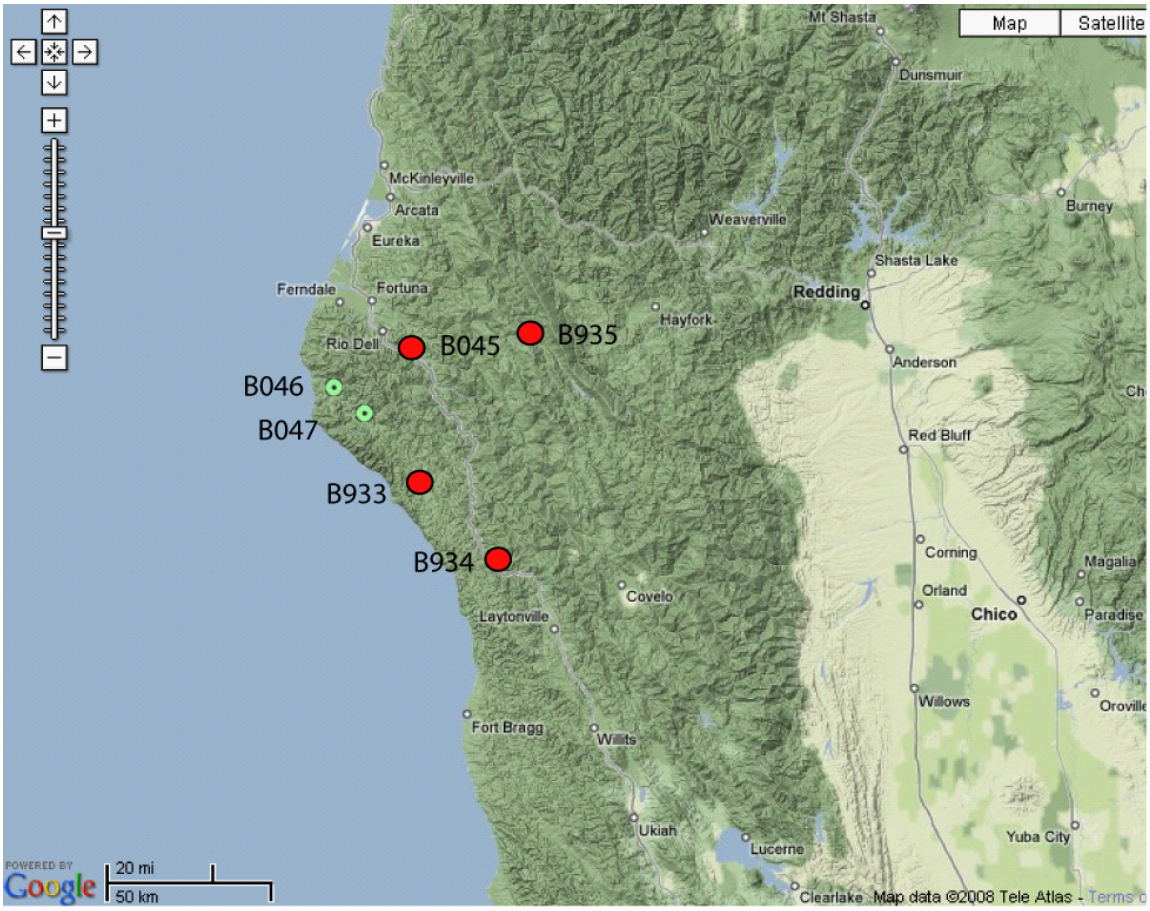
Station Notes for B934, legget934bcn2008

Latitude:	39.8445 (WGS 84)
Longitude:	-123.6914 (WGS 84)
Elevation:	331m / 1086 ft
Install Depth:[1]	152.4 m / 500 ft
Orientations:[2]	CH0=319, CH1=259, CH2=199, CH3=169
Install Date:	September 26, 2008
GTSM Technologies #:	US81
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.3
Home Page:	www.unavco.org/instrumentation/networks/status/pbo/overview/B934
Notes Last Updated:	November 25, 2020

[1]Install depth is from the top of the casing to the bottom of the strainmeter.
[2]Orientations are in degrees East of North.



Mendocino PBO strainmeters, October, 2008. Green dots represent boreholes that only have a seismometer.

B934 legget934bcn2008

39.8445 -123.6914 331 m

soil & boulders

40' A soft yellowish-brown mud stone.

107' Rock quality improved and appears to be basalt.

370-400' Hole started making around 100gal/min

410-420' A mudstone that can broken apart with fingernails. Driller notes that it rotates between organics, obsidian and basalt.

430-450' Hard, fine grained, well-sorted, gray sandstone with calcite and hydrocarbons.

450-460' Mudstone composed of silts, some coal and hydrocarbons.

460-470' Very hard black mudstone with a small amount of white minerals, silt, hydrocarbon, and basalt

470-480' Mudstone with quartz and calcite filling in fractures.

480-490' Mudstone.

490-500' Mudstone with quartz and calcite as either fracture fill or fossil fragments.

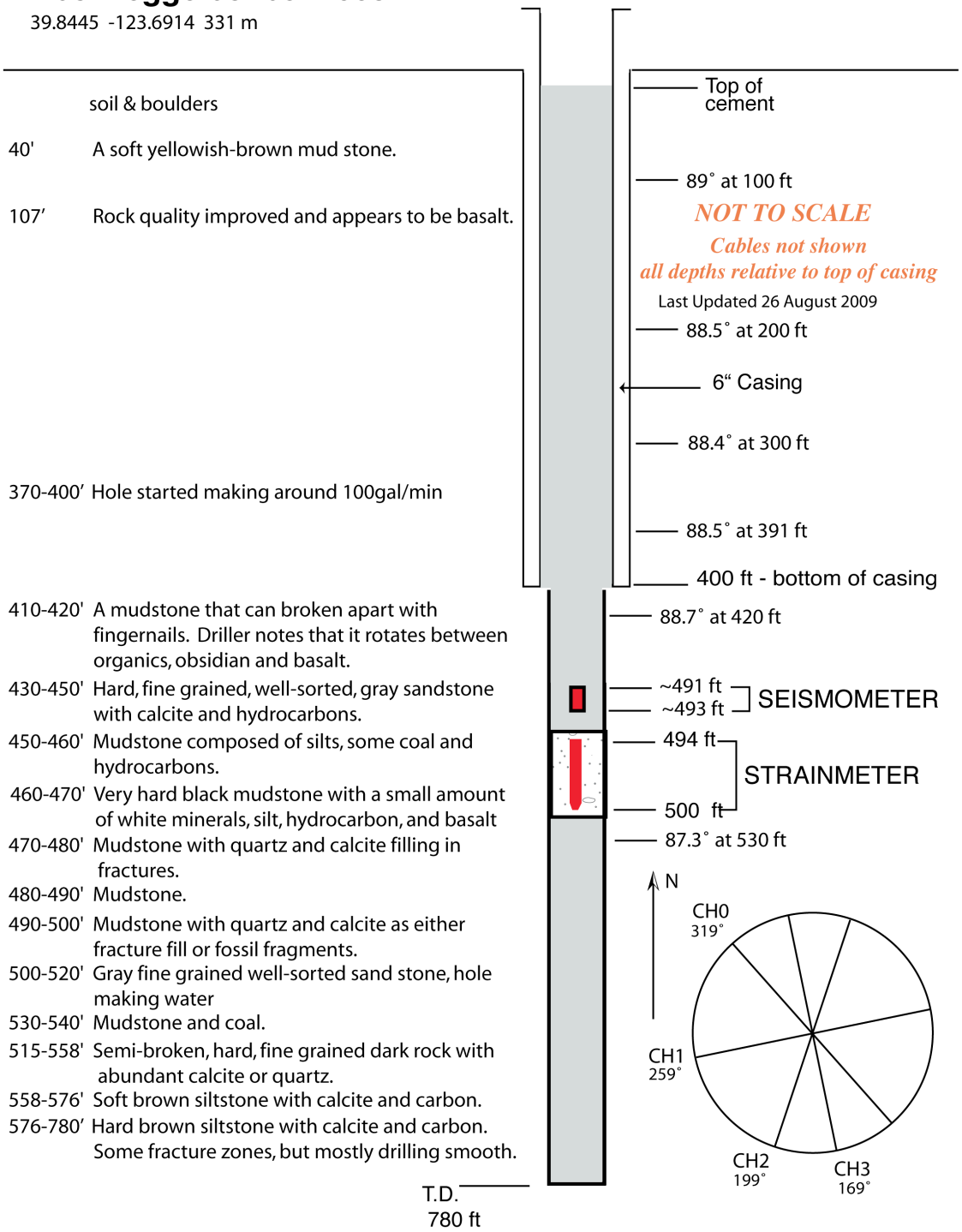
500-520' Gray fine grained well-sorted sand stone, hole making water

530-540' Mudstone and coal.

515-558' Semi-broken, hard, fine grained dark rock with abundant calcite or quartz.

558-576' Soft brown siltstone with calcite and carbon.

576-780' Hard brown siltstone with calcite and carbon. Some fracture zones, but mostly drilling smooth.



Instrumentation at Strainmeter

Instrument	Units	Bottle/ASCII Scale Factor	SEED Scale Factor
Pore Pressure	Hecto Pascals	None Installed	---
GTSM Barometer	Kilopascals	1.0	0.0001
Rain Gauge	Millimeters/hour	1.0	0.252
Down hole Temperature Sensor	Degrees Celsius	1.0	0.0001
Logger Temperature Sensor	Degrees Celsius	1.0	0.0001
Setra Barometer	Hecto Pascals	1.0	1.42925E-04

1. General Information

- There was no power at the station until July 14, 2009.
- Sensitivities of all EH channels corrected in the dataless on March 4, 2010.
- Using time domain reflectometer, maximum length of seismometer cable determined to be 493 ft.

2. Strainmeter Maintenance

- 22 February 2009 - Liz arrived on site at 11am to collect metadata and label the GTSM. Please note B934 is awaiting a power drop. Within the enclosure, there is no IDU. I ran out of UNID tags at the site, so six more stickers are needed.

- July 9, 2009 - RT boards upgraded to 1.20 and SETRA barometer installed.

- July 14-15, 2009 – Liz visited the site to complete it and get it online. She installed a VSAT IDU, programmed hardware, finish labeling UNID's on GTSM and two modems, and took pictures of the inside of the GTSM power box. She also replaced all 10 batteries, removed the solar panels, and adjusted the quadratures. She noted that channel 0 reads Error or will not reach a Gain over 1. This was noticed after the RT board firmware was upgrade to 1.20. Board was stopped and restarted numerous times, firmware added again, board pulled and replaced back in panel, and quadrature adjustment attempted on a forced set to Gain3. The uphole electronics were not secured in there enclosure when shipped from Australia. The quad box was beat up and is probably the culprit. The switch to Chan 0 is broken off on the Quad Box.

- September 14, 2009 – Liz visited the site. RT0 was replaced with a new board, however the new RT board also read "Fatal Error". The quad box was opened for further inspection. It appears the broken off switch is in the "off" position. After adjusting the quadrature there was a moment CH0 reached G3 without being forced. The original RT board was placed back into the GTSM as the board is not the issue. The next step (site visit) will be to replace the switch on the quad box.

- April 8, 2010 from 13:00 to 18:00 PT – Liz VanBoskirk replaced the environmental box and cables. The box came with updated software and firmware. The Q330 was also replaced.

- January 12, 2011 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer. Birddog data from the borehole seismometer was also collected.

- March 20, 2012 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer.

- March 28, 2012 – An oscilloscope was configured as a time domain reflectometer and was used to verify the length of the seismometer cable. The calculated length was ~492', which is close to the documented GTSM installation value (491-493').

- April 2, 2014 – A well is planned for the SW corner of the property. The new well will server the water needs of the property and will probably be used more or less continuously.

- July 17, 2014 – A new water well was drilled to a depth of 80 ft. Pumping equipment installation is tentatively planned for September 1, 2014.

- October 7, 2015 – VSAT ODU had failed and was replaced. CH0 was at G2 upon arrival. Swapping the RT0 and RT1 boards did not fix the problem. Oscillator signal on scope meter was not a sine wave. Need to adjust quad and chop and possibly replace the oscillator board.

- November 9, 2016 – Visited station to diagnose and attempt to repair noisy signal issue on CH0. Upon arrival noticed the quadrature gain on channel 0 was repeatedly going in and out of "Out of Bounds". Checked all the cabling and connections and re-booted the system. Channel 0 seemed to work for a few minutes before going back out of bounds. Then swapped the RT board and adjusted the quadrature and the delay. Noticed the sine wave was abnormally noisy on the scope meter. Did best to get the quadrature and the delay set properly. After rebooting it continued to have the same "OB" error.

- November 16, 2016 - Visited station to complete down-hole GTSM testing.

- November 8, 2017 – Changed comes from VSAT to CDMA.

- December 5, 2017 – Removed VSAT dish and cabling.

- April 4, 2018 – GTSM board was not online. It was assumed the single port fiber modem had failed, but discovered it was the power box instead. Adam did not have one in stock but one is on the way from Boulder. Adam should have it installed by late next week.

- April 17, 2018 – Powerbox for GTSM had failed. Adam had a "new" one from Boulder but after plugging it in he discovered it was not a working unit. The LED lights immediately would go into "warning" mode and shut down within 60 seconds. He will return with a new unit soon.

- April 24, 2018 – After 3rd attempt Adam returned with a working powerbox. Set it up and verified the GTSM was back online.

- July 31, 2018 – Swapped 6 batteries at station and cleaned the clogged rain gauge.

- March 26, 2019 – Upgraded firmware on RV50 from 4.5 to 4.9.3. Set quads, CH0 was jumpy, goes into G2 a lot. Others were pretty far out, but all adjusted back well. Did not need to adjust chop.

- September 30, 2020 - Swapped CDMA with US Cellular SIM with Verizon RV50X. This is an effort to start consolidating carriers and remove as many US cellular SIMs as possible.