

**ConocoPhillips Canada**

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P.O. Box 130, Station "M"  
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(403) 233-4000

MAIL ROOM  
SALLE DE COURIER  
2014 MAY 16 A 11:25  
NEB/ONE

May 13, 2014

Chief Conservation Officer  
National Energy Board  
444 Seventh Avenue SW  
Calgary, AB  
T2P 0X8  
Canada

Attention: Patrick Smyth

**SUBJECT: OA-1211-002 - Submission of COPRC Loon Creek O-06 Re-Entry Well History Report**

Dear Sir:

ConocoPhillips Canada Resources Corp. ("ConocoPhillips") hereby submits the Well History Report for COPRC Dodo Canyon E-76 as per requirement 3 of the Approval to Alter Condition of Well Term and Conditions. This submission contains:

- Two paper copies of the Well History Report
- Two paper copies of microseismic interpretation
- One electronic copy of the Well History Report
- One electronic copy of final microseismic interpretation

Also enclosed is one copy of the Well Termination record for the above noted well.

Please direct any questions or concerns concerning this submission to my attention at (403) 233-3250 or Cyril Jenkins at (403) 233-3326.

Sincerely,



Eric Hanson, P.Geol (AB)  
Supervisor Central Mackenzie Valley  
Chinook Appraisal



## WELL TERMINATION RECORD

Well Name	COPRC Loon Creek O-06 65-10 127-00			Well ID	300O06651012700	
Operator	ConocoPhillips Canada Resources Corp.			Current Well Status	Suspended	
Total Depth	1856m KB			Licence No.	Exploration Licence 470	
Location	Unit	O	Section	06	Grid	65-10 127-00
Coordinates (NAD27)	Surface		Lat	65 ° 06 ' 51.4 "	Long	127 ° 00 ' 30.6 "
	Bottom Hole		Lat	° ' "	Long	° ' "
Region	NWT Mainland					
Target Formation	Canol			Field/Pool	/	
Elevation KB/RT	257.60 m			Ground Level / Seafloor	252.40 m	
Spud/Re-Entry Date	30-Jan-14			Rig Release Date	2/17/2014	

### CASING AND CEMENTING PROGRAM

O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing (m <sup>3</sup> )
244.5	53.57	J-55	597.0	26.1
177.8	38.69	P-110	1856.0	32.1

### PLUGGING PROGRAM

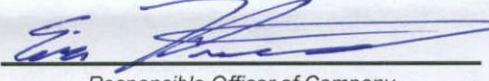
Type of Plug	Interval (m KB)	Felt	Depth (m KB)	Cement (m <sup>3</sup> )
Other	1690.56-1694.43	No		
Other	1725.96-1729.83	No		
Other	1767.56-1771.43	No		
Select	-	Select		
Select	-	Select		

### PERFORATION

Interval (m KB)	Comments
1692.0-1693.0	"Upper" Lower Canol perfs sealed with casing patch over perforations
1727.0-1728.0	"Middle" Lower Canol perforations sealed with casing patch over perforations
1769.0-1770.0	"Basal" Lower Canol perfs sealed with casing patch over perforations
-	

Lost Circulation/Overpressure Zones	n/a
Equipment Left on Seafloor (Describe)	n/a
Provision for Re-entry (Describe and attach sketch)	Wellbore is full of water with propylene glycol pill sitting from surface to +/-100 m KB
Other Downhole Completion/Suspension	

"I certify that the information provided on this form is true and correct"

Name	Eric Hanson	Telephone	(403) 233-3250 Ext
Job Designation	Team Lead, CMV project	E-Mail	eric.S.Hanson@cop.com
Operator	ConocoPhillips Canada Resources Corp.		
Signature		Date	05/12/2014

Responsible Officer of Company

### NATIONAL ENERGY BOARD USE ONLY

The details of this document have been examined and verified by

Job Designation	Well Identifier	Unique Well Identifier
Signature	Date	

NEB Authority

# **COPRC Loon Creek 0-06 Final Well Report**

*Grid # 65°10', 127°00'*

*2014/05/12*



# COPRC Loon Creek 0-06

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## 1.0 Introduction

### 1.1 Summary

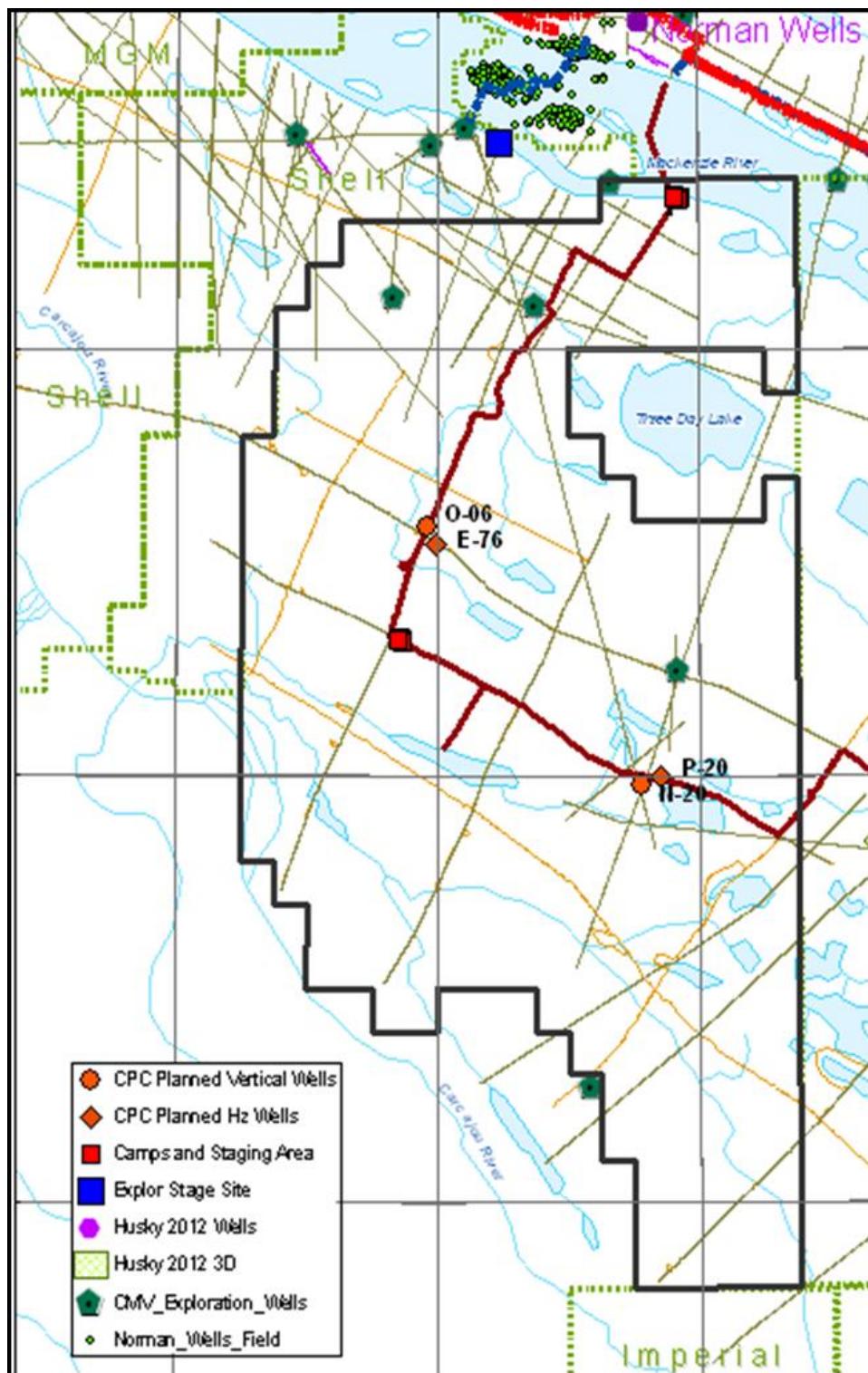
Completions operations began on the COPRC Loon Creek well on January 30, 2014 and the personnel and service company equipment were released on February 17 2014 when microseismic monitoring of the hydraulic fracturing operations on COPRC Dodo Canyon E-76 was completed with a total of 19 operating days on the well.

Completion operations were conducted with no major issues and no safety incidents occurred.

Microseismic monitoring was conducted on COPRC Loon Creek O-06 between February 5 and February 17 2014. The microseismic monitoring program was very successful with no significant seismic events recorded during the hydraulic fracturing operations on Dodo Canyon E-76.

The Loon Creek O-06 well is suspended with wellhead installed and valves chained and locked.

## 1.2 Locality Map



## **2.0 General Data**

### **2.1 Well Name**

COPRC Loon Creek 0-06

### **2.2 Unique Well Identifier**

3000066510127000

### **2.3 Operator and Completions Contractor**

ConocoPhillips Canada Resources Corporation

Schlumberger Canada Ltd.

### **2.4 Difficulties and Delays**

There were no significant drilling issues or delays experienced on this well.

## **3.0 Summary of Completions Operations**

### **3.1 Elevations**

Ground Level: 252.40 m

Kelly Bushing: 257.60 m

KB – Ground Level: 5.20 m

### **3.2 Total depth**

1856 m KB

### **3.3 Commencement Date and Time**

January 30 2014 @ 1030 Hours

### **3.4 Date Operations Completed**

Drilling completed 2/17/2104

### **3.5 Rig Release Date and Time**

N/A.

### **3.6 Well Status**

Suspended

### **3.7 Hole sizes and depths**

Surface Hole: 311 mm to 600 m KB

Main Hole: 222 mm to 1856 m KB (TD)

### **3.8 Casing and Cementing Record**

#### **3.7.1 Conductor Hole**

#### **3.8.2 Surface Hole**

244.5 mm, 53.57 kg/m, J-55 LTC set at 597.0 m KB

#### **3.8.3 Main Hole**

177.8 mm, 38.69 kg/m P-110 LTC set at 1856.0 m KB

### **3.9 Suspension Status**

CPORC O-06 is suspended. A StreamFlo 34.5 MPa wellhead with two master valves is installed and chained and locked.

## **4. Well Evaluation**

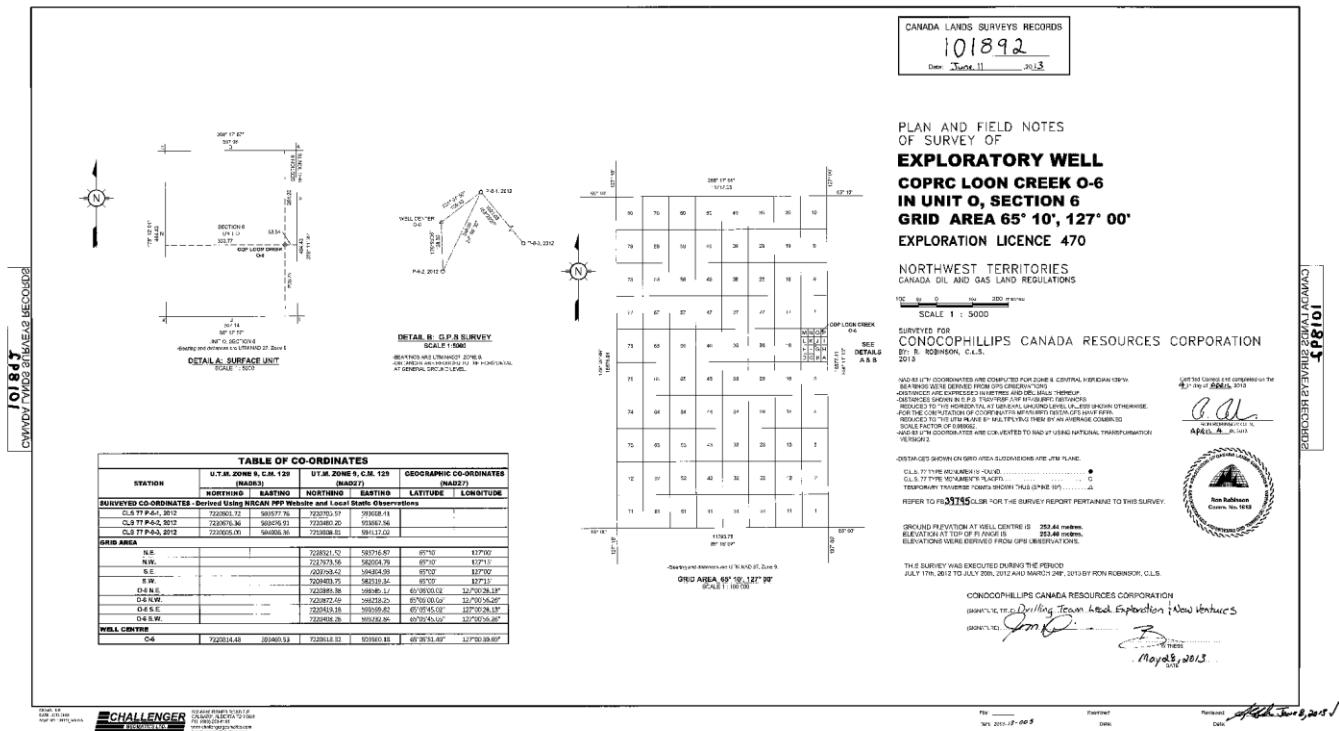
### **4.1 Surface Casing Vent Flow report**

**4.2 Microseismic Monitoring Report**

## COPRC Loon Creek 0-06

## Appendices to Well History Report

## I. Final Survey Plot of COPRC Loon Creek 0-06



**II. Completions Daily Reports**

**III. Final Completions Schematic**

**IV. Completions Daily Activity and Cost Summary**

**V. Completions End of Job QC Summary**

# Schlumberger

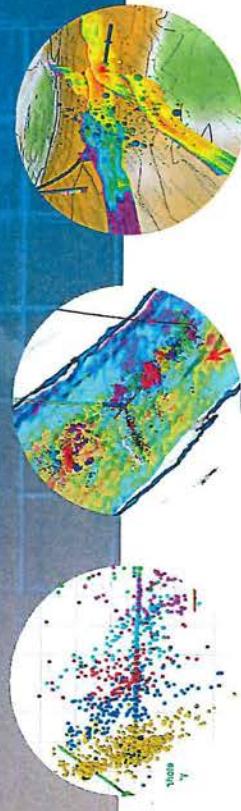
ConocoPhillips

Dodo Canyon E-76

Microseismic Results

Martin Haage, Richard Parker

April 30th 2014



Microseismic Services  
Image·Interpret·Integrate

Schlumberger

# Content

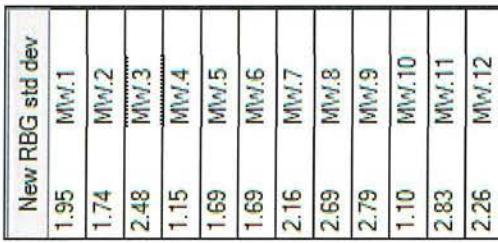
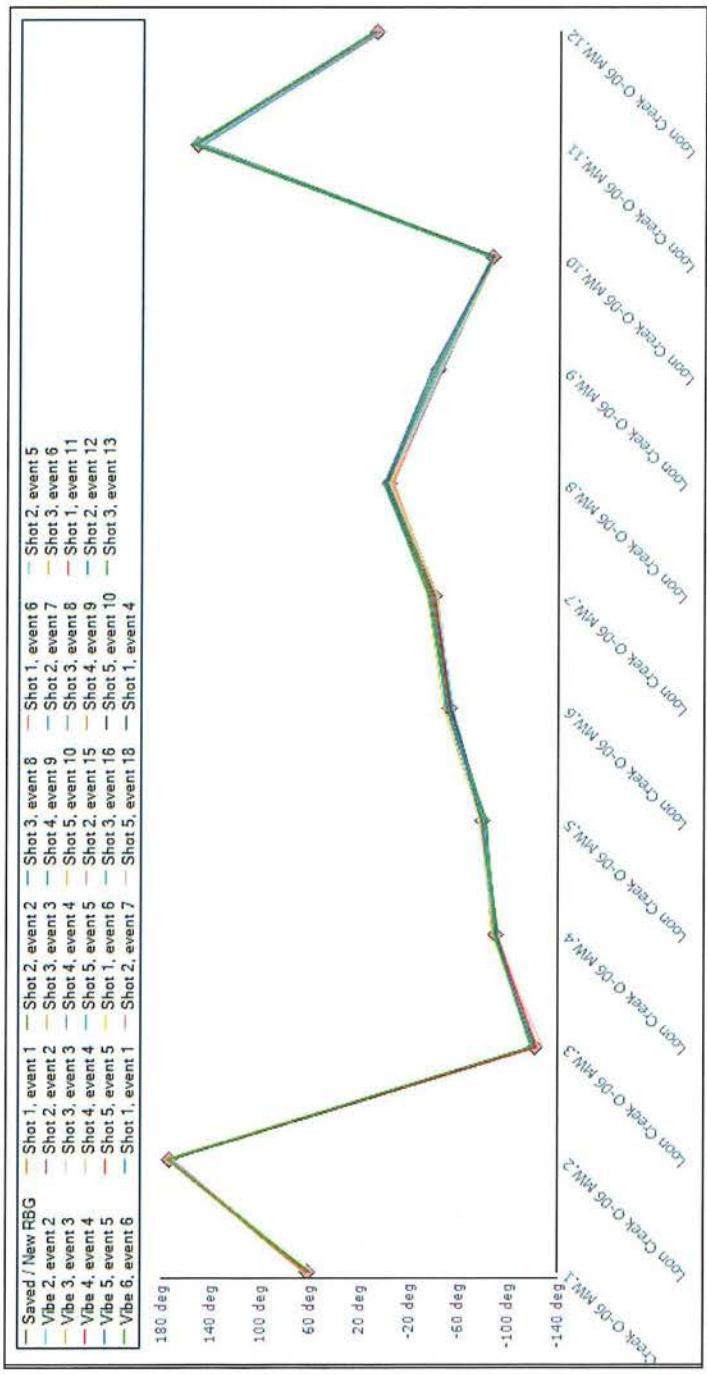
- Casing vent identification
- Receiver orientation
- Velocity model building
- Microseismic events
- Waveform examples
- ESV



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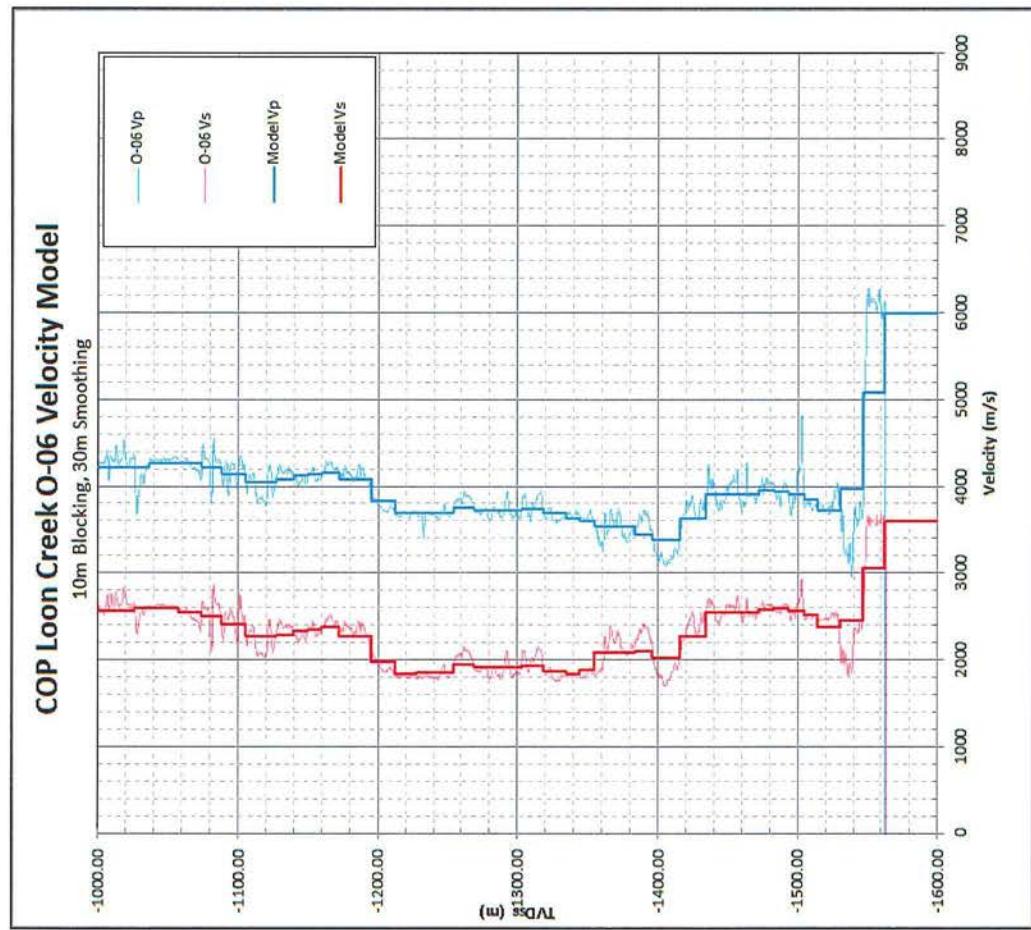
**Schlumberger**

## Receiver orientation



# Velocity Model Building: E-76

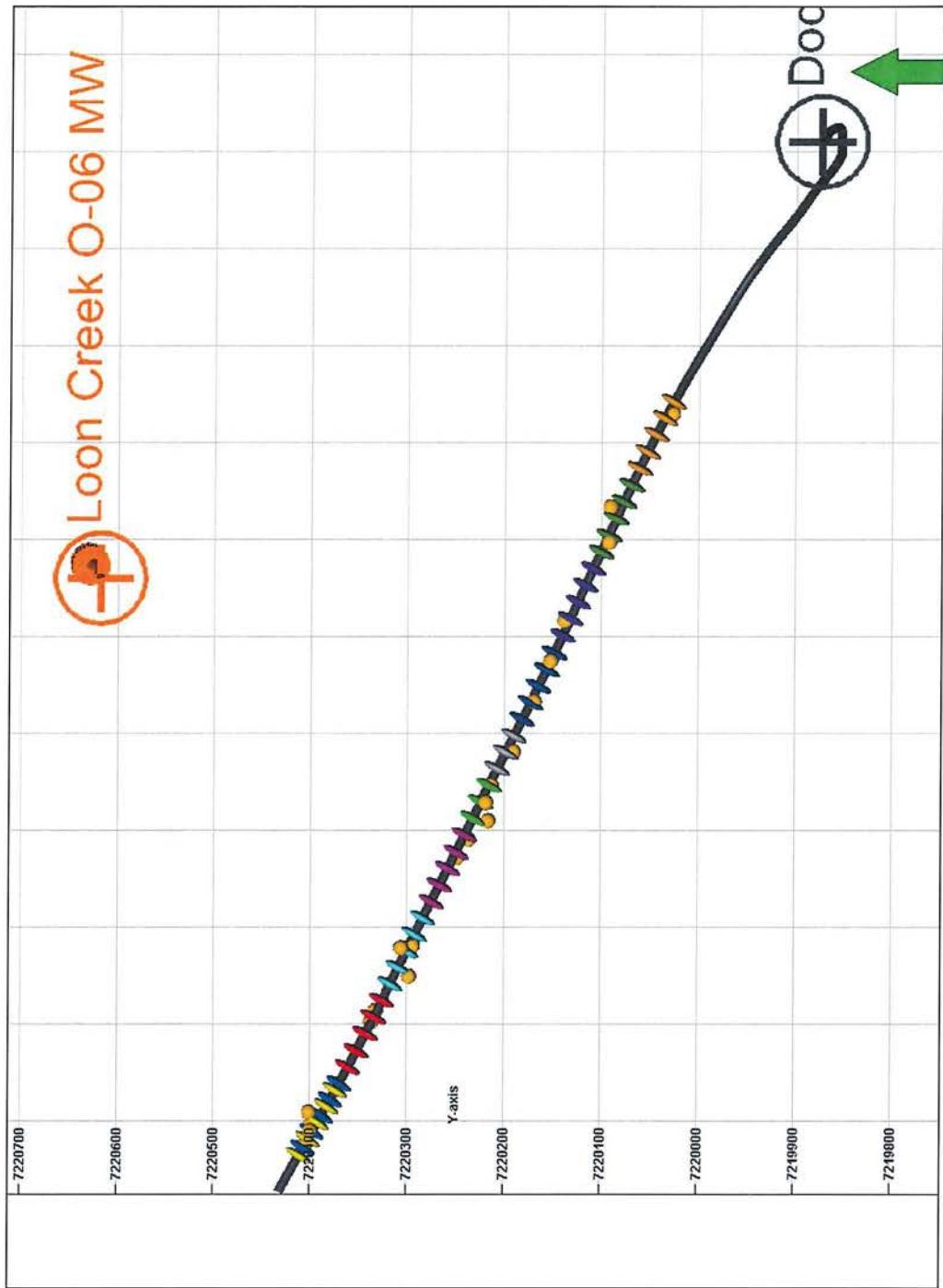
- Initial velocity model built from Loon Creek O-06 monitor well dipole sonic log
- Logs blocked with minimum thickness of 10m, smoothed at 30m



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# Perfs (top view)

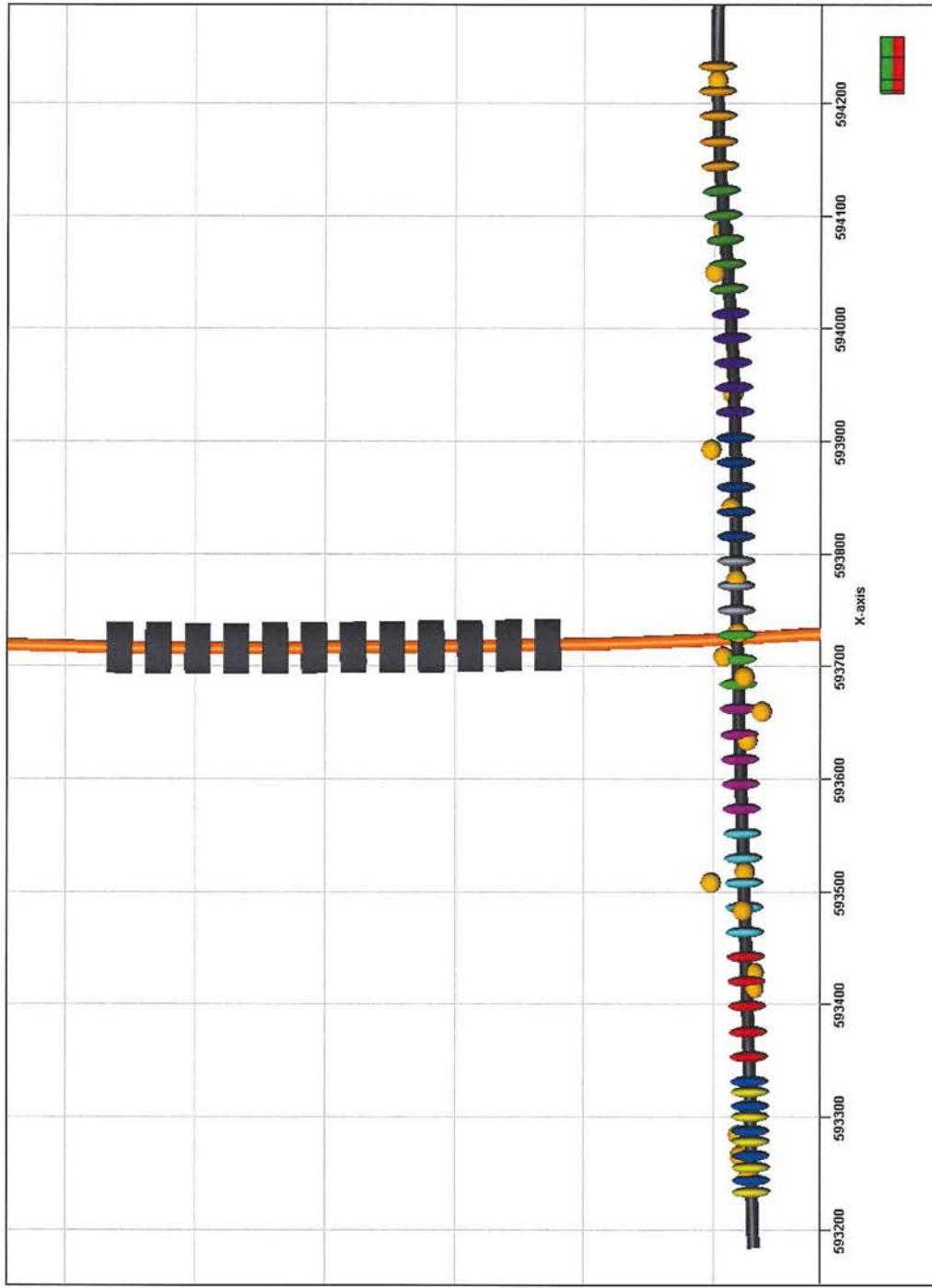


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# Perfs (side view, azimuth 30, deviation 90)



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# Perf shots

Stage #	Perf	Actual position			Relocated			Difference			
		Northing (m)	Easting (m)	Depth (m)	Northing (m)	Easting (m)	Depth (m)	dN (m)	dE (m)	dZ (m)	
-	1	2	7220401.57	592981.40	-1528.83	7220405.40	592975.50	-1526.96	-3.83	5.90	-1.86
-	3	7220392.11	592998.74	-1528.58	7220399.05	592996.96	-1525.71	-6.94	1.78	-2.87	
1a	2	7220397.61	592989.21	-1528.72	7220399.54	592990.75	-1520.18	-1.93	-1.53	-8.54	
-	3	7220388.11	593005.66	-1528.48	7220400.93	593009.81	-1519.04	-12.82	-4.15	-9.43	
-	2	4	7220334.22	593107.13	-1525.44	7220336.93	593102.68	-1530.58	-2.71	4.45	5.14
-	5	7220326.01	593124.25	-1524.82	7220332.30	593114.37	-1530.77	-6.30	9.87	5.94	
-	3	2	7220309.33	593158.36	-1523.81	7220297.96	593149.77	-1522.36	11.37	8.60	-1.45
-	3	7220301.02	593175.43	-1523.30	7220305.99	593178.98	-1497.64	-4.98	-3.55	-25.66	
-	4	7220292.43	593192.37	-1522.76	7220293.90	593181.45	-1523.85	-1.46	10.92	1.09	
-	4	7220249.63	593277.09	-1519.71	7220248.66	593271.86	-1525.90	0.96	5.22	6.19	
-	5	7220240.82	593295.03	-1519.15	7220236.72	593290.69	-1536.88	4.09	4.34	17.73	
-	5	1	7220232.41	593312.05	-1518.68	7220216.53	593310.02	-1523.58	15.88	2.03	4.89
-	2	7220224.05	593329.10	-1518.22	7220218.60	593329.00	-1507.34	5.45	0.10	-10.87	
-	3	7220215.94	593346.27	-1517.69	7220213.50	593347.51	-1518.66	2.44	-1.24	0.96	
-	6	2	7220198.98	593380.26	-1517.14	7220190.99	593381.56	-1517.28	7.99	-1.30	0.14
-	7	2	7220173.51	593431.23	-1516.78	7220169.31	593432.97	-1513.14	4.20	-1.74	-3.64
-	4	7220156.97	593465.42	-1516.41	7220152.46	593474.80	-1497.67	4.51	-9.37	-18.74	
-	8	1	7220140.48	593500.75	-1515.74	7220138.32	593515.99	-1514.31	2.16	-15.24	-1.43
-	9	1	7220100.65	593586.81	-1510.85	7220092.46	593597.25	-1500.25	8.18	-10.44	-10.61
-	3	7220085.32	593621.46	-1508.11	7220091.07	593634.16	-1506.25	-5.76	-12.70	-1.86	
-	10	5	7220026.72	593741.67	-1501.69	7220027.25	593730.33	-1502.18	-0.53	11.34	0.49
						median	4.51	4.45	4.89		

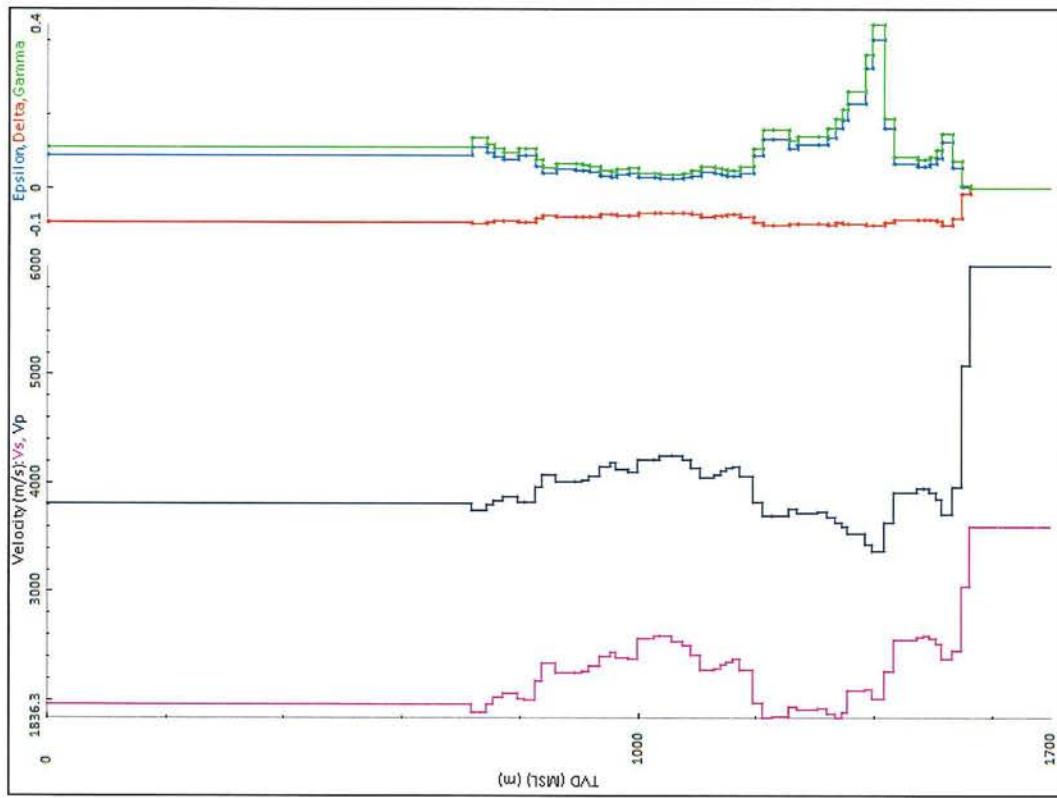


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Schlumberger

# Velocity model calibration

example: stage 4



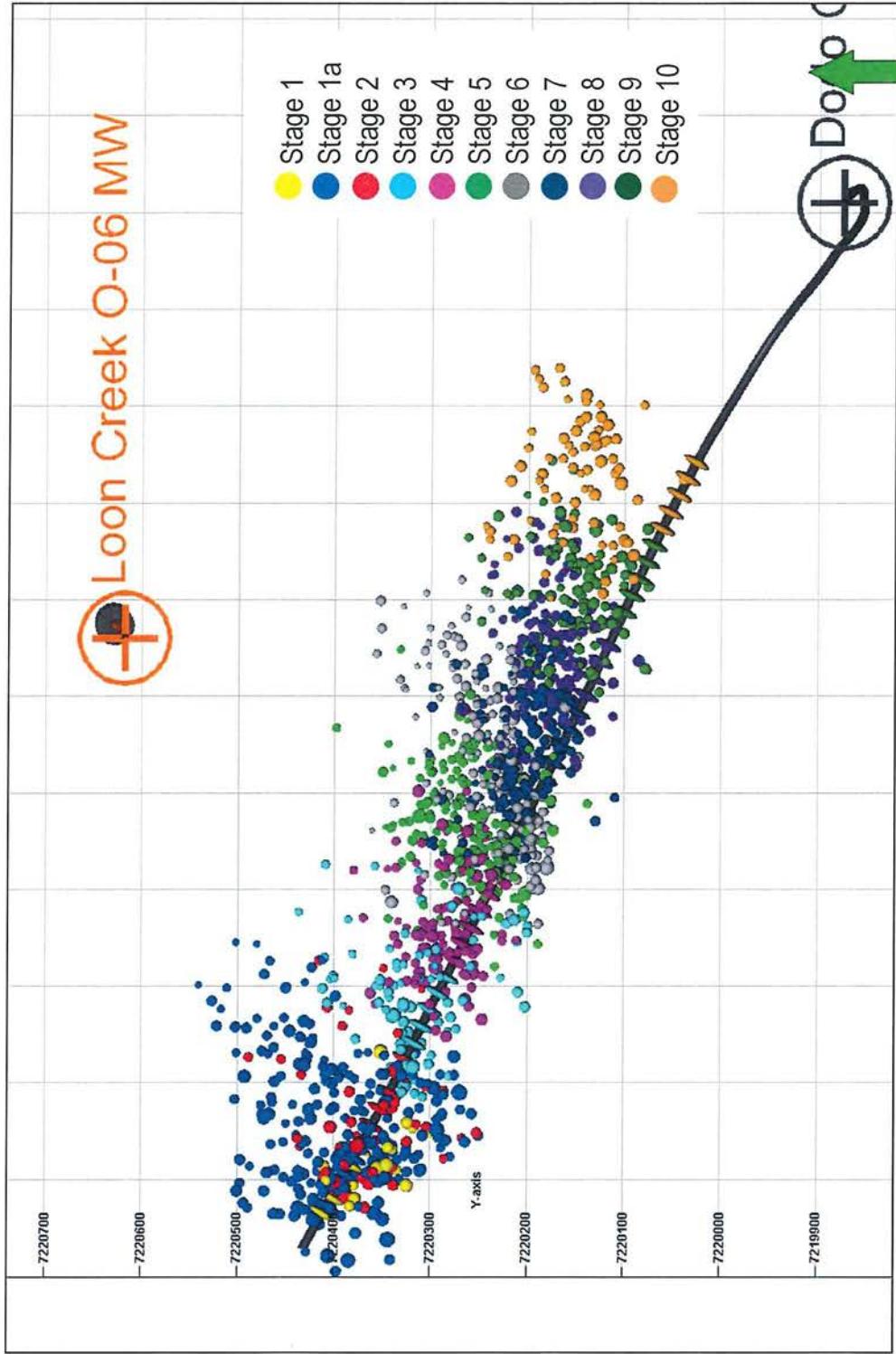
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# Events (top view)

events are scaled by  
magnitude (-3 < MW < -1)

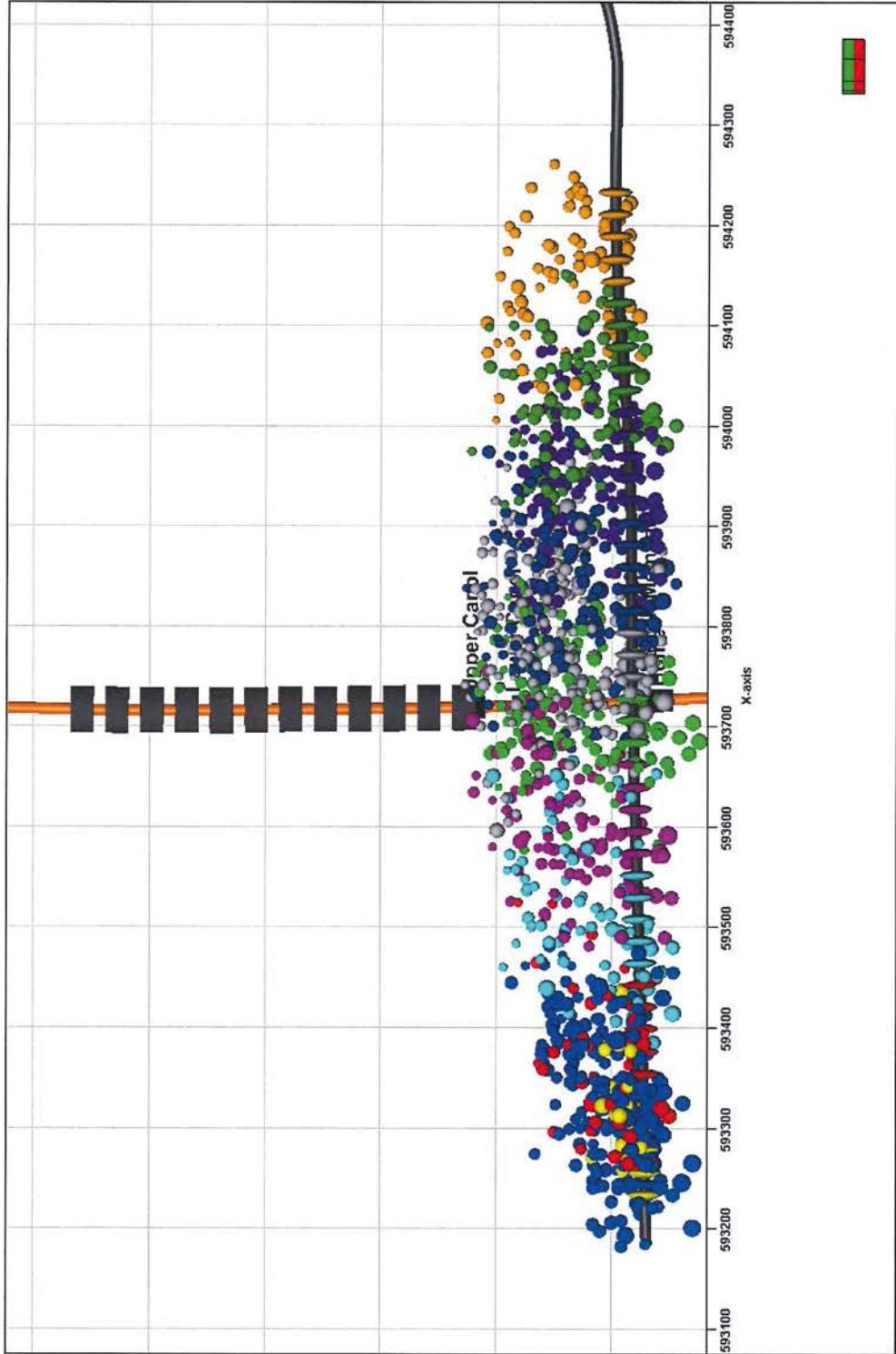


Microseismic Services  
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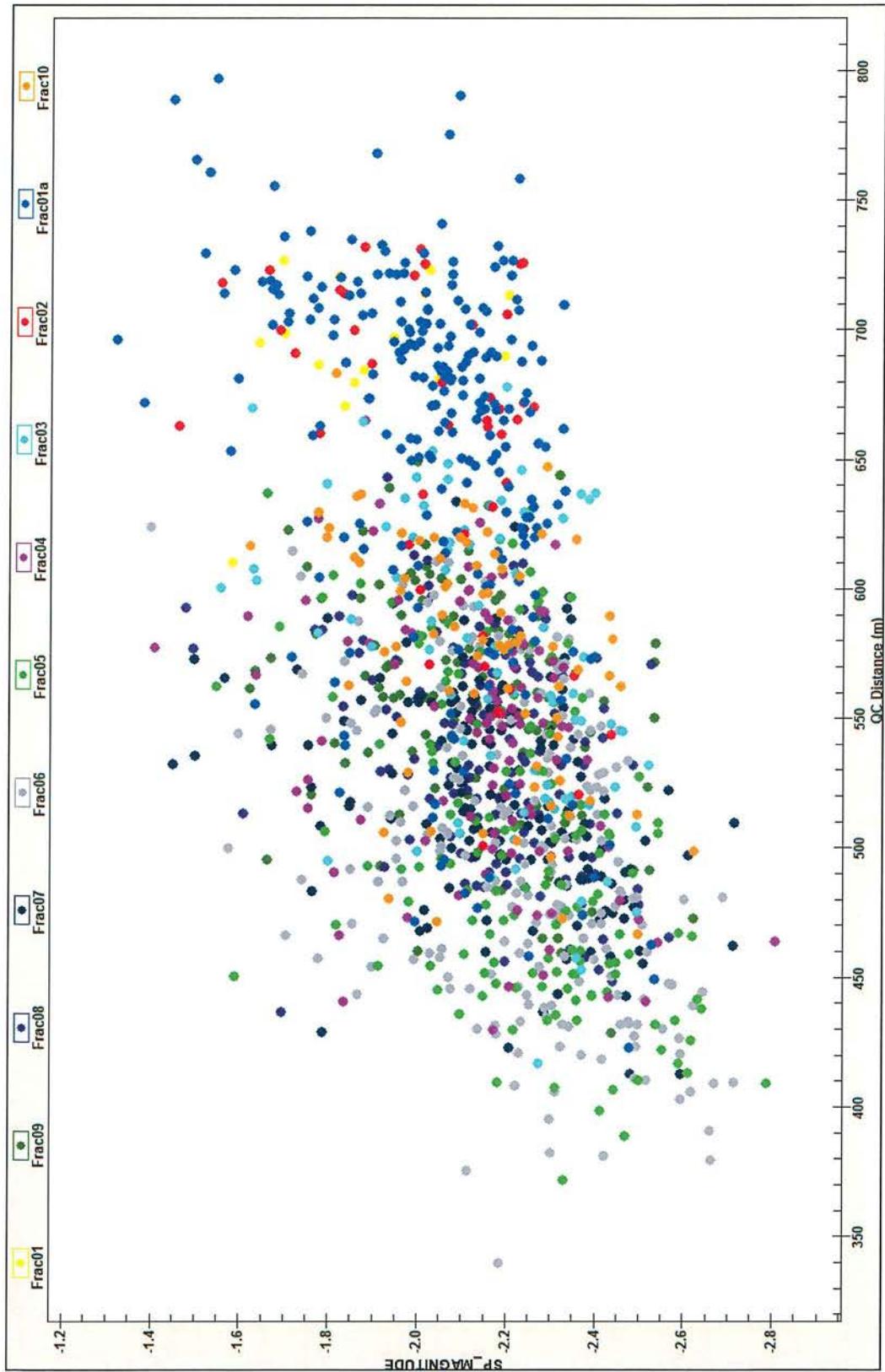
Schlumberger

# Events (side view, azimuth 30, deviation 90)



**Schlumberger**

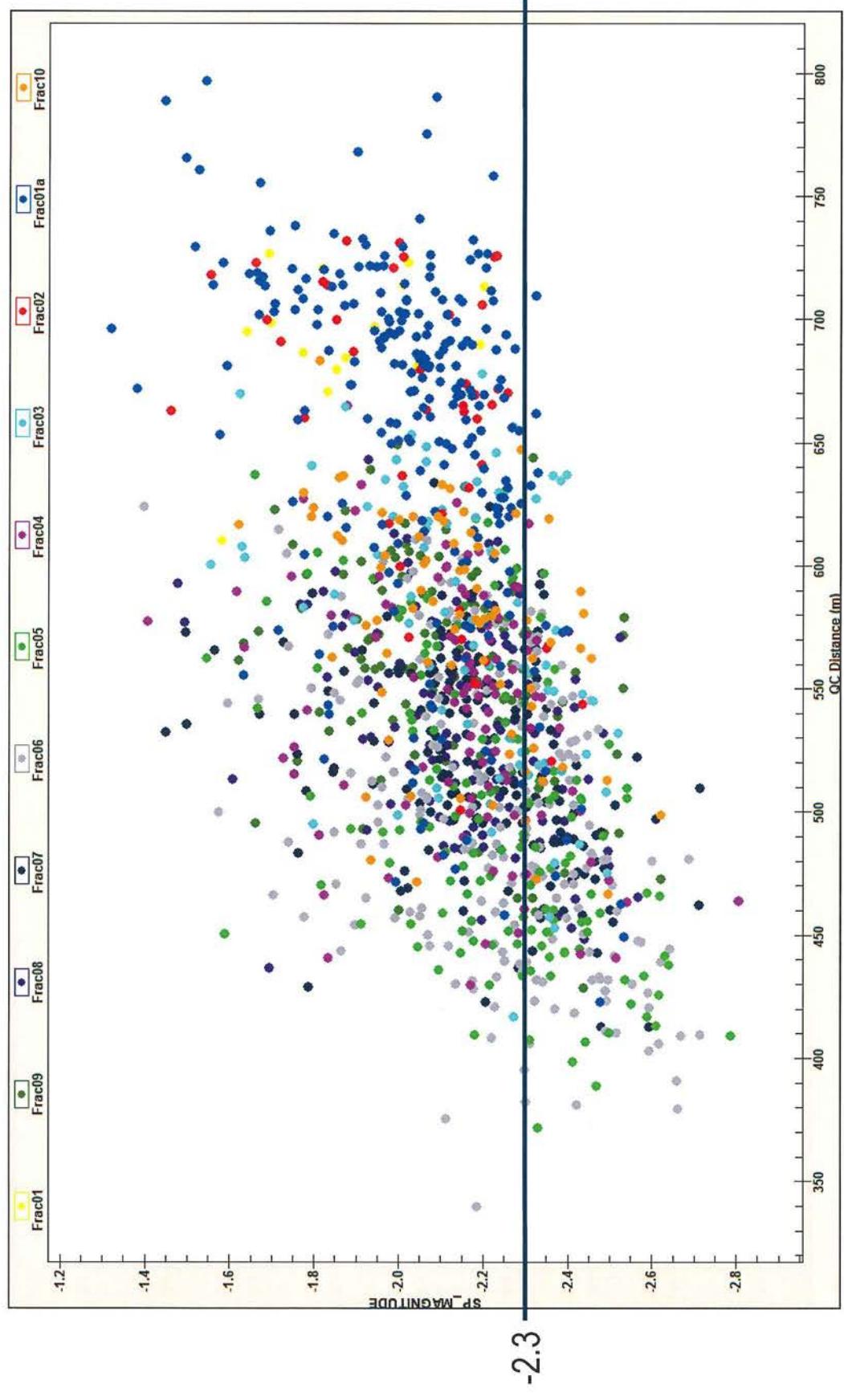
# Magnitude vs distance



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**Schlumberger**

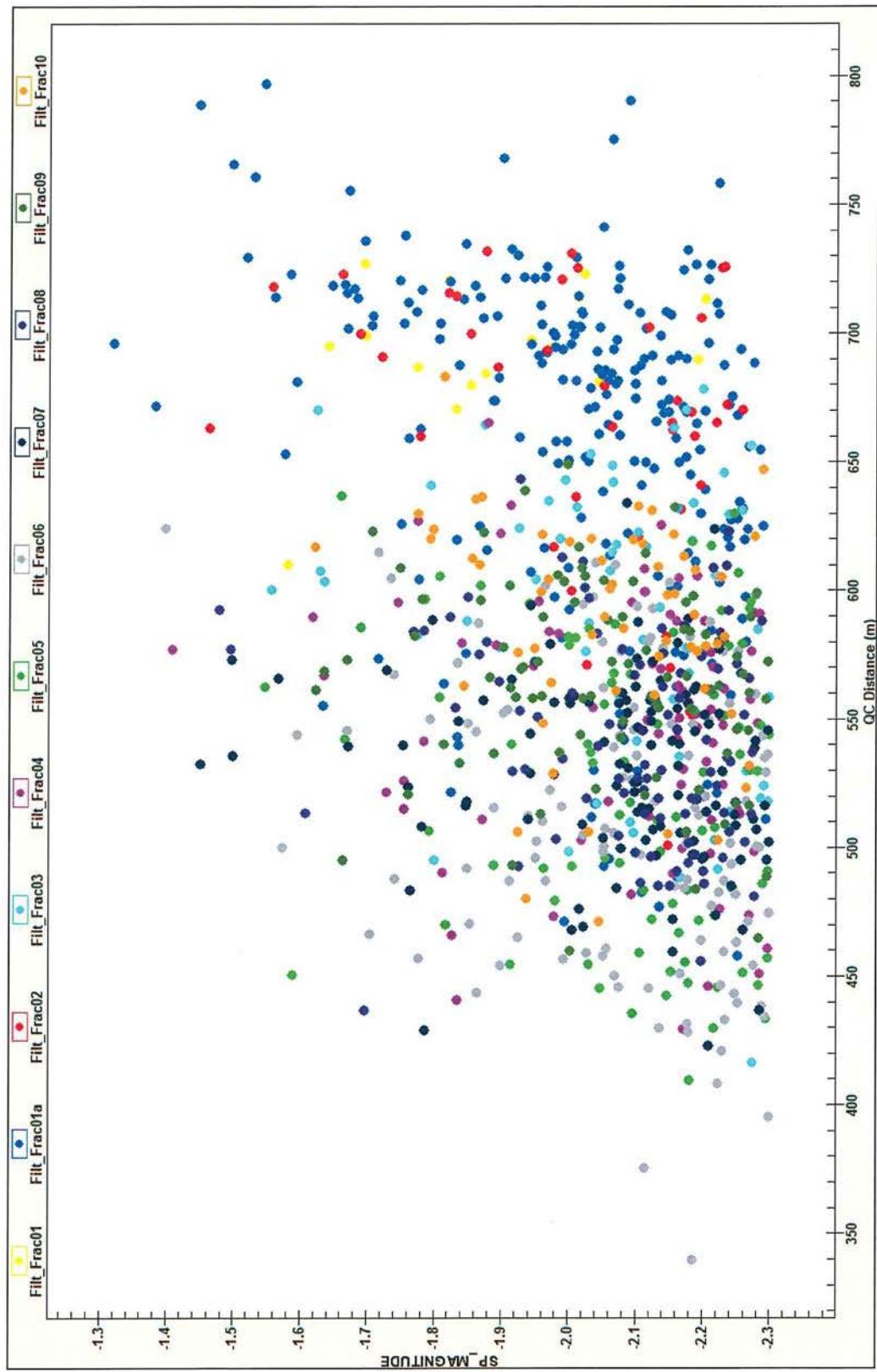
# Magnitude vs distance



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**Schlumberger**

# Magnitude vs distance filtered

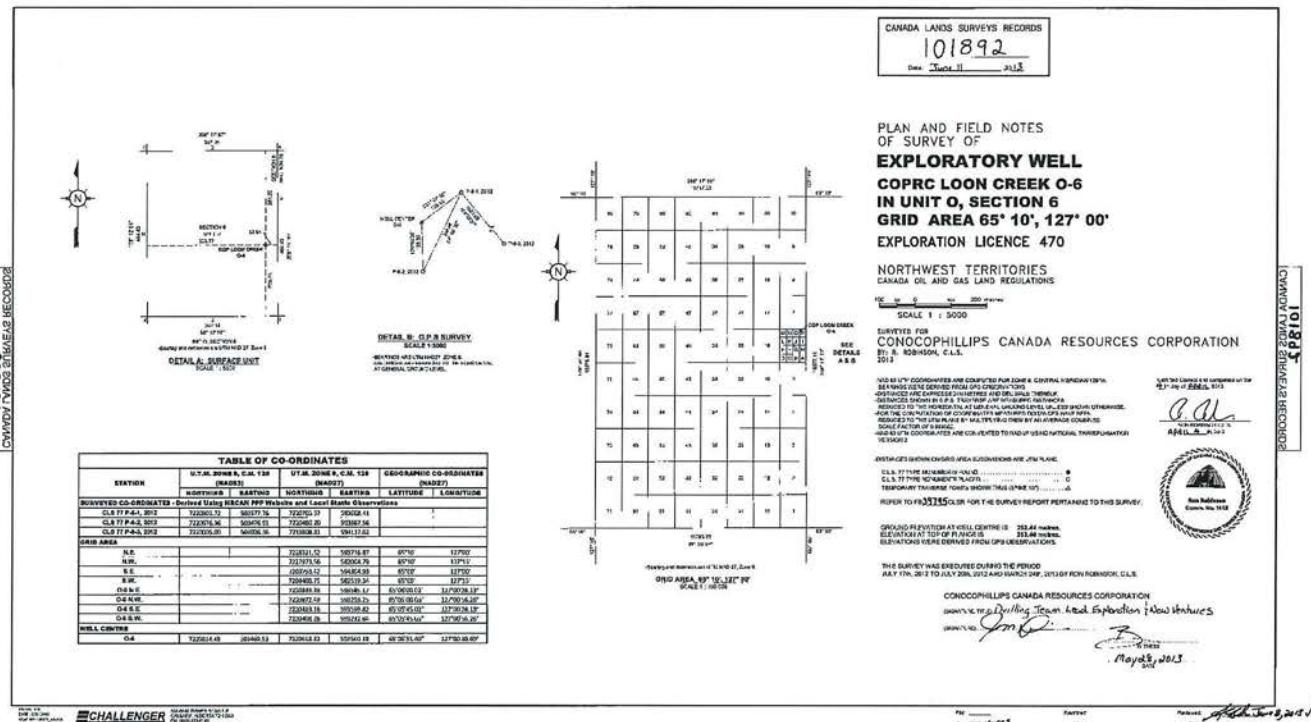


**Schlumberger**

# COPRC Loon Creek 0-06

## Appendices to Well History Report

### I. Final Survey Plot of COPRC Loon Creek 0-06





# COPRC Loon Creek 0-06

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## **II. Completions Daily Reports**



# Daily Morning Report

## COPRC LOON CREEK O-06 65-10 127-00

Report #: 1  
Report Date: 1/30/2014  
Final Job Status:  
Final Report? Yes

### WELL HEADER INFORMATION

Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579
Surface Legal Location O-6 65-10 127-00	API / UWI 200/O-06 6510 127000			License No. EL 470	
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Grd (m) 5.20	KB-CF (m) 4.87	KB-TF (m) 4.22	Total Depth (mKB) 1,856.00 Original Hole - 1,841.50

### JOB INFORMATION

Job Category WELL INTERVENTION	Primary Job Type MICROSEISMIC MONITORING	Secondary Job Type RIGLESS	Total Field Estimate (Cost) 725,593.50
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### Objective

Microseismic Monitoring

Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00	Abandon Date	Responsible Grp 1 coved	Responsible Grp 2 lagartn	Responsible Grp 3
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### AFE COST SUMMARY

AFE / RFE / Maint.# 10359371	Total AFE Amount (Cost) 1,190,100.00	Total AFE + Supp Amount (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50
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### DAILY INFORMATION

Report Start Date 1/30/2014 07:30	Report End Date 1/30/2014 19:30	Daily Cost Total (Cost) 47,646.00	Cumulative Cost (Cost) 47,646.00	Personnel Regular Hours (hr) 91.00
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### Daily Contacts

Tubing Pressure (kPa) 0	Casing Pressure (kPa) 0	Weather overcast	Temperature (°C) -20	Lease Condition Snow Covered
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### Last 24hr Summary

Attended main safety meeting with medics and all services. All workers filled out medical forms. Travel to location with services. Held PJHA 01302014C with Schlumberger, Canol, IES, Peregrine on hazard associated with tasks to be performed. Perform lease walk around with services prior to spotting equipment. Remove tarps from heating wellhead. Check well pressures (slight vac). IES removed master valve, installed adapter flange and schlumberger flange using genie and crane. Spot, rig in Schlumberger E-line truck c/w full lube, bops and tool trap, picker and pressure truck. Purge and pressure test lube with propylene glycol. RIH with 154.5mm gauge ring/ccl. Tag top to Owens X-span csg patch at 1690.9mkb. Fluid level @ 80m. Log collars on way up to correlate. Did not see any restrictions on way in or out of hole. Rig off lube and secure well for night.

### 24hr Forecast

RIH set first plug 2m above upper csg patch @ 1690.56mkb. RIH set second plug 10m above top of first plug. Rig out services.

### DAILY TIME LOG

Start Time	End Time	Dur (hr)	Time P-T-X	Operation
07:30	08:30	1.00	P	Attended main safety meeting with all services and medics. Fill out medical information forms.
08:30	09:30	1.00	P	Travel to location with services. Tool hand went to drilling rig to retrieve plugs and adapter flange. Held PJHA 01302014C with Schlumberger, Canol picker, Peregrine pressure truck, IES on removal of master valve and installing flanges using genie, wireline work hazards. Checked all workers for valid tickets (good). Performed lease walk around with services prior to spotting equipment.
09:30	10:30	1.00	P	Removed tarps from wellhead from heating wellhead prior 2 days. Chainlink fence was also removed prior. Check well pressures, slight vac. Remove chain and padlock from well. Ensure 10k gatevalve closed and no trapped pressure between valves. IES/Schlumberger removed master valve, installed adapter flange and Schlumberger flange using genie and picker.
10:30	14:00	3.50	P	Schlumberger assemble full 7 inch lubricator with bops and tool trap. Assemble tool string c/w 154.4mm gauge ring and ccl. Had some troubles assembling lube due to cold weather and hard to assemble. Install full lubricator onto wellhead.
14:00	15:30	1.50	P	Purge and pressure test lube with propylene glycol to 1.4 and 7mpa. All connections on lube and wellhead tested good. Had a small leak off at packoff head rubber due to cold rubber. Was not able to achieve a flatline pressure test. Talked with superintendent said it was ok to continue.
15:30	18:00	2.50	P	RIH with 154.4mm gauge ring and ccl. Tag fluid top at 80m. Continue down to top of Owens x-span casing patch. Tag top of patch at 1690.9mkb. Log collars up to calibrate. Collar above @ 1685.5mkb. Did not see any restrictions on the way in or out of hole.
18:00	19:30	1.50	P	Rig off and lay down lubricator. Break down tool string to prep for plug run. Break down pack off head to check for any deficiencies (none found). Rig down picker and pressure truck. Cap and secure well. Tarp in and supply heat to wellhead, packoff head and plugs for morning.

### FLUID SUMMARY

Fluid	To lease (m³)	From lease (m³)	To well (m³)	From well (m³)	Left to recover (m³)

### DAILY COST

BU Desc	Vendor	Activity Code	Amount (Cost)
Electric Line Servs on Drilling Ops.	CANOL OILFIELD SERVICES INC	K100	3,960.00
Pressure Truck/Hot Oiler	PEREGRINE PRESSURE TESTING LTD	S990	10,550.00
Welltesting (Eqmnt,Srvcs,PTA,Gov't Subs)	ROKE TECHNOLOGIES LTD	M220	1,850.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED	K100	5,560.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED	K100	5,560.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED	K100	5,560.00



# Daily Morning Report

## COPRC LOON CREEK O-06 65-10 127-00

Report #: 1  
Report Date: 1/30/2014  
Final Job Status:  
Final Report? Yes

### DAILY COST

BU Desc	Vendor	Activity Code	Amount (Cost)
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED	K100	8,306.00
Wellsite Supervision & Engineering	TECTONIC ENERGY CONSULTING INC	T130	6,300.00

### CUMULATIVE JOB FLARED GAS BY ZONE

Zone	Volume Gas Total (E3m³)

### PERFORATIONS

Date	Zone	Top (mKB)	Btm (mKB)	Shot Dens (shots/m)	Current Status
3/2/2013	Basal Lower Canol, Ori...	1,769.00	1,770.00	20.0	Suspended
3/3/2013	Middle Lower Canol, O...	1,727.00	1,728.00	20.0	Suspended
3/3/2013	Upper Lower Canol, Or...	1,692.00	1,693.00	20.0	Suspended

**WELL HEADER INFORMATION**

Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579
Surface Legal Location O-6 65-10 127-00		API / UWI 200/O-06 6510 127000			License No. EL 470
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Grd (m) 5.20	KB-CF (m) 4.87	KB-TF (m) 4.22	Total Depth (mKB) 1,856.00 Original Hole - 1,841.50

**JOB INFORMATION**

Job Category WELL INTERVENTION	Primary Job Type MICROSEISMIC MONITORING	Secondary Job Type RIGLESS	Total Field Estimate (Cost) 725,593.50
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Objective Microseismic Monitoring	Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00	Abandon Date	Responsible Grp 1 coved	Responsible Grp 2 lagartn	Responsible Grp 3
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**AFE COST SUMMARY**

AFE / RFE / Maint.# 10359371	Total AFE Amount (Cost) 1,190,100.00	Total AFE + Supp Amount (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50
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**DAILY INFORMATION**

Report Start Date 1/31/2014 07:30	Report End Date 1/31/2014 21:00	Daily Cost Total (Cost) 74,337.00	Cumulative Cost (Cost) 121,983.00	Personnel Regular Hours (hr) 91.00
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**Daily Contacts**

Tubing Pressure (kPa) 0	Casing Pressure (kPa) 0	Weather overcast	Temperature (°C) -10	Lease Condition Snow Covered
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**Last 24hr Summary**

Held PJHA #832126 with Schlumberger, Canol picker and Peregrine pressure truck on hazards with overhead loads, setting wireline plugs and pressure testing. Spot, rig in services. RIH with Smith M-CW 10K , 159.4mm retrievable bridge plug c/w HSN elements. 1 shear pin set for 2000lbs. Log onto and confirm depth. Set Plug @ 1688.20mkb at 13:15pm.

Re-build firing head. Make up second plug and tool string. RIH with second Smith M-CW 10K , 159.4mm retrievable bridge plug c/w HSN elements. 1 shear pin set for 2000lbs. Log onto and confirm depth. Set plug @ 1678.80mkb. Rig down E-line, install master valve and secure well. Install fence around well.

**24hr Forecast**

Break down E-line lube and tool string. Finish rig out E-line, clean up and secure lease.

**DAILY TIME LOG**

Start Time	End Time	Dur (hr)	Time P-T-X	Operation
07:30	08:30	1.00	P	Held PJHA #832126 with Schlumberger, Canol picker and Peregrine pressure truck on hazards with overhead loads, setting wireline plugs and pressure testing. Perform daily lease walk around inspections and checks. Check and record well pressures. (slight vac). Picker showed up at 08:00am, held PJHA meeting with picker operator. Check and validate all training certificates. (good).
08:30	10:45	2.25	P	Spot, rig in Canol picker and Peregrine pressure truck. Ensure all catch trays are in place under engines. Make up E-line tool string and full lubricator complete with bops and tool trap.
10:45	12:00	1.25	P	Perigrine fill and pressure test lube with propylene glycol to 1.4 and 7mpa. Had same issue as previous day. No leaks on lube but rubber in pack off head was leaking. ( pack off head was torn down and checked previous night and no deficiencies were found). Talked to superintendent and was ok to proceed. Bleed back pressure and test fluid to pressure truck.
12:00	14:30	2.50	P	RIH with Smith M-CW 10k retrievable bridge plug. 159.4mm OD c/w HSN elements. 1 Shear pin set for 2000lbs. Log onto and confirm depth. Set plug @ 1688.20mkb CE Top @ 1687.50mkb Bottom @ 1688.9mkb. Top of csg patch was tagged @ 1690.9mkb previous day. CSG collar above plug @ 1685.5mkb Plug was set at 13:15pm. Lost 300lbs weight after plug set. Set in 60 seconds POOH E-line. Fluid level @ 80m
14:30	16:00	1.50	P	Re-build firing head. Make up second M-CW retrievable plug.Pick up tools into lube.
16:00	17:00	1.00	T	When picking up tools into lube the tools snaged on the lube causing the stroke to come out and engage the slips on the plug. Lay down tool string, repair setting tool and ensure in good working order. install new plug. Hoist tool string into lube and intall on well.
17:00	17:30	0.50	P	Peregrine pressure truck purge and pressure test lube with propylene glycol to 1.4 and 7mpa. No leaks on lube connections but pack off head rubber had a leak.
17:30	19:30	2.00	P	RIH with second Smith M-CW 10k retrievable bridge plug. 159.4mm OD c/w HSN elements. 1 Shear pin set for 2000lbs. Log onto and confirm depth. Set plug @ 1676.80mkb CE Top @ 1676.10mkb Bottom @ 1677.5mkb. CSG collar above plug @ 1672.0mkb Plug was set at 18:45pm. Lost 230lbs weight after plug set. Set in 50 seconds POOH E-line. Fluid level @ 80m

**DAILY TIME LOG**

Start Time	End Time	Dur (hr)	Time P-T-X	Operation	
19:30	21:00	1.50	P	Lay down E-line lube, rig off bops, tool trap, E-line flange and adaptor flange. Install master valve. Ensure wellhead secured, install fence around wellhead. Tidy tools and equipment on lease.	

**FLUID SUMMARY**

Fluid	To lease (m³)	From lease (m³)	To well (m³)	From well (m³)	Left to recover (m³)

**DAILY COST**

BU Desc	Vendor	Activity Code	Amount (Cost)
Electric Line Servs on Drilling Ops.	CANOL OILFIELD SERVICES INC	K100	3,960.00
Pressure Truck/Hot Oiler	PEREGRINE PRESSURE TESTING LTD	S990	4,762.00
Welltesting (Eqpmt,Srvcs,PTA,Gov't Subs)	ROKE TECHNOLOGIES LTD	M220	1,850.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED	K100	21,320.00
Downhole Completion Equipment	SCHLUMBERGER CANADA LIMITED	C100	40,900.00
Wellsite Supervision & Engineering	TECTONIC ENERGY CONSULTING INC	T130	1,545.00

**CUMULATIVE JOB FLARED GAS BY ZONE**

Zone	Volume Gas Total (E3m³)

**PERFORATIONS**

Date	Zone	Top (mKB)	Btm (mKB)	Shot Dens (shots/m)	Current Status
3/2/2013	Basal Lower Canol, Ori...	1,769.00	1,770.00	20.0	Suspended
3/3/2013	Middle Lower Canol, O...	1,727.00	1,728.00	20.0	Suspended
3/3/2013	Upper Lower Canol, Or...	1,692.00	1,693.00	20.0	Suspended

WELL HEADER INFORMATION					
Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579
Surface Legal Location O-6 65-10 127-00		API / UWI 200/O-06 6510 127000		License No. EL 470	
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Grd (m) 5.20	KB-CF (m)	KB-TF (m) 4.87	Total Depth (mKB) 4.22
					PBTD (All) (mKB) 1,856.00
					Original Hole - 1,841.50
JOB INFORMATION					
Job Category WELL INTERVENTION	Primary Job Type MICROSEISMIC MONITORING	Secondary Job Type RIGLESS	Total Field Estimate (Cost) 725,593.50		
Objective Microseismic Monitoring					
Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00	Abandon Date	Responsible Grp 1 coved	Responsible Grp 2 lagartn	Responsible Grp 3
AFE COST SUMMARY					
AFE / RFE / Maint.# 10359371	Total AFE Amount (Cost) 1,190,100.00	Total AFE + Supp Amount (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50	
DAILY INFORMATION					
Report Start Date 2/5/2014 07:30	Report End Date 2/5/2014 18:00	Daily Cost Total (Cost) 112,969.80	Cumulative Cost (Cost) 234,952.80	Personnel Regular Hours (hr) 60.00	
Daily Contacts WS Superintendent, Derrick Cove, 780-831-1314; WS Supervisor, Justin Minault, 403-391-0714; Engineer, Theron Lagarde,	Rig				
Tubing Pressure (kPa) 0	Casing Pressure (kPa)	Weather Overcast	Temperature (°C) -21	Lease Condition Snow Covered	
Last 24hr Summary					
Move on Schlumberger Microseismic crew and equipment, Hold Pre-Job Safety meeting with all personnel, rig in and make up Microseismic tool string. RIH and conduct Vent flow Identification checks at depths as per program. Position final shuttle depths @ 1630.0 mKB (bottom) - 1300 mKB (Top), clamp off cable, secure well and rig out Crane.					
24hr Forecast					
Move in Veretas Surface Land Vibration equipment, conduct and record all findings.					
DAILY TIME LOG					
Start Time	End Time	Dur (hr)	Time P-T-X	Operation	
07:30	08:00	0.50	P	Move Schlumberger Micro-Seismic equipment and Northern Crane onto location. Spot off to side of lease and conduct Pre-job safety meeting with all personnel. Review all personnel's tickets and CPC orientation, (all valid).	
08:00	08:30	0.50	P	Spot equipment as per CPC, OH+S, and NEB Regulations.	
08:30	11:00	2.50	P	Remove 7 1/16" 10K top section, install 7 1/16" 10K x 7 1/16" 5K DSI. Make up VSIT-12 Tool String and start in hole.	
11:00	16:30	5.50	P	Conduct Function test at surface. O.K. RIH and correlate on depth with SLB COMP Neutron Log.  Conduct Vent Identification stops at the following stations:  #1 - 529.0 - 829.0 mKB #2 - 544.0 - 874.0 mKB #3 - 890.0 - 1220.0 mKB #4 - 905.0 - 1235.0 mKB #5 - 1250.0 - 1580.0 mKB #6 - 1265.0 - 1595.0 mKB	
16:30	17:00	0.50	P	Shuttles positioned @ 1300.0 mKB (Top Shuttle) - 1630.0 mKB (bottom shuttle). Anchor tool and clamp cable.	
17:00	17:30	0.50	P	Rig down crane, secure well and equipment. SDFN.	
FLUID SUMMARY					
Fluid	To lease (m³)	From lease (m³)	To well (m³)	From well (m³)	Left to recover (m³)
DAILY COST					
BU Desc	Vendor			Activity Code	Amount (Cost)
Welltesting (Eqpmt,Srvcs,PTA,Gov't Subs)	ROKE TECHNOLOGIES LTD			M220	1,850.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	5,559.90
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	5,559.90
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	100,000.00
CUMULATIVE JOB FLARED GAS BY ZONE					
Zone	Volume Gas Total (E3m³)				
PERFORATIONS					
Date	Zone	Top (mKB)	Btm (mKB)	Shot Dens (shots/m)	Current Status
3/2/2013	Basal Lower Canol, Ori...	1,769.00	1,770.00	20.0	Suspended
3/3/2013	Middle Lower Canol, O...	1,727.00	1,728.00	20.0	Suspended
3/3/2013	Upper Lower Canol, Or...	1,692.00	1,693.00	20.0	Suspended



# Daily Morning Report

## COPRC LOON CREEK O-06 65-10 127-00

Report #: 4  
Report Date: 2/6/2014  
Final Job Status:  
Final Report? Yes

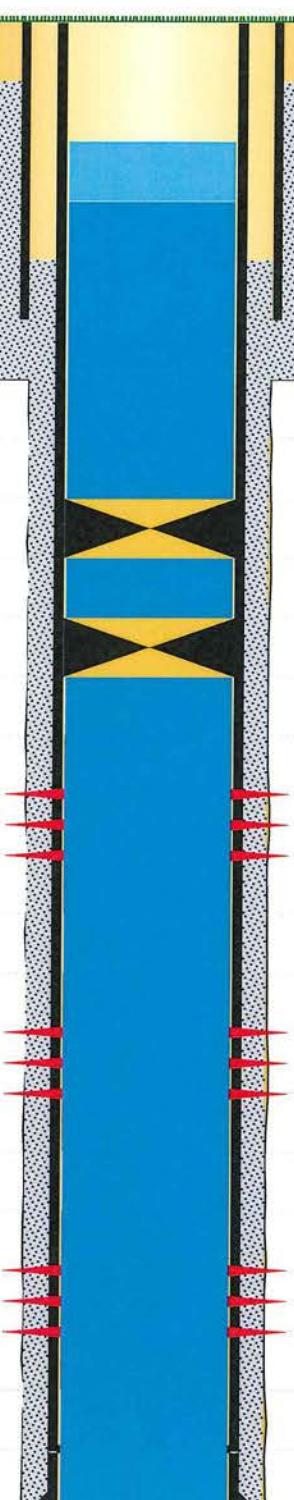
WELL HEADER INFORMATION					
Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579
Surface Legal Location O-6 65-10 127-00		API / UWI 200/O-06 6510 127000		License No. EL 470	
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Grd (m) 5.20	KB-CF (m) 4.87	KB-TF (m) 4.22	Total Depth (mKB) 1,856.00 Original Hole - 1,841.50
JOB INFORMATION					
Job Category WELL INTERVENTION	Primary Job Type MICROSEISMIC MONITORING		Secondary Job Type RIGLESS		Total Field Estimate (Cost) 725,593.50
Objective Microseismic Monitoring					
Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00	Abandon Date	Responsible Grp 1 coved	Responsible Grp 2 lagartn	Responsible Grp 3
AFE COST SUMMARY					
AFE / RFE / Maint.# 10359371	Total AFE Amount (Cost) 1,190,100.00	Total AFE + Supp Amount (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50	
DAILY INFORMATION					
Report Start Date 2/6/2014 00:00	Report End Date 2/17/2014 07:30	Daily Cost Total (Cost) 204,969.80	Cumulative Cost (Cost) 439,922.60	Personnel Regular Hours (hr) 76.00	
Daily Contacts WS Superintendent, Derrick Cove, 780-831-1314; WS Supervisor, Justin Minault, 403-391-0714; Engineer, Theron Lagarde,					
Tubing Pressure (kPa)	Casing Pressure (kPa)	Weather	Temperature (°C)	Lease Condition Snow Covered	
Last 24hr Summary Monitor micro seismic activity during completions frac operations on E-76 65-10 126-45.					
24hr Forecast Pull out of hole geophones and rig out wireline equipment					
DAILY TIME LOG					
Start Time 00:00	End Time 07:30	Dur (hr) 271.50	Time P-T-X P	Operation Monitored down hole micro seismic activity during completions frac operations on E-76 65-10 126-45.	
FLUID SUMMARY					
Fluid	To lease (m³)	From lease (m³)	To well (m³)	From well (m³)	Left to recover (m³)
DAILY COST					
BU Desc	Vendor			Activity Code	Amount (Cost)
Welltesting (Eqpmt,Srvcs,PTA,Gov't Subs)	ROKE TECHNOLOGIES LTD			M220	1,850.00
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	5,559.90
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	5,559.90
Electric Line Servs on Drilling Ops.	SCHLUMBERGER CANADA LIMITED			K100	192,000.00
CUMULATIVE JOB FLARED GAS BY ZONE					
Zone	Volume Gas Total (E3m³)				
PERFORATIONS					
Date	Zone	Top (mKB)	Btm (mKB)	Shot Dens (shots/m)	Current Status
3/2/2013	Basal Lower Canol, Ori...	1,769.00	1,770.00	20.0	Suspended
3/3/2013	Middle Lower Canol, O...	1,727.00	1,728.00	20.0	Suspended
3/3/2013	Upper Lower Canol, Or...	1,692.00	1,693.00	20.0	Suspended

WELL HEADER INFORMATION					
Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579
Surface Legal Location O-6 65-10 127-00		API / UWI 200/O-06 6510 127000		License No. EL 470	
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Grd (m) 5.20	KB-CF (m) 4.87	KB-TF (m) 4.22	Total Depth (mKB) 1,856.00 Original Hole - 1,841.50
JOB INFORMATION					
Job Category WELL INTERVENTION		Primary Job Type MICROSEISMIC MONITORING	Secondary Job Type RIGLESS	Total Field Estimate (Cost) 725,593.50	
Objective Microseismic Monitoring					
Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00	Abandon Date	Responsible Grp 1 coved	Responsible Grp 2 lagartn	Responsible Grp 3
AFE COST SUMMARY					
AFE / RFE / Maint.# 10359371	Total AFE Amount (Cost) 1,190,100.00	Total AFE + Supp Amount (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50	
DAILY INFORMATION					
Report Start Date 2/17/2014 07:30	Report End Date 2/17/2014 19:30	Daily Cost Total (Cost) 285,670.90	Cumulative Cost (Cost) 725,593.50	Personnel Regular Hours (hr) 60.00	
Daily Contacts WS Superintendent, Derrick Cove, 780-831-1314; WS Supervisor, Justin Minault, 403-391-0714; Engineer, Theron Lagarde,					
Tubing Pressure (kPa)	Casing Pressure (kPa)	Weather Overcast	Temperature (°C) -32	Lease Condition Snow Covered	
Last 24hr Summary Pulled out of the hole geophones. Installed wellhead and secured the well. Re-installed vent nanny onto SCVL.					
24hr Forecast Monitor SCVL flow through Roke vent nanny.					
DAILY TIME LOG					
Start Time	End Time	Dur (hr)	Time P-T-X	Operation	
07:30	19:30	12.00	P	Held a daily safety and operations meeting. Spotted and readied crane. Checked pressure: SICP: 0 kPa. Pulled out of the hole geophones. Removed wireline flange and installed wellhead top sections. Secured well. Wellhead chained and locked (combo 6127).	
FLUID SUMMARY					
Fluid	To lease (m³)	From lease (m³)	To well (m³)	From well (m³)	Left to recover (m³)
DAILY COST					
BU Desc		Vendor		Activity Code	Amount (Cost)
Surface Completion Equipment Rental		CORNERSTONE OILFIELD SERVICES LTD		Q300	7,920.00
Surface Completion Equipment Rental		CORNERSTONE OILFIELD SERVICES LTD		Q300	7,920.00
Surface Completion Equipment Rental		CORNERSTONE OILFIELD SERVICES LTD		Q300	1,500.00
Surface Completion Equipment Rental		CORNERSTONE OILFIELD SERVICES LTD		Q300	4,760.00
Surface Completion Equipment Rental		CORNERSTONE OILFIELD SERVICES LTD		Q300	4,760.00
Trucking/Hauling/ Hot Shot Services		MCKAY EXPEDITING AND LOGISTICS LTD		P100	24,530.00
Trucking/Hauling/ Hot Shot Services		MCKAY EXPEDITING AND LOGISTICS LTD		P100	2,531.10
Trucking/Hauling/ Hot Shot Services		NCSG CRANE & HEAVY HAUL SERVICES LTD		P100	26,780.00
Welltesting (Eqmnt,Srvcs,PTA,Gov't Subs)		ROKE TECHNOLOGIES LTD		M220	1,850.00
Electric Line Servs on Drilling Ops.		SCHLUMBERGER CANADA LIMITED		K100	5,559.90
Electric Line Servs on Drilling Ops.		SCHLUMBERGER CANADA LIMITED		K100	5,559.90
Electric Line Servs on Drilling Ops.		SCHLUMBERGER CANADA LIMITED		K100	192,000.00
CUMULATIVE JOB FLARED GAS BY ZONE					
Zone	Volume Gas Total (E3m³)				
PERFORATIONS					
Date	Zone	Top (mKB)	Btm (mKB)	Shot Dens (shots/m)	Current Status
3/2/2013	Basal Lower Canol, Ori...	1,769.00	1,770.00	20.0	Suspended
3/3/2013	Middle Lower Canol, O...	1,727.00	1,728.00	20.0	Suspended
3/3/2013	Upper Lower Canol, Or...	1,692.00	1,693.00	20.0	Suspended

**III. Final Completions Schematic**

# Current Schematic

## COPRC LOON CREEK O-06 65-10 127-00

Surface Legal Location O-6 65-10 127-00		API / UWI 200/O-06 6510 127000		License No. EL 470				
Country CANADA	State/Province N.W.T.	Region / Division WCBU	District NEW VENTURES	Field Name Loon	Field Code 0579			
Orig KB/RT (m) 257.60	Ground Elevation (m) 252.40	KB-Ground Distance (m) 5.20	KB-CF (m) 4.87	KB-TF (m) 4.22	Total Depth (mKB) 1,856.00			
VERTICAL - Original Hole, 5/7/2014 9:21:02 AM								
<b>WELLHEADS</b> Type Screw On Bowl Install Date 1/31/2013								
MD (mKB) 52	Incl (*) Vertical schematic (actual)	Des Screw On Casing Bowl		Make STREAM FLOW	Model SOW			
				WP (kPa) 34,500	Top Ring Gasket Bore Min (mm)			
<b>WELL CONFIG: VERTICAL</b> 								
<b>CASING STRINGS</b> Csg Des OD (mm) Wt/Len (kg/m) Grade Top Thread Set Depth (mKB)								
Surface		244.5	53.574	K-55	LTC 597.00			
Production		177.8	38.692	P-110	LTC 1,856.00			
<b>PBTDs</b> Date 2/26/2013 Type Float Collar Depth (mKB) 1,841.50 TD (max) (mKB) 1,856.00								
<b>PERFORATIONS</b> Date 3/3/2013 Top (mKB) 1,692.00 Description Casing Patch Btm (mKB) 1,693.00 Zone Upper Lower... Type Perforated Current Status Suspended								
Date 3/3/2013 Top (mKB) 1,727.00 Description Casing Patch Btm (mKB) 1,728.00 Zone Middle Lower... Type Perforated Current Status Suspended								
Date 3/2/2013 Top (mKB) 1,769.00 Description Casing Patch Btm (mKB) 1,770.00 Zone Basal Lower... Type Perforated Current Status Suspended								
<b>OTHER IN HOLE</b> Run Date 3/22/2013 Description Casing Patch Top Depth (mKB) 1,767.56 Bottom Depth (mKB) 1,771.43								
OD (mm) 155.2 ID (mm) 139.7 Make Core-lab Model X-Span								
<b>Comment</b> Isolating "Basal" Lower Casing Perforations from 1769.0 to 1770.0 mKB								
Run Date 3/22/2013 Description Casing Patch Top Depth (mKB) 1,725.96 Bottom Depth (mKB) 1,729.83								
OD (mm) 155.2 ID (mm) 139.7 Make Core-lab Model X-Span								
<b>Comment</b> Isolating "Middle" Lower Casing Perforations from 1727.0 to 1728.0 mKB								
Run Date 3/22/2013 Description Casing Patch Top Depth (mKB) 1,690.56 Bottom Depth (mKB) 1,694.43								
OD (mm) 155.2 ID (mm) 139.7 Make Core-lab Model X-Span								
<b>Comment</b> Isolating "Upper" Lower Casing Perforations from 1692.0 to 1693.0 mKB								
Run Date 3/22/2013 Description Barrier - Fluid Top Depth (mKB) 125.00 Bottom Depth (mKB) 1,856.00								
OD (mm) 155.2 ID (mm) 139.7 Make Fresh water Model TDS<4000 ppm								
<b>Comment</b> Fresh water containing TDS<4000 ppm								
Run Date 3/22/2013 Description Barrier - Fluid Top Depth (mKB) 100.00 Bottom Depth (mKB) 125.00								
OD (mm) 155.2 ID (mm) 139.7 Make Propylene Glycol Model Mixed with 30 % H2O								
<b>Comment</b> Propylene Glycol Mixture to winterize wellhead								
Run Date 1/31/2014 Description Retrievable Bridge Plug Top Depth (mKB) 1,687.50 Bottom Depth (mKB) 1,688.90								
OD (mm) 159.4 ID (mm) 139.7 Make Smith Model M-CW								
<b>Comment</b> Smith M-CW retrievable bridge plug. Pinned for slickline retrieval. 1 pin @ 2000lbs shear. CE @ 1688.20mkb								
Run Date 1/31/2014 Description Retrievable Bridge Plug Top Depth (mKB) 1,676.10 Bottom Depth (mKB) 1,677.50								
OD (mm) 159.4 ID (mm) 139.7 Make Smith Model M-CW								
<b>Comment</b> Smith M-CW retrievable bridge plug. Pinned for slickline retrieval. 1 pin @ 2000lbs shear. CE @ 1676.8mkb								

## COPRC Loon Creek 0-06

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### **IV. Completions Daily Activity and Cost Summary**

# Daily Activity and Cost Summary

## COPRC LOON CREEK O-06 65-10 127-00

Job Category WELL INTERVENTION	Primary Job Type MICROSEISMIC MONITORING	Secondary Job Type RIGLESS	Actual Start Date 1/30/2014 07:30	End Date 2/17/2014 21:00
AFE / RFE / Maint.# 10359371	Total Job AFE Amount (Cost) 1,190,100.00	AFE+Supp Amt (Cost) 1,190,100.00	Total Field Estimate (Cost) 725,593.50	AFE-Field Estimate (Cost) 464,506.50
<b>Objective</b> Microseismic Monitoring				
<b>Contractor</b>		<b>Rig Name/No</b>		<b>Rig Type</b>
<b>DAILY ACTIVITY &amp; COST SUMMARY</b>				
Report No.	Start Date	Daily Cost Total (Cost)	Cum Cost (Cost)	Last 24hr Sum
1	1/30/2014 07:30	47,646.00	47,646.00	Attended main safety meeting with medics and all services. All workers filled out medical forms. Travel to location with services. Held PJHA 01302014C with Schlumberger, Canol, IES, Peregrine on hazard associated with tasks to be performed. Perform lease walk around with services prior to spotting equipment. Remove tarps from heating wellhead. Check well pressures (slight vac). IES removed master valve, installed adapter flange and schlumberger flange using genie and crane. Spot, rig in Schlumberger E-line truck c/w full lube, bops and tool trap, picker and pressure truck. Purge and pressure test lube with propylene glycol. RIH with 154.5mm gauge ring/ccl. Tag top to Owens X-span csg patch at 1690.9mkb. Fluid level @ 80m. Log collars on way up to correlate. Did not see any restrictions on way in or out of hole. Rig off lube and secure well for night.
2	1/31/2014 07:30	74,337.00	121,983.00	Held PJHA #832126 with Schlumberger, Canol picker and Peregrine pressure truck on hazards with overhead loads, setting wireline plugs and pressure testing. Spot, rig in services. RIH with Smith M-CW 10K , 159.4mm retrievable bridge plug c/w HSN elements. 1 shear pin set for 2000lbs. Log onto and confirm depth. Set Plug @ 1688.20mkb at 13:15pm. Re-build firing head. Make up second plug and tool string. RIH with second Smith M-CW 10K , 159.4mm retrievable bridge plug c/w HSN elements. 1 shear pin set for 2000lbs. Log onto and confirm depth. Set plug @1678.80mkb. Rig down E-line, install master valve and secure well. Install fence around well.
3	2/5/2014 07:30	112,969.80	234,952.80	Move on Schlumberger Microseizmic crew and equipment, Hold Pre-Job Safety meeting with all personnel, rig in and make up Microseizmic tool string. RIH and conduct Vent flow Identification checks at depths as per program. Position final shuttle depths @ 1630.0 mKB (bottom) - 1300 mKB (Top), clamp off cable, secure well and rig out Crane.
4	2/6/2014 00:00	204,969.80	439,922.60	Monitor micro seismic activity during completions frac operations on E-76 65-10 126-45.
5	2/17/2014 07:30	285,670.90	725,593.50	Pulled out of the hole geophones. Installed wellhead and secured the well. Re-installed vent nanny onto SCVL.

**V. Completions End of Job QC Summary**

# End Of Job QC Summary

## COPRC LOON CREEK O-06 65-10 127-00

Region / Division WCBU		District NEW VENTURES	Field Name Loon	API / UWI 200/O-06 6510 127000	License No. EL 470				
Original KB/RT Elevation (m) 257.60		Ground Elevation (m) 252.40	KB-Ground Distance (m) 5.20	KB-Casing Flange Distance (m) 4.87	KB-Tubing Hanger Distance (m) 4.22				
VERTICAL - Original Hole, 1/9/2014 3:00:00 PM									
MD (mKB)	Incl (°)	Vertical schematic (actual)	JOB INFORMATION						
52	0.5	WELL CONFIG: VERTICAL	Job Category COMPLETIONS	Primary Job Type INITIAL COMPLETION	Actual Start Date 2/22/2013 08:00				
60	0.5		Final Report? Yes	Final Job Status SUSPENDED	End Date 1/9/2014 15:00				
100.0	0.5		AFE / RFE / Maint.# 10345055	AFE+Supp Amt (Cost) 2,575,863.00	Total Field Estimate (Cost) 2,810,365.37				
125.0	0.5		AFE-Field Estimate (Cost) -234,502.37						
TIME LOG SUMMARY SUMMARIZED BY P-N-T									
Time P-T-X		Dur (hr)		% Total Time (%)					
P		811.75		97.74					
T		18.75		2.26					
RIG INFORMATION									
Nabors, 414									
Rig Accept Date 2/22/2013 15:00			Rig Release Date 3/24/2013 19:00						
CASING STRINGS									
Csg Des		OD (mm)	Wt/Len (kg/m)	Grade	Top Thread				
Surface		244.5	53.574	K-55	LTC				
Production		177.8	38.692	P-110	LTC				
CURRENT PBTD									
Date		Type		Depth (mKB)					
2/26/2013 00:00		Float Collar		1,841.50					
SCVF (SURFACE CASING VENT FLOW)									
Date		Typ		Detection					
2/26/2013 09:30		SCVF		No					
3/24/2013 12:00		SCVF		Yes					
4/4/2013 07:30		SCVF		Yes					
2/26/2014 12:00		SCVF		Yes					
PERFORATIONS									
Date	Top (mKB)	Btm (mKB)	Zone	Type	Current Status				
3/3/2013	1,692.00	1,693.00	Upper Lower C...	Perforated	Suspended				
3/3/2013	1,727.00	1,728.00	Middle Lower C...	Perforated	Suspended				
3/2/2013	1,769.00	1,770.00	Basal Lower Ca...	Perforated	Suspended				
STIMULATION AND TREATMENTS									
Date	Stim Treat Co	Type	Proppant Design (kg)	Proppant Frm (kg)	Zone				
1,726.0									
TUBING STRING									
Tubing Description		Run Date	Pull Date		String Length (m)				
					Set Depth (mKB)				
Comment									
Jts	Item Des	OD Nominal (mm)	Nominal ID (mm)	Wt (kg/m)	Grade				
					Make				
					Model				
					Len (m)				
					Top (mKB)				
OTHER IN HOLE									
Run Date 3/22/2013	Description Casing Patch		Top Depth (mKB) 1,767.56		Bottom Depth (mKB) 1,771.43				
OD (mm) 155.2	ID (mm)	Make		Model					
		Core-lab		X-Span					
Comment									
Isolating "Basal" Lower Canol Perforations from 1769.0 to 1770.0 mKB									
Run Date 3/22/2013	Description Casing Patch		Top Depth (mKB) 1,725.96		Bottom Depth (mKB) 1,729.83				
OD (mm) 155.2	ID (mm)	Make		Model					
		Core-lab		X-Span					
Comment									
Isolating "Middle" Lower Canol Perforations from 1727.0 to 1728.0 mKB									
1,766.0	1.0								

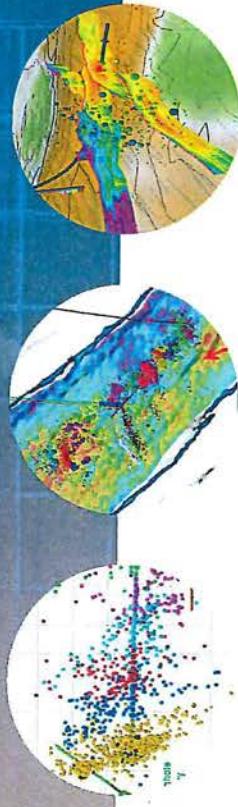
End Of Job QC Summary  
COPRC LOON CREEK O-06 65-10 127-00

VERTICAL - Original Hole, 1/9/2014 3:00:00 PM		OTHER IN HOLE						
MD (mKB)	Incl (°)	Vertical schematic (actual)	Run Date 3/22/2013	Description Casing Patch	Top Depth (mKB) 1,690.56	Bottom Depth (mKB) 1,694.43		
52	0.5	<b>WELL CONFIG: VERTICAL</b>						
6.0	0.5	Comment Isolating "Upper" Lower Canol Perforations from 1692.0 to 1693.0 mKB						
100.0	0.5	Run Date 3/22/2013	Description Barrier - Fluid	Top Depth (mKB) 125.00	Bottom Depth (mKB) 1,856.00			
125.0	0.5	OD (mm)	ID (mm)	Make	Model			
150.0	0.3	155.2	139.7	Core-lab	X-Span			
597.0	0.3	Comment Fresh water containg TDS<4000 ppm						
600.0	0.9	Run Date 3/22/2013	Description Barrier - Fluid	Top Depth (mKB) 100.00	Bottom Depth (mKB) 125.00			
1,382.0	0.6	OD (mm)	ID (mm)	Make	Model			
1,400.0	1.8	155.2	155.2	Propylene Glycol	Mixed with 30 % H2O			
1,692.0	1.8	Comment Propylene Glycol Mixture to winterize wellhead						
1,693.0	1.9							
1,694.4	1.9							
1,726.0	2.4							
1,727.0	2.4							
1,728.0	2.4							
1,729.8	2.4							
1,767.6	3.1							
1,769.0	3.1							
1,770.0	3.1							
1,771.4	3.1							
1,841.5	3.1							
1,856.0	1.0							

# Schlumberger

ConocoPhillips  
Dodo Canyon E-76  
Microseismic Results

Martin Haege, Richard Parker  
April 30th 2014

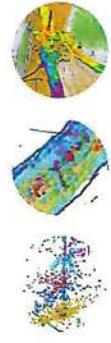


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# Content

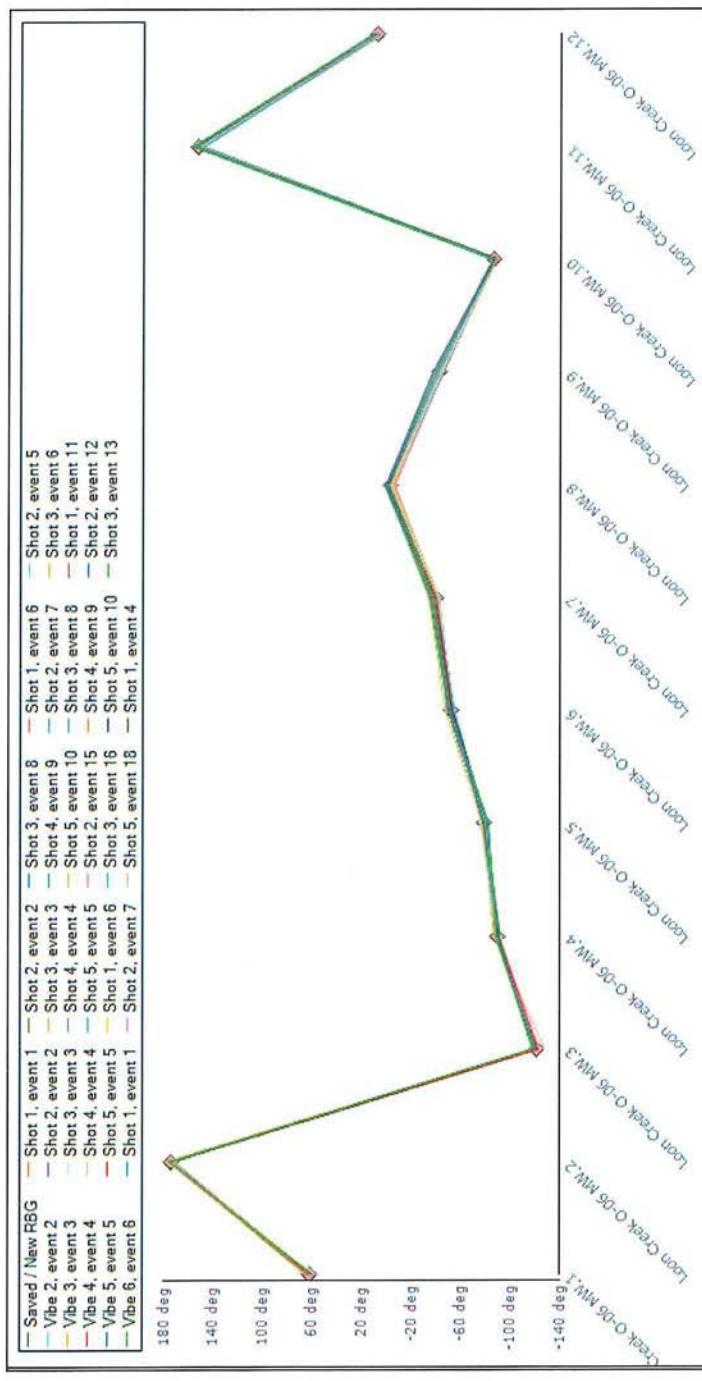
- Casing vent identification
- Receiver orientation
- Velocity model building
- Microseismic events
- Waveform examples
- ESV



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**Schlumberger**

# Receiver orientation

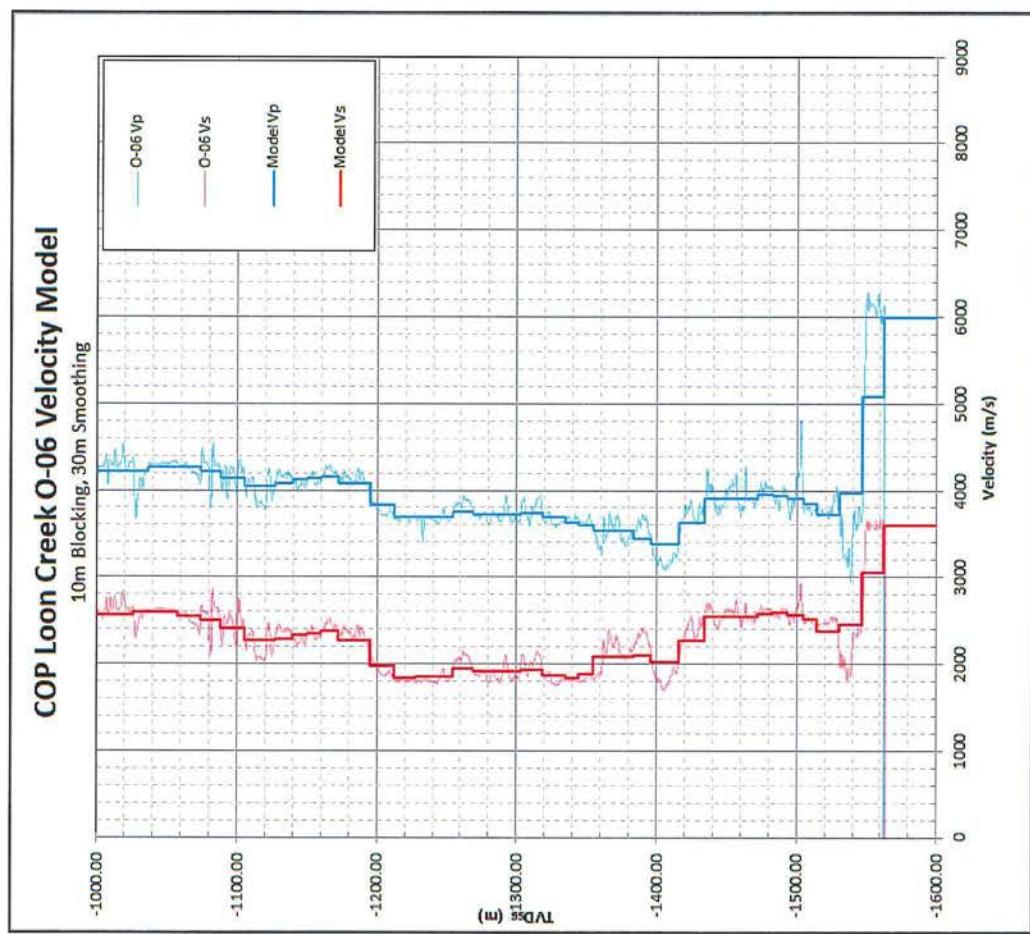


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# Velocity Model Building: E-76

- Initial velocity model built from Loon Creek O-06 monitor well dipole sonic log
- Logs blocked with minimum thickness of 10m, smoothed at 30m

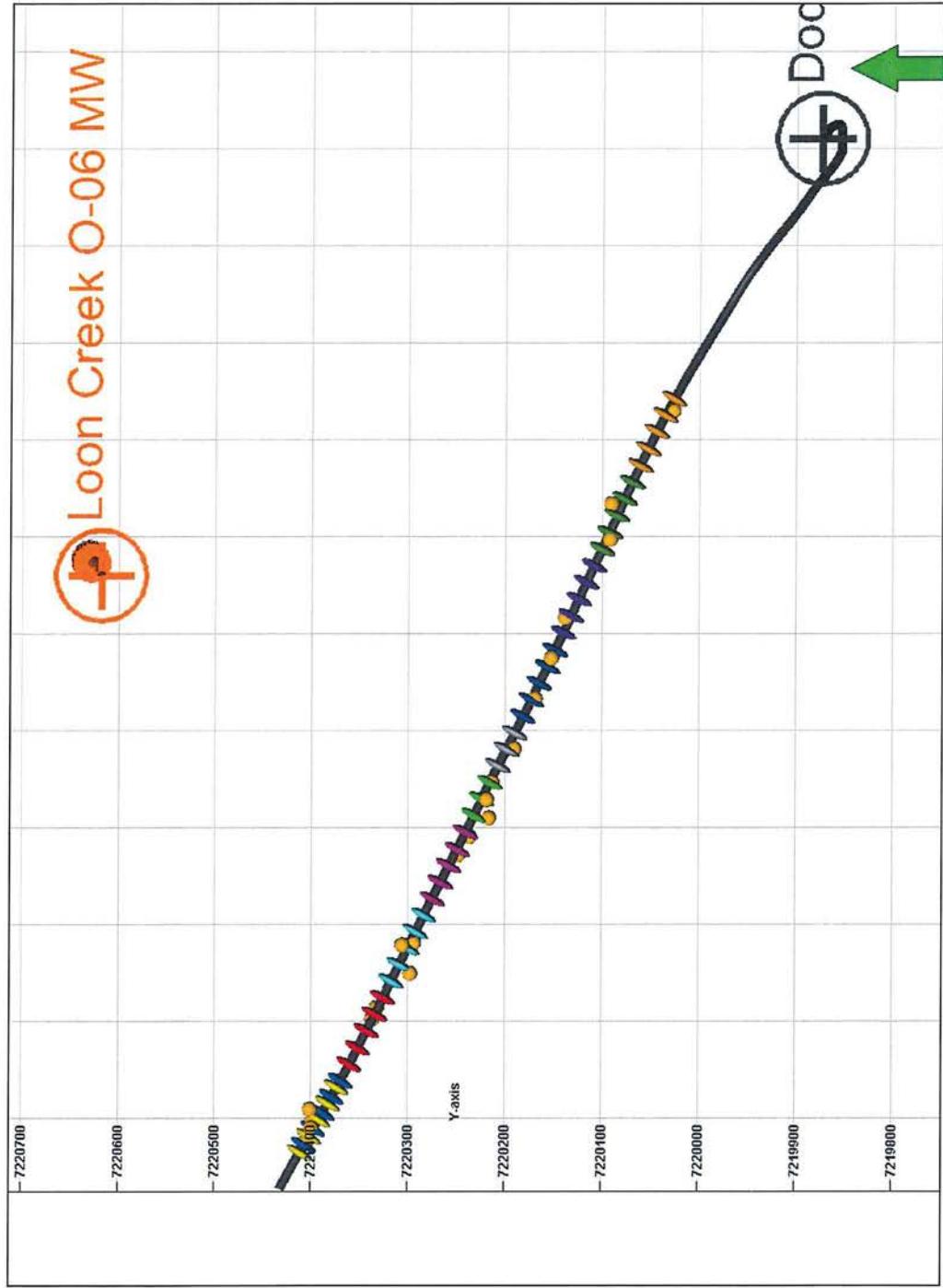


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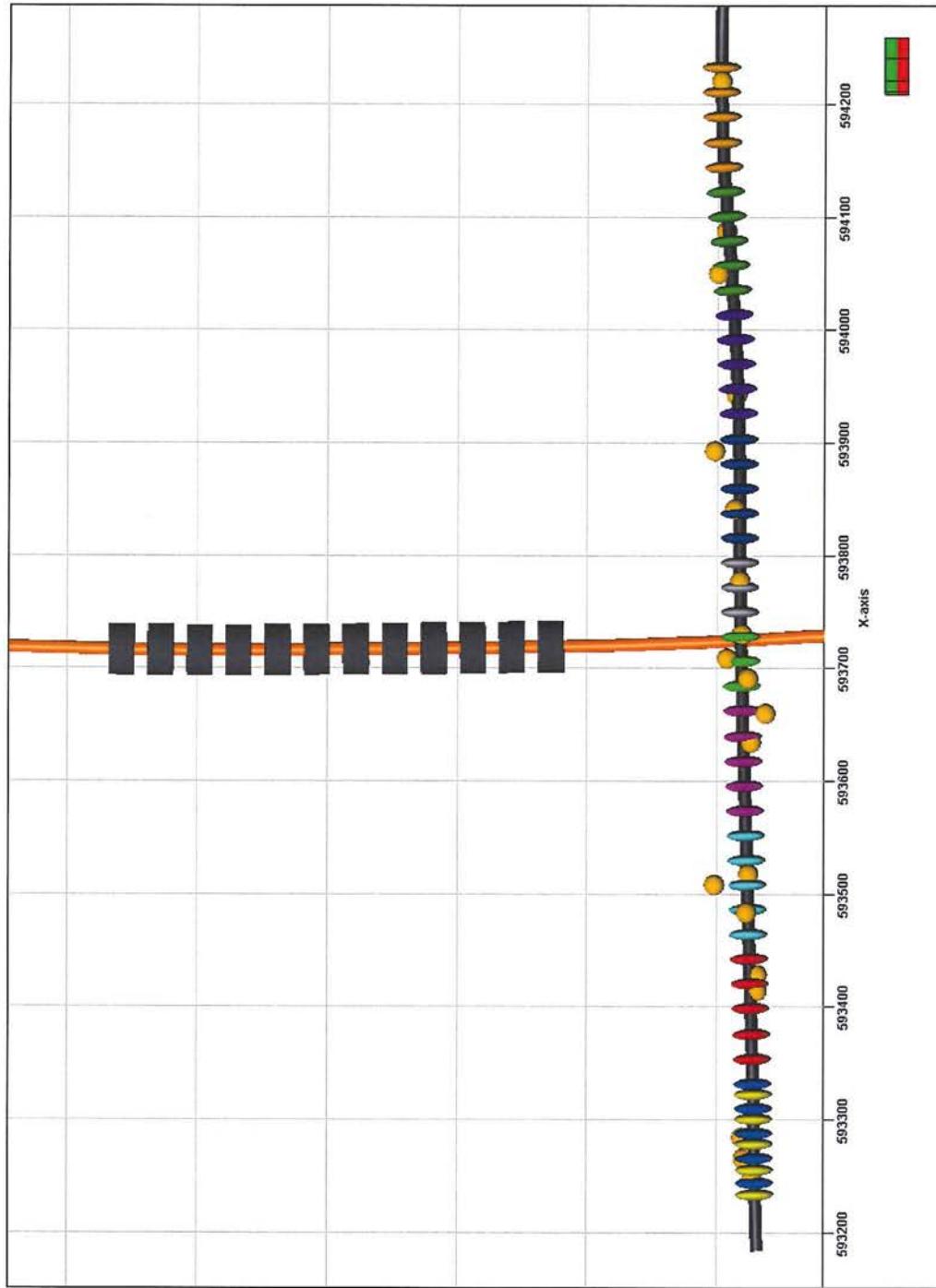
# Perfs (top view)



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# Perfs (side view, azimuth 30, deviation 90)



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**Schlumberger**

# Perf shots

Stage #	Perf	Actual position			Relocated			Difference			
		Northing (m)	Easting (m)	Depth (m)	Northing (m)	Easting (m)	Depth (m)	dN (m)	dE (m)	dZ (m)	
-	1	2	7220401.57	592981.40	-1528.83	7220405.40	592975.50	-1526.96	-3.83	5.90	-1.86
-	3	7220392.11	592998.74	-1528.58	7220399.05	592996.96	-1525.71	-6.94	1.78	-2.87	
1a	2	7220397.61	592989.21	-1528.72	7220399.54	592990.75	-1520.18	-1.93	-1.53	-8.54	
-	3	7220388.11	593005.66	-1528.48	7220400.93	593009.81	-1519.04	-12.82	-4.15	-9.43	
-	2	4	7220334.22	593107.13	-1525.44	7220336.93	593102.68	-1530.58	-2.71	4.45	5.14
-	5	7220326.01	593124.25	-1524.82	7220332.30	593114.37	-1530.77	-6.30	9.87	5.94	
-	3	2	7220309.33	593158.36	-1523.81	7220297.96	593149.77	-1522.36	11.37	8.60	-1.45
-	3	7220301.02	593175.43	-1523.30	7220305.99	593178.98	-1497.64	-4.98	-3.55	-25.66	
-	4	7220292.43	593192.37	-1522.76	7220293.90	593181.45	-1523.85	-1.46	10.92	1.09	
-	4	7220249.63	593277.09	-1519.71	7220248.66	593271.86	-1525.90	0.96	5.22	6.19	
-	5	7220240.82	593295.03	-1519.15	7220236.72	593290.69	-1536.88	4.09	4.34	17.73	
-	5	1	7220232.41	593312.05	-1518.68	7220216.53	593310.02	-1523.58	15.88	2.03	4.89
-	2	7220224.05	593329.10	-1518.22	7220218.60	593329.00	-1507.34	5.45	0.10	-10.87	
-	3	7220215.94	593346.27	-1517.69	7220213.50	593347.51	-1518.66	2.44	-1.24	0.96	
-	6	2	7220198.98	593380.26	-1517.14	7220190.99	593381.56	-1517.28	7.99	-1.30	0.14
-	7	2	7220173.51	593431.23	-1516.78	7220169.31	593432.97	-1513.14	4.20	-1.74	-3.64
-	4	7220156.97	593465.42	-1516.41	7220152.46	593474.80	-1497.67	4.51	-9.37	-18.74	
-	8	1	7220140.48	593500.75	-1515.74	7220138.32	593515.99	-1514.31	2.16	-15.24	-1.43
-	9	1	7220100.65	593586.81	-1510.85	7220092.46	593597.25	-1500.25	8.18	-10.44	-10.61
-	3	7220085.32	593621.46	-1508.11	7220091.07	593634.16	-1506.25	-5.76	-12.70	-1.86	
-	10	5	7220026.72	593741.67	-1501.69	7220027.25	593730.33	-1502.18	-0.53	11.34	0.49
						median	4.51	4.45	4.89		

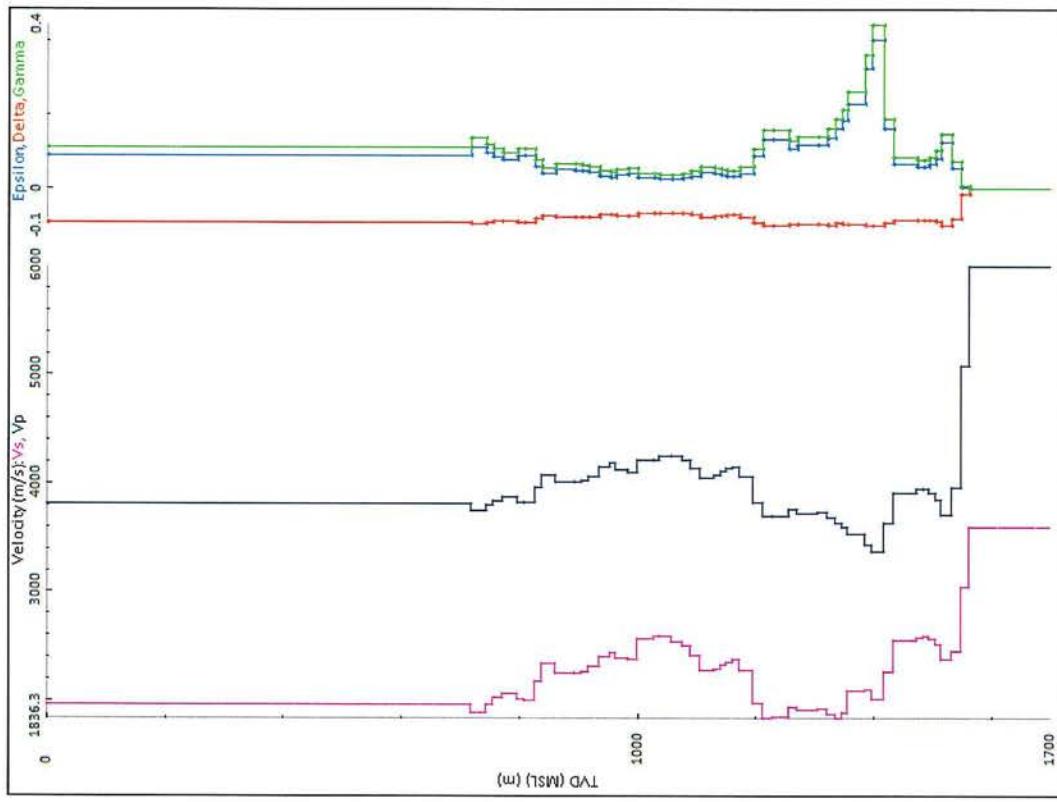


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**Schlumberger**

# Velocity model calibration

example: stage 4



7 velocity models:

Epsilon: 0 – 0.43

Delta: -0.1 – 0.0

Gamma: 0 – 0.47

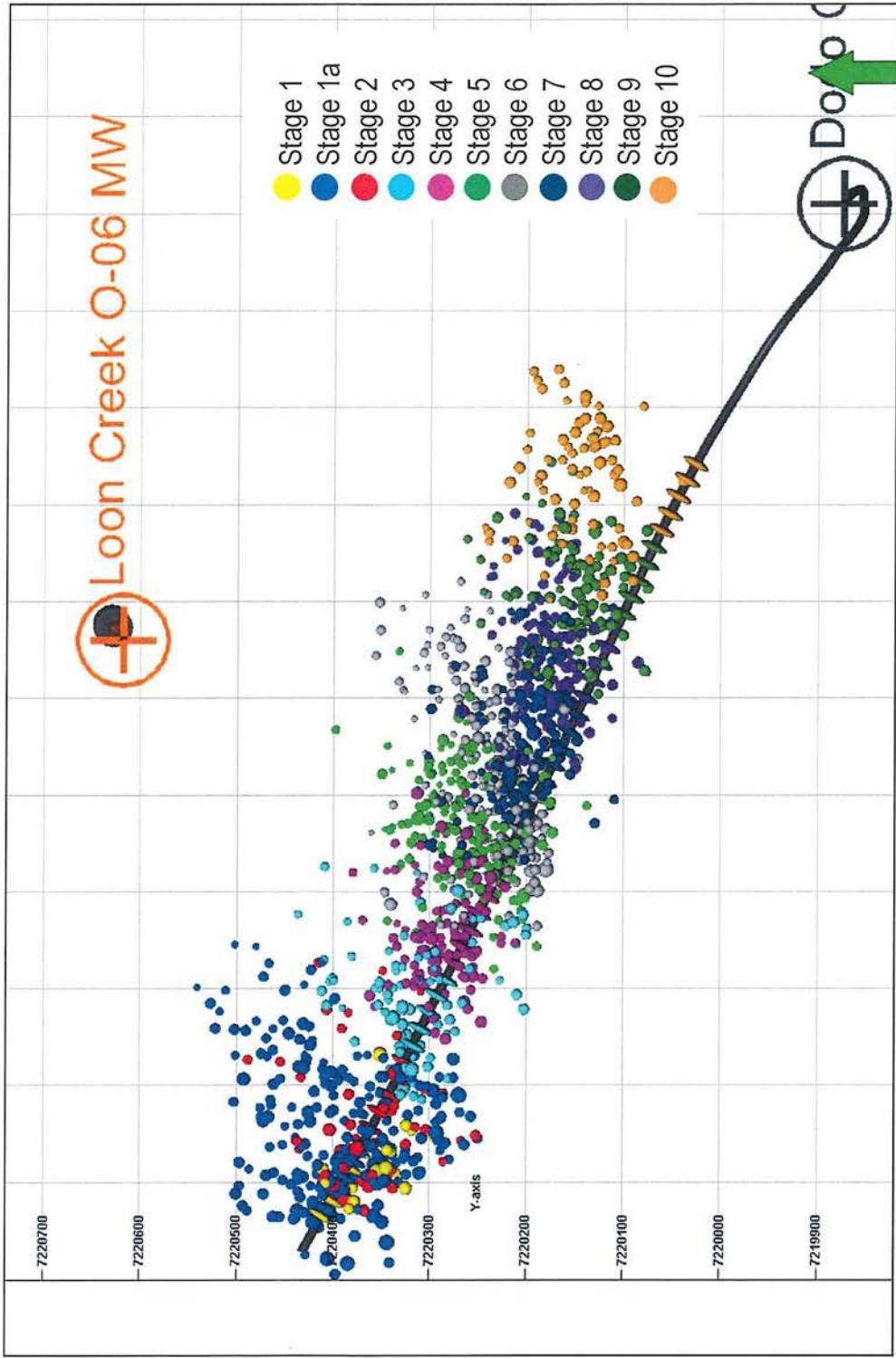
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# Events (top view)

events are scaled by  
magnitude (-3<MW<-1)

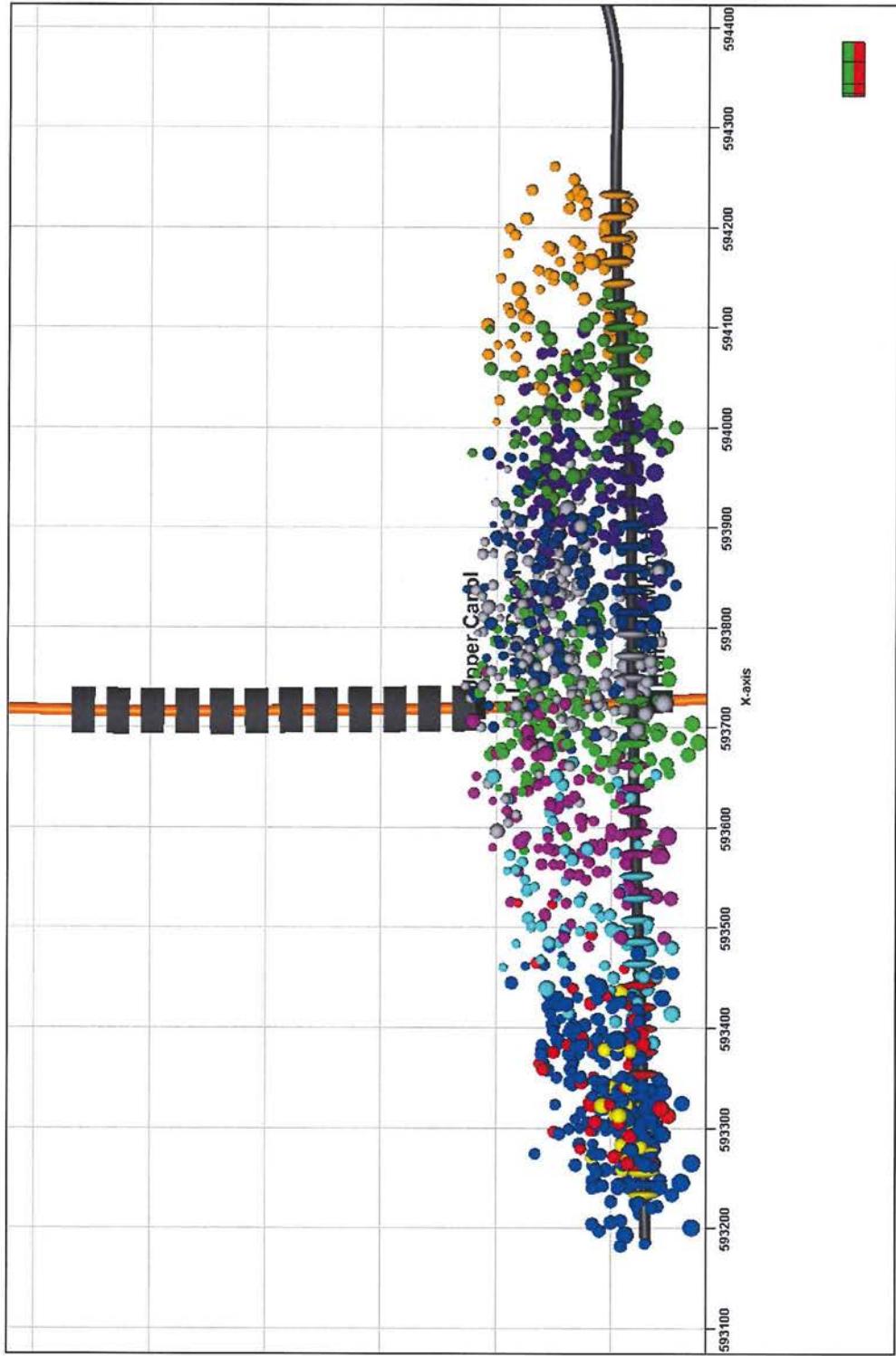


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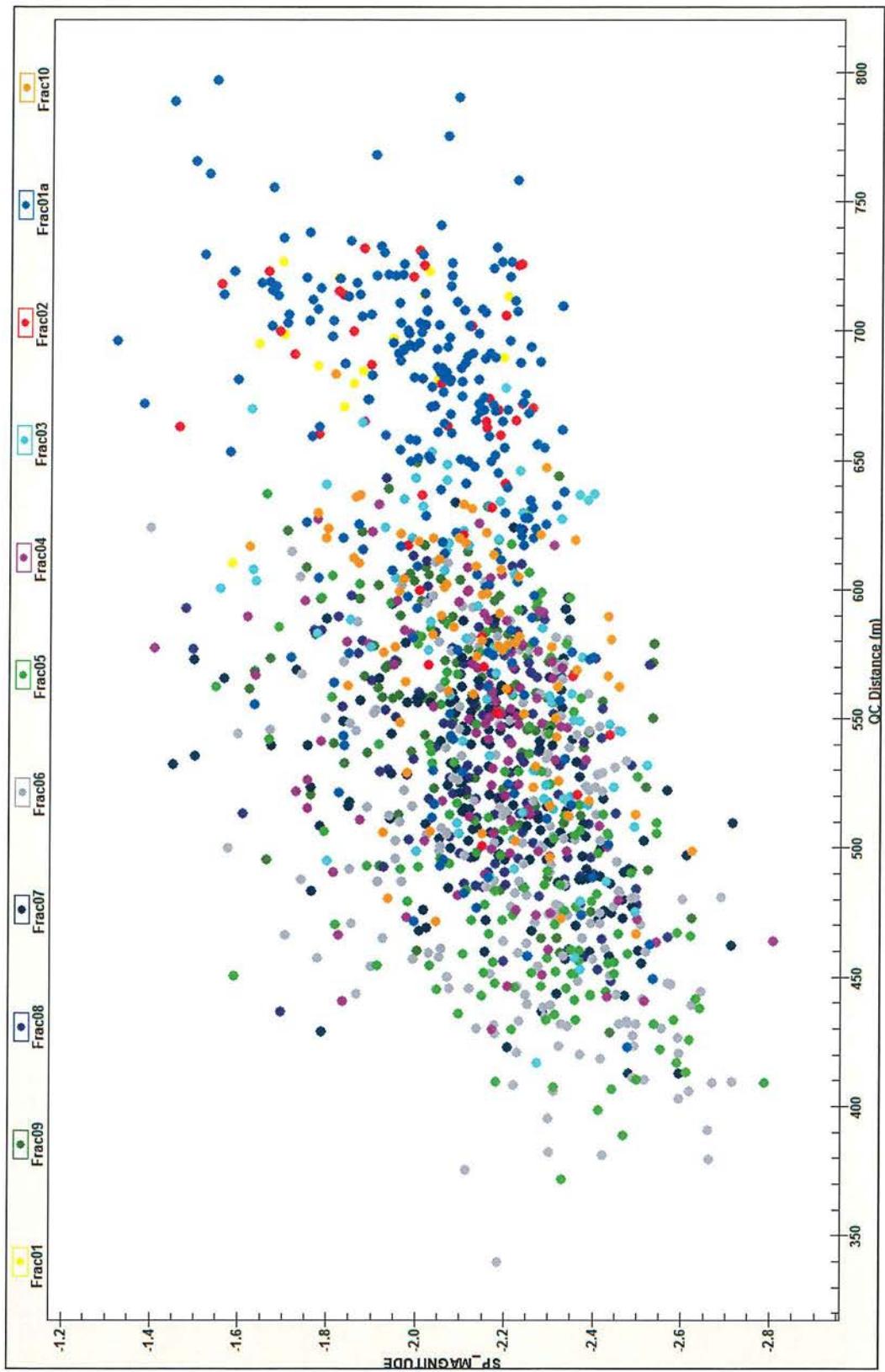
Schlumberger

# Events (side view, azimuth 30, deviation 90)



**Schlumberger**

# Magnitude vs distance

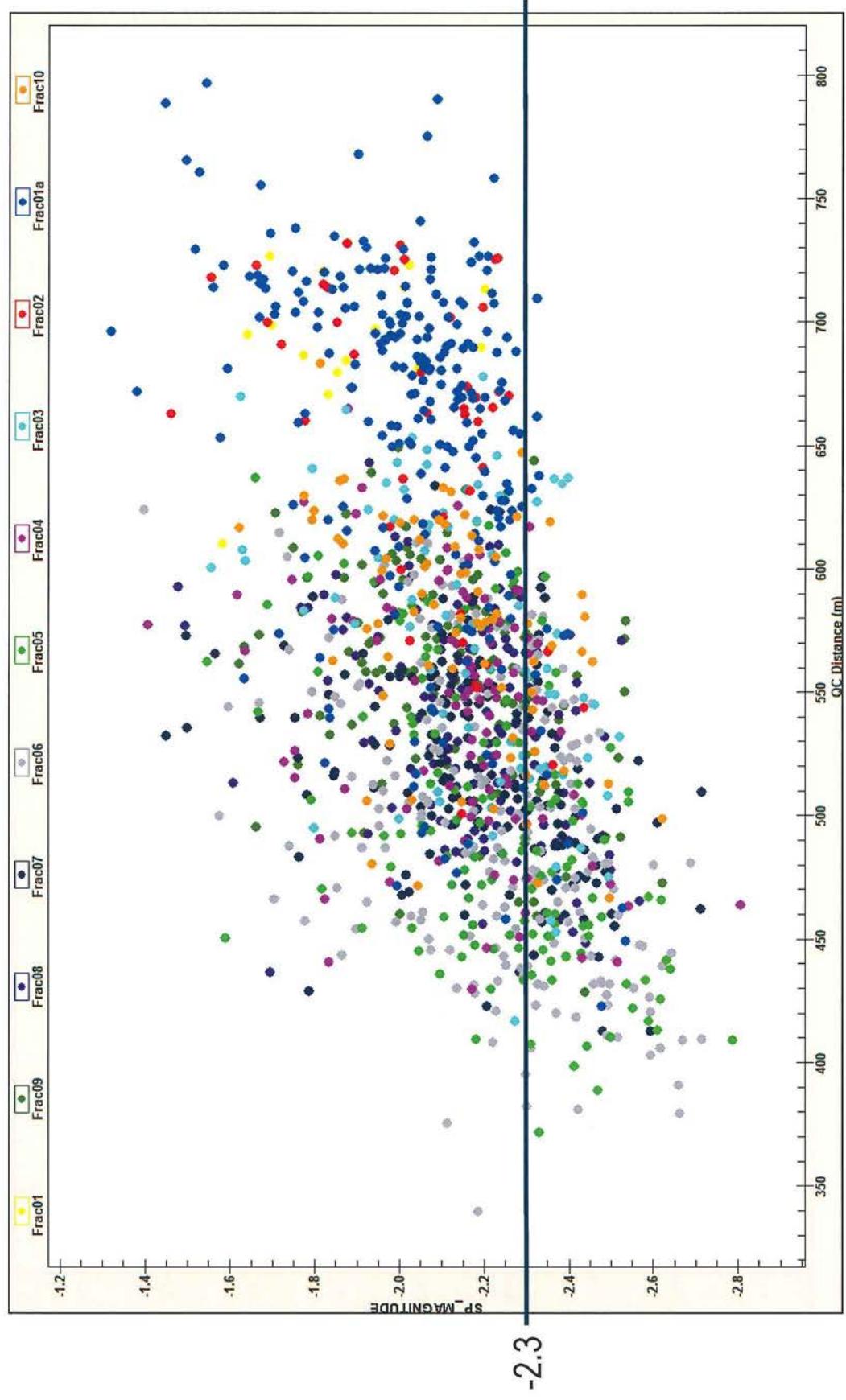


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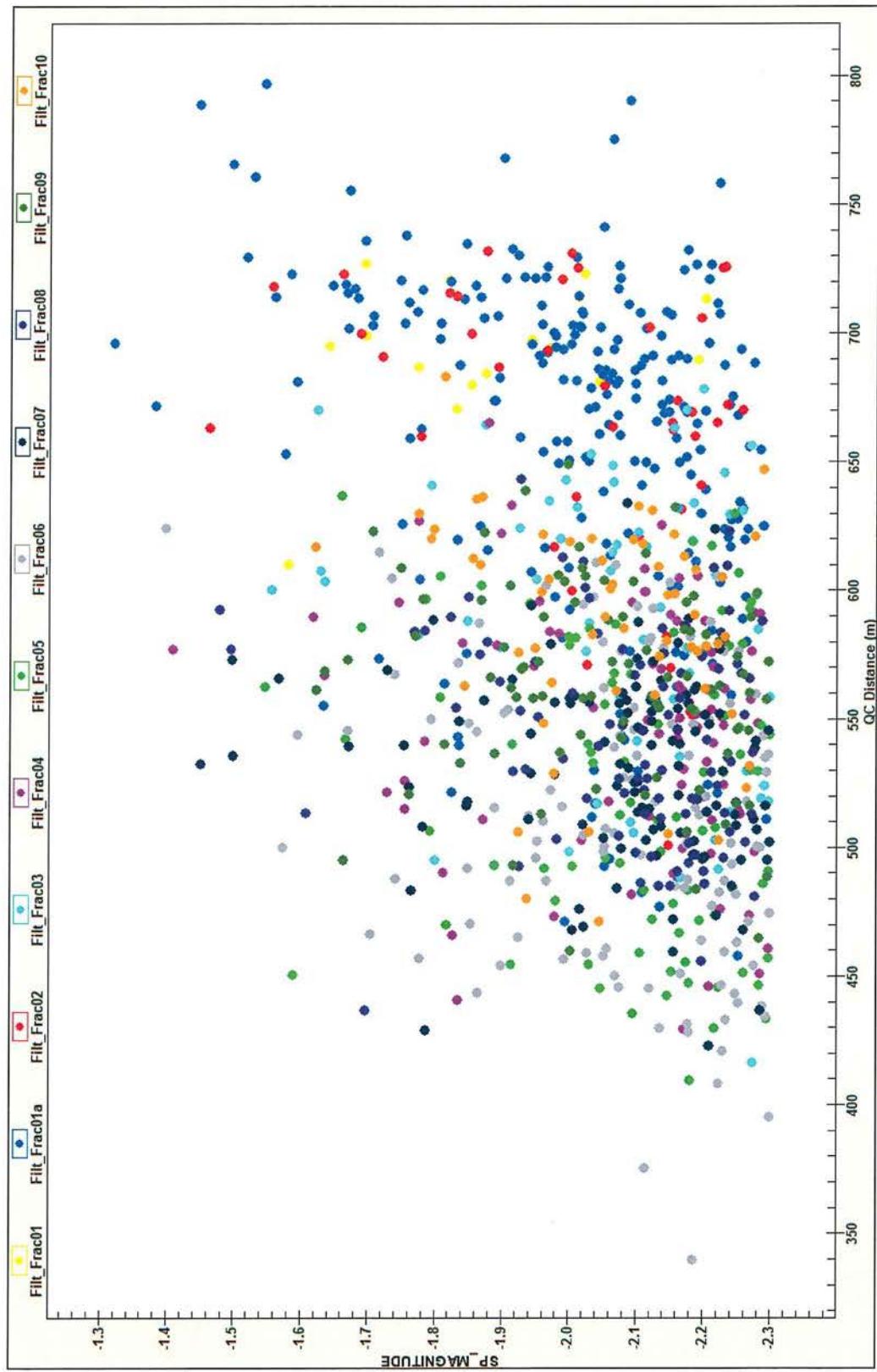
**Schlumberger**

# Magnitude vs distance



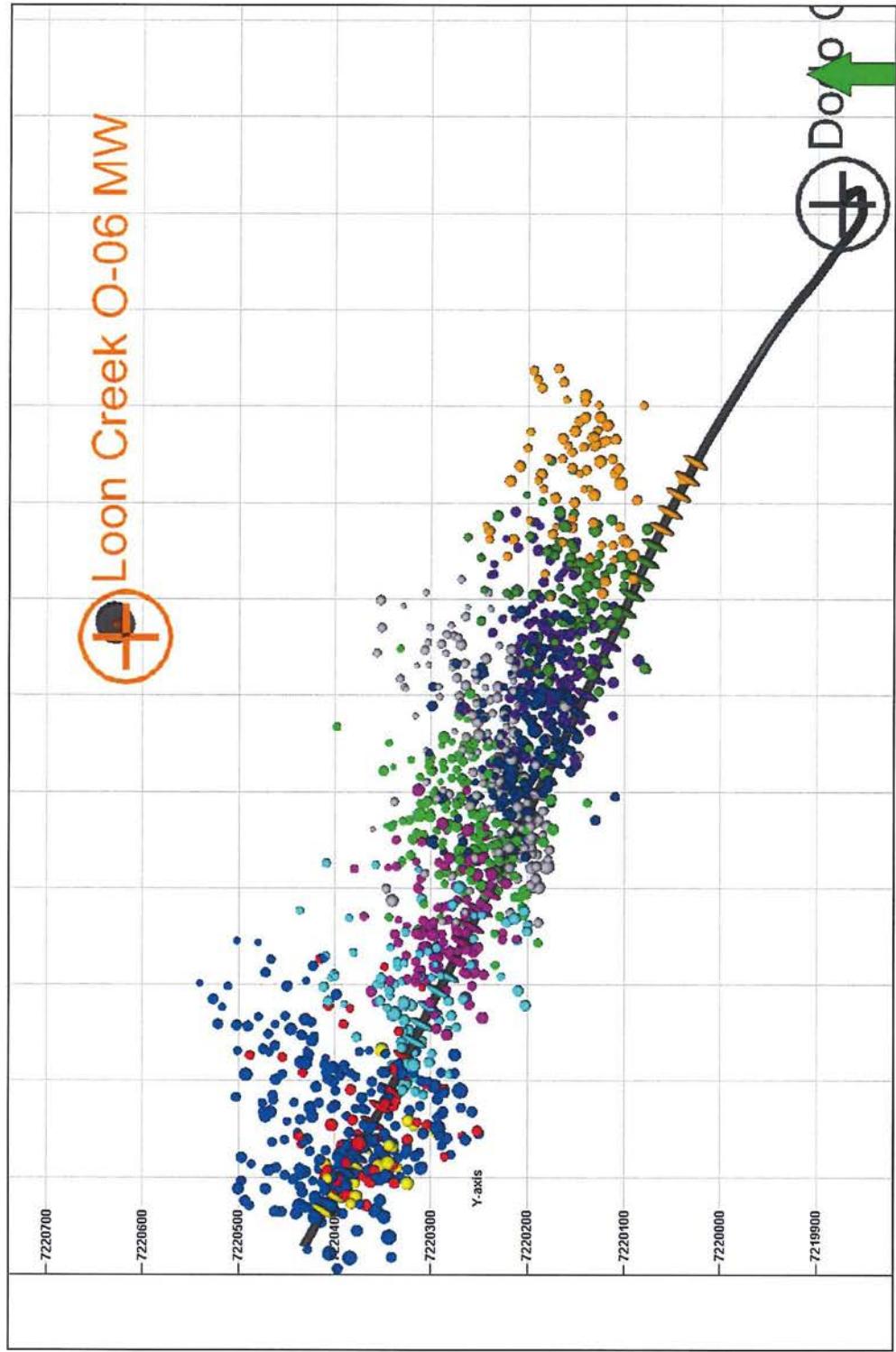
**Schlumberger**

# Magnitude vs distance filtered



**Schlumberger**

# Events (top view)

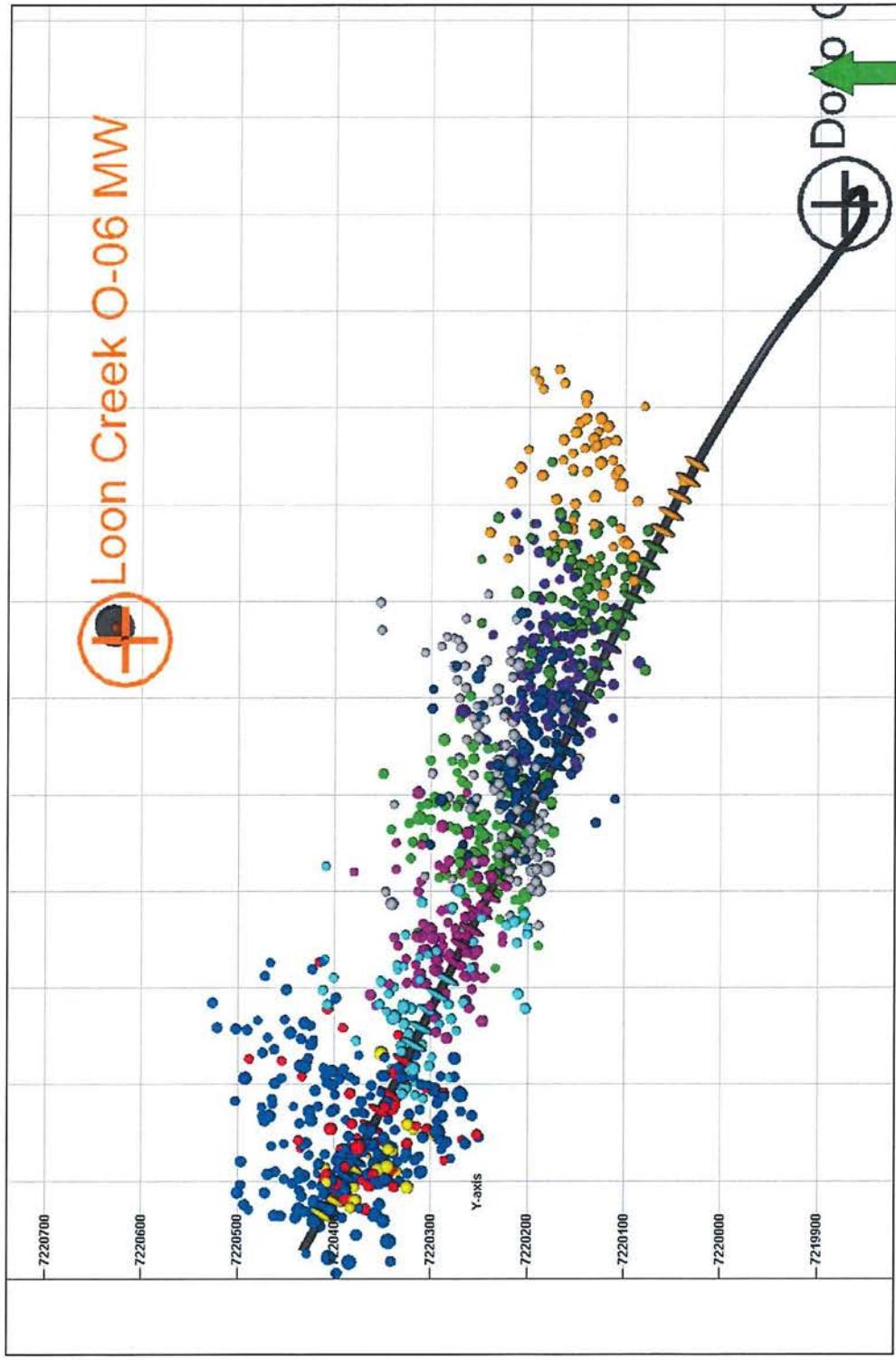


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**Schlumberger**

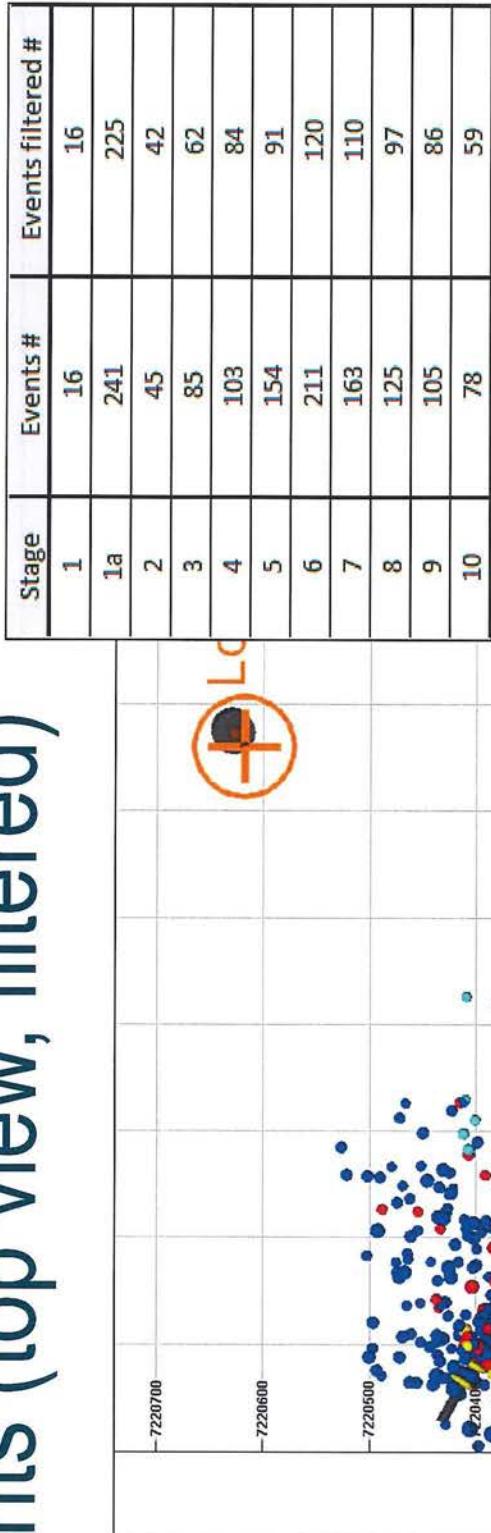
# Events (top view, filtered)



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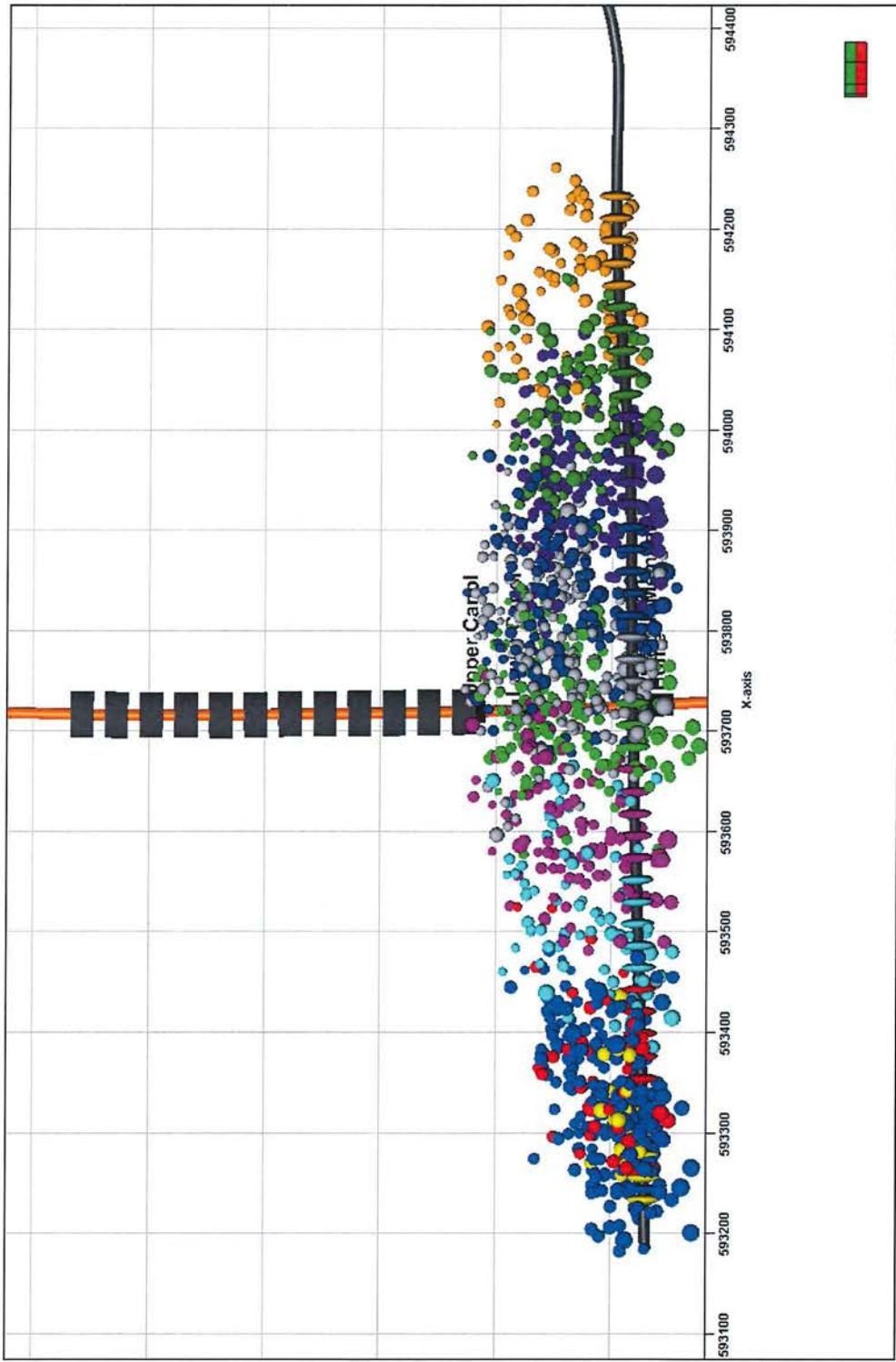
**Schlumberger**

# Events (top view, filtered)



Schlumberger

# Events (side view, azimuth 30, deviation 90)

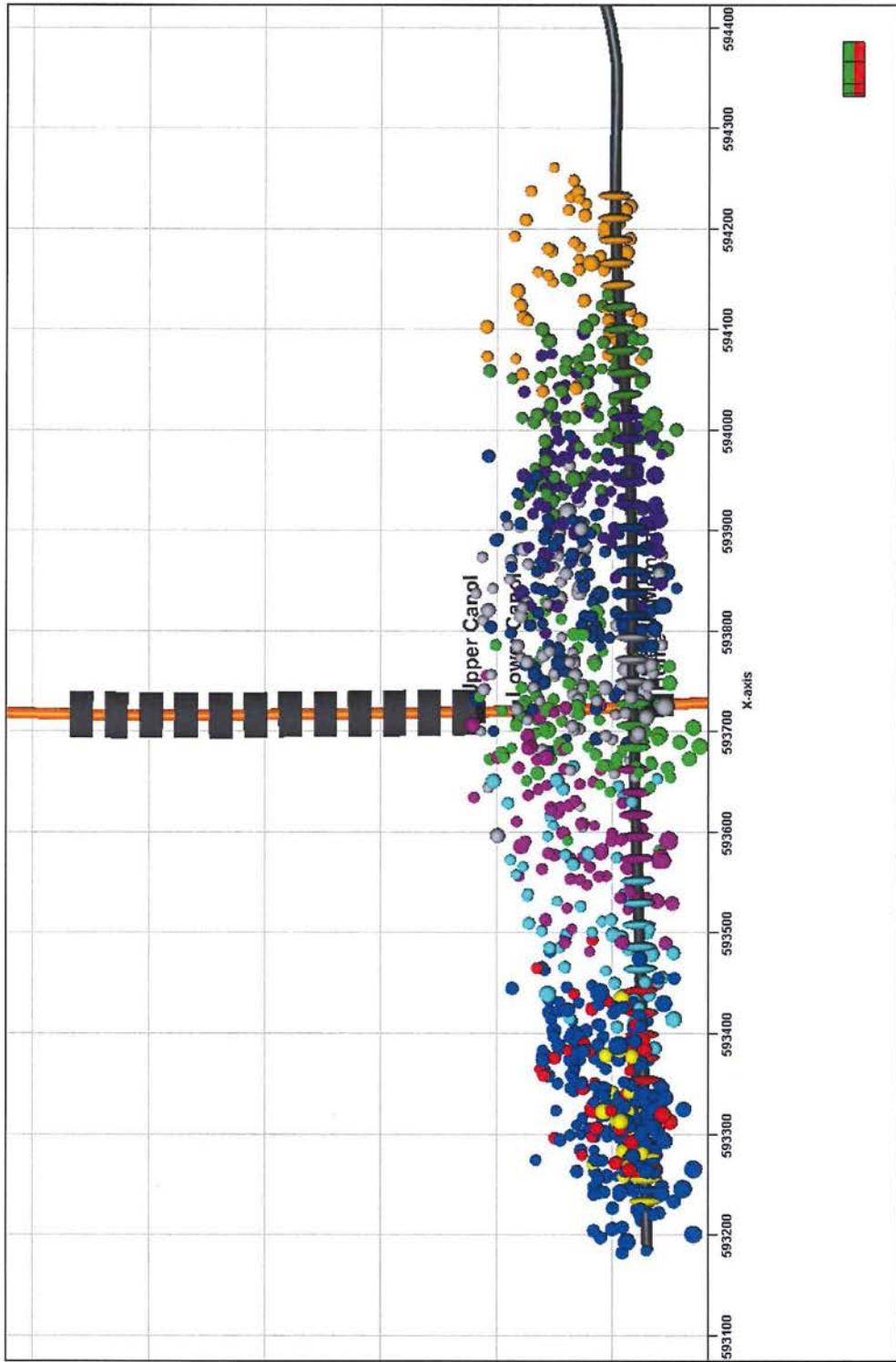


Microseismic Services  
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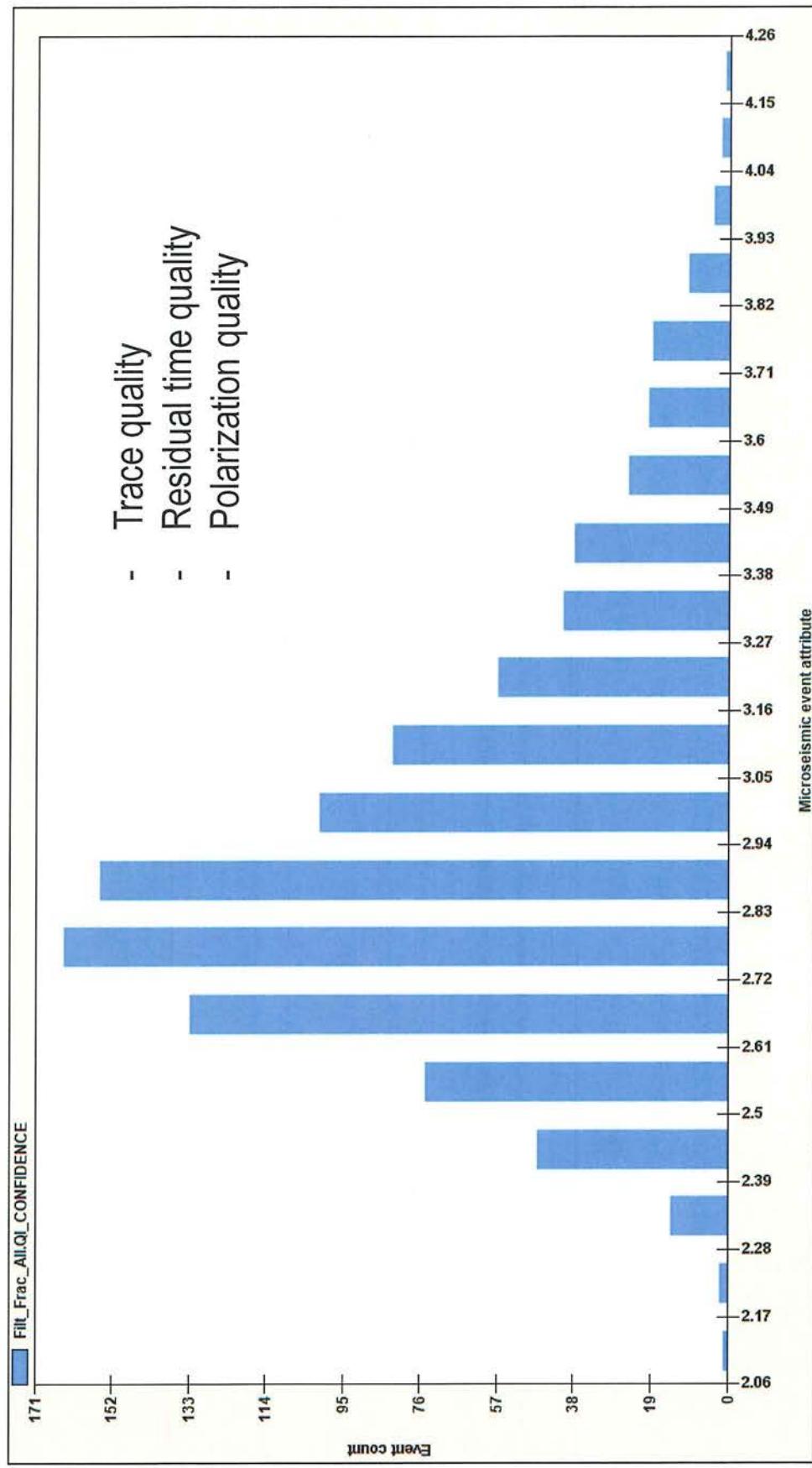
**Schlumberger**

# Events (side view, filtered, azimuth 30, deviation 90)



**Schlumberger**

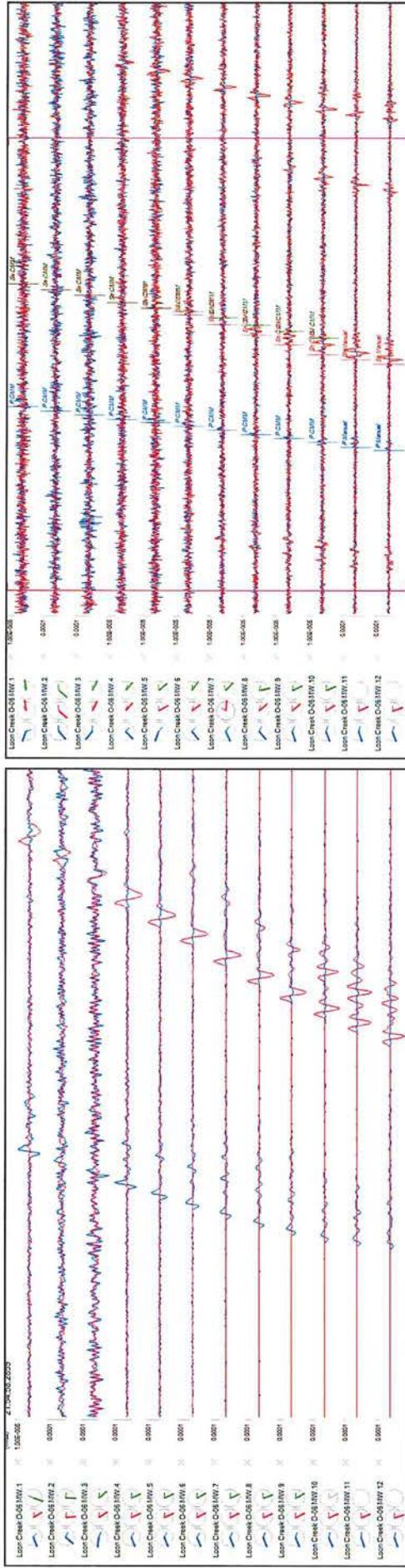
# Confidence factor (MW filtered)



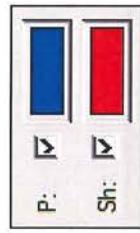
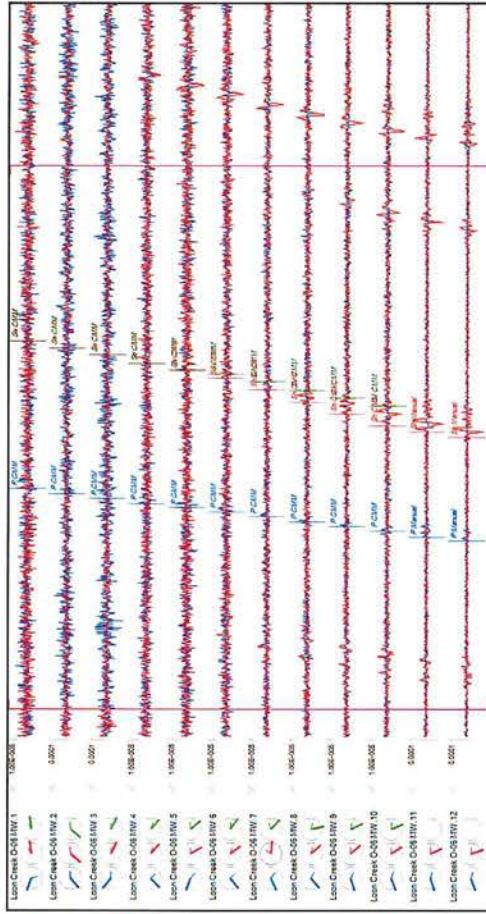
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# Confidence factor

3.8



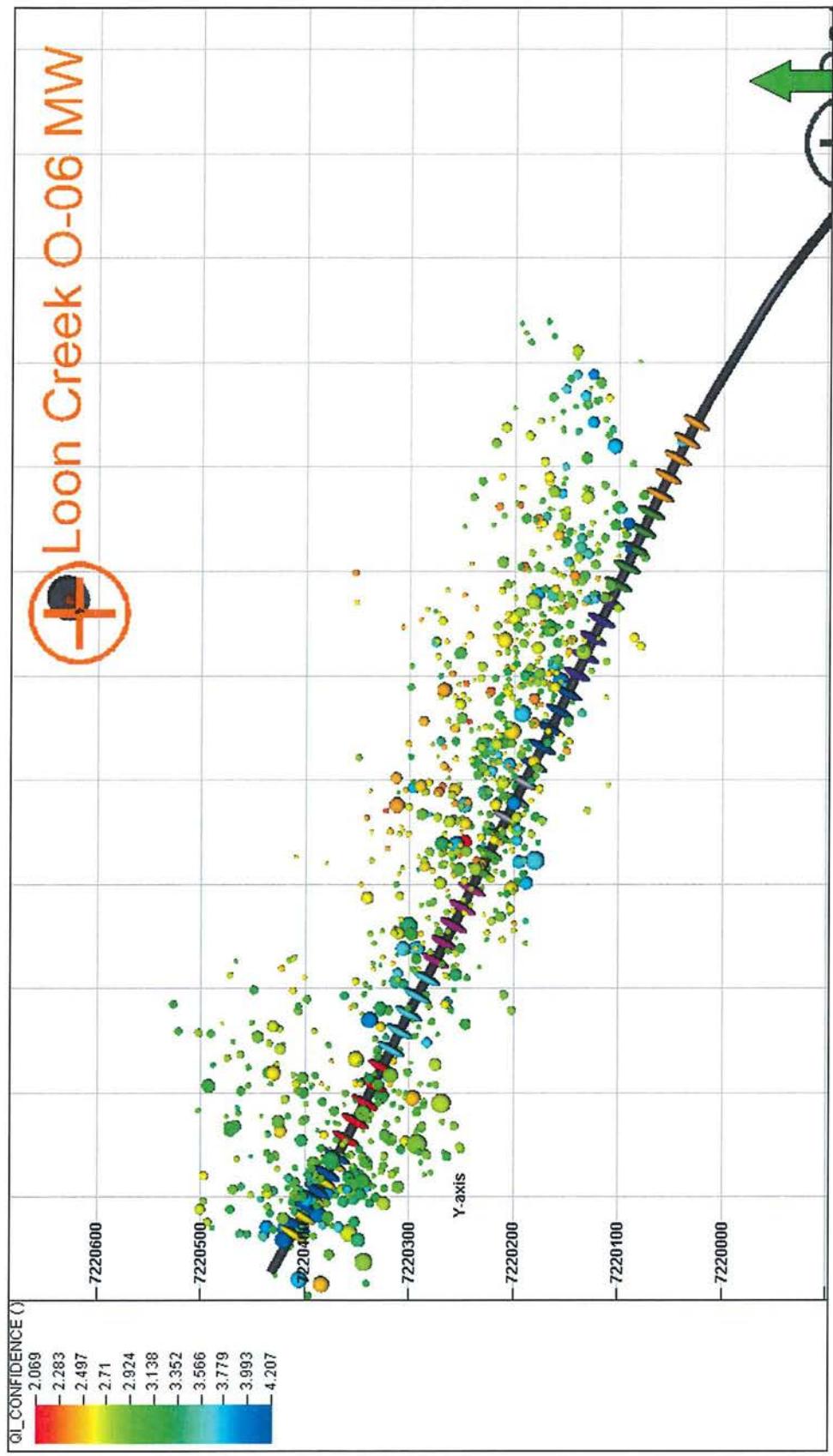
2.8



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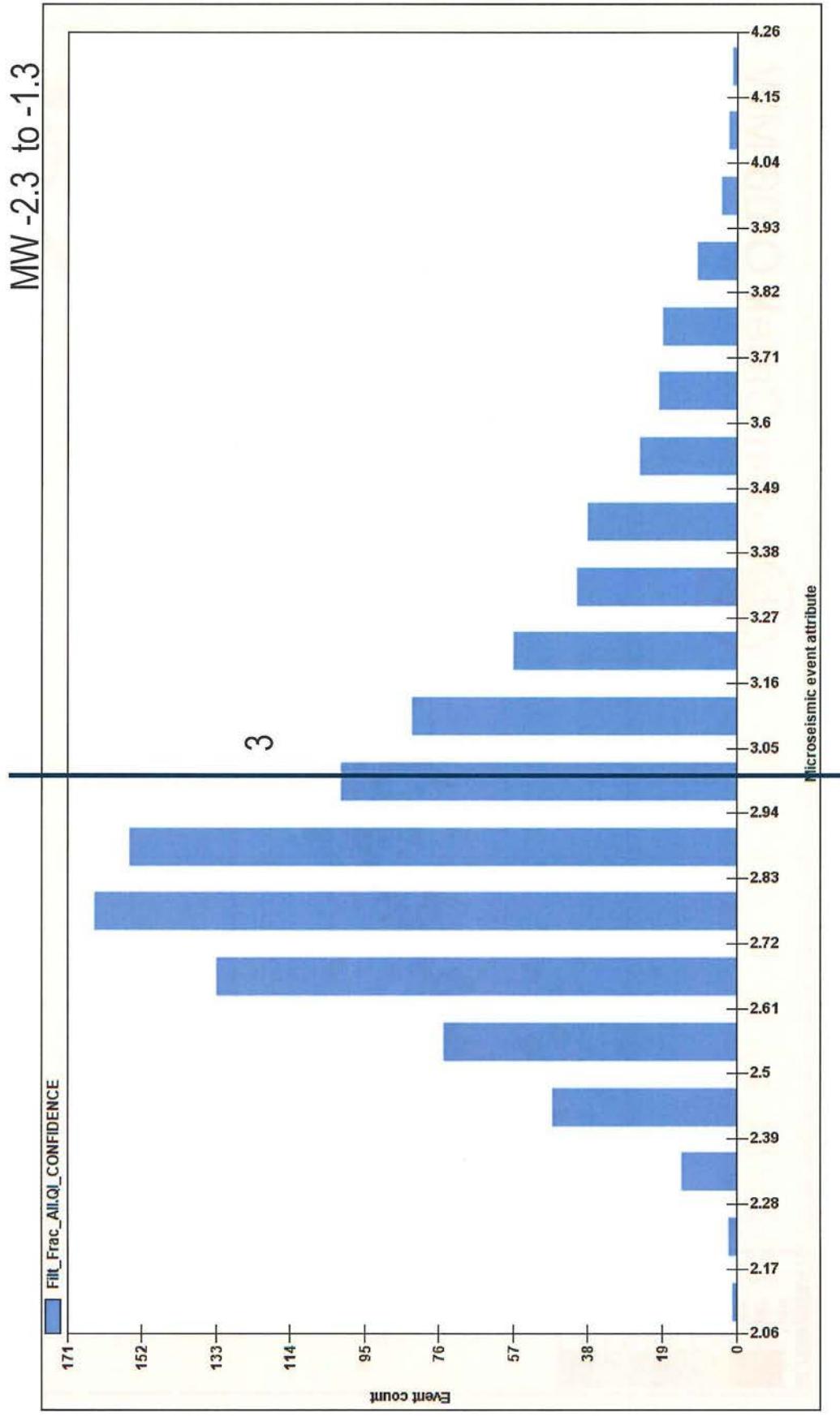
# Confidence factor (MW filtered)



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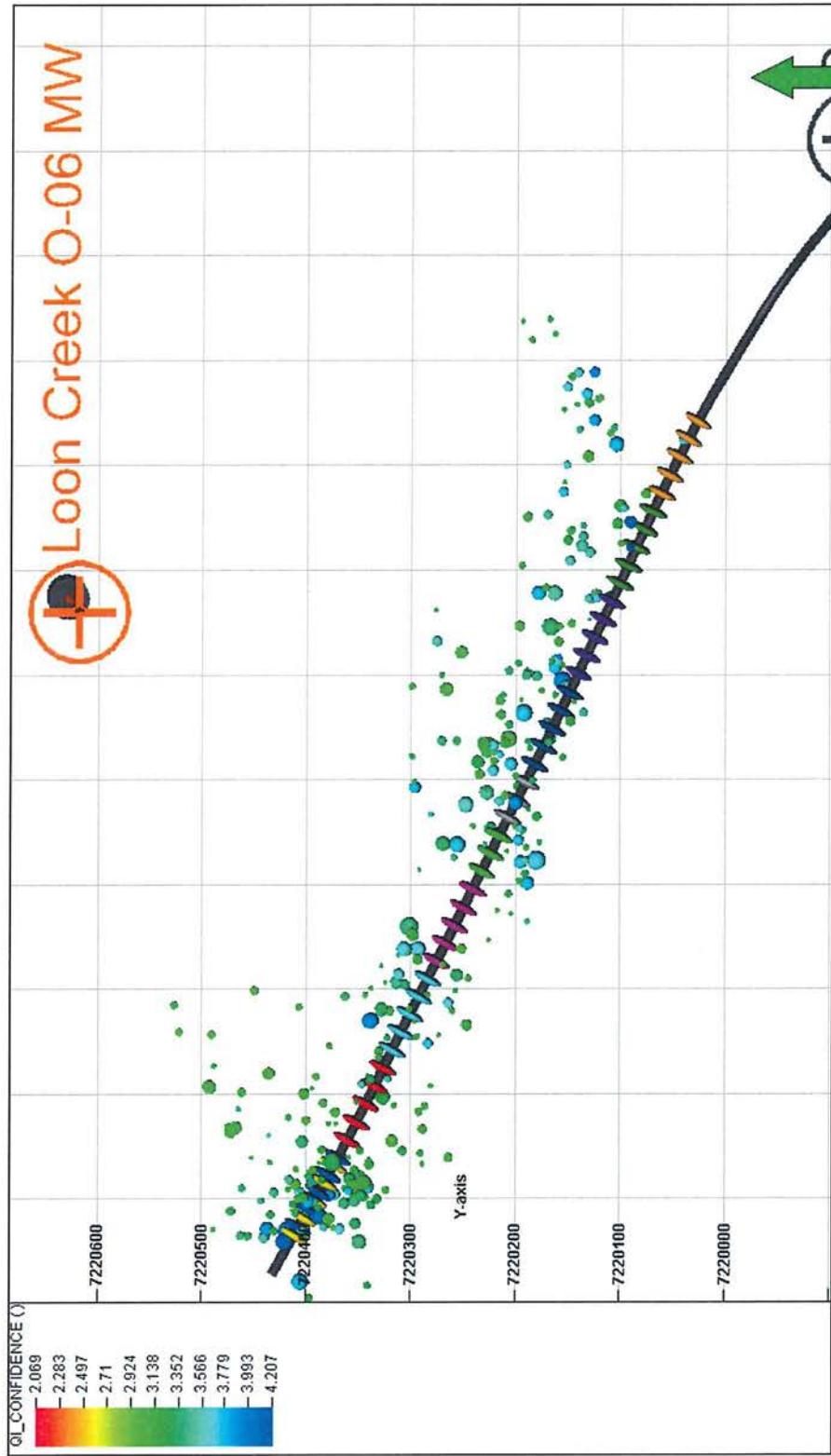
**Schlumberger**

# Confidence factor (MW filtered)



**Schlumberger**

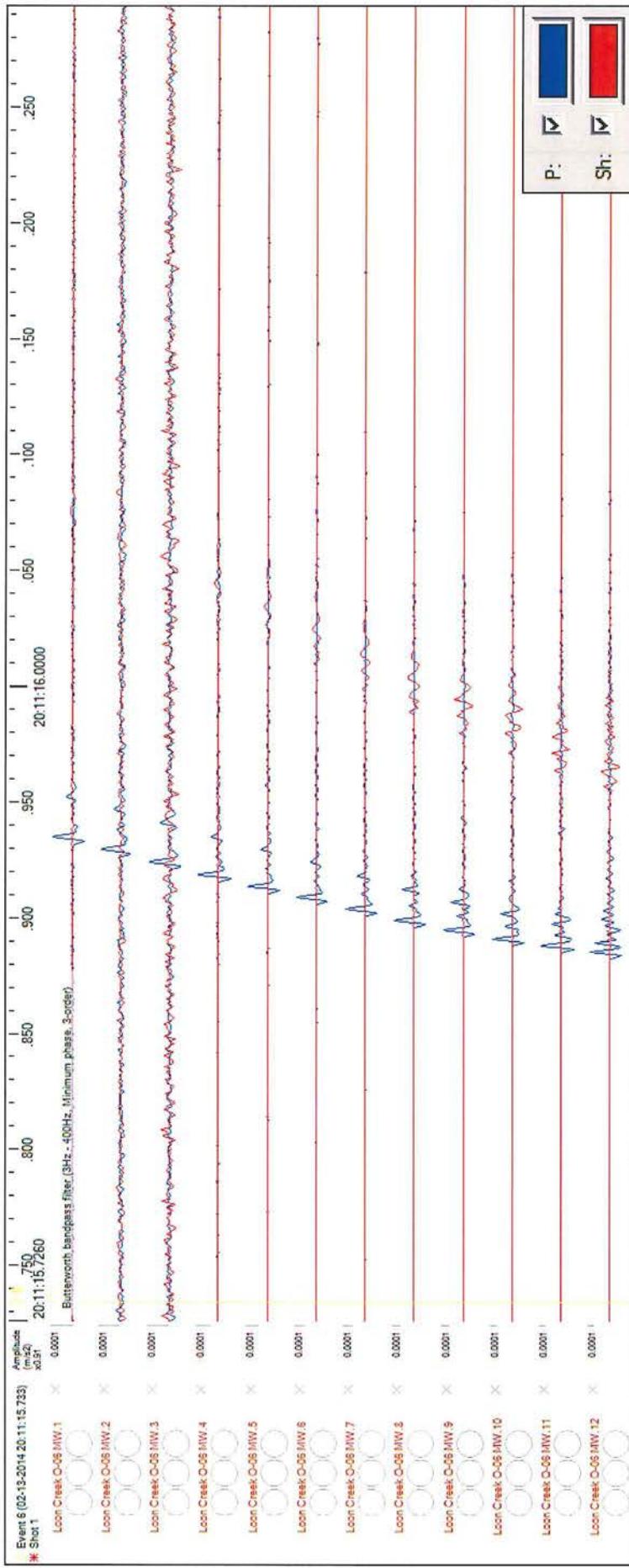
# Confidence factor $\geq 3$ (MW filtered)



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**Schlumberger**

## Perf 4 shot 1

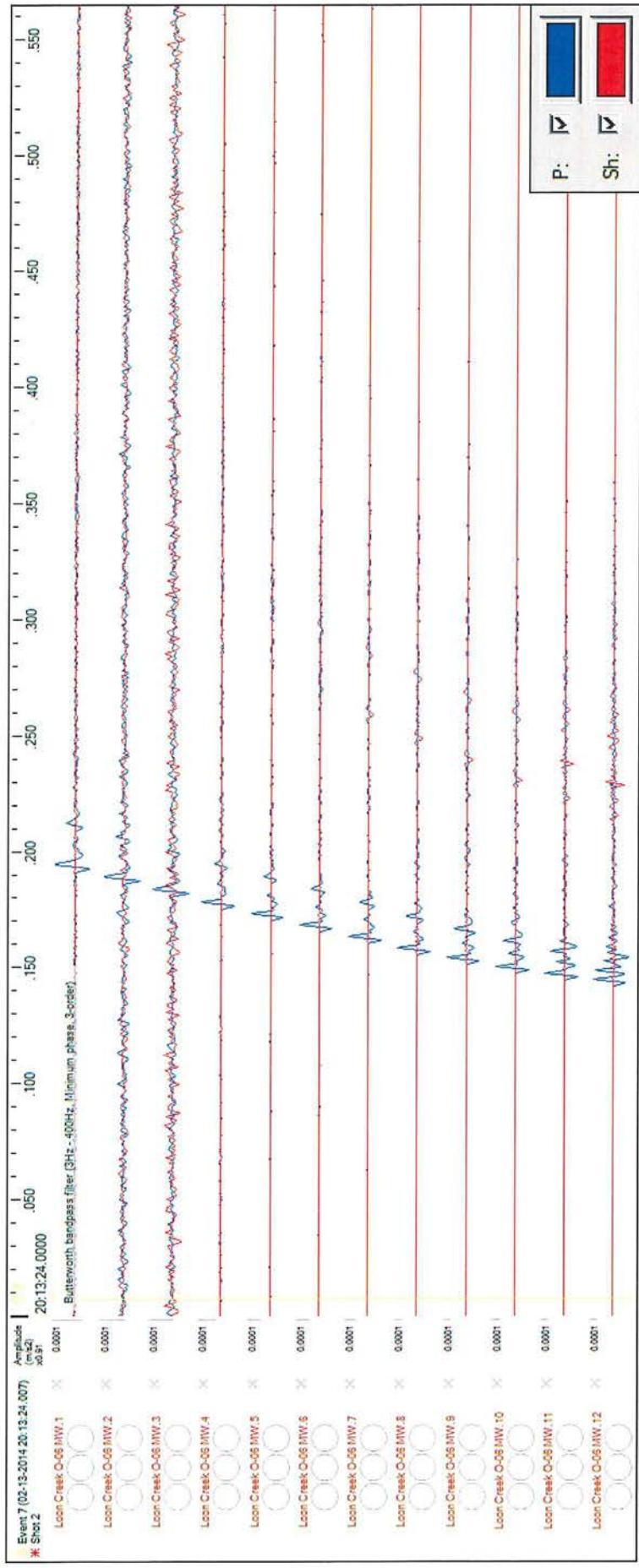


## Microseismic Services

### Image·Interpret·Integrate



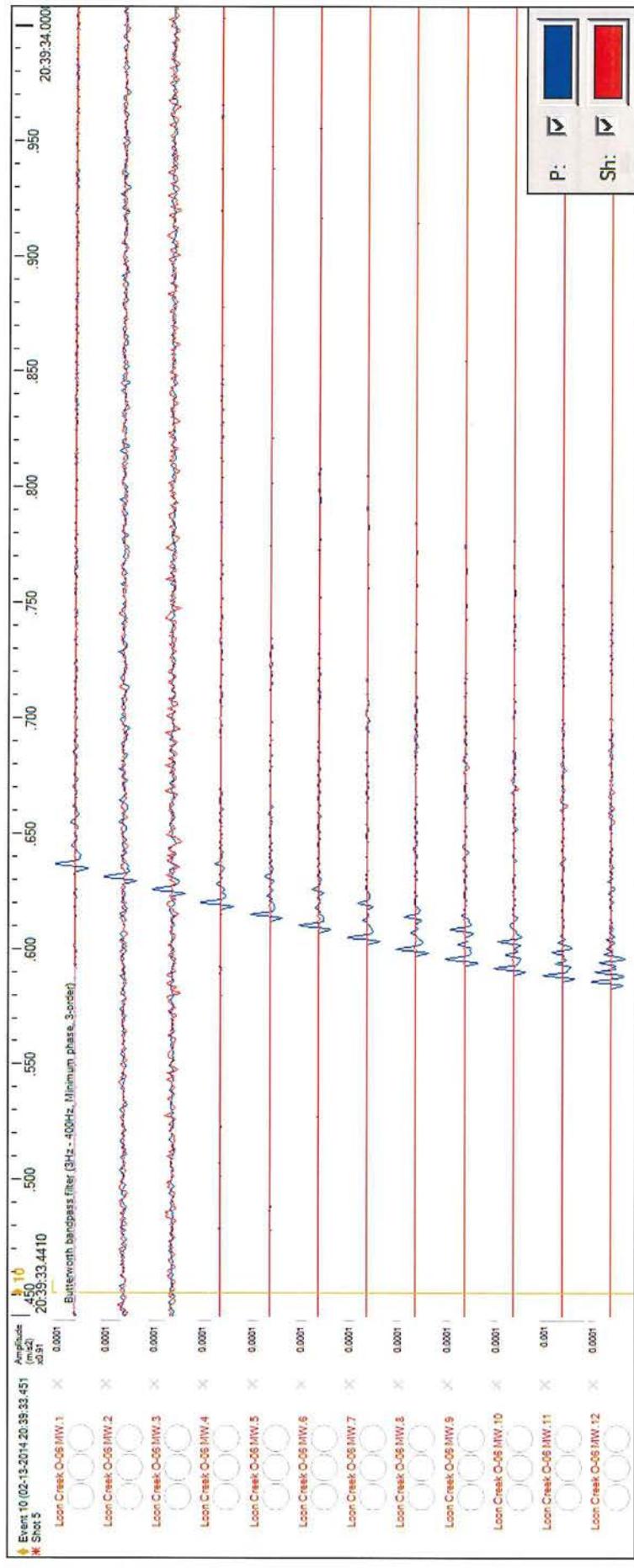
# Perf 4 shot 2



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**Schlumberger**

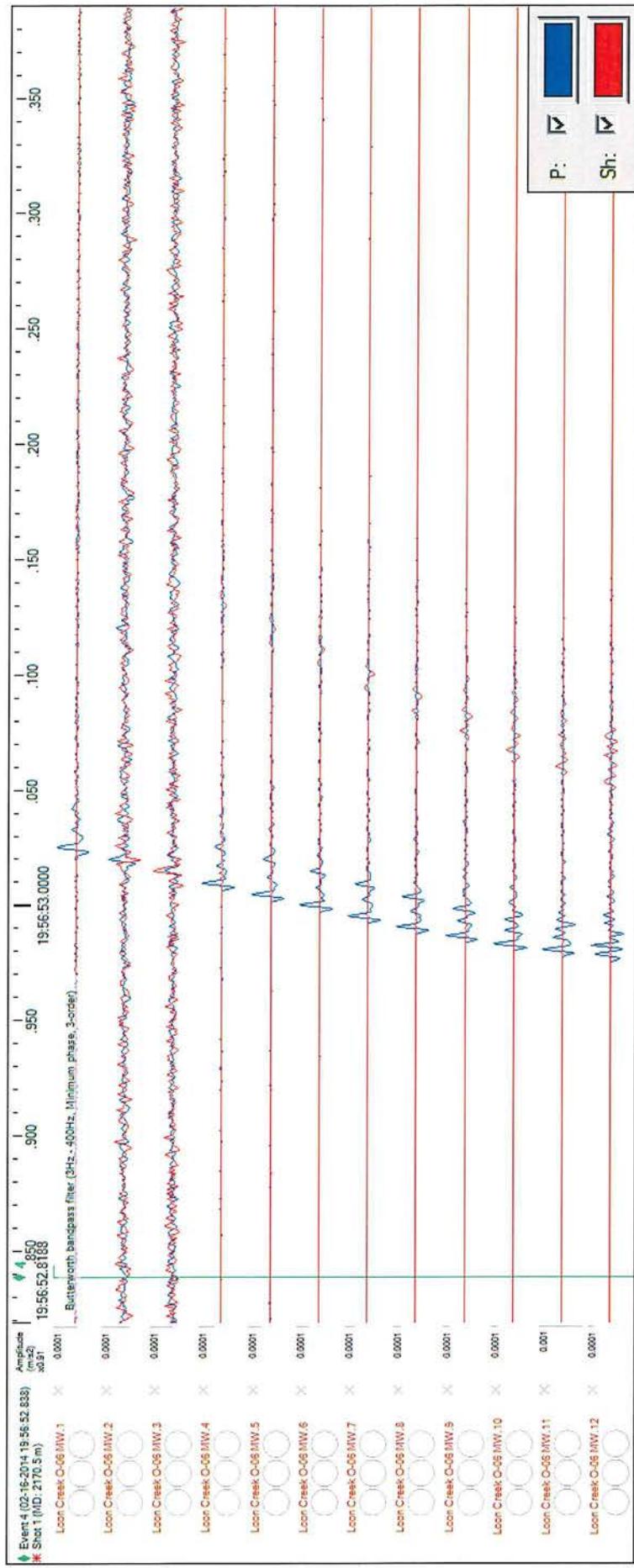
# Perf 4 shot 5



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**Schlumberger**

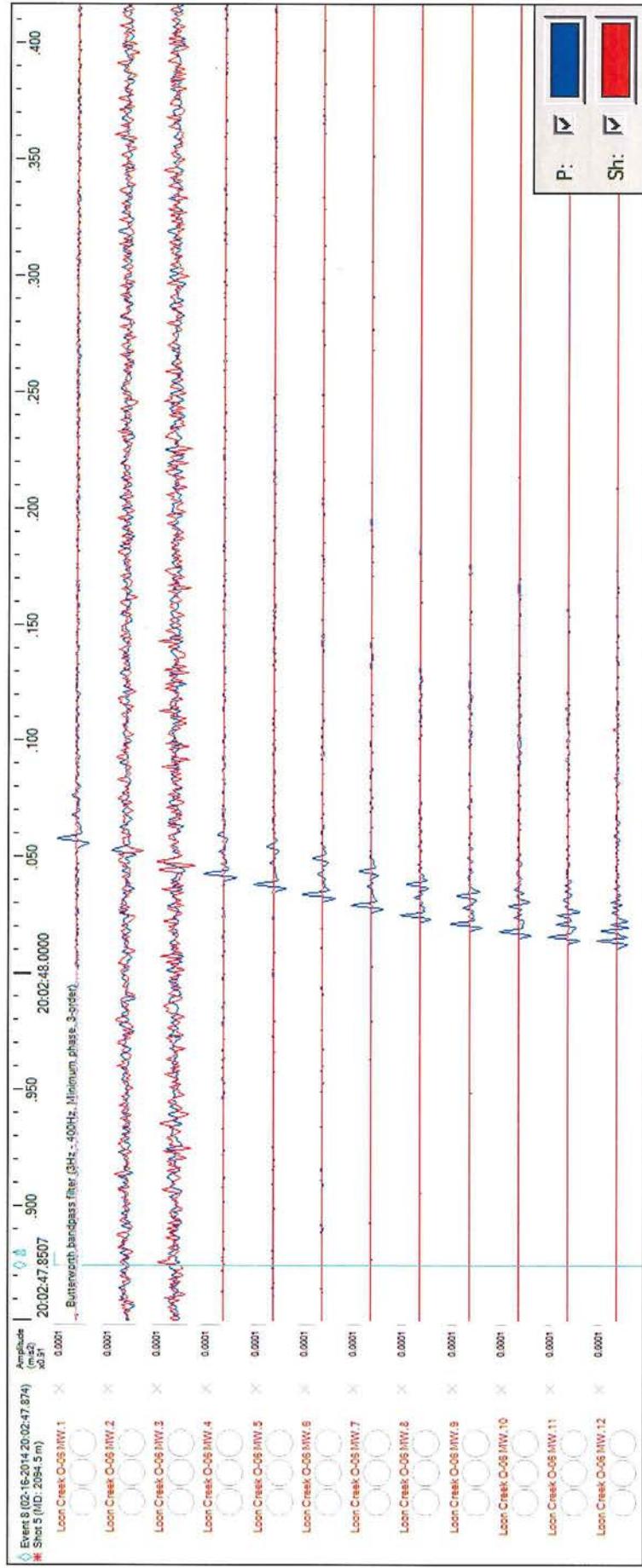
# Perf 9 shot 1



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**Schlumberger**

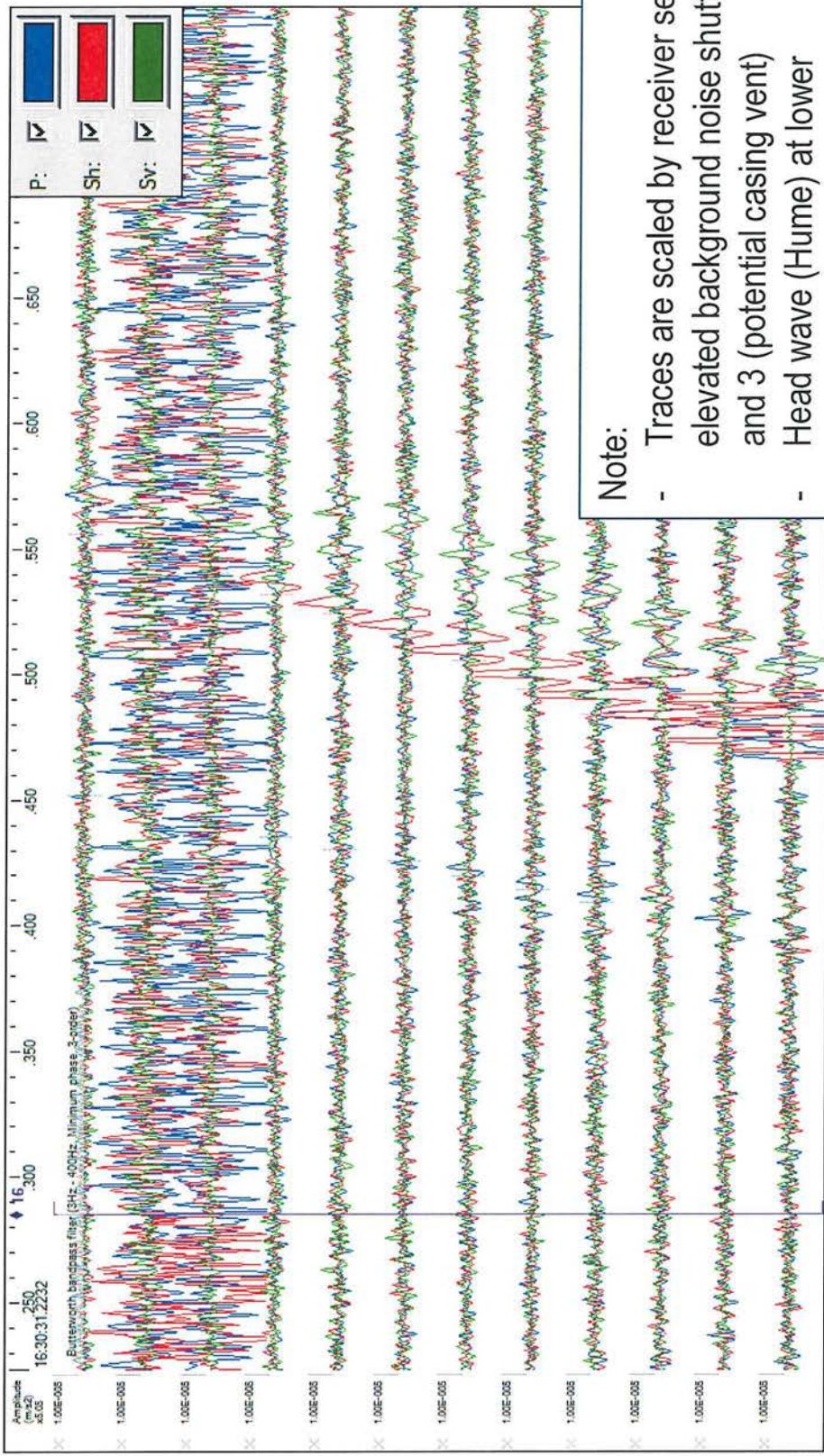
# Perf 9 shot 5



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**Schlumberger**

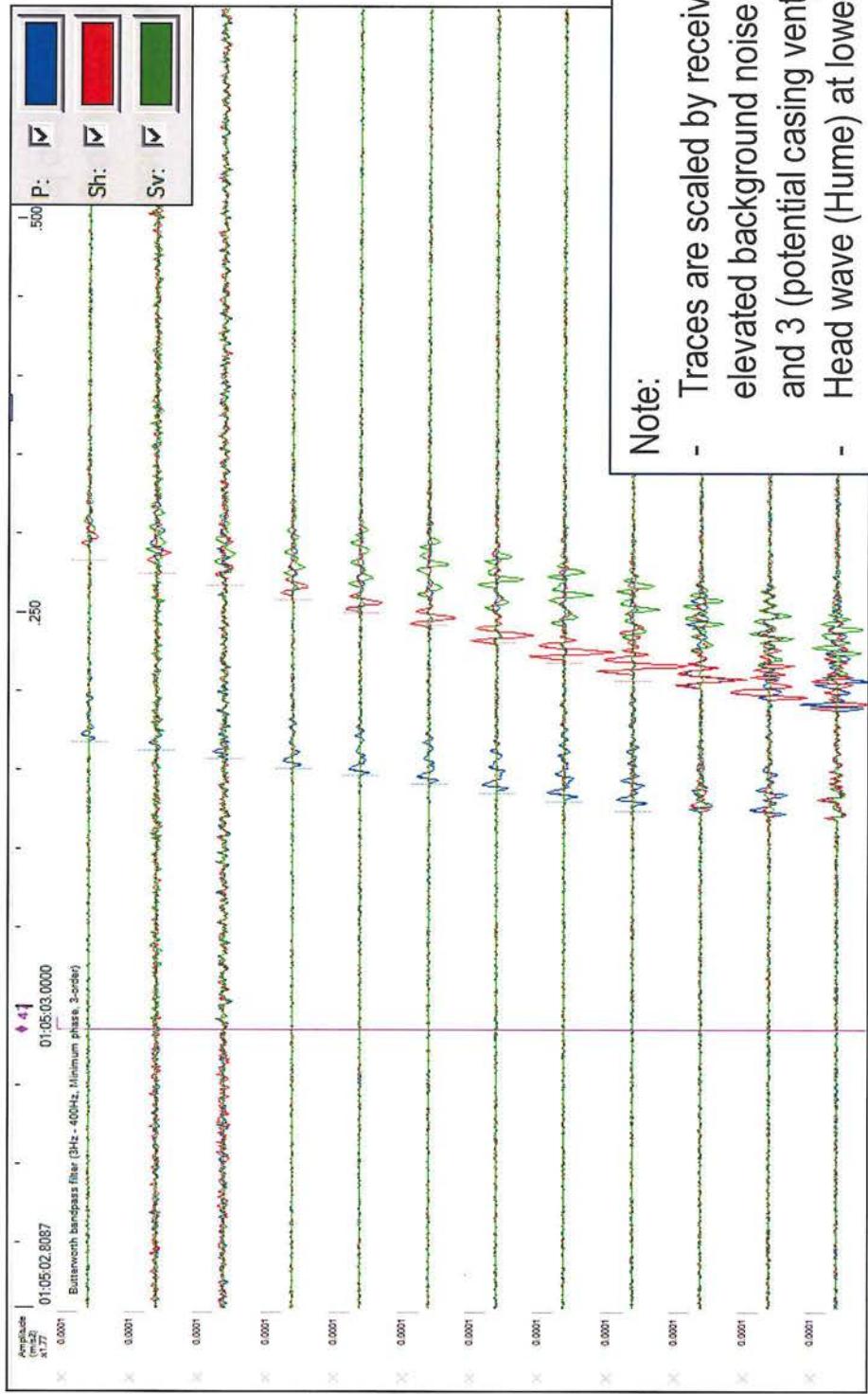
## Waveform example of low SNR (MW -2)



Note:

- elevated background noise shuttle 2 and 3 (potential casing vent)
- Head wave (Hume) at lower shuttles

# Waveform example of high SNR (MW -1.2)

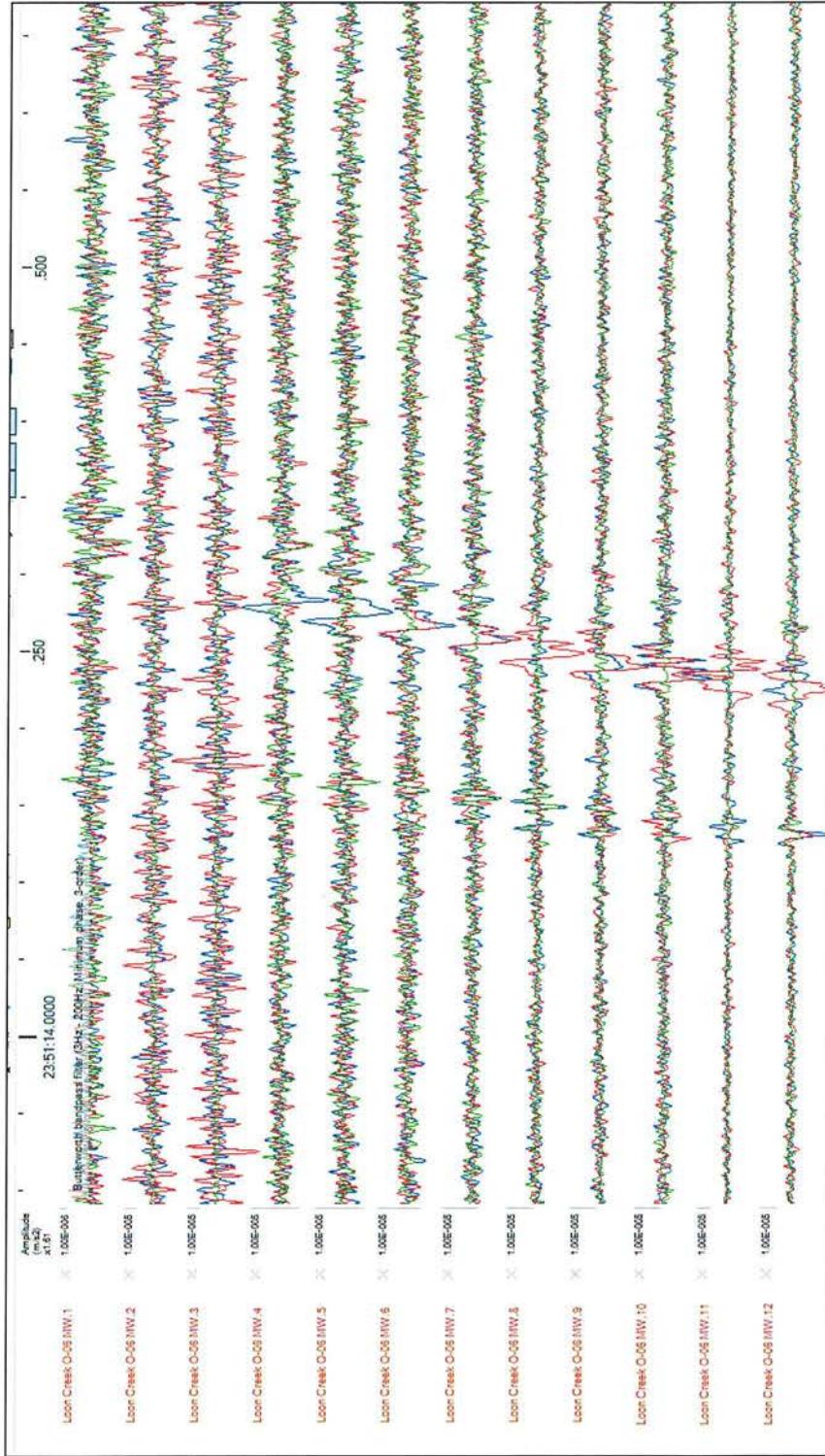


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# Event example stage 1 (MW -1.7)

P:    
Sh:    
Sv:  

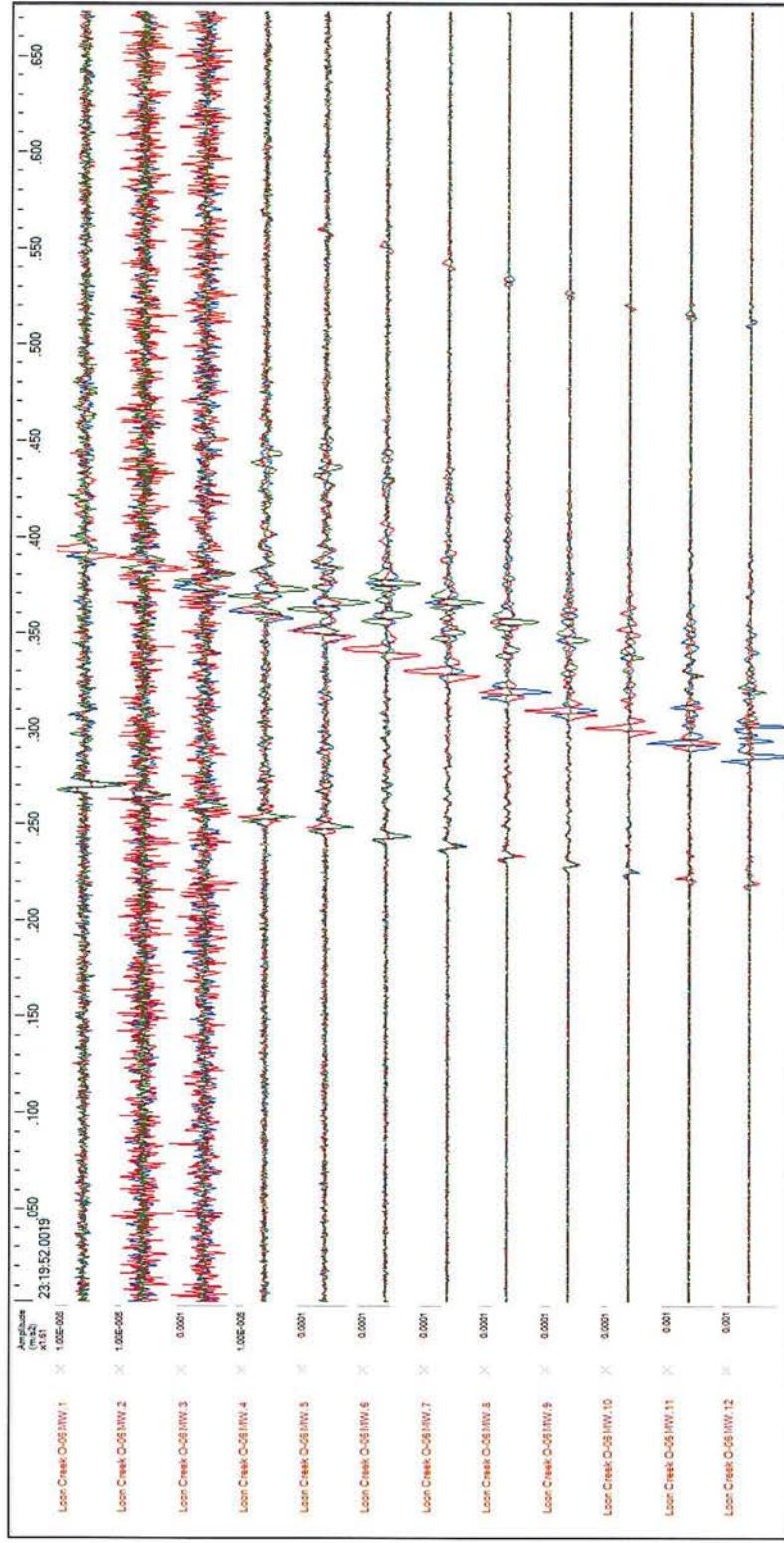


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## Event example stage 9 (MW -1.6)



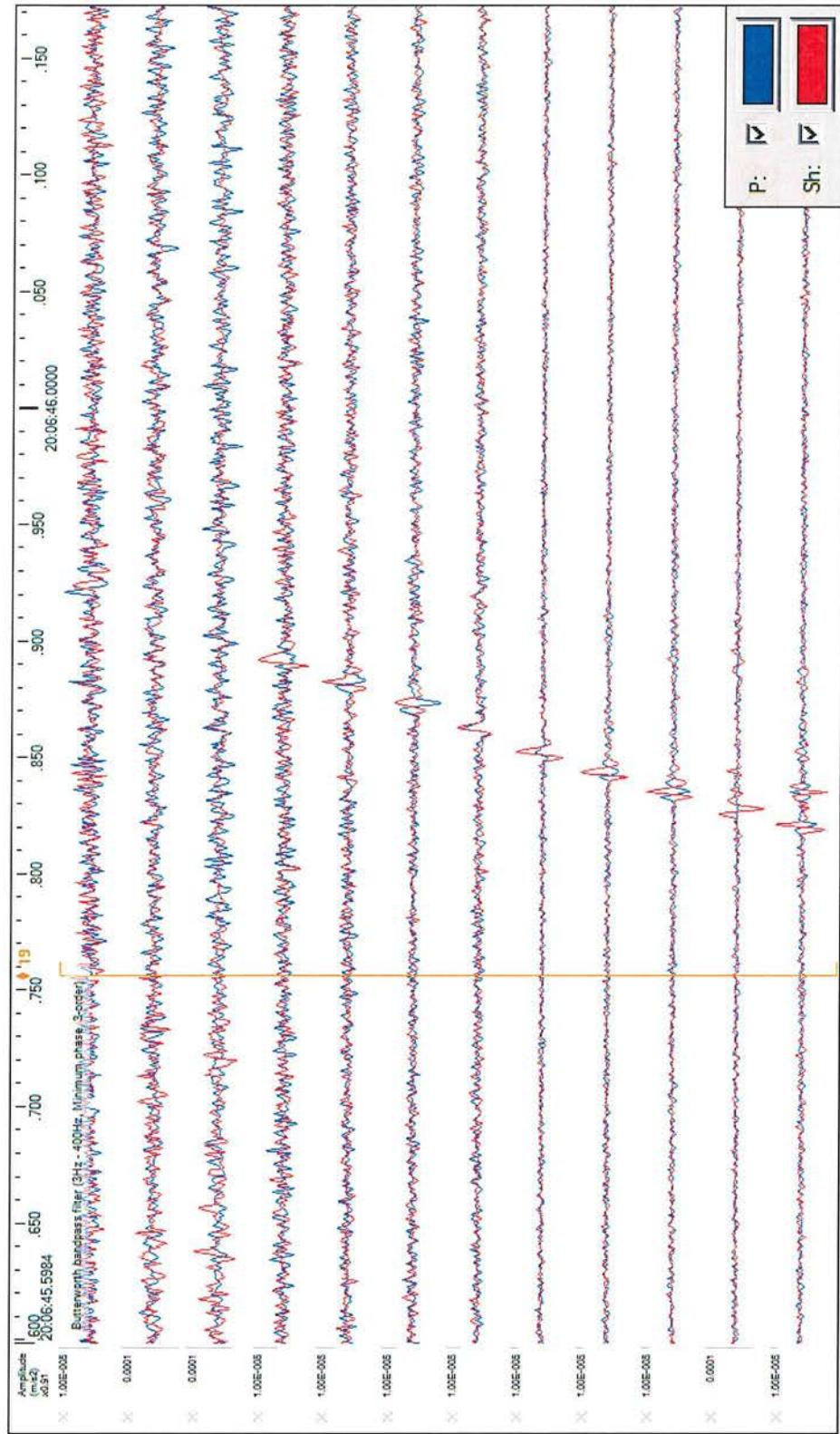
## Microseismic Services

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## Event example stage 2, no P-phase

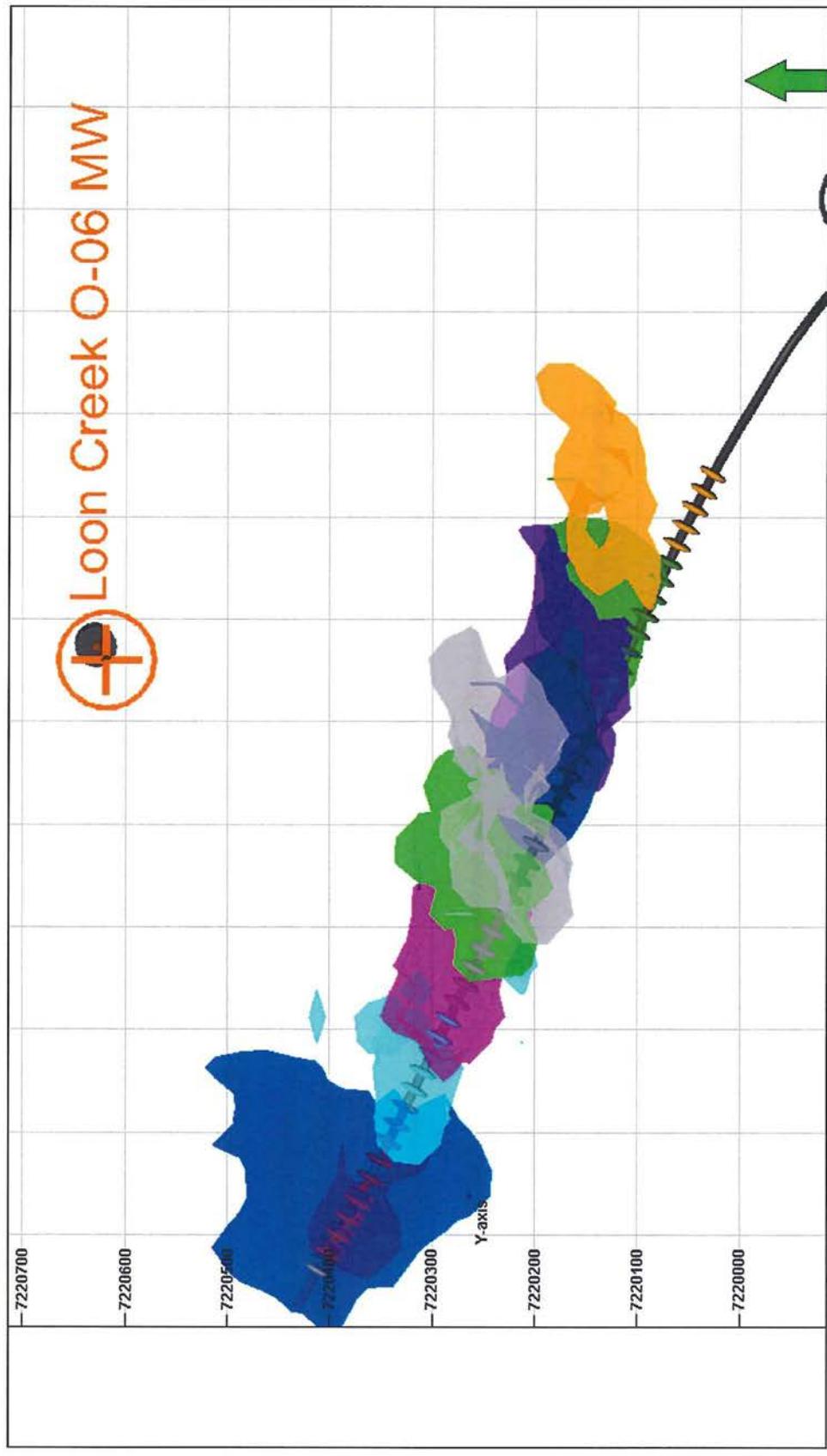


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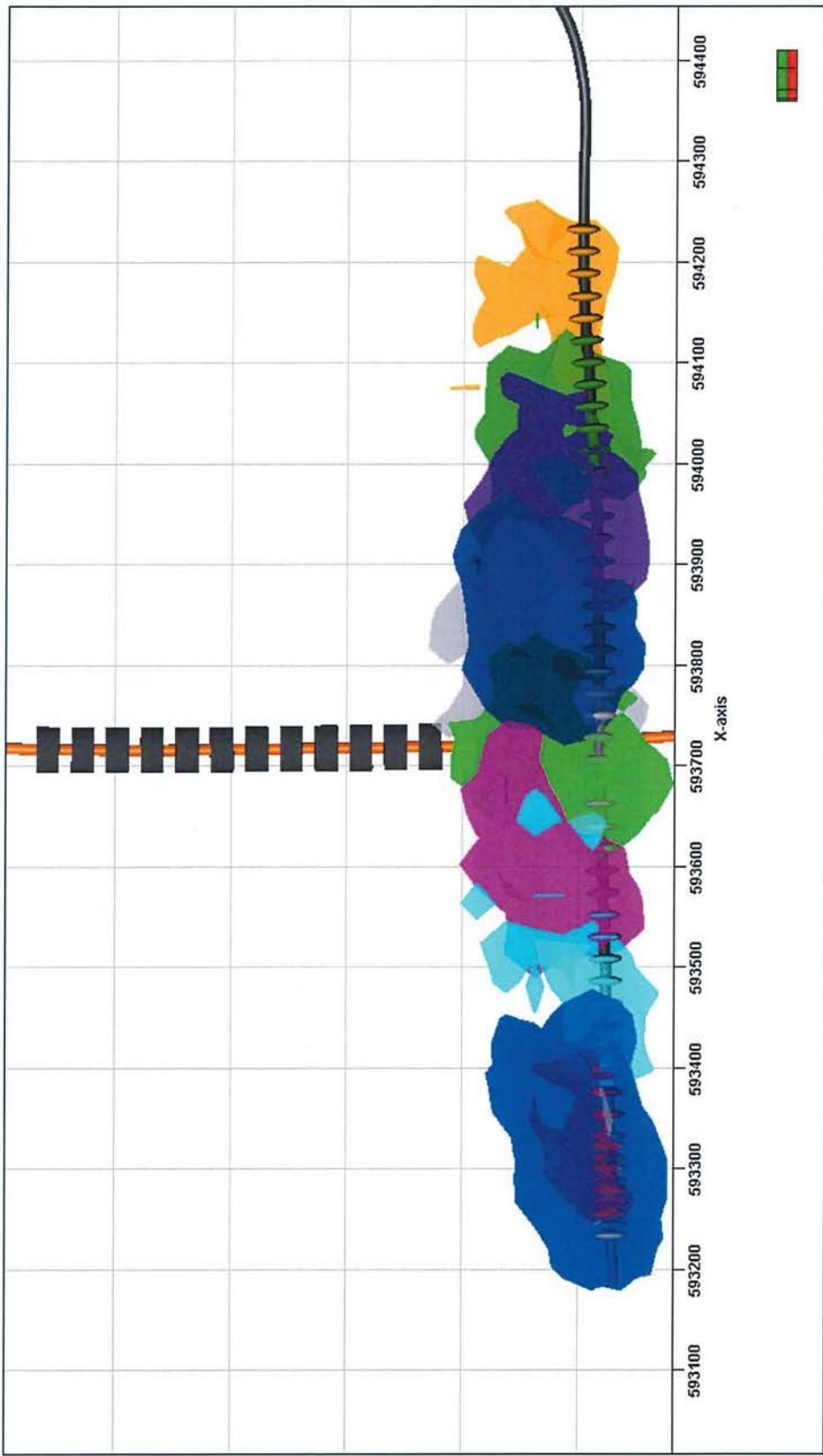
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# ESV (top view)



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# ESV (side view, deviation 90, azimuth 30)



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# Content

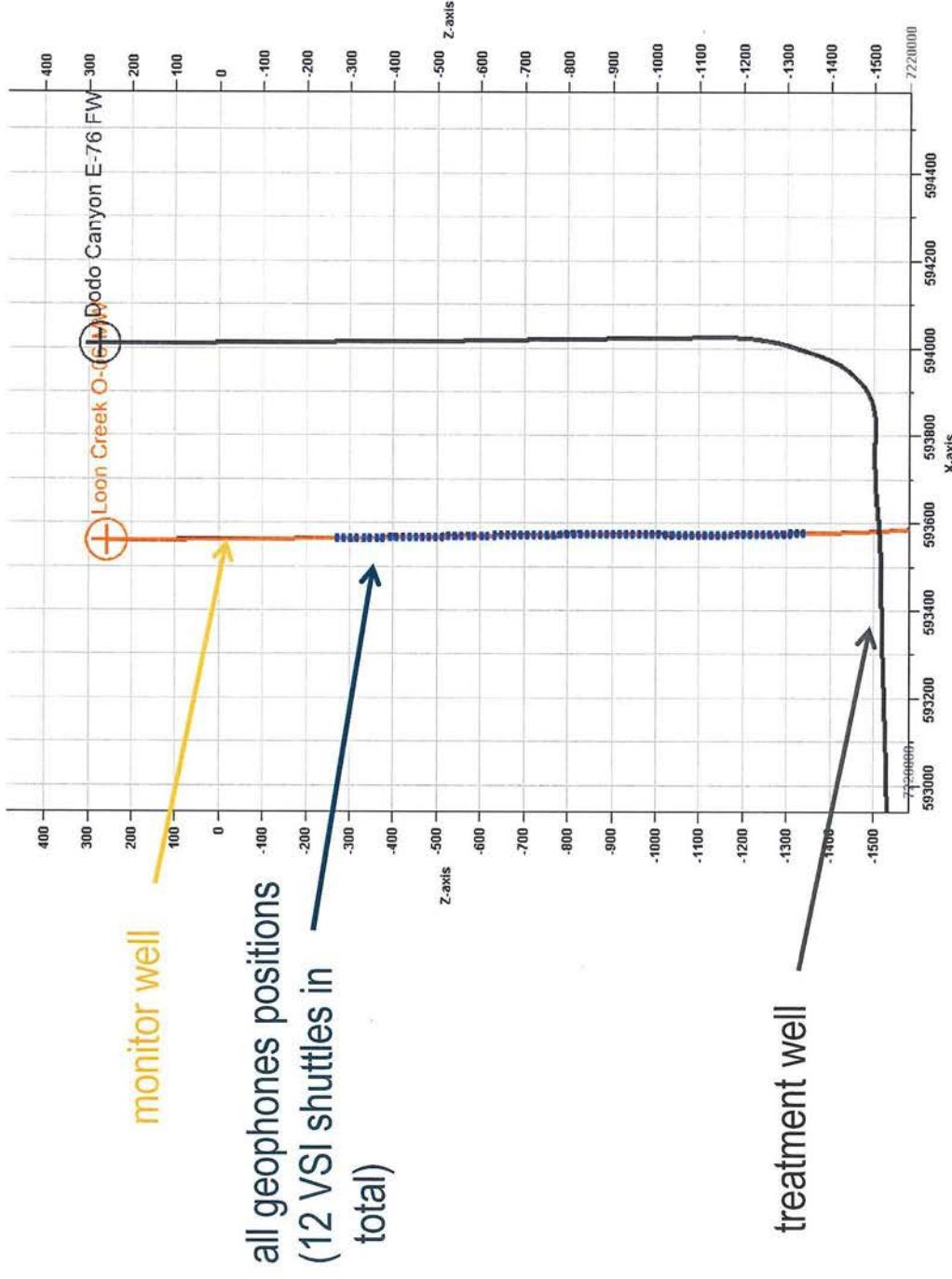
- Casing vent identification
- Receiver orientation
- Velocity model building
- Microseismic events
- Waveform examples
- ESV



Microseismic Services  
Image·Interpret·Integrate

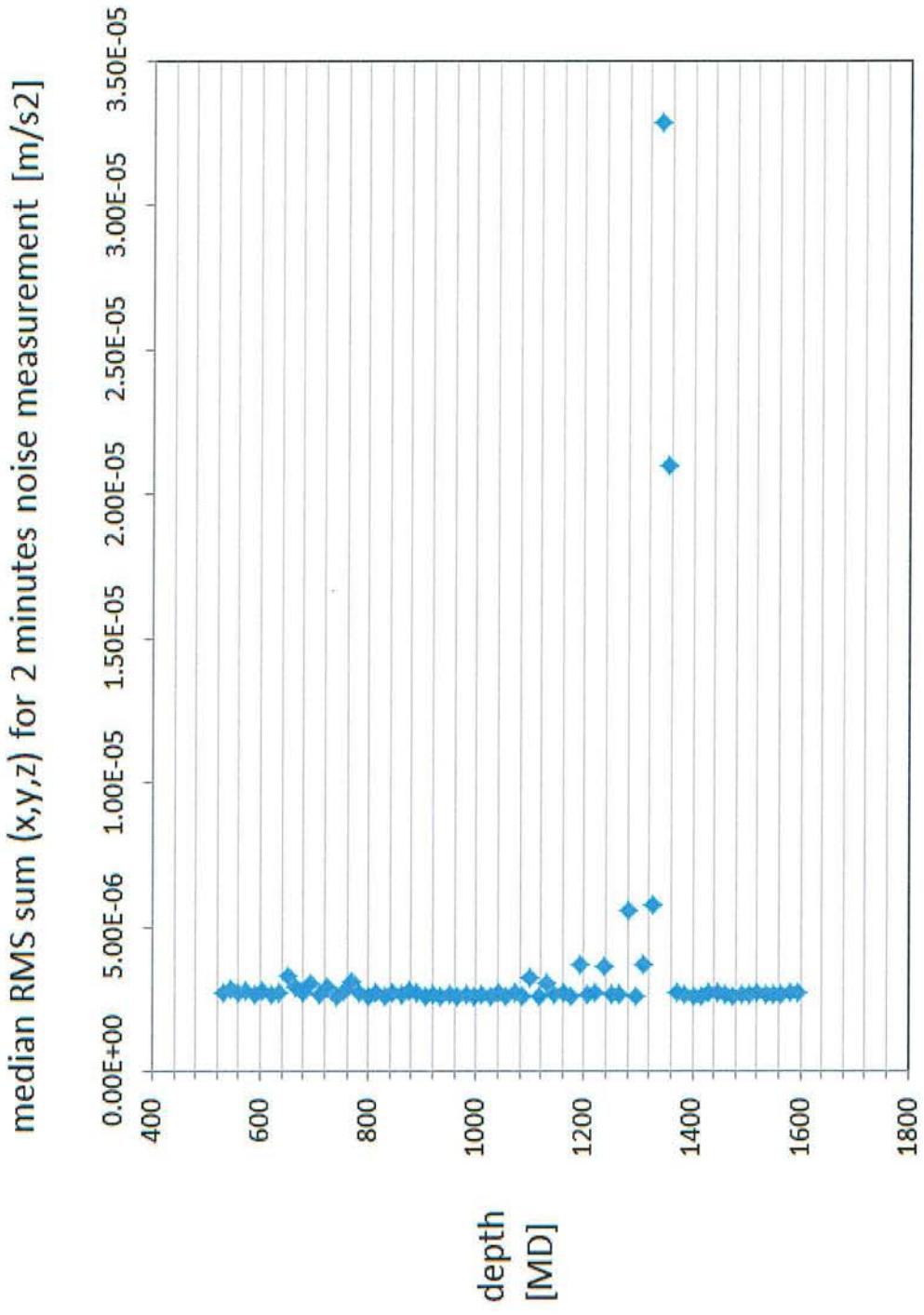
**Schlumberger**

# Geophone positions during rig up

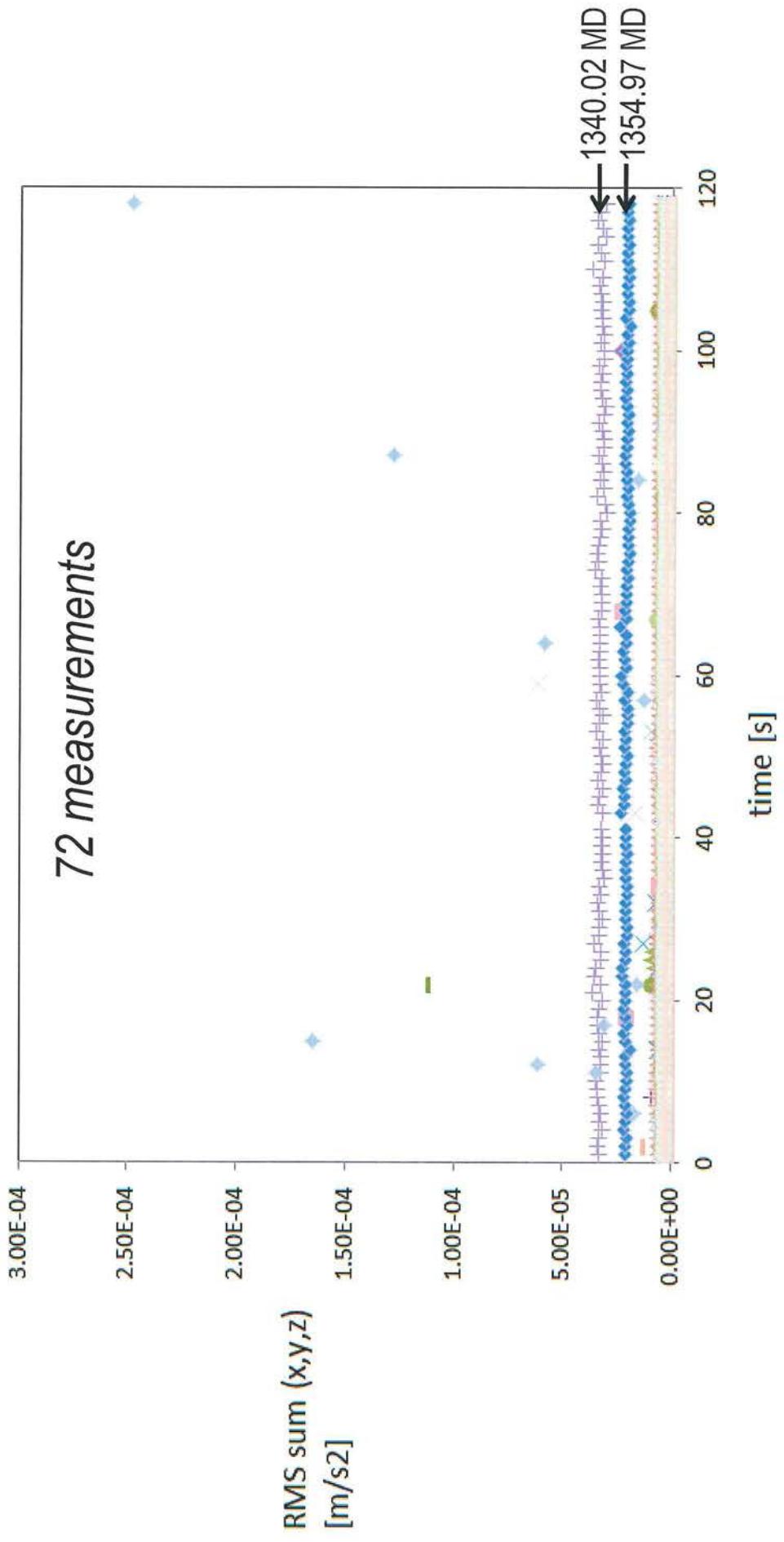


**Schlumberger**

# Noise measurement (unfiltered data)

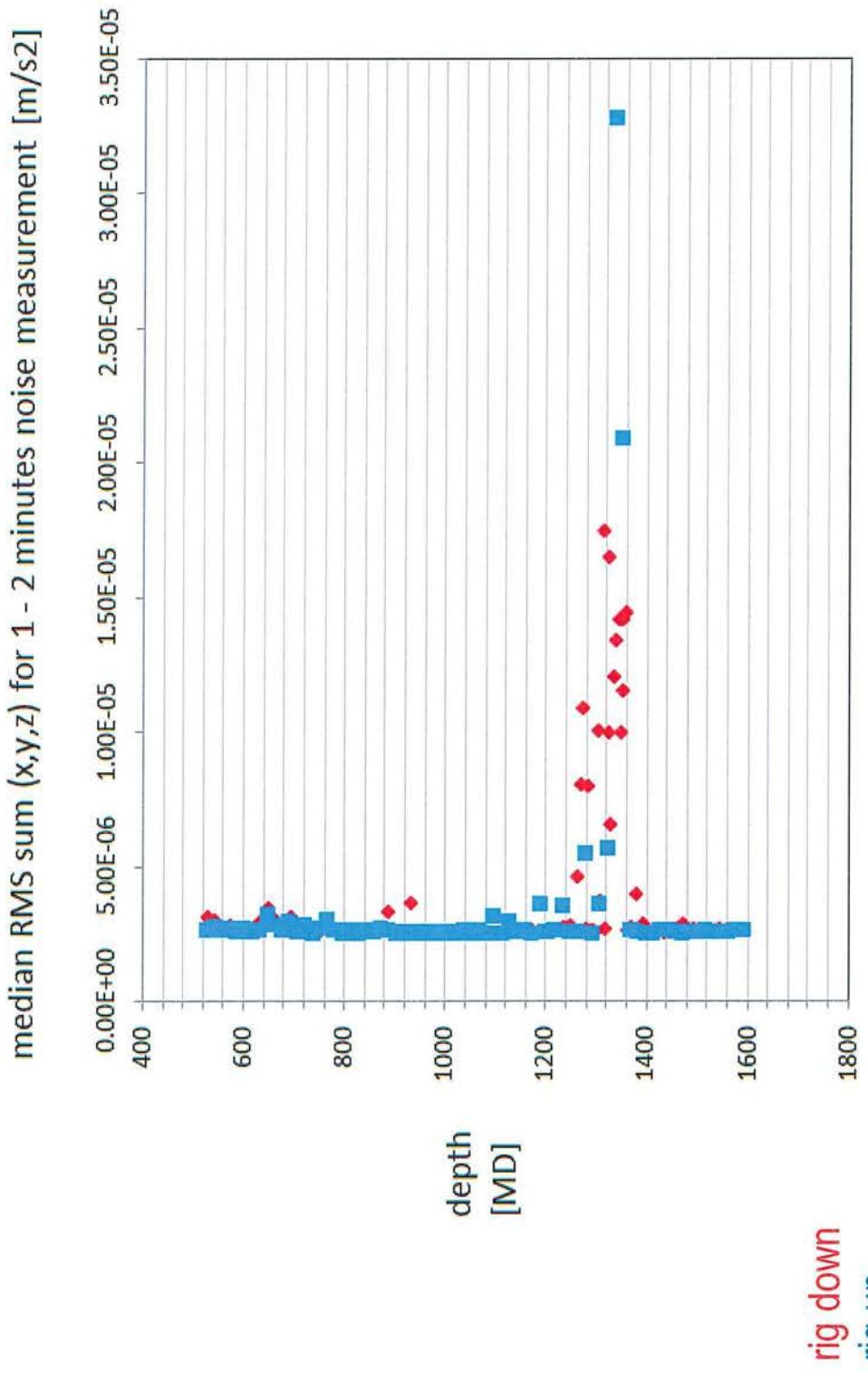


## 2 minutes noise for each station at each depth



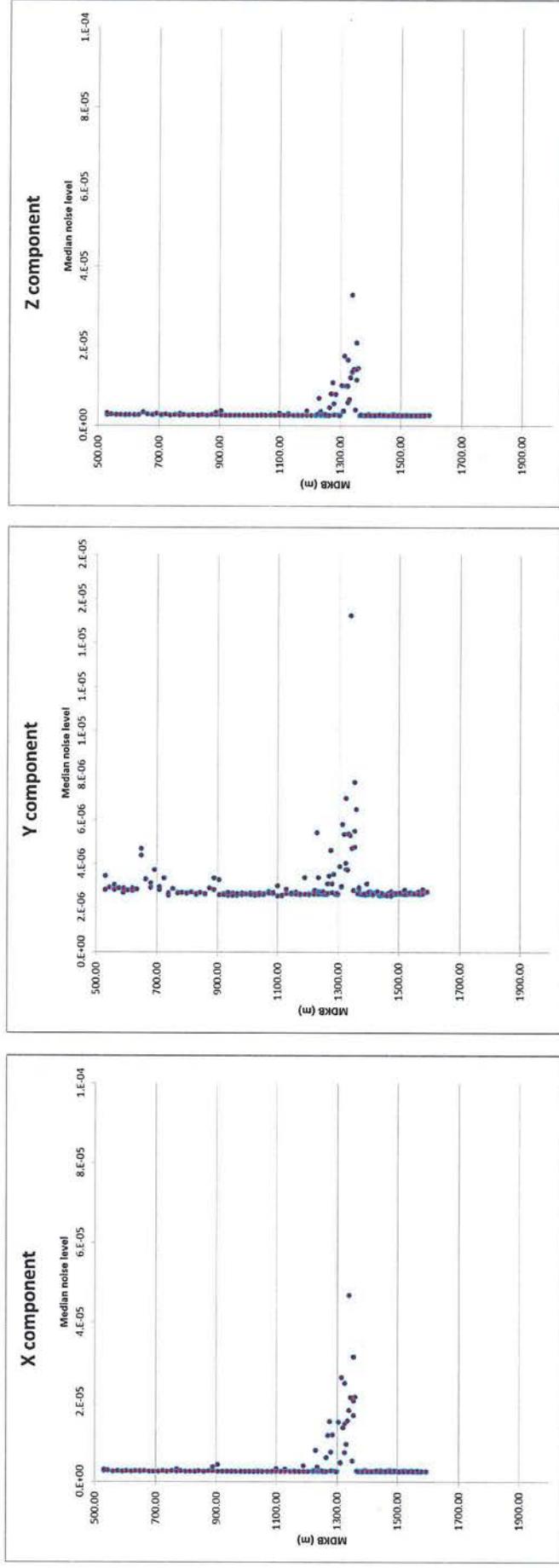
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# Noise measurement (unfiltered data)



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# Casing vent identification



**Schlumberger**



**Eric Hanson**  
Supervisor Central Mackenzie Valley  
ConocoPhillips Canada  
401 9<sup>th</sup> Avenue SW  
Calgary, AB T2P 2H7  
Tel.403.532.3527  
Fax.403.532.3403

May 13, 2014

Chief Conservation Officer  
National Energy Board  
444 Seventh Avenue SW  
Calgary, AB  
T2P 0X8  
Canada

Attention: Patrick Smyth

**SUBJECT: OA-1211-002 - Submission of COPRC Loon Creek O-06 Re-Entry Well History Report**

Dear Sir:

ConocoPhillips Canada Resources Corp. ("ConocoPhillips") hereby submits the Well History Report for COPRC Dodo Canyon E-76 as per requirement 3 of the Approval to Alter Condition of Well Term and Conditions. This submission contains:

- Two paper copies of the Well History Report
- Two paper copies of microseismic interpretation
- One electronic copy of the Well History Report
- One electronic copy of final microseismic interpretation

Also enclosed is one copy of the Well Termination record for the above noted well.

Please direct any questions or concerns concerning this submission to my attention at (403) 233-3250 or Cyril Jenkins at (403) 233-3326.

Sincerely,

Eric Hanson, P.Geol (AB)  
Supervisor Central Mackenzie Valley  
Chinook Appraisal



## Instructions for Form Completion

This document is a Microsoft Word Form

- All parts of this form are locked except for those areas (fields) available for data entry.
- Open this form as a “copy” in order to preserve the original for future use.
- Place your cursor at the beginning of the field you wish to complete.
- Type in the relevant information. All fields are large enough to accommodate the data required. Fields on the form where large amounts of information are to be entered are self-expanding. If you find there is not enough room in a field to put in the information, check that the information you are entering is in the correct format.
- Note that some fields have a drop down list to assist in data entry and clarity as to the type of information required. For these fields, click on the appropriate value from the drop down list to enter the value on the form.
- Once you have completed all required fields on the form, print one (1) copy then have the copy signed and dated in blue ink by a responsible officer of the company.
- The printed copies of the forms, along with the appropriate supporting technical documentation, are to be submitted to:

Chief Conservation Officer  
National Energy Board  
444 Seventh Avenue SW  
Calgary, AB T2P 0X8

- The National Energy Board is implementing a process for submission of electronic application documents. However, until further notice, all application forms and supporting documentation must continue to be supplied as paper documents along with an electronic version on DVD/CD (.pdf preferred).



## WELL TERMINATION RECORD

Well Name	COPRC Loon Creek O-06 65-10 127- 00			Well ID	3000O06651012700	
Operator	ConocoPhillips Canada Resources Corp.			Current Well Status	Suspended	
Total Depth	1856m KB			Licence No.	Exploration Licence 470	
Location	Unit	O	Section	06	Grid	65-10 127-00
Coordinates (NAD27)	Surface		Lat	65 ° 06 ' 51.4 "	Long	127 ° 00 ' 30.6 "
	Bottom Hole		Lat	°     '     "	Long	°     '     "
Region	NWT Mainland					
Target Formation	Canol			Field/Pool	/	
Elevation KB/RT	257.60 m			Ground Level / Seafloor	252.40 m	
Spud/Re-Entry Date	30-Jan-14			Rig Release Date	2/17/2014	

### CASING AND CEMENTING PROGRAM

O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing (m <sup>3</sup> )
244.5	53.57	J-55	597.0	26.1
177.8	38.69	P-110	1856.0	32.1

### PLUGGING PROGRAM

Type of Plug	Interval (m KB)	Felt	Depth (m KB)	Cement (m <sup>3</sup> )
Other	1690.56-1694.43	No		
Other	1725.96-1729.83	No		
Other	1767.56-1771.43	No		
Select	-	Select		
Select	-	Select		

### PERFORATION

Interval (m KB)	Comments
1692.0-1693.0	"Upper" Lower Canol perfs sealed with casing patch over perforations
1727.0-1728.0	"Middle" Lower Canol perforations sealed with casing patch over perforations
1769.0-1770.0	"Basal" Lower Canol perfs sealed with casing patch over perforations
-	

Lost Circulation/Overpressure Zones	n/a
Equipment Left on Seafloor (Describe)	n/a
Provision for Re-entry (Describe and attach sketch)	Wellbore is full of water with propylene glycol pill sitting from surface to +/-100 m KB
Other Downhole Completion/Suspension	

"I certify that the information provided on this form is true and correct"

Name	Eric Hanson	Telephone	(403) 233-3250 Ext
Job Designation	Team Lead, CMV project	E-Mail	eric.S.Hanson@cop.com
Operator	ConocoPhillips Canada Resources Corp.		
Signature		Date	05/12/2014
	Responsible Officer of Company		

### NATIONAL ENERGY BOARD USE ONLY

The details of this document have been examined and verified by

Job Designation	Well Identifier	Unique Well Identifier
Signature		

NEB Authority



Office national  
de l'énergie

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