



Well Data Sheet

Well Name: CVE ET AL WEYBURN UNIT 2HZ 1B11-30-2C1-25-5-14

Bottom Hole UWI 191/01-25-005-14W2/00		Surface Legal Location LSD 11-30-5-13W2		Pad		License # 98C095		Spud Date 1998-03-13		Rig Release Date 1998-03-21	
Well Type PRODUCER		Fluid Type OIL		Sour Status		Sour Status Date		Profile Type HORIZONTAL		Total Depth (mKB) 2,518.00	
Original KB Elevation (m) 590.65		Working GLE (m) 586.90		Casing Flange Elevation (m) 585.65		Tubing Head Elevation (m)		KB-Ground Distance (m) 3.75		KB-CF (m) 5.00	
KB-TH (m)											

Directions To Well

Wellheads

Type	Make	WP (kPa)

Wellbores

Wellbore Name LEG 2		Parent Wellbore ORIGINAL HOLE		Profile Type MULTI-LATERAL HORIZONTAL		Kick Off Point (mKB)		Directional Survey	
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Deepest Wellbore Section

Section	Size (mm)	Top (mKB)	Btm (mKB)	Act Top (TVD) (mKB)	Act Btm (TVD) (mKB)

Last PBD

Date	PBDT Depth (mKB)	Type	Method	Comment					
Wellbore Name ORIGINAL HOLE		Parent Wellbore ORIGINAL HOLE		Profile Type MULTI-LATERAL HORIZONTAL		Kick Off Point (mKB) 0.00		Directional Survey MAIN WELLBORE	

Deepest Wellbore Section

Section	Size (mm)	Top (mKB)	Btm (mKB)	Act Top (TVD) (mKB)	Act Btm (TVD) (mKB)
OPEN HOLE	159.0	1,361.00	2,518.00		1,472.72

Last PBD

Date	PBDT Depth (mKB)	Type	Method	Comment
	0.00			

Zones

Zone Name	Alt Zone	Comment
		MIDALE MARLY M-1 GOOD AND POOR SHOAL

Casing Strings

Casing Description	Run Date	String OD (mm)	String ID (mm)	String Wt (kg/m)	String Grade	Set Depth (mKB)
SURFACE CASING		244.5	244.0	48.110	H-40	151.00
INTERMEDIATE CASING		177.8	164.0	29.760	J-55	1,361.00

Cement

SWEET OIL PRODUCTION, casing, 1998-03-13 00:00

Description SWEET OIL PRODUCTION		Type casing		Cementing Start Date 1998-03-13		Cementing End Date	
Top (mKB) 0.00		Bottom (mKB) 151.00		Full Return?		Cement Volume Return (m³) 3.00	
Fluid Description 0:1:0		Fluid Type LEAD CEMENT		Amount (tonnes) 18.5		Class CLASS "G"	
Add		Type		Amount			

CALC2 ACCELERATOR

SOUR OIL PRODUCTION, casing, 1998-03-16 00:00

Description SOUR OIL PRODUCTION		Type casing		Cementing Start Date 1998-03-16		Cementing End Date	
Top (mKB) 700.00		Bottom (mKB) 1,340.00		Full Return?		Cement Volume Return (m³)	
Fluid Description 0:1:0		Fluid Type LEAD CEMENT		Amount (tonnes) 23.0		Class CLASS "G"	
Add		Type		Amount			

T-10

Top (mKB) 700.00		Bottom (mKB) 1,361.00		Full Return?		Cement Volume Return (m³)	
Fluid Description 0:1:0		Fluid Type TAIL CEMENT		Amount (tonnes) 23.0		Class CLASS "G"	
Add		Type		Amount			

T-10

Top (mKB)		Bottom (mKB) 0.00		Full Return?		Cement Volume Return (m³)	
Fluid Description		Fluid Type		Amount (tonnes)		Class	
Add		Type		Amount			

Well Name: CVE ET AL WEYBURN UNIT 2HZ 1B11-30-2C1-25-5-14

Other In Hole

Description	Make	Model	Top (mKB)	Btm (mKB)	Run Date

Perforations

Date	Type	Top (mKB)	Btm (mKB)	Zone	Chg Sz (g)	Shot Dens (shots/m)	Phasing (°)	Current Status
1998-03-18	OPEN HOLE	1,533.80	2,518.00					OPEN
1998-03-20	OPEN HOLE	1,582.00	2,502.00					OPEN

Stimulations & Treatments

Date	Zone	Stim Type & Mode	Min Top Depth (mKB)	Max Btm Depth (mKB)	V (pumped) (m³)	V (recov) (m³)

Comment

Logs

Date	Top (mKB)	Btm (mKB)	Type	Cased Hole Log?
2011-10-10	0.00	1,341.80	Noise-Temp-GR-CCL	
2011-10-11	0.00	1,341.80	Casing Bond Log	
2011-10-12	0.00	1,341.80	Casing Bond Log	

Tubing Strings

Tubing Description	Run Date	Bottom or Set Depth (mKB)
TUBING - PRODUCTION	2011-10-25	1,348.59

Item Description	Make	Model	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Jts	Len (m)	Top (mKB)	Btm (mKB)
DEPTH CORRECTION										
TUBING HANGER	STEAM-FLO	DBB	177.8					5.00	0.00	5.00
STRETCH										
TUBING	EVRAZ		73.0	62.0	9.673	J-55	139	1,333.09	5.66	1,338.75
TUBING DRAIN	MIDFIELD		73.0					0.26	1,338.75	1,339.01
PUMP BARREL	MIDFIELD	25-275-THOS-24...	69.9					8.46	1,339.01	1,347.47
ANCHOR/CATCHER	KASH		177.8					1.12	1,347.47	1,348.59

Rods

Rod Description	Run Date	Set Depth (mKB)
ROD STRING	2011-10-26	1,349.32

Item Description	Make	Model	OD (mm)	Wt (kg/m)	Grade	Joints	Length (m)	Top (mKB)	Bottom (mKB)
POLISHED ROD	TS&M	XM-19	38.1			1	10.97	0.00	10.97
PONY ROD	ELECTRA	EL	25.4		EL	2	3.65	10.97	14.62
SUCKER ROD	ELECTRA	EL	25.4		EL	38	289.56	14.62	304.18
SUCKER ROD	ELECTRA	EL	25.4		EL	11	83.82	304.18	388.00
SUCKER ROD	ELECTRA	EL	22.2		EL	64	487.68	388.00	875.68
SUCKER ROD	ELECTRA	EL	22.2		EL	52	396.24	875.68	1,271.92
SINKER BAR	MIDFIELD		38.1			10	76.20	1,271.92	1,348.12
TUBING PUMP	MIDFIELD	25-225-THOS-24'-...	57.2			1	1.20	1,348.12	1,349.32

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Make	Model	Serial Number
MIDFIELD	25-225-THOS-24'-1-20RR	MID-538

Pump Bore (mm)	API Pump Type	API Barrel Type	API Anchor Type	Seat Assy Type	Barrel Length (m)	Nom Plunger Len (m)	Upper Ext Len (m)	Lwr Ext Len (m)
69.9	T	H	O	S		20.00		

Plung OD Clr (mm)	Seating Assembly Description	Seat Assy Sz (mm)	API Barrel Material	API Plunger Material	Gas Anc OD (mm)	Gas Anchor Length (m)
			NICKEL CARBIDE COATED - 443 BRASS	SPRAYMETAL		

Traveling Valve Ball Material	Traveling Valve Seat Material	Standing Valve Ball Material	Standing Valve Seat Material
TUNG CARBIDE	STELLITE	TUNG CARBIDE	STELLITE

Well Tests

Date	Zone	Type	SubType

Well Name: CVE ET AL WEYBURN UNIT 2HZ 1B11-30-2C1-25-5-14

Pressure Survey Tests			
Date	Zone	Type	SubType

Equipment Pressure Tests			
Date	Type	Test Fluid Type	Failed?
			No

Fluid Analysis Tests							
Date	Tested By	Zone	Oil Density (kg/m³)	Gas Density (kg/1...	Water Density (kg...	H2S (ppm)	Salinity (ppm)
Comment							

General Notes	
Date	Comment
1997-12-16	Reason: INFORMATIVE LICENSE LOCATION: 2HZ 1B11-30-5-13-2C1-25-5-14 W2 SURFACE LOCATION: 121/11-30-005-13 W2 BOTTOMHOLE LOCATIONS FOR LEGS: FIRST LEG: 191/1-25-5-14 W2 SECOND LEG: 121/1-25-5-14 W2
1998-03-26	Reason: WELL HISTORY INSTALL ARTIFICIAL LIFT.
1998-03-31	Reason: WELL HISTORY ORIGINAL COMPLETION.
1998-10-21	Reason: WELL HISTORY GRAHAM REISER REQUESTED UPSIZE FROM 200 TO 275
1999-11-05	Reason: WELL HISTORY TUBING LEAK, SPLIT PUMP BARREL.
2000-08-09	Reason: WELL HISTORY BROKEN 2MM PIN, 89 DOWN. DOWN SIZED PUMP TO 200
2004-02-13	BROKEN 22MM PIN #106 FROM SURFACE C/W PUMP CHANGE.
2006-03-24	CHANGE SURFACE LOCATION - IT WAS INCORRECT AS PER BOB MORRIS
2006-03-24	BHP CHANGE. ALL 22 MM AND 25 MM RODS REPLACED WITH NEW DUE TO SEVERE ROD WEAR. NEW BHP PRESSURE TEST BLED OFF TO 2 MPA FROM 3.5 MPA. CONSIDER INSPECTING TUBING NEXT TIME.
2006-04-12	TNMG LEAK JT #116. TBG INSPECTED.
2007-02-05	TUBING LEAK. HOLE IN ENC JOINT. RUN NEW TBG.
2007-07-26	HOLE IN ENC JOINT OPPOSITE BHP DISCHARGE - TUBING LEAK.
2009-06-23	HOLE IN ENC JOINT, UP SIZE PUMP TO 225 ,PLUNGER /STANDING VALVE, REPLACED 8X25 MM WORN RODS, 25X22 MM COLLARS
2009-08-19	TBG LEAK. INSPECTED TBG AND FOUND CORROSION HOLE IN JT #124 FROM SURFACE. LAID DOWN 102 - RED JTS. REMAINDER YELLOW. CHANGED OUT PLG AND S. VALVE BUT PUMP BARREL THE SAME. DARREN WOODARD TO CHANGE CHEMICAL PROGRAM AND INSTALLED ROD ROTATOR AS PER KELLY V
2009-09-01	Started well on the corrosion inhibition program. Batched with Corgard 900 Bi-weekly & Corgard 396 continuous.
2009-09-01	INSTALLED ROD ROTATORS TO REDUCE WEAR - PLEASE CONTACT OPTIMIZATION FOR FEEDBACK ON ROD WEAR
2010-03-16	TUBING LEAK. SPLIT IN JOINT #38 FROM SURFACE. TOTAL OF 55 RED JOINTS. REBUILT COATED ANCHOR, REBUILT PUMP BARREL, NEW COATED PSN, NEW ENC JOINT, 84 YELLOW JOINTS INSPECTED ON WELLHEAD, 55 NEW JOINTS, NEW PLUNGER/STANDING VALVE ASSEMBLY.
2011-10-05	PRODUCER WELL INTEGRITY MONITORING PROGRAM. PULL AND LAY OUT RODS. JUNKED 39 - 25MM , 63 - 22MM AND 10 SINKER BARS ALL DUE TO WEAR. PULL TBG PUMP AND DO SCAPER RUN TO 1357 MKB. CONDUCT E-LINE MSC AND CIT LOG ON CASING. SET BRIDGE PLUG @1344 MKB. CIRCULATE TO SOURCE WATER. PULL TBG. INSTALL 7 1/16 ORBIT VALVE.
2011-10-10	MI RIG UP WEATHERFORD WIRELINE AND ALL RELATED SERVICES, HAVE PREJOB SAFETY MEETING. RIG UP AS TO OH&S REGULATIONS AND CENOVUS REGULATIONS. RIH W/NOISE AND TEMP EQUIPMENT W/GR-CCL TO CONFIRM DEPTH CORRELATIONS
2011-10-11	MI RIG UP WEATHERFORD WIRELINE AND ALL RELATED SERVICES, HAVE PREJOB SAFETY MEETING. RIG UP AS TO OH&S REGULATIONS AND CENOVUS REGULATIONS. RIH W/CBT AND SBT TOOL DO UNPRESSURED PASS
2011-10-12	7000kpa press pass bond log
2011-10-26	PULLED BRIDGE PLUG. RAN IN REFURBISHED PUMP, TUBING DRAIN AND ANCHOR. NEW TUBING, PACKING POLISHED ROD AND SOME NEW RODS.

Attachments	
	Description

Summary Interpretation Report

Company	Cenovus Energy
Well Name	CVE et al Weyburn Unit 2HZ 1B11-30-2C1-25-5-14
Location	191/01-25-005-14W2/00
Survey Date	October 5 - 22, 2011.
Interpreted By	Munir Sharar
Interpretation Date	November 2, 2011.



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Background

The subject well is a single leg horizontal oil producer. The well was drilled in 1998 for sweet oil production. A program was developed to run multiple logging surveys to evaluate both casing and cement integrity. A Multi-sensor Caliper and a Casing Imaging Tool was run to assess casing integrity. A Sector Bond Tool and an Ultrasonic Radial Scanner was run to evaluate cement quality – the URS also provided an assessment of casing thickness. In addition, a Noise/Temperature survey was run to detect surfacing casing vent flow issues and to locate potential sources.

Well Configuration

Casing Record.

Casing	Size (mm)	Wt (kg/m)	Grade	Wall (mm)	ID (mm)	From (mKB)	To (mKB)
String 1	244.5	48.11	J55	7.95	228.625	SURFACE	151.0
String 2	177.8	29.76	J55	6.909	163.982	SURFACE	1093.0
String 3	177.8	34.23	J55	8.052	161.695	1093.0	1361.0

Cement Record.

Surface casing cemented with 14 m³ of class "G" 1901 kg/m³ density.

Production casing was cemented in two stages. In stage one, 16.689 m³ class "G" 1901 kg/m³ density cement was pumped from 700 to 1340 m. Circulated 2 hours before pumping cement for stage 2. Pumped 16.689 m³ class "G" 1901 kg/m³ density cement from 700 to 1361 m in stage 2.

Summary of Results

Casing Integrity.

Casing Imaging Tool. The casing imaging tool response indicates multiple internal and external single isolated pits (SIP) from surface to 1361 mKB. The defect codes range from Class 1 to Class 2, indicating that the entire casing string is in very good shape with respect to corrosion. A detailed list of these defects is tabulated in the Joint Table (Table 1). The worst defect is an internal 38% single isolated pit on joint number 100. A stage collar is present at 1346.6 m (visualizations of these anomalies are presented as Figures 4 & 5). The CIT also indicates that from 1000 m and below casing was well centralized with 13 centralizers.

Multi-sensor Caliper. A Weatherford 40 arm MSC caliper was run from 1361 m to surface. It shows no casing deformation and agrees well with the CIT analysis. The only anomalies are tong marks on some casing joints and a stage collar at 1346.6 m (Figures 1-3). These anomalies are clearly visible on the included X-section images captured from the TVision visualization software.

Cement Integrity.

A Sector Bond Tool and Ultrasonic Radial Scanner were logged to evaluate cement quality. Cementing data indicates that Class "G" cement (1901 kg/m³) was run. There was no mention of cement returns to surface.

Sector Bond Tool. The SBT was logged with both pressured and unpressured passes to indicate the severity and/or presence of a micro-annulus. Analysis of the SBT log indicates the presence of a very small micro-annulus. The log clearly indicates poor cement circumferential coverage and a lack of zonal isolation from surface to 150 m. The effective cement top is at 150 m. From 150 - 610 m cement quality improves a little. The zone has long extended channels and no areas with zonal isolation (bond and/or quality is not capable of providing hydraulic isolation). The interval from 610 to 1335 m has excellent cement. Low amplitude (high attenuation) and low energy levels from all sectors throughout this zone indicates full circumferential coverage of cement around the pipe. Strong formation arrivals in this zone indicate that the cement is bonded to both casing and formation. The complete interval is capable of zonal isolation with a few isolated channels. A detailed summary of the interpretation is located in Table 4.

Ultrasonic Radial Scanner. The URS tool run on this well worked well and agrees reasonably with SBT. The tool indicates that from surface to 150 m casing annulus contains dry mud and fluid. The zone has no cement and long continuous channel to surface. From 150 to 610 m circumferential coverage of cement improves but has no interval capable of zonal isolation. From 610 to 707 m, a full circumferential coverage of low impedance cement is indicated by the URS. From 707 to 1335 m, URS indicates full coverage of high impedance, excellent cement. A few isolated channels and long intervals with zonal isolation are present from 707 to 1335 m.

Vent Flow – Channel Detection.

The subject well has no existing vent flow problems. A Noise-Temperature survey was run to check for fluid or gas movement behind casing. An interpretation of this data showed no evidence of surface casing vent flow problems on this well but there is a possibility of some cross-flow taking place between 70 – 82 m that could be associated with ground water movement outside the surface casing.

Noise Log. The profile of the noise survey presents low amplitude readings on all frequency curves from bottom to approximately 100m. The noise observed in this interval appears to be related to background noise. An increase in low frequency 200 HZ curve from 75 m and above indicates probable fluid movement behind the two strings. Noise samples from 74 m to surface indicate a bubbling sound.

Temperature Log. The temperature response through the entire logged interval follows a smooth gradient with no cooling deflection associated with a pressure drop resulting from gas flow within a channel. A closer look at an amplified temperature indicates straight lining associated with cross-flow of a liquid between two zones from 70 to 82 m. If there is no flow to surface, then the bubbling noise in the surface casing is associated with flow between two zones.

Logging Services

Casing Imaging Tool. The Casing Imaging Tool (CIT) enables the quantification of internal and external corrosion defects. High magnetic flux density levels are produced within the casing wall using powerful rare earth magnets. Hall Effect flux leakage sensors mounted on deployment pads are positioned on the casing wall to detect localized flux field disturbances caused by internal or external defects in the casing. An equal number of discriminator sensors, mounted next to the flux leakage sensors, differentiate internal from external defects.

The gathered data is post-processed using 3D visualization and pattern-matching analysis software – the tool has been fully modeled which enables the ability to distinguish between general corrosion and isolated pitting and to estimate the penetration depths of detected anomalies. The final log product includes a joint-by-joint summary that identifies the worst defects and summarizes the percentage of missing material.

Multi-sensor Caliper. The Multi-sensor Caliper (MSC) tool provides casing integrity assessment when concerns exist about casing impairment due to installation, operational or geotechnical problems. The tool is run with TVision™ visualization software to provide high-resolution color depictions of the inside surface of casing cross sections.

The MSC tool provides accurate internal casing profiles using independent measurements from feeler arms. Real-time monitoring of tool response and multipoint calibration allows anomalies to be identified and repeated, increasing accuracy and saving rig time. The tool is available in 40-arm and 60-arm models. Each of the tool arms resolves dimensional variations of the casing inside surface down to 0.010 in. (0.25 mm).

Sector Bond Tool. The Sector Bond Tool measures cement bond quality laterally around the casing circumference as well as performing traditional vertical extent measurement. With a transducer resonance frequency between 80 and 120 kHz, the Sector Bond tool has successfully detected cement channels as small as 6°. The Sector Bond tool also withstands eccentricization in small-diameter casing.

Tool measurements include eight individual sector energies, gathered from around the tool. The eight transmitter-receiver array is spaced 2 ft longitudinally and 45° circumferentially. Standard 3-ft or 5-ft amplitude,

travel time, and full-waveform display measurements also are collected in a single logging pass.

Ultrasonic Radial Scanner. The URS uses two ultrasonic transducers. The primary measurement transducer located in the rotating scanning head provides 360° coverage and can identify channels in the cement map as small as 5°. The fluid transducer located in the tool body of the sonde section continuously monitors acoustic velocity and impedance of the wellbore fluid.

The tool design incorporates an advanced, high-speed measure-on-position DC motor to rotate the primary measurement transducer. With this technology, the primary measurement transducer fires upon arriving at a precise point in its rotation instead of relying on time and a constant rotating speed, which could overlook important features.

Noise & Temperature Tool. The noise tool utilizes a microphone to detect fluid movement downhole. Fluid movement is characterized by pressure drops associated with flow. If these factors are adequately large, turbulence is generated and the flow can be detected even if it is outside the casing. Therefore, noise logs are useful for detection of channels behind casing.

Noise logs are most often run in combination with a temperature tool. The combination of the noise and temperature surveys can detect events occurring both inside and outside of the casing string. The noise log is not run continuously since tool and cable noise due to tool movement would dominate the measurement. When run in combination, the temperature log is run continuously before performing the noise log station measurements. Noise logs are very sensitive, and in shallow wells even surface equipment must be shut down where possible to avoid sound from non-downhole sources. Noise measurements are stationary so it is important to wait for about a minute after stopping the tool to stabilize tool movement before recording the sound signal.

Casing Integrity Results

Table 1. Joint Classification summary map.

Joint Classification	Color	Percent Penetration
Class 1	Green	0 - 20%
Class 2	Yellow	21 - 40%
Class 3	Orange	41 - 60%
Class 4	Dark Red	61 - 80%
Class 5	Red	81 - 100%

Table 2. Summary of joints by classification number.

No. of Unclassed Joints	0
No. Class 1 Joints	82
No. Class 2 Joints	20
No. Class 3 Joints	0
No. Class 4 Joints	0
No. Joints with Penetration	0

Table 3. Joint table generated from the analysis of the Casing Imaging Tool.

Joint No.	From	To	Length	Max. Pen.	OD/ID	Position	Class	Type	Comments
1	4.43	11.15	6.7		--		C1	SIP	
2	11.15	24.73	13.6		--		C1	SIP	
3	24.73	38.30	13.6		--		C1	SIP	
4	38.30	51.94	13.6		--		C1	SIP	
5	51.94	65.56	13.6		--		C1	SIP	
6	65.56	79.10	13.5		--		C1	SIP	
7	79.10	92.70	13.6		--		C1	SIP	
8	92.70	106.27	13.6		--		C1	SIP	
9	106.27	119.88	13.6		--		C1	SIP	
10	119.88	133.56	13.7		--		C1	SIP	
11	133.56	147.17	13.6		--		C1	SIP	
12	147.17	160.73	13.6		--		C1	SIP	
13	160.73	174.31	13.6		--		C1	SIP	
14	174.31	187.91	13.6		--		C1	SIP	
15	187.91	201.49	13.6		--		C1	SIP	
16	201.49	215.10	13.6		--		C1	SIP	
17	215.10	228.70	13.6		--		C1	SIP	
18	228.70	242.28	13.6		--		C1	SIP	
19	242.28	255.84	13.6		--		C1	SIP	
20	255.84	269.48	13.6		--		C1	SIP	
21	269.48	282.98	13.5		--		C1	SIP	
22	282.98	296.57	13.6		--		C1	SIP	
23	296.57	310.17	13.6		--		C1	SIP	
24	310.17	323.76	13.6		--		C1	SIP	
25	323.76	337.40	13.6		--		C1	SIP	
26	337.40	351.00	13.6		--		C1	SIP	
27	351.00	364.60	13.6		--		C1	SIP	
28	364.60	378.19	13.6	21%	OD	369.1	C2	SIP	
29	378.19	391.29	13.1		--		C1	SIP	
30	391.29	404.86	13.6		--		C1	SIP	
31	404.86	418.47	13.6		--		C1	SIP	
32	418.47	432.03	13.6		--		C1	SIP	
33	432.03	445.63	13.6		--		C1	SIP	
34	445.63	459.22	13.6	21%	OD	449.8	C2	SIP	
35	459.22	472.77	13.5		--		C1	SIP	
36	472.77	486.33	13.6		--		C1	SIP	
37	486.33	499.93	13.6		--		C1	SIP	

Summary Interpretation Report
 CVE et al Weyburn UNIT 2HZ 1B11-30-2C1-25-5-14

Joint No.	From	To	Length	Max. Pen.	OD/ID	Position	Class	Type	Comments
38	499.93	513.50	13.6		--		C1	SIP	
39	513.50	527.11	13.6		--		C1	SIP	
40	527.11	540.72	13.6		--		C1	SIP	
41	540.72	554.30	13.6		--		C1	SIP	
42	554.30	567.87	13.6		--		C1	SIP	
43	567.87	581.49	13.6		--		C1	SIP	
44	581.49	594.89	13.4		--		C1	SIP	
45	594.89	608.35	13.5		--		C1	SIP	
46	608.35	621.93	13.6		--		C1	SIP	
47	621.93	635.52	13.6		--		C1	SIP	
48	635.52	649.10	13.6		--		C1	SIP	
49	649.10	662.43	13.3		--		C1	SIP	
50	662.43	674.80	12.4		--		C1	SIP	
51	674.80	688.06	13.3		--		C1	SIP	
52	688.06	701.67	13.6	21%	OD	691.3	C2	SIP	
53	701.67	715.27	13.6	23%	OD	708.0	C2	SIP	
54	715.27	728.49	13.2		--		C1	SIP	
55	728.49	741.92	13.4	21%	OD	737.9	C2	SIP	
56	741.92	755.52	13.6	23%	OD	747.9	C2	SIP	
57	755.52	769.10	13.6	23%	OD	764.4	C2	SIP	
58	769.10	782.68	13.6		--		C1	SIP	
59	782.68	796.27	13.6		--		C1	SIP	
60	796.27	809.85	13.6		--		C1	SIP	
61	809.85	823.46	13.6		--		C1	SIP	
62	823.46	837.04	13.6	22%	OD	829.1	C2	SIP	
63	837.04	850.60	13.6		--		C1	SIP	
64	850.60	864.19	13.6	27%	ID	854.9	C2	SIP	
65	864.19	877.74	13.6		--		C1	SIP	
66	877.74	891.35	13.6		--		C1	SIP	
67	891.35	904.94	13.6		--		C1	SIP	
68	904.94	918.51	13.6		--		C1	SIP	
69	918.51	932.08	13.6	21%	ID	931.6	C2	SIP	
70	932.08	945.65	13.6		--		C1	SIP	
71	945.65	959.22	13.6	21%	ID	950.7	C2	SIP	
72	959.22	972.80	13.6	30%	ID	969.7	C2	SIP	
73	972.80	986.43	13.6		--		C1	SIP	
74	986.43	999.96	13.5	21%	ID	998.1	C2	SIP	
75	999.96	1013.52	13.6	22%	ID	1007.6	C2	SIP	
76	1013.52	1027.11	13.6		--		C1	SIP	
77	1027.11	1040.70	13.6	21%	ID	1036.6	C2	SIP	
78	1040.70	1053.89	13.2		--		C1	SIP	
79	1053.89	1067.40	13.5	27%	ID	1055.7	C2	SIP	
80	1067.40	1080.93	13.5		--		C1	SIP	
81	1080.93	1092.59	11.7	22%	OD	1082.3	C2	SIP	
82	1092.59	1106.14	13.6		--		C1	SIP	
83	1106.14	1118.38	12.2		--		C1	SIP	
84	1118.38	1131.92	13.5		--		C1	SIP	
85	1131.92	1145.47	13.6		--		C1	SIP	
86	1145.47	1159.01	13.5		--		C1	SIP	
87	1159.01	1172.53	13.5		--		C1	SIP	
88	1172.53	1185.38	12.8		--		C1	SIP	
89	1185.38	1198.90	13.5		--		C1	SIP	

Summary Interpretation Report
 CVE et al Weyburn UNIT 2HZ 1B11-30-2C1-25-5-14

Joint No.	From	To	Length	Max. Pen.	OD/ID	Position	Class	Type	Comments
90	1198.90	1212.10	13.2		--		C1	SIP	
91	1212.10	1225.62	13.5		--		C1	SIP	
92	1225.62	1239.16	13.5		--		C1	SIP	
93	1239.16	1252.69	13.5		--		C1	SIP	
94	1252.69	1265.89	13.2		--		C1	SIP	
95	1265.89	1279.42	13.5		--		C1	SIP	
96	1279.42	1292.98	13.6		--		C1	SIP	
97	1292.98	1306.48	13.5		--		C1	SIP	
98	1306.48	1319.99	13.5	22%	OD	1307.2	C2	SIP	
99	1319.99	1333.52	13.5		--		C1	SIP	
100	1333.52	1347.44	13.9	38%	ID	1346.7	C2	SIP	
101	1347.44	1358.62	11.2	26%	OD	1356.9	C2	SIP	
102	1358.62	1358.74	0.1		--		C1	SIP	

Casing Integrity Results

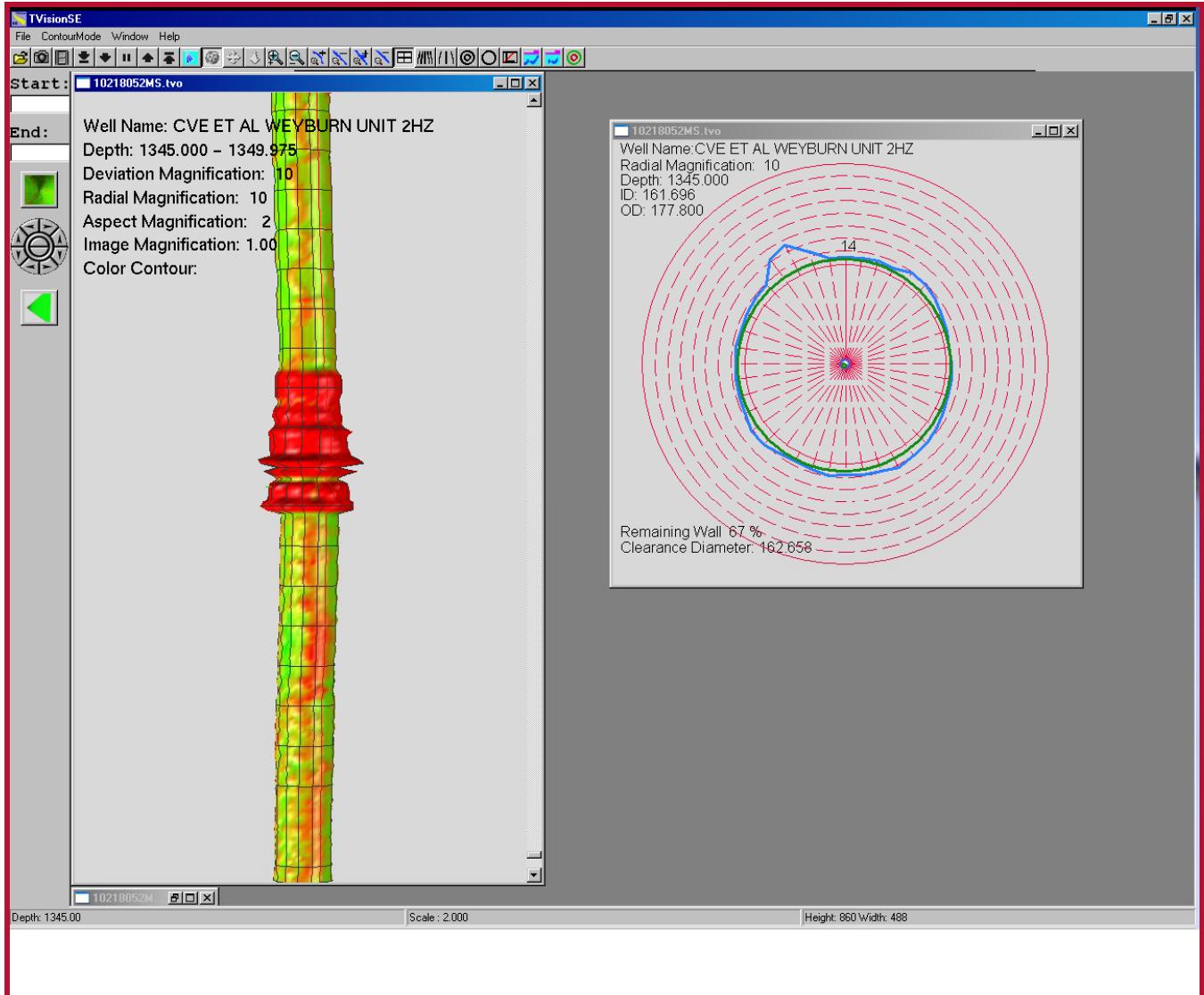


Figure 1 3D View 1 of Stage Collar and defect on joint # 100

Summary Interpretation Report
CVE et al Weyburn UNIT 2HZ 1B11-30-2C1-25-5-14

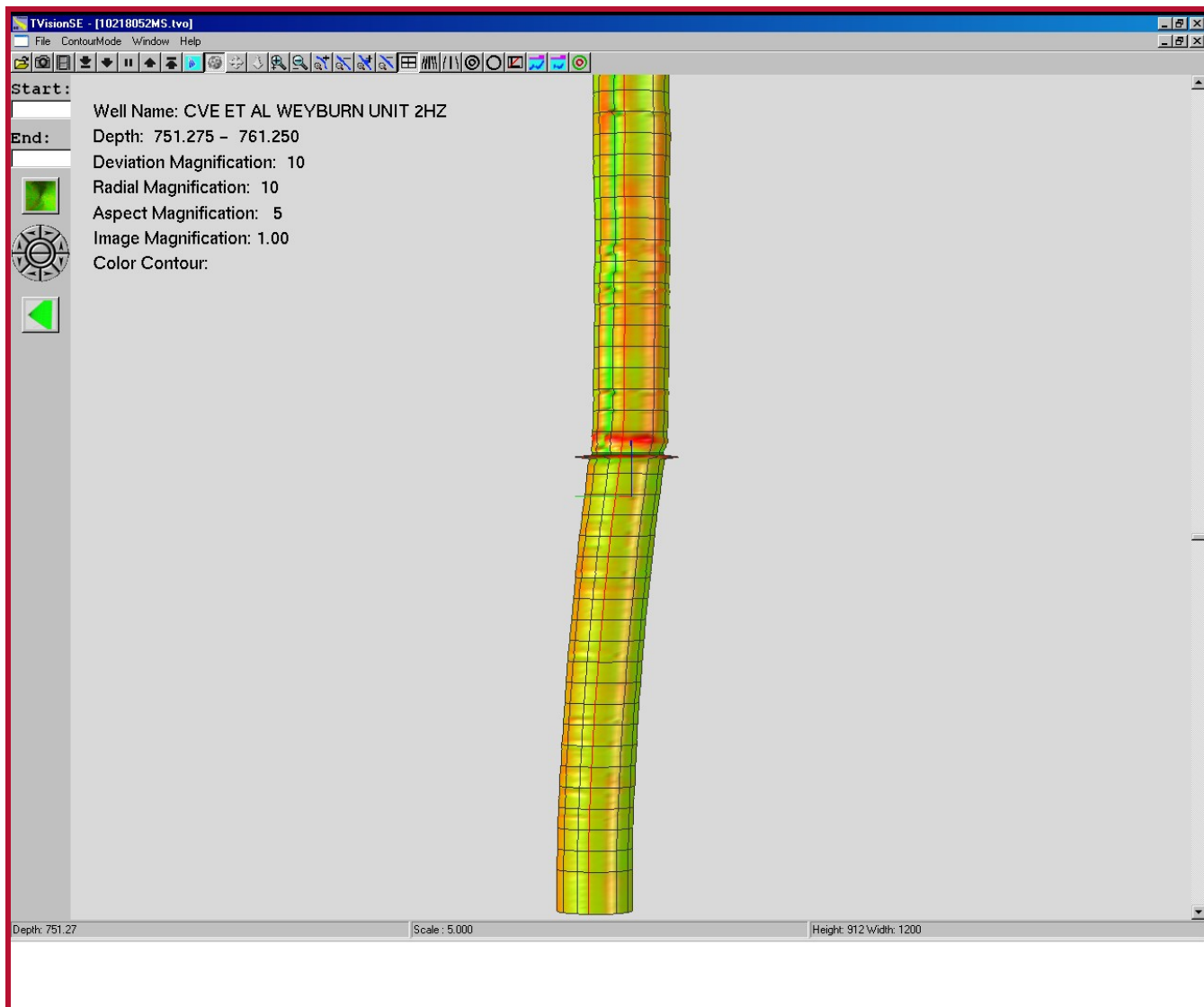


Figure 2 3D View 2 of tong marks
above collar

Summary Interpretation Report
 CVE et al Weyburn UNIT 2HZ 1B11-30-2C1-25-5-14

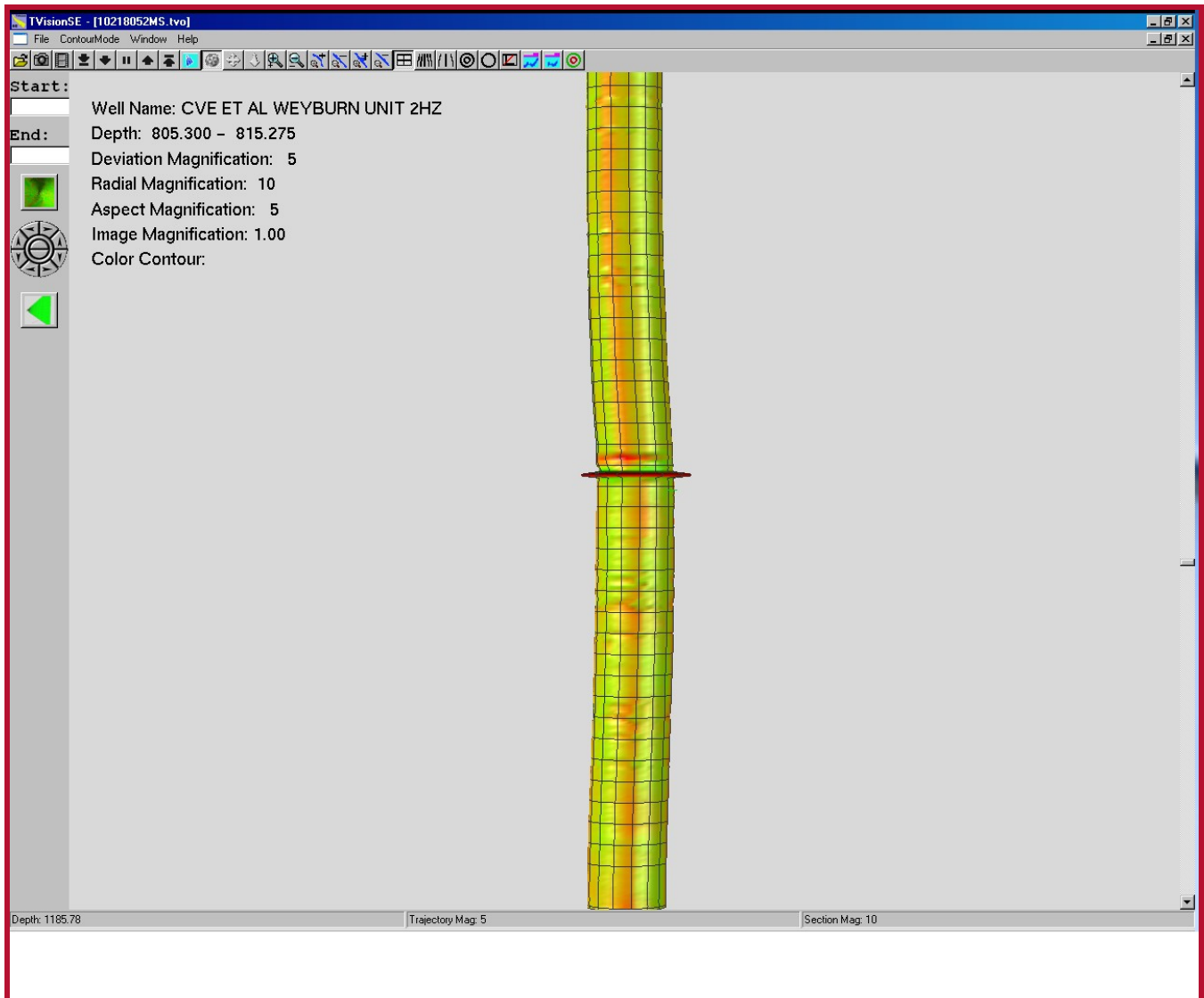


Figure 3 3D View 3 of tong marks above collar

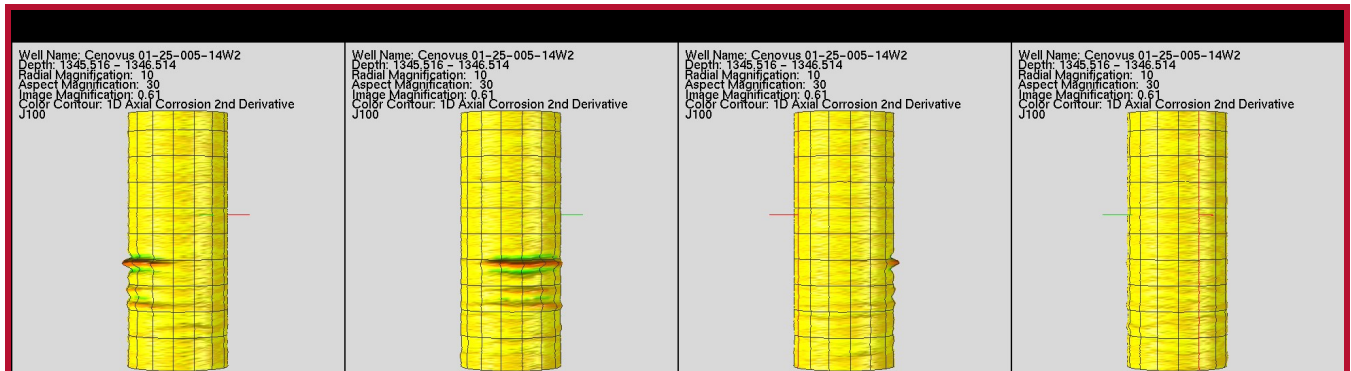


Figure 4 Class3D00000 1345.516 to 1346

Summary Interpretation Report
CVE et al Weyburn UNIT 2HZ 1B11-30-2C1-25-5-14

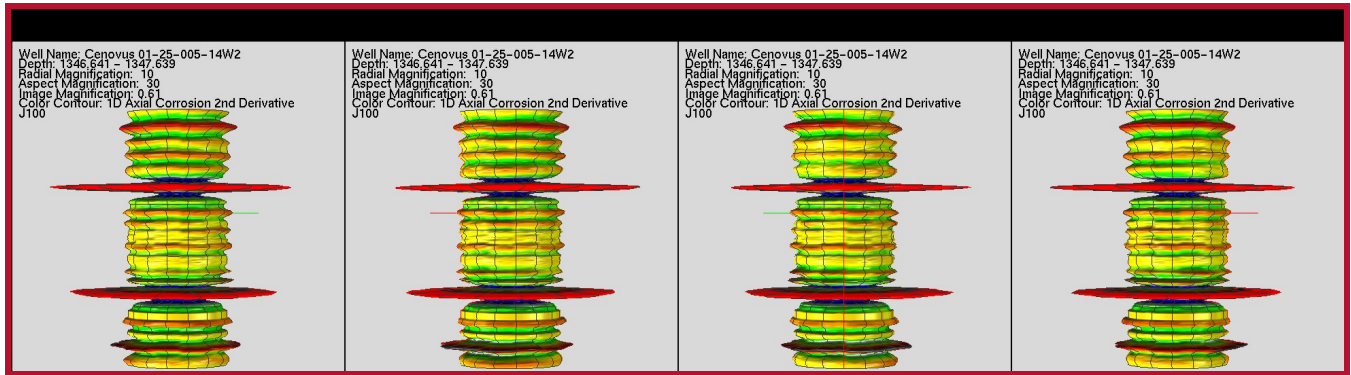


Figure 5 Collar3D00001 1346.641 to 1347 (stage collar visualization)

Cement Evaluation Results

Free Pipe Amplitude ~ 58 mV
 Free Pipe Travel Time ~ 270 µsec
 Fluid Water
 Fluid level Full with 7 MPa of applied pressure while logging

Note: The interpretation is performed on the pressured pass. A comparison between the pressure and un-pressured passes indicate the presence of a very small micro annulus.

Table 4. Summary of cement evaluation interpretation for Sector Bond Tool.

Interval (m)	Amplitude, Travel Time & VDL	Variable Energy (Cement map)	Condition
5 to 149 M (Surface Casing)	Amplitude reading 26 to 36 MV. VDL is exhibiting strong first arrivals meaning no cement bond to pipe.	High energy levels on all the sectors	No to very poor cement bond to pipe. No circumferential coverage around the casing pipe. No zonal isolation capable interval.
149 to 295 m (Surface Casing)	Amplitude reading 8 to 28 MV. VDL is showing strong first arrival and chevron meaning poor cement in this interval.	High to medium energy levels on all the sectors.	Good to poor scattered cement in this interval. Good circumferential coverage around the casing pipe. No zonal isolation capable interval. Good coverage around the casing shoe.
295 to 600 m	Amplitude reading 5 to 32 MV. VDL is showing strong first arrival and chevron meaning poor cement in this interval.	High to Medium energy level on all the sectors	Poor to weak cement in this interval. Poor circumferential coverage except few exceptions. No zonal isolated intervals.
600 to 1340 m	Amplitude reading 0.6 to 6 MV. VDL is exhibiting excellent cement with formation arrivals.	Low energy levels on all the sectors.	Excellent cement in this interval with extended zonal isolation interval. Very few isolation channels. Excellent circumferential coverage around the casing pipe.