

Mr. Bob Harrington
Inyo County Water Department
135 South Jackson Street
Independence, CA 93526

August 7, 2009

RE: Summary of Hydrologic Monitoring Activities
Rose Valley, Inyo County, California
Hay Ranch Project Conditional Use Permit #2007-03

Dear Mr. Harrington:

This letter is intended to summarize hydrologic monitoring activities conducted in July 2009 by TEAM Engineering & Management, Inc. (TEAM), related to the Hay Ranch Water Extraction Project and CUP #2007-03.

Baseline Data Collection

During the period of July 9 to July 30, 2009, static depth-to-water (DTW) measurements and one set of flow rates were collected by TEAM from 22 monitoring locations in the Rose Valley area, as summarized in the attached table (Table 1). On July 7, a DTW measurement at LADWP 816 Well was taken by LADWP personnel. Transducer pressure data were downloaded from 8 units, including one "BaroTroll" measuring barometric pressure. Graphs of that data, for the period of May 21 through July 23, are included in the attached figures. Absolute pressure readings from the 7 level transducers were first corrected with barometric pressure data collected during the same period, then converted to associated groundwater elevations by correlation to manual depth-to-water measurements.

Baseline Data Collection Exceptions

Access to download July data from the pressure transducer at 18-28 GTH (RV-160) was restricted by a Naval Air Weapons Station China Lake range closure on July 23. The transducer installed in well HR 1B was determined to have a faulty cable, which prohibited data download. This cable was replaced on July 31.

Maintenance/Installation Activities

Data logging pressure transducers and well security were installed in three wells: the Coso Junction Store #1 (RV-100), the Cinder Road Well (RV-150), and the new Red Hill Well (RV-120). Survey data was collected from the Dunmovin well (RV-40), the Cinder Road Well (RV-150), Fossil Falls Campground Well (RV-170), the Red Hill Well (RV-120) and the six Hay Ranch cluster wells (RV-60, 61, 62, 80, 81, 82). As these elevation data were not available for calculation of the June groundwater elevations, a summary of the June data including groundwater elevation is also attached (Table 2).

Two reconnaissance events were held: one at Davis Ranch and another at Little Lakes Ranch (LLR). These reconnaissance events were used to collect information required for the installation of monitoring equipment at both sites. Plans were enacted, and specifications developed for necessary equipment, to install one flow meter and two pressure transducers at Davis Ranch. Equipment specifications were also developed and plans enacted to install pressure transducers in the LLR North and Dock Wells, and to install a stilling well with a pressure transducer to measure Little Lake water surface level. Well security was installed on the LLR North Well.

Data Transmittal

An initial data transmittal system has been established between TEAM and Inyo County Water Department (ICWD) for the Hay Ranch Project. TEAM is currently developing internal Quality Assurance/Quality Control protocols and designing a comprehensive database management system for the project, with coordination with Inyo County. Data was transmitted from TEAM to ICWD on August 7, 2009.

Sincerely,
TEAM Engineering & Management, Inc.

Naomi Garcia
Senior Environmental Scientist

Attachments

Table 1
Field Observations of Rose Valley Hydrologic Monitoring Points
July 2009

Project Name:	Hay Ranch Project HMMP	Date: July 30, 2009
Location:	Rose Valley, Inyo County	
Observer(s):	N. Garcia, W. Pachucki	Page: 1 of 1

Well ID	Monitoring Point	Date	Time	DTW/Flow (ft/gpm)	GWE (ft amsl)	Instrument	Transducer pressure (psi)	Notes
RV-10	Dews	7/21/09	16:30	231.94	-	Solinst	NA	Pump running. DTW 231.21 at 16:25
RV-20	LADWP 816	7/7/09	10:02	77.9	3437.16	LADWP Equipment	NA	Data provided by LADWP
RV-30	Cal Pumice	7/21/09	10:05	240.55	3265.34	Solinst	NA	
RV-40	Dunmovin	7/21/09	10:25	294.77	3253.10	Solinst	NA	
RV-50	Hay Ranch North	7/23/09	11:00	191.55	3245.44	Solinst	51.78	
RV-60	Hay Ranch 1A	7/23/09	11:27	187.90	3244.27	Solinst	39.649	TDS = 809
RV-61	Hay Ranch 1B	7/23/09	11:35	188.81	3243.04	Solinst	NM	Transducer cable faulty
RV-62	Hay Ranch 1C	7/23/09	11:39	186.03	3245.47	Solinst	40.31	TDS = 740.3 at 11:45
RV-70	Hay Ranch South	-	-	NM	-	-	NA	
RV-80	Hay Ranch 2A	7/23/09	12:13	191.90	3241.10	Solinst	38.9638	TDS = 743.5
RV-81	Hay Ranch 2B	7/23/09	12:19	194.05	3238.58	Solinst	37.26	TDS = 760.4 at 12:26
RV-82	Hay Ranch 2C	7/23/09	12:35	189.48	3242.62	Solinst	41.037	TDS = 741.7 at 12:45
RV-90	Coso Jct Ranch	7/23/09	13:09	170.88	3232.25	Solinst	27.396	
RV-100	Coso Jct Store #1	7/21/09	15:35	142.48	3229.64	Solinst	NA	Pump running but WL stable (10 minutes).
RV-120	Red Hill Well (BLM)	7/21/09	14:55	140.05	3200.78	Solinst	NA	
RV-130	G-36	7/21/09	14:15	179.95	3199.89	Solinst	NA	
RV-140	Lego	7/21/09	14:00	222.15	3200.68	Solinst	NA	
RV-150	Cinder Road	7/21/09	13:03	190.96	3187.07	Solinst	NA	
RV-160	18-28 GTH	7/21/09	13:35	174.02	3188.56	Solinst	NM	No transducer data for July (base closure)
RV-170	Fossil Falls Campground	7/21/09	12:55	141.13	3175.64	Solinst	NA	
RV-180	LLR North Well	7/30/09	10:30	40.11	3158.10	Solinst	NA	
RV-210	LLR Dock Well	7/30/09	11:05	6.26	-	Solinst	NA	
RV-110	Davis Springs North	7/9/09	-	NM	-	NA	NA	
RV-111	Davis Springs South	7/9/09	13:30	5.0 gpm	-	bucket/stopwatch	NA	Averaged over 3 readings: 4gal/48sec

NM - not measured; NA - not applicable

All units in feet unless otherwise specified.

Table 2
Field Observations of Rose Valley Hydrologic Monitoring Points
June 2009

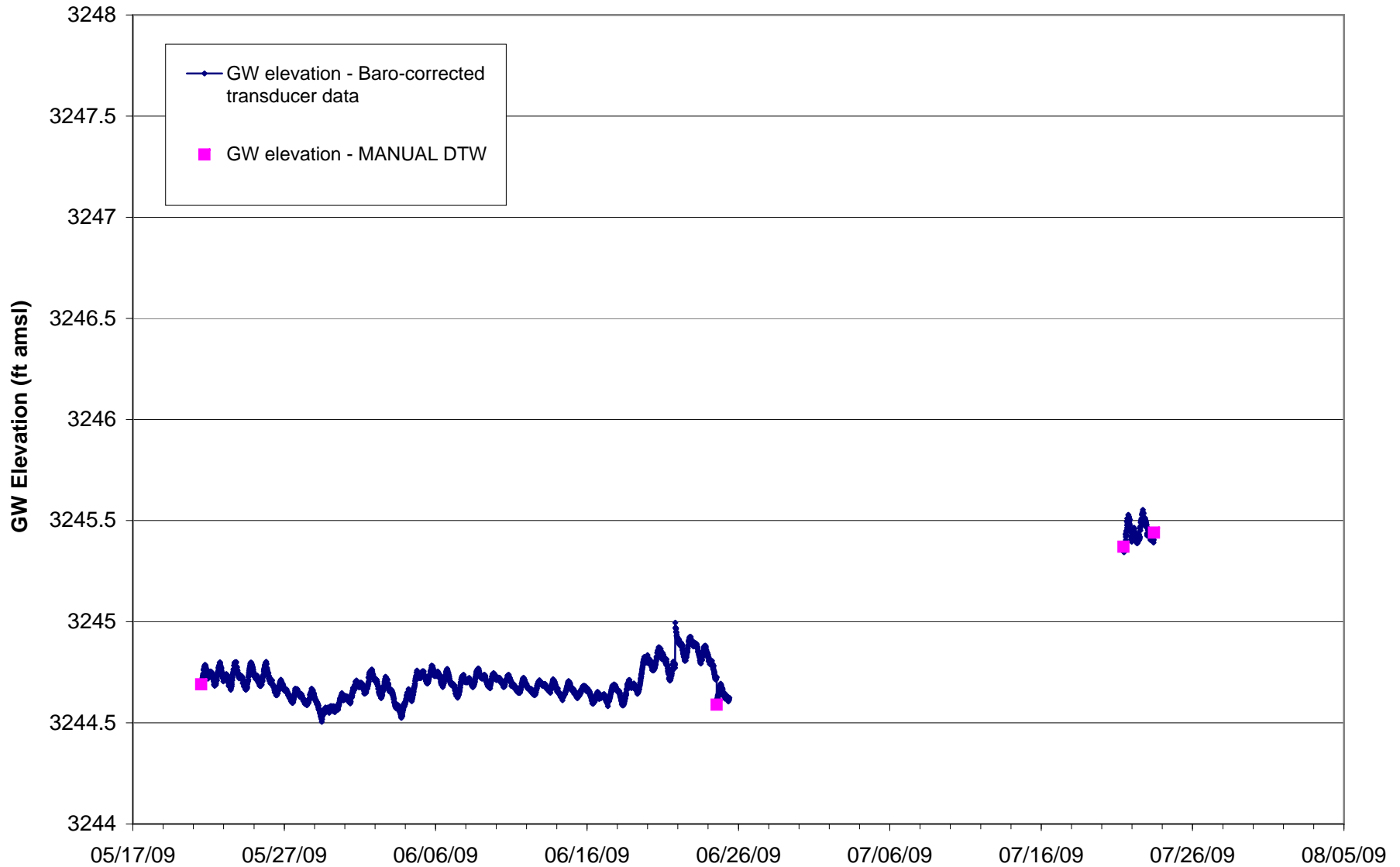
Project Name:	Hay Ranch Project HMMP	Date: June 24, 2009
Location:	Rose Valley, Inyo County	(Revised 8/6/09)
Observer(s):	K. Rainville, N. Garcia	Page: 1 of 1

Well ID	Monitoring Point	Date	Time	DTW/Flow (ft/gpm)	GWE (ft amsl)	Instrument	Transducer pressure (psi)	Notes
RV-10	Dews	6/24/09	18:00	NM	-	NA		Need smaller probe >200ft
RV-20	LADWP 816	6/24/09	-	NM	-	NA		
RV-30	Cal Pumice Mine	6/24/09	14:10	240.91	3264.98	In-situ Level Tape 200		
RV-40	Dunmovin	6/24/09	11:20	295.02	3252.85	In-situ Level Tape 200		
RV-50	Hay Ranch North	6/24/09	13:45	192.02	3244.69	In-situ Level Tape 200	25.25	
RV-60	Hay Ranch 1A	6/24/09	13:33	188.10	3244.07	In-situ Level Tape 200		
RV-61	Hay Ranch 1B	6/24/09	13:40	188.91	3242.94	In-situ Level Tape 200		
RV-62	Hay Ranch 1C	6/24/09	13:45	186.14	3245.36	In-situ Level Tape 200		
RV-70	Hay Ranch South	6/24/09	-	NM		NA		
RV-80	Hay Ranch 2A	6/24/09	13:05	192.08	3240.92	In-situ Level Tape 200		192.05 Solinst 101
RV-81	Hay Ranch 2B	6/24/09	13:17	194.18	3238.45	In-situ Level Tape 200		
RV-82	Hay Ranch 2C	6/24/09	13:20	189.59	3242.51	In-situ Level Tape 200		
RV-90	Coso Jct Ranch North	6/24/09	12:00	171.09	3232.04	In-situ Level Tape 200	27.35	
RV-100	Coso Jct Store #1	6/24/09	9:47	142.37	3229.75	In-situ Level Tape 200		
RV-120	Red Hill Well (BLM)	6/24/09	15:45	140.20	3200.63	In-situ Level Tape 200		
RV-130	G-36	6/24/09	15:25	179.96	3199.88	In-situ Level Tape 200		
RV-140	Lego	6/24/09	15:15	222.31	3200.52	In-situ Level Tape 200		
RV-150	Cinder Road	6/24/09	10:05	190.93	3187.03	In-situ Level Tape 200		
RV-160	18-28 GTH	6/24/09	14:25	174.08	3188.50	In-situ Level Tape 200	26.96	
RV-170	Fossil Falls BLM	6/24/09	10:35	141.24	3175.53	Solinst 101		
RV-180	LLR North Well	6/24/09	-	NM	-	NA		
RV-210	LLR North Dock	6/24/09	-	NM	-	NA		
RV-110	Davis Springs North	6/24/09	-	NM	-	NA		
RV-111	Davis Springs South	6/24/09	16:20	5.2 gpm	-	bucket-and-stopwatch		Averaged over 8 readings: 4gal/46.38 seconds

NM - not measured; NA - not applicable

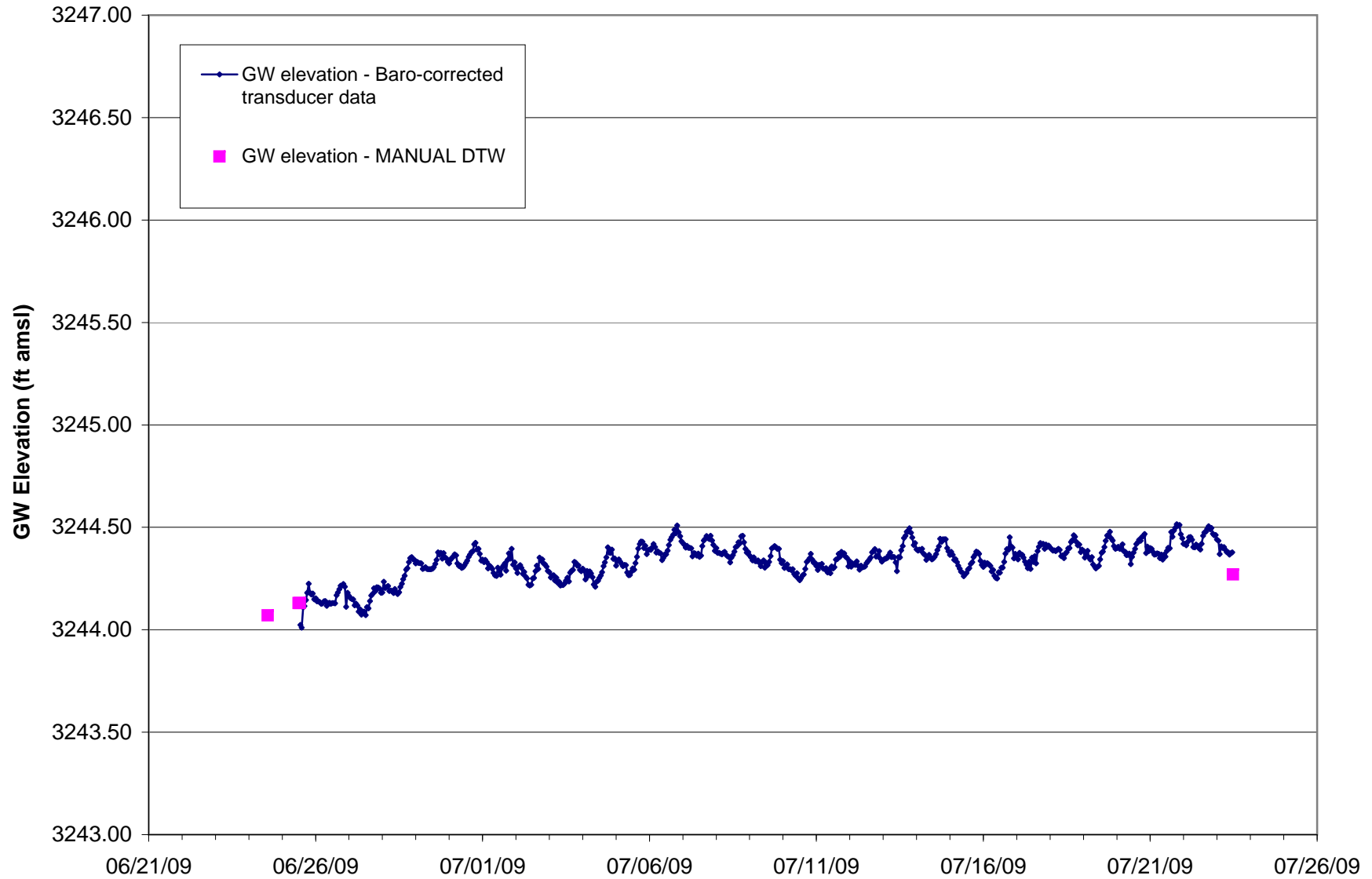
All units in feet unless otherwise specified.

Groundwater Elevation - Hay Ranch North



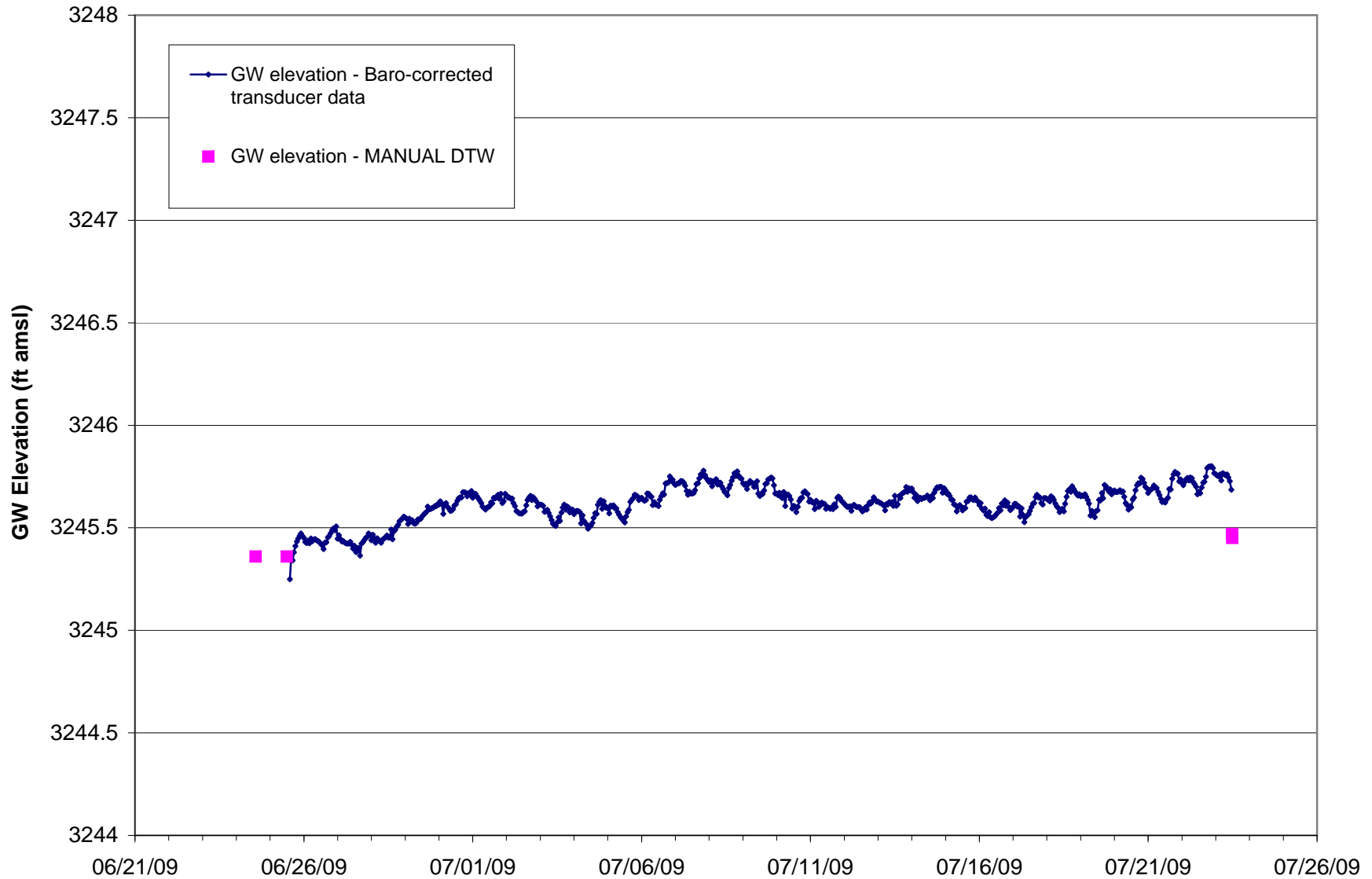
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll, and correlated to Manual DTW measurements. Transducer data from 6/25/09 to 7/21/09 removed due to transducer repositioning and anomalous data.

Groundwater Elevation - HR 1A



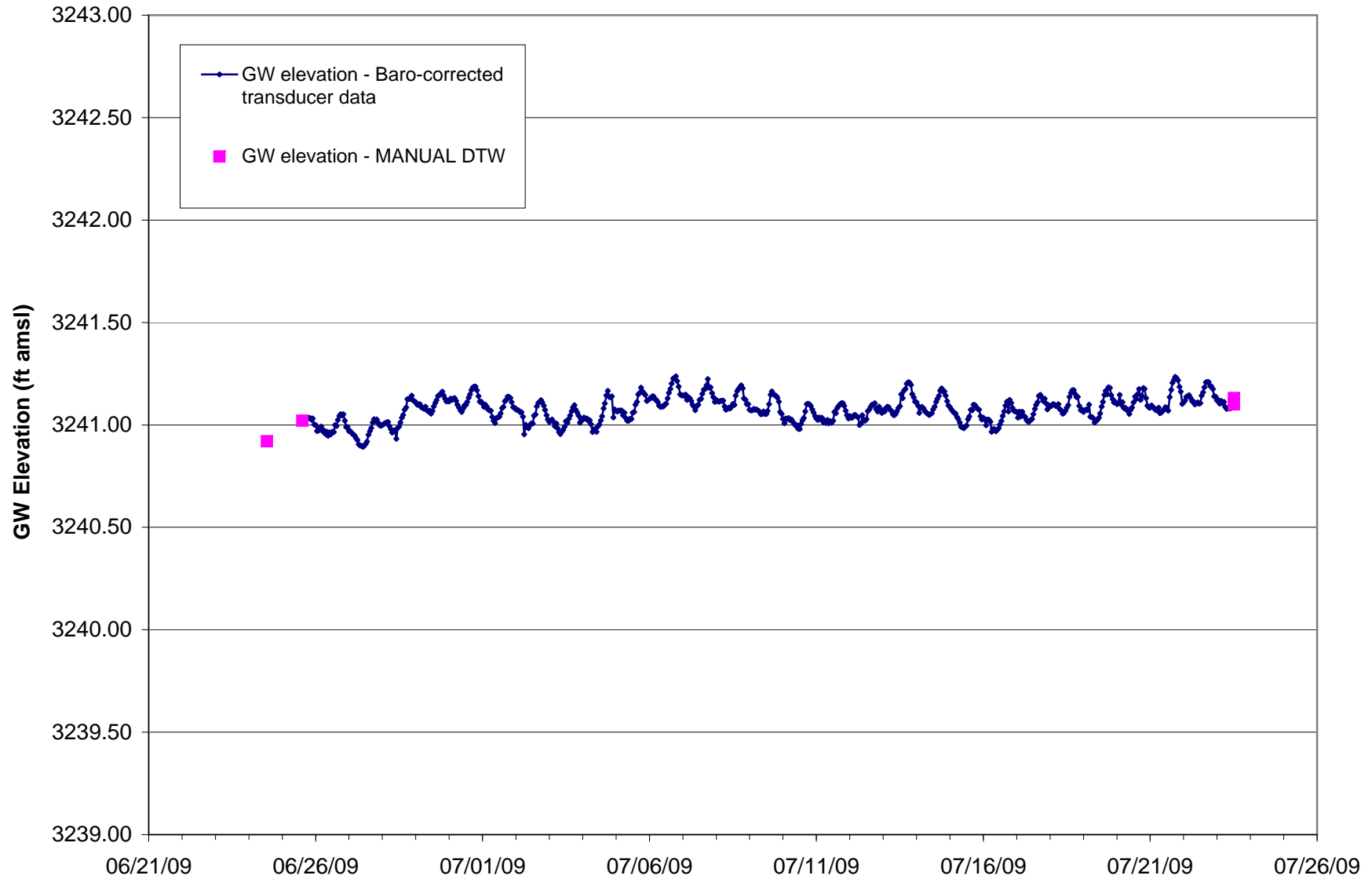
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - HR 1C



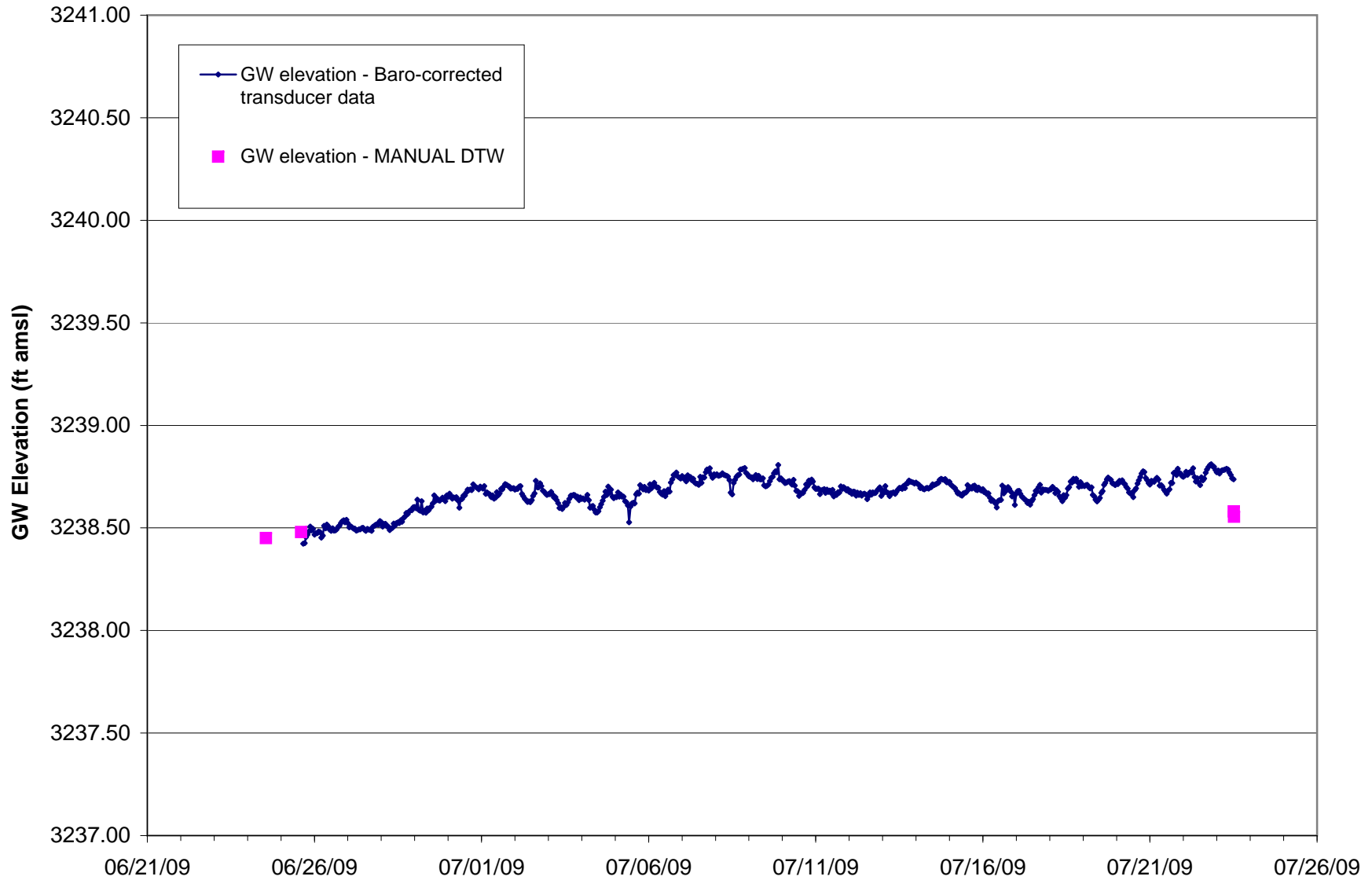
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - HR 2A



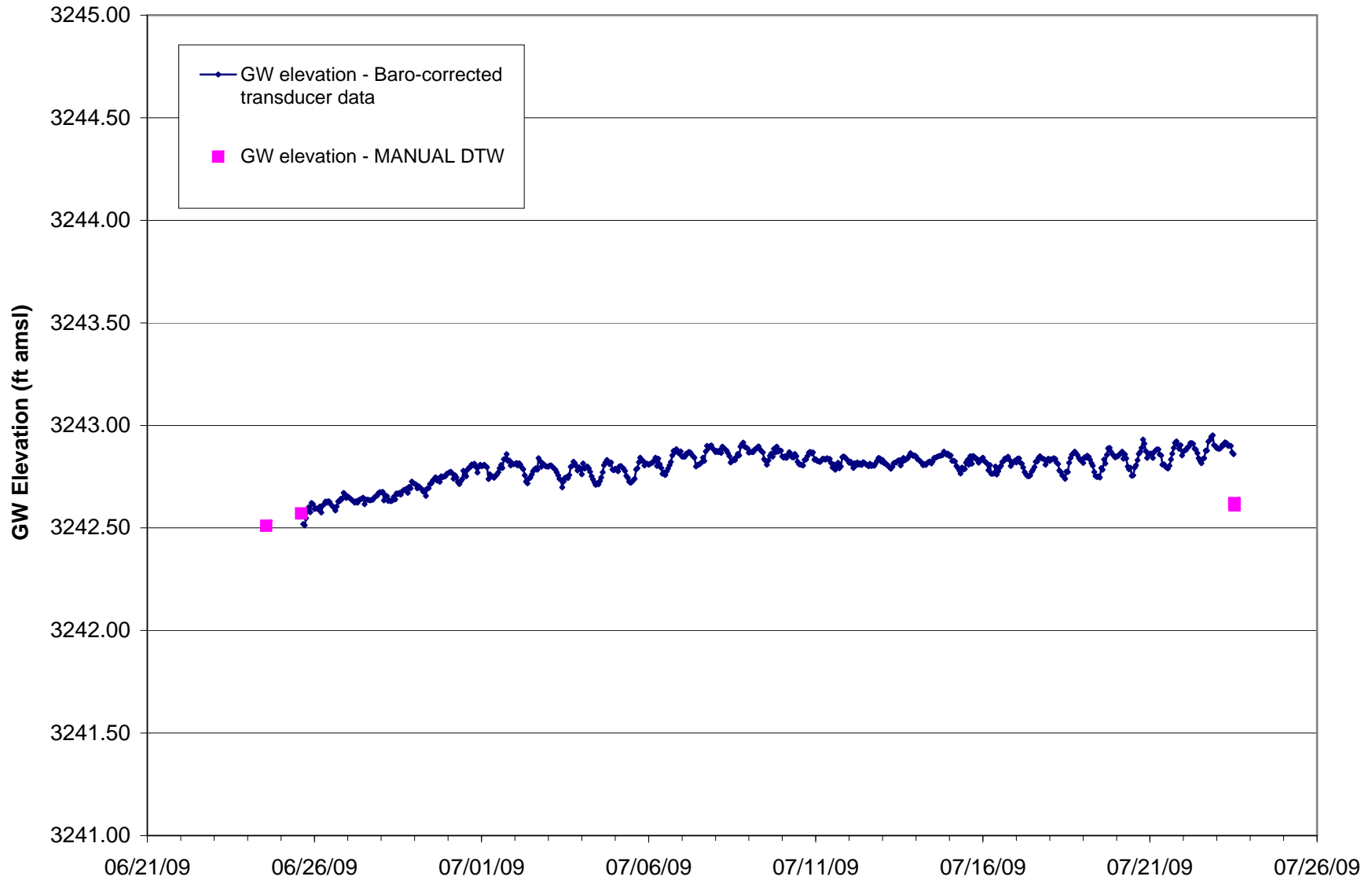
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - HR 2B



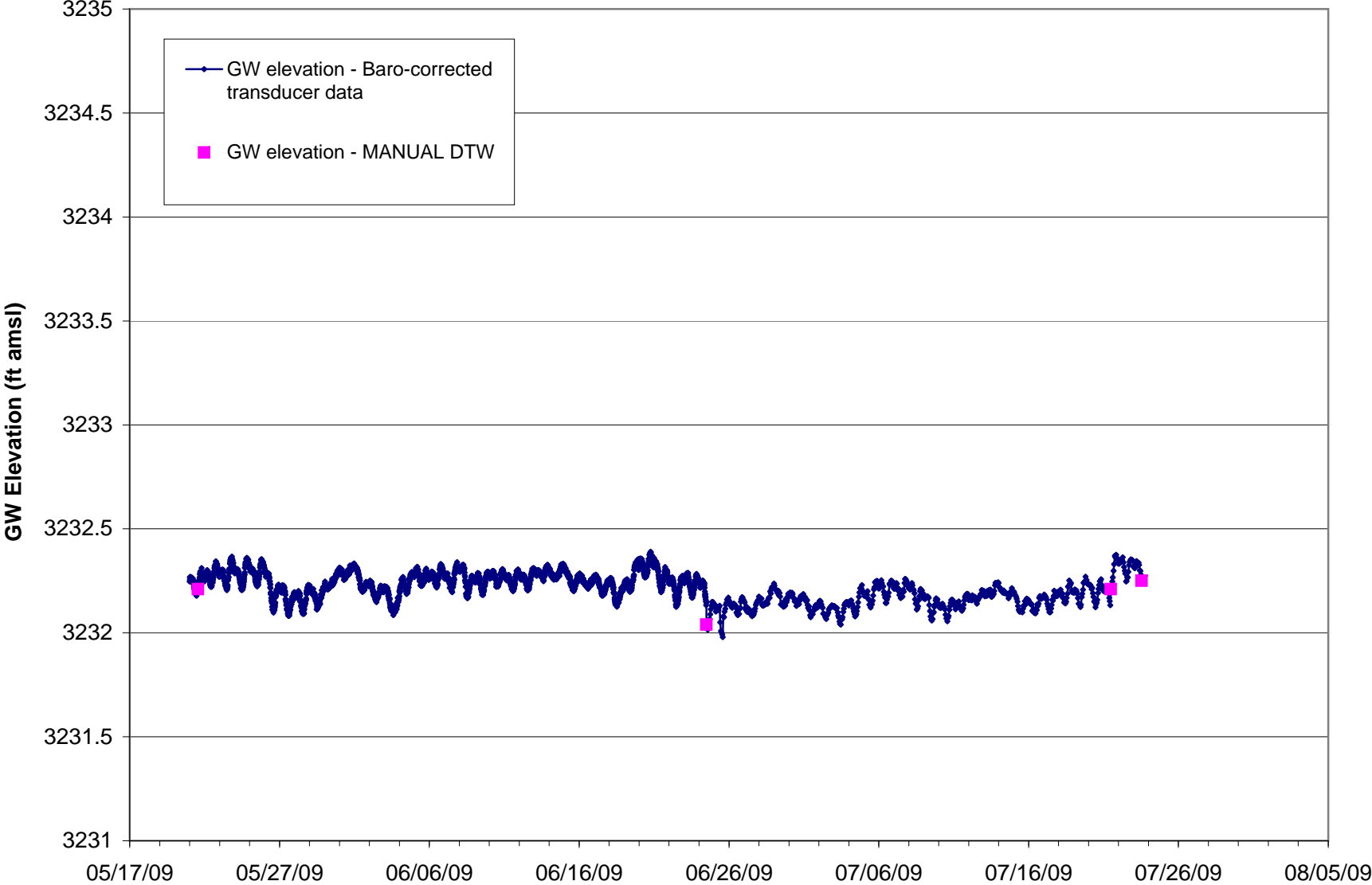
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - HR 2C



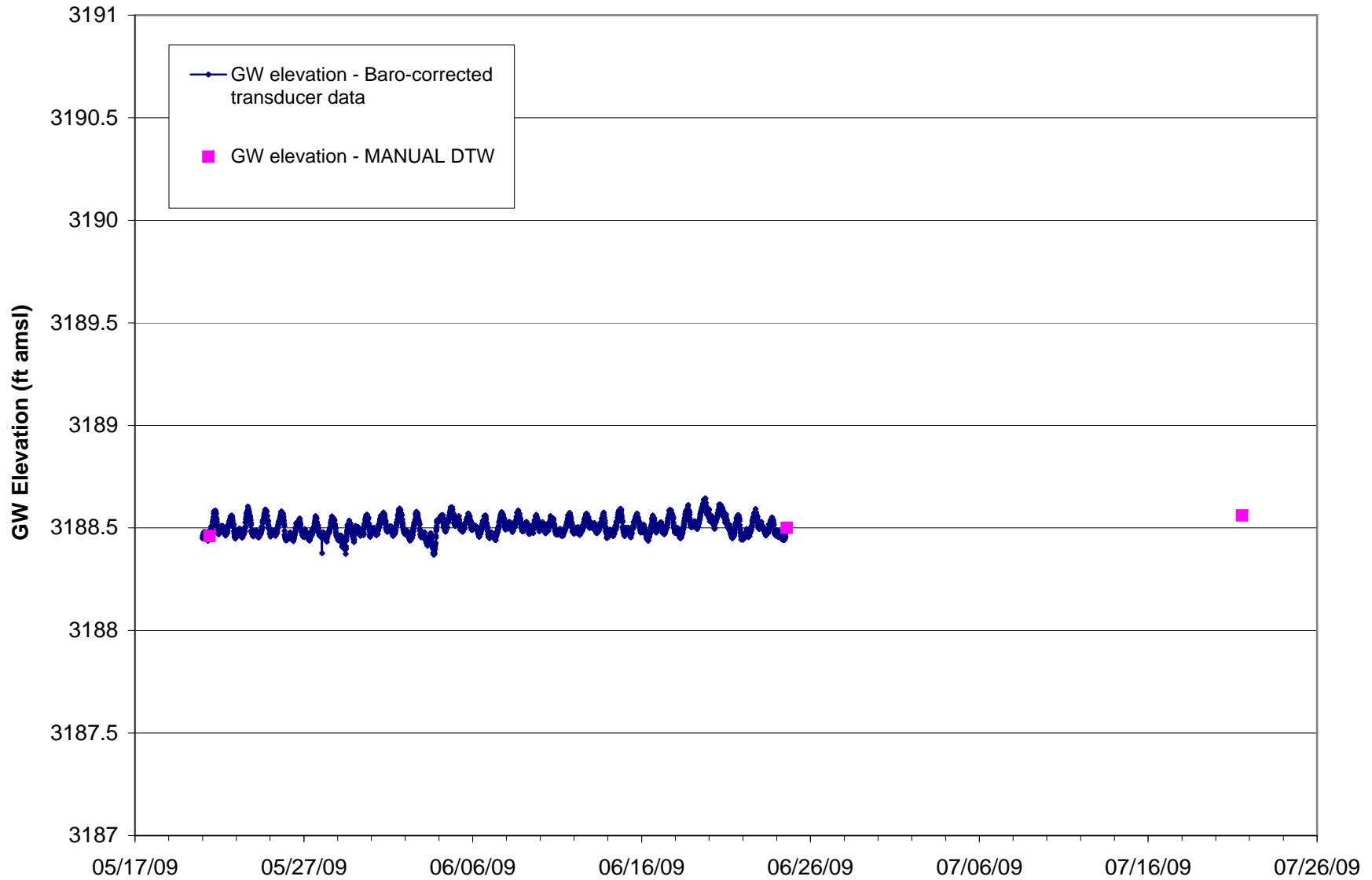
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - Coso Jct Ranch Well



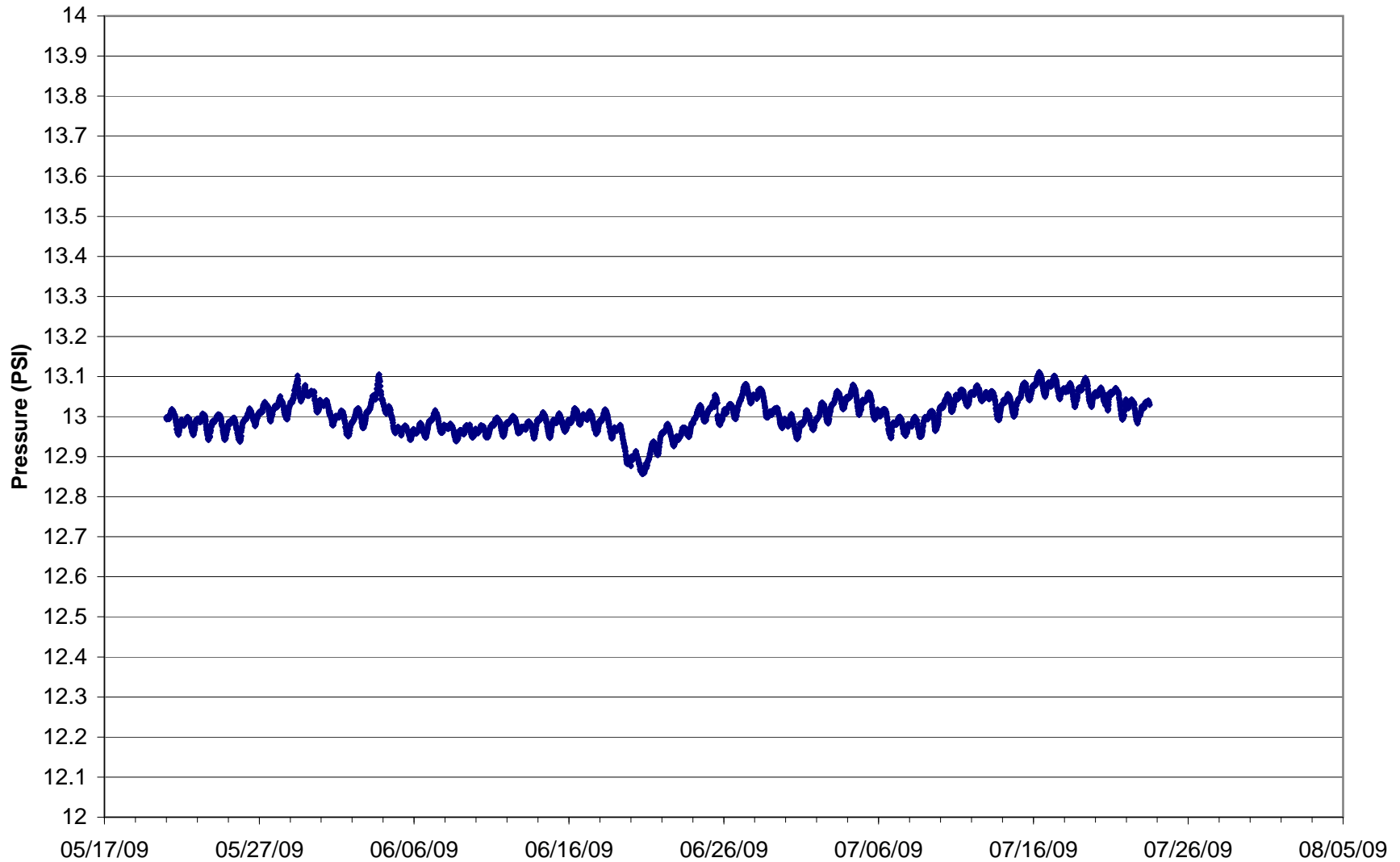
Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements.

Groundwater Elevation - 18-28 GTH Well



Note: Transducer data (absolute pressure) adjusted by data logged from BaroTroll and correlated to Manual DTW measurements. July transducer data was not available due to 7/23/09 base closure.

Barometric Pressure as Logged by BaroTroll



Note: Barometric data as logged by BaroTroll 1 (located at Hay Ranch monitoring well HR 2B).
These data are subtracted from the absolute pressure readings of the non-vented LevelTrolls during the same period.