State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Tony Delfin
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

June 2, 2016

Mr. Ryan Warmke
Chevron USA, Inc.
15 Smith Road
Midland, TX 79705

RE: **Packer Setting Depth Exception**
Injection Authority: Division Order No. R-6857
Pool: North Vacuum Abo Pool (Pool code 61760)
North Vacuum Abo West Unit No. 18 (API 30-025-23887)
Unit F, Sec 27, T17S, R34E, NMPM, Lea County, New Mexico

Mr. Warmke:

Reference is made to your request on behalf of Chevron USA, Inc. (OGRID 4323; "Chevron") received by the Division on June 1, 2016, for the above named well. Chevron applied for exception for setting the packer within 100 feet of the top perforation in the injection interval.

It is our understanding that Chevron has maintained a previous packer setting depth of 8563 feet below surface or approximately 81 feet above the uppermost perforation of the injection well. Following repairs to the injection well, Chevron stated that the packer was set at 8511 feet below surface to obtain a proper seal for the tubing packer. As a result, Chevron requests an exception for the current packer depth at 8511 feet below surface. This location of the packer is approximately 133 feet above the shallowest perforation at 8644 feet, and is below the correlated upper limit of the Unitized Formation at 8448 feet below surface.

For the reasons stated in the application and because it appears that correlative rights are protected, waste will not occur and this modification will not endanger any fresh water aquifer or the environment, the exception is granted. The packer location within this well shall not be set higher than 133 feet above the current top perforation depth unless the operator receives written approval from the Division Director.

The Division Director may rescind this exception if it becomes apparent that the injected fluid is not being confined to the permitted interval or is endangering any fresh water aquifer.

Sincerely,

David R. Catanach

DAVID R. CATANACH
Director

DRC/prg

cc: Oil Conservation Division – Hobbs District Office
Case File No. 7400
Well File API 30-025-23887

Ryan Warmke
Production Engineer
Vacuum Technical Team

North American Exploration and Production Company
6301 Deauville Blvd
Midland, Texas 79706
Tel 432-687-7452
RyanWarmke@chevron.com

CERTIFIED MAIL

June 1, 2016

Re: North Vacuum Abo West Unit #18
API# 30-025-23887
Lea County, New Mexico
Request for Exception to Packer Setting Depth

Dear Mr. Catanach:

The North Vacuum Abo West Unit (NVAWU) #18 was recently rigged up on from 5/11/16 to 5/18/16 in order to repair a MIT failure. During this repair the packer was set at 8,511', with the top perforation for this well being 8,644', the packer is currently set outside the 100' acceptable window for setting depth. This well is currently 9 months inactive and is still shut-in pending approval from the NMOCD to return the well to injection.

This occurred due to the initial packer setting depth in 1984 when this well was converted to water injection being 8,563'which is 81' above the top perforation. In addition, the engineer working this field at the time was not aware that Chevron's Central Vacuum Unit and Vacuum Grayburg San Andres Unit both requested and received permission to set injection packers within the unitized interval. Due to this misunderstanding, the engineer was under the impression it was acceptable for any unitized injection well to have the packer set within the unitized interval.

Chevron is requesting that the upper most setting depth for the NVAWU #18 be amended to allow for an acceptable packer setting depth as close to the uppermost injection perforation as possible up to the top of the unitized interval of 8,448'. The top of the Abo formation is at 8,208', and the surrounding wells within a half mile produce out of either the Abo or San Andres formations.

Attached if needed is a PowerPoint with a map of the area, a log from NVAWU #18 showing formation tops, wells within a half mile, a cross section and a wellbore diagram. If further technical information is needed regarding this operation, please contact me by telephone at 432-687-7452.

Sincerely,
Ryan Warmke
PE
Enclosures

NVAWU-18_26May2016.pptx
NVAWU 18 WBD.xlsx
NVAWU 18 MIT Chart.pdf

CURRENT
WELLBORE DIAGRAM

NVAWU #18

LOCATION

State	New Mexico
County	Lea
Surface Location	1980 FNL 1980 FWL
	Sec 27, T-17S, R-34E

WELL ID INFORMATION

Lease Name	North Vacuum Abo West Unit
Field	Vacuum North
Reservoir	Abo
Ref #	FG9081
API #	30-025-23887

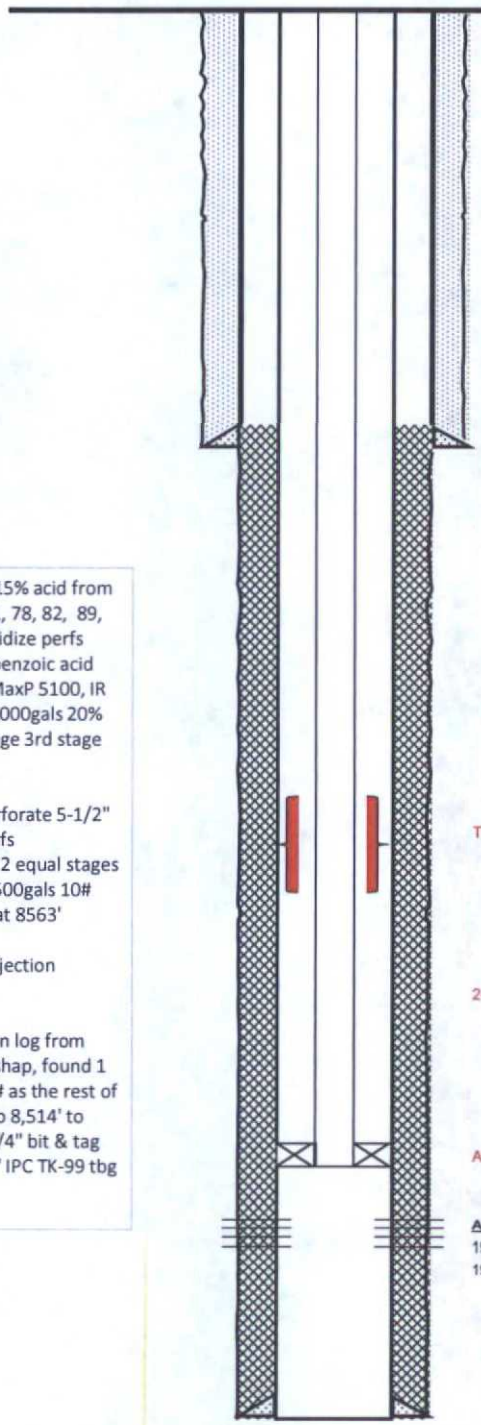
KB:
DF: 4058
GL: 4043
Original Spud Date: 9/16/1971
Original Compl. Date: 11/10/1971

CASING DETAIL

Surface Csg.	
Size:	8 5/8"
Wt.	24#
Set @:	1650'
Sxs cmt:	850sx
TOC:	Surface
Hole Size:	11"
Production Csg.	
Size:	5 1/2"
Wt. (top to bottom):	17#
Set @:	8800'
Sxs Cmt:	2660sx
TOC:	1620 (TS)
Hole Size:	7 7/8"

Tubing Detail **Date:** **5/11/2016**

# Jts.	Size		Footage
261	2-3/8" tbg	4.7# IPC TK-99	8486
1	On/Off Tool	316SS	1.4
1	Profile Nipple	1.43" 'F' SS	0.5
1	AS1X 10K Pkr	Nickle platted, IPC	7.3
1	Pump out Plug	IPC	0.5
			8495.70
		Set depth w/ KB	8511.00



10/24/1971 Initial Completion Spotted 250gals 15% acid from 8540' - 8750'. Perf'd 5-1/2" csg 2spf: 8651, 53, 71, 78, 82, 89, 8709, 15, 18, 22. Ran tbg and pkr set @ 8508', acidize perfs w/10000gals 20% acid in 2 5000gal stages 150# benzoic acid b/t stages, overflush ea stage w/4000gal water MaxP 5100, IR 7.3, ISIP 3300, 15min 3100 Re-Acidize perfs w/10000gals 20% Chem Retarded Acid in 3 stages 1st stage 2nd stage 3rd stage 24hr test: 129bo, 4bw, 119mcf

11/27/1984 Convert to Water Injection Well Perforate 5-1/2" casing 2spf 8644, 59, 8729, 42, 51, 53 Acidize perfs w/10000gals 30# gel brine and 10000gal NEFE in 2 equal stages with 500# rock salt between stages; flush with 2500gals 10# gel brine water Run 2-3/8" IPC tbg w/packer set at 8563'

3/26/1997 Step Rate Test OCD Max Allowable Injection Pressure 4285psig

5/11/16 Repair MIT Failure Ran casing inspection log from 8,505 to surface - all casing shows to be in good shap, found 1 joint from 5,431' - 5,474' to be 20# instead of 17# as the rest of the production casing. Test casing from surface to 8,514' to 560 psi for 30 minutes & lost 10 psi. RIH with 4-3/4" bit & tag at 8,601'. CO to 8,768' & circ clean. RIH w/ 2-3/8" IPC TK-99 tbg on 5-1/2" AS1X pkr & set pkr at 8,511'.

PBTD: 8768'
TD: 8800'

UPDATED BY: Ryan Warmke
DATE: 6/1/2016

Chevron

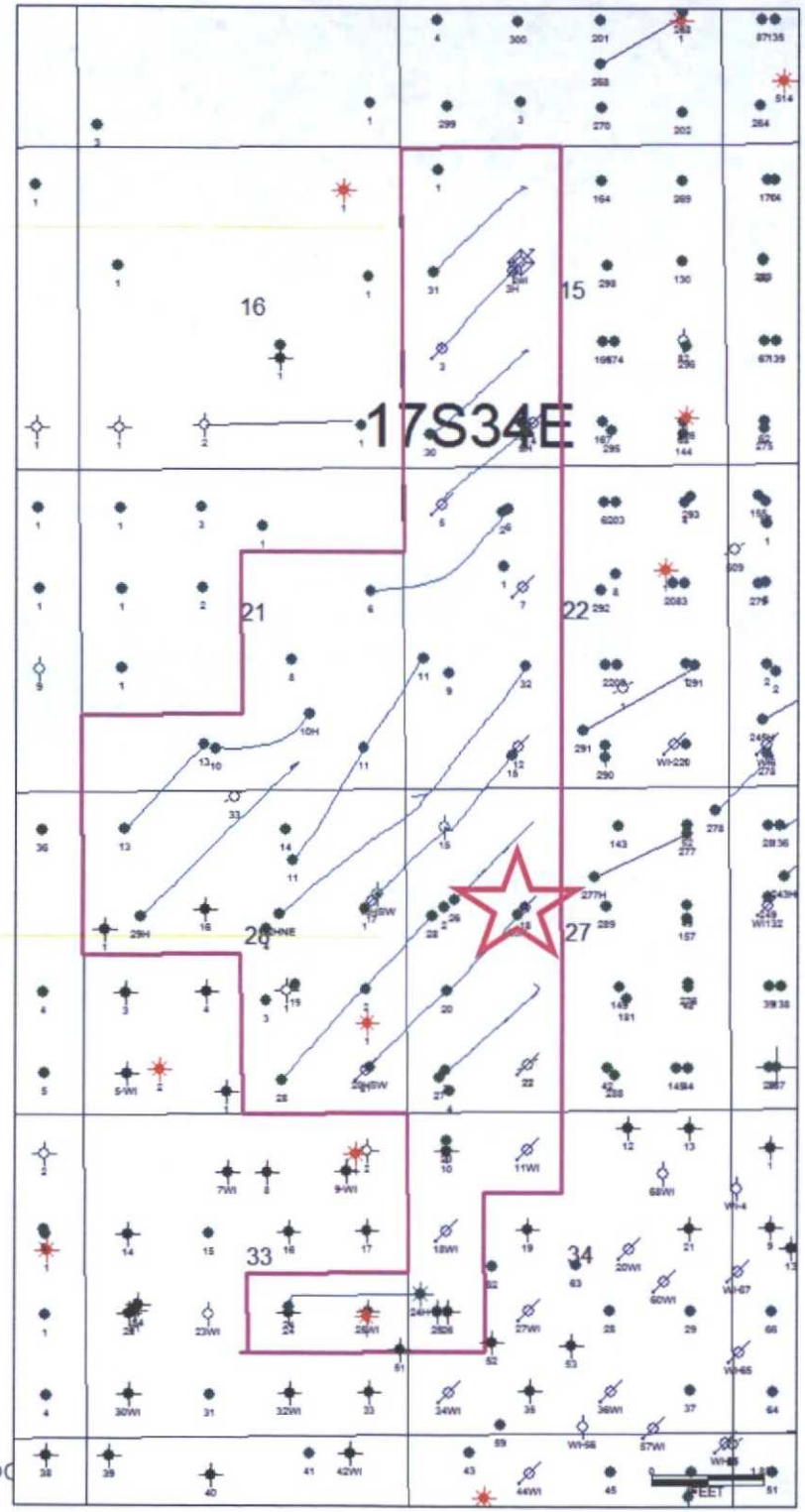
NVAWU 18
API: 30025238870000

May 26, 2016

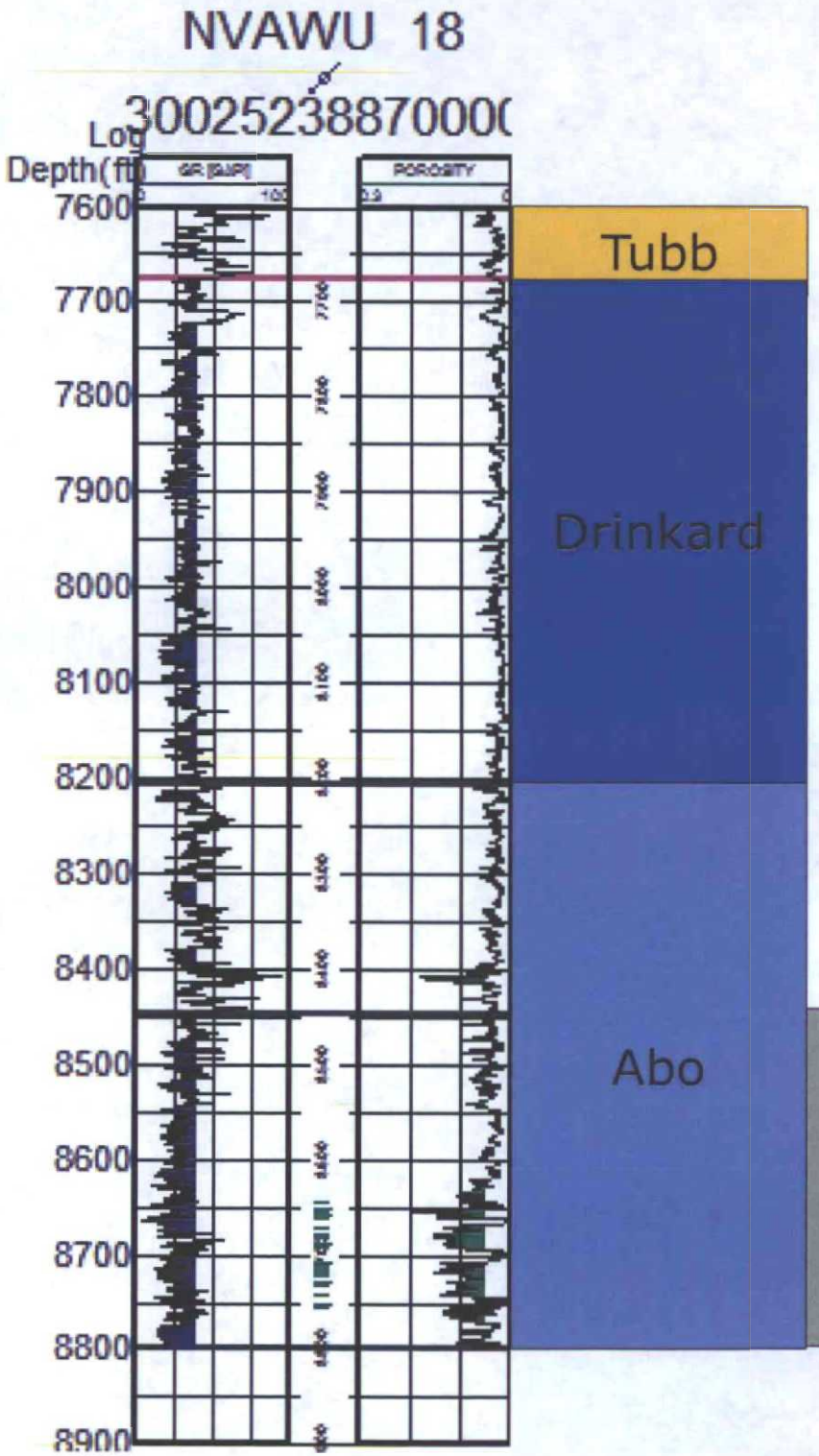
ES: Beth Bradford
PE: Ryan Warmke

 DOC ID

North Vacuum Abo West Unit



NVAWU
18

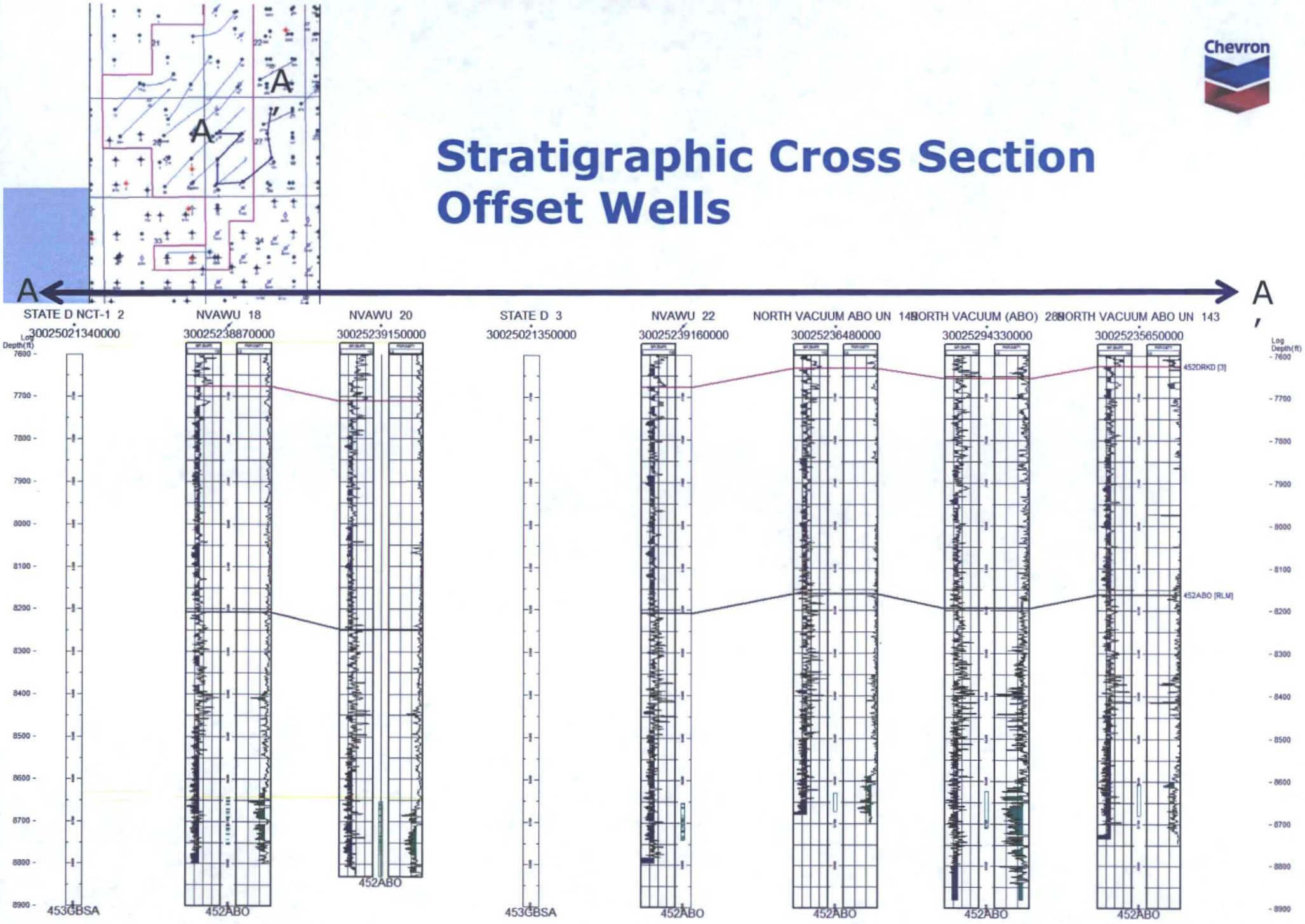


Formation Top	Depth in MD (Ft)
Drinkard	7676
Abo	8208
NVAWU Top	8448
NVAWU Base	8800

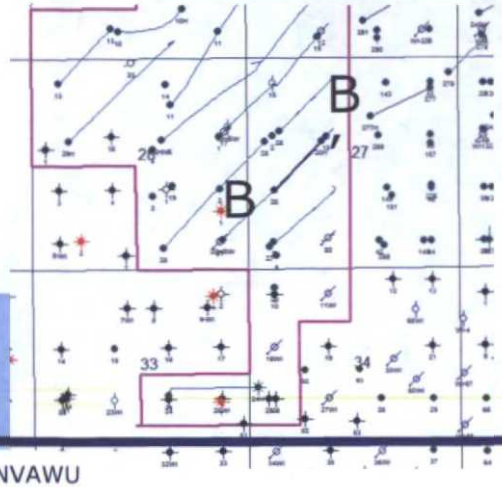
NVAWU 18 Proximal Wells

Well Name	API-10	Well Symbol	Producing Interval
State D NCT-1 2	30002502134	Producer	GBSA
State D 3	3002502135	Producer	GBSA
NVAWU 20	3002523915	Producer	ABO
NVAWU 22	3002523916	Injector	ABO
North Vacuum Abo 143	3002523565	Producer	ABO
North Vacuum Abo 149	3002523648	Producer	ABO
North Vacuum Abo 289	3002529433	Producer	ABO
NVAWU 20H	3002523915	Producer	ABO
NVAWU 27HSW	3002533638	Producer	ABO

Stratigraphic Cross Section
Offset Wells

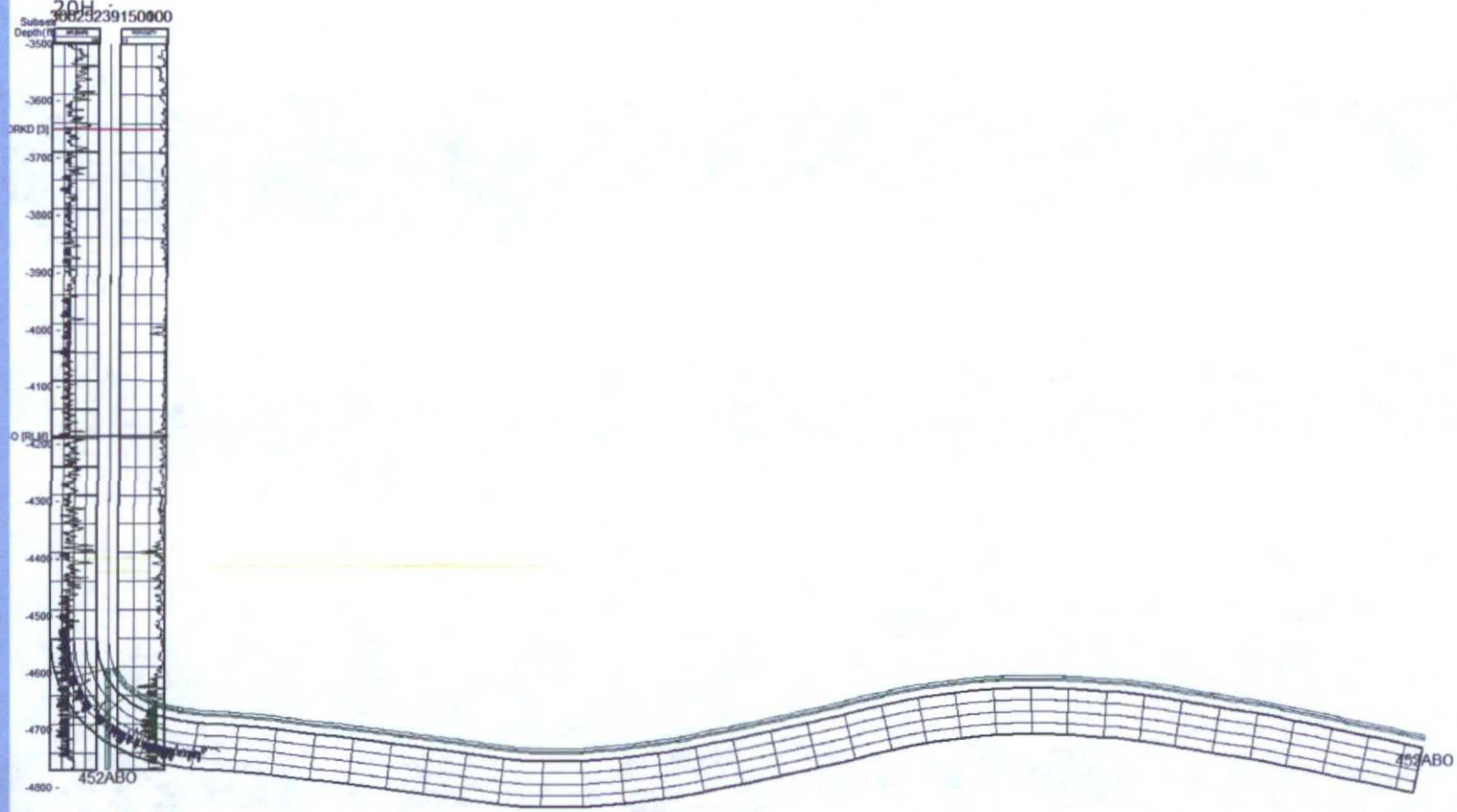


Structural Cross Section Offset Wells



B ← → B

NVAWU 20H



NVAWU 18
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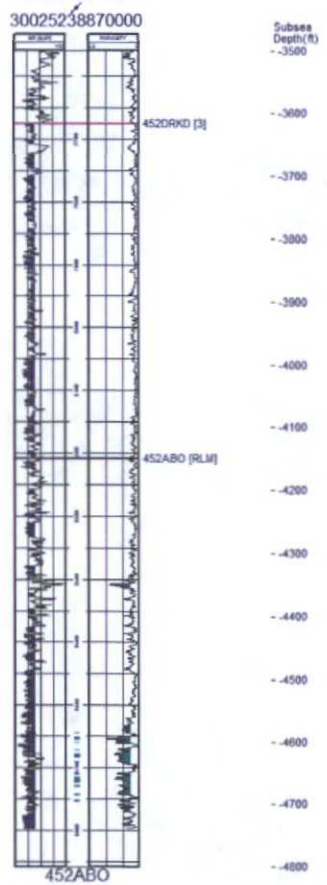

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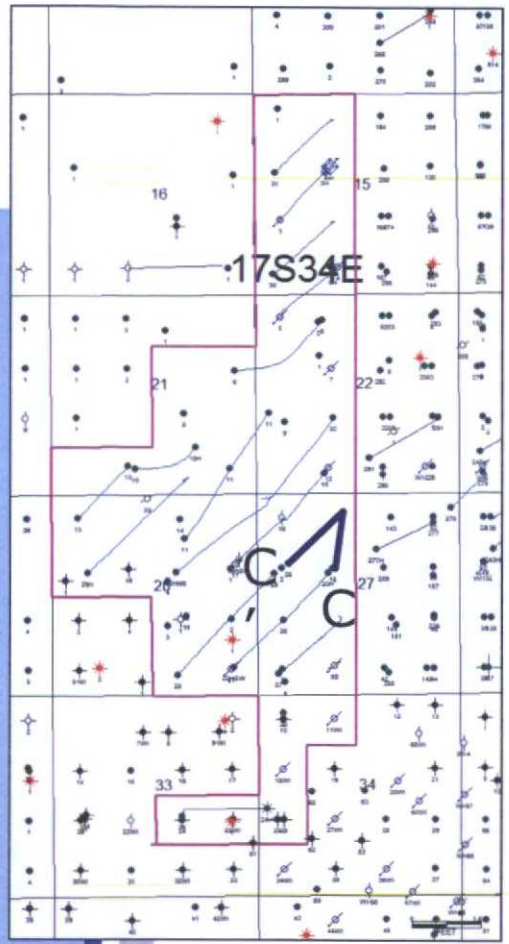

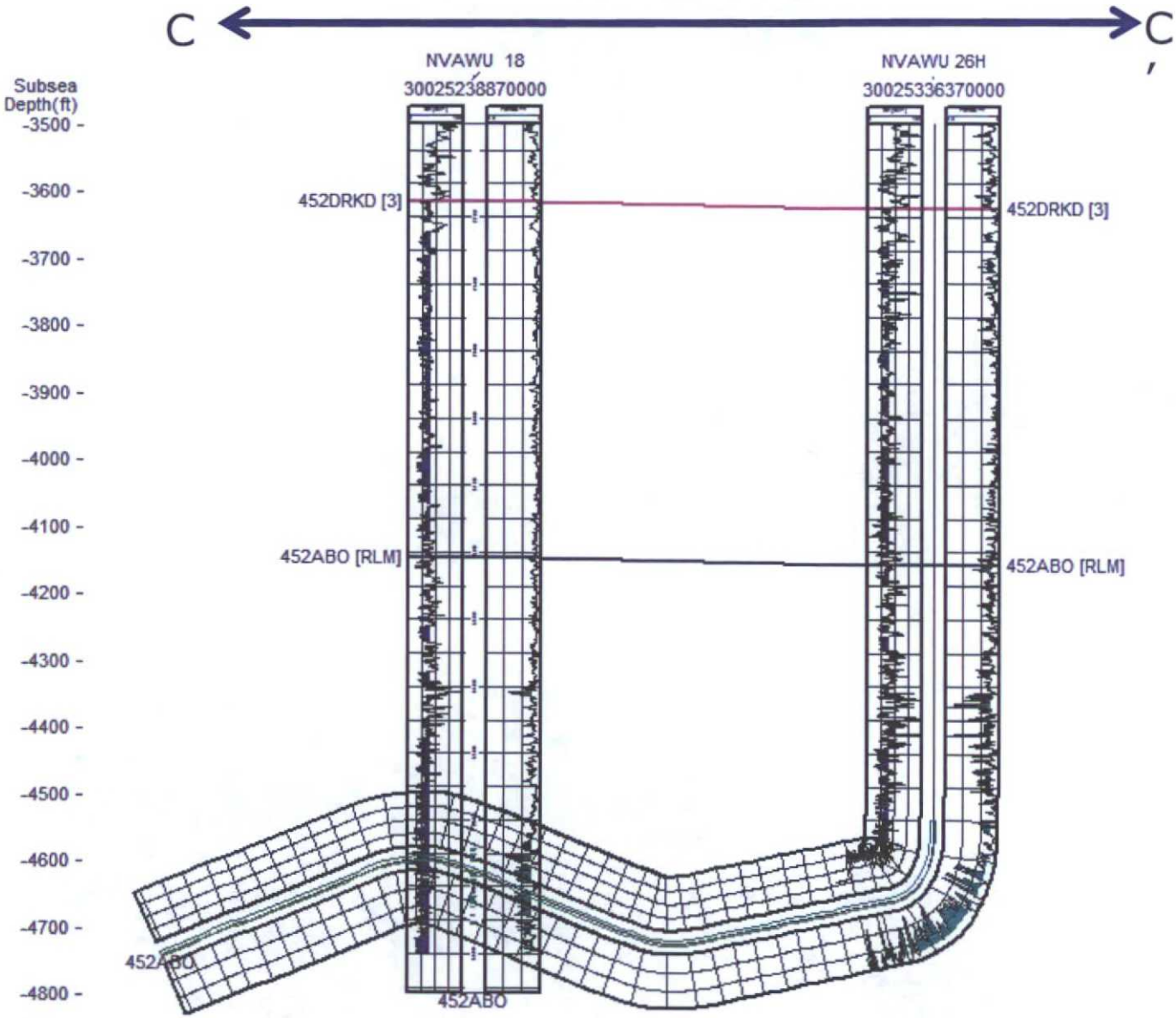

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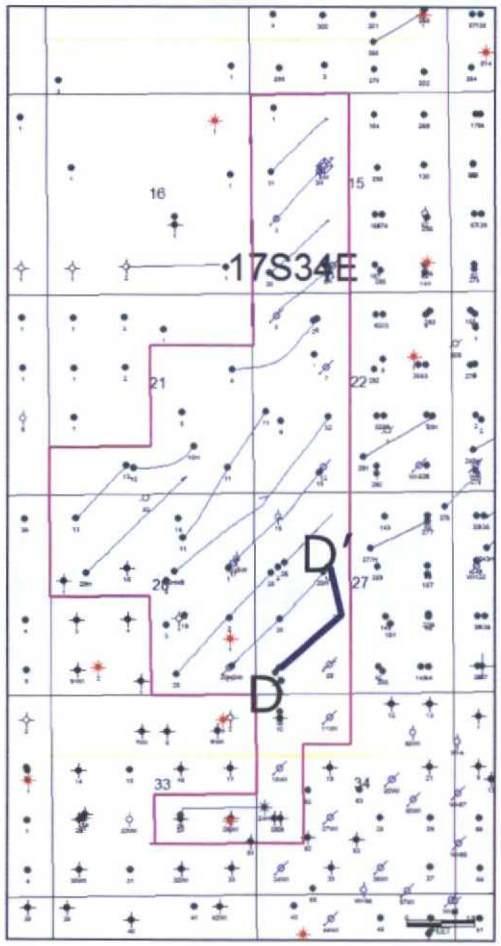
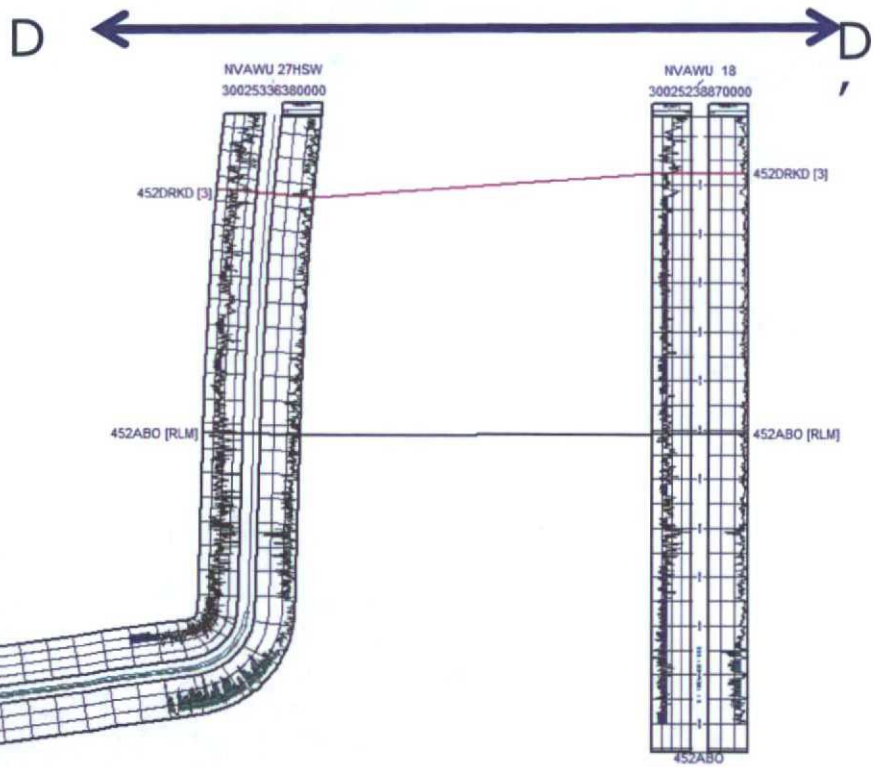
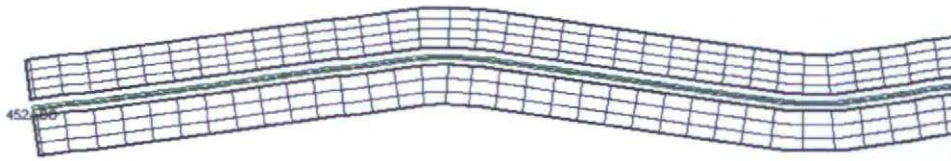
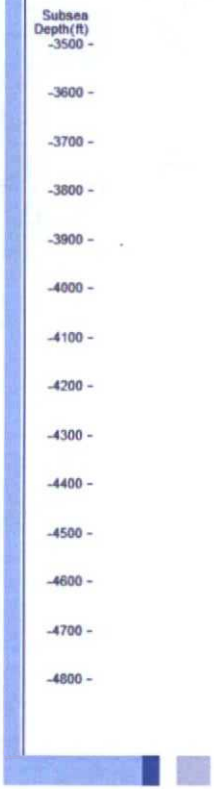
Structural Cross Section Offset Wells









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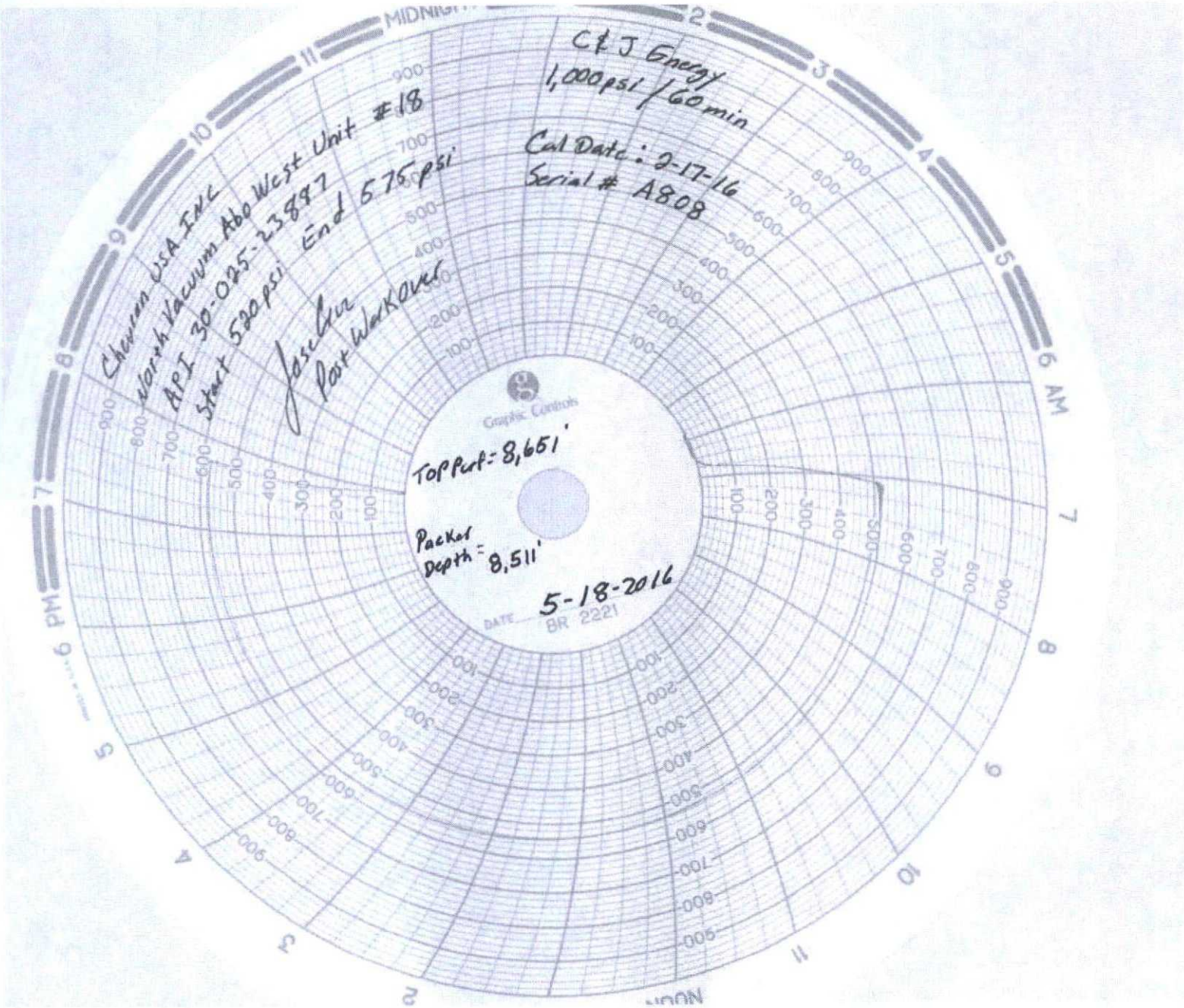
C & J Energy
1,000 psi / 60 min
Cal Date: 2-17-16
Serial # A808
Chevron USA Inc
North Vacuum Abo West Unit #18
API 30-025-23887
Start 520 psi End 575 psi
Jose Cruz
Pool Workover
Graphic Controls
Top Perf: 8,651'
Packer Depth = 8,511'
5-18-2016
DATE
BR 2221
MIDNIGHT
NOON
6 AM
6 PM