Form 3160-5
(August 2007)

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.

5. Lease Serial No.
NMNM114350

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
MEDWICK 32 FEDERAL COM 11H

2. Name of Operator
CIMAREX ENERGY COMPANY OF CO
Contact: HOPE KNAULS
E-Mail: hknauls@cimarex.com

9. API Well No.
30-015-42175-00-X1

3a. Address
600 NORTH MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 918.295.1799

10. Field and Pool, or Exploratory
WILDCAT

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 32 T26S R27E Lot 1 0210FSL 0750FEL
32.000217 N Lat, 104.122061 W Lon

11. County or Parish, and State
EDDY 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 to Original APD
	☐ 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.)

As discussed with Chris Walls, attached is the Schlumberger casing evaluation tool that demonstrates that our 5-1/2" casing has an ovality issue on the joint at a depth of 34' KB (~3' below ground level). The evaluation shows a minimum ID of 4.737. The drift ID of the 5-1/2" casing is 4.76'. As we discussed on the phone, we ran a 4.76" gauge ring and were unable to get down below 41' KB, but were able to get a 4.70" gauge ring through the trouble area. The 4.737 is between the 4.70 and 4.76". As we have discussed on the phone, the plan forward to remediate the problems associated with the 9-5/8" casing collapse is the following:

Cimarex Energy Requests approval see below:

1) Set a composite bridge plug with wireline around KOP & dump 20' of cement on top of same via wireline and ensure that the plug isn't set at a collar.

2/13/15
Accepted for record
NMOCD
NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 3 2015
RECEIVED

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

Electronic Submission #289993 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad
Committed to AFMSS for processing by CHRISTOPHER WALLS on 01/30/2015 (15CRW0050SE)

Name *(Printed/Typed)* HOPE KNAULS — Title REGULATORY TECHNICIAN

Signature (Electronic Submission) — Date 01/29/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
JAN 30 2015
/s/ Chris Walls
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #289993 that would not fit on the form

32. Additional remarks, continued

2) Install cement head in the 5 ?" casing and perform a casing integrity test to 6,500 psi (based on designed maximum allowable pressure for frac job). Cimarex engineer will contact BLM Engineer to discuss results prior to moving forward.
3) Attempt to set the 5 ?" casing slips in the current wellhead.
If we are not successful in setting the slips in the current wellhead, proceed as follows:
a) Make rough cut on the 5 ?" casing
b) Remove BOP?s
c) Install the 11" 5M X 11" 5M spacer spool & bolt down same.
d) Spear into 5 ?" casing & set slips in 11" 5M X 11" 5M spool.
4) Run 4.70" gage ring to ensure no further damage to the ID of the 5 ?" casing.
5) Rig up & cement the 9 5/8" X 13 3/8" annulus taking returns up the 9 5/8" X 5 ?" annulus.
6) Secure well & prepare to walk to the Medwick 32 Federal 12 H to continue drilling curve/lateral section.

Please see attachment

PetroTechnical Services

Ultrasonic Corrosion Evaluation Report

Company	Cimarex Energy Co.
Well	Medwick 32 Federal Com #011H
Field	Federal
Logging Date	03-Nov-2014
Log Analyst	Brett DiCio
Report Date	11/4/2014

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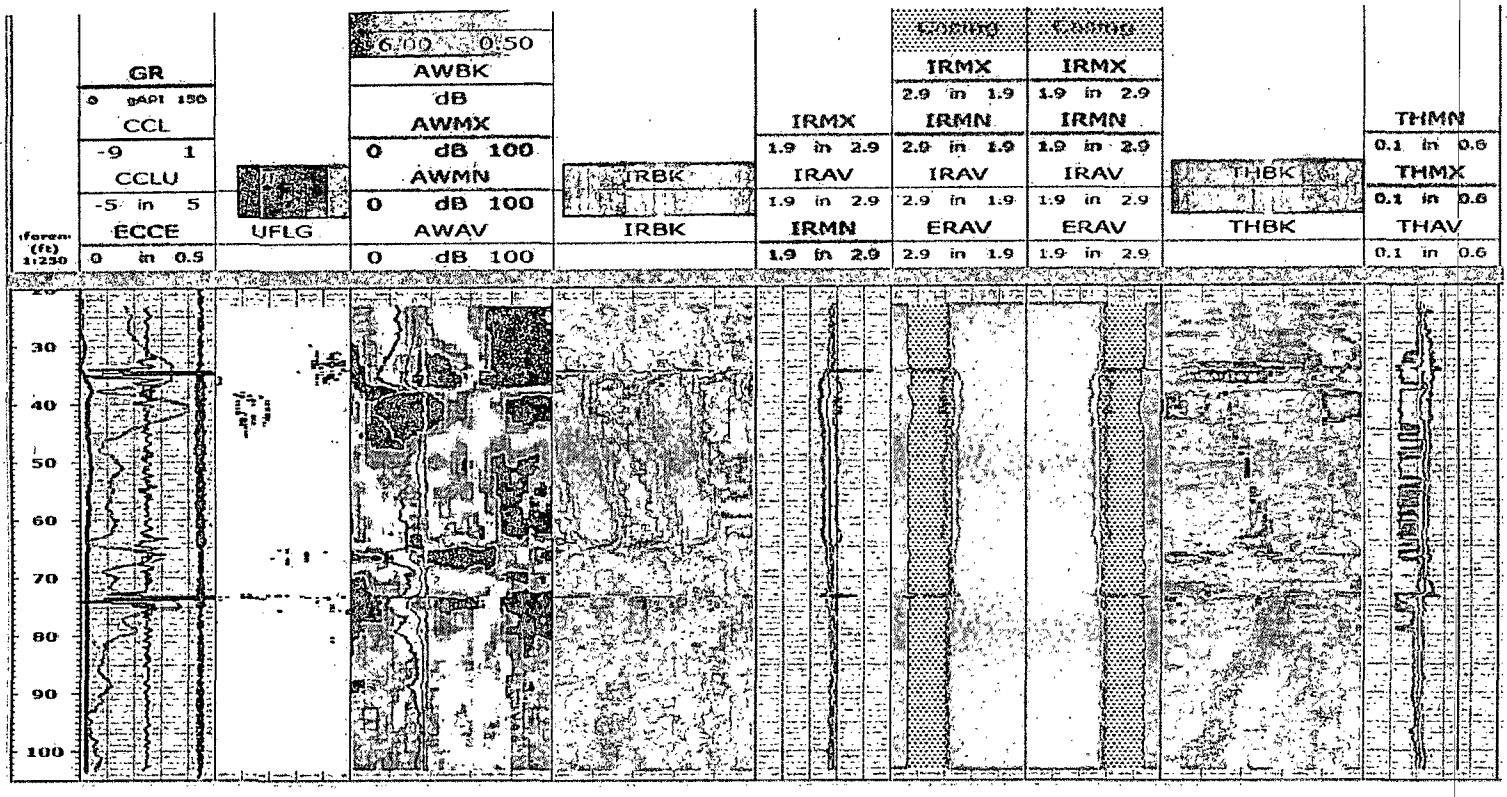


The snapshot above shows the original log from the field. While there is a lot going on, there are a couple of important items to notice.

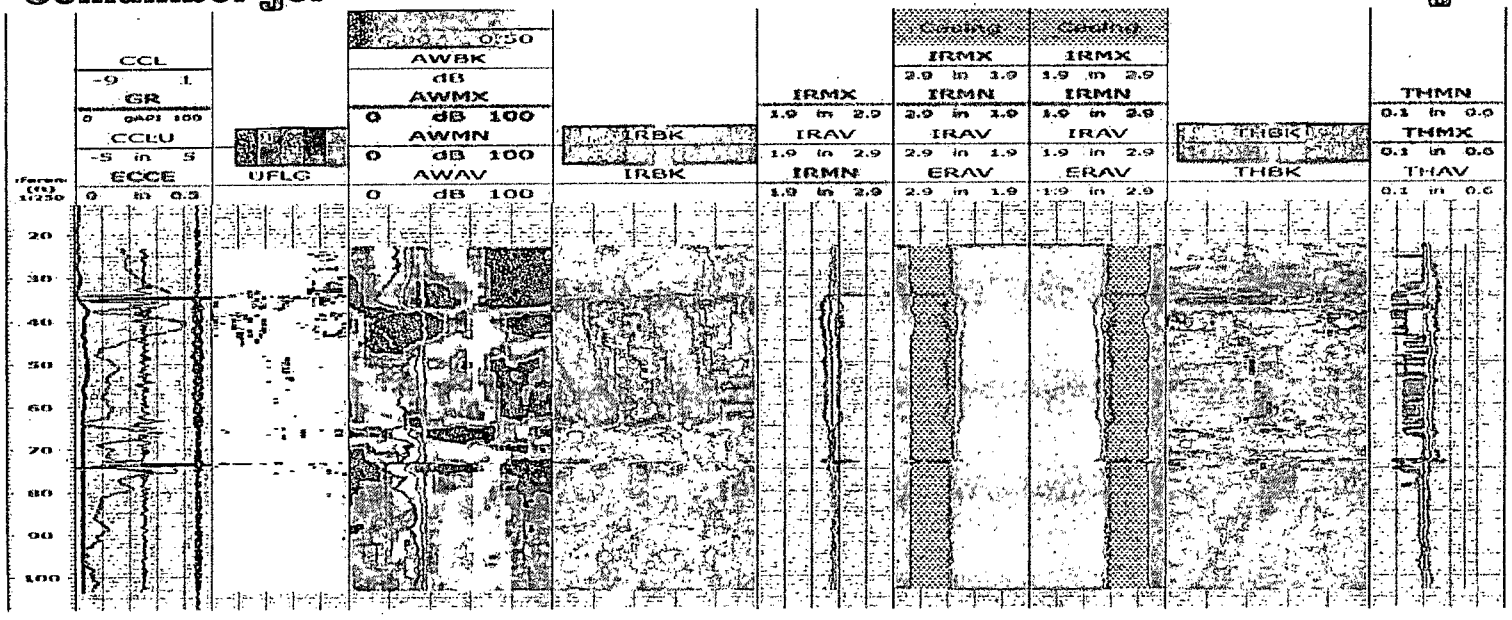
The first is the shadowing on the amplitude image track (AWBK). This points to either residue/material on the interior surface of the casing, or significant deformation causing attenuation of the initial peak signal from the tool.

The second item to note is the alternating pattern in the internal radius image track (IRBK) that clearly states ovalization of the casing.

The thickness image track (THBK) shows a lot of red which would indicate very thin casing in some spots.

While noticing these items it is also critical to notice what is *not* present, and what looks suspicious. There is no strong peaks in the casing collar locator curve (CCL), no strong gamma ray (GR) peak, no major penetration in the IRBK, and the flatness of the thickness min (THMN) curve are all items that need to fit into the overall picture.

The next page provides details on the reprocessing done, but the overall summary is that the casing is intact, but is significantly ovalized.



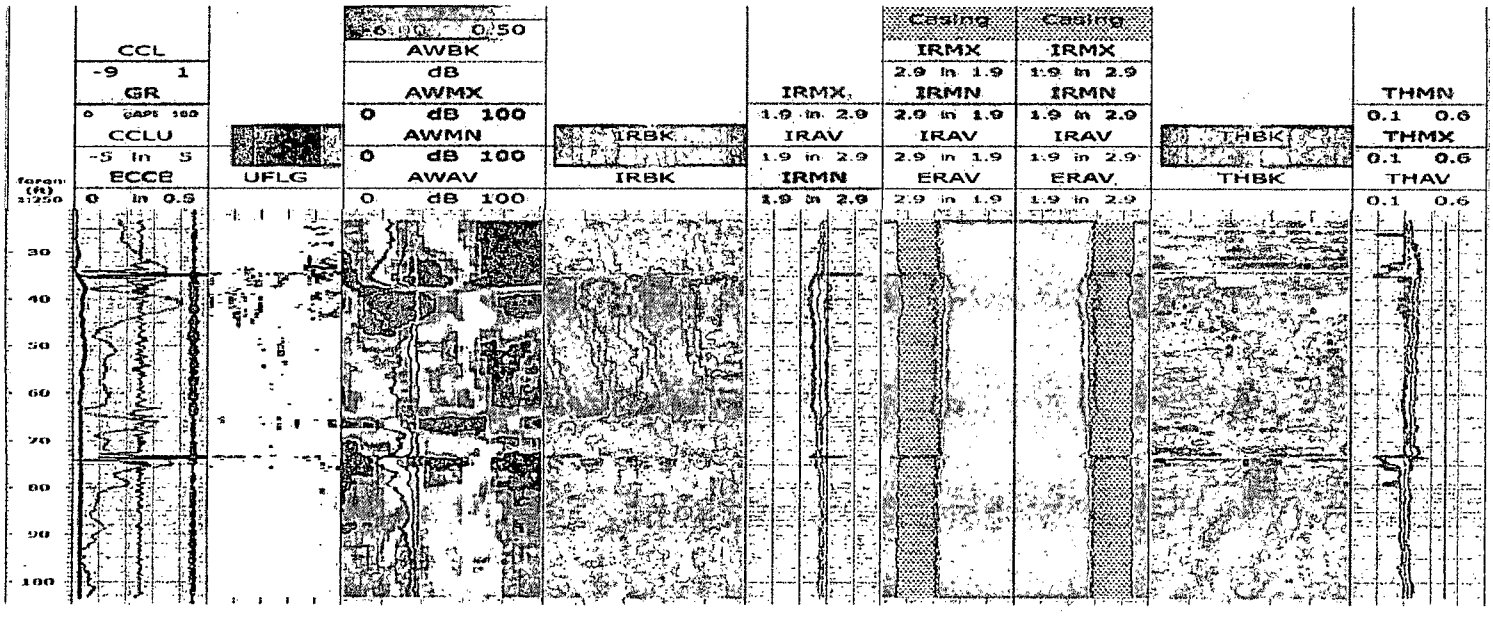
The flatness/blockiness mentioned earlier in the thickness minimum (THMN) curve indicates that the software was unable to properly fit the thickness it is believed to have measured.

As well, it was noted that fluid properties was set to theoretical, which adds flexibility to the data processing done real-time, but also adds the chance for error.

Reprocessing the data after adjusting some parameters and setting the fluid velocity to a constant value yielded the response above. This shows that the thickness minimum values fit a much lower value than shown in the log. However, comparing the level of penetration to the internal radius curves shows no considerably correlation, and with some supposed penetration, there would be some level of reaction expected internally unless the damage was totally external or erroneous.

There was also the chance that the data was due to the debris/residue seen in the amplitude image (AWBK) as much of the response seems to match the shadowed portions.

Using individual waveform analysis seen on the next page, much of the data was deemed erroneous due to the residue/debris, and the integrity of the casing is believed to be better than the field log displays. Below is the result of cleaning up the data believed to be erroneous



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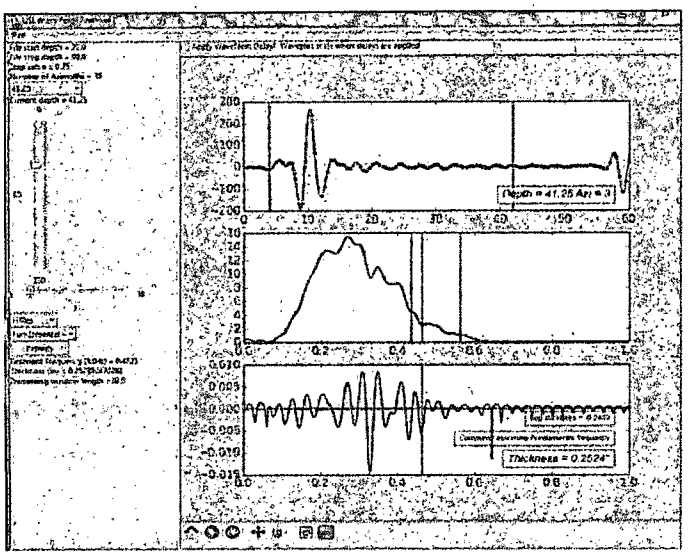
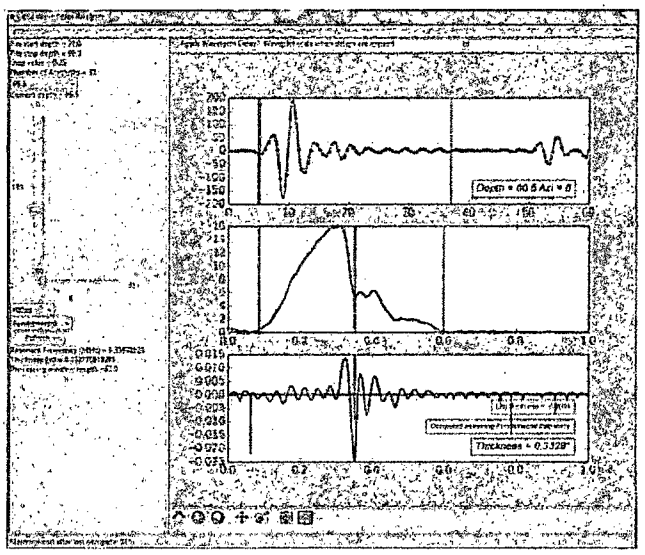


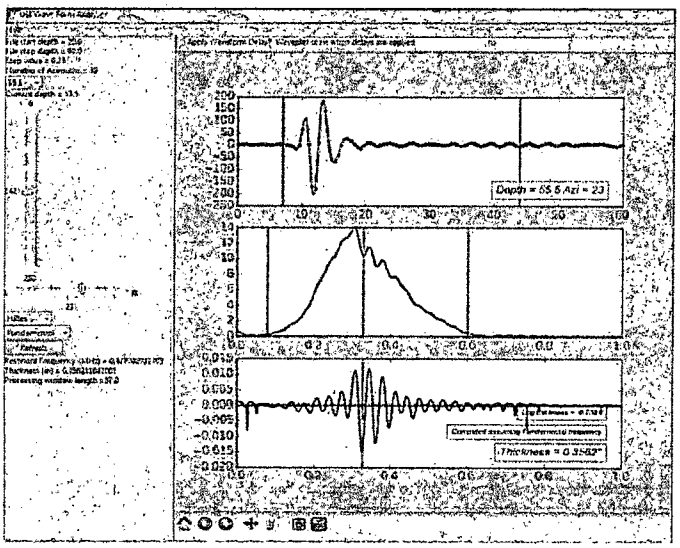


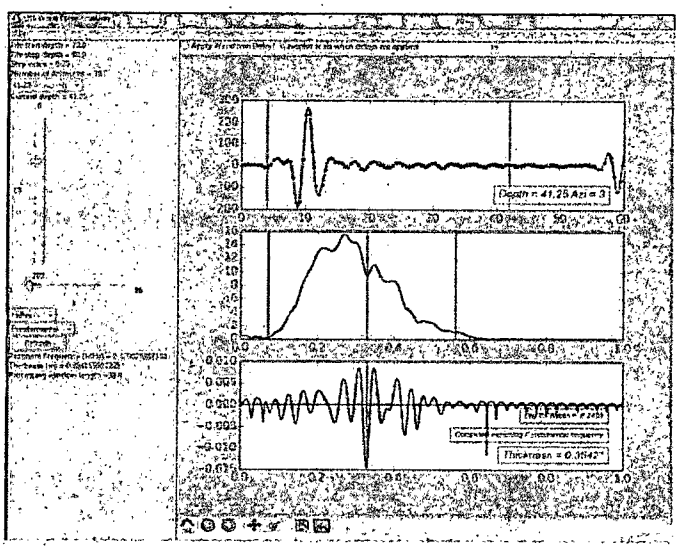
These windows are snapshots of the tool used to analyze the individual waveforms. The USIT tool takes anywhere from 36 to 72 samples per depth while it spins at 7 revolutions per second depending on the resolution settings. Analyzing every single waveform would be beyond tedious, but taking samples of areas provides a good method of generally confirming or rejecting values in zones of interest.

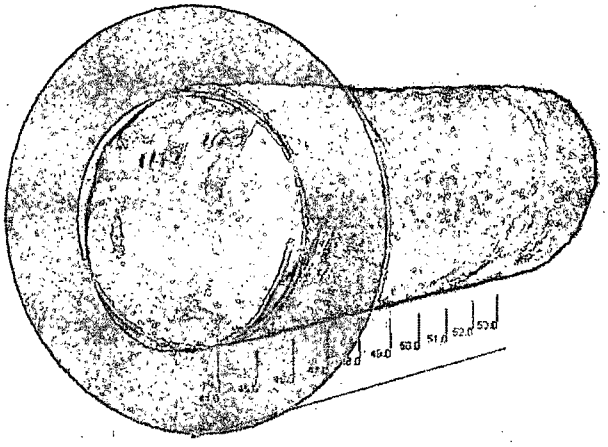
Each snapshot shows three windows. The uppermost is the raw waveform, with lines denoting the sampling window. The second window shows the Fourier transform of the sample with dips indicating possible group delays as a result of the signal interacting with the casing (or something else). The third window shows the derivative of the sample and the resultant thickness based on the selected group delay.

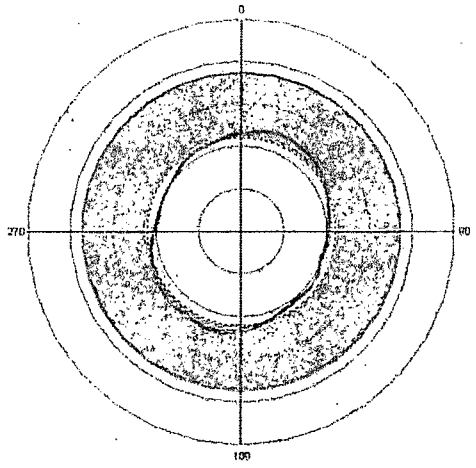
The upper left window is used to show an incorrect selection, and as a result shows a value close to what the original log displays. It is easy to see how the software can mistake dips in the response due to 'noise' and pick an incorrect measurement.

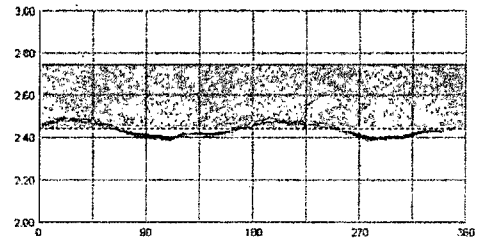
The rest of the samples display noisy environments, but with what is believed to be correct picks of group delay. The original log value is displayed in each case, and shows why the 'red' values on the log are believed to be erroneous.











A 3D WellCAD image was generated to show the extent of the ovalization.

The gray portions represent ideal measurements. The upper right cross section shows the top most sliver of pipe visible in this image and how it compares in a 2D plane against the ideal, and it is very clear to see the level of ovalization present.

The lower right hand image displays roughly the same cross section, but flat and unfolded from the circle shape.

The blue coloring represents the thickness of the pipe, and as mentioned in the appendix, seems to be slightly higher than nominal API spec for 5.5", 17lb casing.

The 3D model requires the WellCAD viewer software which is free to download. The 3D file of this model should be included with this report.

Casing Summary Listing of the single joint of interest.

Assumed L-80 type casing.

Joint No	Joint Top	Joint Lengt	Rem ark	Penet ration	Thickne ss Min	Depth Thick	IR Mi n	Depth IR M	IR M ax	Depth I R Max	Burst Min USI thick	Collapse Equation	Min ID	Depth Min ID
	ft	ft		%		ft	in	ft	in	ft	psi	psi	in	ft
1	34.5	38.96		[redacted]	0.274	42.0	2.366	40.6	2.541	42.0	7807	PC	4.737	40.6

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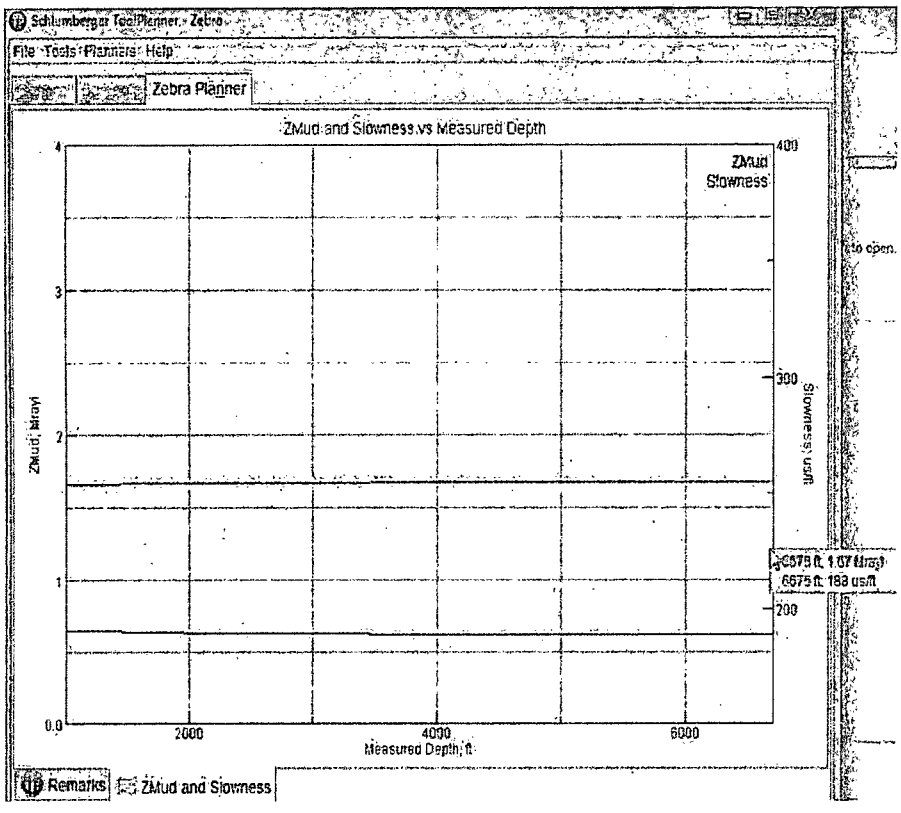
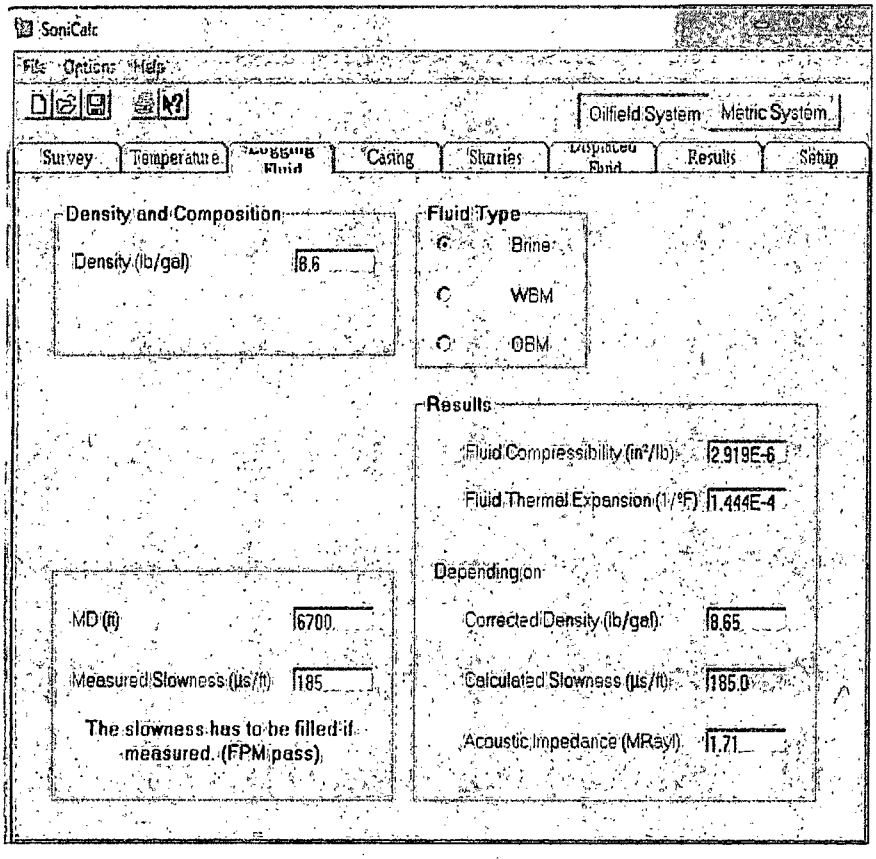
Appendix:





The Zebra module in ToolPlanner and the SoniCalc application provide useful tools for checking fluid velocity and impedance in the well bore before, during, and after a job. They help make sure parameters are set correctly, and we are measuring roughly what we expect.

The Zebra module is more generic, and given the fluid values in the well, shows an expected value of 188 us/ft for slowness and 1.67 MRayls for impedance.

The actual measured values were 185 us/ft and 1.7 MRayls at the bottom of the well.

The SoniCalc tool requires the slowness value as input in order to better adjust the model. Given the slowness of 185 us/ft, the impedance expected is 1.71 MRayls.

Both tools are not spot on, but are very close, indicating that the fluid in the hole does not match an ideal Brine, but is very close.

It should also be noted that in the process of quality checking the data, the fluid velocity itself could not be verified as average internal radius of the casing was off from expected API values. The actual average for the casing was around 2.429". The tool consistently measured values in this range, so it is believed the tool is functioning correctly, as well, this still falls into the range for acceptable pipe thickness given API specifications.

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Company: Cimarex Energy Co

Well: Medwick 32 Federal Com #011H

Field: Federal

County: Eddy State: New Mexico

Ultrasonic Imager

Corrosion Print

Gamma Ray

County: Eddy
Field: Federal
Location: 210' FSL & 750' FEL
Well: Medwick 32 Federal Com #011H
Company: Cimarex Energy Co.

Location:			
210' FSL & 750' FEL Section 32; Township 26S; Range 27E	Elev.:	K.B.	3213.00 ft
		G.L.	3183.00 ft
		D.F.	3212.00 ft

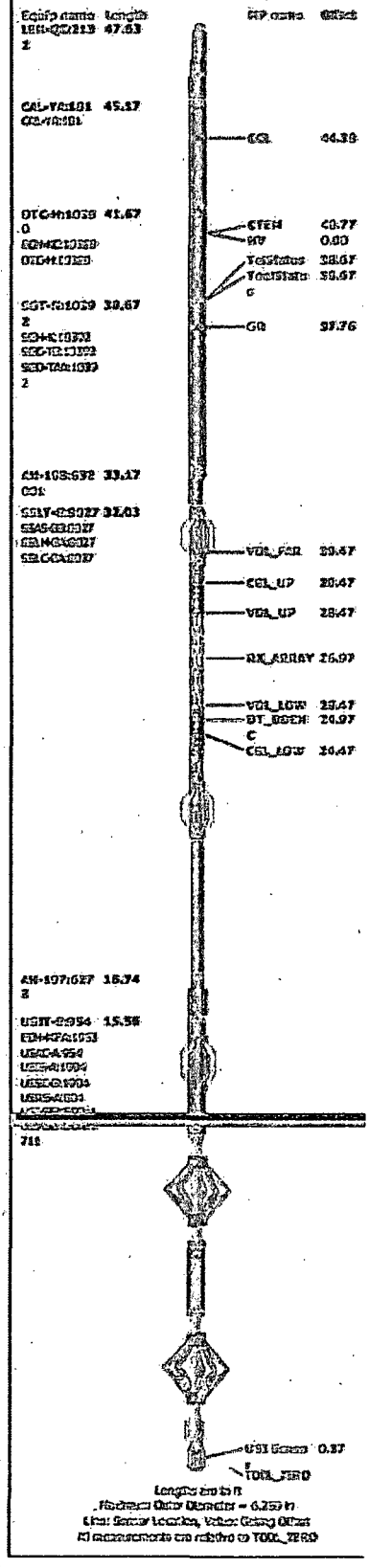
Permanent Datum:	Ground Level	Elev.:	3183.00 f
Log Measured From:	Kelly Bushing	30.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	Section:	Township:	Range:
30-015-42175	32	26S	27E

Logging Date	03-Nov-2014	
Run Number	1B	
Depth Driller	6850.00 ft	
Schlumberger Depth	6850.00 ft	
Bottom Log Interval	6179.00 ft	
Top Log Interval	200.00 ft	
Casing Fluid Type	Brine	
Salinity		
Density	8.6 lbm/gal	
Fluid Level	8.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	7.88 in	
From	0.00 ft	
To	6850.00 ft	
Casing/Tubing Size	5.5 in	
Weight	17 lbm/ft	
Grade	L80	
From	9.00 ft	
To	6850.00 ft	
Max Recorded Temperatures	150 degF	
Logger on Bottom Time	03-Nov-2014	16:20:00
Unit Number Location:	2132	Midland, TX
Recorded By	M. Solorzano	
Witnessed By	TJ/ Liam	

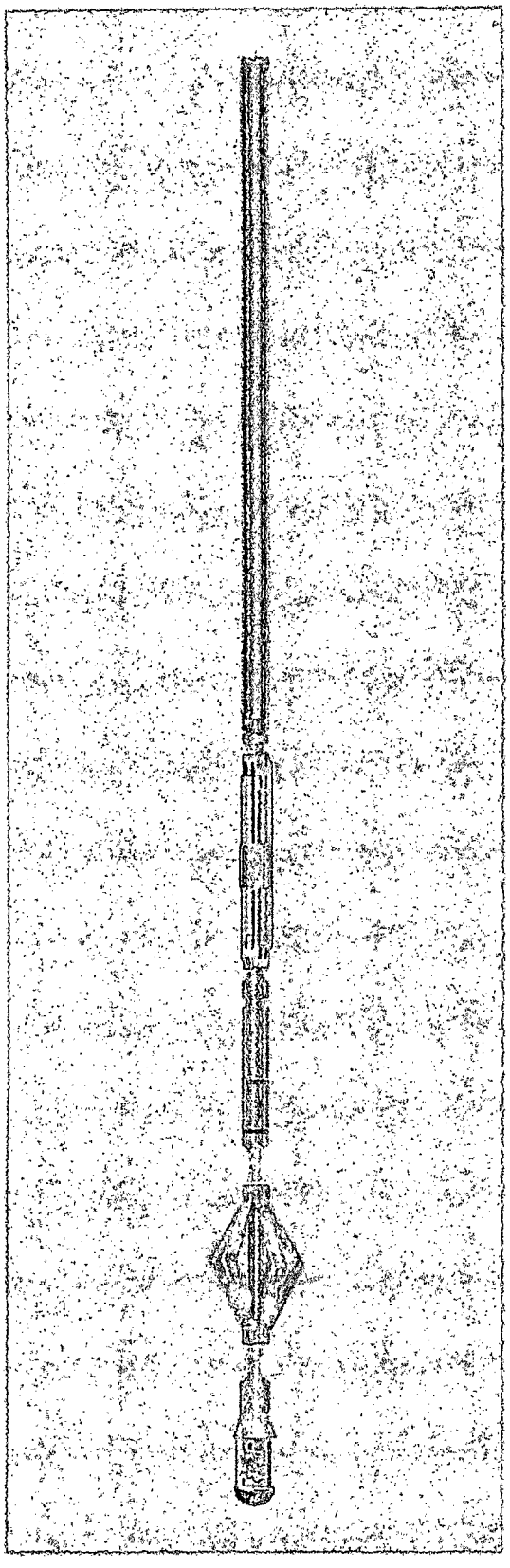
1B: Remarks
Logging objective:USIT Cement and Corrision from above KOP to surface.
Toolstring run as per toolsketch (3x Gemcos and 2 inlines used).
Main and Repeat passes correlated to Down Log as reference.
Casing: 5.5" 17# L-80.
No pressure pass due to damage in casing as per client request.
IBC recomended to be run as per SLB engineer per light cement/ heavy annular fluid. Client decided to run USIT instead.
Repeat pass performed 200 ft off bottom.
Expected free pipe amplitude: 71mV.
USIT Resolution: 10 deg, 3 inch.
Casing abnormalties seen. High Speed Repeats done. 10 deg 1.5 inch.
USIT zoned with ICE processing. Fluid velocity: Automatic. Acoustic Impedance: Theo
Int. Rad =2.446 in. Ext Rad = 2.75 in. Thick = 0.304 in.
All Cement Data Given: 11# Lead, 14# Tail. Tail mostly in vertical.
Displacement Fluid: 8.6# Brine. Annular Fluid: .9.5# Brine. 1.9 MRayl. ZTCM set to 2.4 MRay.
USI Cement affected and not valid by Bond Coating from 1722 to 5742 ft. Client did not want to change to IBC sub.
Schlumberger Wireline- Midland, TX (432) 694-0000
Schlumberger Crew: Marcia, Bug, Andrae.

1B: Toolstring



USI UltraSonic Imager Tool

Schlumberger



The USI® UltraSonic Imager tool (USIT) uses a single transducer mounted on an Ultrasonic Rotating Sub (USRS) on the bottom of the tool. The transmitter emits ultrasonic pulses between 200 and 700 kHz and measures the received ultrasonic waveforms reflected from the internal and external casing interfaces. The rate of decay of the waveforms received indicates the quality of the cement bond at the cement/casing interface, and the resonant frequency of the casing provides the casing wall thickness required for pipe inspection. Because the transducer is mounted on the rotating sub, the entire circumference of the casing is scanned. This 360° data coverage enables the evaluation of the quality of the cement bond as well as the determination of the internal and external casing condition. The very high angular and vertical resolutions can detect channels as narrow as 1.2 in. [3.05 cm]. Cement bond, thickness, internal and external radii, and self-explanatory maps are generated in real time at the wellsite.

Applications

- Cement evaluation
- Casing inspection
  - Corrosion detection and monitoring
  - Detection of internal and external damage or deformation
  - Casing thickness analysis for collapse and burst pressure calculations

Measurement Specifications

	USIT
Output	Acoustic impedance, cement bonding to casing, internal radius, casing thickness
Logging speed	1,800 ft/hr [549 m/h]
Range of measurement	Acoustic impedance: 0 to 10 MRayl (0 to 10 MPa.s/m)
Vertical resolution	Standard: 6 in. [15.24 cm]
Accuracy	Less than 3.3 MRayl; ±0.5 MRayl
Depth of investigation	Casing-to-cement interface
Mud type or weight limitations[1]	Water-base mud: Up to 15.9 lbm/gal Oil-base mud: Up to 11.2 lbm/gal
Combinability	Bottom-only tool, combinable with most tools
Special applications	Identification and orientation of narrow channels

[1] Exact value depends on the type of mud system and casing size.

Mechanical Specifications

	USIT
Temperature rating	350°F [177°C]
Pressure rating	20,000 psi [138 MPa]
Casing size—min.	4½ in. [11.43 cm]
Casing size—max.	13⅜ in. [33.97 cm]
Outer diameter[1]	3.375 in. [8.57 cm]
Length[1]	19.75 ft [6.02 m]
Weight[1]	333 lbm [151 kg]
Tension	40,000 lbf [177,930 N]
Compression	4,000 lbf [17,790 N]

[1] Including the rotating sub