




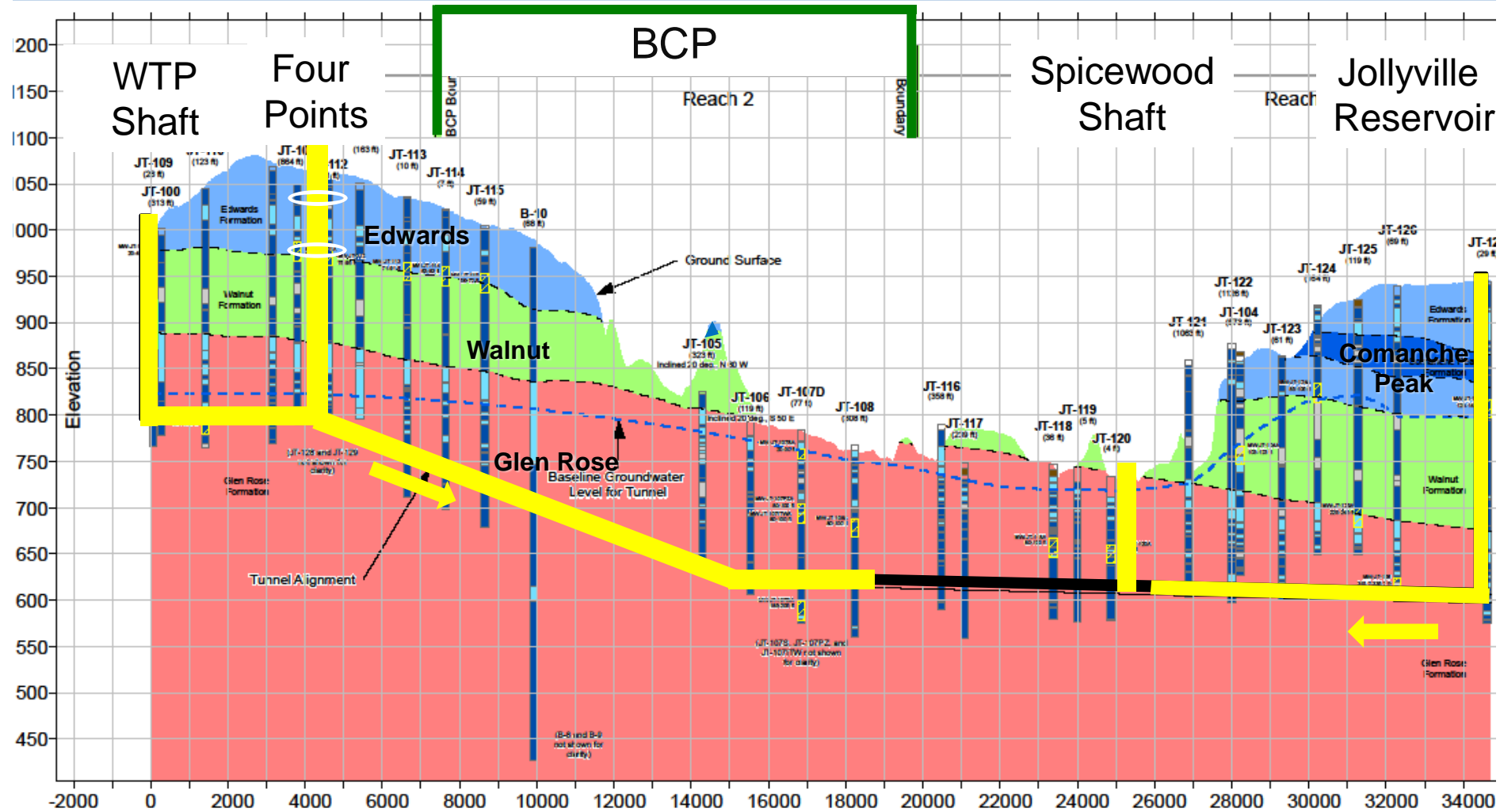
JOLLYVILLE TRANSMISSION MAIN: Environmental Commissioning Monthly Report

Presented to the Austin Environmental Board
March 20, 2013

Thais Perkins, Watershed Protection Department
David Johns, Watershed Protection Department

Jollyville Transmission Main Project as of 3/5/13

 = progress





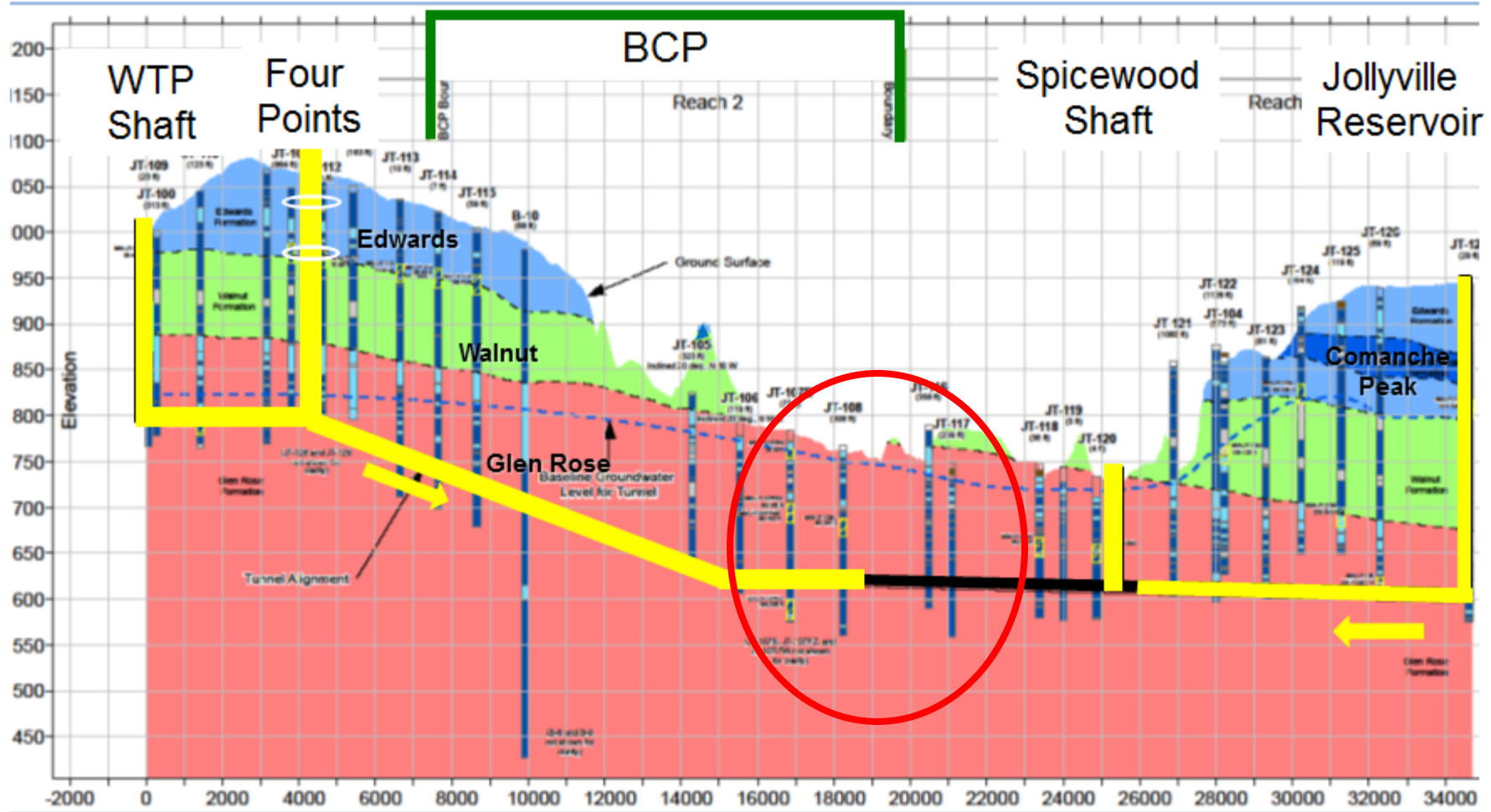
Environmental Commissioning Activities - JVTM

- Monthly shaft site (surface) visits concurrent with plant site visits
- Biweekly shaft/tunnel visits to active shafts (4Points, Jollyville) and weekly visit to tunnel reaches (R2, R3)
- Biweekly meetings of the Environmental Commissioning Coordination Group (ECCG) to resolve potential issues
- Environmental Monitoring
 - *Increased monitoring schedule at adjacent sites as mining progresses in Reach 2, Reach 3 and Spicewood Shaft*
 - *Age Dating sampling 90-95% complete (still will take samples in tunnel if flowing water is encountered)*
- Environmental Cost Summary

Initial INTERA Contract Amount	\$ 1,713,814
Total Amount Billed to Date (Jan 2013)	\$ 1,390,173
Total Remaining	\$ 323,641

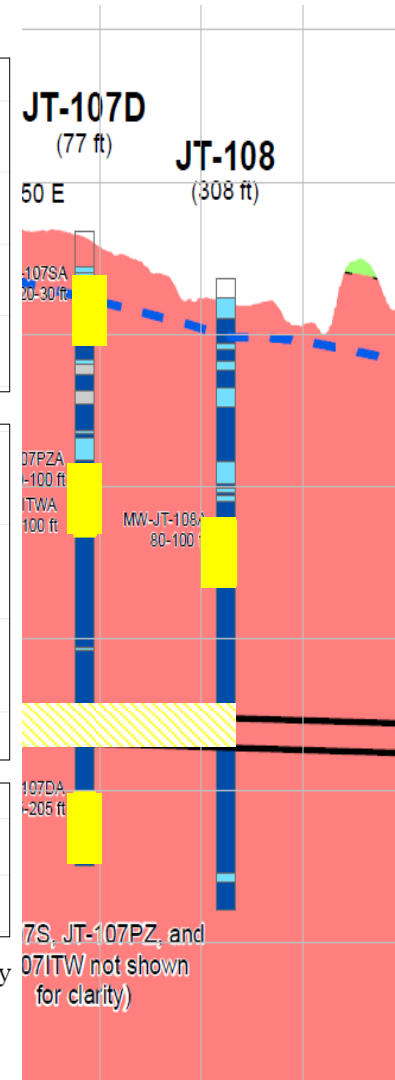
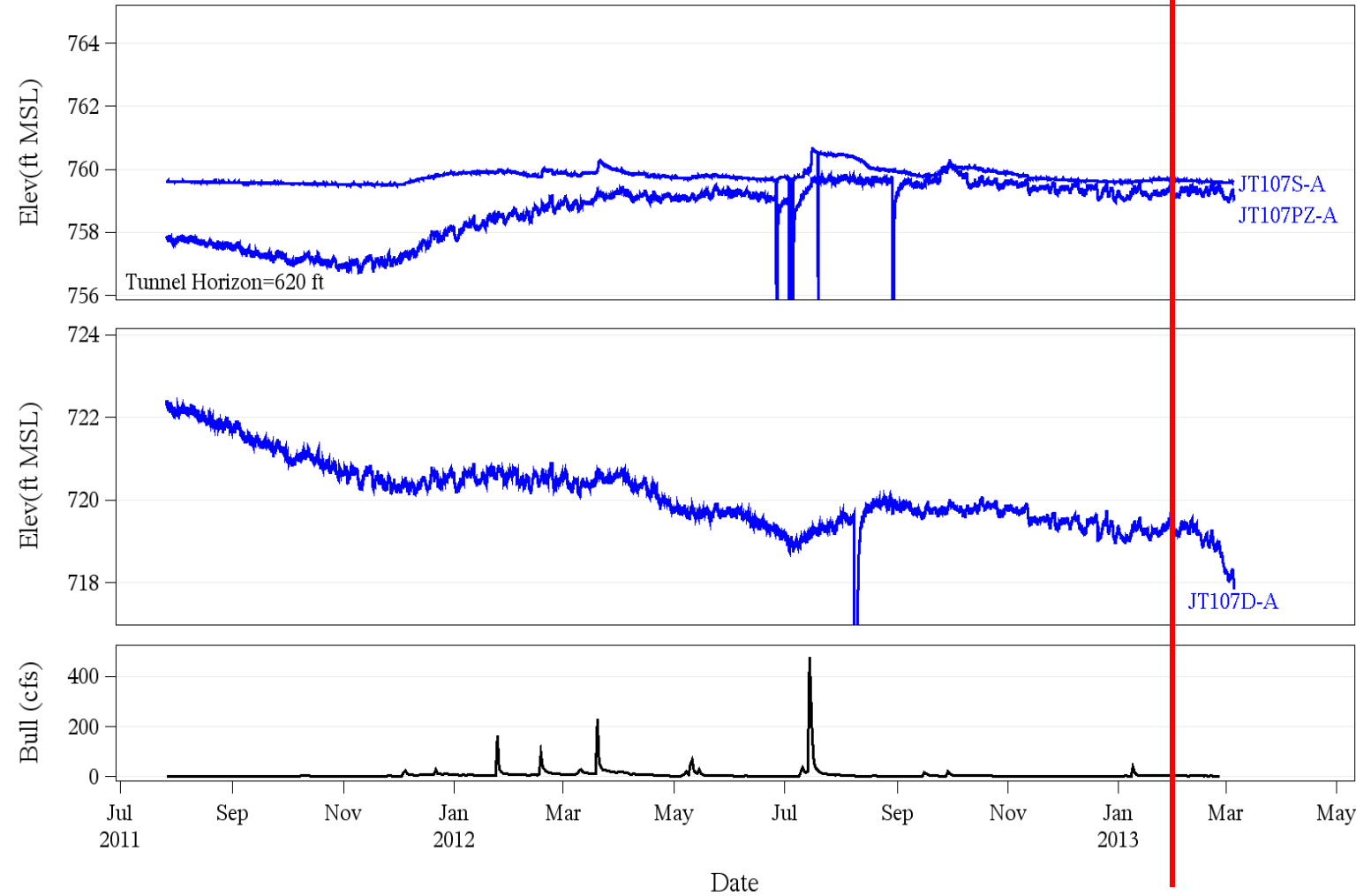


Progressing under Pit Spring



Tunnel passes 107 cluster
2/13/13

JT 107 elevation and Bull flow

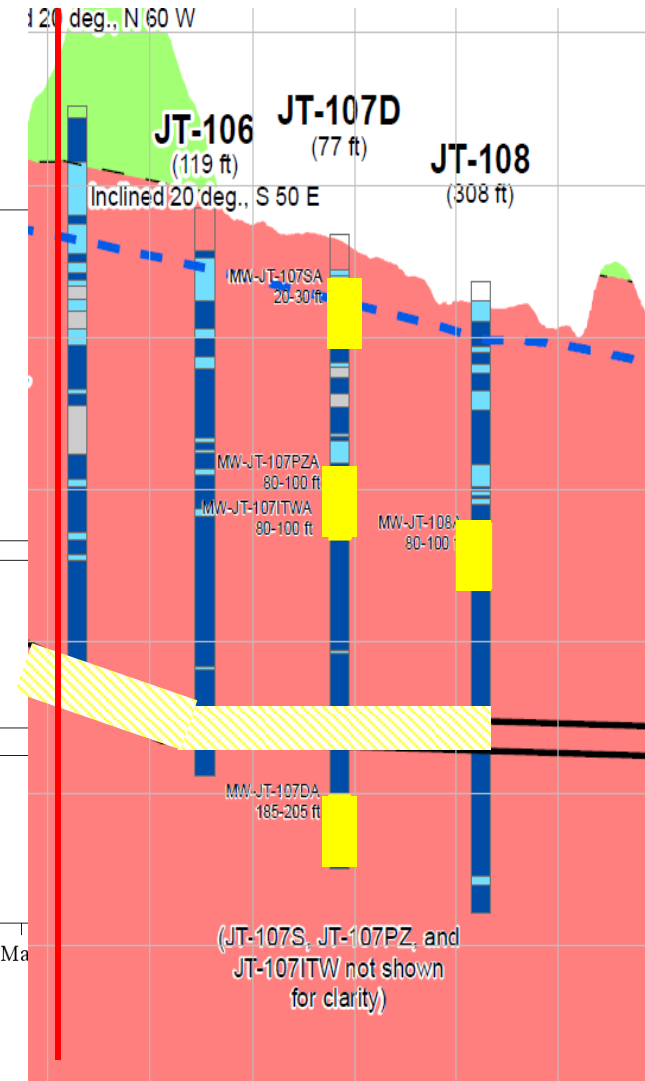
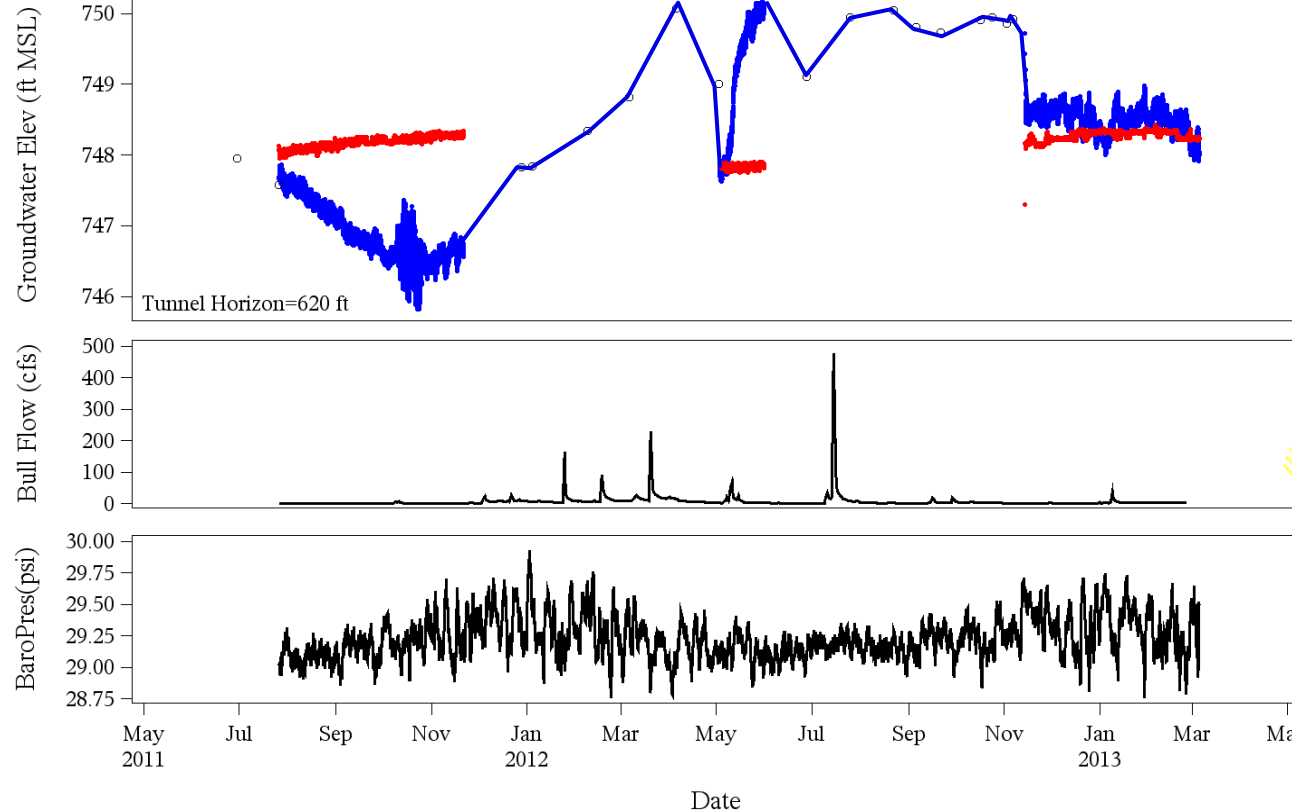


Delayed and minimal decline (~2 feet) in deepest well as tunnel passes; no observable declines in shallower wells

Tunnel passes 107 cluster
2/13/13

Well JT108, Troll

• GW Elevation • Temp ○ E-Line



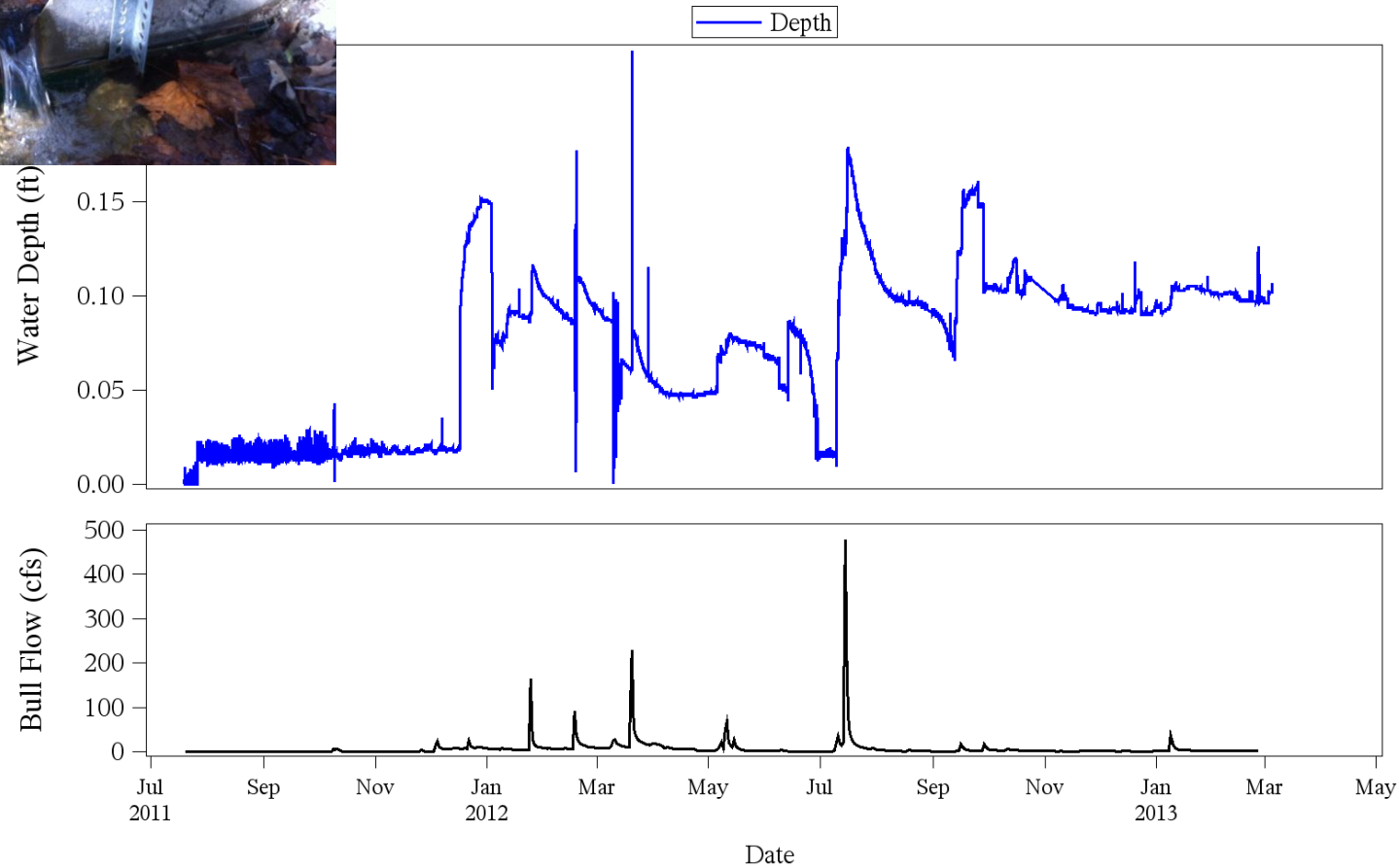
City of Austin DRAFT: QA/QC review pending

108 well is steady

Lanier Spring



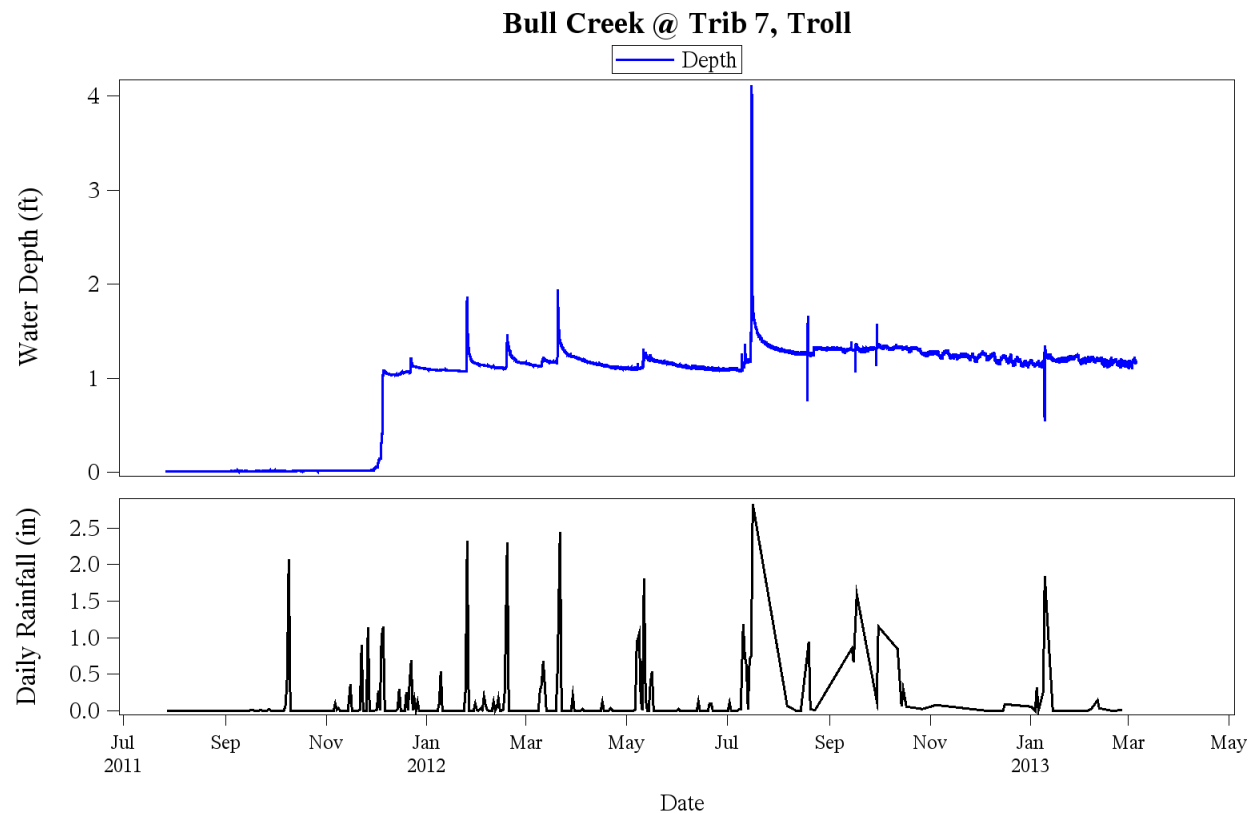
Lanier Spring Troll



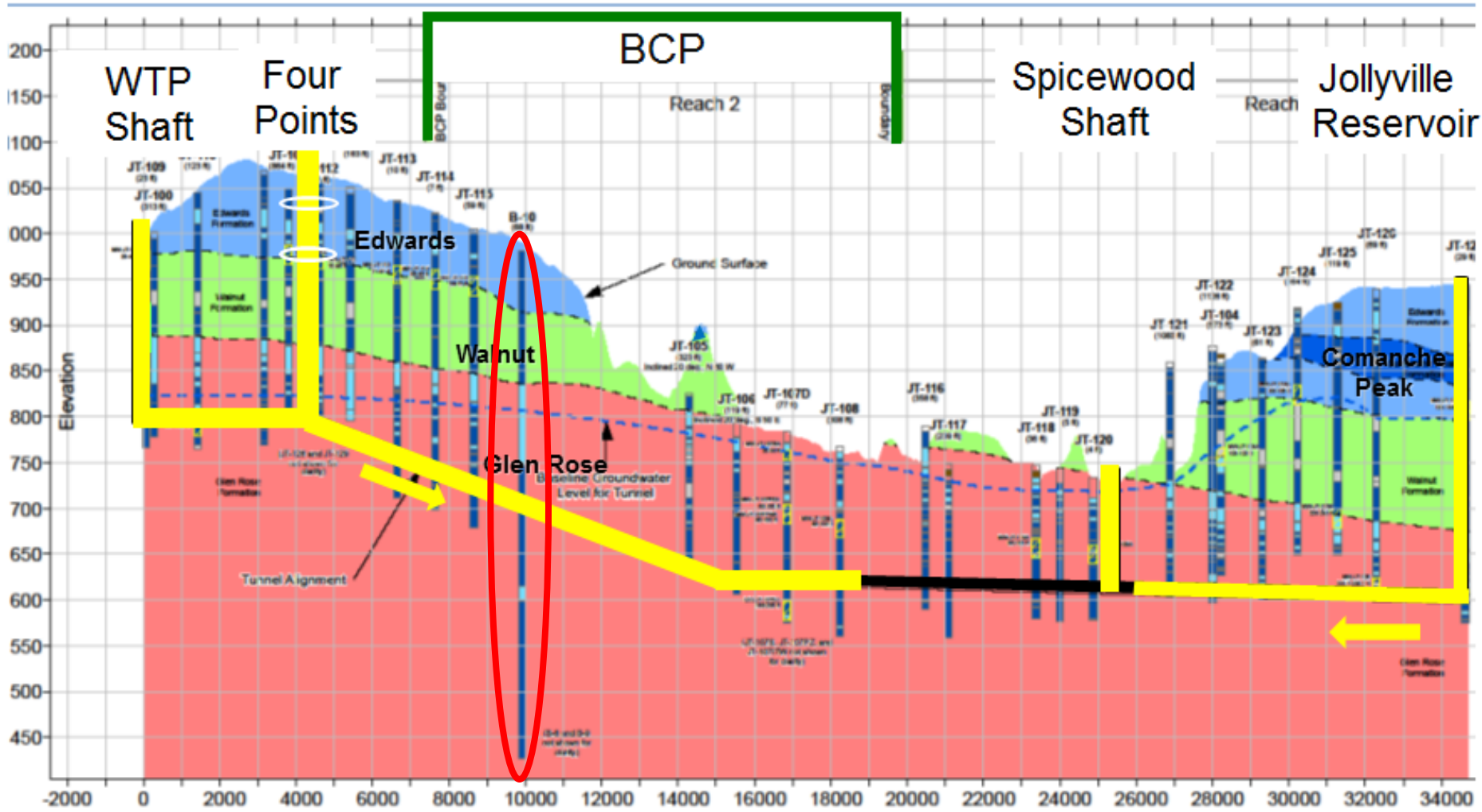
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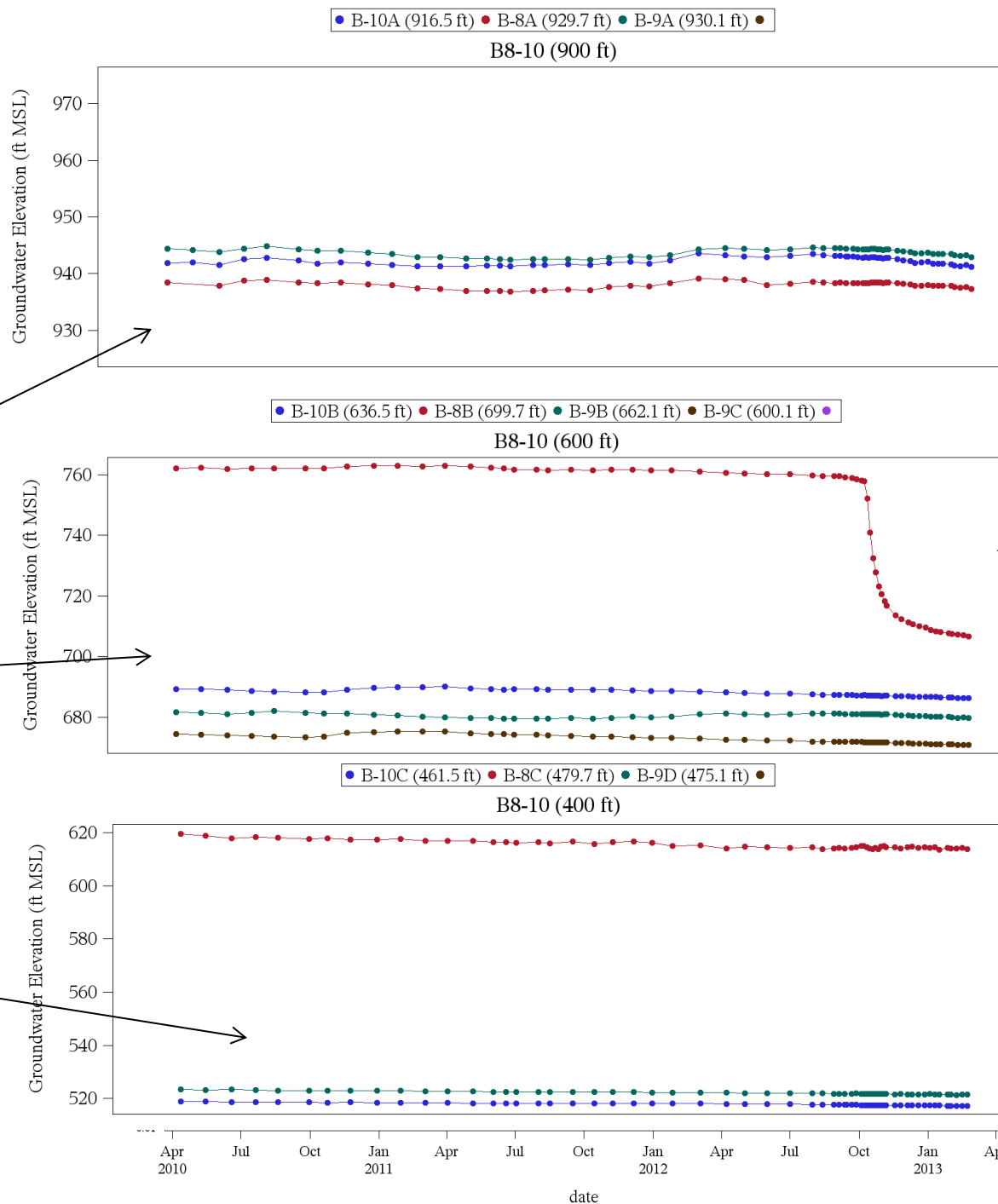
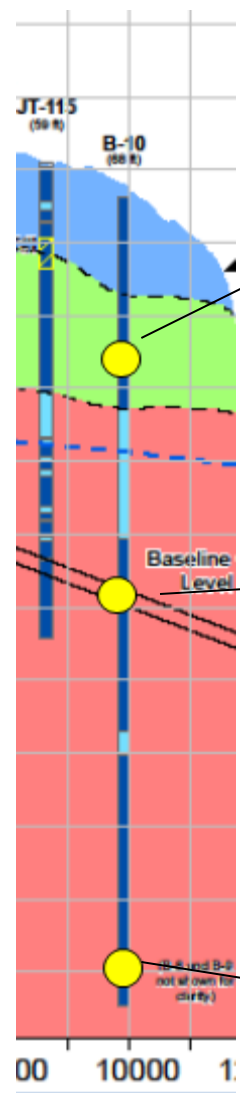


Bull Creek @ Trib 7 (Pit Spring proxy)



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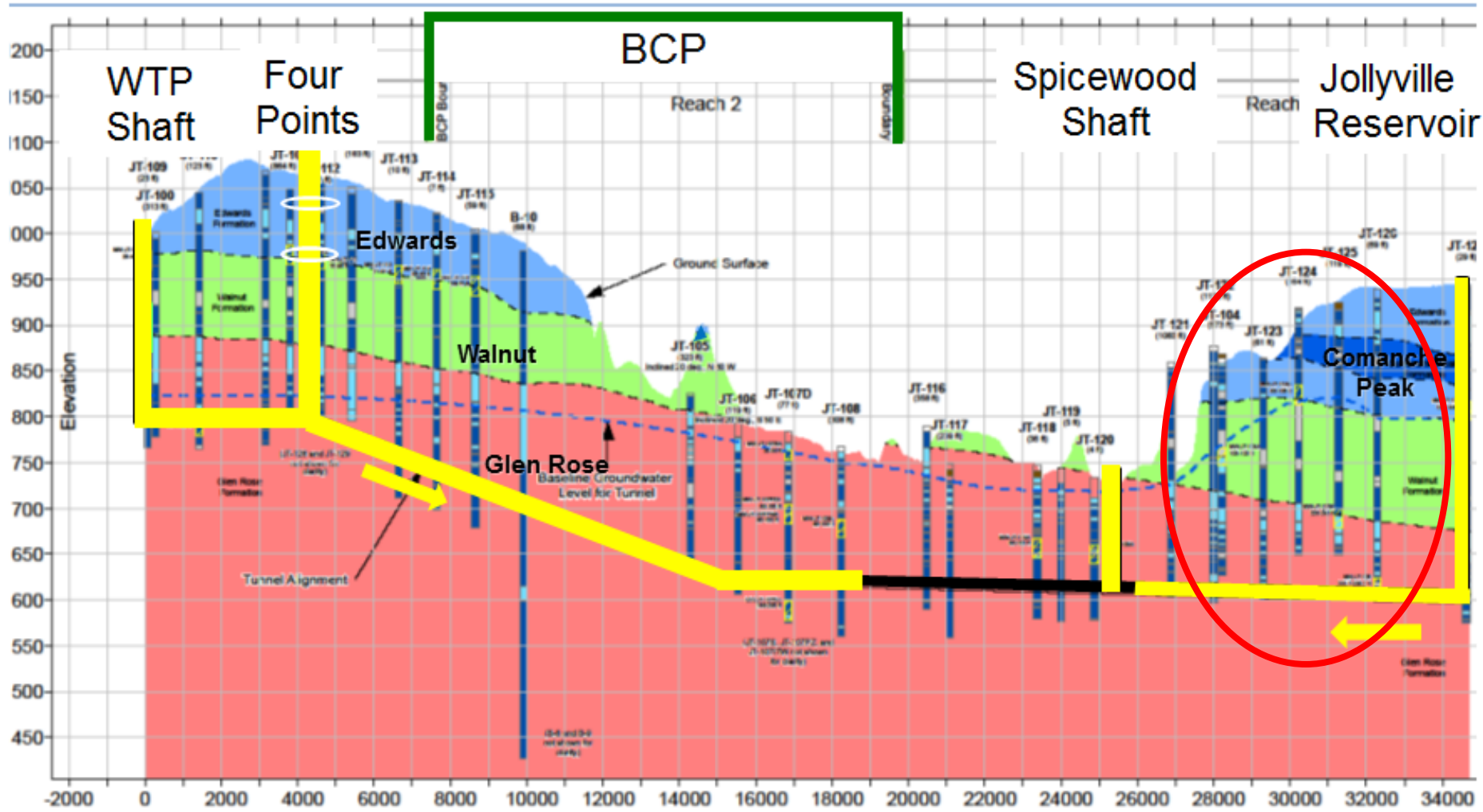




Tunnel affecting groundwater levels at tunnel horizon, but not above or below.

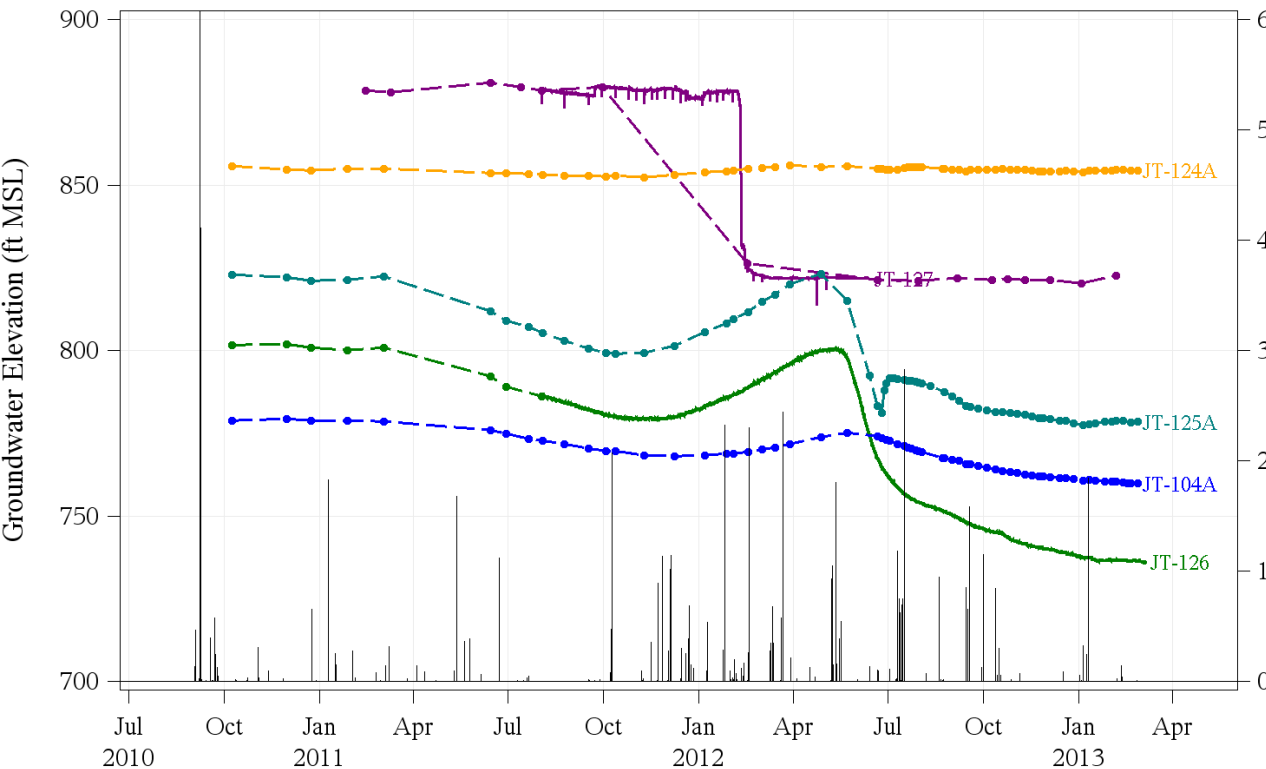
B8-b – screened @ tunnel horizon ~60 ft drop as tunnel passes.

Fugro Boring Id	Piezometer Elevation (ft msl)
B-9A	930.05
B-8A	929.7
B-10A	916.54
B-8B	699.7
B-9B	662.05
B-10B	636.54
B-9C	600.05
B-8C	479.7
B-9D	475.05
B-10C	461.54



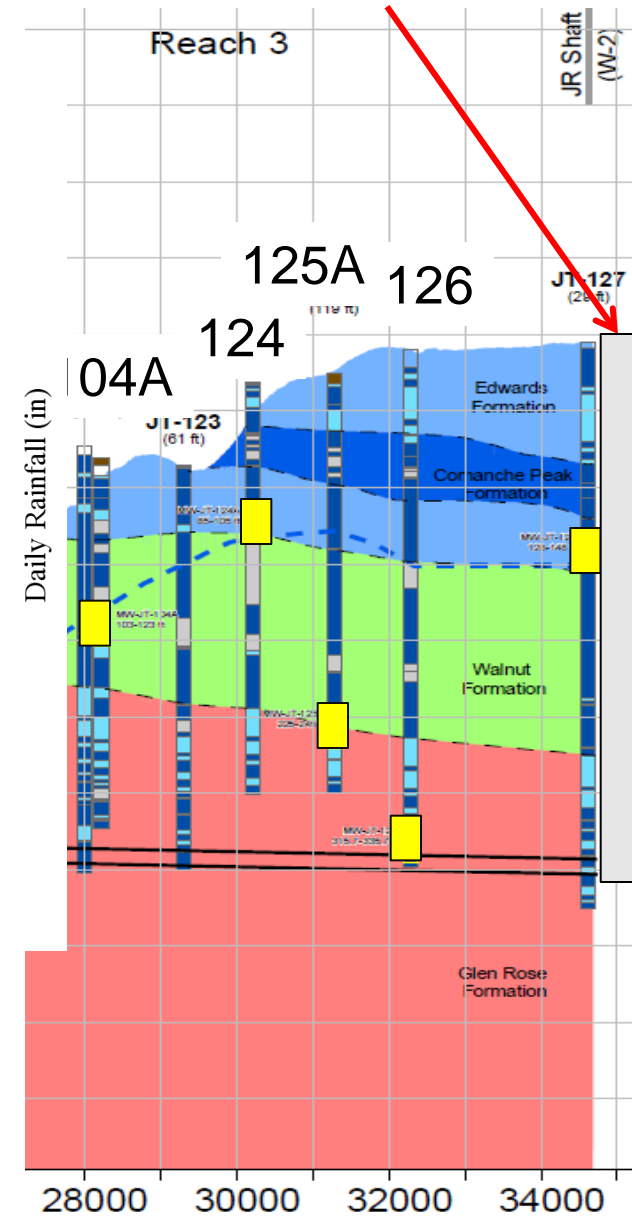
East Side Wells

Hydrographs for JT Wells 104A, 124A, 125A, 126 and 127




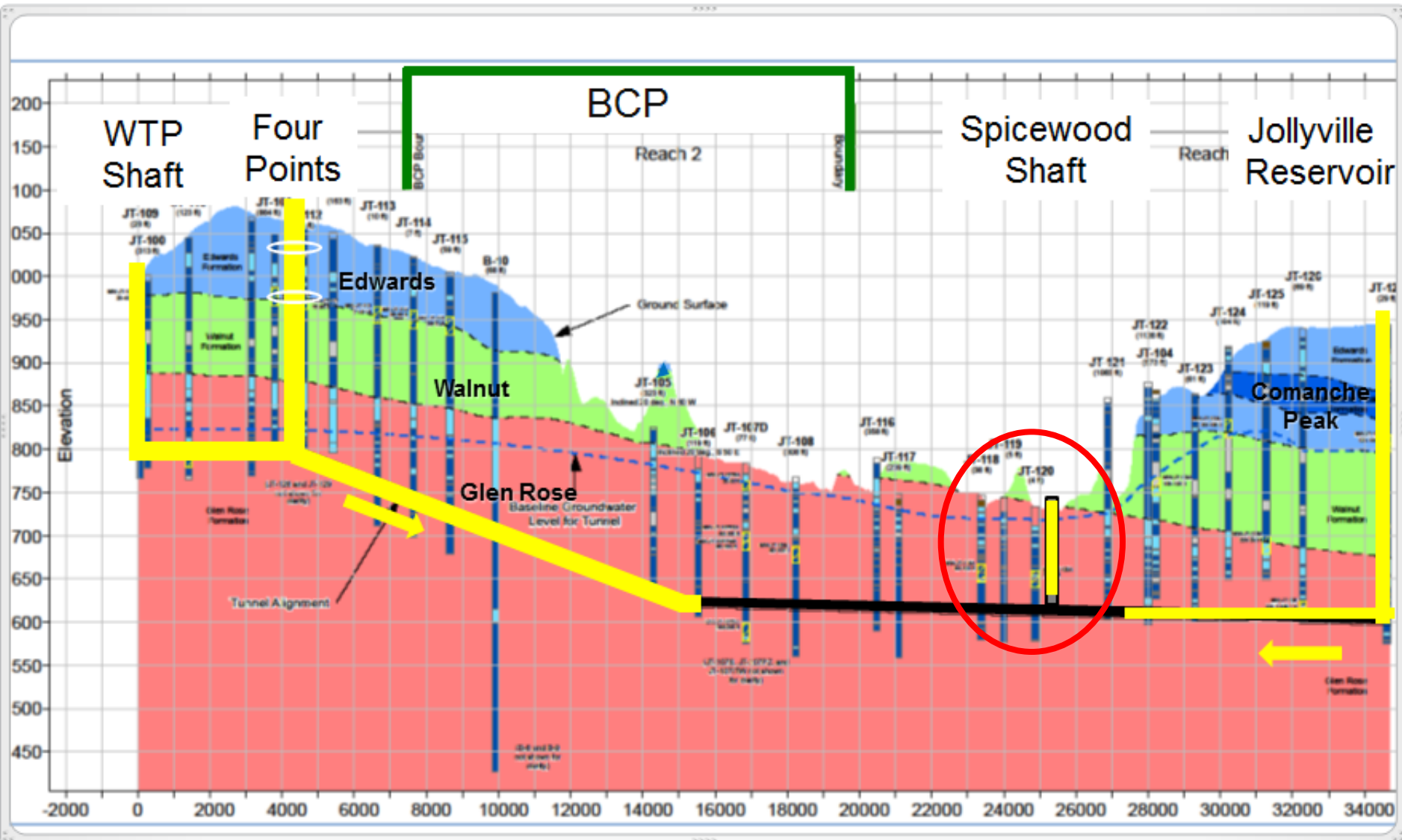
- Tunnel has progressed past all wells
- 126 and 104 declining and possibly leveling out
- 125A possibly beginning to recover.
- JT-124 Walnut well level relatively flat.

Jollyville Reservoir Shaft



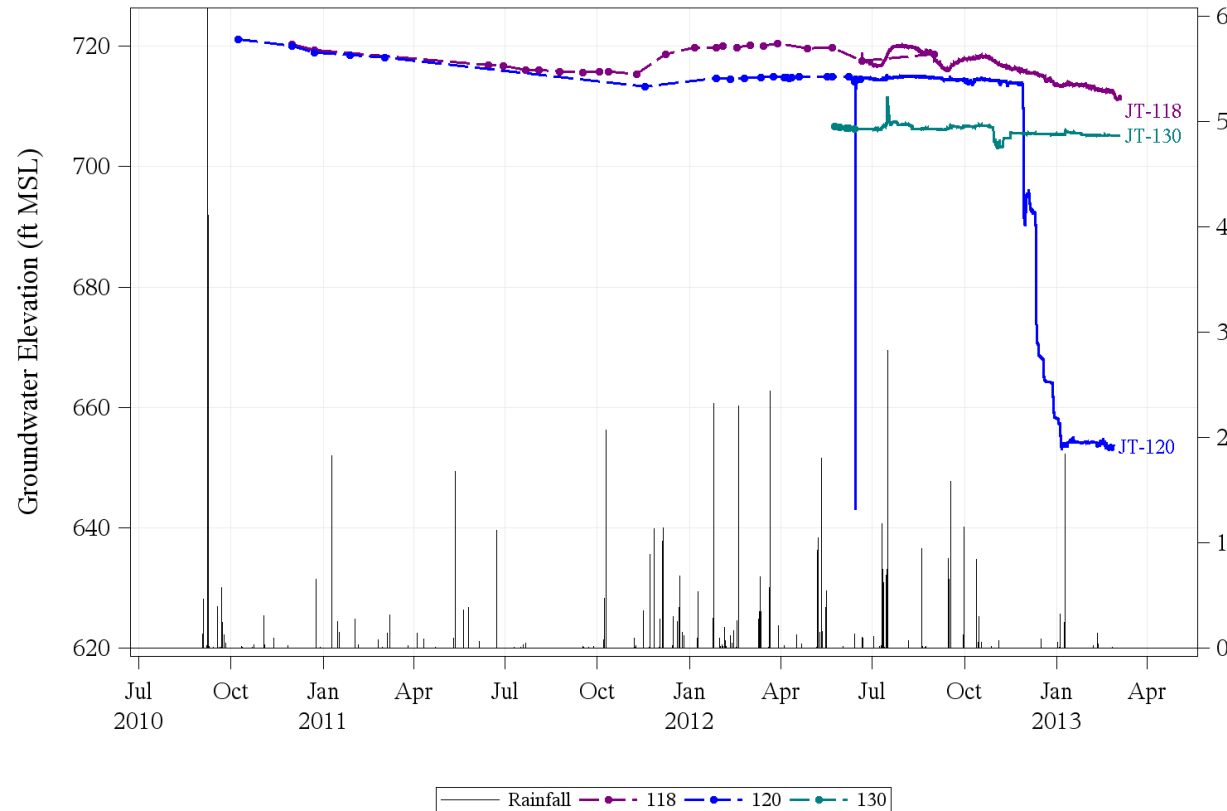
Jollyville Transmission Main Project

 = progress



Spicewood Shaft Wells

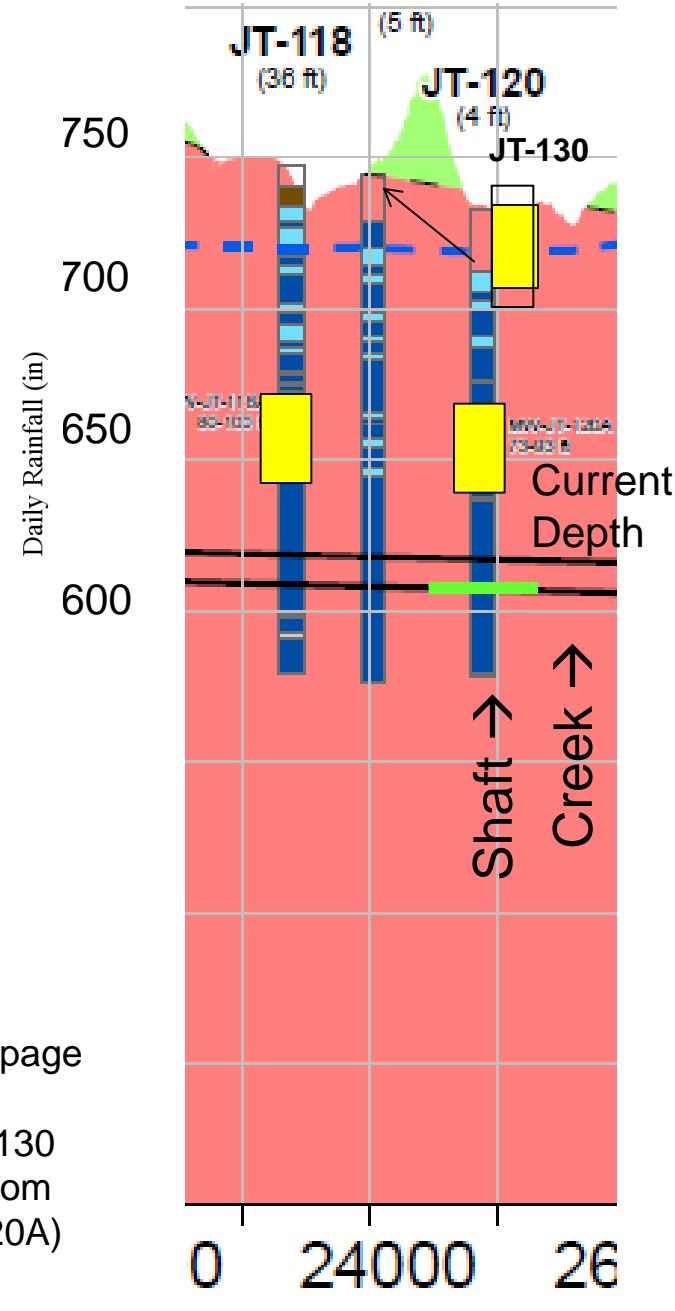
Hydrographs for JT Wells 118, 120 and 130



— Rainfall — 118 — 120 — 130

City of Austin DRAFT: QA/QC review pending

- Additional grouting procedure in November 2011 helped reduce seepage into shaft and water levels in JT-130 to rebound
- JT-120 is located adjacent to the shaft and screened well below JT-130 screen (liner plates down to 70 ft below ground, JT120A screened from about 73-93 ft below ground so shaft is now well below bottom of 120A)
- 118 decline partly due to shaft influence (~5 feet)



Environmental Monitoring Update – Surface flow



**Trib 4 downstream from Spicewood Shaft
January 22, 2013**

- All springs and stream reaches flowing but low due to drought. Water quality parameters within expected ranges
- Nondetects for indicators of mining, vehicular operation, and drilling (TPH, Cu, Cr, Zn)
- Nondetects for di-n-butyl grout compounds in JT-112, Gaas spring



Jollyville Plateau Salamander Monitoring

Site	Date of Last Count	Recent Count #	Historical Average (& last four counts)
Lanier	Sept 7, 2012	100	66 (100,56,48,59)
Franklin/Pit	November 2012	146	102 (39,100, 180,267)
Tanglewood	August 2012	1	2 (0,0,3,1)
Lower Ribelin	September 2012	94	89 (176,43,42,94)
Upper Ribelin	May 23, 2011	75	85 (123,74,67,75)
Trib 4 @ Spicewood	March 2013	6	2 (0,0,1,6)

-- provided by Nathan Bendik, Salamander Biologist for WPD



JVTM Environmental Monitoring Summary (cont.)

Trigger	Range	Recent Occurrences
TROLL Alarms (107, 130)	Outside of range of historical variability	None
Tunnel Inflow Triggers	<p>Baseline water inflow triggers: 50 gpm over 10 feet of tunnel length 200 gpm over 500 feet of tunnel length 400 gpm over a single tunnel reach (1, 2, or 3)</p> <p>Sensitive area triggers: 25 gpm over 10 ft of tunnel length 100 gpm over 500 ft of tunnel length</p>	Water inflows ~0.15 gpm over entire length of Reach 2 tunnel; ~0.2 gpm Reach 3
Spring/Streamflow Triggers	Relative to one another; paired comparison analysis	All surface sites responding consistently with rainfall and general trends



Thais Perkins, Environmental Commissioning Coordinator
David Johns, Hydrogeologist
Watershed Protection Department
thais.perkins@austintexas.gov
david.johns@austintexas.gov
974-2291