0 ppg, 32 to 75 vis, PV 3 to 5, YP 5 to 7, WL NC
2000' – 7,275'	Fresh water/LSND. As needed LCM for losses and seepage. 8.5 to 9.5 ppg, pH 10, 28 to 60 vis, PV 1, YP 1, WL 8-15
7,275' – 12,085'	WBM with shale and clay stabilizers. As needed LCM for losses and seepage. 8.3 to 9.3 ppg, 15 to 35 vis, PV 4-6, YP 4-6, WL < 20

****During drilling operations, all necessary products will be sufficiently stored on location for abnormal situations. The characteristics, use, testing of drilling mud and the implementation of related drilling procedures shall be designed to prevent the loss of well control. Sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring well control.**
****A pH of 10 or above in the fresh water base mud system shall be maintained to control the effects corrosion has on metallurgy of equipment used.**

Operating and Maintenance

Energen Resources Corporation will be using all above ground steel pits for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. Any leaks, spills or other undesirable events will be reported in accordance with BLM NTL 3A. Rig crews will monitor the tanks at all times. A trip/surge tank will be used to monitor returns for any "kicks" of formation fluids.

Equipment:

2-Mongoose Shale Shakers

2-3400 High Speed Centrifuges with stands and pumps

2-Roll off bins with Tracks

2-200 bbl Open top Frac tanks

1-Mud/Gas Separator and Degasser

1-Trip/Surge Tank

Electronic or Visual monitoring system to indicate lost returns

10. Testing, Logging and Coring Program:

a. Testing Program: No drillstem tests are anticipated
b. Electric Logging Program: Triple Combo, FMI, Sonic Scanner
c. LWD Program: TBD

d. Coring Program: Sidewall in Mancos Formation
e. CBL's and/or Temperature Surveys Will Be Performed as Needed or Required.

11. Bottom Hole Pressure expected to be 2,500 +/- psi
12. Bottom Hole Temperature expected to be 160 deg F.

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Energen Resources

Chacon Jicarilla
Mancos Shale/Niobrara "C"
Chacon Jicarilla #602H
Re-Staked

Plan: Design #1

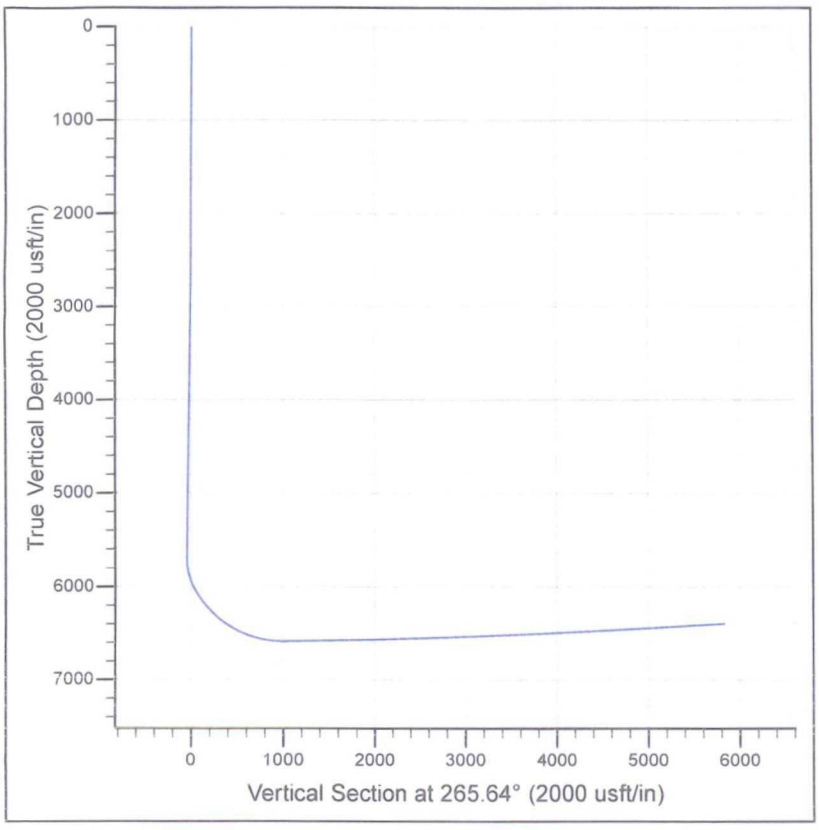
Preliminary Design

19 June, 2015

CONFIDENTIAL
TIGHT HOLE

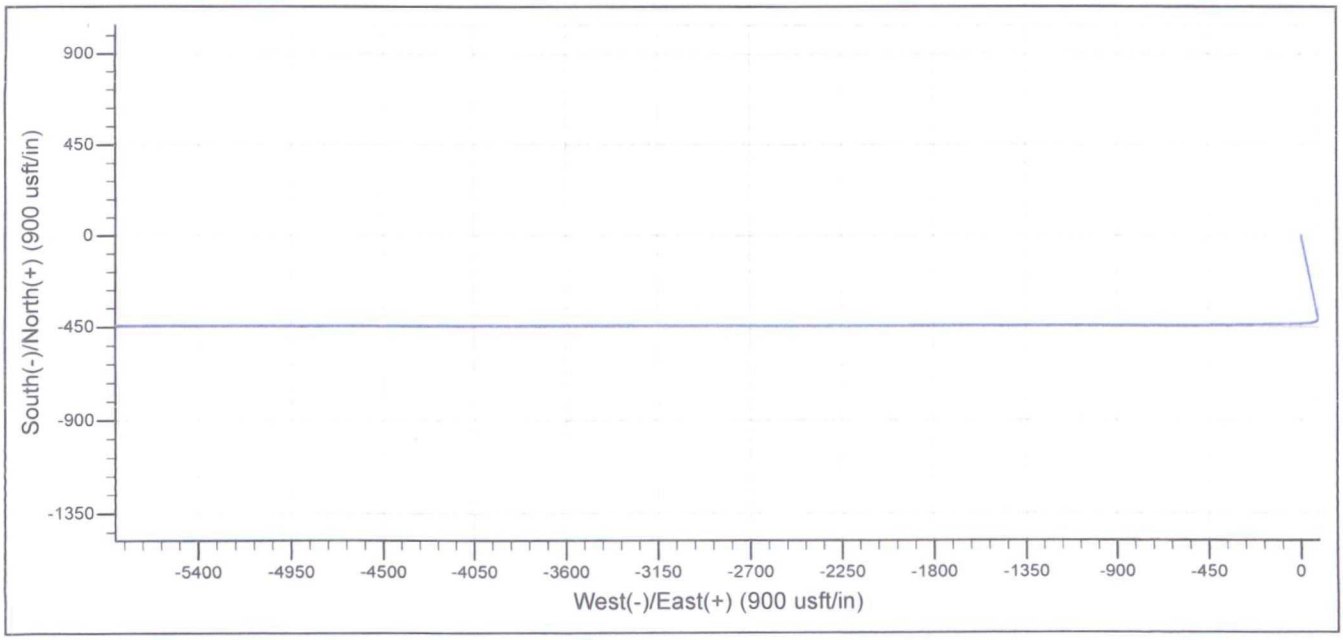
Company Name: Energen Resources

Project: Chacon Jicarilla
Site: Mancos Shale/Niobrara "C"
Well: Chacon Jicarilla #602H
Wellbore: Re-Staked
Design: Design #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	2888.5	7.32	168.59	2886.1	-55.6	11.2	0.00	0.00	-7.0
2	5725.5	7.32	168.59	5700.0	-409.9	82.7	0.00	0.00	-51.4
3	6074.5	29.37	268.63	6033.5	-434.3	-0.5	9.00	112.07	33.5
4	7253.8	91.00	270.00	6592.0	-442.0	-975.0	5.23	1.56	1005.8
5	12085.8	93.50	270.00	6402.3	-442.0	-5802.9	0.05	0.00	5819.7



Energen
Preliminary Design

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TIGHT HOLE

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Re-Staked	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 5000.1 Single User Db

Project Chacon Jicarilla

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site Mancos Shale/Niobrara "C"

Site Position:		**Northing:**	1,894,823.35 usft	**Latitude:**	36° 12' 15.559 N
From:	Lat/Long	**Easting:**	1,380,083.52 usft	**Longitude:**	107° 7' 56.719 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	-0.52 °

Well Chacon Jicarilla #602H

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,894,823.35 usft	**Latitude:**	36° 12' 15.559 N
	+E/-W	0.0 usft	**Easting:**	1,380,083.52 usft	**Longitude:**	107° 7' 56.719 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.0 usft

Wellbore Re-Staked

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.73	63.17	50,736

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	2,888.5

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	265.64

Survey Tool Program **Date** 6/19/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	2,888.5	Drill Thru (Formation Evaluation)	MWD	MWD - Standard
2,888.5	12,085.8	Design #1 (Re-Staked)	MWD	MWD - Standard

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
0.0	0.0	0.00	0.00	0.0	0.0	0.00	0.0
100.0	100.0	0.00	0.00	0.0	0.0	0.00	0.0
200.0	200.0	0.00	0.00	0.0	0.0	0.00	0.0
13 3/8"							
300.0	300.0	0.00	0.00	0.0	0.0	0.00	0.0
400.0	400.0	0.00	0.00	0.0	0.0	0.00	0.0
500.0	500.0	0.00	0.00	0.0	0.0	0.00	0.0
600.0	600.0	0.00	0.00	0.0	0.0	0.00	0.0
700.0	700.0	0.00	0.00	0.0	0.0	0.00	0.0
800.0	800.0	0.00	0.00	0.0	0.0	0.00	0.0
900.0	900.0	0.00	0.00	0.0	0.0	0.00	0.0

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TIGHT HOLE

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Re-Staked	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
5,277.9	5,300.0	7.32	168.59	-356.7	72.0	0.00	-44.7
5,377.1	5,400.0	7.32	168.59	-369.2	74.5	0.00	-46.3
5,476.3	5,500.0	7.32	168.59	-381.7	77.0	0.00	-47.8
5,575.5	5,600.0	7.32	168.59	-394.2	79.6	0.00	-49.4
5,674.7	5,700.0	7.32	168.59	-406.7	82.1	0.00	-51.0
5,700.0	5,725.5	7.32	168.59	-409.9	82.7	0.00	-51.4
5,724.3	5,750.0	6.80	186.08	-412.8	82.9	-2.11	-51.3
5,773.9	5,800.0	7.84	221.07	-418.4	80.3	2.07	-48.3
5,823.2	5,850.0	10.81	242.31	-423.1	73.9	5.95	-41.6
5,872.0	5,900.0	14.58	253.63	-427.1	63.7	7.54	-31.1
5,919.9	5,950.0	18.67	260.23	-430.2	49.8	8.18	-17.0
5,966.7	6,000.0	22.91	264.49	-432.5	32.2	8.48	0.7
6,011.9	6,050.0	27.23	267.47	-433.9	11.1	8.64	21.9
6,033.5	6,074.5	29.37	268.63	-434.3	-0.5	8.72	33.5
6,055.6	6,100.0	30.70	268.70	-434.6	-13.3	5.23	46.3
6,139.1	6,200.0	35.93	268.93	-435.8	-68.2	5.23	101.1
6,217.3	6,300.0	41.15	269.11	-436.8	-130.5	5.23	163.2
6,289.5	6,400.0	46.38	269.26	-437.8	-199.6	5.23	232.3
6,355.1	6,500.0	51.61	269.38	-438.7	-275.0	5.23	307.5
6,413.5	6,600.0	56.83	269.49	-439.5	-356.1	5.23	388.5
6,464.4	6,700.0	62.06	269.58	-440.2	-442.2	5.23	474.3
6,507.1	6,800.0	67.28	269.67	-440.8	-532.5	5.23	564.5
6,541.5	6,900.0	72.51	269.75	-441.2	-626.4	5.23	658.1
6,567.2	7,000.0	77.74	269.82	-441.6	-723.0	5.23	754.5
6,583.9	7,100.0	82.96	269.89	-441.9	-821.6	5.23	852.8
6,591.6	7,200.0	88.19	269.96	-442.0	-921.3	5.23	952.2
6,592.0	7,253.8	91.00	270.00	-442.0	-975.0	5.23	1,005.8
6,591.6	7,275.0	91.01	270.00	-442.0	-996.2	0.05	1,026.9
7"							
6,591.2	7,300.0	91.02	270.00	-442.0	-1,021.2	0.05	1,051.9
6,589.4	7,400.0	91.08	270.00	-442.0	-1,121.2	0.05	1,151.6
6,587.4	7,500.0	91.13	270.00	-442.0	-1,221.2	0.05	1,251.2
6,585.4	7,600.0	91.18	270.00	-442.0	-1,321.2	0.05	1,350.9
6,583.3	7,700.0	91.23	270.00	-442.0	-1,421.2	0.05	1,450.6
6,581.1	7,800.0	91.28	270.00	-442.0	-1,521.1	0.05	1,550.3
6,578.8	7,900.0	91.33	270.00	-442.0	-1,621.1	0.05	1,650.0
6,576.5	8,000.0	91.39	270.00	-442.0	-1,721.1	0.05	1,749.7
6,574.0	8,100.0	91.44	270.00	-442.0	-1,821.1	0.05	1,849.4
6,571.4	8,200.0	91.49	270.00	-442.0	-1,921.0	0.05	1,949.0
6,568.8	8,300.0	91.54	270.00	-442.0	-2,021.0	0.05	2,048.7
6,566.1	8,400.0	91.59	270.00	-442.0	-2,121.0	0.05	2,148.4
6,563.2	8,500.0	91.64	270.00	-442.0	-2,220.9	0.05	2,248.1
6,560.3	8,600.0	91.70	270.00	-442.0	-2,320.9	0.05	2,347.7
6,557.3	8,700.0	91.75	270.00	-442.0	-2,420.8	0.05	2,447.4

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Re-Staked	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
6,554.2	8,800.0	91.80	270.00	-442.0	-2,520.8	0.05	2,547.1
6,551.0	8,900.0	91.85	270.00	-442.0	-2,620.7	0.05	2,646.7
6,547.8	9,000.0	91.90	270.00	-442.0	-2,720.7	0.05	2,746.4
6,544.4	9,100.0	91.96	270.00	-442.0	-2,820.6	0.05	2,846.0
6,540.9	9,200.0	92.01	270.00	-442.0	-2,920.6	0.05	2,945.7
6,537.4	9,300.0	92.06	270.00	-442.0	-3,020.5	0.05	3,045.3
6,533.8	9,400.0	92.11	270.00	-442.0	-3,120.4	0.05	3,145.0
6,530.0	9,500.0	92.16	270.00	-442.0	-3,220.4	0.05	3,244.6
6,526.2	9,600.0	92.21	270.00	-442.0	-3,320.3	0.05	3,344.3
6,522.3	9,700.0	92.27	270.00	-442.0	-3,420.2	0.05	3,443.9
6,518.3	9,800.0	92.32	270.00	-442.0	-3,520.1	0.05	3,543.5
6,514.2	9,900.0	92.37	270.00	-442.0	-3,620.0	0.05	3,643.2
6,510.0	10,000.0	92.42	270.00	-442.0	-3,720.0	0.05	3,742.8
6,505.8	10,100.0	92.47	270.00	-442.0	-3,819.9	0.05	3,842.4
6,501.4	10,200.0	92.52	270.00	-442.0	-3,919.8	0.05	3,942.0
6,497.0	10,300.0	92.58	270.00	-442.0	-4,019.7	0.05	4,041.6
6,492.4	10,400.0	92.63	270.00	-442.0	-4,119.6	0.05	4,141.2
6,487.8	10,500.0	92.68	270.00	-442.0	-4,219.5	0.05	4,240.8
6,483.1	10,600.0	92.73	270.00	-442.0	-4,319.3	0.05	4,340.4
6,478.3	10,700.0	92.78	270.00	-442.0	-4,419.2	0.05	4,440.0
6,473.4	10,800.0	92.83	270.00	-442.0	-4,519.1	0.05	4,539.6
6,468.4	10,900.0	92.89	270.00	-442.0	-4,619.0	0.05	4,639.2
6,463.3	11,000.0	92.94	270.00	-442.0	-4,718.9	0.05	4,738.8
6,458.1	11,100.0	92.99	270.00	-442.0	-4,818.7	0.05	4,838.4
6,452.8	11,200.0	93.04	270.00	-442.0	-4,918.6	0.05	4,937.9
6,447.5	11,300.0	93.09	270.00	-442.0	-5,018.4	0.05	5,037.5
6,442.1	11,400.0	93.15	270.00	-442.0	-5,118.3	0.05	5,137.1
6,436.5	11,500.0	93.20	270.00	-442.0	-5,218.1	0.05	5,236.6
6,430.9	11,600.0	93.25	270.00	-442.0	-5,318.0	0.05	5,336.2
6,425.2	11,700.0	93.30	270.00	-442.0	-5,417.8	0.05	5,435.7
6,419.4	11,800.0	93.35	270.00	-442.0	-5,517.7	0.05	5,535.3
6,413.5	11,900.0	93.40	270.00	-442.0	-5,617.5	0.05	5,634.8
6,407.5	12,000.0	93.46	270.00	-442.0	-5,717.3	0.05	5,734.4
6,402.4	12,085.0	93.50	270.00	-442.0	-5,802.1	0.05	5,819.0
4 1/2"							
6,402.3	12,085.8	93.50	270.00	-442.0	-5,802.9	0.05	5,819.7

Energen
Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Re-Staked	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 5000.1 Single User Db

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,275.0	6,591.6	7"	7	8-3/4
12,085.0	6,402.4	4 1/2"	4-1/2	6-1/8

Checked By: _____ Approved By: _____ Date: _____

CONFIDENTIAL
TIGHT HOLE

Energen Resources

Chacon Jicarilla
Mancos Shale/Niobrara "C"
Chacon Jicarilla #602H
Formation Evaluation

Plan: Drill Thru

Preliminary Design

19 June, 2015

Energen
Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Formation Evaluation	**Survey Calculation Method:**	Minimum Curvature
Design:	Drill Thru	**Database:**	EDM 5000.1 Single User Db

Project Chacon Jicarilla

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site Mancos Shale/Niobrara "C"

Site Position:		**Northing:**	1,894,823.35 usft	**Latitude:**	36° 12' 15.559 N
From:	Lat/Long	**Easting:**	1,380,083.52 usft	**Longitude:**	107° 7' 56.719 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	-0.52 °

Well Chacon Jicarilla #602H

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,894,823.35 usft	**Latitude:**	36° 12' 15.559 N
	+E/-W	0.0 usft	**Easting:**	1,380,083.52 usft	**Longitude:**	107° 7' 56.719 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0.0 usft

Wellbore Formation Evaluation

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.73	63.17	50,736

Design Drill Thru

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	168.59

Survey Tool Program **Date** 6/19/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	7,507.2	Drill Thru (Formation Evaluation)	MWD	MWD - Standard

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
0.0	0.0	0.00	0.00	0.0	0.0	0.00	0.0
100.0	100.0	0.00	0.00	0.0	0.0	0.00	0.0
200.0	200.0	0.00	0.00	0.0	0.0	0.00	0.0
13 3/8"							
300.0	300.0	0.00	0.00	0.0	0.0	0.00	0.0
400.0	400.0	0.00	0.00	0.0	0.0	0.00	0.0
500.0	500.0	0.00	0.00	0.0	0.0	0.00	0.0
600.0	600.0	0.00	0.00	0.0	0.0	0.00	0.0
700.0	700.0	0.00	0.00	0.0	0.0	0.00	0.0
800.0	800.0	0.00	0.00	0.0	0.0	0.00	0.0
900.0	900.0	0.00	0.00	0.0	0.0	0.00	0.0
1,000.0	1,000.0	0.00	0.00	0.0	0.0	0.00	0.0

Energen
Preliminary Design

Company:	Energen Resources	**Local Co-ordinate Reference:**	Site Mancos Shale/Niobrara "C"
Project:	Chacon Jicarilla	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	Mancos Shale/Niobrara "C"	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Well:	Chacon Jicarilla #602H	**North Reference:**	Grid
Wellbore:	Formation Evaluation	**Survey Calculation Method:**	Minimum Curvature
Design:	Drill Thru	**Database:**	EDM 5000.1 Single User Db

Planned Survey

TVD (usft)	MD (usft)	Inc (°)	Azi (azimuth) (°)	N/S (usft)	E/W (usft)	Build (°/100usft)	V. Sec (usft)
5,258.2	5,300.0	5.00	168.59	-461.8	93.2	0.00	471.2
5,357.8	5,400.0	5.00	168.59	-470.4	94.9	0.00	479.9
5,457.5	5,500.0	5.00	168.59	-478.9	96.7	0.00	488.6
5,557.1	5,600.0	5.00	168.59	-487.5	98.4	0.00	497.3
5,656.7	5,700.0	5.00	168.59	-496.0	100.1	0.00	506.0
5,756.3	5,800.0	5.00	168.59	-504.6	101.8	0.00	514.7
5,855.9	5,900.0	5.00	168.59	-513.1	103.6	0.00	523.5
5,955.6	6,000.0	5.00	168.59	-521.7	105.3	0.00	532.2
6,055.2	6,100.0	5.00	168.59	-530.2	107.0	0.00	540.9
6,154.8	6,200.0	5.00	168.59	-538.7	108.7	0.00	549.6
6,254.4	6,300.0	5.00	168.59	-547.3	110.5	0.00	558.3
6,354.0	6,400.0	5.00	168.59	-555.8	112.2	0.00	567.0
6,453.7	6,500.0	5.00	168.59	-564.4	113.9	0.00	575.7
6,553.3	6,600.0	5.00	168.59	-572.9	115.6	0.00	584.5
6,652.9	6,700.0	5.00	168.59	-581.5	117.3	0.00	593.2
6,752.5	6,800.0	5.00	168.59	-590.0	119.1	0.00	601.9
6,852.1	6,900.0	5.00	168.59	-598.5	120.8	0.00	610.6
6,951.8	7,000.0	5.00	168.59	-607.1	122.5	0.00	619.3
7,051.4	7,100.0	5.00	168.59	-615.6	124.2	0.00	628.0
7,151.0	7,200.0	5.00	168.59	-624.2	126.0	0.00	636.8
7,250.6	7,300.0	5.00	168.59	-632.7	127.7	0.00	645.5
7,350.2	7,400.0	5.00	168.59	-641.3	129.4	0.00	654.2
7,457.0	7,507.2	5.00	168.59	-650.4	131.3	0.00	663.5

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,000.0	2,000.0	9 5/8"	9-5/8	12-1/4
200.0	200.0	13 3/8"	13-3/8	17-1/2

Checked By: _____ Approved By: _____ Date: _____

Chacon Jicarilla #602H

Plug #1	7457' – 7163' TVD (7507' – 7212' MD); 105 sks
Plug #2	5643' – 5443' TVD (5686' – 5485' MD); 75 sks
Plug #3	4753' – 4553' TVD (4792' – 4591' MD); 75 sks
Plug #4	4059' – 3859' TVD (4088' – 3882' MD); 75 sks
Plug #5	3564' – 3364' TVD (3578' – 3373' MD); 75 sks
Plug #6 (KOP)	3233' – 2886' TVD (3240' – 2888' MD); 125 sks

Plug Slurry to Consist of Class "G" Cement with 2.0% $CaCl_2$ mixed at 15.6 ppg (1.17 ft^3/sk)