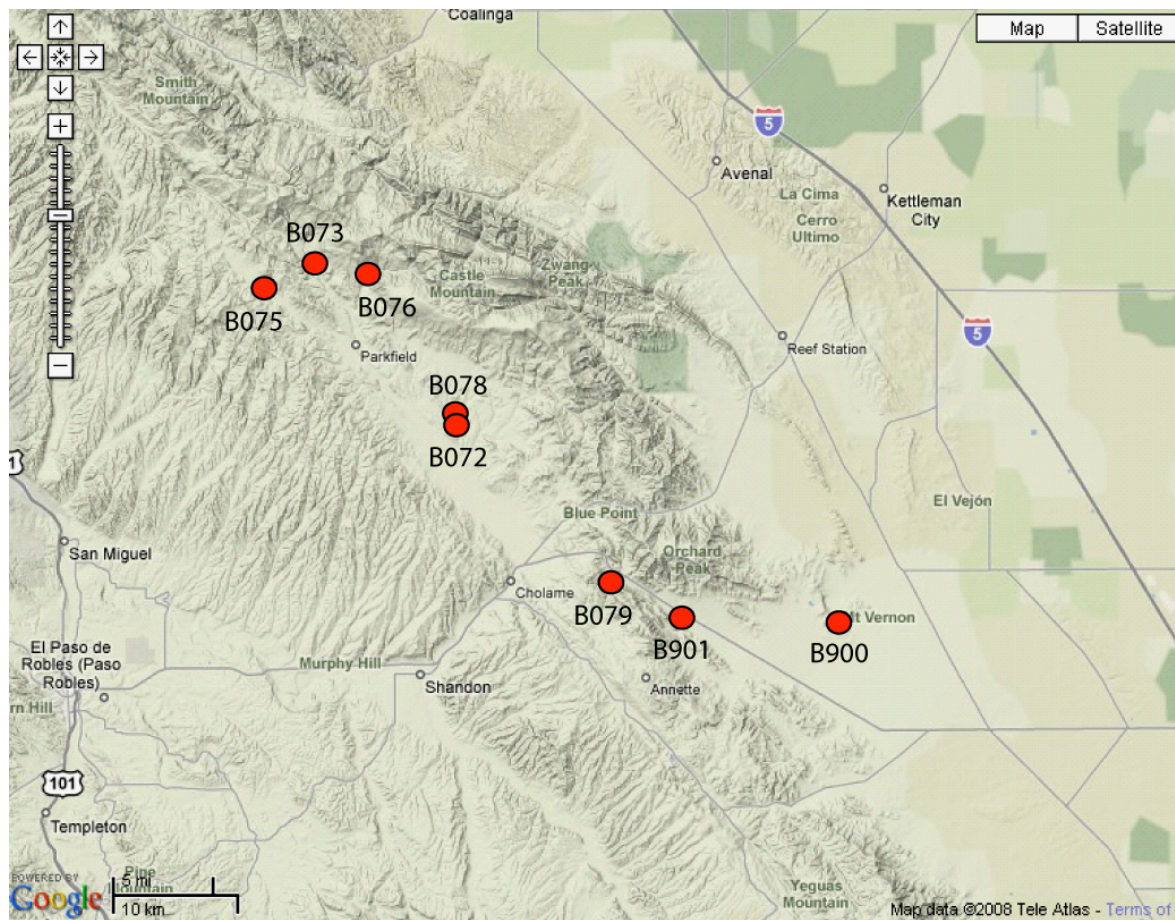


Station Notes for B076, donnal076bcs2006

Latitude:	35.9398 (WGS 84)
Longitude:	-120.4248 (WGS 84)
Elevation:	445 m / 1460 ft
Install Depth: ¹	197.6m / 650 ft
Orientations: ²	CH0=278.5, CH1=218.5, CH2=158.5, CH3=128.5
Install Date:	13 October 2006
GTSM Technologies #:	US31
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	http://pbo.unavco.org/station/overview/B076
Notes Last Updated:	December 7, 2018

¹Install depth is from the top of the casing to the bottom of the strainmeter.

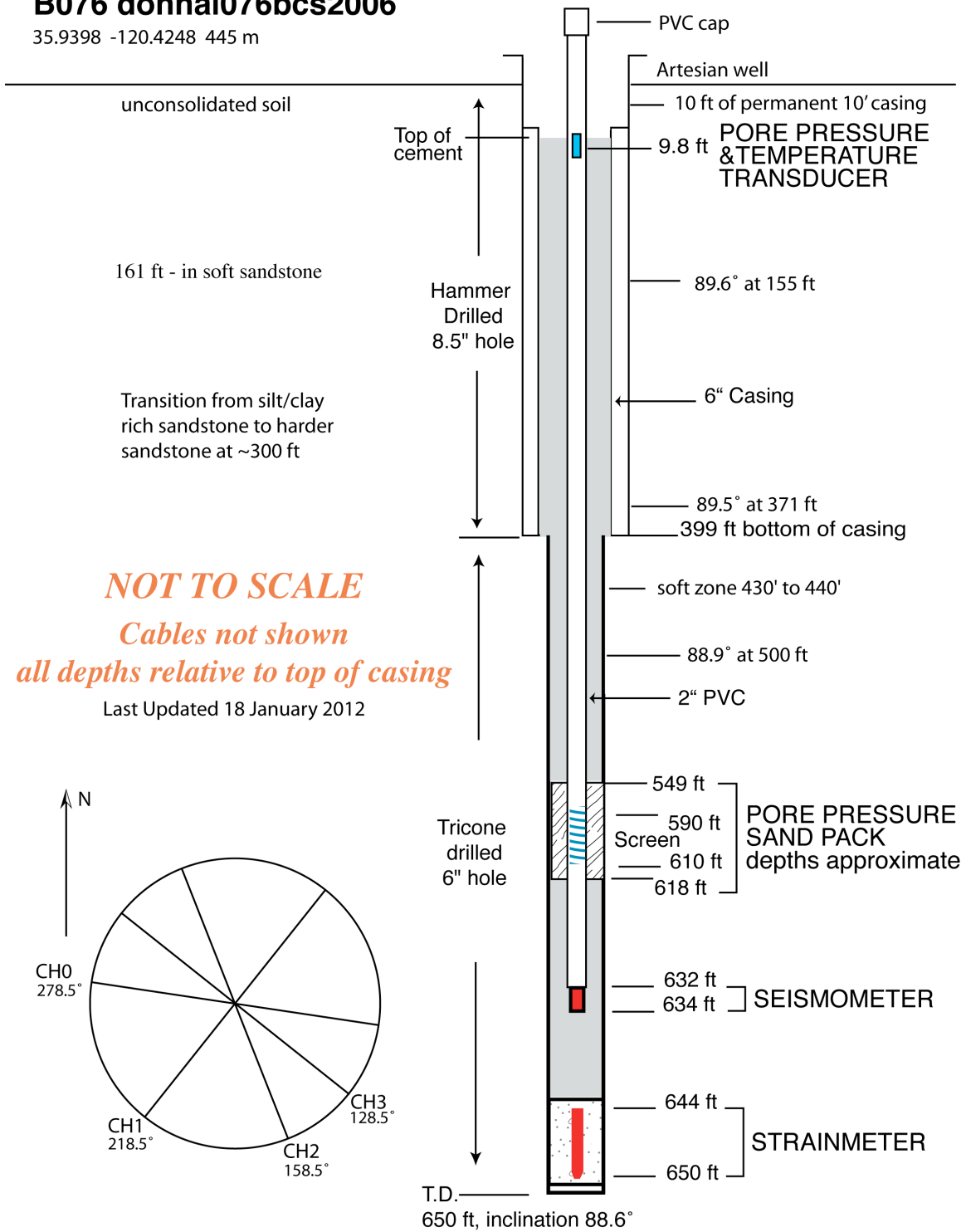
²Orientations are in degrees East of North.



Parkfield PBO strainmeter network, July, 2008

B076 donnal076bcs2006

35.9398 -120.4248 445 m



Instrumentation at Strainmeter

Instrument	Units	Bottle/ASCII Scale Factor	SEED Scale Factor
Pore Pressure	Hecto Pascals	1.0	N/A
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	1.42937E-04

1. Installation notes

This Site is Located about 2 miles North East of Parkfield CA. It is about 100 yard to the south of the USGS Donna Lee strainmeter. The Site was installed at 650ft. The Hole is flowing at about 5gal/min. Logs indicate very consistent sandstone. This is one of the cleanest holes I have seen.

2. General Information

- Instrument installed with Executive Process Software Version 1.13 and Logger Software Version 1.15.
- Logger restarting several times a day Oct 14-20, 2006
- Environmental door opened and shut several times Nov 1-2, 2006 and Nov 16, 2006. Logger also shut down and restarted on Nov 1, 2006.
- (Nov 11, 2006) " The timing is quite bad on Donna Lee, has not picked up GPS time 13:50:17 up 9 days, 14:19, load average: 0.31, 0.53, 0.58
Time Difference: 0 days 41 seconds - GTSM LOGGER CLOCK LIKELY SLOW!"
- "Doug Myren noticed that water is coming out of the borehole at the UNAVCO Donna Lee site on Nov 14, 2006. Both the UNACCO and the USGS strainmeter started going negative on the 10th.
- Operator log may no longer be recording after. There are no entries after Nov 16, 2006
- (Nov 29, 2006) Returned to B076 to secure the site and make final preparations for the fencing installation and noticed the site has begun to artesian again. Weeks prior when Wade and I were there working on the electronics and changing out the pore pressure sensor, I placed ~200 lbs of salt to help stop the flow of water. Now the water is seeping out of the casing rather than the top of the well. Unfortunately, given the amount of water being produced and mineral content of the water, the interior of the enclosure has 3" of calcite sediment. I plan on going back there next week to clean out the sediment, and place more salt or coated pellets down the well.
- Sensitivities of all EH channels corrected on March 4, 2010.
- The pore pressure sensor was installed at 9.8 feet, and no packer was installed. The pipe was flowing artesian and is sealed at the surface using a pvc cap with a pass-through for the cable sealed with epoxy.

3. Strainmeter Maintenance

- November 17, 2006

Wade Johnson and Alan visited the site “retrofitted the GTSM charging system with Flex chargers. Also tested the wiring of the seismometers.”

- December 5, 2006
Mike Gottlieb visited the site at 11:35 (PST)
- 17 December 2006 - Michael Hasting visited the site to test and check the power system.
- December 18, 2006 - Michael Hasting updated the RT firmware to 1.17 for B076 Donna Lee. The GPS is not working at all. It was not working upon arrival and will not take the firmware upgrade. As such there is no GPS timing for this site and the power box must be replaced. Still no valid time stamp.
- January 12, 2007 – Michael Hasting replaced power box US031PB with US303PB, should now be getting GPS time. He also adjusted the downhole temperature setting, and fixed bad rain gauge connector
- March 25, 2007 – Yesterday Tim and Michael Hasting replaced/upgraded the power system at B076 and hooked the GTSM21 power box to the DC/DC converter. They also upgraded the RT Controller Boards firmware from Version 1.17 to 1.18.
- October 2 & 5, 2007 – Warren Gallaher visited the site to perform some maintenance. The site was cleaned up and reorganized for better access. The power box was adjusted for proper charge voltage. Also the quadrature and delay were set. A Marmot was also installed. The solar regulator was found to be causing radiated noise on the GTSM system. As a temporary solution one set of solar panels was hooked directly to the GTSM power box and the wires were re-routed to provide physical separation. VSAT operation had many transmit errors but without spares Warren could not perform a complete repair. He made arrangements with Tim Dittmann to replace a suspected bad cable, but after Tim did this the VSAT IDU would not power back on. Another trip is planned to repair the coms.
- December 17, 2007 UTC – Mike Gottlieb visited the site to swap out the fiber optic modems.
20:00 On site, swapped fiber optic modems.
20:15 GTSM back online, off site.
- July 17, 2008 – Chuck Kurnik visited the site to install new firmware on the Q330. The Q330 has also been configured to record pore pressure with temperature. The netrs has been removed.
- March 19, 2009 – The logger software was upgraded from 1.15 to the correct version of 2.02.2 that matches the compact flash size.
- August 2, 2009 – The RT boards were switched off, then back on. CH1 is now recording at gain 3. RT board firmware upgraded to 1.20, and Quadratures adjusted for all strainmeter channels. A Setra barometer was installed, and the seismometer was rewired.
- February 18, 2010 – Liz VonBoskirk visited the site to replace the fiber optic modems. At ~13:20 local time she replaced the RT boards and upgraded the firmware to 1.20. She also replaced the tail from the power panel to the Q330 with a new seismometer wire tail with labeled channels.

- October 22, 2010 – The power system was checked using the current meter and voltmeter. The solar panels and GTSM battery bank tested fine. The main bank of 8, which are wired as two sets of four, were tested for current first. The last battery in the set of four always had low to no current flow. The batteries were then taken off the source and unconnected from the bank and allowed to sit for roughly 10 minutes to see if they held their charge. All batteries remained constant. Each bank of 4 was rewired so that the red and black wires coming into each bank had a positive (red) on one end of the bank and negative (black) on the other end of the bank. Liz noted that the wellhead was dripping water at a slow rate, creating a flow stone around the wellhead. The battery closest to the wellhead had corrosion and the terminals were cleaned. There is a pool of water near the site. It looks like someone dug a hole to contain the water next to the enclosure
- November 1, 2010 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer.
- November 17, 2010 – The main battery bank of eight was replaced. Both the main bank and GTSM batteries were rewired so that each bank (of four) has the negative (black wire) attached on one end of the bank and the positive (red wire) feeds to the other end of the bank. The wellhead is dripping water, and over the last month a significant amount of corrosion was observed on the old battery bank. The previous month Liz had scrubbed the terminals for corrosion. A trash bag was placed over the wellhead to direct the water to flow out of the site and to control the amount of water accumulating on all site equipment. The water flow has increased over the last month. After a visit with Evelyn R. of the CVO and looking at water levels in nearby wells, the flow will increase through out the winter and diminish in the spring. There are steps on two channels on the GTSM (Chan 3 currently). The GTSM was shut down and all boards were pulled to look for corrosion and to make sure all connections are tight. All GTSM cables were checked for corrosion, which there was none.
- August 17, 2011 – Power system upgraded. Replaced 10AWG battery jumpers with 4AWG battery jumpers.
- December 21, 2011 – Upgraded power system. Added Tristar MPPT solar controller.
- August 13, 2013 – Checked battery voltages and LVD setpoints. LVD 2 (as found): V off @ 12.44V V on @ 12.84V Set to: V off @ 12.34V V on @ 12.74V Confirmed solar controller had correct dip switch settings. VSAT signal str at 47, xpol at 50. Swapped ODU; signal str at 80, xpol at 66.
- August 6, 2014 – Adjusted LVD settings and cleaned solar panels.
- February 26, 2015 – Swapped RT board to address noise issue.
- March 17, 2015 – CH2 data quality had recently degraded, and the RT board was swapped a few weeks ago with no improvement. When Chad arrived the RT board was in G3, but there was an exclamation point showing in the RT Board LCD. He had not seen this before, and couldn't find a reference in the documentation. He swapped CH2 -> CH3 RT boards, and the exclamation point disappeared. HE replaced the CH2 RT board anyway.

- March 30, 2016 – Data quality has been deteriorating for a year. Changes to uphole equipment have not addressed issue. Downhole testing was needed. Tested all 4 channels resistance/capacitance. Swapped oscillator board in attempt to address data quality issues.
- April 20, 2017 – Swapped batteries at site. Cisco was hung and Chad did not have any spares with him. Continued GTSM testing using dummy load cell. All uphole equipment verified to be performing normally. CH1 and CH2 have issues downhole, possibly failed amplifiers.
- May 8, 2017 – Data flow was intermittent. VSAT was failing xmit test. Cisco router was hanging, and VPN tunnel was not staying up. Swapped failed cisco router. Re-pointed VSAT Antenna and re-terminated VSAT IDU cable ends.
- October 31, 2017 – VSAT was online, but failing transmit. Peaked signal strength and adjusted cross-pol, 86 signal, 75 cross-pol. Site back online.
- April 10, 2018 – suspected down hole failures on GTSM, wanted to confirm. All four channels failed down hole. Tap steps were all zero. CH2 had no electrical continuity amp input to ground. Poor response to balance changes on amp input for all channels. No quad control. Dummy load looked normal.
- November 6, 2018 – Adjusted GTSM barometer offset to match setra data, subtracted 8.03 kpa.