FREEPORT-McMoRAN COPPER & GOLD

Sierrita Operations
Environment, Land & Water Department
6200 West Duval Mine Road
PO Box 527
Green Valley, Arizona 85622-0527

September 11, 2009

Via Certified Mail # 7008 2810 0000 0983 3474
Return Receipt Requested

Ms. Cynthia S. Campbell
Arizona Department of Environmental Quality
Water Quality Compliance Section
1100 West Washington Street
Phoenix, Arizona 85007-2935

Re: Aquifer Testing Results Associated with Feasibility Studies Sierrita Tailing Impoundment Mitigation Order on Consent Docket No. P-50-06

Dear Ms. Campbell:

Attached please find three (3) hard copies and one (1) disc of the *Aquifer Testing Results Associated with Feasibility Studies Report* prepared by Hydro Geo Chem for Freeport-McMoRan Sierrita Inc. (Sierrita). The aquifer testing was designed and conducted to measure and refine hydraulic conductivity estimates in the area proposed for future mitigation well fields. These results will be incorporated into the groundwater flow model and used to develop the final well field conceptual design, as per the Mitigation Plan submitted in May 8, 2009. The final well field conceptual design will be submitted to Arizona Department of Environmental Quality by February 1, 2010.

Please do not hesitate to contact Mr. Ned Hall at (520) 229-6470 or myself at (520) 393-4435

Sincerely,

Martha G. Mottley
Chief Environmental Engineer
Freeport-McMoRan Sierrita Inc.

MGM:ms
Attachments
20090911_001

xc: Henry Darwin, Arizona Department of Environmental Quality
John Broderick, Sierrita
Chad Fretz, Sierrita
Ned Hall, Freeport-McMoRan Copper & Gold Inc.
Stuart Brown, Bridgewater Group, Inc.
Jim Norris, Hydro Geo Chem, Inc.

AQUIFER TESTING RESULTS ASSOCIATED WITH FEASIBILITY STUDIES
SIERRITA TAILING IMPOUNDMENT
MITIGATION ORDER ON CONSENT DOCKET NO. P-50-06

Prepared for:

FREEPORT-MCMORAN SIERRITA INC.
6200 West Duval Mine Road
Green Valley, Arizona 85614

Prepared by:

HYDRO GEO CHEM, INC.
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September 3, 2009

HYDRO GEO CHEM, INC.
Environmental Science & Technology

AQUIFER TESTING RESULTS ASSOCIATED WITH FEASIBILITY STUDIES
SIERRITA TAILING IMPOUNDMENT
MITIGATION ORDER ON CONSENT DOCKET NO. P-50-06

Prepared for:

FREEPORT-MCMORAN SIERRITA INC.
6200 West Duval Mine Road
Green Valley, Arizona 85614

Approved by:

REGISTERED GEOLOGIST
CERTIFICATE NO.
30842
JAMES R.
NORRIS
Date Signed 9/3/09
ARIZONA U.S.A.
Expires 12/31/09

James R. Norris
Arizona Registered Geologist No. 30842

September 3, 2009

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APPENDICES

1. INTRODUCTION

The Focused Feasibility Study (FFS) (Hydro Geo Chem, Inc. [HGC], 2007) and Feasibility Study (FS) (HGC, 2008a) identified and evaluated mitigation alternatives for the sulfate groundwater plume originating from the Freeport-McMoRan Sierrita Inc. (Sierrita) Tailing Impoundment (STI). The effectiveness of various mitigation alternatives was evaluated using groundwater flow and transport numerical modeling. The modeling results were used to estimate groundwater capture areas and required extraction (pumping) rates. The groundwater extraction rate necessary to achieve the amount of capture required to control sulfate migration is directly proportional to the hydraulic conductivity of the aquifer. The groundwater extraction rate directly affects the sizing of wells and pumps, electrical specifications, sizing of piping, water treatment requirements and, hence, costs. Because the estimated groundwater extraction rate necessary to achieve capture depends on the estimated hydraulic conductivity of the aquifer, HGC, under contract to Sierrita, designed and conducted an aquifer-testing program to measure and refine hydraulic conductivity estimates in the area proposed for future mitigation wellfields. The aquifer test, including baseline water level measurements, groundwater pumping, and water level recovery data collection was conducted from January 29 to March 2, 2009.

2. DESIGN BASIS

The aquifer test was designed to measure field-scale aquifer parameters at flow rates and locations similar to wellfields proposed in the feasibility studies. The groundwater extraction wells proposed in Alternative 5 of the Feasibility Study (HGC, 2008a) and the area of the aquifer test are shown in Figure 1. Aquifer parameters estimated from data collected from this aquifer test included transmissivity, storativity, and specific yield. Hydraulic conductivities were calculated from the transmissivities estimated from the aquifer test. Two extraction wells were operated simultaneously to maximize the pumping stress on the aquifer and the consequent area and magnitude of drawdown. The extraction well selection criteria included proximity to existing observation wells, relative location to proposed wellfield, and whether they contained screened intervals over most of the aquifer's saturated thickness. The test duration was designed to allow sufficient drawdown to be discernable from regional groundwater fluctuation and/or localized effects of groundwater pumping at water supply wells in the area.

3. AQUIFER TEST METHODS AND PROCEDURES

A detailed field operations plan (FOP) was prepared prior to implementation of the proposed aquifer test (HGC, 2009). The FOP described field operation methods and procedures, the schedule of field tasks, data collection procedures, field instrumentation instructions, calibration procedures, field data sheets, the site-specific health and safety plan, the quality assurance/quality control plan, project/client contacts, and emergency contacts and procedures.

3.1 Groundwater Extraction

Two existing Esperanza production wells, ESP-1 and ESP-3 as shown in Figure 2, were utilized for pumping during the aquifer test. Both wells are in excess of 1,000 feet in depth and are completed with nearly 700 feet of well screen. Construction summaries for each production well are provided in Table 1. Existing vertical turbine pump capacities are 1,380 gpm for ESP-1 and 840 gpm for ESP-3.

Flow rates were maintained at approximately 935 gpm and 770 gpm for ESP-1 and ESP-3, respectively, for approximately 7 days. Water from both ESP-1 and ESP-3 was pumped back to the mine for use or discharged into existing drainage under Sierrita's existing De Minimus permit. Both ESP-1 and ESP-3 are currently classified by ADEQ as drinking water facilities and, therefore, did not require confirmation sampling and analysis. Eight hours after starting the test, pumping was stopped for approximately 7.5 hours due to an equipment failure. Pumping resumed after the equipment was repaired. Existing flow control equipment and flow rate instrumentation were utilized to monitor and maintain flow rates. Verification of flow rates was accomplished using an independent portable Fuji ultrasonic, transit-time flowmeter, Model F-200-FLCS1. Flow rates, totalizer flow readings, and hour meter reading were taken periodically to enable accurate accounting of pump operation. A summary of each extraction well's pumping during the test is provided in Table 2 and graphically shown in Figure 3.

Water levels in pumped wells were monitored through existing 1-inch sounding ports. ESP-3 was measured with an electric sounder and ESP-1 using an In-Situ Level TROLL, Model-500, 30-pounds per square inch (psi) pressure transducer. The calibration of this transducer was field checked by raising the transducer 2 feet, after its installation in the extraction well, and verifying the transducer reading with the handheld data logger.

Pumping times and rates for other wells in the area were attempted to be gathered from various sources and incorporated into interpretation of results. Major water users (Community Water Company, Green Valley Domestic Water Improvement District, and Farmers Investment Company [FICO]) were contacted in advance to request pumping records. At the time of the writing of this report only Community Water Company has provided a record of pumping at wells CW-6, 9, 10, and 11. Fortunately, these were the only wells in the area that were critical to the interpretation of the aquifer test. Other groundwater withdrawals in the area had minor impacts as reflected in the baseline and drawdown water level data. Additionally, FICO's irrigation pumping did not begin until after the completion of this aquifer test. The pumping record submitted for the Community Water Company wells is provided in Appendix A and included with the pumping well rate plots presented in Figure 3.

3.2 Observation Well Monitoring

Twenty-two existing wells were utilized as observation wells during the aquifer test (CW-7, CW-8, ESP-2, ESP-4, ESP-5, MH-11, MH-12, MH-13A, MH-13B, MH-13C, MH-25A, MH-25B, MH-25C, MH-26A, MH-26B, MH-26C, MO-2007-3B, MO-2007-3C, MO-2007-4A, MO-2007-4B, MO-2007-4C, and NP-2). Figure 2 shows the location of each monitoring well. Well completion data for the observation wells are provided in Table 3. The distance between an observation well and the closest pumped well ranged from approximately 1,000 to greater than 9,000 feet. The well coordinates, depth to water in the fourth quarter of 2008, and distances to pumped wells are summarized in Table 4.

Monitoring of each of the observation wells was accomplished using In-Situ Level TROLL Model-500 vented pressure transducers and a handheld In-Situ Rugged Reader data logger. Pressure transducer full scale ranges varied from 0-5 psi to 0-15 psi. The pressure rating of the transducer deployed at an observation well depended on predicted water level responses at that well. Transducer range and transducer submergence depth for each well are provided in Table 4. Field calibration checks were conducted on each transducer by raising each transducer 2 feet in the well and verifying the response on the data logger.

Prior to start of pumping, water level data from each well were logged for a period of 2 weeks on a 15 minute interval. During the 7 days of pumping at ESP-1 and ESP-3, water levels continued to be logged every 15 minutes. Following shutting down of the pumped wells (ESP-1 and ESP-3), groundwater recovery in each of the pumping and observation wells was monitored for a period of 6 days at 15-minute intervals. Monitoring of water level recovery was conducted using the same data acquisition systems used for measurement of drawdowns.

Barometric pressure was measured and recorded at 15-minute intervals using an In-Situ Baro-TROLL. Barometric pressure measurements were used to correct the effect of atmospheric pressure variations on readings collected by the pressure transducers. The Baro-TROLL pressure transducer was installed in well ESP-2 at a depth of 10 feet to minimize temperature fluctuations.

4. RESULTS AND INTERPRETATION

Raw water level data measured at each observation well and pumped well during baseline monitoring, aquifer test performance, and recovery are contained in Appendix B. These data include date and time of measurement, elapsed time in seconds since transducer measurements were started, water levels in feet above the pressure transducer, and the barometric pressure measured at well ESP-2. A graph of both water level and barometric pressure during the baseline measurement period is provided in Appendix B for each well. A strong inverse relationship was observed between atmospheric pressure and depth of water level above the transducer. Although vented pressure transducers were utilized in each monitoring well to measure water level responses, water level changes due to changes in barometric pressure were observed at each well. These responses were calculated to have a barometric efficiency of approximately 4 percent. This translates into 0.25 feet of water change for a barometric pressure change of 5.7 millimeters of mercury (mm Hg). During the performance of this aquifer test, barometric pressure ranged from 4.3 mm Hg above to 6.2 mm Hg below the average of 687.5 mm Hg. This fluctuation in barometric pressure, therefore, resulted in water level responses of -0.19 feet and +0.27 feet.

As provided in Appendix B, water level data were corrected for barometric pressure changes at the beginning of the test (2/17/2009) through the end of the recovery period. A graph of corrected and uncorrected water levels is also provided in Appendix B. The correction has the effect of lowering or raising the observed drawdown response and the diurnal fluctuation in water levels. Elapsed time in minutes and drawdown in feet are also calculated and summarized following start of pumping. A graph of corrected drawdown vs. elapsed time for each well is shown in Appendix B.

Drawdowns in the pumped wells were approximately 36 feet in ESP-1 and 52 feet in ESP-3. Figure 4 shows the measured drawdown and recovery over time in each pumped well during the aquifer test. Drawdowns in observation wells over a 2.5 square mile area ranged from nearly 5 feet in ESP-2 to less than 0.1 feet or less-than-discernable from background fluctuations. Maximum drawdowns observed at each well are summarized in Table 4. A graphical presentation of the change in water level (corrected for barometric pressure changes) over time is shown in Figure 5 for each of the observation wells where responses to pumping at ESP-1 and ESP-3 were observed. Figure 5 shows the baseline water levels beginning February 2, 2009 followed by the pumping period from February 17 until February 24, 2009 (10,100 minutes) and concluding with a 7-day recovery period. The change in water level is calculated with reference to the well's water level at the start of the pumping test. The observed daily oscillations in water level, attributed primarily to pumping at the Community Water Company wells (CW-6, 9, 10, and 11), are superimposed over the general drawdown and recovery response induced from ESP-1 and ESP-3. The water level responses are proportional to pumping rate and inversely proportional to the distance to an extraction well. Wells NP-2, MH-11, MH-13A, -B, -C and ESP-5 had no responses attributable to pumping at ESP-1 and ESP-3 and were therefore not included in Figure 5 nor included in further interpretation.

Following corrections for barometric pressure changes, the drawdowns, elapsed time, pumping rates, and well coordinates were entered into and interpreted using AQTESOLV for

Windows Pro Version 3.01. AQTESOLV is a public domain code for interpreting aquifer hydraulic properties from pumping test data and provides automatic parameter estimation for various aquifer types while accounting for variable pumping rates, multiple pumping wells, and drawdown at multiple observation wells. Two solutions were used to analyze the data from this aquifer test. The first was the solution for a leaky confined aquifer (Neuman and Witherspoon, 1969). This solution assumes transient flow to a well in a confined infinite radial system consisting of two aquifers separated by an aquitard with storage. The second was the solution for transient flow to a partially penetrating well in an unconfined aquifer with delayed gravity response (Neuman, 1974). Other solutions were evaluated including Theis and Jacob-Cooper for both confined and unconfined aquifers, but failed to yield acceptable matches between observed and calculated drawdowns. For each solution used to interpret the test data, observation wells were analyzed in various geographic subsets. The best match between observed and predicted responses was obtained using three primary subsets or groupings of wells arranged in northern, central, and southern areas. This included:

1) CW-7, MO-2007-3B, and MH-26C (in the northern area);
2) ESP-2 and MH-25B (in the central area); and
3) CW-8, MO-2007-4C, ESP-4 and MH-12 (in the southern area).

Only one well from each of the vertical well completions was chosen in each subset. All shallow completions ("A" Series) were excluded from this analysis. Other wells were included or excluded based on the level of interferences observed from other sources of pumping. Because aquifer parameters are not expected to be constant over the large area stressed by the aquifer test, attempts were not made to solve for drawdowns in all observation wells using one set of parameters. Analyses of individual observation wells were also not considered since they result in non-unique aquifer parameter solutions. Additionally, pumping well responses were excluded from interpretation because well inefficiencies and borehole storage effects make hydraulic parameter estimates from pumping well data less reliable than from observation well data.

4.1 Leaky Confined Aquifer Solution

Observed and calculated drawdowns for the leaky confined aquifer solution are graphically presented for each of the well subsets in Figures 6 through 8. Based on this solution, transmissivities ranged from approximately 5,600 to 11,000 square feet per day (ft^2/day). These transmissivities correspond to hydraulic conductivities of 8 to 15 feet per day (ft/day) assuming a saturated thickness of 700 feet. Estimates of the storage coefficient ranged from 0.00007 to 0.0001. These estimates for each well set are summarized in Table 5 along with estimates of aquitard transmissivity, aquitard storage coefficient, and aquitard thickness. Conceptually, the source of leakage could occur from fine grained horizons inter-bedded within the aquifer, from underlying bedrock, and/or from an overlying aquifer separated by an aquitard. The presence of an overlying aquitard may be supported by the small drawdown responses observed in the shallow completions in several of the monitoring wells (NP-2, MO-2007-4A, and MH-26A) and the observed lower sulfate concentrations, as in MH-25A and MH-26A (suggesting partial hydraulic isolation). Alternatively, the shallow material may have smaller drawdown responses because of higher conductivity and the lack of sulfate may reflect the impact of low-sulfate shallow recharge.

4.2 Unconfined Aquifer with Delayed Gravity Response Solution

Observed vs. calculated drawdowns for the unconfined aquifer solution are graphically presented for each of the well subsets in Figures 9 through 11. Based on this solution, transmissivities ranged from approximately 4,800 to 9,400 ft^2/day, corresponding to hydraulic conductivities of 7 to 13 ft/day assuming a saturated thickness of 700 feet. Estimates of the storage coefficient ranged from 0.0003 to 0.0006, and of specific yield from 0.07 to 0.25. These estimates for each well set are summarized in Table 5 along with estimates of vertical anisotropy (Kz/Kr).

4.3 Evaluation of Aquifer Vertical Horizons

An evaluation of variations in aquifer parameters in the "A" and "B" and "C" (shallow, intermediate, and deep) horizons was performed using the MO-2007-4, MH-25 and MH-26 well clusters. Observed and calculated drawdowns for the leaky confined and unconfined solutions are graphically presented for each of the "A", "B", and "C" subsets in Figures 12 through 17. A summary of estimated aquifer parameters for each of the horizons is shown in Table 6. No significant differences in aquifer parameters were identified between the deeper "B" and "C" completions, which had transmissivities ranging from 4,400 to 5,000 ft^2/day. However, the analysis of the shallowest "A" completions resulted in higher transmissivity values of 28,000 to 28,700 ft^2/day than for deeper completions. If the upper water-bearing unit is not well hydraulically connected to the underlying water bearing units, its analysis may provide an invalid, overestimate of aquifer transmissivity of the "A" horizon.

4.4 Comparison to Aquifer Parameters Used in Site Numerical Model

The aquifer test area was within the west central portion of the domain of the site numerical groundwater flow and transport model (HGC, 2008) as shown in Figure 18. Hydraulic conductivities used in the model within the test area ranged from approximately 6 ft/day to 88 ft/day. Most of the pumping and observation wells were within areas of the model having hydraulic conductivities ranging from approximately 6 ft/day to 39 ft/day. The highest model conductivities, ranging from approximately 39 to 88 ft/day, are within a partially isolated zone centered approximately on the MH-26 well nest. ESP-3 and the MH-25 well nest border this higher conductivity zone. Hydraulic conductivities of 91 ft/day and 20 ft/day were estimated by HGC from test data collected at MH-26A and MH-25A, respectively, during constant rate pumping tests conducted by Errol L. Montgomery and Associates (ELMA, 2006) as shown in Figures 19 and 20. The specific yields used in the model within the area of the test vary from approximately 0.125 to 0.2, and storage coefficient is constant at 0.0001.

Overall, the range of hydraulic conductivities derived from the test (ranging from 6 to 41 ft/day) are similar to those used in the model. However, if the results obtained from the shallow screened ("A" series) observation wells are excluded, the test conductivities range from 6 to 15 ft/day, and fall within the lower range of conductivities used in the site numerical model. As discussed in Section 4.3, conductivity estimates from the "A" series well data are not considered as reliable as estimates from the "B" and "C" series well data. Storage coefficients and specific yields derived from the test are similar to those used in the numerical model.

5. DISCUSSION AND CONCLUSIONS

Hydraulic conductivities derived from the aquifer test range from 6 to 41 ft/day, storage coefficients range from 7.0 x 10^{-5} to 6.1 x 10^{-4}, and specific yields range from 0.07 to 0.25. The estimated storage properties of the aquifer are typical of semi-confined to unconfined conditions. The ability of the Neuman and Witherspoon (1969) confined leaky aquifer and Neuman (1974) unconfined aquifer solutions, to provide interpretations of near equal quality, suggests that aquifer behavior is between confined and unconfined conditions.

Hydraulic conductivities derived from the aquifer test (ranging from 6 to 41 ft/day) are similar to those used in the site numerical groundwater flow and transport model, which ranged from approximately 6 to 88 ft/day within the portion of the model corresponding to the test area (Figure 18). However, the results of the aquifer test considered the most reliable ranged from approximately 6.3 to 15 ft/day, and fall within the low end of the range used in the model. This range is based on data derived from well completed in the "B" and "C" horizons representing intermediate and deep levels in the basin fill aquifer. The hydraulic properties of the "B" and "C" horizons are likely representative of the bulk of the aquifer material encompassing the sulfate plume.

Direct comparison of test-derived and model-derived hydraulic conductivities is complicated by the inability of the analytical solutions used in interpreting the test data to account for lateral heterogeneity and boundaries. These conditions are represented in the numerical model. For the aquifer test to characterize some of the large-scale heterogeneities represented in the model, the test would require the use of more widely distributed pumping wells, higher pumping rates, or a longer pumping duration. As an example, to identify and characterize the partially isolated high conductivity zone defined by conductivities of 88 ft/day in the model would require both pumping and observation wells to be located within this zone. While the MH-26 well nest is located within this model zone, the pumping wells ESP-1 and ESP-3 are not. Furthermore, when using the analytical solutions, the aquifer must be represented as having a constant thickness but the site numerical model accounts for the thinning and pinching out of the aquifer westward from the pumping wells. Although these heterogeneities and boundaries likely have a relatively small impact on the ability of the analytical solutions to predict average aquifer properties, the model-derived properties are based on fewer assumptions and have the advantage of a long calibration time period.

Overall, the results of the aquifer testing indicate that the aquifer properties used in the model are reasonable. If the highest model conductivity is excluded and the test-derived conductivities from the "A" series wells are included, the model-derived and test-derived conductivity ranges are nearly identical. Because the model conductivities are on average higher, use of the model to predict capture will be conservative in that capture effectiveness is more likely to be under- rather than over-predicted. Use of the model is, therefore, likely to result in an effective capture wellfield design.

6. REFERENCES

Errol L. Montgomery & Associates (ELMA). 2006. Unpublished Pumping Test Data for MH-13, MH-25, and MH-26.

HGC. 2007. Focused Feasibility Study for the Northern Portion of the Interceptor Wellfield, Phelps Dodge Sierrita Tailings Impoundment, Mitigation Order on Consent Docket No. P-50-06. December 28, 2007.

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Neuman, S.P. and P.A. Witherspoon. 1969. Theory of Flow in a Confined Two Aquifer System, Water Resources Research, Vol. 5, No. 4, pp 803-816.

Neuman, S. P. 1974. Effect of Partial Penetration on Flow in Unconfined Aquifers Considering Delay Gravity Response, Water Resources Research, Vol. 10, No. 2, pp 303-312.

7. LIMITATIONS

The information and conclusions presented in this report are based upon the scope of services and information obtained through the performance of the services, as agreed upon by HGC and the party for whom this report was originally prepared. Results of any investigations, tests, or findings presented in this report apply solely to conditions existing at the time HGC's investigative work was performed and are inherently based on and limited to the available data and the extent of the investigation activities. No representation, warranty, or guarantee, express or implied, is intended or given. HGC makes no representation as to the accuracy or completeness of any information provided by other parties not under contract to HGC to the extent that HGC relied upon that information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared and for the particular purpose that it was intended. Reuse of this report, or any portion thereof, for other than its intended purpose, or if modified, or if used by third parties, shall be at the sole risk of the user.

TABLES

TABLE 1
Production Well Construction Summary

Production Well	Total Depth (ft bgs)	Static Water Level (ft bgs)	Pumping Water Level (ft bgs)	Pump Setting (ft bgs)	Screen (ft bgs)	Casing Diameter (inches)	Pump Capacity (gpm)	Flow Meter
ESP-1	1020	336	373	408 (bowls)	350-986	16 (0-601 ft bgs) 12 (601-995 ft bgs) 10 (905-997 ft bgs)	1380	Yes
ESP-3	1043	333	385	408 (bowls)	350-1042	16 (0-660 ft bgs) 12 (660-1043 ft bgs)	840	Yes

Note:

ft bgs = feet below ground surface
gpm = gallons per minute

TABLE 2
Extraction Well Pumping History

Date/Time	Elapsed Time (minutes)	Hour Meter	Flow Totalizer (gallons)	Average Flow Rate (gpm)	Measured Flow (gpm)	Water Level	Comments
ESP-1							
2/17/09 8:54	0	4948.9	7392000		834-841	65.89	**Pump Turned On**
2/17/09 8:55	1					39.53	ESP-1 Water Levels (feet above transducer)
2/17/09 8:57	3					33.36	
2/17/09 8:59	5					32.81	
2/17/09 9:01	7					32.45	
2/17/09 9:09	15				814-819	31.25	
2/17/09 11:05	131	4951.2	7497000	802	793-806	30.67	
2/17/09 11:17	143				801-811		
2/17/09 14:22	328				0		pump off for about 45 mins
2/17/09 15:07	373				on		
2/17/09 16:45	471	4956.1	7726000	674	0		**Pump Off** Due to Break in Discharge Line
2/18/09 9:34	1480	4956.1	7726000		860-875		**Pump On:** Discharge Line Repaired
2/18/09 10:20	1526	4956.8	7762000	783	793-800		
2/18/09 13:22	1708	4959.8	7906000	791	769-776		
2/18/09 14:29	1775	4961.0	7959000	791	779-784		
2/18/09 15:42	1848	4962.2	8016000	781	760-765		
2/19/09 9:52	2938	4980.4	8867000	781	771-781		
2/20/09 9:44	4370	5004.2	9980000	777	782-794		
2/21/09 14:37	6103	5033.1	11325000	776	779-792		
2/22/09 11:55	7381	5054.4	12310000	771	756-764		
2/23/09 11:47	8813	5078.3	13414000	771	768-776		
2/24/09 10:06	10152	5100.6	14442000	768	754-765		
2/24/09 10:08	10154				0		**Pump Off**
ESP-3							
2/17/09 9:23	29	8142.1	516831000		948-959	359.29	**Pumped Turned On**
2/17/09 9:27	33					404.32	ESP-3 Water Levels (feet below top of casing)
2/17/09 9:30	36					404.98	
2/17/09 9:40	46					406.37	
2/17/09 9:50	56					407.46	
2/17/09 10:13	79	8143.0			929-937	408.61	
2/17/09 10:47	113				924-931	409.06	
2/17/09 14:01	307				923-932	410.13	
2/17/09 16:05	431	8148.9	517206000	933	0		**Pump Off:** Due to Break in Discharge Line
2/18/09 9:45	1491	8148.9	517206000		957-968	359.32	**Pump On:** Discharge Line Repaired
2/18/09 9:47	1493					403.11	
2/18/09 9:49	1495				944-951	403.97	
2/18/09 9:50	1496					404.13	
2/18/09 9:52	1498				937-946	404.58	
2/18/09 9:54	1500					405.09	
2/18/09 9:56	1502					405.44	
2/18/09 9:58	1504					405.81	
2/18/09 10:00	1506					406.02	
2/18/09 10:02	1508					406.26	
2/18/09 10:04	1510					406.51	
2/18/09 10:06	1512					406.63	
2/18/09 10:08	1514					406.68	
2/18/09 10:10	1516				937-942	406.71	
2/18/09 10:36	1542	8149.8	517255000	961	924-935		
2/18/09 10:38	1544					407.47	
2/18/09 13:08	1694	8152.3	517395000	921	935-942		
2/18/09 13:15	1701					409.28	
2/18/09 14:36	1782	8153.7	517477000	932	929-936	409.38	
2/18/09 15:50	1856	8155.0			927-934	409.67	
2/19/09 10:08	2954	8173.3	518569000	932	930-939	410.44	
2/20/09 10:09	4395	8197.3	519908000	204769	929-939	410.61	
2/21/09 14:43	6109	8225.9	521500000	929	929-934	410.89	
2/22/09 12:02	7388	8247.2	522684000	927	922-931	411.11	
2/23/09 12:33	8859	8271.7	524046000	926	923-928	411.17	
2/24/09 9:46	10132	8292.9	525223000	925	922-933	411.43	**Pump Off**
2/24/09 9:48	10134				0	368.53	
2/24/09 9:50	10136				0	364.57	
2/24/09 9:52	10138				0	364.59	

Notes:
gpm = gallons per minute

TABLE 3
Observation Well Completion Summary

Well ID	Screen Interval (ft bls)	Total Well Depth (ft bls)
CW-7	504-1040	1040
CW-8	540-580 and 620-980	1100
ESP-2	349-1035	1035
ESP-4	316-724	1046
MH-11	300-820	820
MH-12	280-800	800
MH-13A	300-650	660
MH-13B	750-950	960
MH-13C	1050-1350	1360
MH-25A	410-530	530
MH-25B	580-680	680
MH-25C	731-901 and 951-1081	1101
MH-26A	418-538	538
MH-26B	620-730	735
MH-26C	780-900	910
MO-2007-3B	740-940	950
MO-2007-3C	1160-1320	1330
MO-2007-4A	360-560	570
MO-2007-4B	700-940	950
MO-2007-4C	1090-1130	1140
NP-2	331-500	515

Note:
ft bls = feet below land surface

TABLE 4
Test Well Information Summary

Well ID	N Latitude	W Longitude	Depth to Water (ft bmp)[1]	Distance to ESP-3 Pumped Well (feet)	Distance to ESP-1 Pumped Well (feet)	Transducer Range (psi/feet)	Transducer Submergence (ft bswl)	Max Observed Drawdown (feet)
CW-7	31 53.319	111 00.216	430	2456	4884	0-15/0-35	25	0.7
CW-8	31 52.002	111 00.128	343	6354	3203	0-15/0-35	25	1.3
ESP-1	31 52.429	111 00.019	355	3168	NM	0-30/0-69, BaroTROLL	60, 10 ft bls	37.8
ESP-2	31 52.686	110 59.847	344	1485	1799	0-15/0-35	25	4.9
ESP-3	31 52.931	110 59.852	361	NM	3168	0-30/0-69	60	52.1
ESP-4	31 52.258	111 00.053	355	4214	1051	0-15/0-35	25	3.3
ESP-5	31 52.771	110 58.726	NM	5900	7003	0-15/0-35	25	<0.1
MH-11	31 51.354	111 00.793	377	10729	7645	0-5/0-11.5	8	<0.1
MH-12	31 51.756	111 00.779	426	8585	5660	0-15/0-35	25	0.3
MH-13 A	31 50.991	111 01.746	335	12635	9488	0-5/0-11.5	8	<0.1
MH-13 B	31 50.988	111 00.742	339	12647	9498	0-5/0-11.5	8	<0.1
MH-13 C	31 50.991	111 00.763	335	12669	9524	0-5/0-11.5	8	<0.1
MH-25 A	31 52.467	111 00.749	457	5274	3580	0-15/0-35	25	0.3
MH-25 B	31 52.465	111 00.717	458	5294	3613	0-15/0-35	25	0.8
MH-25 C	31 52.452	111 00.714	457	5324	3595	0-15/0-35	25	0.8
MH-26 A	31 53.170	111 00.728	498	4757	5798	0-15/0-35	25	0.3
MH-26 B	31 53.168	111 00.736	495	4793	5814	0-15/0-35	25	0.3
MH-26 C	31 53.164	111 00.720	497	4707	5743	0-15/0-35	25	0.3
MO-2007-3 B	31 53.544	110 59.668	362	3831	6998	0-15/0-35	25	1.5
MO-2007-3 C	31 53.544	110 59.664	362	3837	7004	0-15/0-35	25	1.0
MO-2007-4 A	31 51.988	110 59.757	310	5737	2995	0-15/0-35	25	0.9
MO-2007-4 B	31 51.977	110 59.758	311	5805	3053	0-15/0-35	25	2.5
MO-2007-4 C	31 51.982	110 59.758	311	5771	3024	0-15/0-35	25	2.0
NP-2	31 53.548	110 59.630	356	3911	7078	0-15/0-35	25	<0.1

Note:
ft bswl = feet below static water level
ft bmp = feet below measuring point
psi = pounds per square inch
[1] *Fourth Quarter 2008 (HGC, 2008b)*
NM = not measured

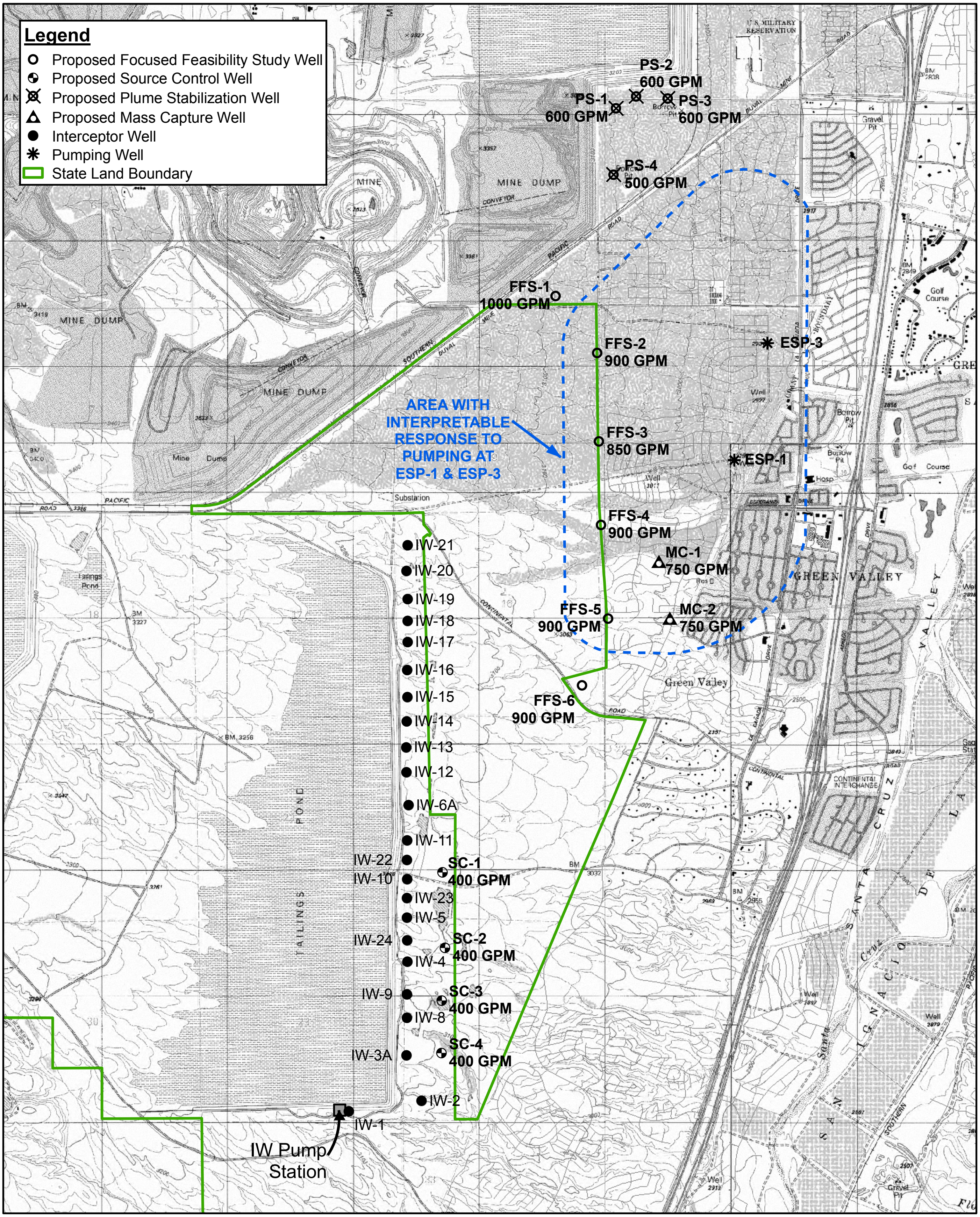
TABLE 5
Summary of Aquifer Parameter Estimates
(geographical subsets)

	Neuman-Witherspoon Leaky Confined Aquifer Solution			Neuman Unconfined Aquifer with Gravity Drainage Solution		
Well Subset -	CW-7, MO-2007-3B, MH-26C	ESP-2, MH-25B	CW-8, MO-2007-4C, ESP-4, MW-12	CW-7, MO-2007-3B, MH-26C	ESP-2, MH-25B	CW-8, MO-2007-4C, ESP-4, MW-12
Aquifer Transmissivity (ft2/day) -	10,800	5,600	10,000	9,400	4,800	9,000
Assumed Saturated Thickness (feet) -	700	700	700	700	700	700
Hydraulic Conductivity (ft/day) -	15.4	8.0	14.3	13.4	6.9	12.9
Aquifer Storage Coefficient (dimensionless) -	0.00025	0.00007	0.00015	0.00039	0.00031	0.00061
Aquitard Transmissivity (ft2/day) -	0.014	0.001	0.001	-	-	-
Aquitard Storage Coefficient (dimensionless) -	0.26	0.078	0.068	-	-	-
**Aquitard Thickness (feet) -*	1.9	9.4	21.5	-	-	-
Specific Yield (dimensionless) -	-	-	-	0.254	0.087	0.071
Kz/Kr (dimensionless) -	-	-	-	0.06	0.06	0.03

TABLE 6
Summary of Aquifer Parameter Estimates
(vertical unit subsets)

	Neuman-Witherspoon Leaky Confined Aquifer Solution			Neuman Unconfined Aquifer with Gravity Drainage Solution		
Well Subset -	MH-25A, MH-26A, MO-2007-4A	MH-25B, MH-26B, MO-2007-4B	MH-25C, MH-26C, MO-2007-4C	MH-25A, MH-26A, MO-2007-4A	MH-25B, MH-26B, MO-2007-4B	MH-25C, MH-26C, MO-2007-4C
Aquifer Transmissivity (ft2/day) -	28,700	4,600	4,400	28,000	5,000	4,500
Assumed Saturated Thickness (feet) -	700	700	700	700	700	700
Hydraulic Conductivity (ft/day) -	41.0	6.6	6.3	40.0	7.1	6.4
Aquifer Storage Coefficient (dimensionless) -	0.0014	0.000022	0.00013	0.0017	0.00037	0.0008
Aquitard Transmissivity (ft2/day) -	0.0011	0.001	0.0144	-	-	-
Aquitard Storage Coefficient (dimensionless) -	0.047	0.055	0.32	-	-	-
**Aquitard Thickness (feet) -*	69.7	17.9	6.0	-	-	-
Specific Yield (dimensionless) -	-	-	-	0.048	0.046	0.15
Kz/Kr (dimensionless) -	-	-	-	0.022	0.057	0.063

FIGURES



0 1750 3500 Feet

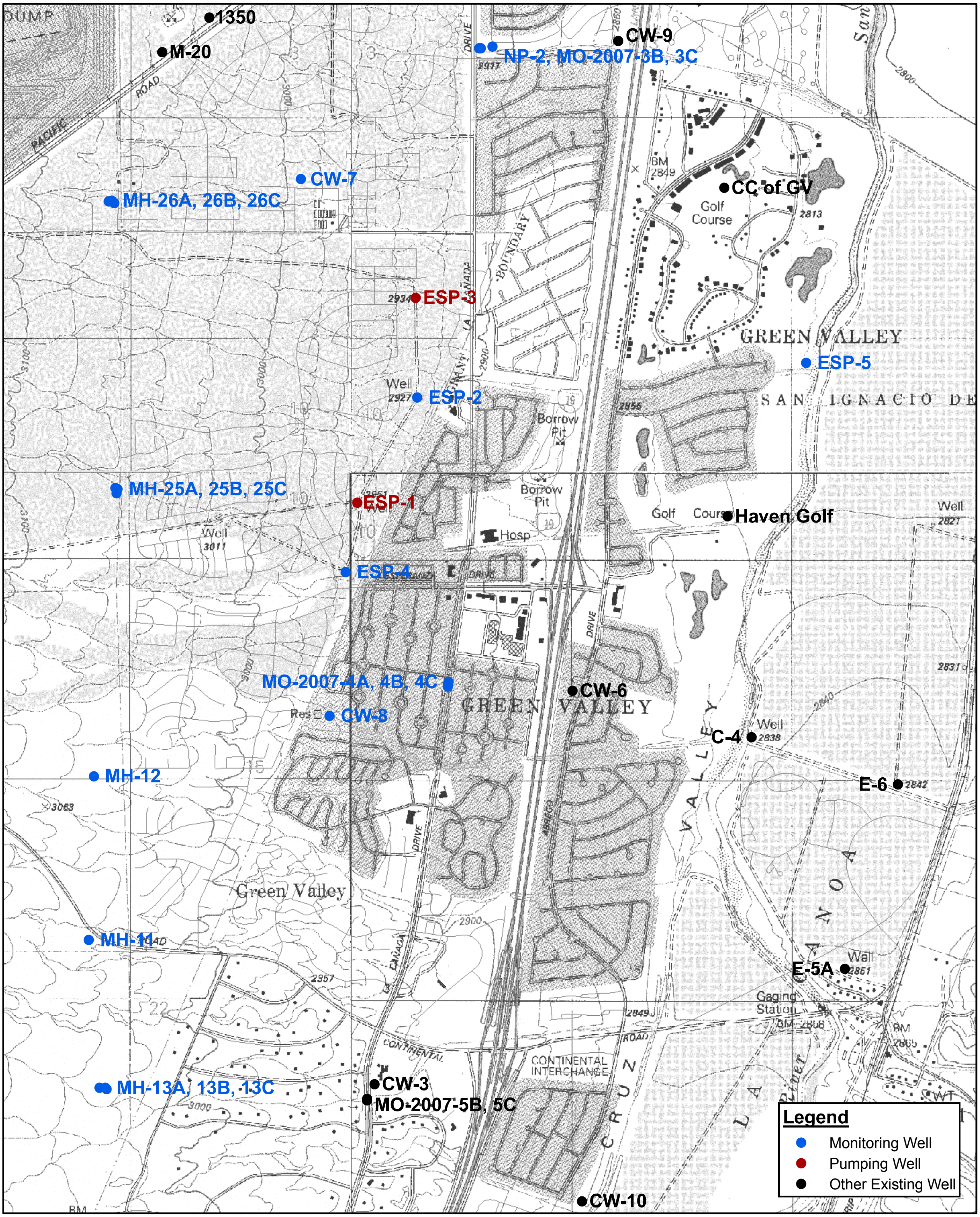
PROJECTION:
UTM Zone 12N NAD83

N

HYDRO GEO CHEM, INC.

PROPOSED FEASIBILITY STUDY (ALTERNATIVE 5) EXTRACTION WELL LOCATIONS

Approved	Date	Author	Date	File Name	Figure
MWK	08/25/09	AMC	08/25/09	78310125G	1



0 1,000 2,000 Feet

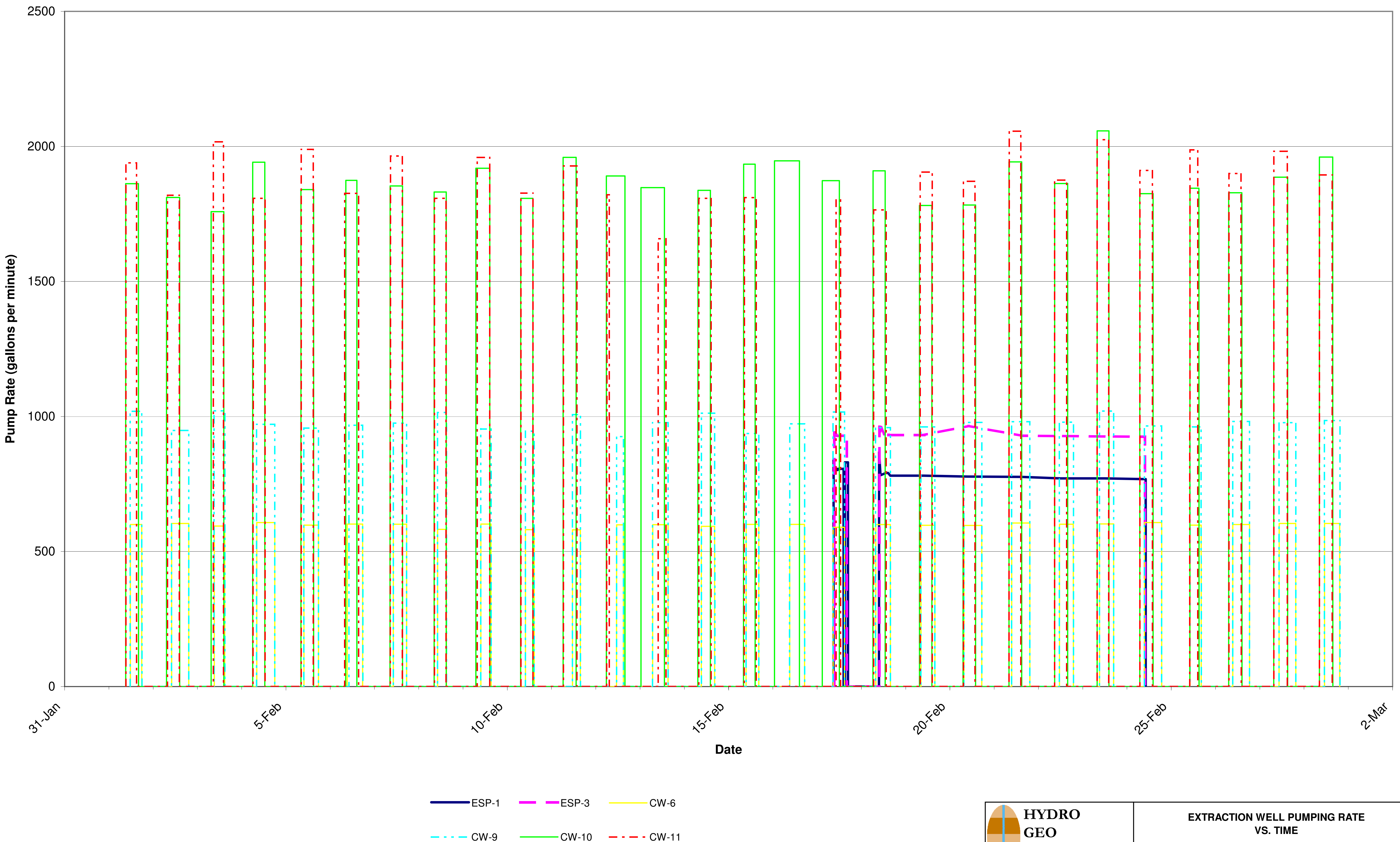
PROJECTION:
UTM Zone 12N, NAD 83

N

HYDRO GEO CHEM, INC.

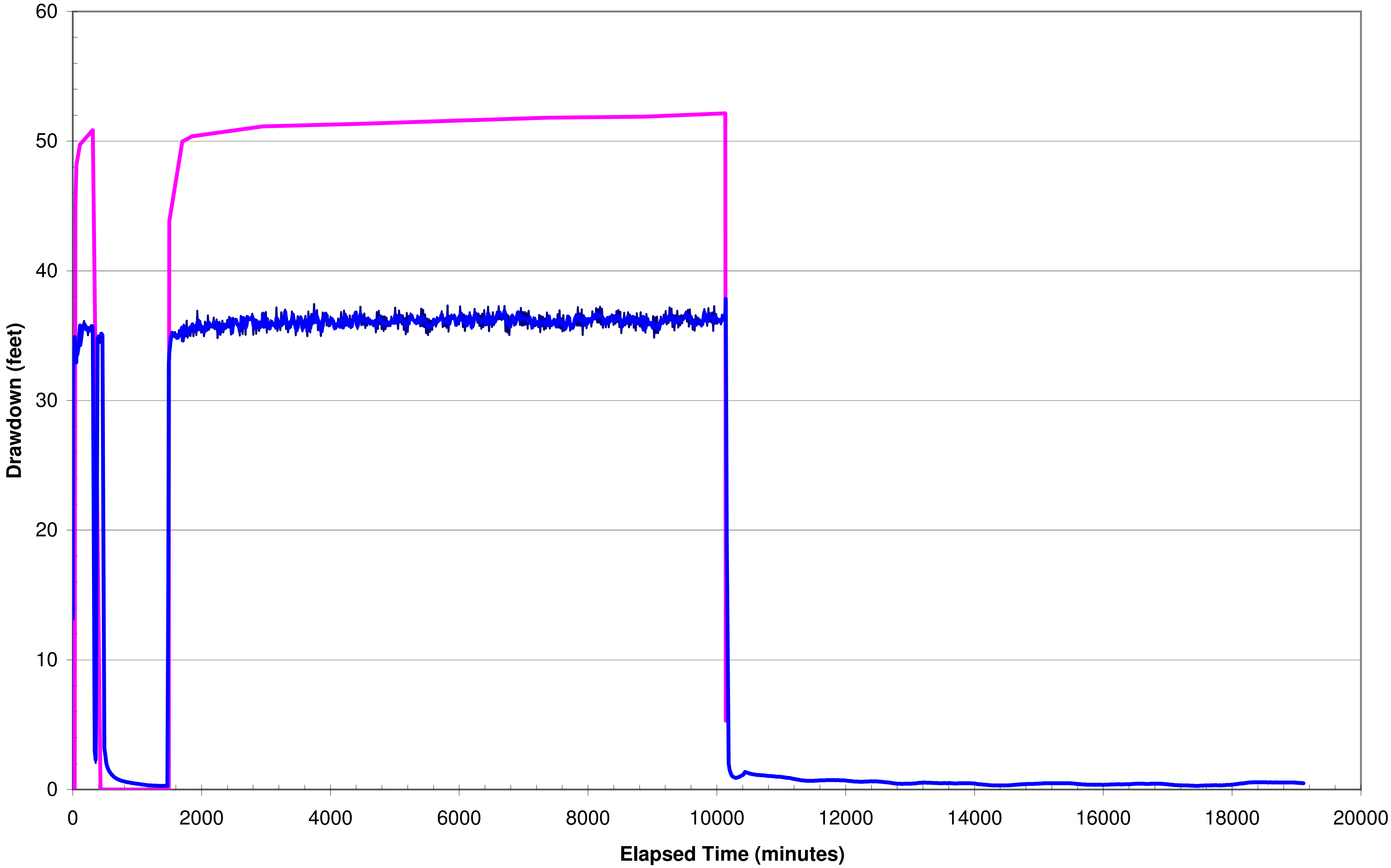
AQUIFER TEST WELL LOCATIONS

Approved	Date	Author	Date	File Name	Figure
MWK	08/25/09	AMC	08/25/09	78310126G	2



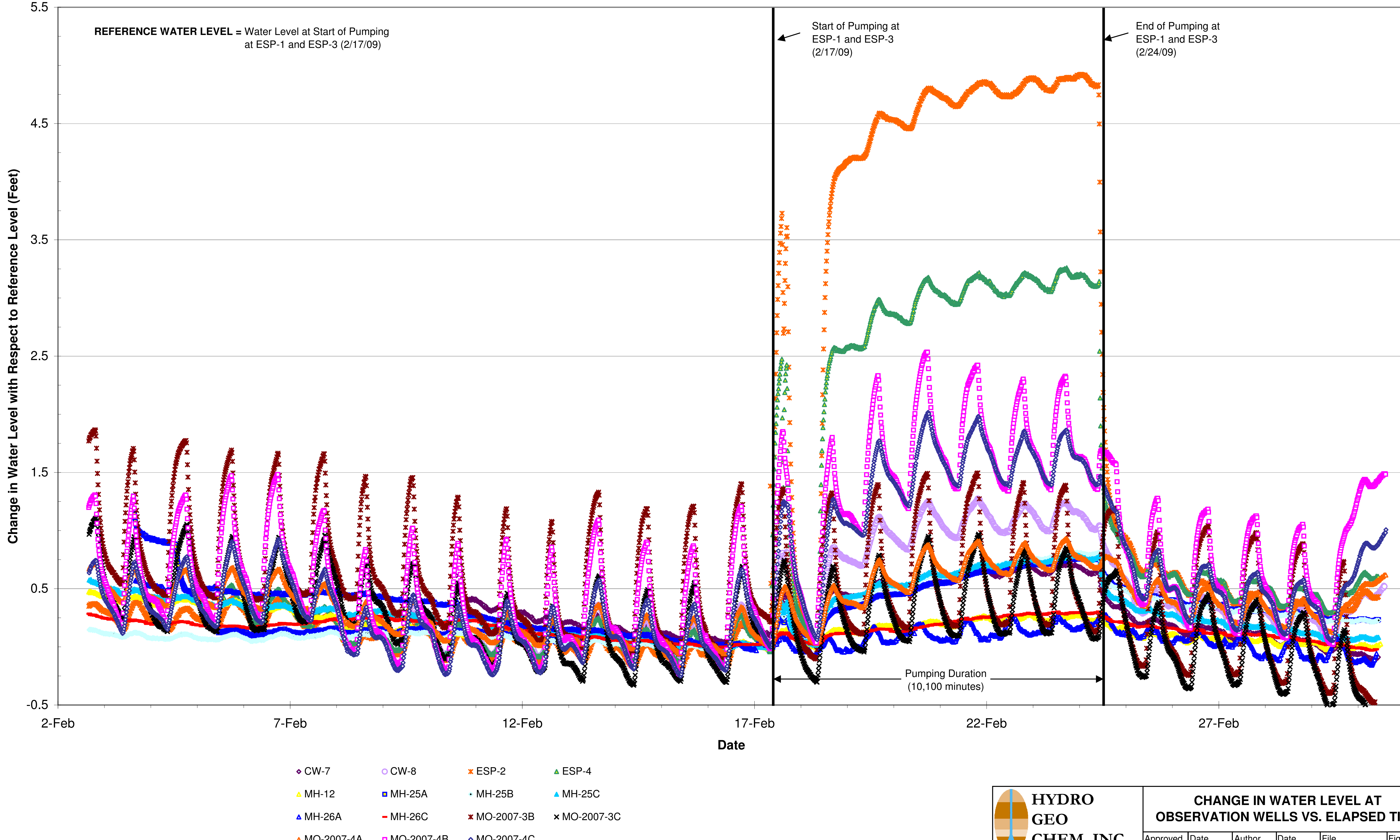
HYDRO GEO CHEM, INC.

EXTRACTION WELL PUMPING RATE VS. TIME					
Approved	Date	Author	Date	File Name	Figure
MWK	5/28/09	AMC	5/28/09	Flow Rate	3



HYDRO GEO CHEM, INC.

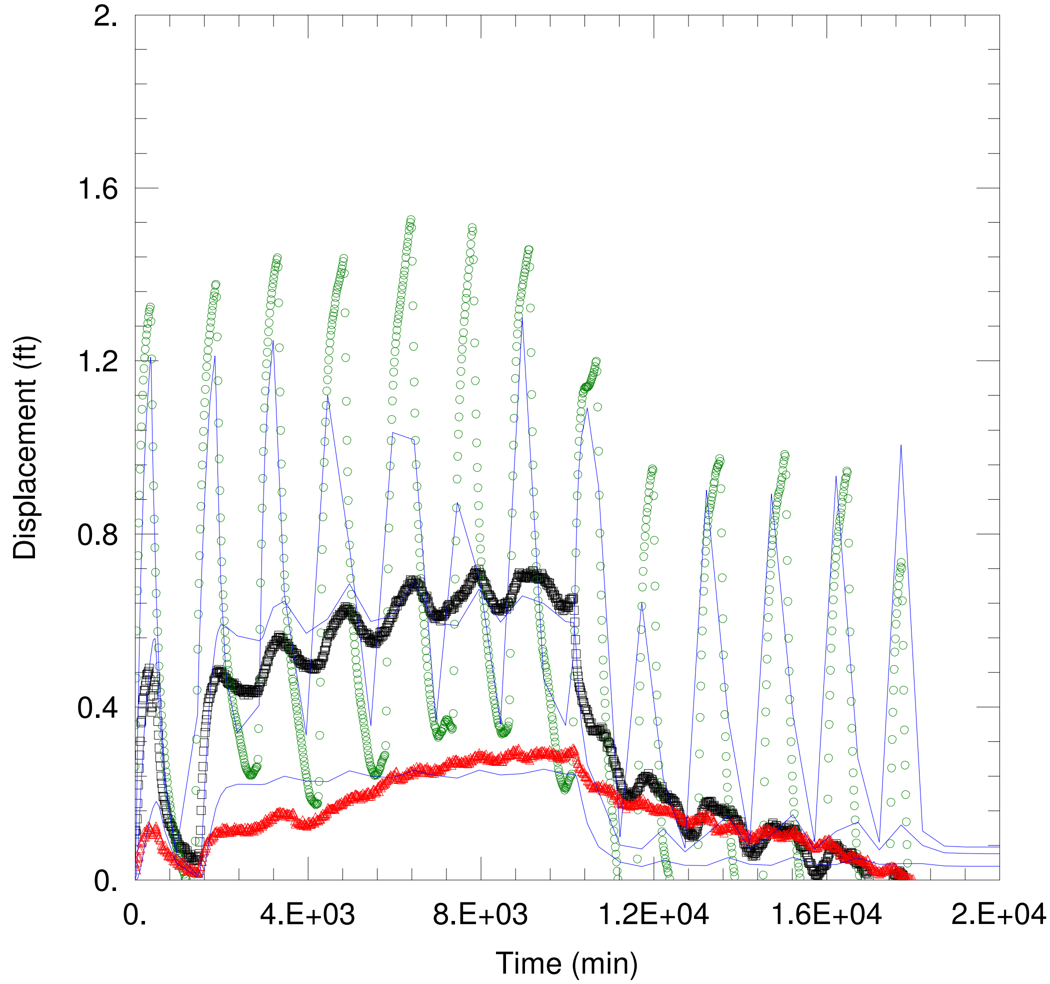
PUMPED WELLS (ESP-1 AND ESP-3) DRAWDOWN VS. ELAPSED TIME					
Approved MWK	Date 4/16/09	Author MWK	Date 4/16/09	File Name Figure 4	Figure 4



HYDRO GEO CHEM, INC.	CHANGE IN WATER LEVEL AT OBSERVATION WELLS VS. ELAPSED TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Obs well_drawdown	Figure 5

H:\78300\783019 - Large Scale Aquifer Test\Field Data\Final Aquifer Test Data\New Fig 5\Obs Well_Drawdown.xls: Figure 5

FIGURE 6
Observed vs. Calculated Drawdown Leaky Solution
(CW-7, MO-2007-3B, and MH-26C)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 7,26C,3B.aqt
Date: 04/22/09 Time: 12:00:06

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
□ CW-7	1.572E+006	1.639E+006
○ MO-2007-3B	1.574E+006	1.642E+006
△ MH-26C	1.571E+006	1.636E+006

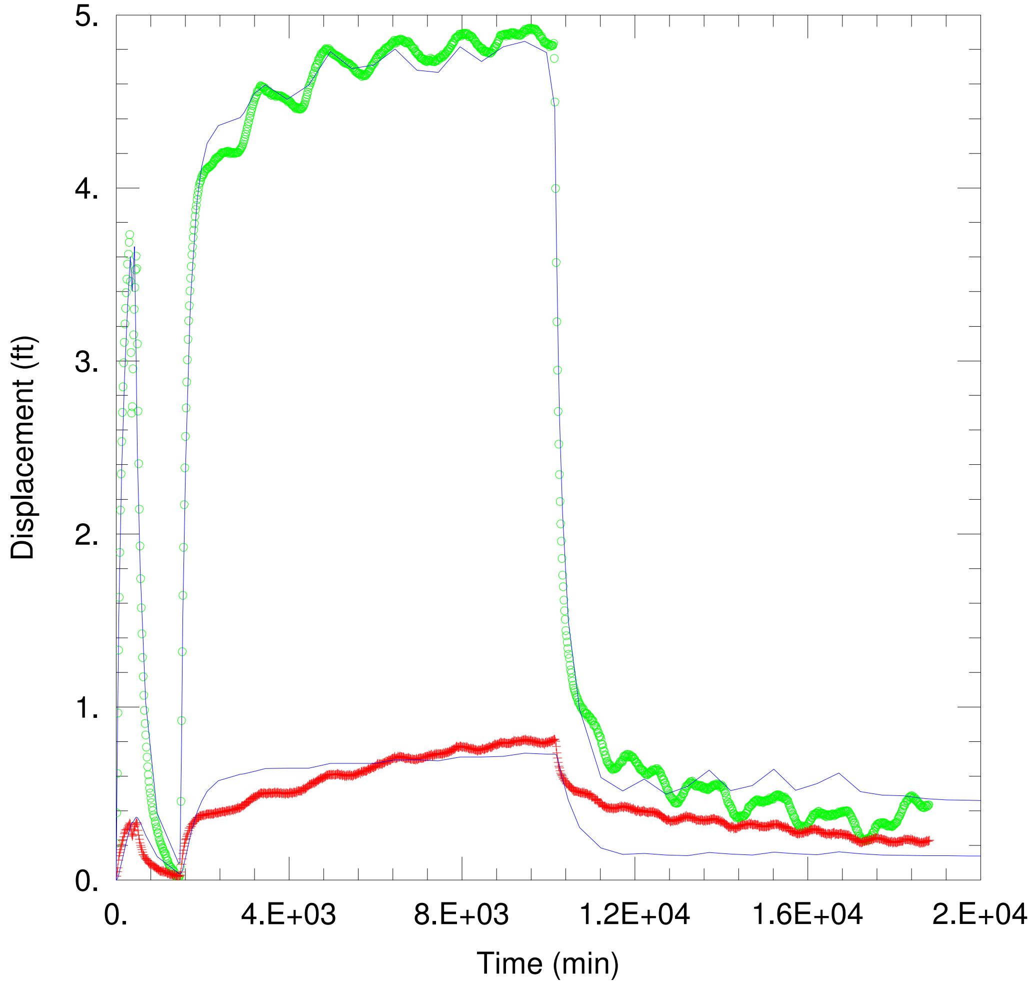
SOLUTION

Aquifer Model: Leaky Solution Method: Neuman-Witherspoon

T = 1.076E+04 ft^2/day
1/B = 0.0005489 ft^{-1}
T' = 0.0144 ft^2/day

S = 0.0002462
ß/r = 0.0002302 ft^{-1}
S' = 0.2598

FIGURE 7
Observed vs. Calculated Drawdown Leaky Solution
(ESP-2 and MH-25B)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 2, 25B.aqt
Date: 04/22/09 Time: 11:45:45

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

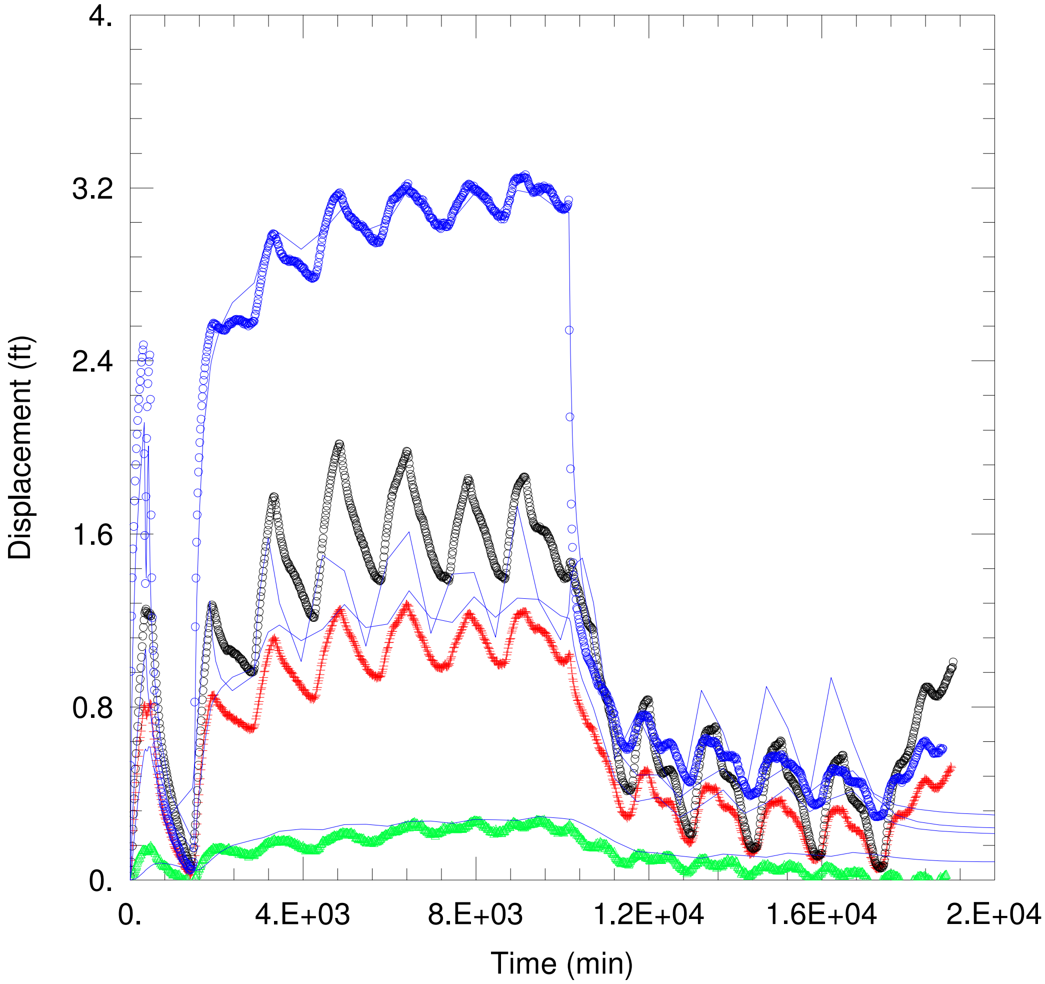
Well Name	X (ft)	Y (ft)
○ ESP-2	1.568E+006	1.641E+006
+ MH-25B	1.567E+006	1.636E+006

SOLUTION

Aquifer Model: Leaky Solution Method: Neuman-Witherspoon

T = 5589.1 ft^2/day
1/B = 0.0005793 ft^{-1}
T' = 0.001002 ft^2/day
S = 6.692E-05
ß/r = 0.000557 ft^{-1}
S' = 0.0784

FIGURE 8
Observed vs. Calculated Drawdown Leaky Solution
(CW-8, MO-2007-4C, ESP-4, and MH-12)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 8,4C,4,12.aqt
Date: 04/22/09 Time: 12:11:18

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
+ CW-8	1.564E+006	1.639E+006
○ MO-2007-4C	1.564E+006	1.641E+006
○ ESP-4	1.566E+006	1.64E+006
△ MH-12	1.563E+006	1.636E+006

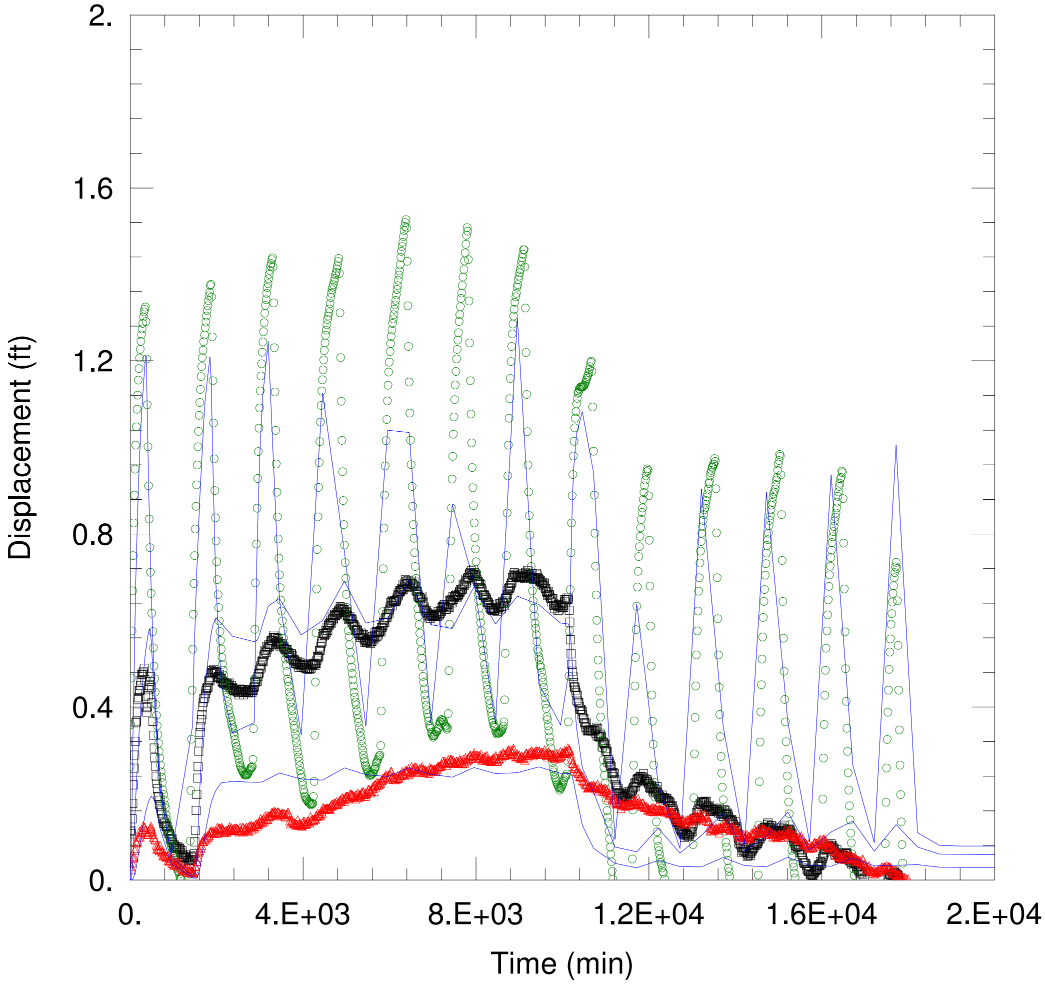
SOLUTION

Aquifer Model: Leaky Solution Method: Neuman-Witherspoon

T = 1.001E+04 ft^2/day
1/B = 0.0004376 ft^{-1}
T' = 0.001274 ft^2/day

S = 0.0001455
ß/r = 0.0004085 ft^{-1}
S' = 0.0679

FIGURE 9
Observed vs. Calculated Drawdown Unconfined Solution
(CW-7, MO-2007-3B, and MH-26C)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 7,26C,3B uncon.aqt
Date: 04/22/09 Time: 11:58:50

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

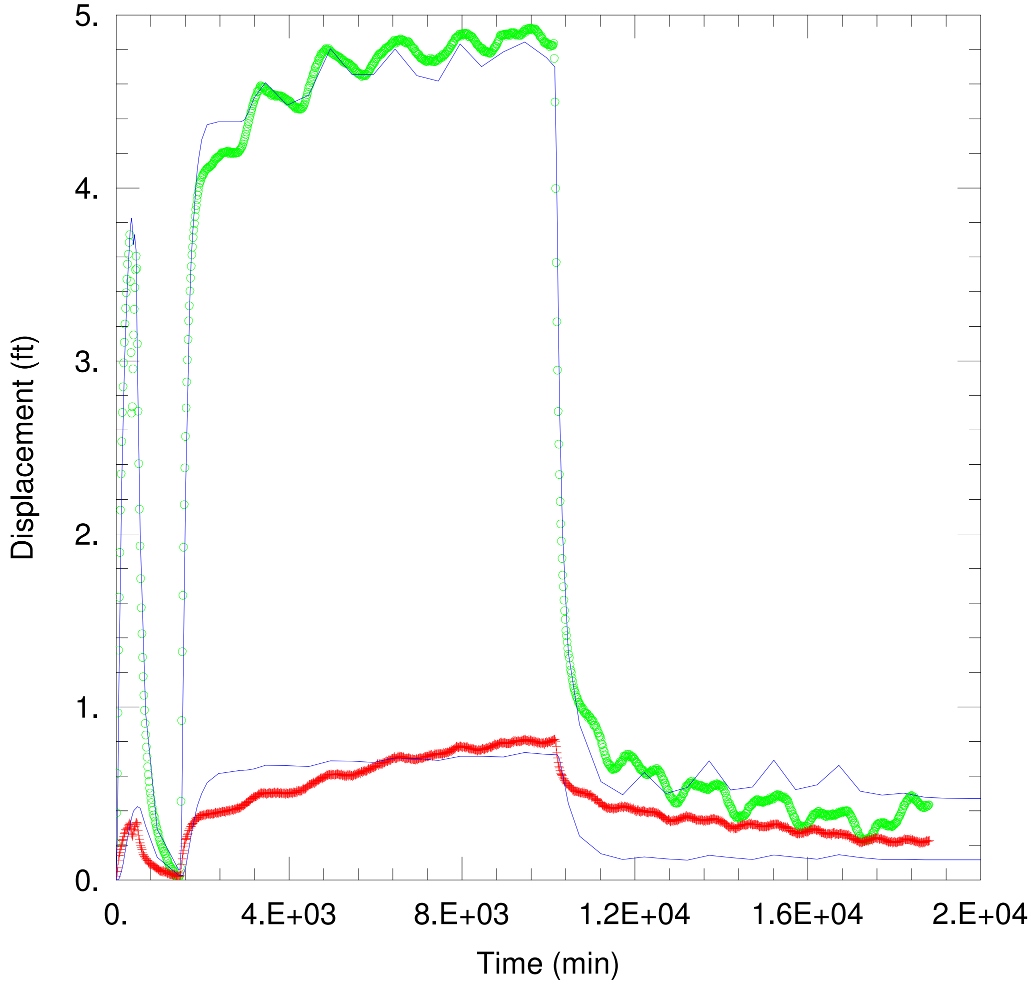
Well Name	X (ft)	Y (ft)
□ CW-7	1.572E+006	1.639E+006
○ MO-2007-3B	1.574E+006	1.642E+006
△ MH-26C	1.571E+006	1.636E+006

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 9410. ft^2/day
Sy = 0.2542
S = 0.0003922
Kz/Kr = 0.0563

FIGURE 10
Observed vs. Calculated Drawdown Unconfined Solution
(ESP-2 and MH-25B)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 2, 25B uncon.aqt
Date: 04/22/09 Time: 11:46:23

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

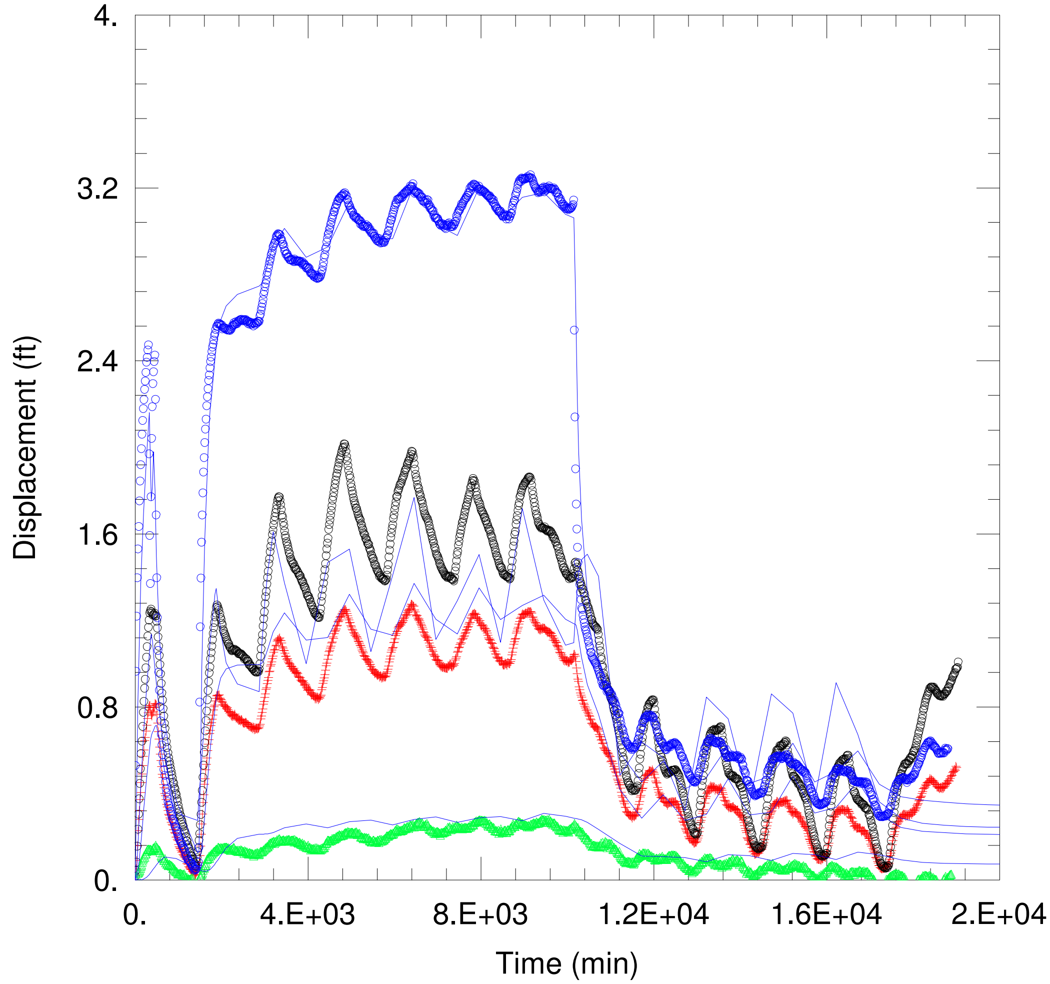
Well Name	X (ft)	Y (ft)
○ ESP-2	1.568E+006	1.641E+006
+ MH-25B	1.567E+006	1.636E+006

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 4836.6 ft^2/day
S = 0.0003058
Sy = 0.08709
Kz/Kr = 0.06256

FIGURE 11
Observed vs. Calculated Drawdown Unconfined Solution
(CW-8, MO-2007-4C, ESP-4, and MH-12)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 8,4C,4,12 uncon.aqt
Date: 04/22/09 Time: 12:02:54

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
+ CW-8	1.564E+006	1.639E+006
○ MO-2007-4C	1.564E+006	1.641E+006
○ ESP-4	1.566E+006	1.64E+006
△ MH-12	1.563E+006	1.636E+006

SOLUTION

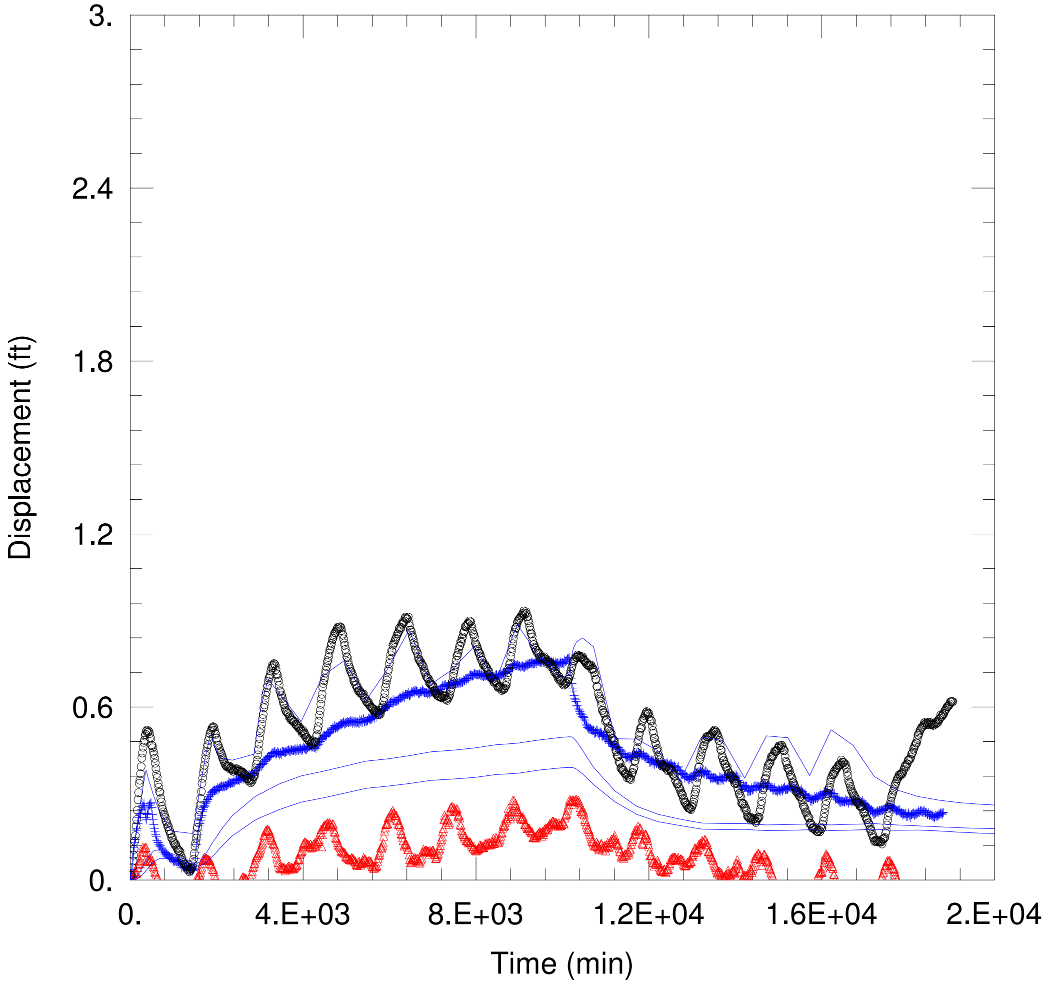
Aquifer Model: Unconfined

Solution Method: Neuman

T = 8996.6 ft^2/day
Sy = 0.07061

S = 0.0006057
Kz/Kr = 0.03494

FIGURE 12
Observed vs. Calculated Drawdown Leaky Solution
(MH-26A, MH-25A, and MO-2007-4A)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4A,25A,26A.aqt
Date: 04/22/09 Time: 11:52:26

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
△ MH-26A	1.571E+006	1.636E+006
+ MH-25A	1.567E+006	1.636E+006
○ MO-2007-4A	1.564E+006	1.641E+006

SOLUTION

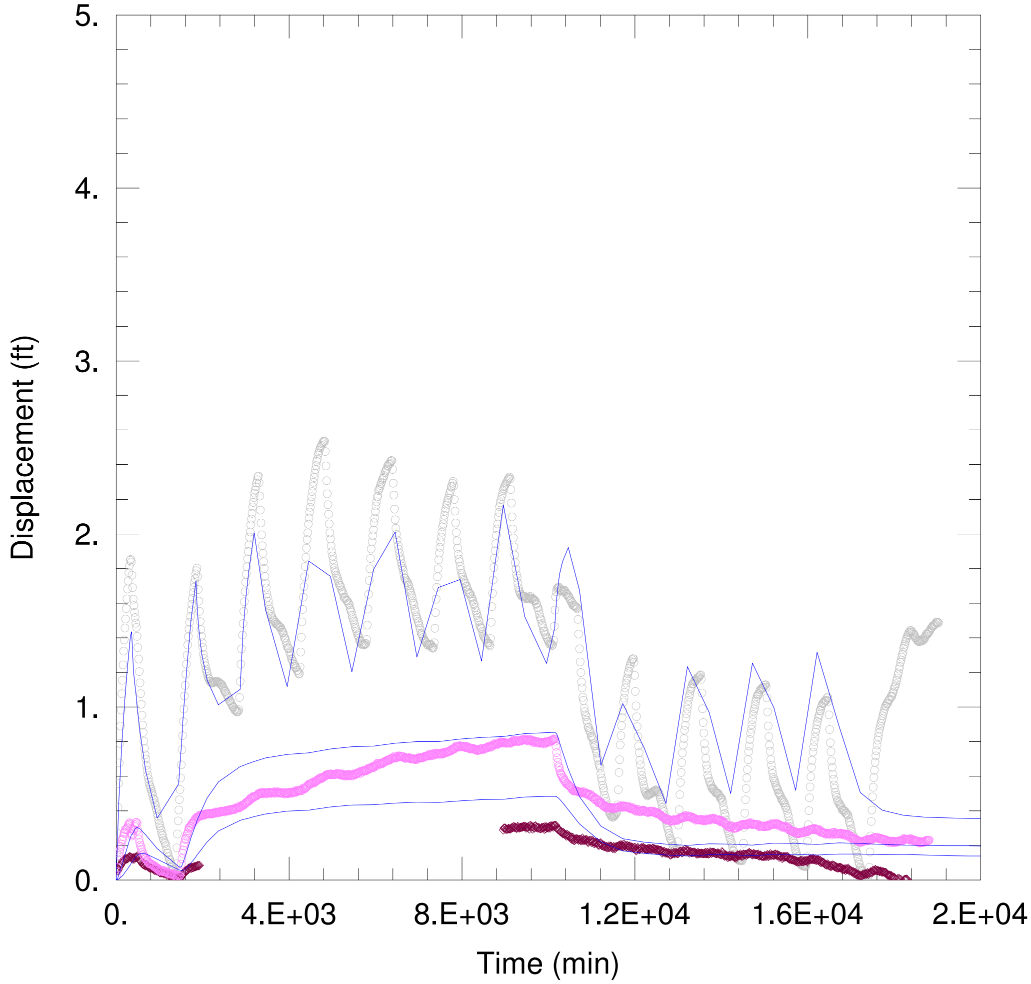
Aquifer Model: Leaky

Solution Method: Neuman-Witherspoon

T = 2.865E+04 ft^2/day
1/B = 0.0003519 ft^{-1}
T' = 0.001148 ft^2/day

S = 0.001395
ß/r = 0.0001554 ft^{-1}
S' = 0.04735

FIGURE 13
Observed vs. Calculated Drawdown Leaky Solution
(MO-2007-4B, MH-26B, and MH-25B)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4B,25B,26B.aqt
Date: 04/22/09 Time: 11:54:46

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
○ MO-2007-4B	1.564E+006	1.641E+006
◇ MH-26B	1.571E+006	1.636E+006
○ MH-25B	1.567E+006	1.636E+006

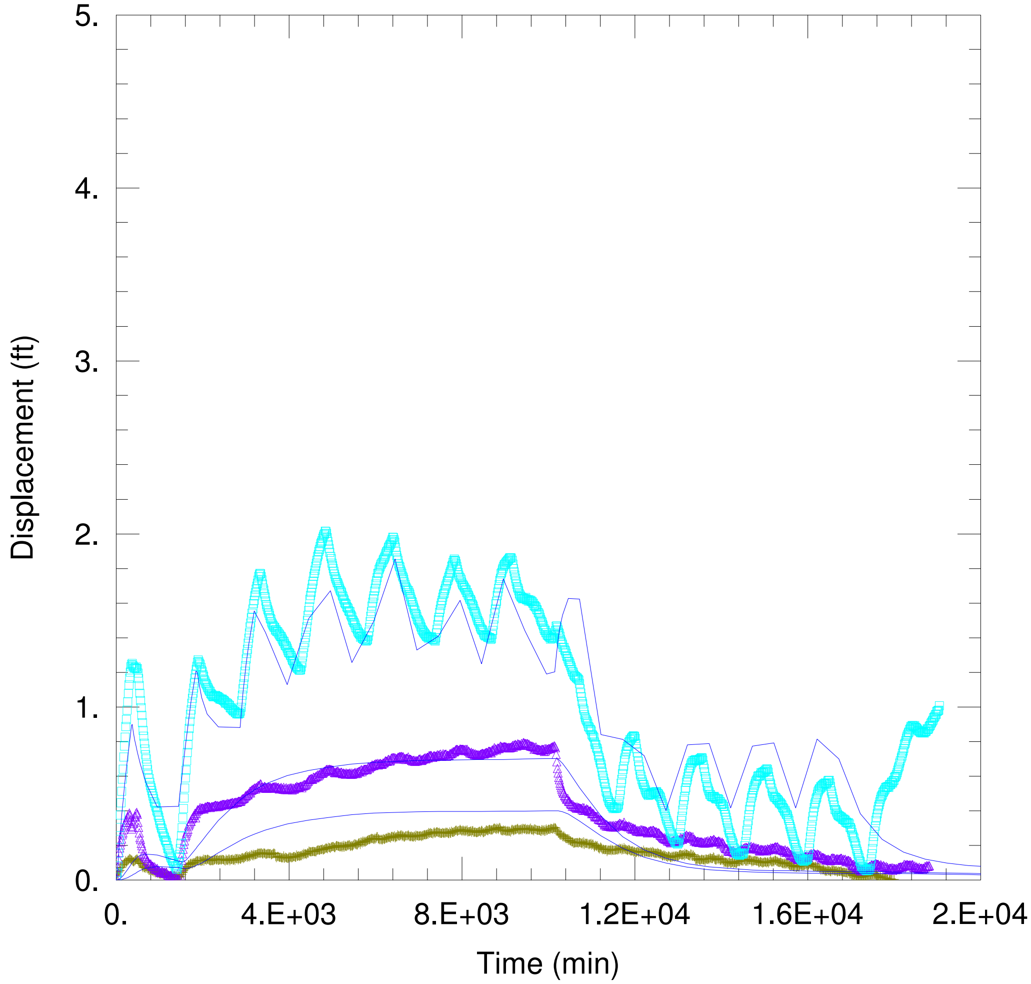
SOLUTION

Aquifer Model: Leaky Solution Method: Neuman-Witherspoon

T = 4574.4 ft^2/day
1/B = 0.000595 ft^{-1}
T' = 0.001 ft^2/day

S = 2.209E-05
ß/r = 0.00118 ft^{-1}
S' = 0.0547

FIGURE 14
Observed vs. Calculated Drawdown Leaky Solution
(MH-26C, MO-2007-25C, and MO-2007-4C)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4C,25C,26C.aqt
Date: 04/22/09 Time: 11:57:38

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

Well Name	X (ft)	Y (ft)
+ MH-26C	1.571E+006	1.636E+006
△ MH-25C	1.567E+006	1.636E+006
□ MO-2007-4C	1.564E+006	1.641E+006

SOLUTION

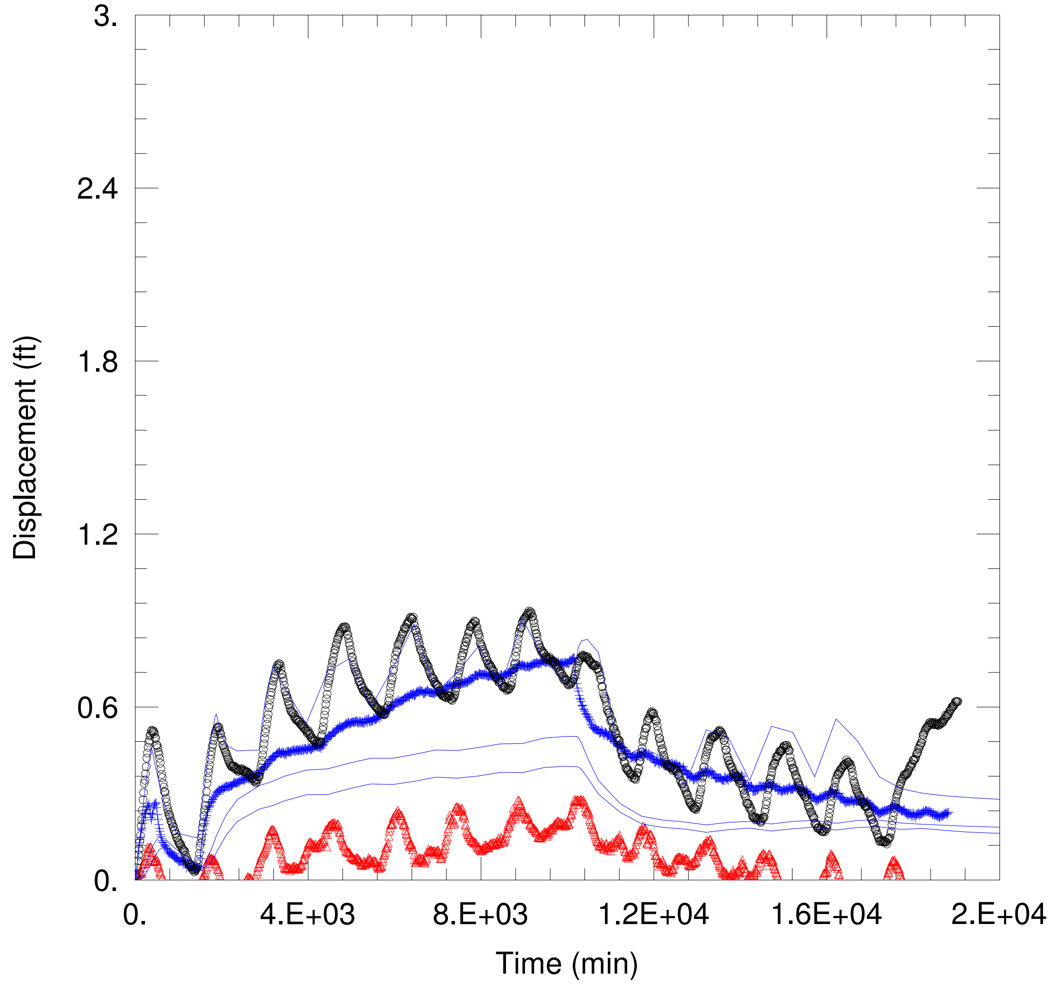
Aquifer Model: Leaky

Solution Method: Neuman-Witherspoon

T = 4424. ft^2/day
1/B = 0.0006083 ft^{-1}
T' = 0.0144 ft^2/day

S = 0.0001295
ß/r = 0.000696 ft^{-1}
S' = 0.3199

FIGURE 15
Observed vs. Calculated Drawdown Unconfined Solution
(MH-26A, MH-25A, and MO-2007-4A)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4A,25A,26A uncon.aqt
Date: 04/22/09 Time: 11:51:50

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

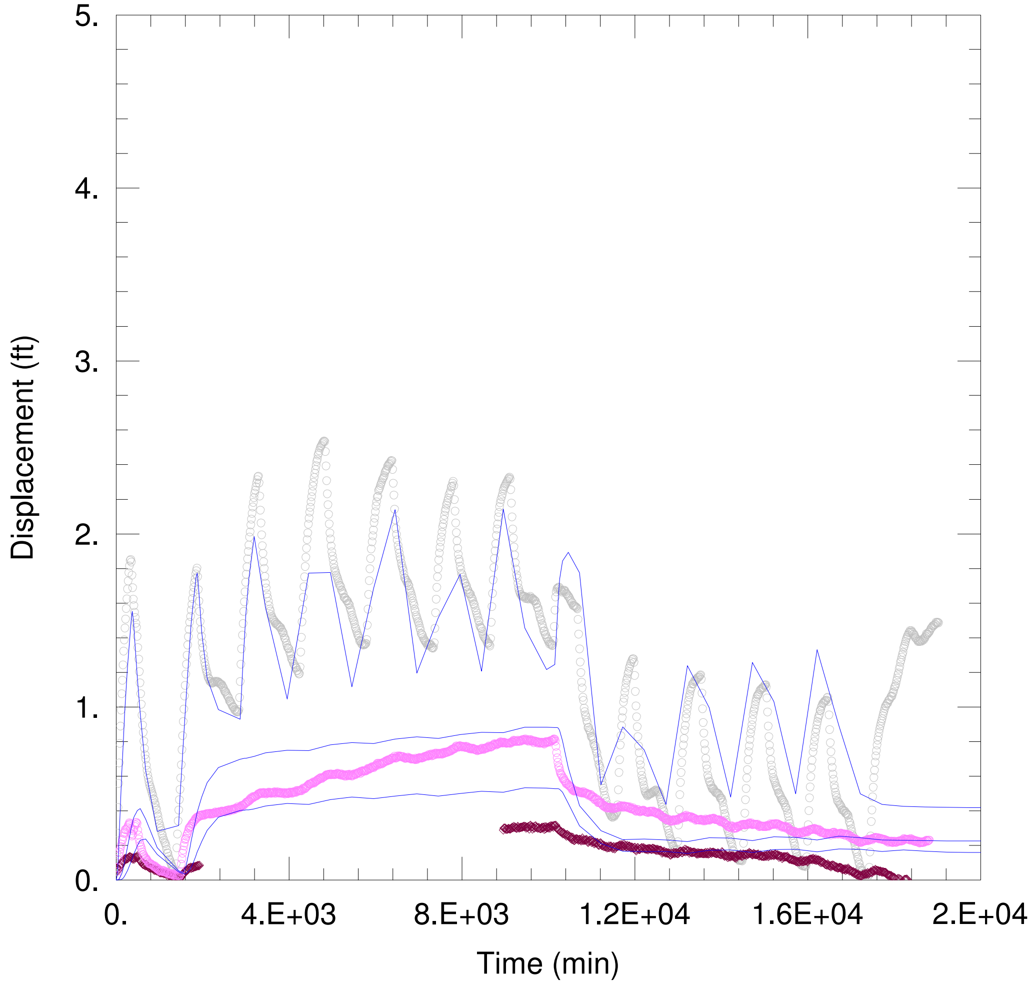
Well Name	X (ft)	Y (ft)
△ MH-26A	1.571E+006	1.636E+006
+ MH-25A	1.567E+006	1.636E+006
○ MO-2007-4A	1.564E+006	1.641E+006

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 2.796E+04 ft^2/day
S = 0.001695
Sy = 0.04832
Kz/Kr = 0.02203

FIGURE 16
Observed vs. Calculated Drawdown Unconfined Solution
(MO-2007-4B, MH-26B, and MH-25B)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4B,25B,26B uncon.aqt
Date: 04/22/09 Time: 11:53:47

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

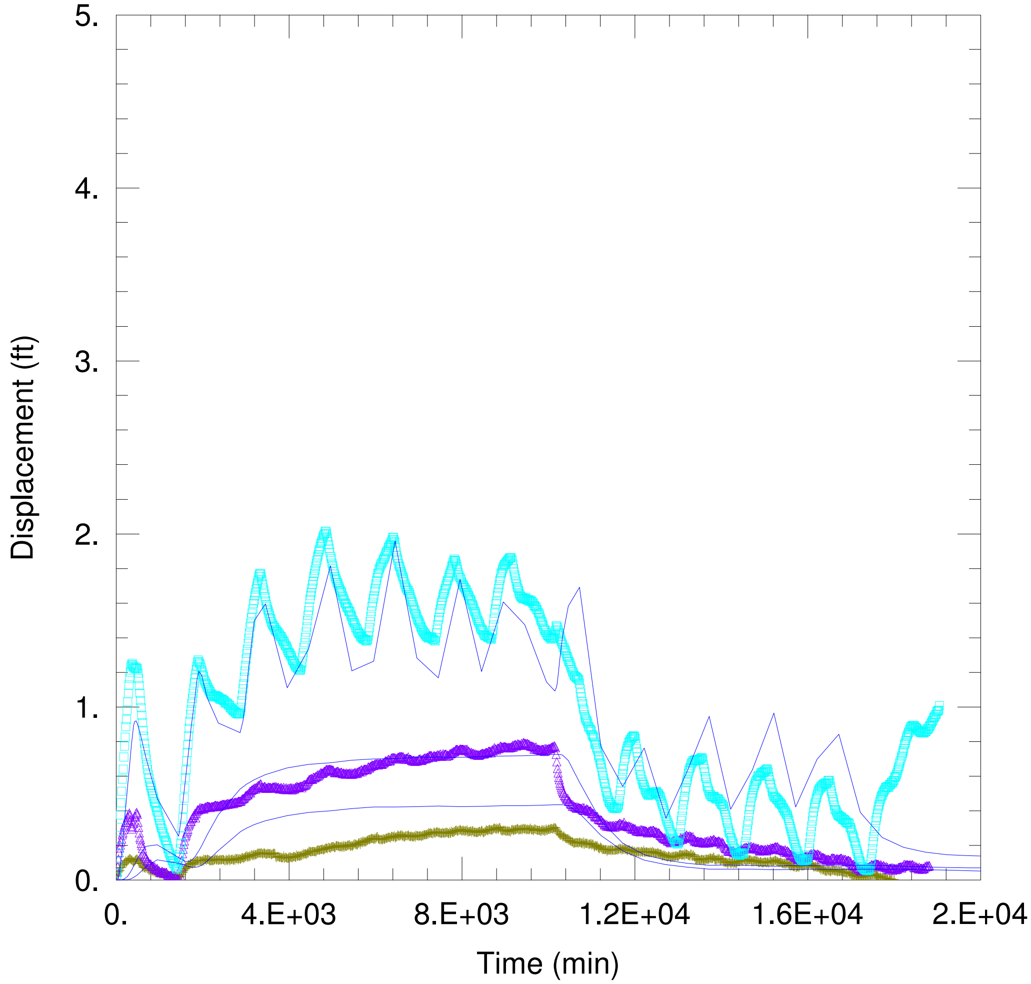
Well Name	X (ft)	Y (ft)
○ MO-2007-4B	1.564E+006	1.641E+006
◇ MH-26B	1.571E+006	1.636E+006
○ MH-25B	1.567E+006	1.636E+006

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 5027.2 ft^2/day
S = 0.0003679
Sy = 0.0457
Kz/Kr = 0.05681

FIGURE 17
Observed vs. Calculated Drawdown Unconfined Solution
(MH-26C, MO-2007-25C, and MO-2007-4C)



WELL TEST ANALYSIS

Data Set: H:\78300\783019 - Large Scale Aquifer Test\Report\Figures 4-15\wells 4C,25C,26C uncon.aqt
Date: 04/22/09 Time: 11:56:21

PROJECT INFORMATION

Company: HGC

AQUIFER DATA

Saturated Thickness: 700 ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ESP-1	1.567E+006	1.64E+006
ESP-3	1.57E+006	1.641E+006
CW-9	1.574E+006	1.644E+006
CW-6	1.565E+006	1.643E+006
CW-10	1.557E+006	1.643E+006
CW-11	1.582E+006	1.648E+006

Observation Wells

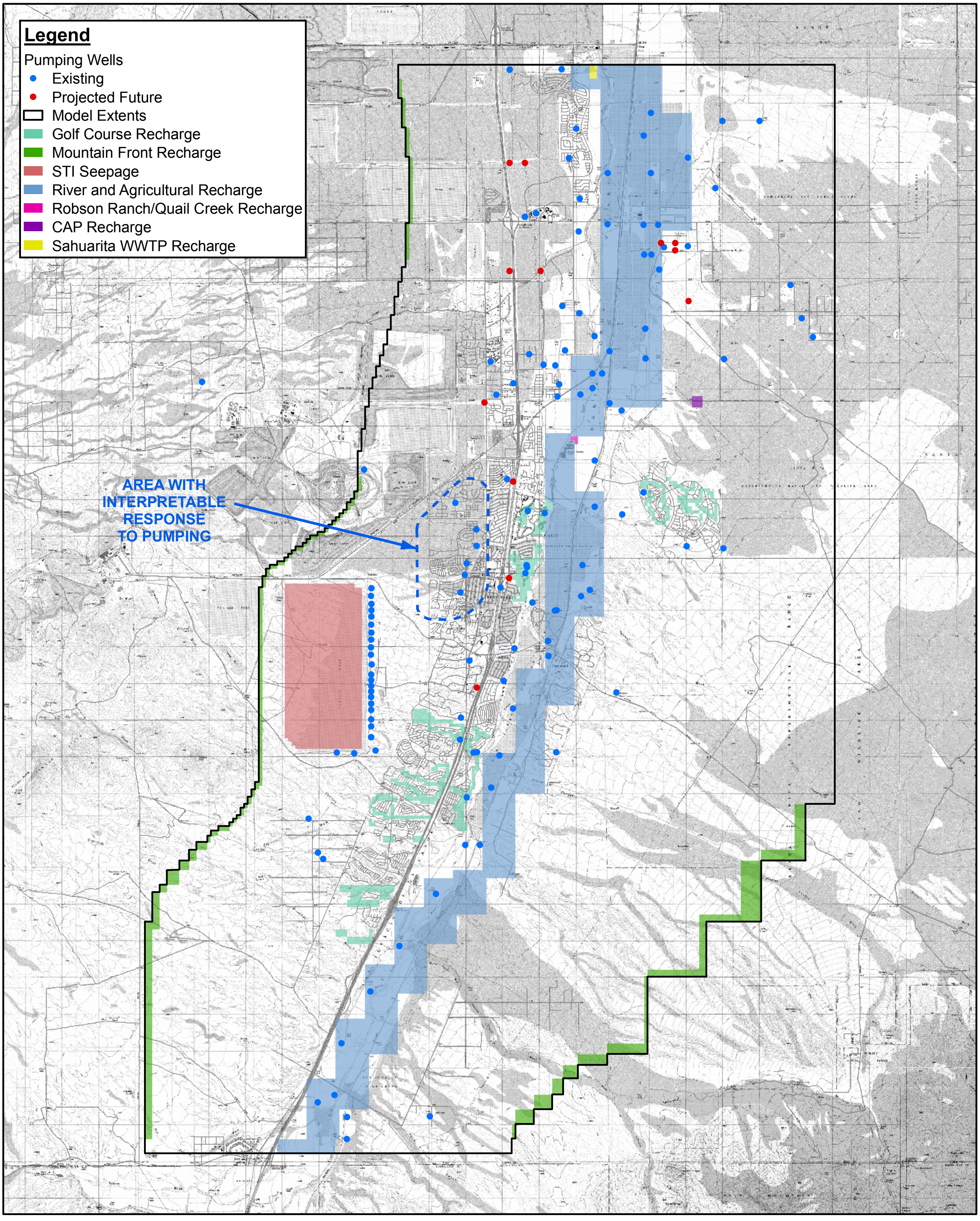
Well Name	X (ft)	Y (ft)
+ MH-26C	1.571E+006	1.636E+006
△ MH-25C	1.567E+006	1.636E+006
□ MO-2007-4C	1.564E+006	1.641E+006

SOLUTION

Aquifer Model: Unconfined Solution Method: Neuman

T = 4542. ft^2/day
Sy = 0.1496

S = 0.0007957
Kz/Kr = 0.06287

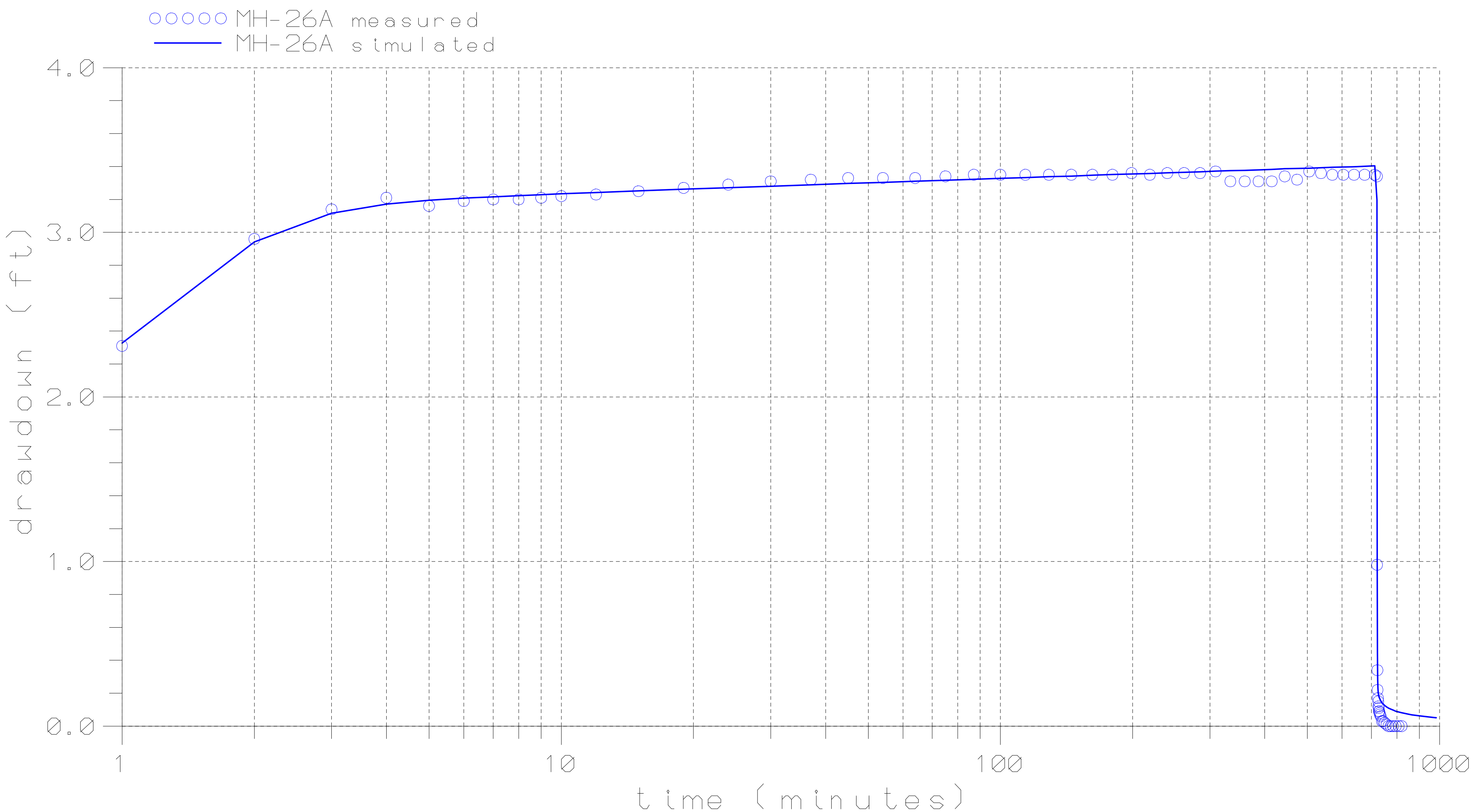


PROJECTION:
UTM Zone 12N NAD83

HYDRO GEO CHEM, INC.

FEASIBILITY STUDY
NUMERICAL MODEL DOMAIN

Approved	Date	Author	Date	File Name	Figure
MWK	08/25/09	AMC	08/25/09	78310127G	18



RESULTS

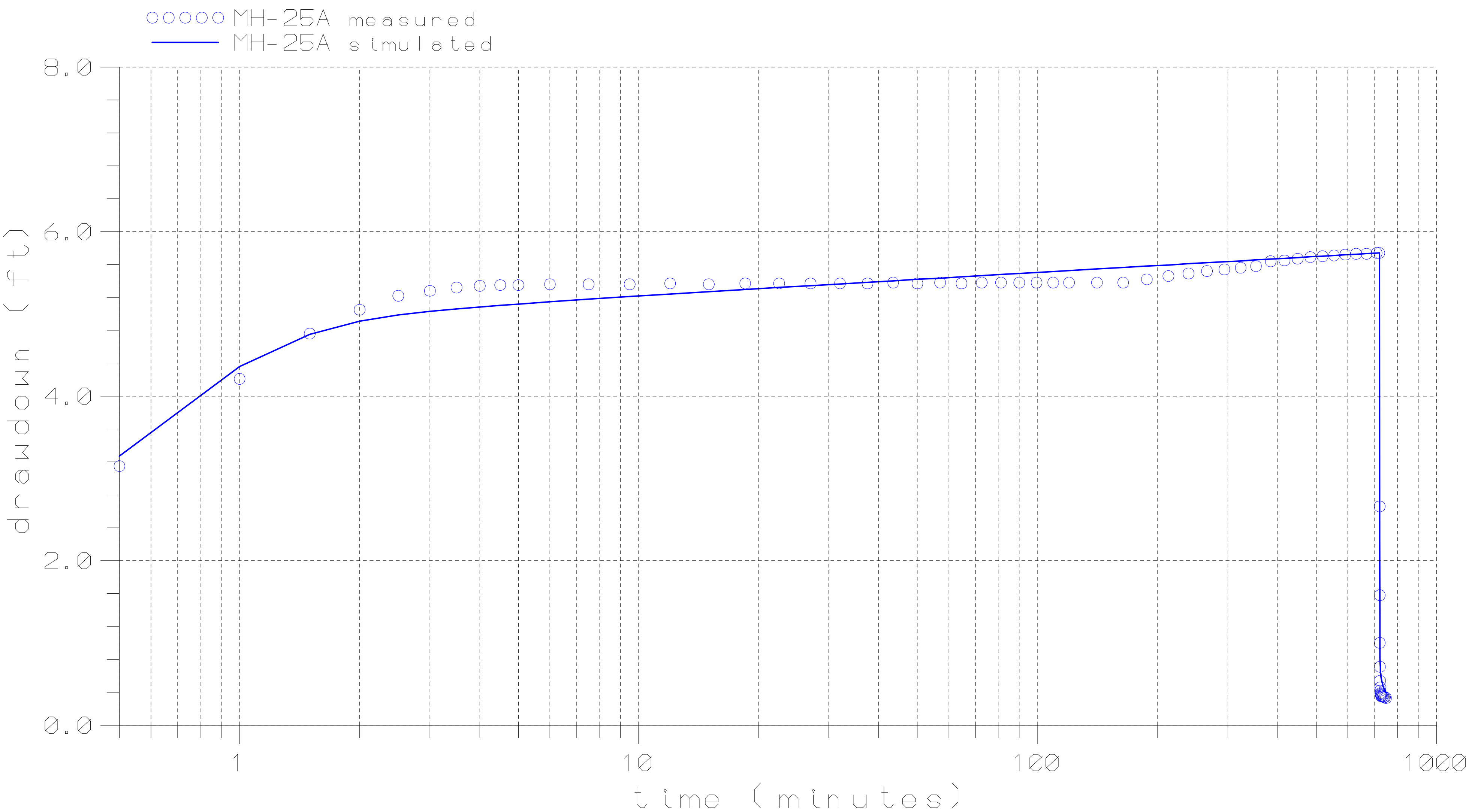
Transmissivity = 4800 ft2/day
Storage coefficient = 0.1e-6
skin factor= 30.3
assumed aquifer thickness = 53 ft
hydraulic conductivity = 91 ft/day
(casing effective radius = 0.343ft)

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MH-26A DURING PUMPING OF MH-26A

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	9/3/09	H:/78300/78306/ whip/c13/mh26a.srf	19



RESULTS

Transmissivity = 1914 ft2/day
Storage coefficient = 0.022
skin factor= 16.4
assumed aquifer thickness = 95 ft
hydraulic conductivity = 20 ft/day
(casing effective radius = 0.24ft)

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MH-25A DURING PUMPING OF MH-25A
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	9/3/09	H:/78300/78306/ whip/c4/mh25a.srf	20

APPENDIX A

COMMUNITY WATER COMPANY PUMPING RECORDS

APPENDIX A
Community Water Company Pumping Records
Well 6

Date	Well 6 System Flow (gallons)	Well 6 Run Minutes (total minutes)	Well 6 Average (gpm)	Well 6 Start Time	Well 6 End Time
2/1/2009	221,601	375	600	11:39:19 AM	5:53:53 PM
2/2/2009	335,097	556	604	10:01:07 AM	7:17:04 PM
2/3/2009	202,313	341	594	9:09:19 AM	2:50:21 PM
2/4/2009	355,328	598	607	8:10:34 AM	6:08:23 PM
2/5/2009	281,910	473	598	9:45:27 AM	5:38:02 PM
2/6/2009	301,008	502	601	9:14:58 AM	5:36:37 PM
2/7/2009	258,368	431	601	10:15:10 AM	5:26:11 PM
2/8/2009	164,727	284	582	10:13:30 AM	2:57:13 PM
2/9/2009	199,815	333	602	9:39:45 AM	3:12:24 PM
2/10/2009	165,697	288	581	9:50:48 AM	2:38:31 PM
2/11/2009	146,204	256	581	11:23:53 AM	3:39:41 PM
2/12/2009	133,163	229	599	11:16:08 AM	3:05:13 PM
2/13/2009	299,461	514	599	6:51:03 AM	3:24:33 PM
2/14/2009	255,638	435	593	9:14:17 AM	4:29:06 PM
2/15/2009	244,630	416	601	9:30:54 AM	4:27:07 PM
2/16/2009	287,249	479	601	9:10:07 AM	5:09:33 PM
2/17/2009	217,262	369	590	8:39:48 AM	2:48:55 PM
2/18/2009	283,813	494	600	7:48:44 AM	4:03:01 PM
2/19/2009	269,971	453	597	8:18:41 AM	3:51:30 PM
2/20/2009	345,167	579	597	7:39:07 AM	5:18:35 PM
2/21/2009	356,392	590	606	9:31:04 AM	7:20:44 PM
2/22/2009	269,903	450	601	11:24:29 AM	6:54:33 PM
2/23/2009	275,035	458	602	9:08:48 AM	4:46:32 PM
2/24/2009	339,894	561	607	9:28:57 AM	6:50:16 PM
2/25/2009	216,176	377	598	10:10:59 AM	4:28:05 PM
2/26/2009	326,132	545	600	9:22:16 AM	6:27:01 PM
2/27/2009	325,827	541	604	10:29:25 AM	7:30:21 PM
2/28/2009	301,713	501	604	11:06:44 AM	7:27:22 PM

APPENDIX A
Community Water Company Pumping Records
Well 9

Date	Well 9 System Flow (gallons)	Well 9 Run Minutes (total minutes)	Well 9 Average (gpm)	Well 9 Start Time	Well 9 End Time
2/1/2009	375,563	379	1019	11:35:58 AM	5:55:23 PM
2/2/2009	525,133	561	948	9:57:37 AM	7:18:35 PM
2/3/2009	346,319	346	1021	9:06:08 AM	2:51:51 PM
2/4/2009	567,462	603	971	8:07:03 AM	6:09:53 PM
2/5/2009	450,381	477	957	9:42:07 AM	5:39:33 PM
2/6/2009	425,820	447	968	10:11:14 AM	5:38:07 PM
2/7/2009	418,118	436	975	10:11:59 AM	5:27:31 PM
2/8/2009	286,356	289	1015	10:10:09 AM	2:58:43 PM
2/9/2009	315,470	338	954	9:36:15 AM	3:13:55 PM
2/10/2009	269,366	293	946	9:47:27 AM	2:39:57 PM
2/11/2009	252,961	261	1007	11:20:36 AM	3:41:11 PM
2/12/2009	205,002	234	926	11:12:38 AM	3:06:34 PM
2/13/2009	486,690	518	977	6:47:52 AM	3:26:03 PM
2/14/2009	435,250	440	1012	9:11:06 AM	4:30:36 PM
2/15/2009	381,793	421	937	9:27:44 AM	4:28:38 PM
2/16/2009	463,991	484	972	9:07:07 AM	5:11:03 PM
2/17/2009	372,829	374	1016	8:36:47 AM	2:50:25 PM
2/18/2009	452,353	499	959	7:45:33 AM	4:04:21 PM
2/19/2009	433,306	457	962	8:15:31 AM	3:52:50 PM
2/20/2009	564,509	584	978	7:35:56 AM	5:19:55 PM
2/21/2009	575,849	594	980	9:27:53 AM	7:22:14 PM
2/22/2009	438,324	455	979	11:21:29 AM	6:56:03 PM
2/23/2009	464,858	462	1020	9:05:48 AM	4:47:52 PM
2/24/2009	539,472	566	965	9:25:36 AM	6:51:46 PM
2/25/2009	346,934	382	962	10:07:59 AM	4:29:35 PM
2/26/2009	532,795	550	982	9:18:55 AM	6:28:31 PM
2/27/2009	526,559	546	978	10:26:15 AM	7:31:51 PM
2/28/2009	490,952	505	985	11:03:43 AM	7:28:53 PM

APPENDIX A
Community Water Company Pumping Records
Well 10

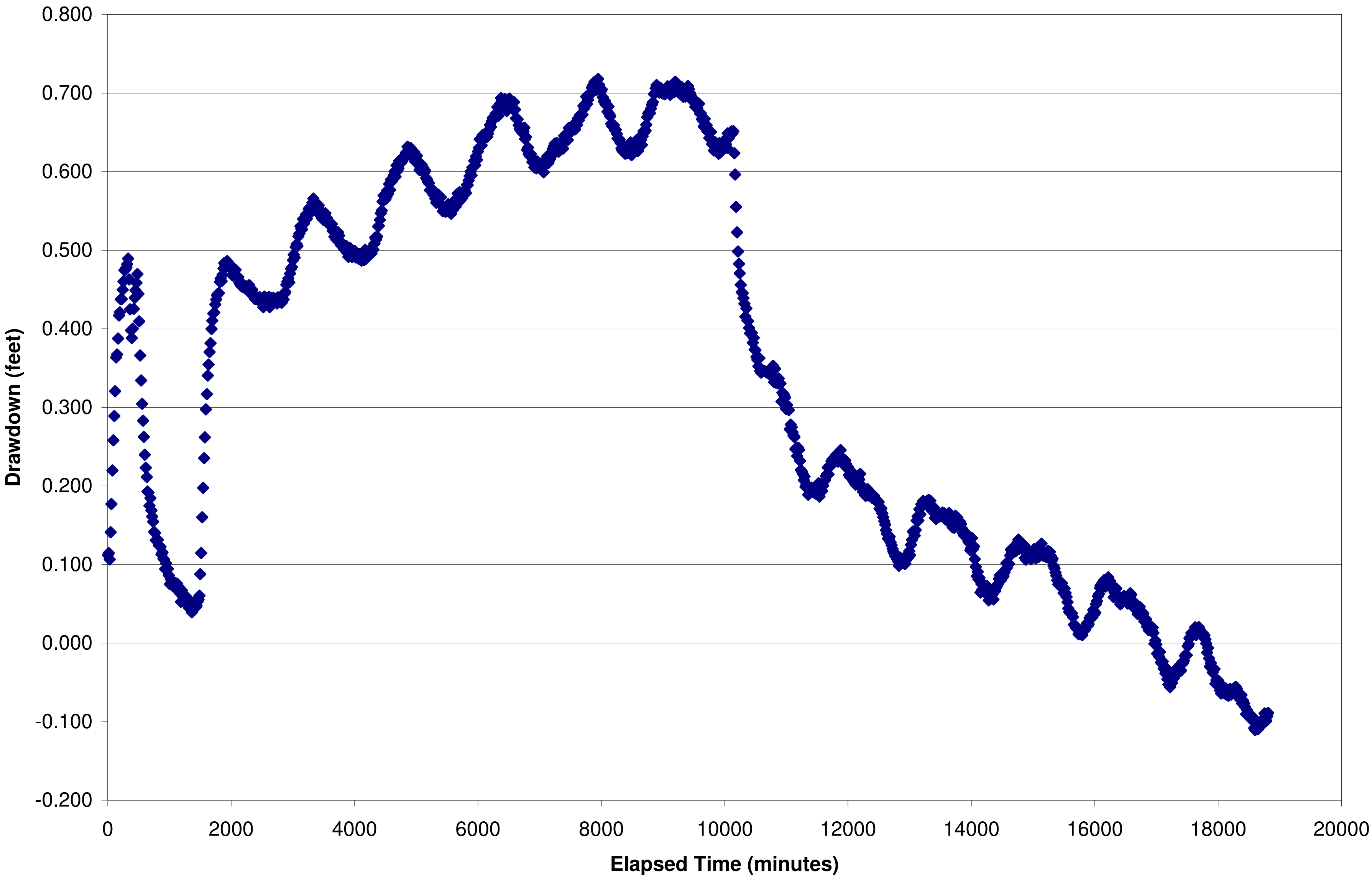
Date	Well 10 System Flow (gallons)	Well 10 Run Minutes (total minutes)	Well 10 Average (gpm)	Well 10 Start Time	Well 10 End Time
2/1/2009	771,162	419	1862	9:08:01 AM	4:07:10 PM
2/2/2009	771,863	427	1811	7:16:08 AM	2:22:59 PM
2/3/2009	720,883	411	1758	7:27:25 AM	2:18:06 PM
2/4/2009	762,697	405	1942	5:58:06 AM	12:42:37 PM
2/5/2009	757,856	412	1840	8:07:05 AM	2:59:34 PM
2/6/2009	790,592	423	1874	8:27:02 AM	3:29:32 PM
2/7/2009	752,270	406	1854	8:27:57 AM	3:14:25 PM
2/8/2009	718,128	393	1831	8:21:06 AM	2:53:52 PM
2/9/2009	864,517	451	1919	6:59:46 AM	2:31:00 PM
2/10/2009	714,696	396	1808	7:17:20 AM	1:53:46 PM
2/11/2009	831,429	429	1959	6:16:11 AM	1:24:45 PM
2/12/2009	1,141,839	800	1890	5:44:39 AM	7:04:12 PM
2/13/2009	1,408,479	777	1848	12:28:34 AM	1:25:09 PM
2/14/2009	746,869	411	1837	7:21:40 AM	2:12:49 PM
2/15/2009	726,974	383	1934	8:07:24 AM	2:30:24 PM
2/16/2009	1,576,325	811	1946	12:52:39 AM	2:23:54 PM
2/17/2009	1,040,960	557	1873	2:48:23 AM	12:04:53 PM
2/18/2009	756,736	417	1909	6:17:22 AM	1:14:41 PM
2/19/2009	716,408	403	1781	7:29:05 AM	2:11:58 PM
2/20/2009	724,855	407	1783	7:08:53 AM	1:56:01 PM
2/21/2009	799,404	412	1943	8:03:44 AM	2:55:52 PM
2/22/2009	767,051	412	1863	8:48:11 AM	3:40:40 PM
2/23/2009	784,290	382	2058	7:49:29 AM	2:11:14 PM
2/24/2009	783,584	430	1825	6:58:29 AM	2:08:30 PM
2/25/2009	542,411	294	1845	10:07:29 AM	3:01:53 PM
2/26/2009	782,023	428	1829	7:10:30 AM	2:18:50 PM
2/27/2009	854,384	454	1886	7:33:34 AM	3:07:18 PM
2/28/2009	852,120	435	1960	8:19:34 AM	3:34:55 PM

APPENDIX A
Community Water Company Pumping Records
Well 11

Date	Well 11 System Flow (gallons)	Well 11 Run Minutes (total minutes)	Well 11 Average (gpm)	Well 11 Start Time	Well 11 End Time
2/1/2009	655,022	338	1939	9:18:32 AM	2:56:52 PM
2/2/2009	702,727	387	1819	7:45:51 AM	2:12:48 PM
2/3/2009	663,323	329	2017	8:36:45 AM	2:06:05 PM
2/4/2009	692,572	395	1807	6:11:38 AM	12:46:28 PM
2/5/2009	786,784	396	1989	8:16:27 AM	2:52:33 PM
2/6/2009	820,019	450	1826	7:52:58 AM	3:22:41 PM
2/7/2009	767,720	391	1964	8:37:08 AM	3:08:34 PM
2/8/2009	684,139	379	1808	8:30:47 AM	2:49:42 PM
2/9/2009	797,564	408	1960	7:43:22 AM	2:31:00 PM
2/10/2009	704,982	387	1827	7:25:01 AM	1:51:56 PM
2/11/2009	844,147	442	1928	6:25:42 AM	1:47:48 PM
2/12/2009	154,799	85	1821	5:56:00 AM	7:21:00 AM
2/13/2009	423,292	256	1658	9:47:03 AM	2:02:44 PM
2/14/2009	727,415	407	1808	7:47:43 AM	2:34:42 PM
2/15/2009	696,198	392	1811	8:32:17 AM	3:03:58 PM
2/16/2009	0	0	0		
2/17/2009	262,452	146	1802	10:17:20 AM	12:43:08 PM
2/18/2009	690,938	412	1765	6:41:25 AM	1:33:53 PM
2/19/2009	751,908	396	1904	7:54:18 AM	2:29:51 PM
2/20/2009	695,707	373	1870	7:20:25 AM	1:32:59 PM
2/21/2009	782,088	381	2056	8:04:04 AM	2:24:59 PM
2/22/2009	732,110	391	1875	8:48:41 AM	3:19:47 PM
2/23/2009	763,759	378	2025	7:48:59 AM	2:06:43 PM
2/24/2009	774,019	406	1911	6:58:59 AM	1:44:37 PM
2/25/2009	511,160	258	1988	10:07:29 AM	2:24:59 PM
2/26/2009	762,231	402	1900	7:12:00 AM	1:53:48 PM
2/27/2009	865,449	437	1982	7:34:25 AM	2:51:46 PM
2/28/2009	777,909	411	1894	8:20:14 AM	3:11:32 PM

APPENDIX B

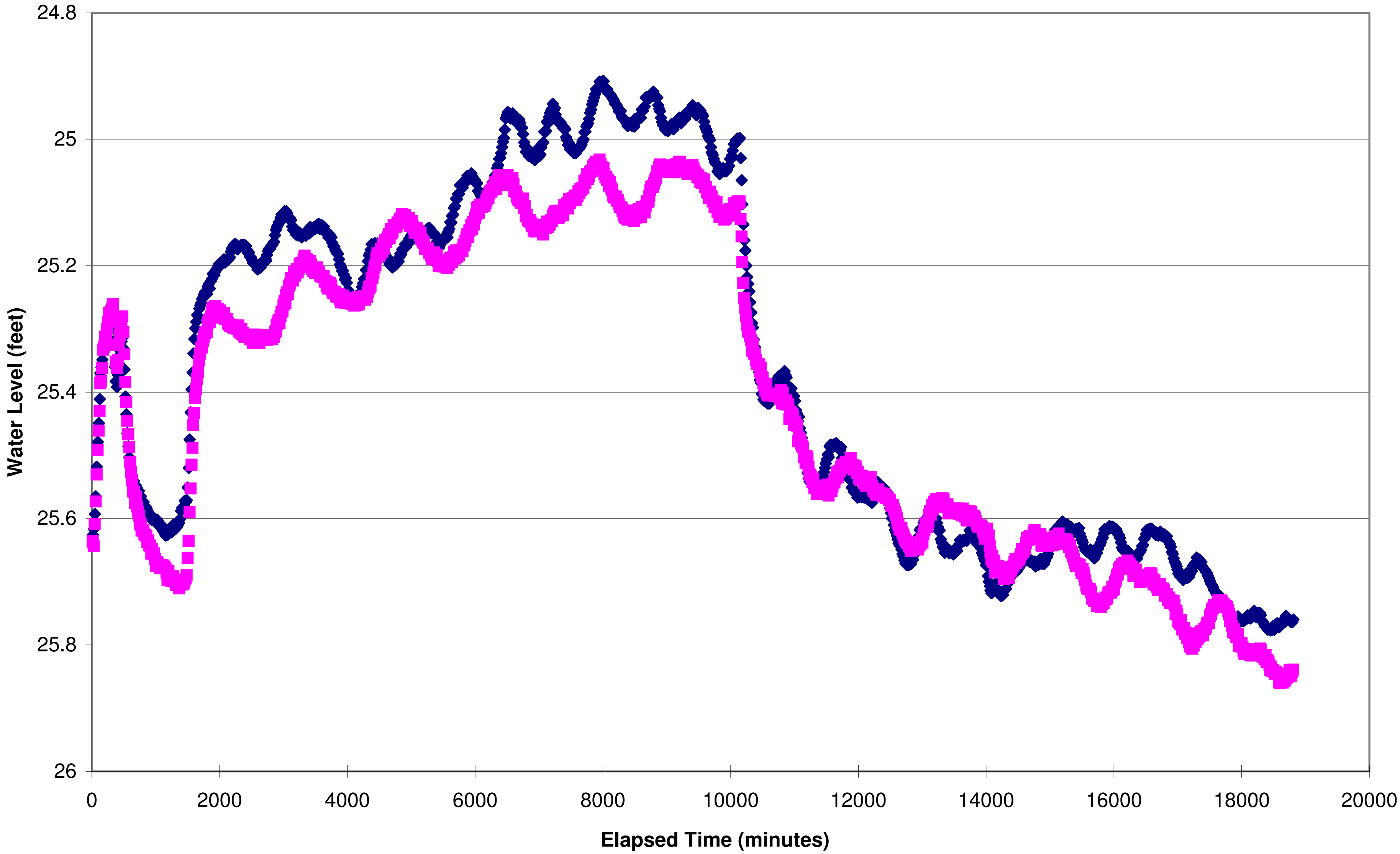
WATER LEVEL ABOVE TRANSDUCER DATA, ELAPSED TIME, BAROMETRIC PRESSURE-CORRECTED WATER LEVELS, AND CALCULATED DRAWDOWNS



HYDRO GEO CHEM, INC.

CW-7 CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	CW-7 2009-03-02	B.1 CW-7

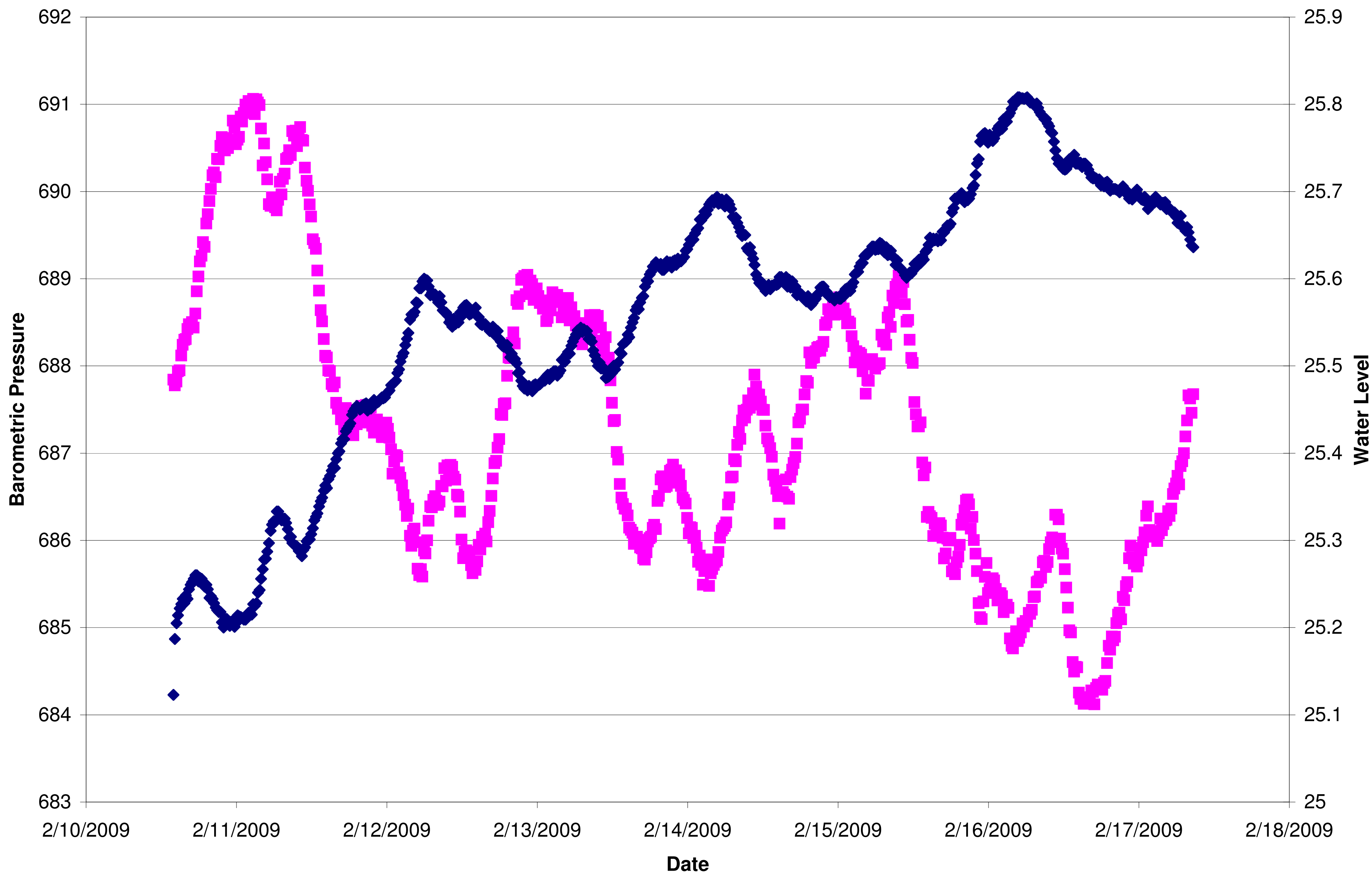


HYDRO GEO CHEM, INC.

CW-7 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

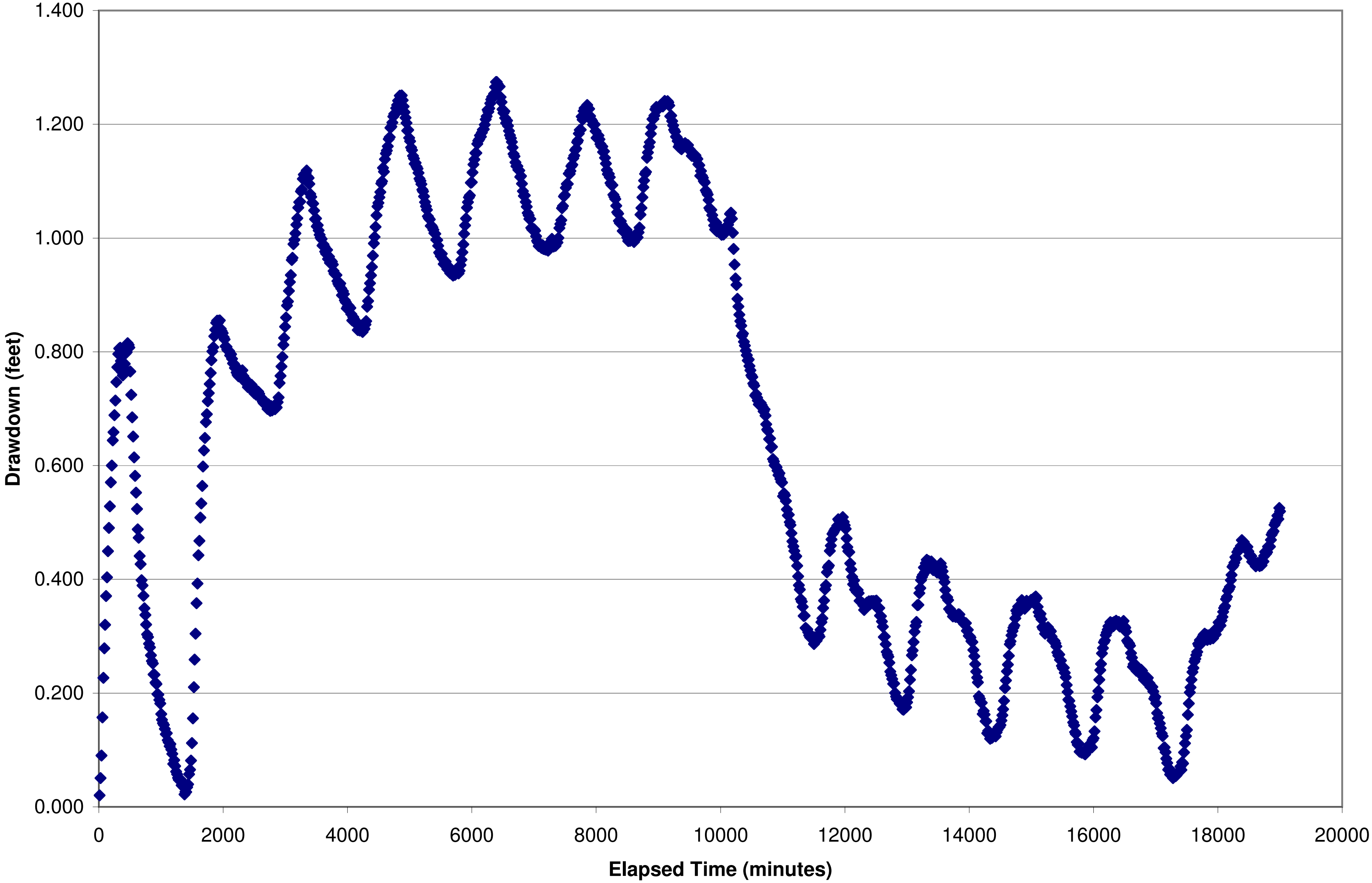
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	CW-7 2009-03-02	B.2 CW-7

H:\78300\783019 - Large Scale Aquifer Test\Report\Appendix B Water Level Data\CW-7 2009-03-02 10.28.39.xls: Corrected Uncorr Water_Levels

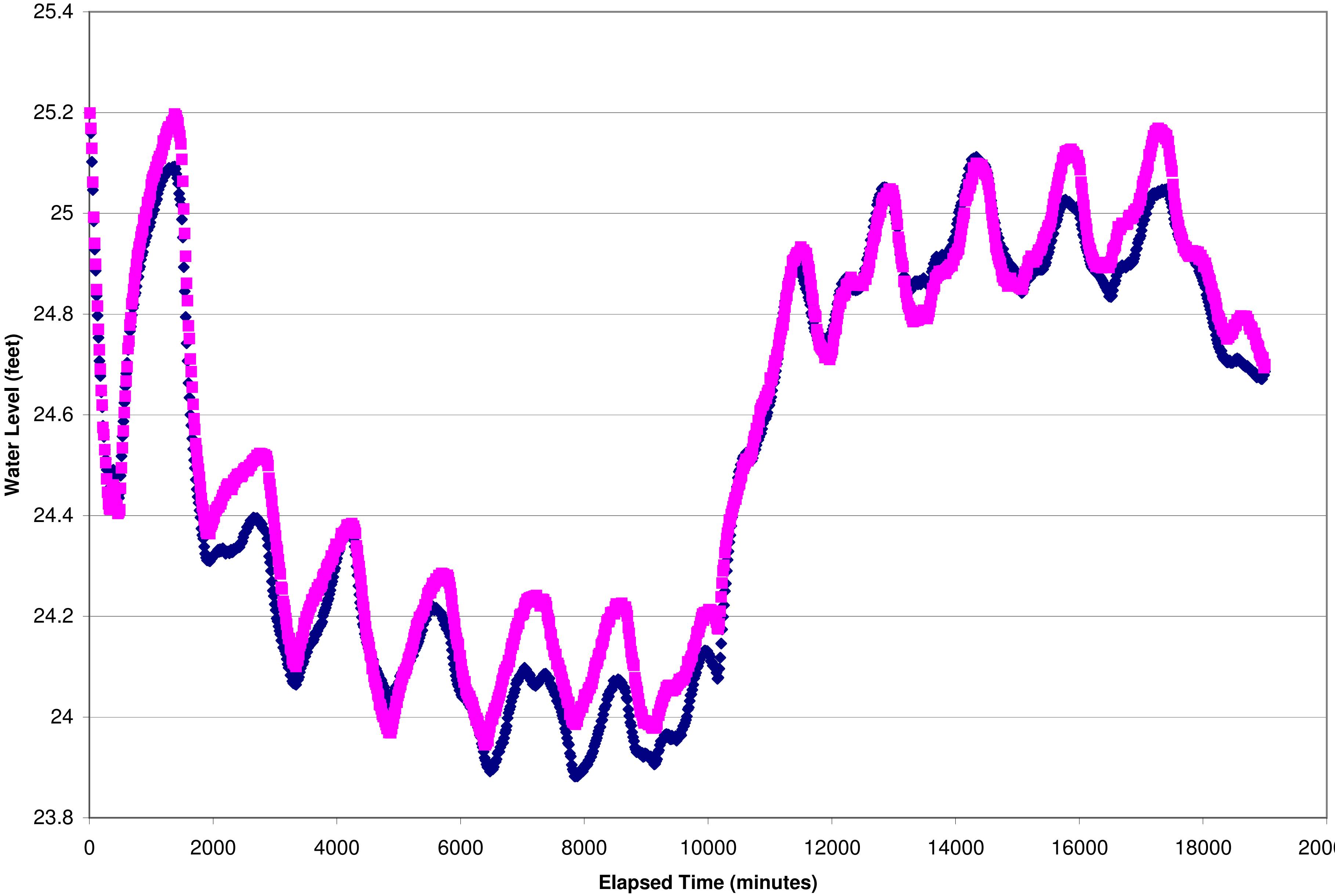


HYDRO GEO CHEM, INC.	CW-7 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name CW-7 2009-03-02	Figure B.3 CW-7

H:\78300\783019 - Large Scale Aquifer Test\Report\Appendix B Water Level Data\CW-7 2009-03-02 10.28.39.xls: Baseline_Barometric



HYDRO GEO CHEM, INC.	CW-8 CORRECTED DRAWDOWN VS. TIME					
	Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name CW-8 2009-03-02	Figure B.1 CW-8

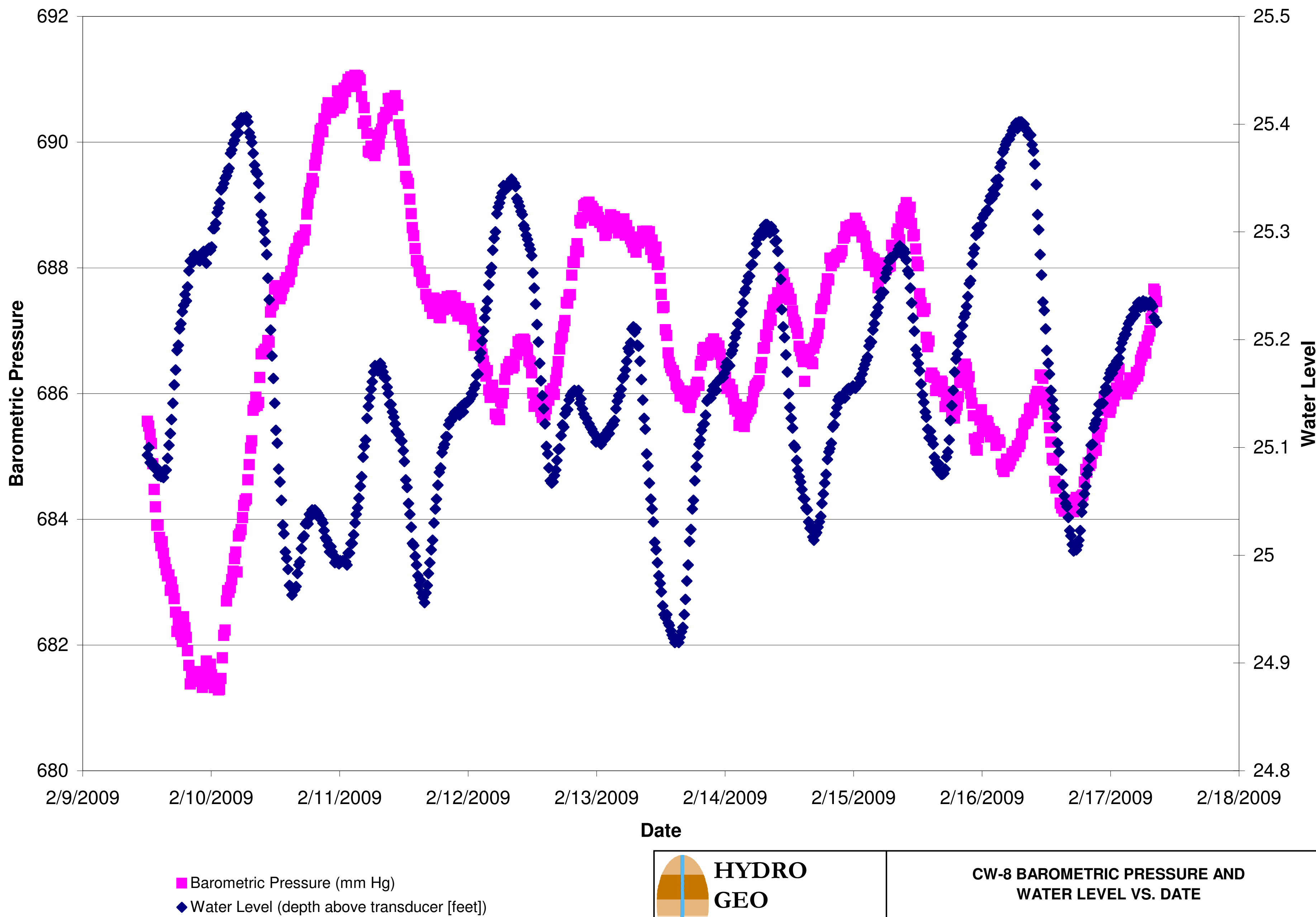


HYDRO GEO CHEM, INC.

CW-8 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	CW-7 2009-03-02	B.2 CW-8

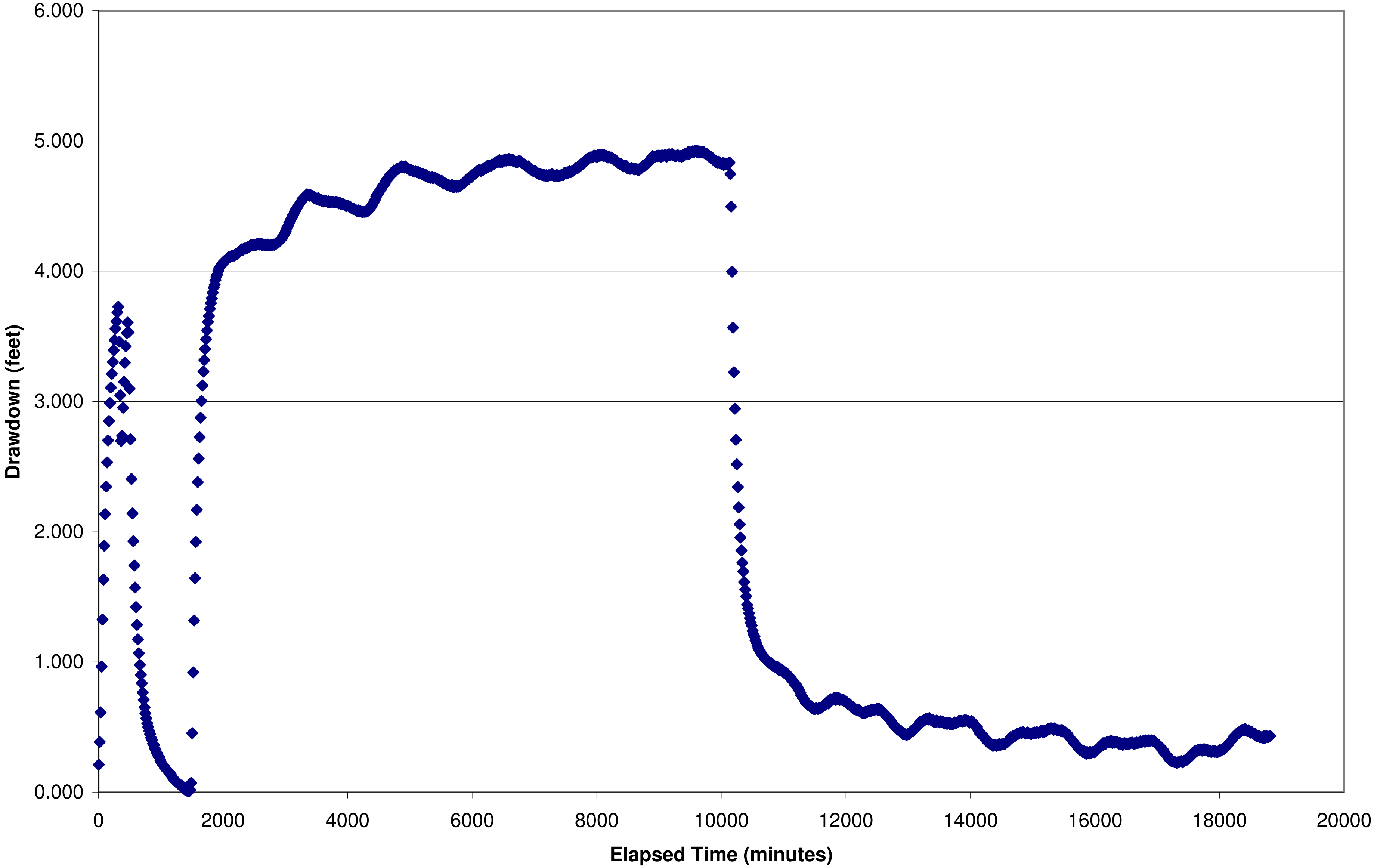
H:\78300\783019 - Large Scale Aquifer Test\Report\Appendix B Water Level Data\CW-8 2009-03-02 13.53.28.xls: Corrected Uncorr Water Levels



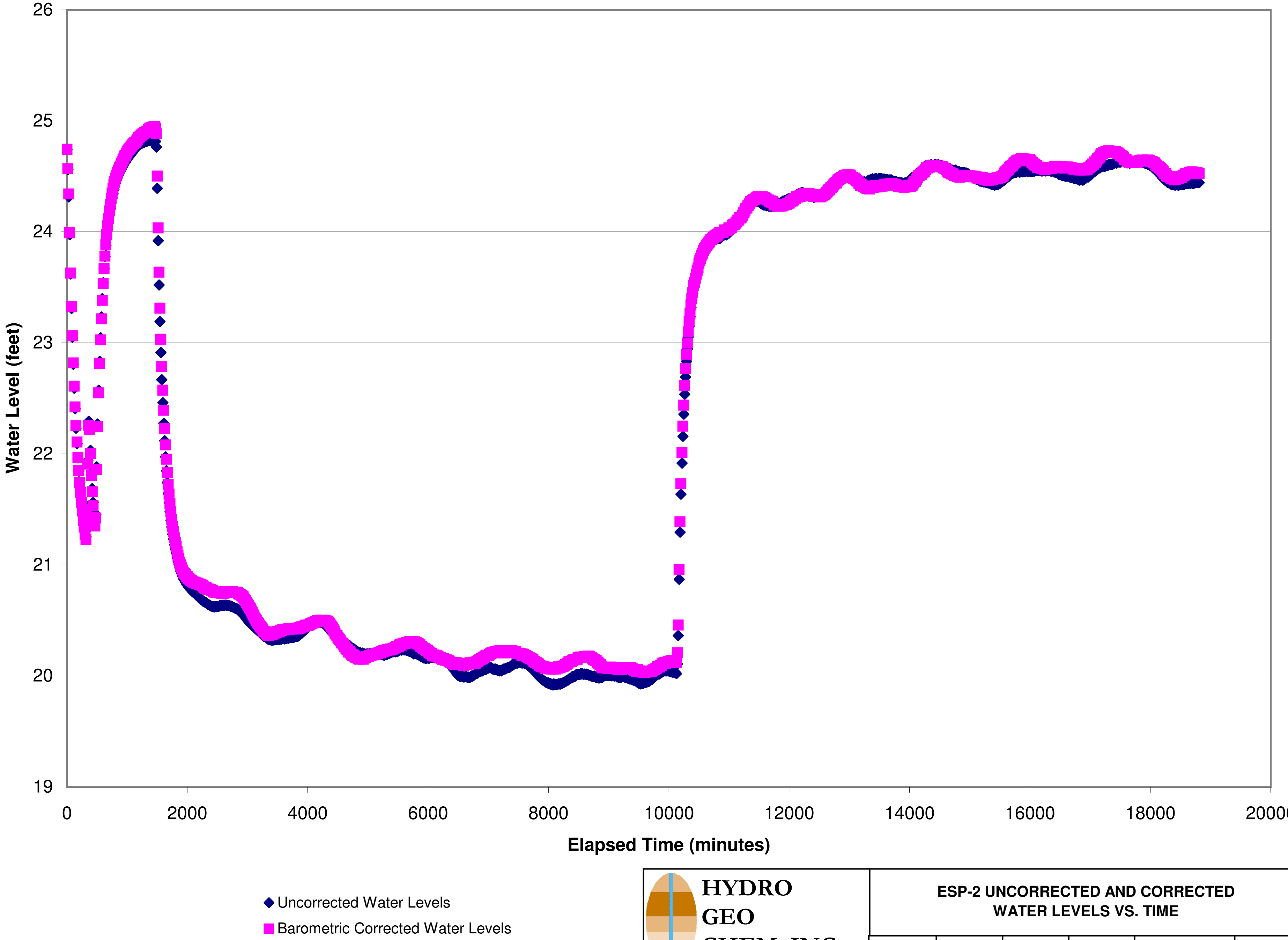
HYDRO GEO CHEM, INC.

CW-8 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

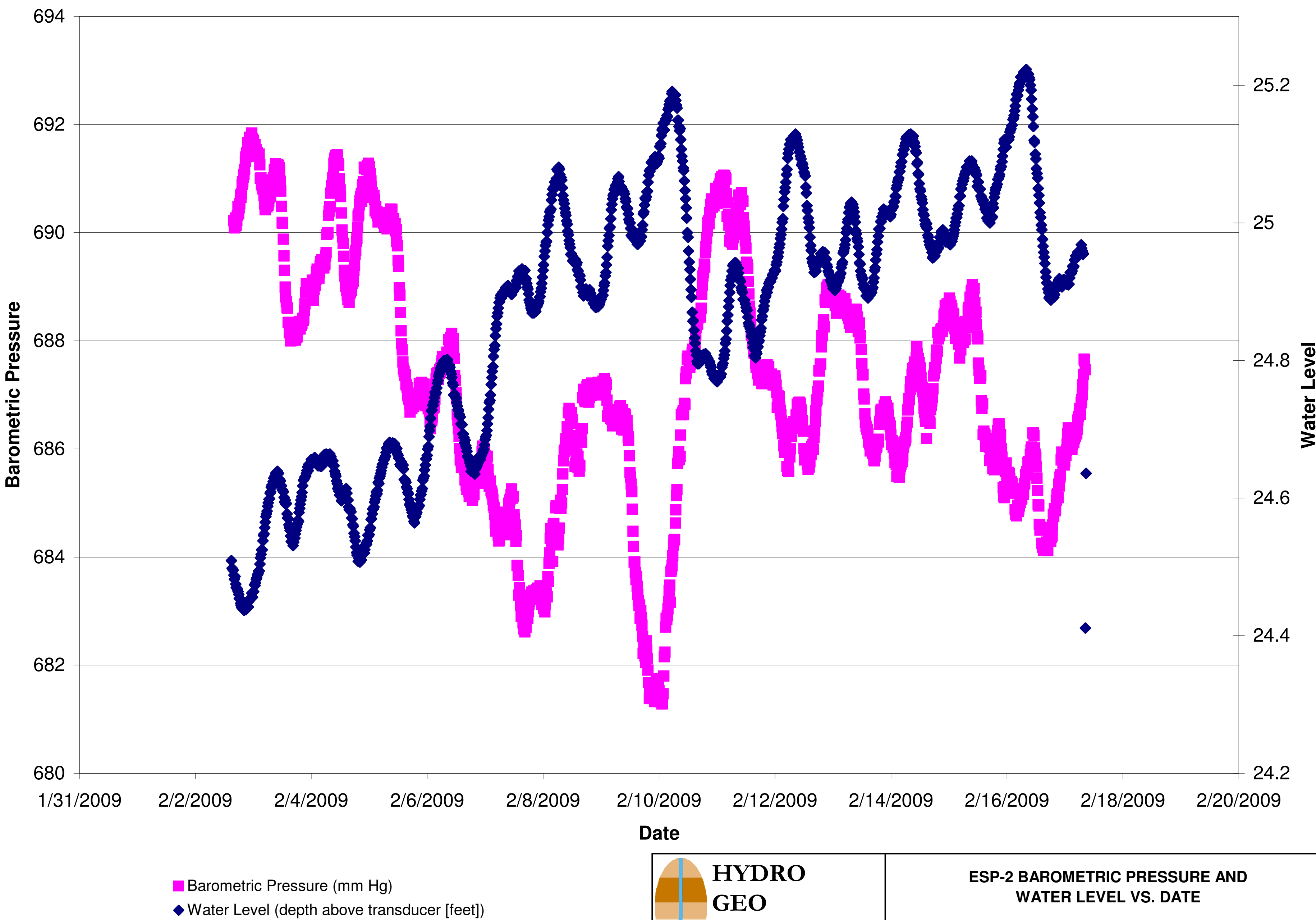
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	CW-8 2009-03-02	B.3 CW-8



HYDRO GEO CHEM, INC.	ESP-2 CORRECTED DRAWDOWN VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name ESP-2 2009-03-02	Figure B.1 ESP-2



HYDRO GEO CHEM, INC.	ESP-2 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name ESP-2 2009-03-02	Figure B.2 ESP-2

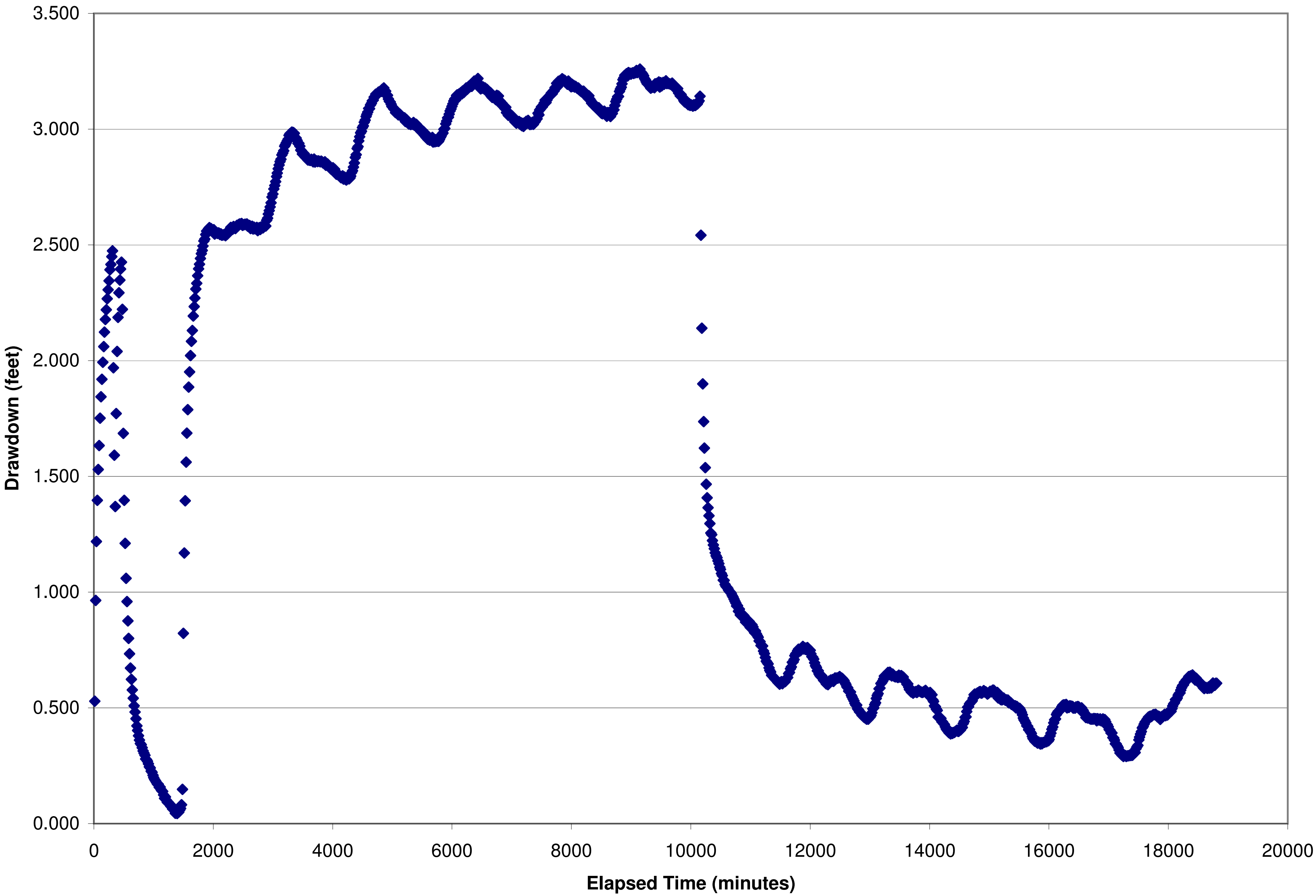


HYDRO GEO CHEM, INC.

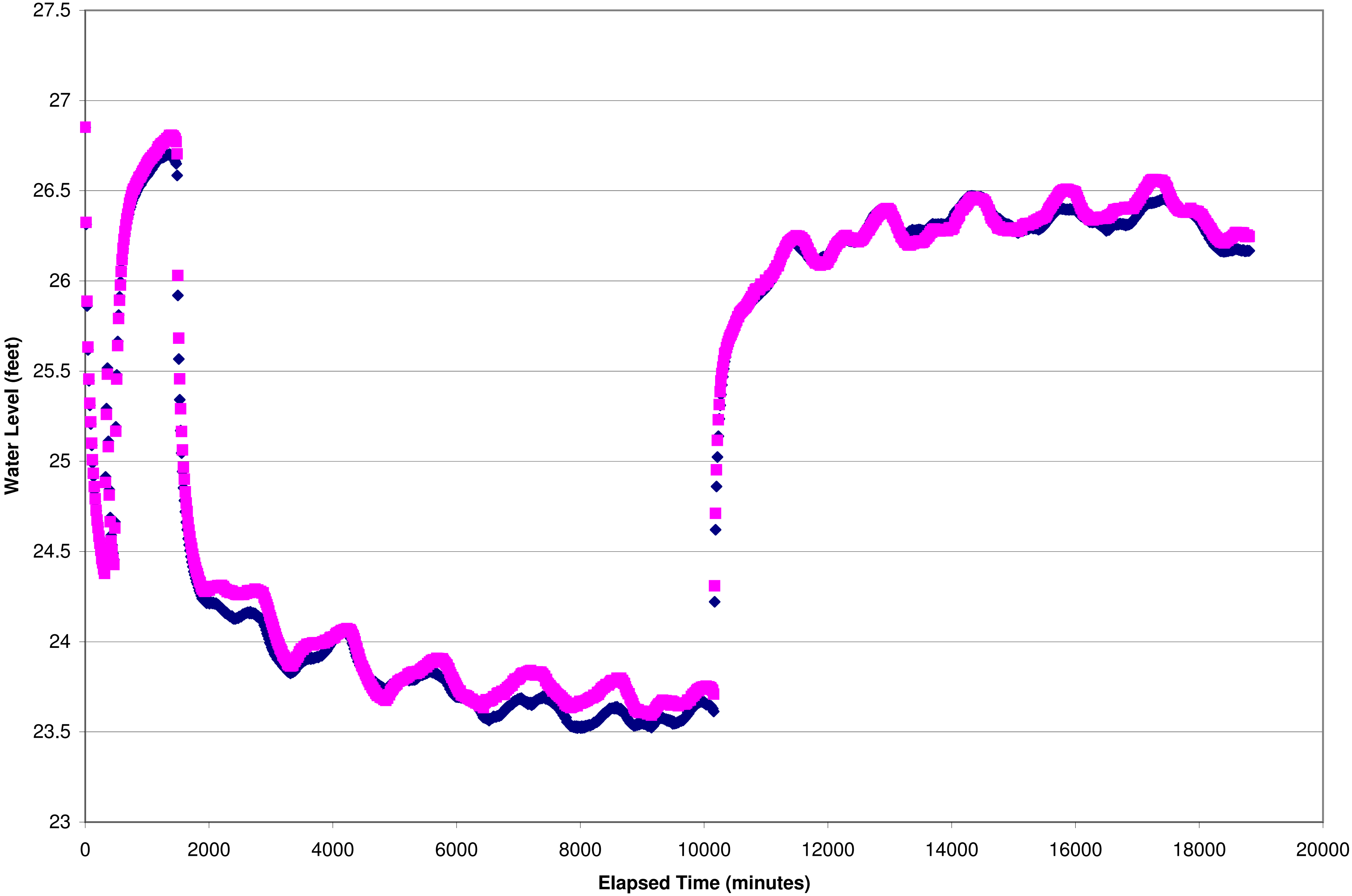
ESP-2 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	ESP-2 2009-03-02	B.3 ESP-2

H:\78300\783019 - Large Scale Aquifer Test\Report\Appendix B Water Level Data\ESP-2 2009-03-02 15.41.37.xls: Baseline_Barometric

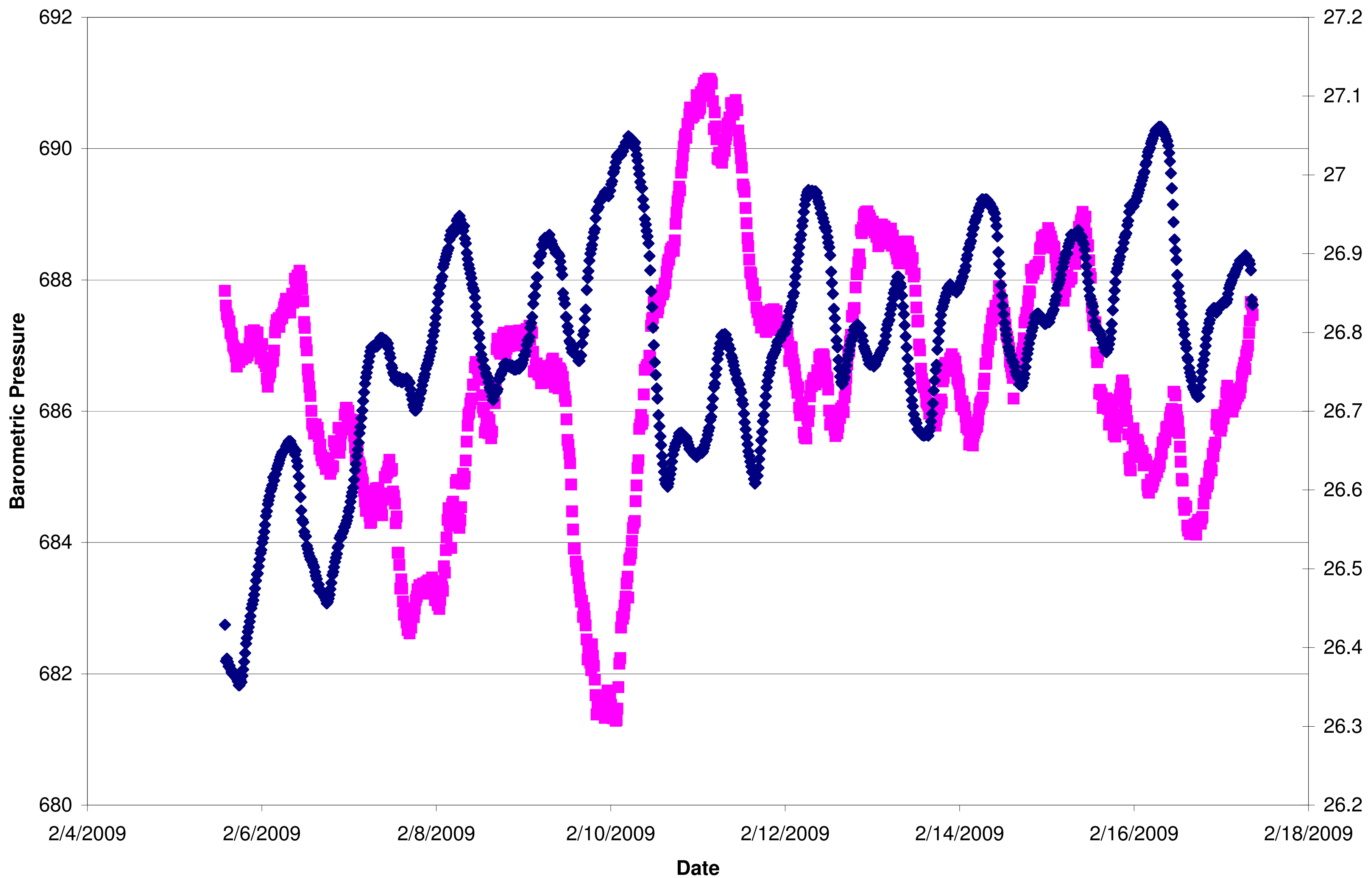


HYDRO GEO CHEM, INC.	CORRECTED DRAWDOWN VS. TIME ESP-4 2009-03-02 15.06.32				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name ESP-4 2009-03-02	Figure B.1 ESP-4



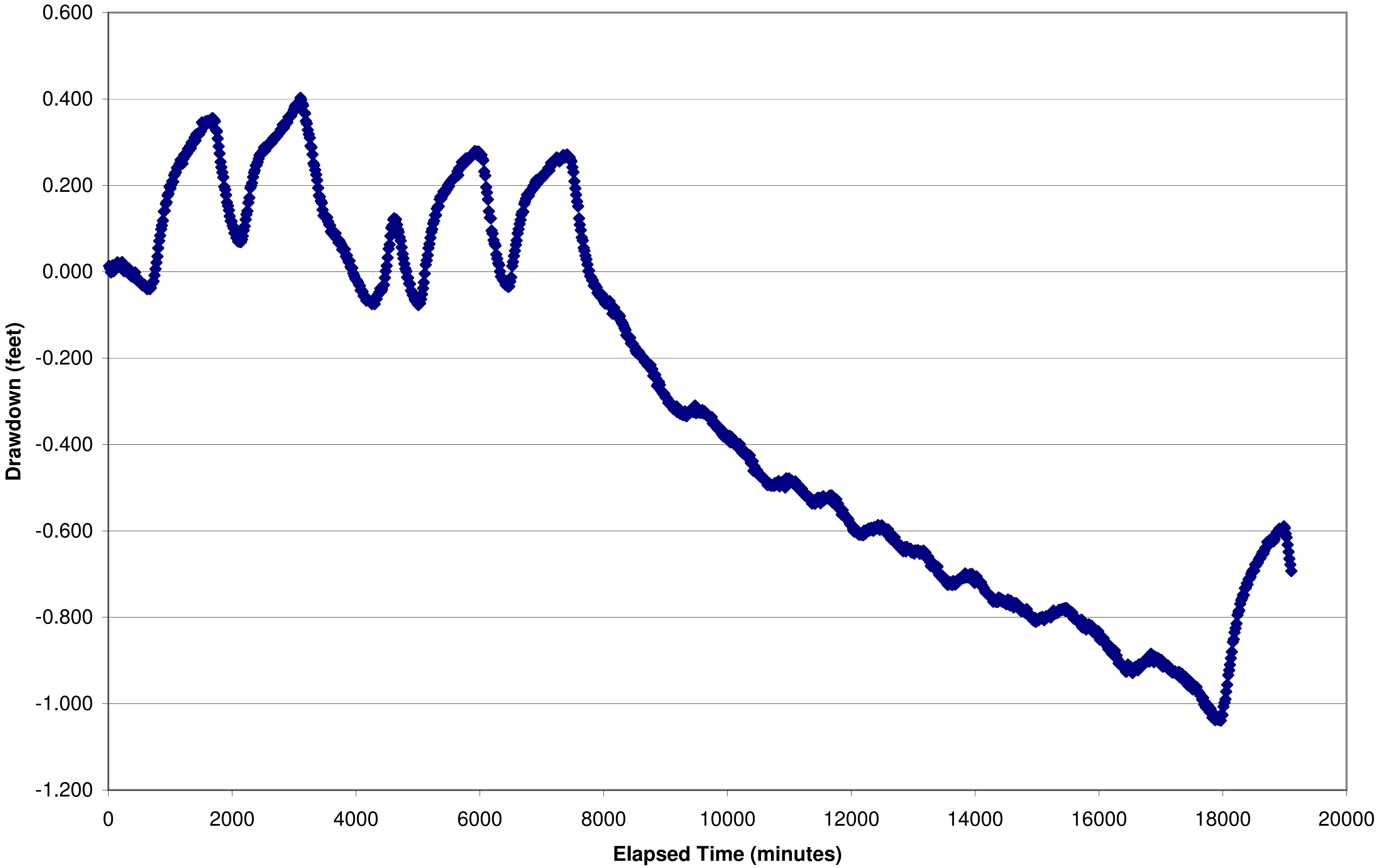
HYDRO GEO CHEM, INC.	CW-7 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name ESP-4 2009-03-02	Figure B.2 ESP-4

H:\78300\783019 - Large Scale Aquifer Test\Report\Appendix B Water Level Data\ESP-4 2009-03-02 15.06.32.xls: Corrected Uncorr Water Levels

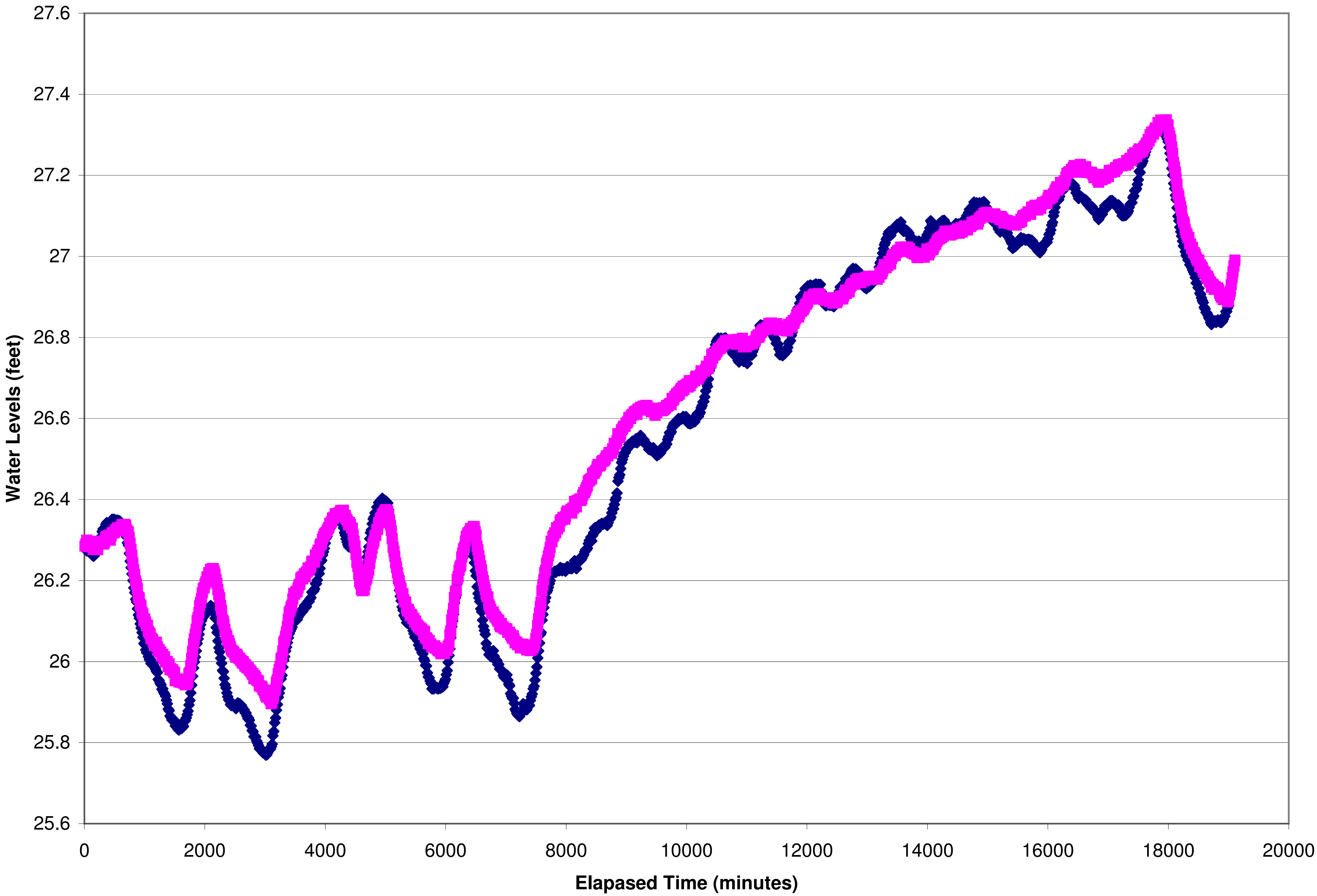


HYDRO GEO CHEM, INC.

ESP-4 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	ESP-4 2009-03-02	B.3 ESP-4



HYDRO GEO CHEM, INC.	CORRECTED DRAWDOWN VS. TIME ESP-5 2009-03-02 16.14.28					
Approved MWK	Date 4/21/09	Author MWK	Date 4/21/09	File Name ESP-5 2009-03-02	Figure B.1 ESP-5	



HYDRO GEO CHEM, INC.

CW-7 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	ESP-5 2009-03-02	B.2 ESP-5

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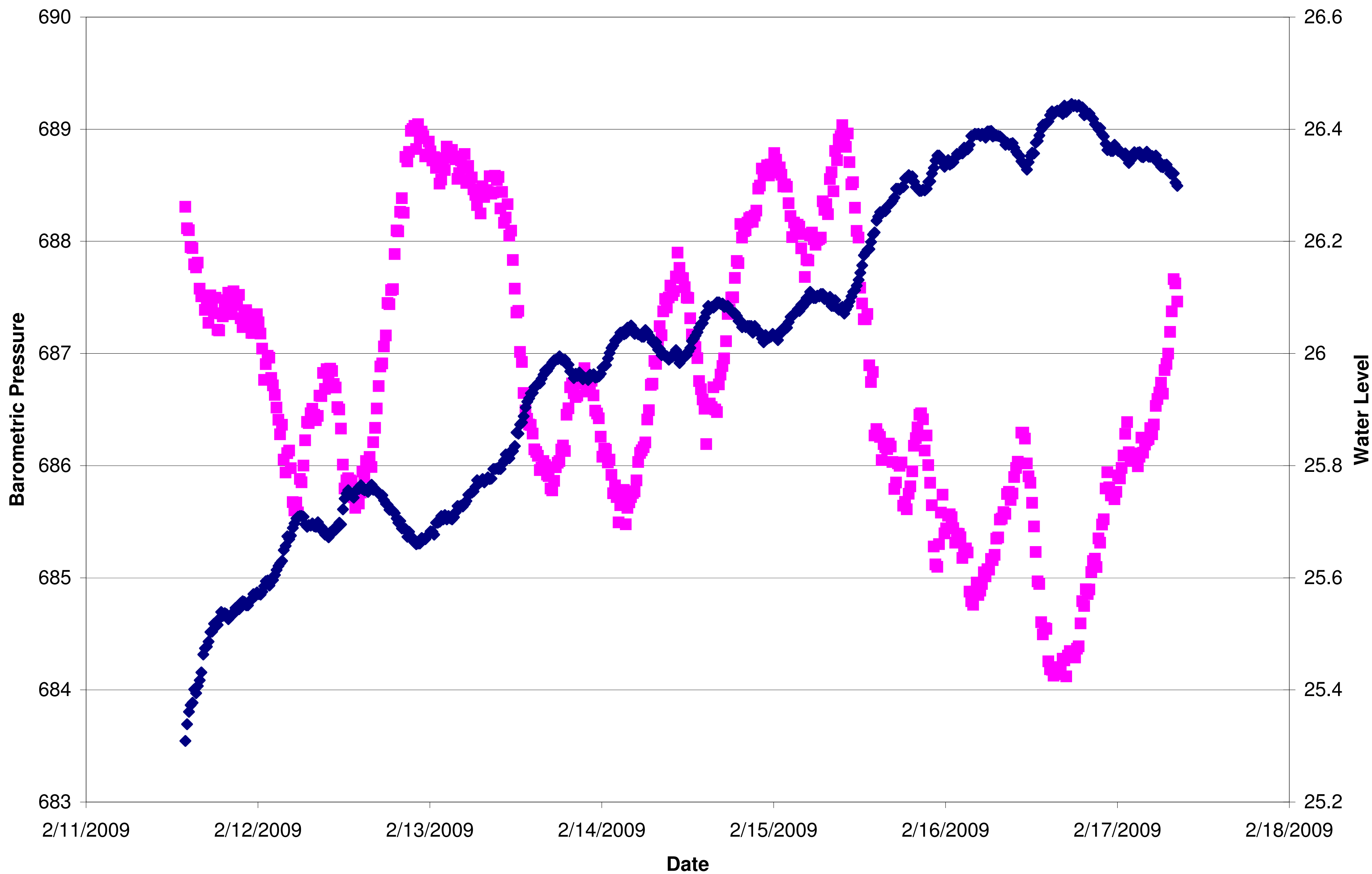

HYDRO GEO CHEM, INC.

ESP-5 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
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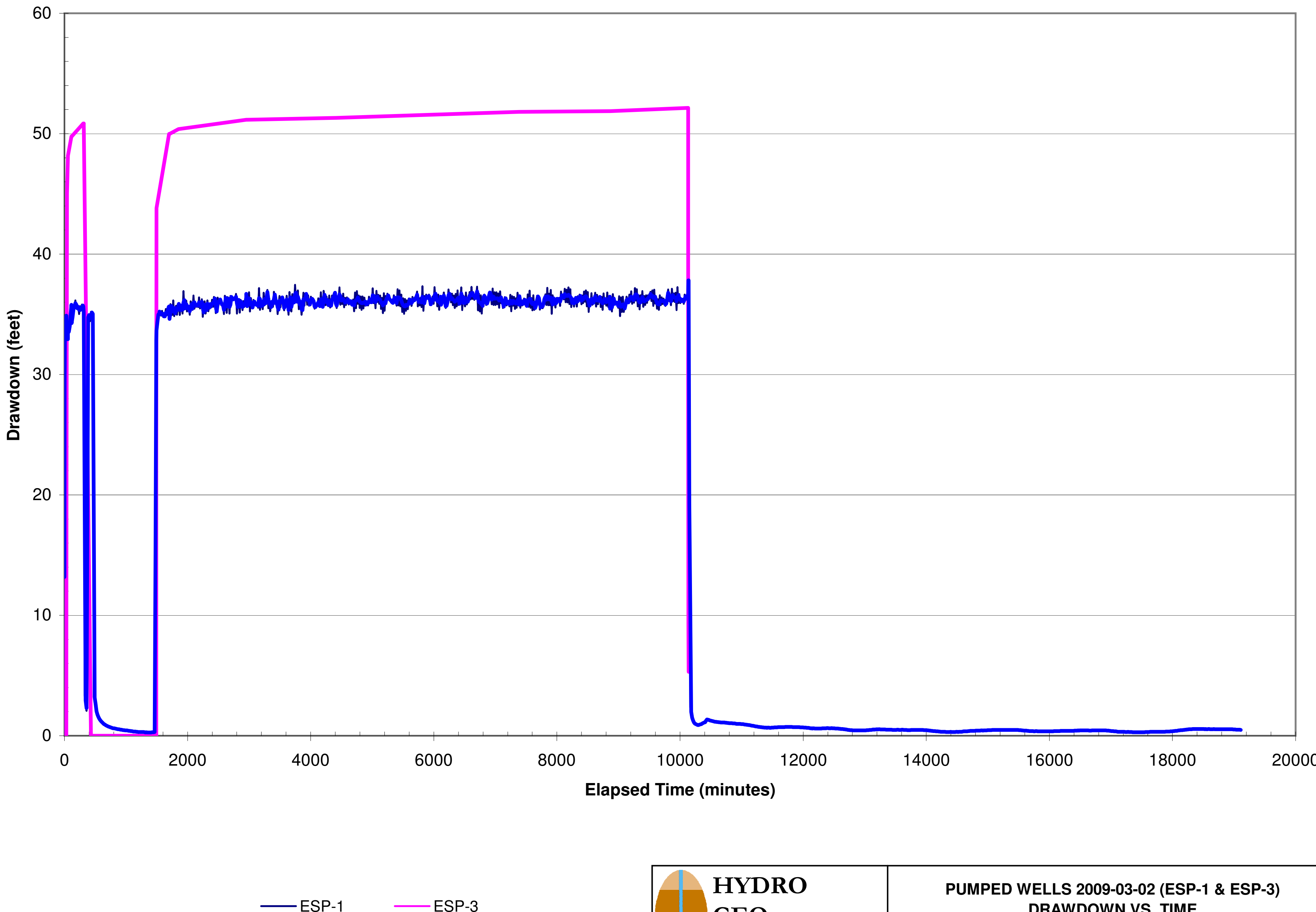

HYDRO GEO CHEM, INC.

PUMPED WELLS 2009-03-02 (ESP-1 & ESP-3) DRAWDOWN VS. TIME					
Approved	Date	Author	Date	File Name	Figure
MWK	4/21/09	MWK	4/21/09	ESP-1_ESP-3	B.1 ESP-

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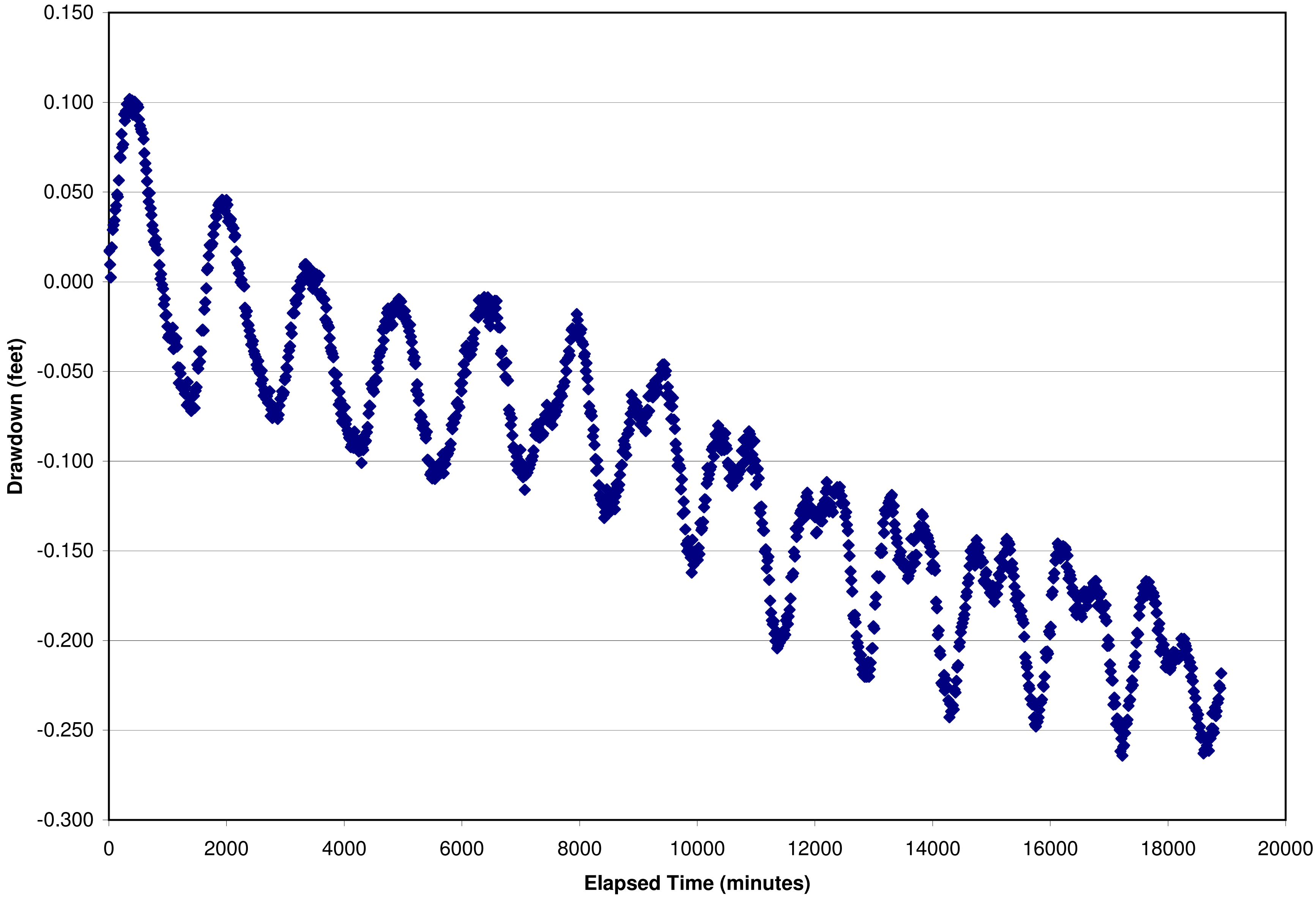
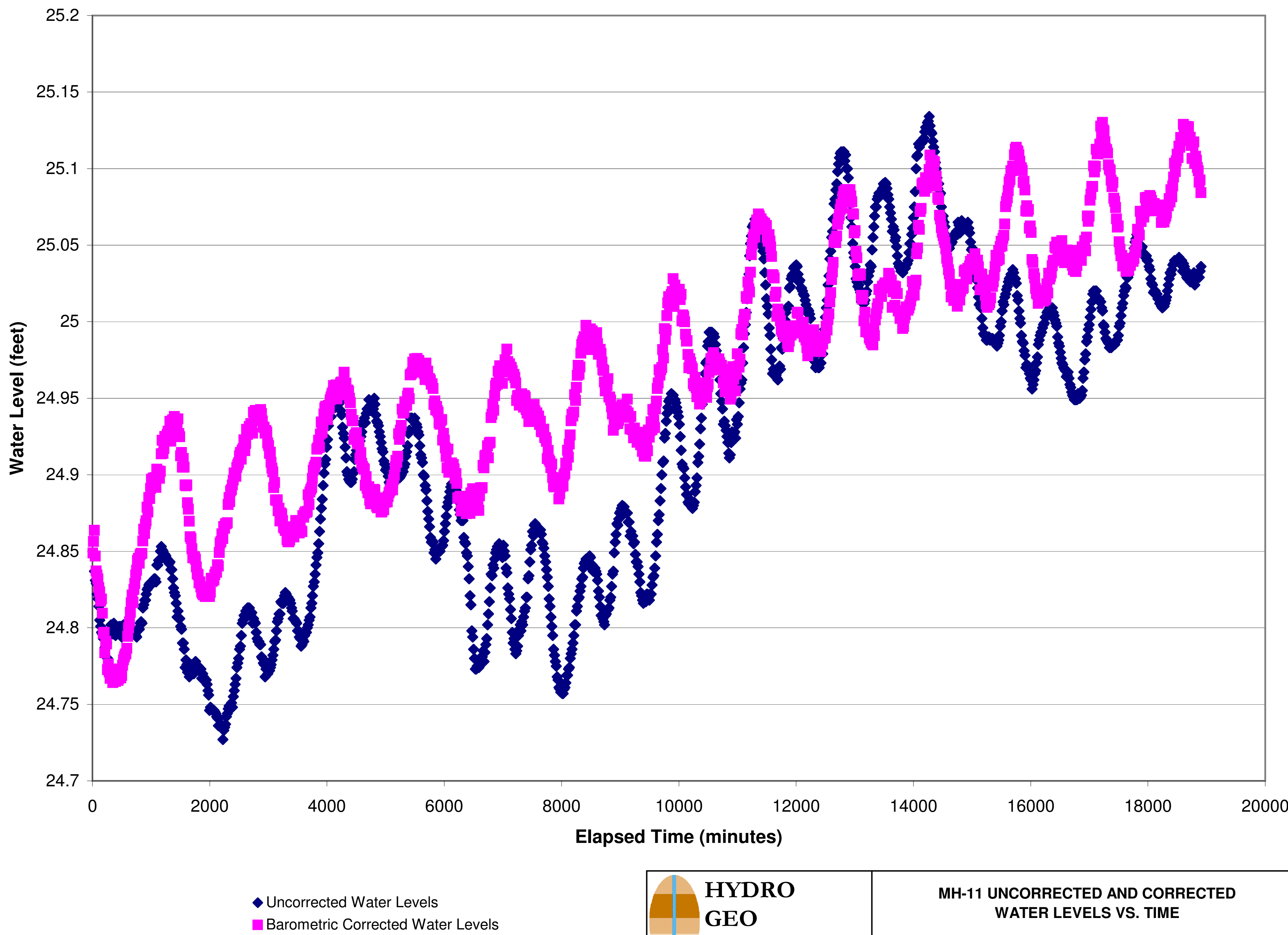
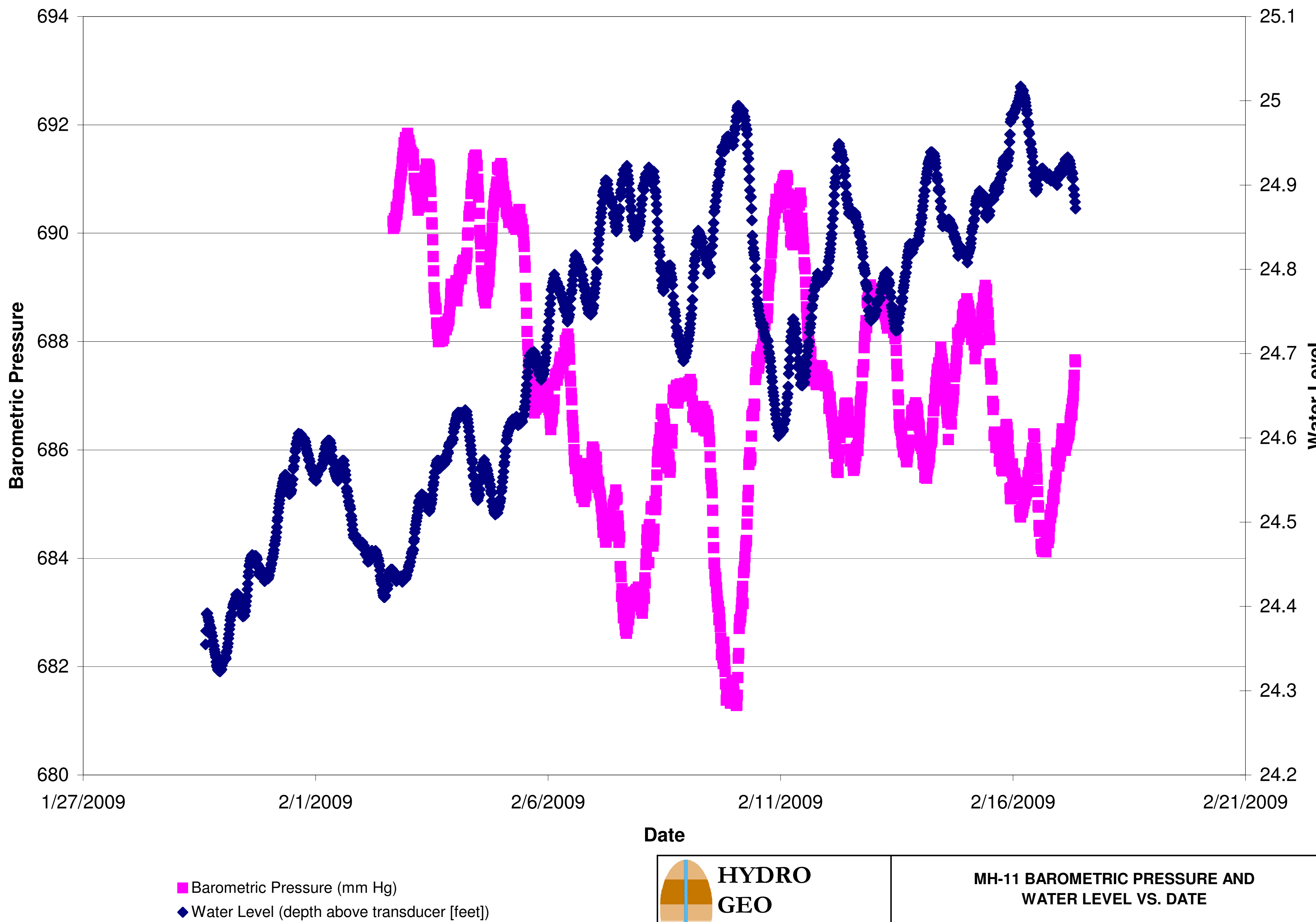


HYDRO GEO CHEM, INC.	MH-11 CORRECTED DRAWDOWN VS. TIME				
Approved MWK	Date 4/21/09	Author MWK	Date 4/21/09	File Name MH-11 2009-03-02	Figure B.1 MH-11



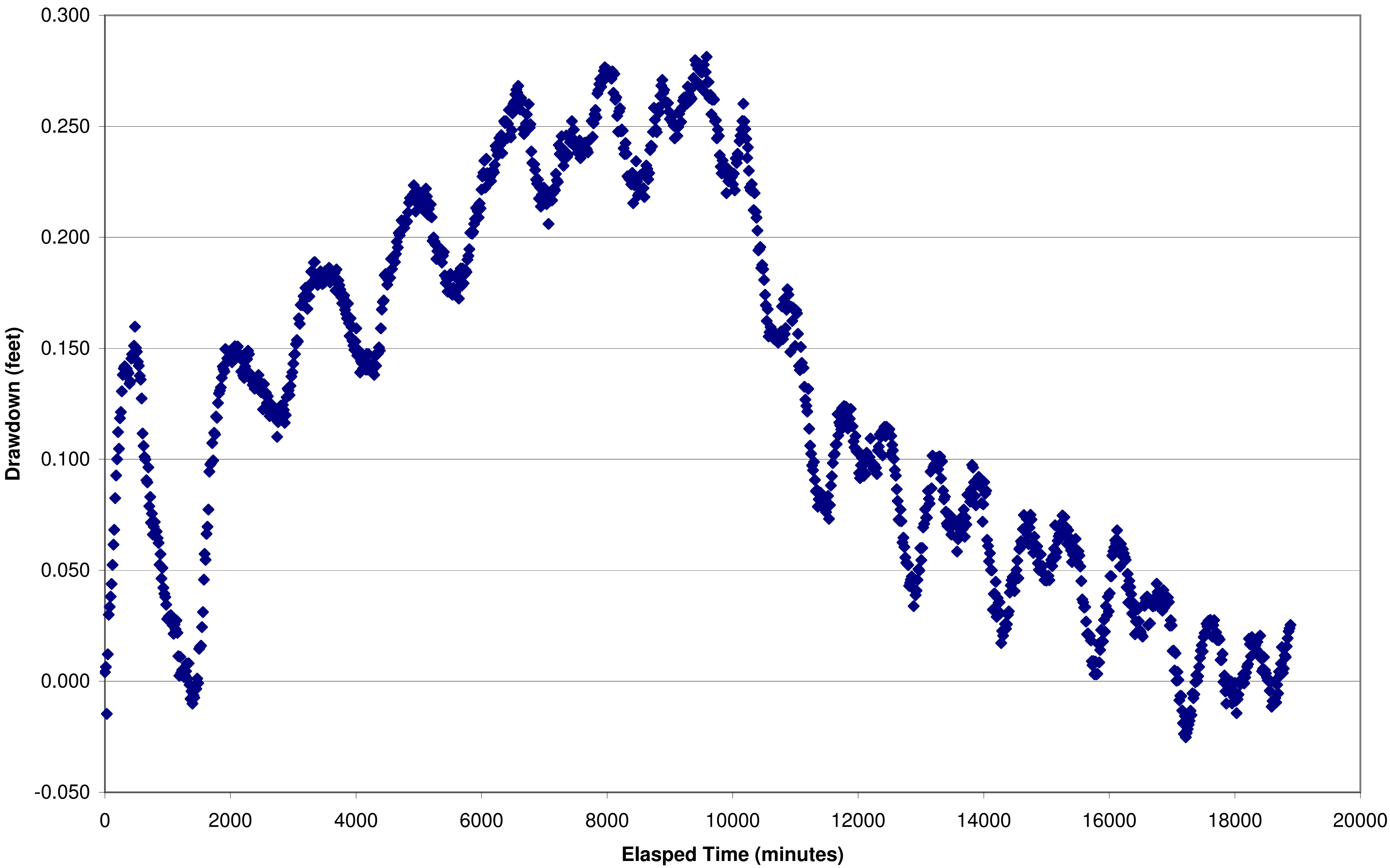
HYDRO GEO CHEM, INC.

MH-11 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-11 2009-03-02	Figure B.2 MH-11



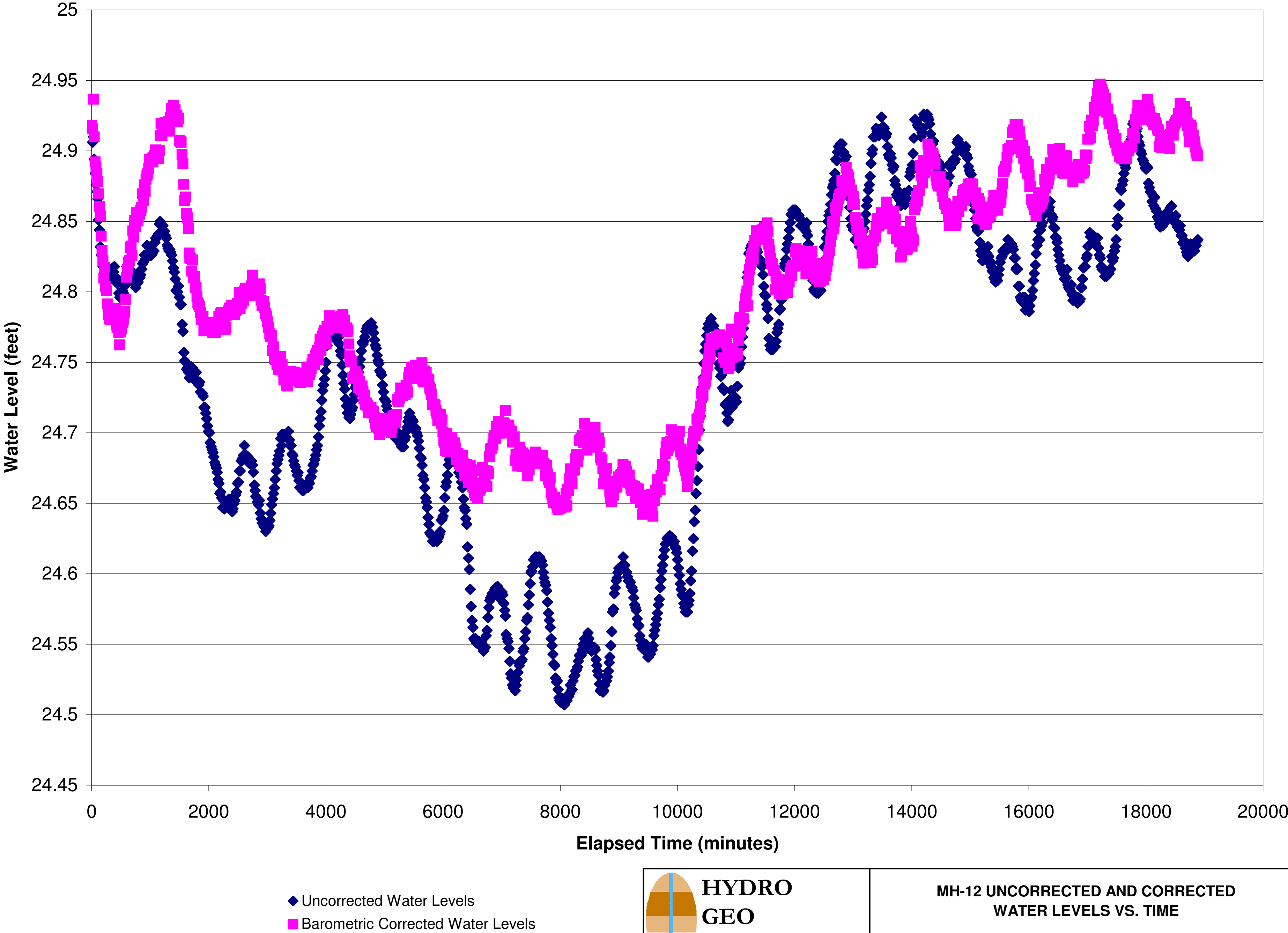
HYDRO GEO CHEM, INC.

MH-11 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-11 2009-03-02	Figure B.3 MH-11

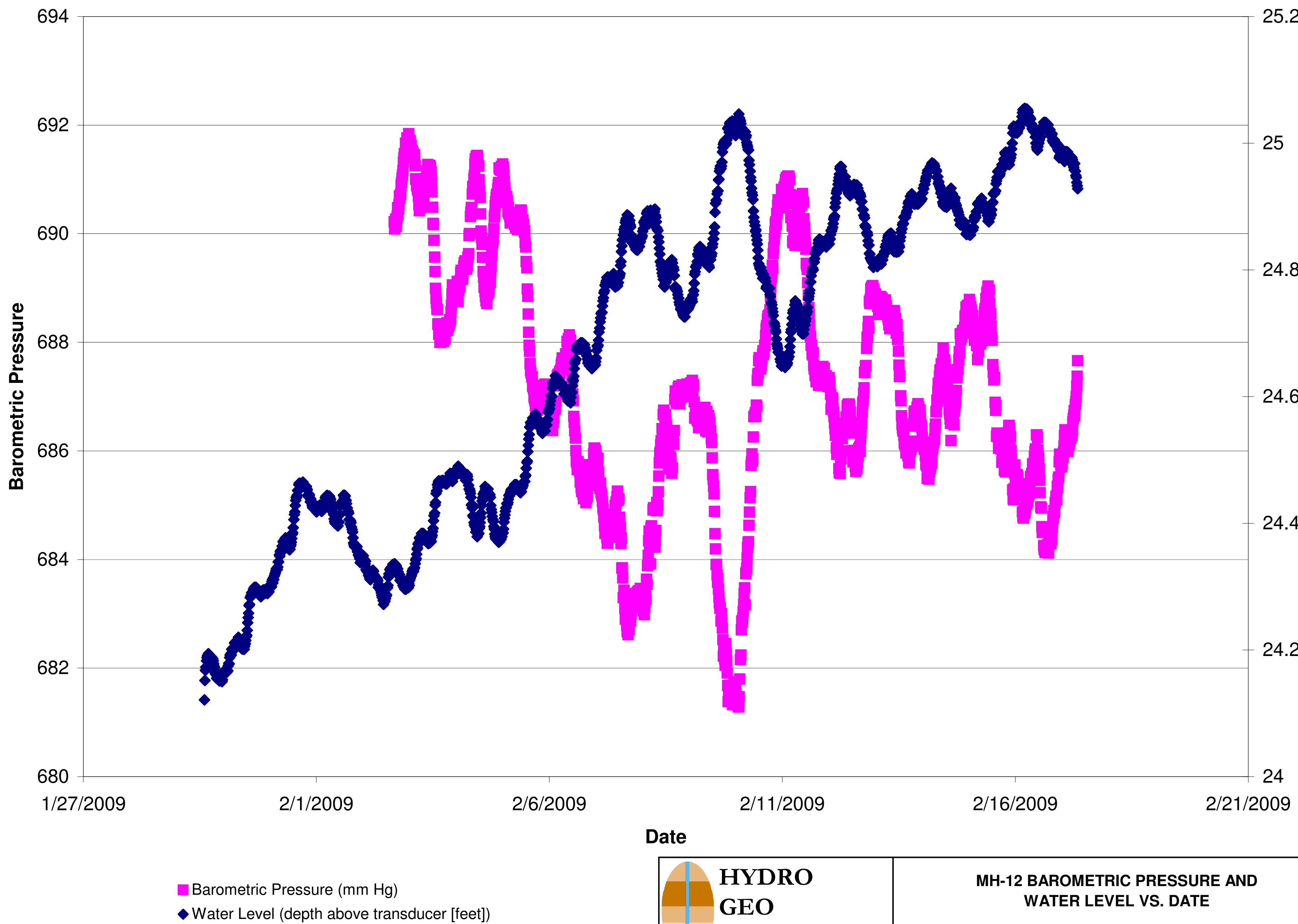


HYDRO GEO CHEM, INC.

MH-12 CORRECTED DRAWDOWN VS. TIME					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-12 2009-03-02	Figure B.1 MH-12



HYDRO GEO CHEM, INC.	MH-12 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-12 2009-03-02	Figure B.2 MH-12



HYDRO GEO CHEM, INC.

MH-12 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
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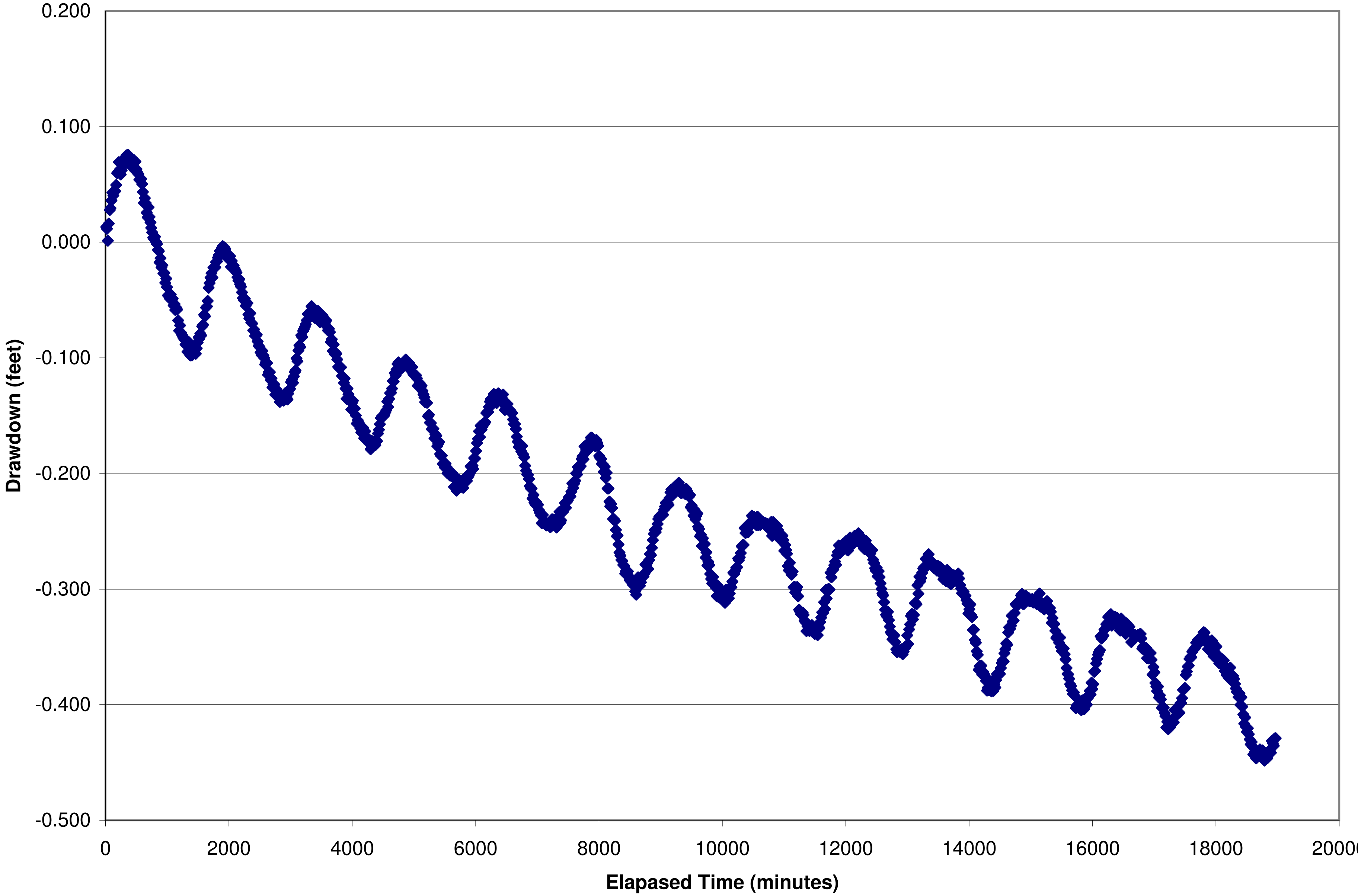

HYDRO GEO CHEM, INC.

MH-13A CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-13A 2009-03-02	B.1 MH-13A

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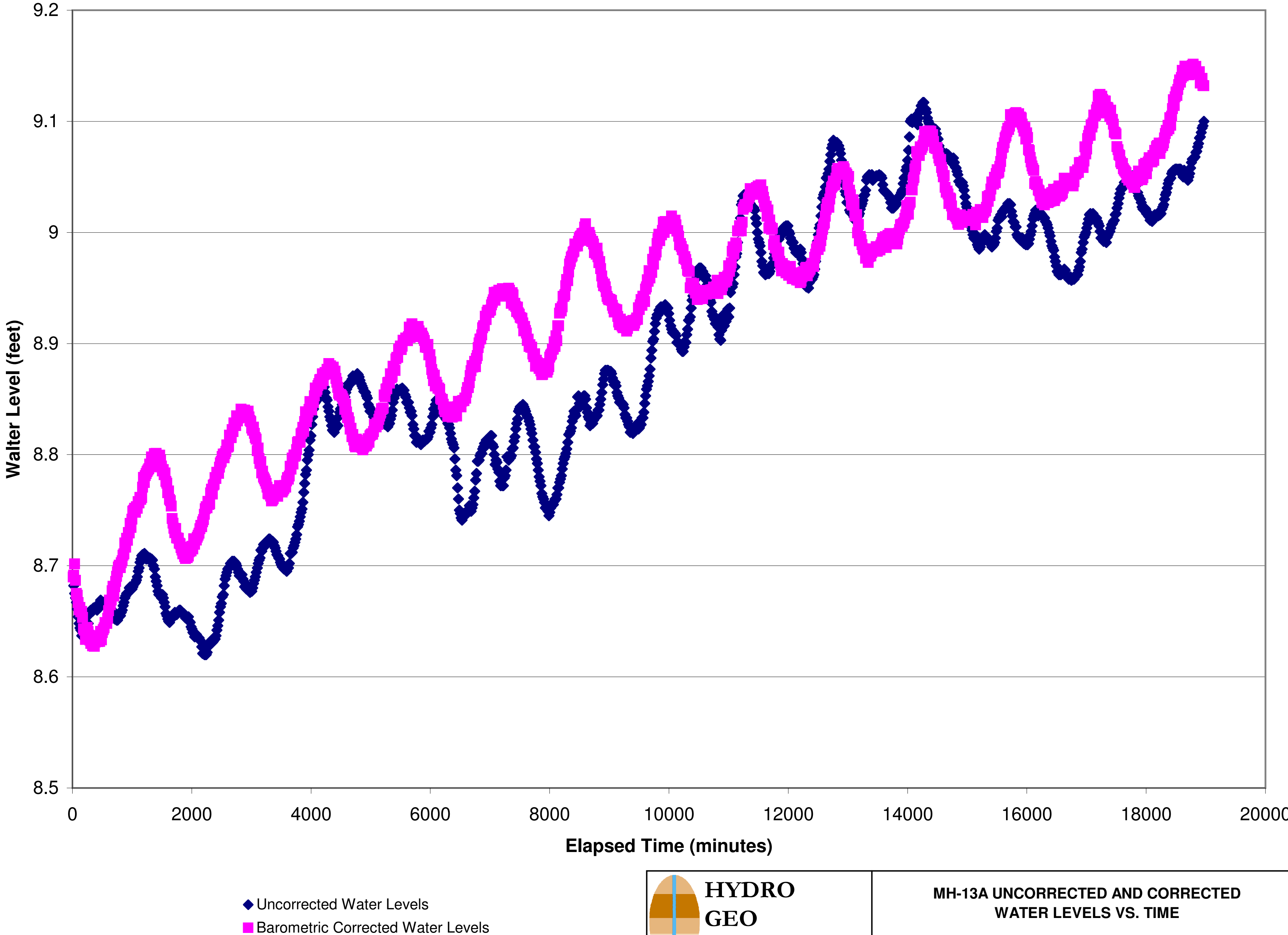

HYDRO GEO CHEM, INC.

MH-13A UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME					
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-13A 2009-03-02	B.2 MH-13A

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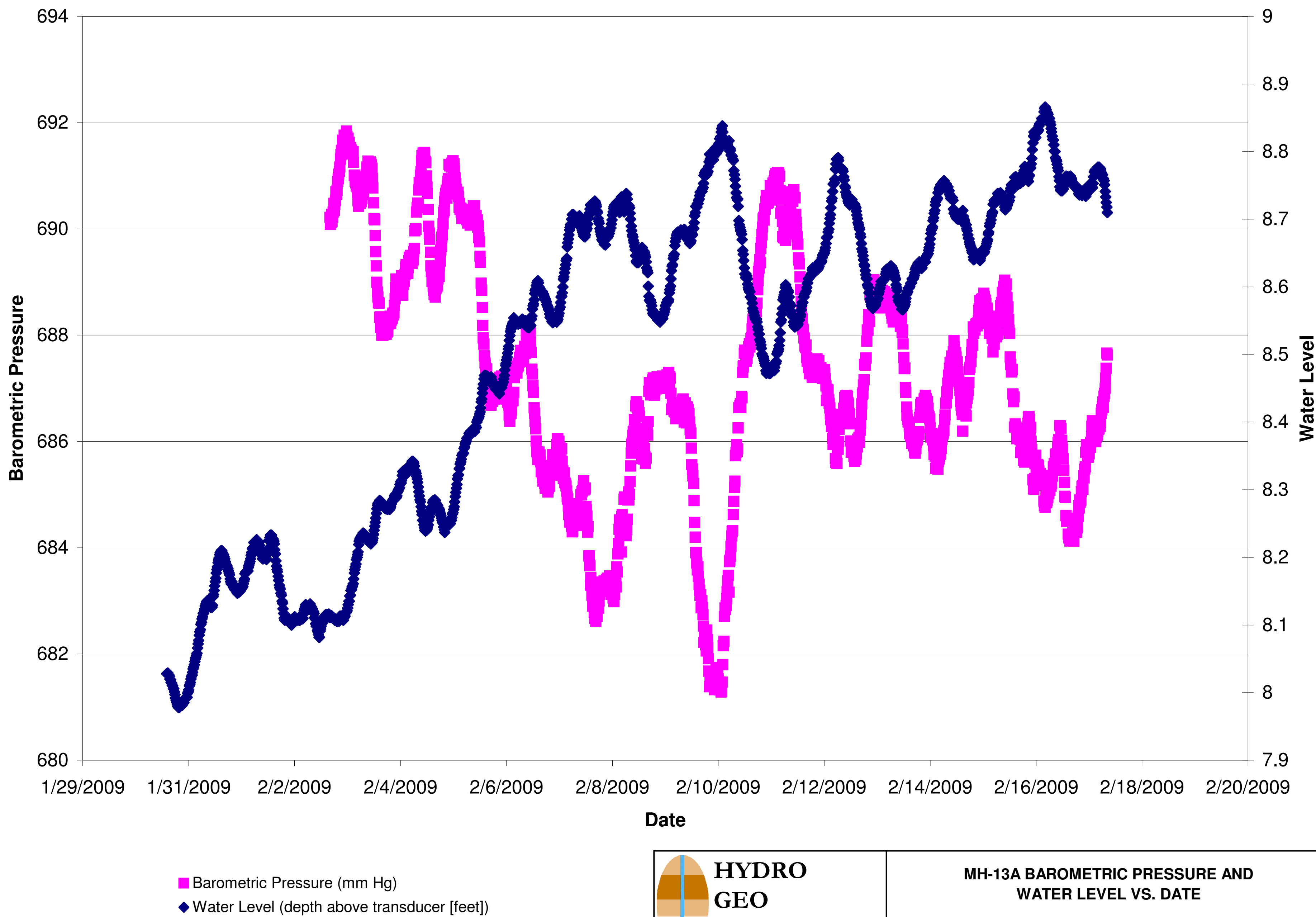
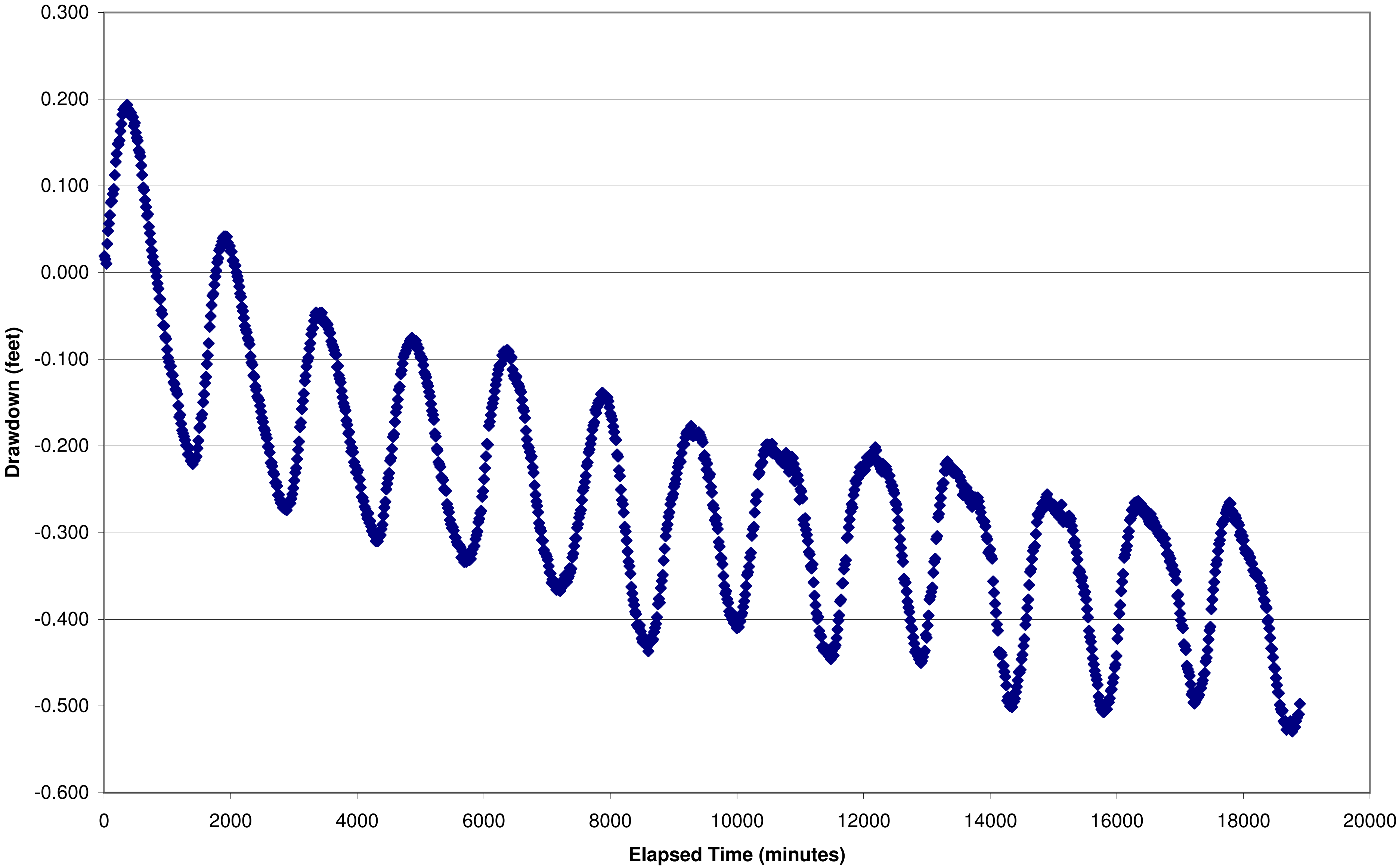


HYDRO GEO CHEM, INC.	MH-13A BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-13A 2009-03-02	Figure B.3 MH-13A	



HYDRO GEO CHEM, INC.

MH-13B CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-13B 2009-03-02	B1 MH-13B

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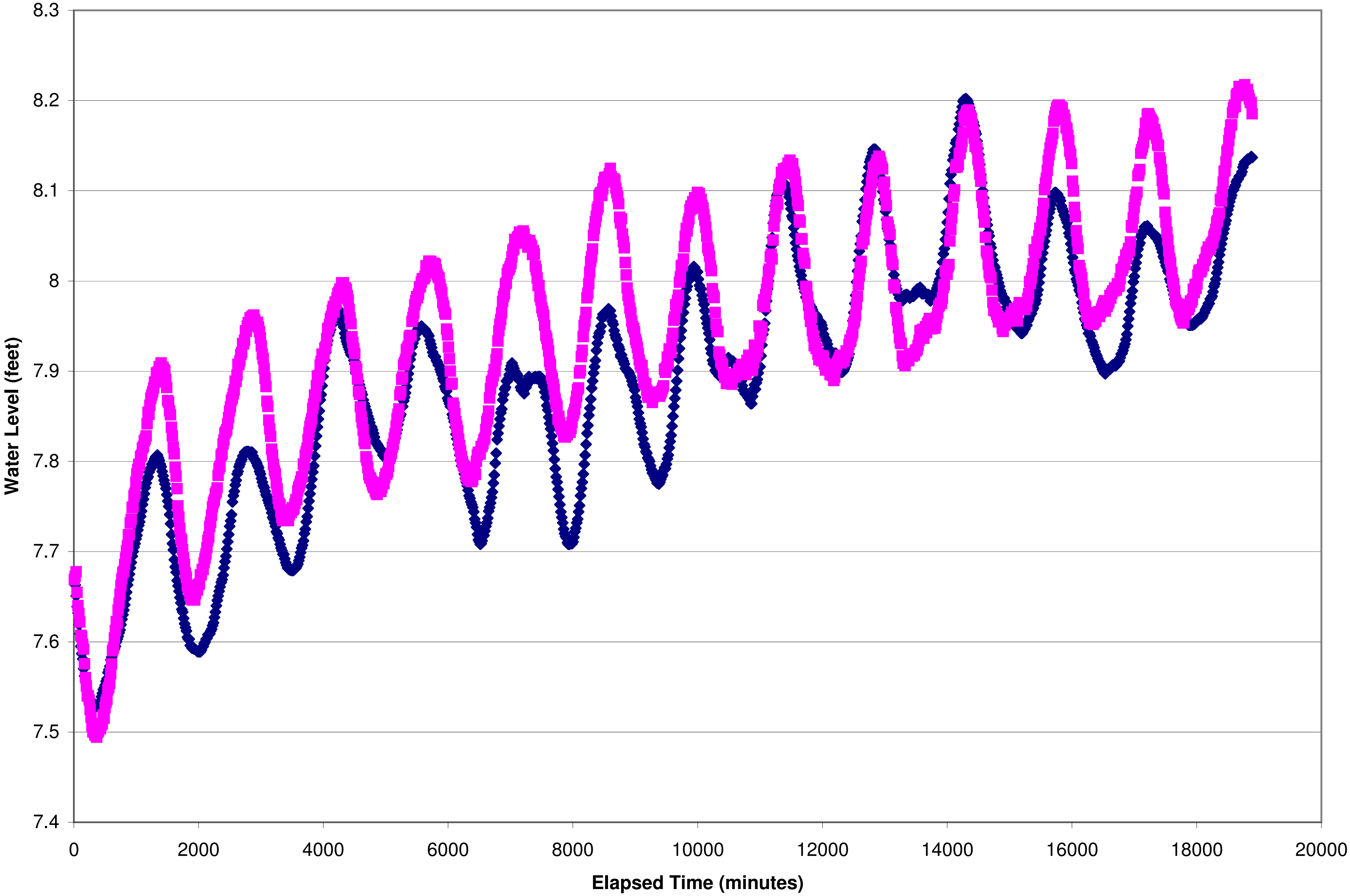
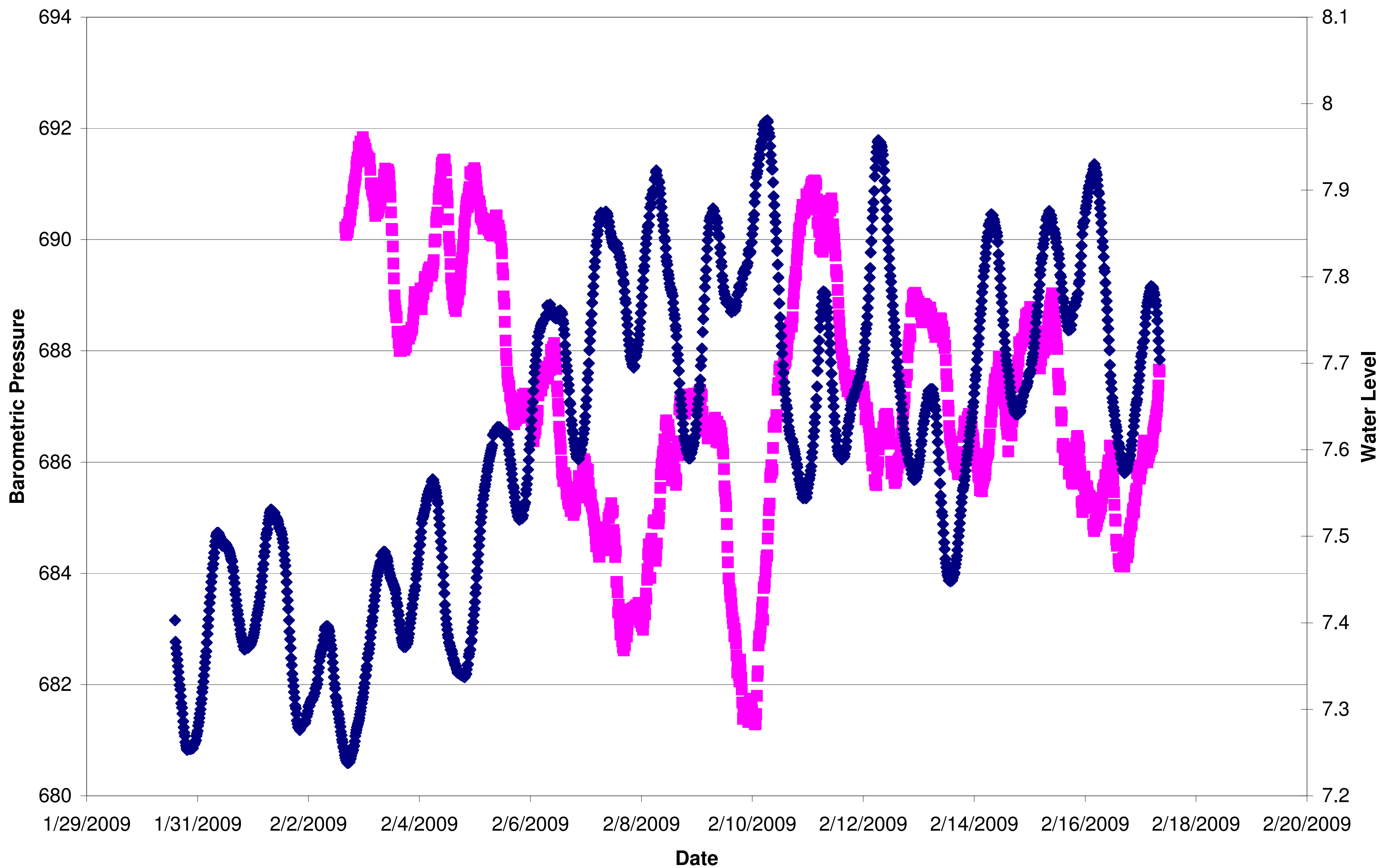


HYDRO GEO CHEM, INC.

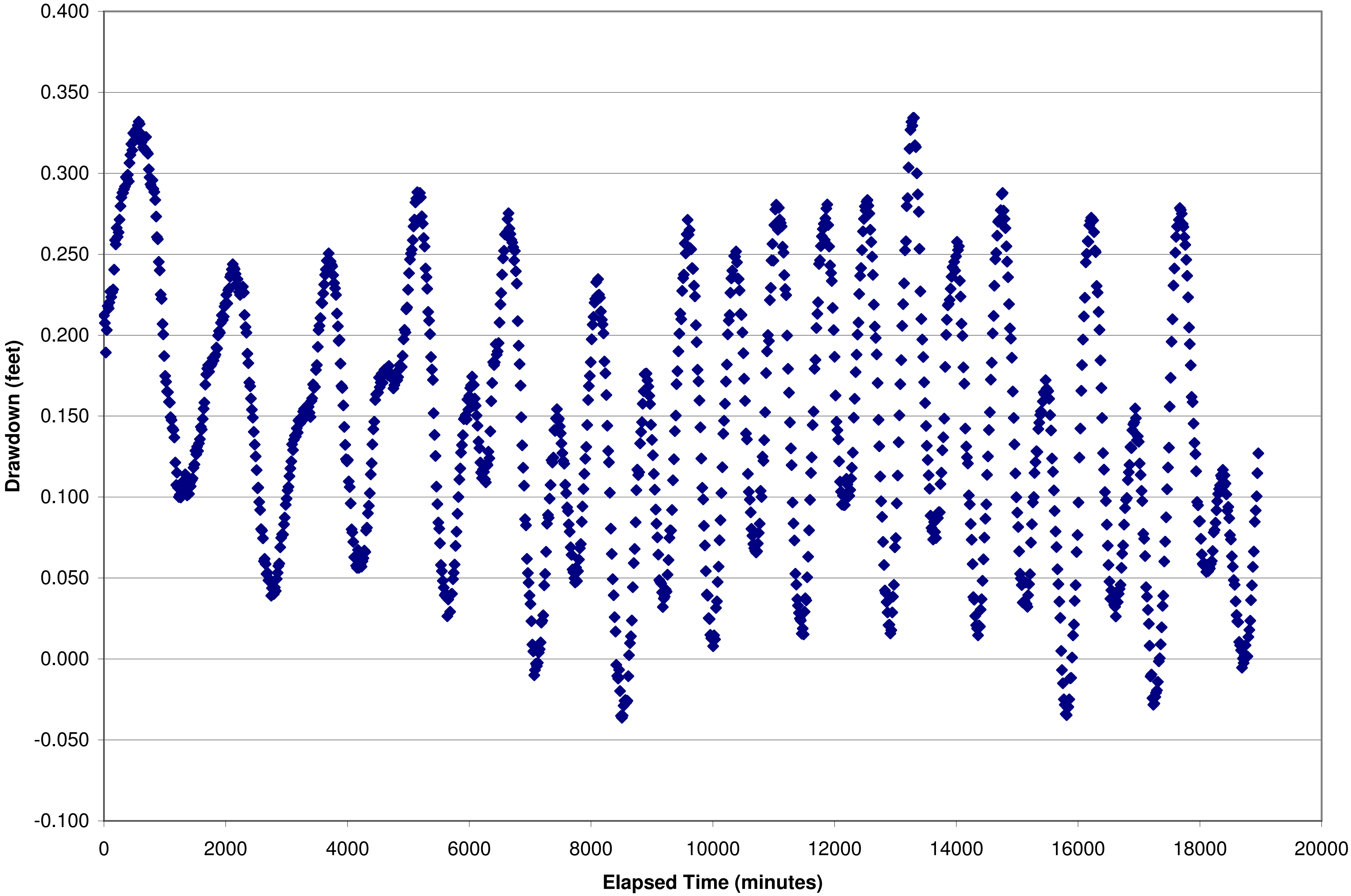
MH-13B UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-13B 2009-03-02	Figure B.2 MH-13B



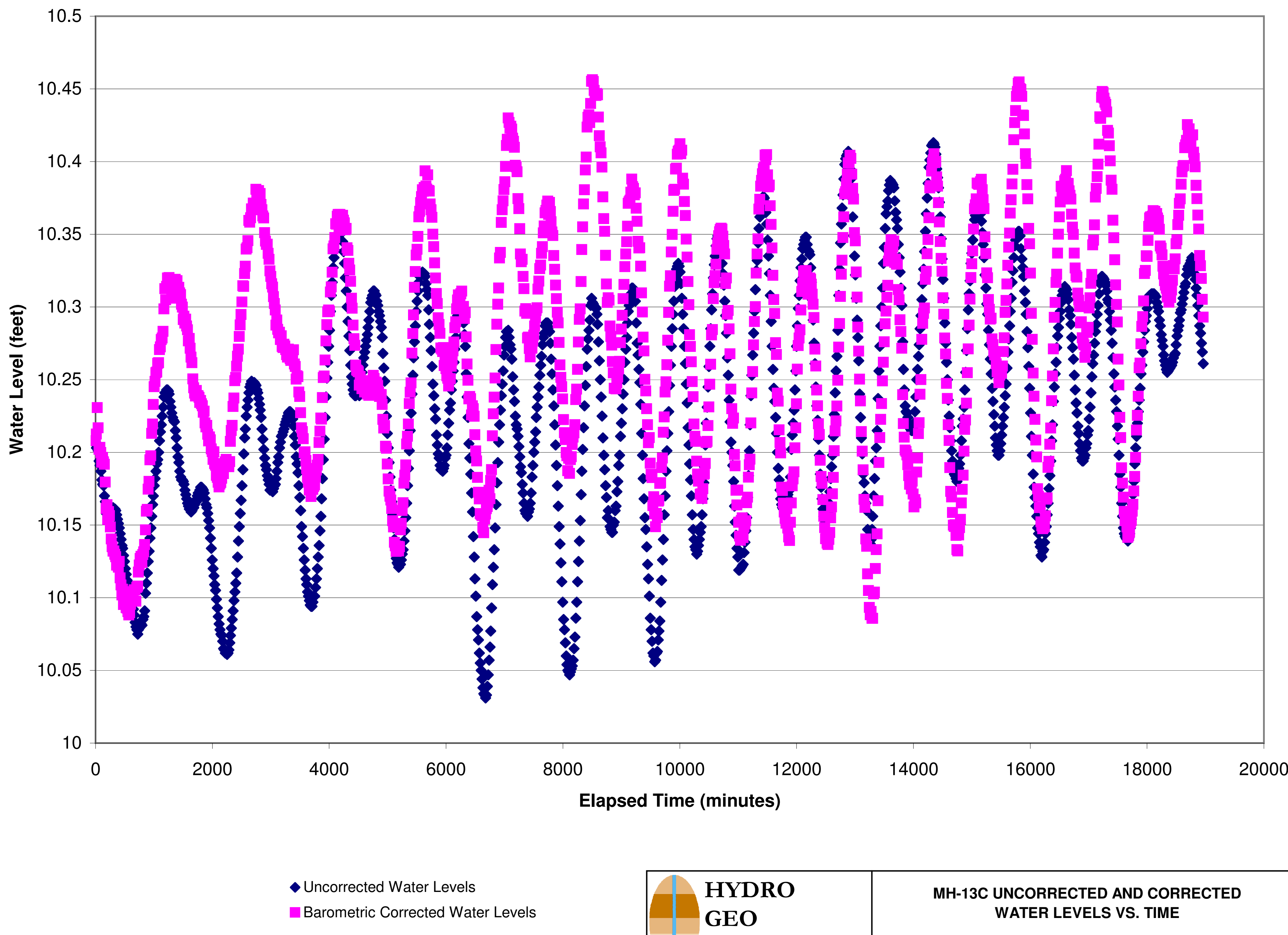
HYDRO GEO CHEM, INC.

MH-13B BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-13B 2009-03-02	B.3 MH-13B



HYDRO GEO CHEM, INC.	MH-13C CORRECTED DRAWDOWN VS. TIME				
Approved MWK	Date 5/27/09	Author MWK	Date 5/27/09	File Name MH-13C 2009-03-02	Figure B.1 MH-13C



HYDRO GEO CHEM, INC.

MH-13C UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
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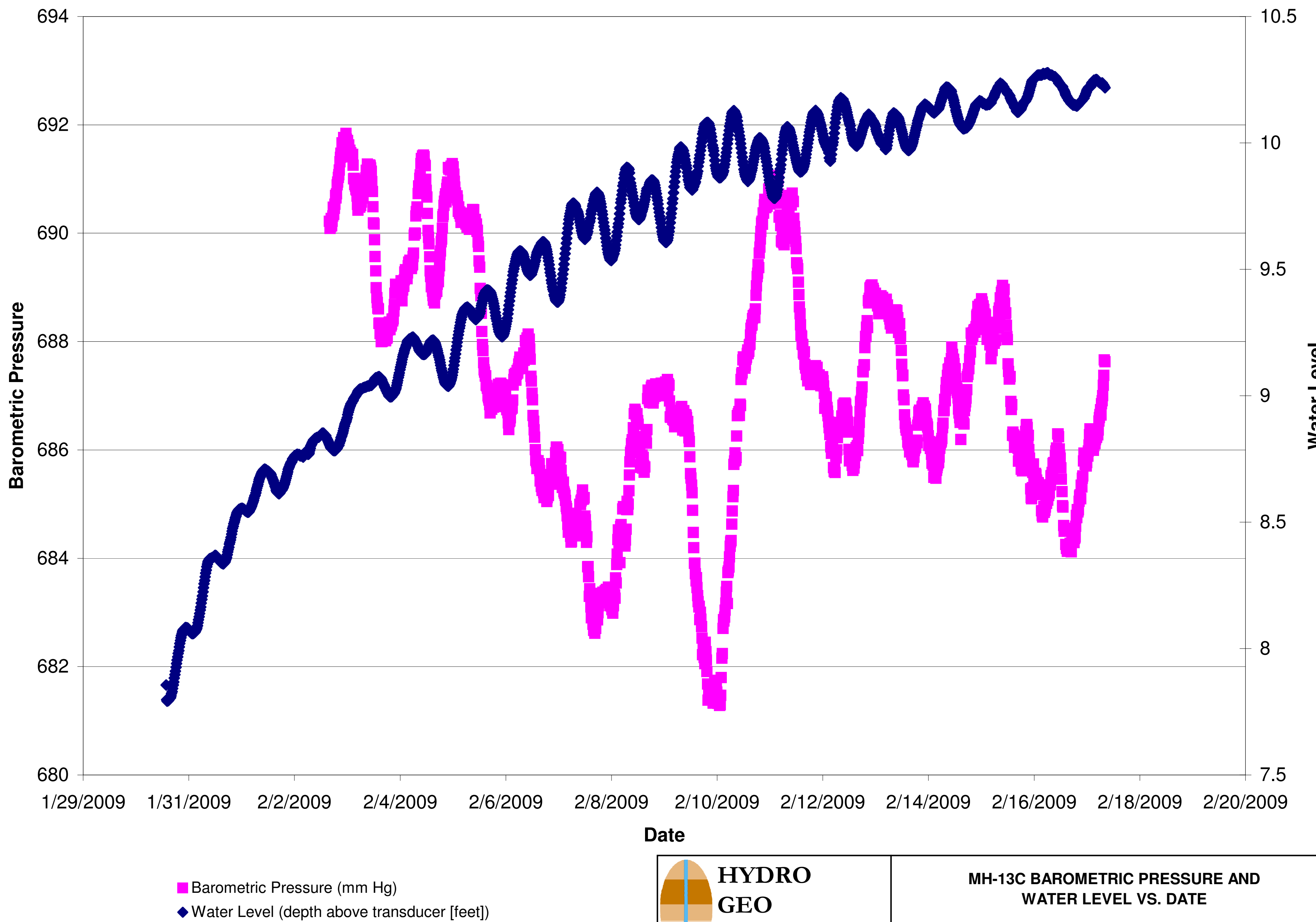
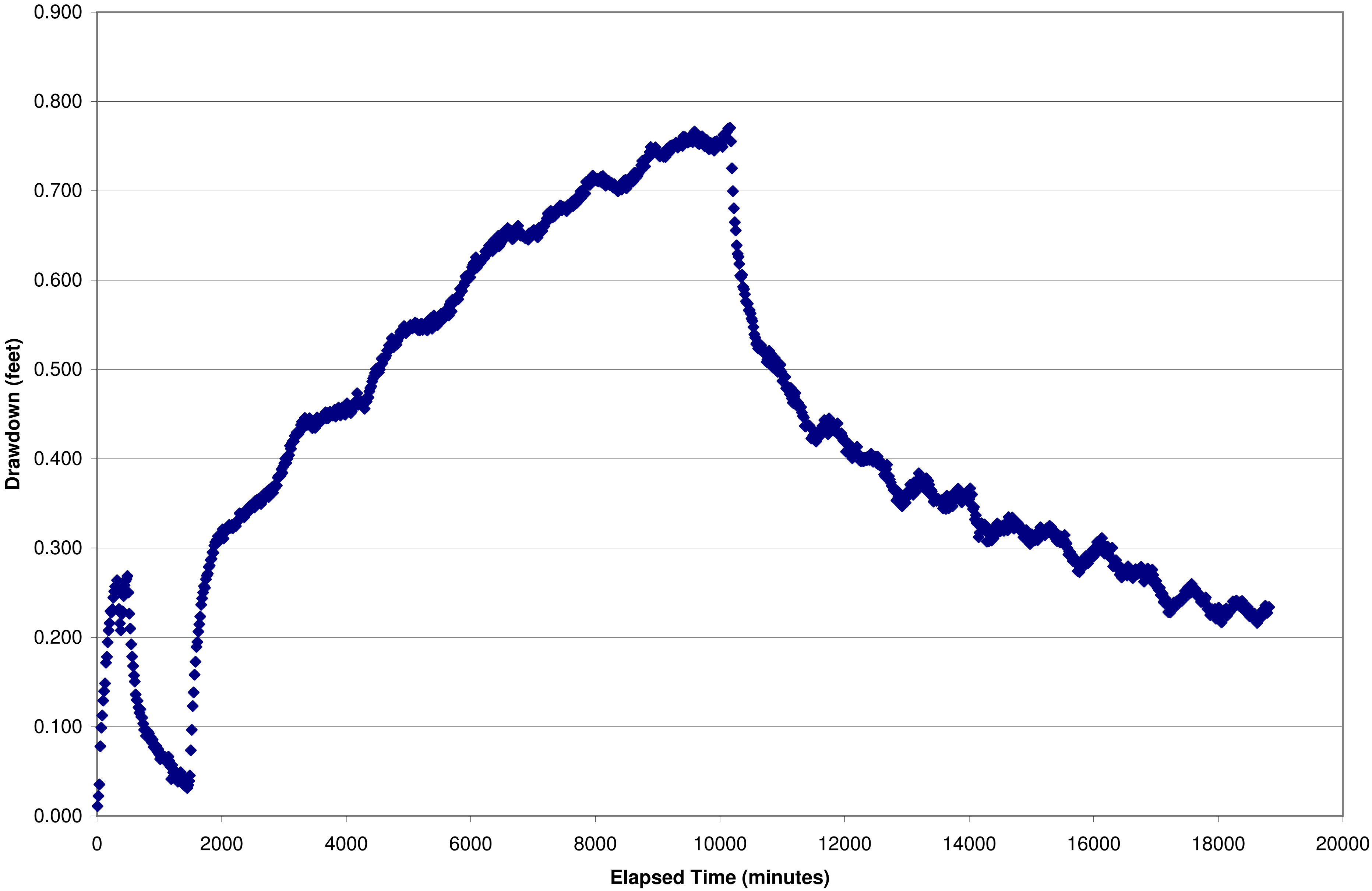


HYDRO GEO CHEM, INC.	MH-13C BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-13C 2009-03-02	Figure B.3 MH-13C	



HYDRO GEO CHEM, INC.

MH-25A CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
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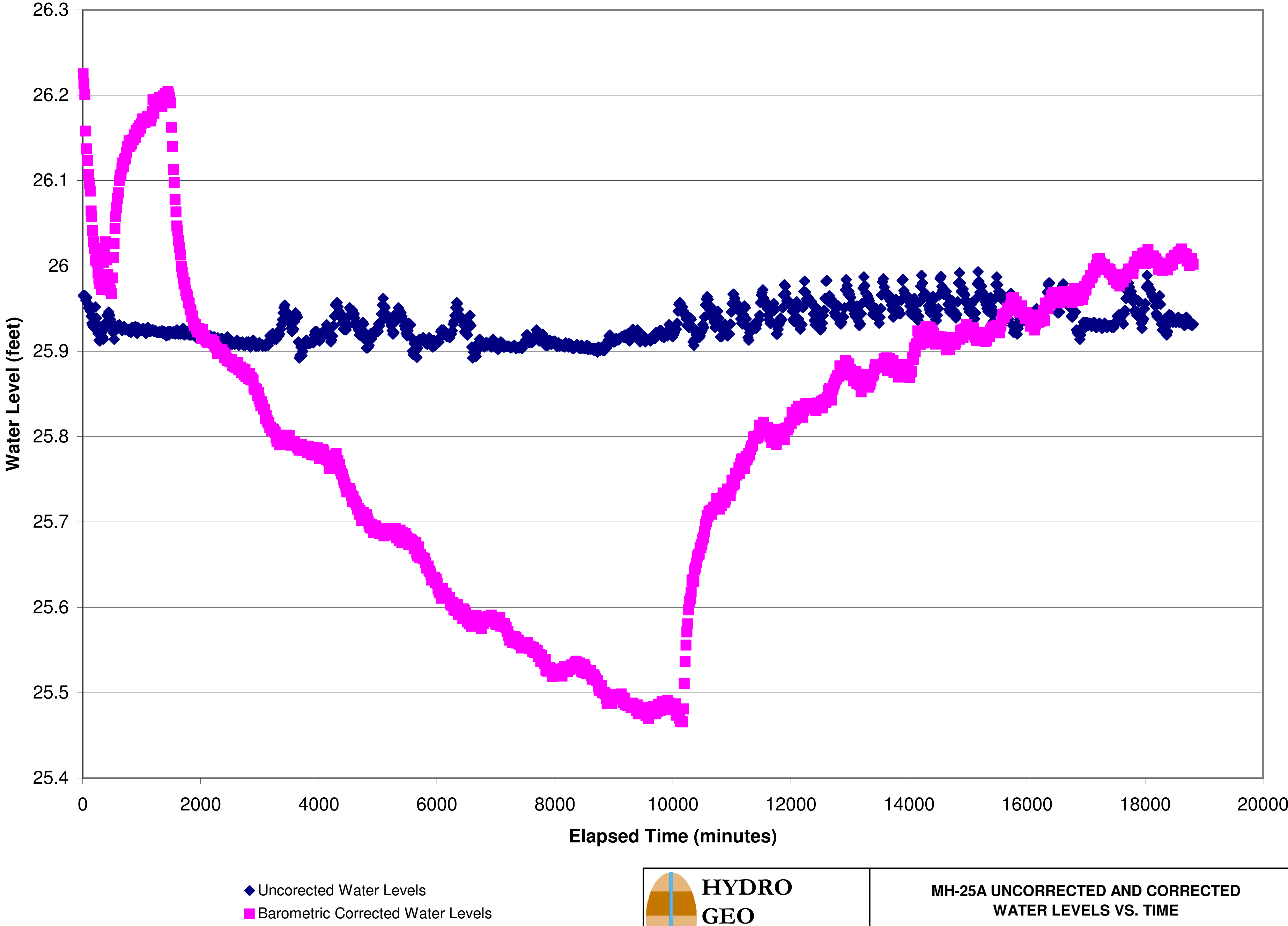

HYDRO GEO CHEM, INC.

MH-25A UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
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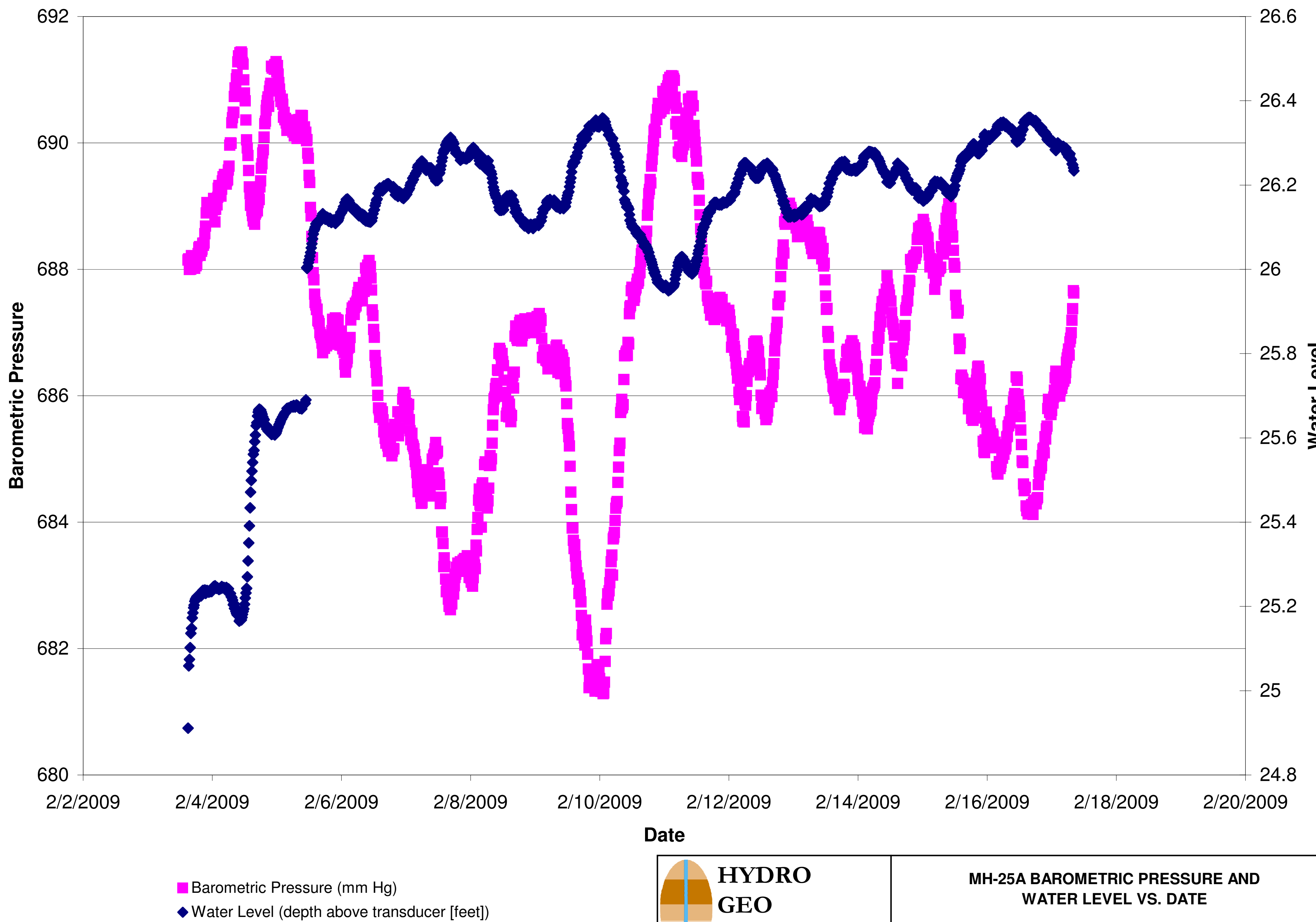
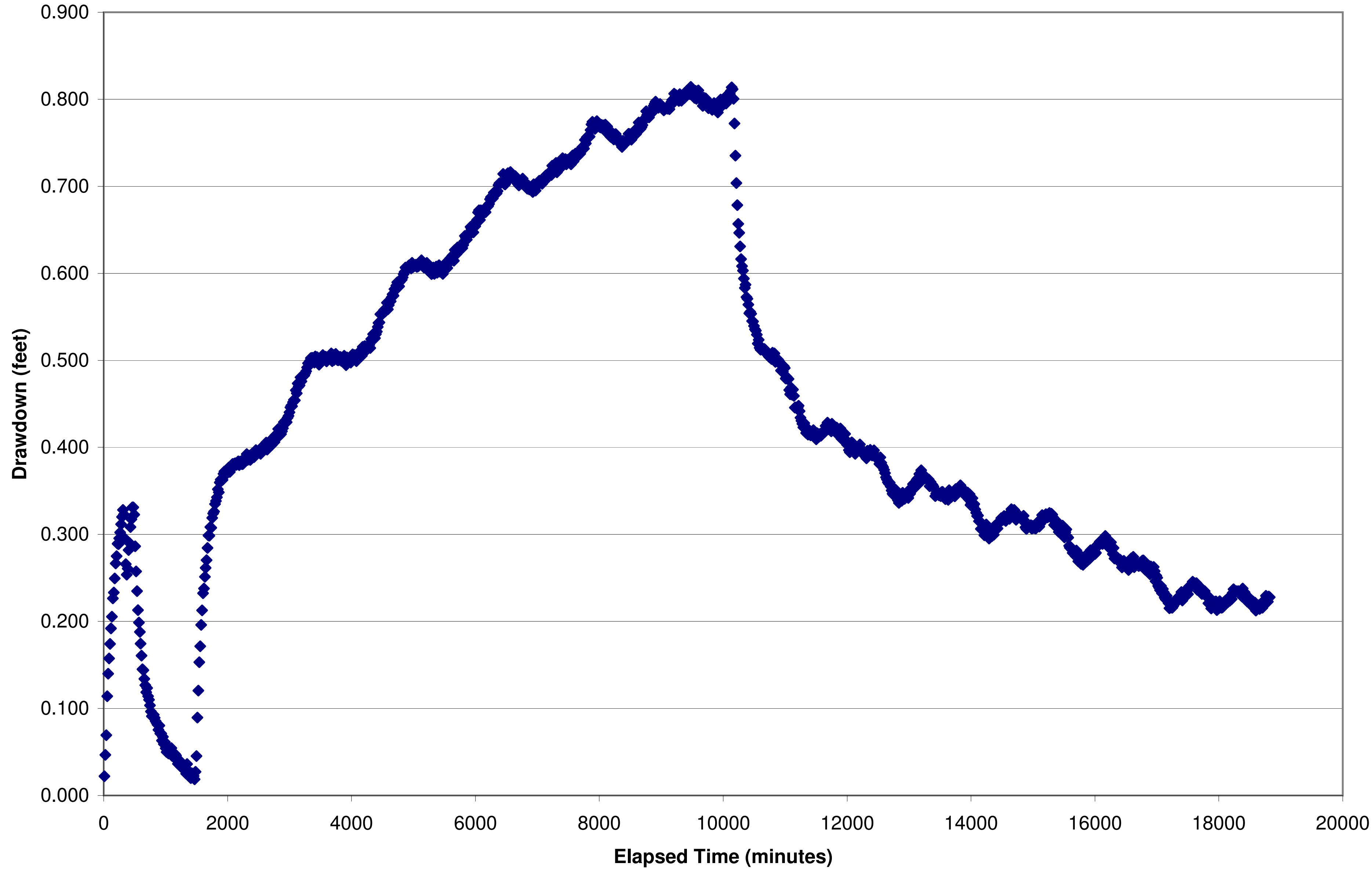


HYDRO GEO CHEM, INC.	MH-25A BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-25A 2009-03-02	Figure B.3 MH-25A



HYDRO GEO CHEM, INC.	MH-25B CORRECTED DRAWDOWN VS. TIME					
	Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-25B 2009-03-02	Figure MH-25B

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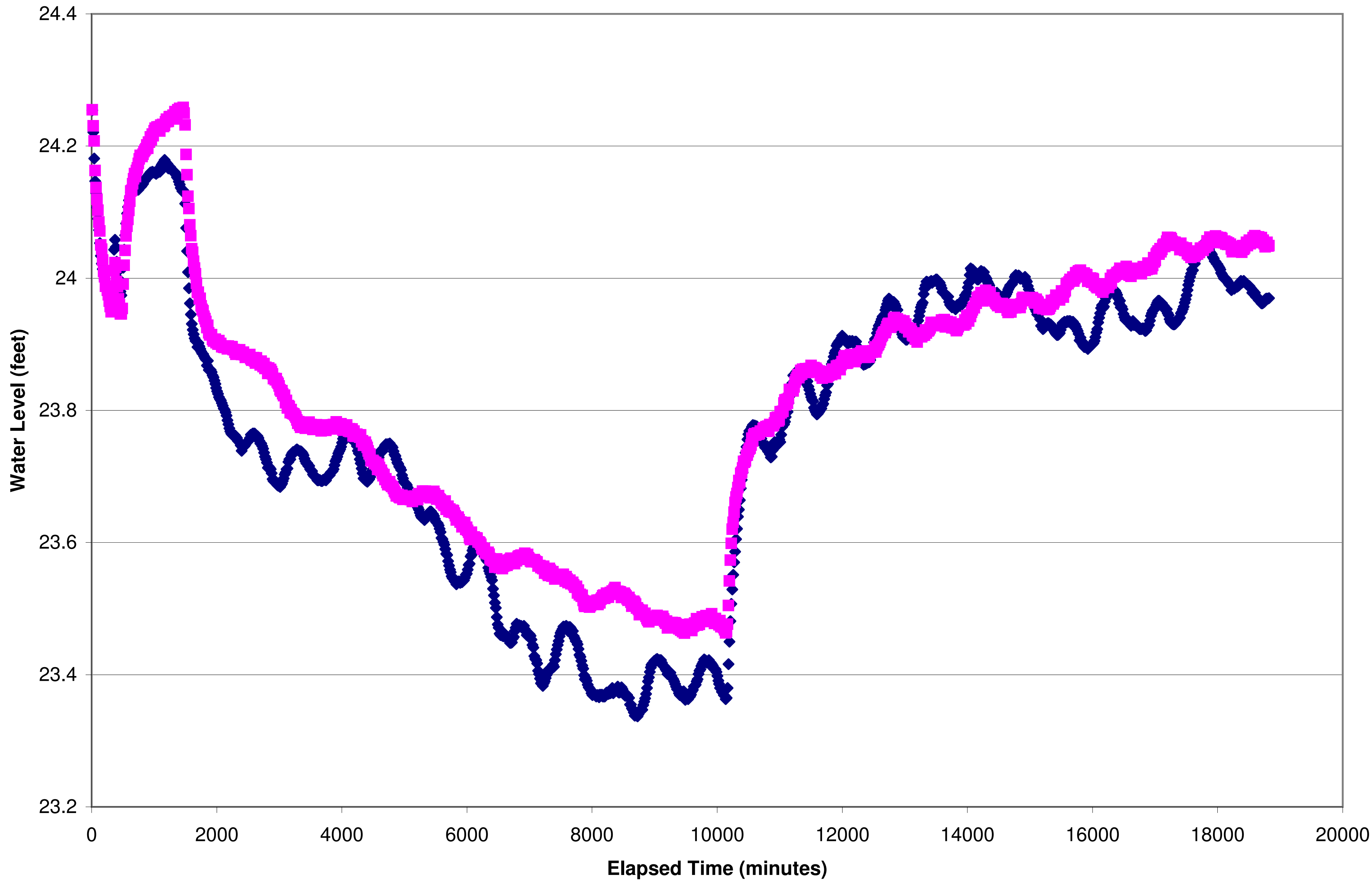

HYDRO GEO CHEM, INC.

MH-25B UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
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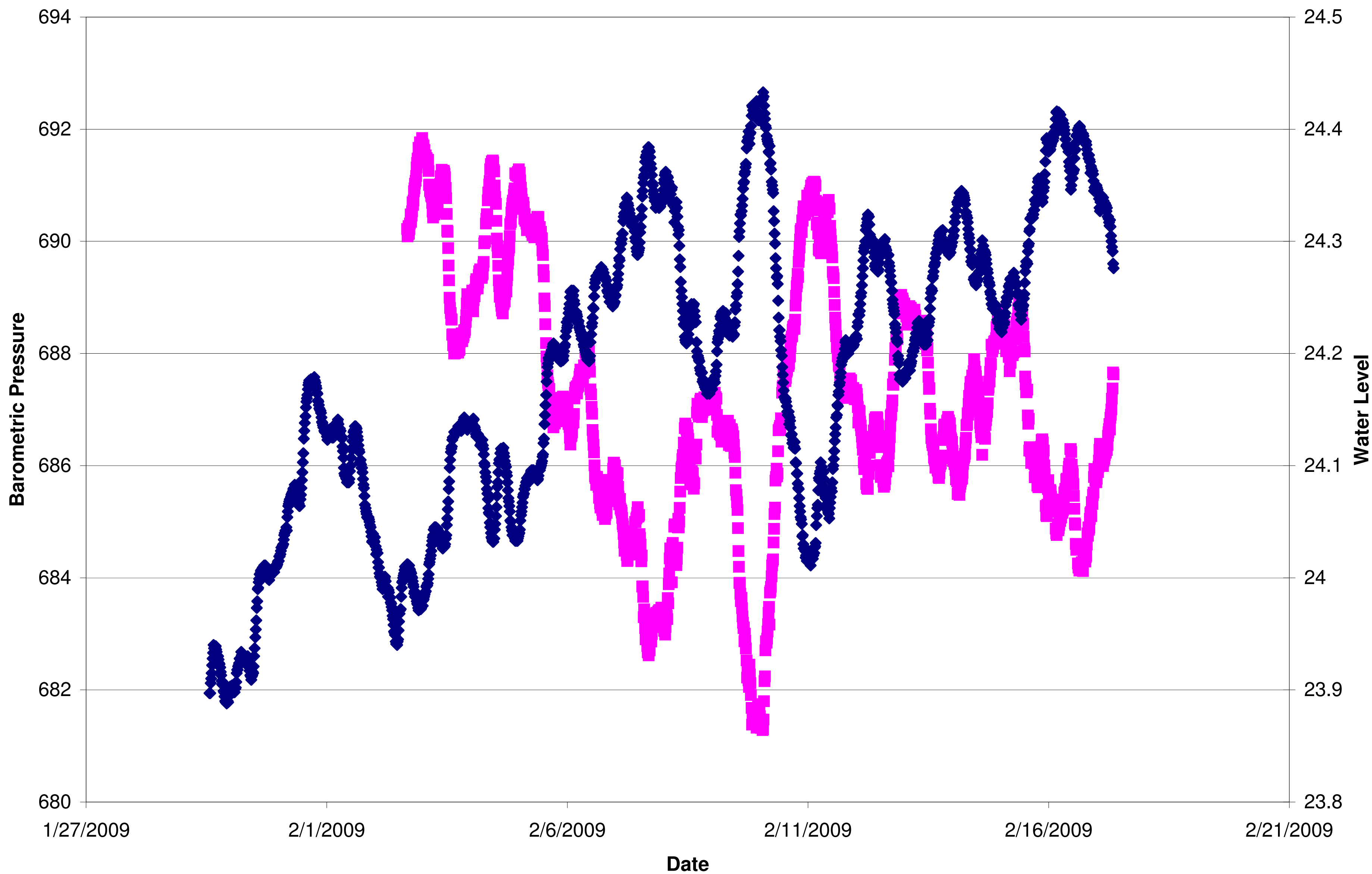

HYDRO GEO CHEM, INC.

MH-25B BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
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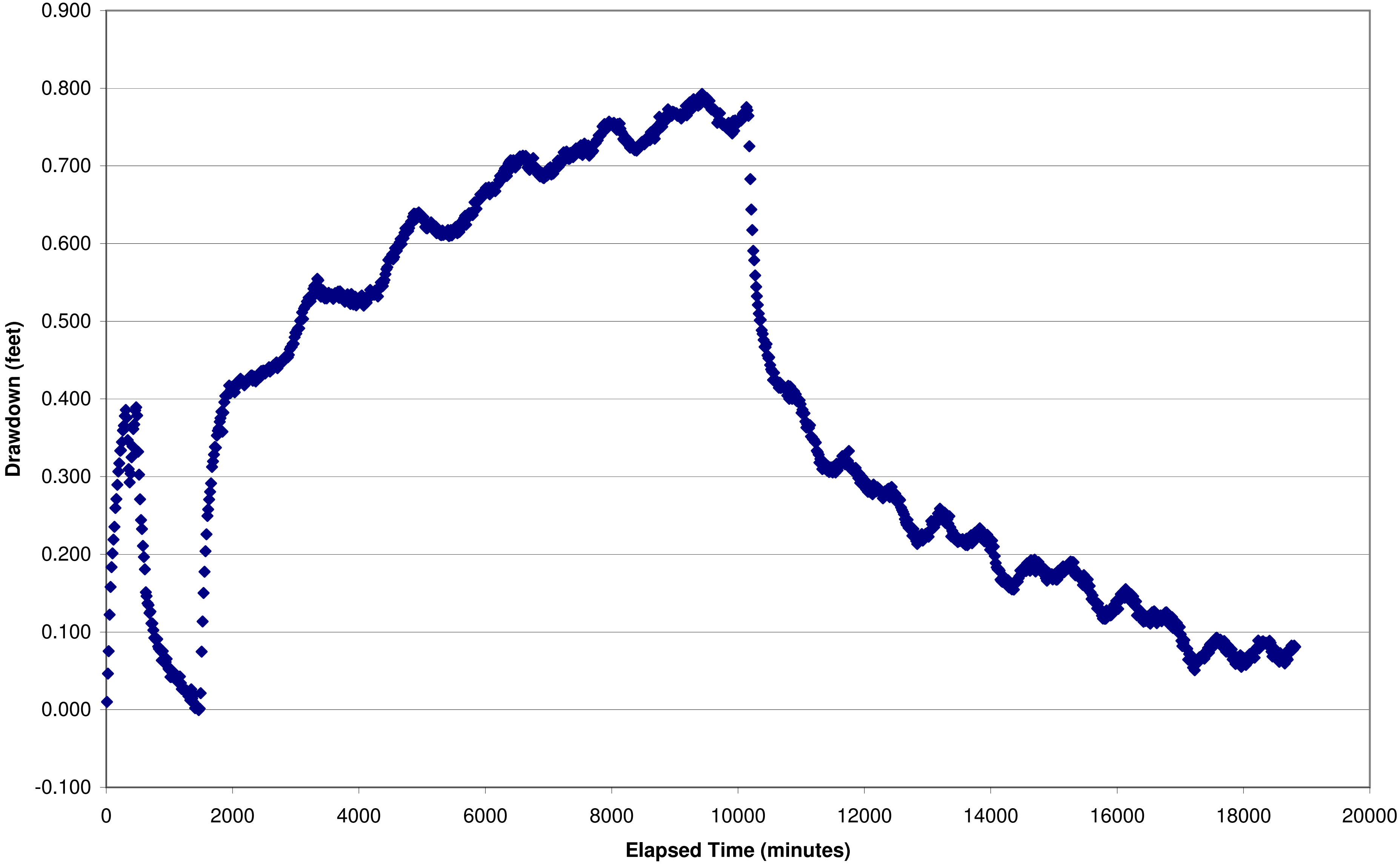

HYDRO GEO CHEM, INC.

MH-25C CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
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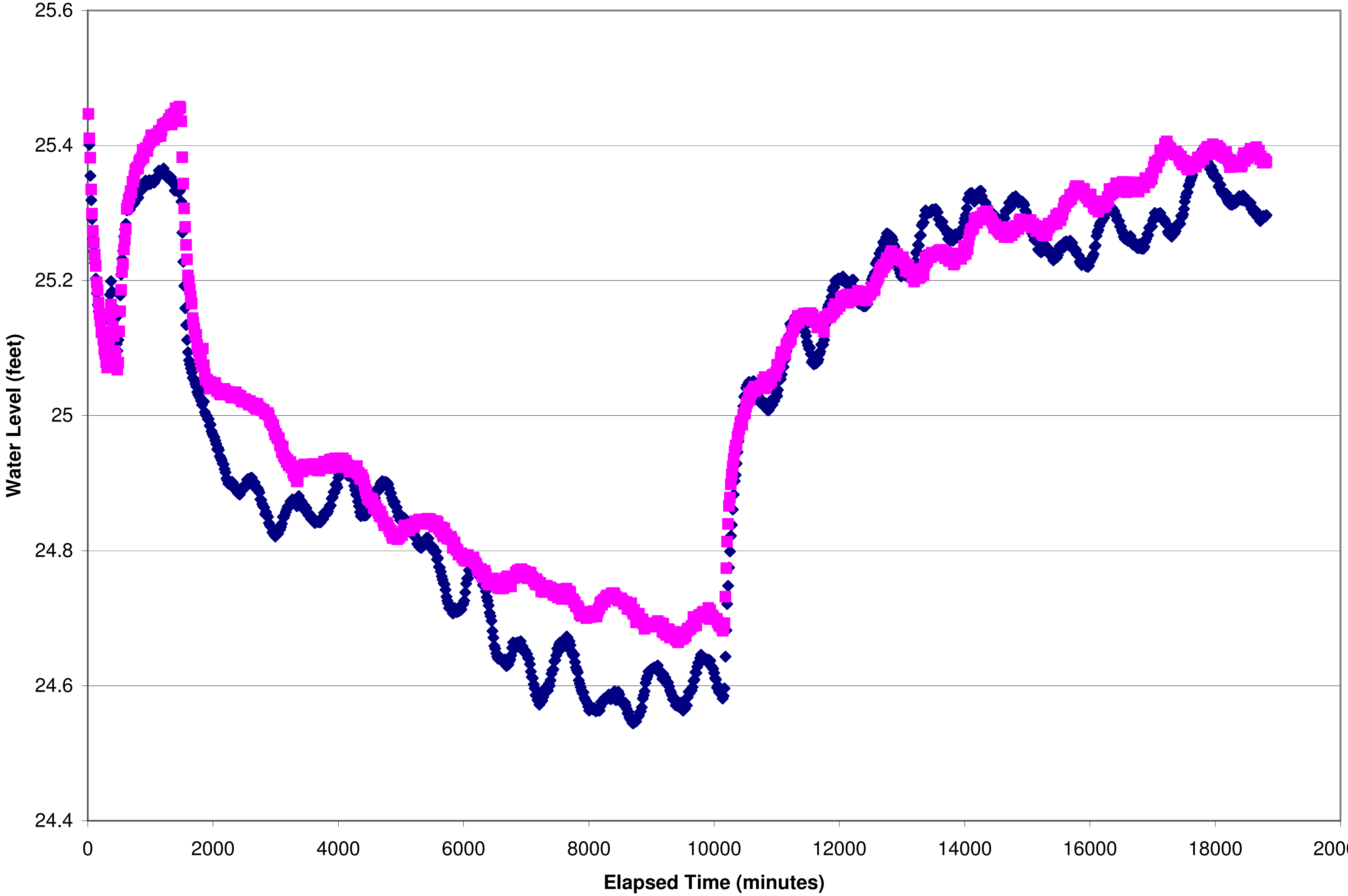
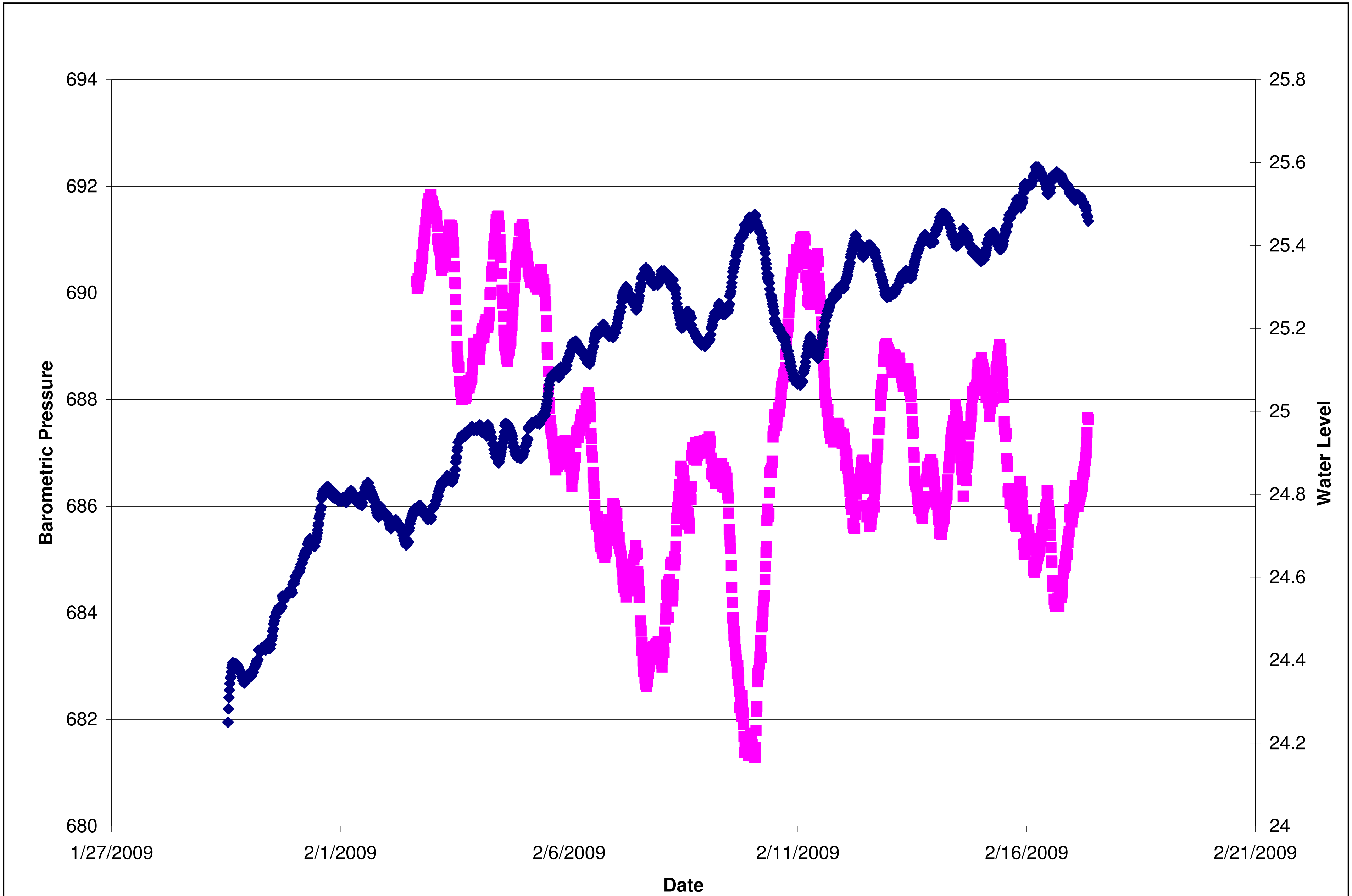


HYDRO GEO CHEM, INC.

MH-25C UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-25C 2009-03-02	Figure B.2 MH-25C



HYDRO GEO CHEM, INC.

MH-25C BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved	Date	Author	Date	File Name	Figure
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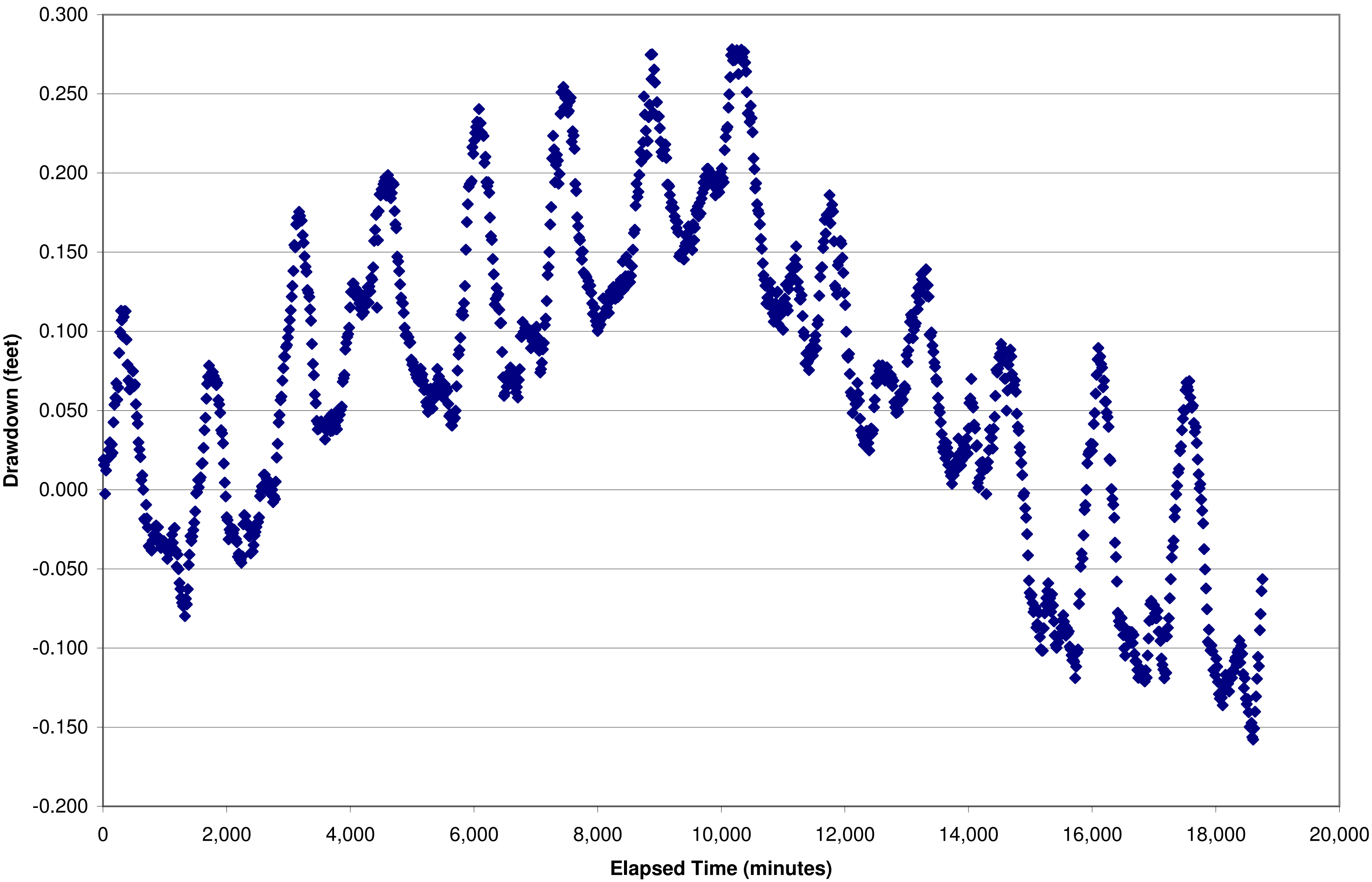

HYDRO GEO CHEM, INC.	MH-26A CORRECTED DRAWDOWN VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-26A 2009-03-02	Figure B.1 MH-26A

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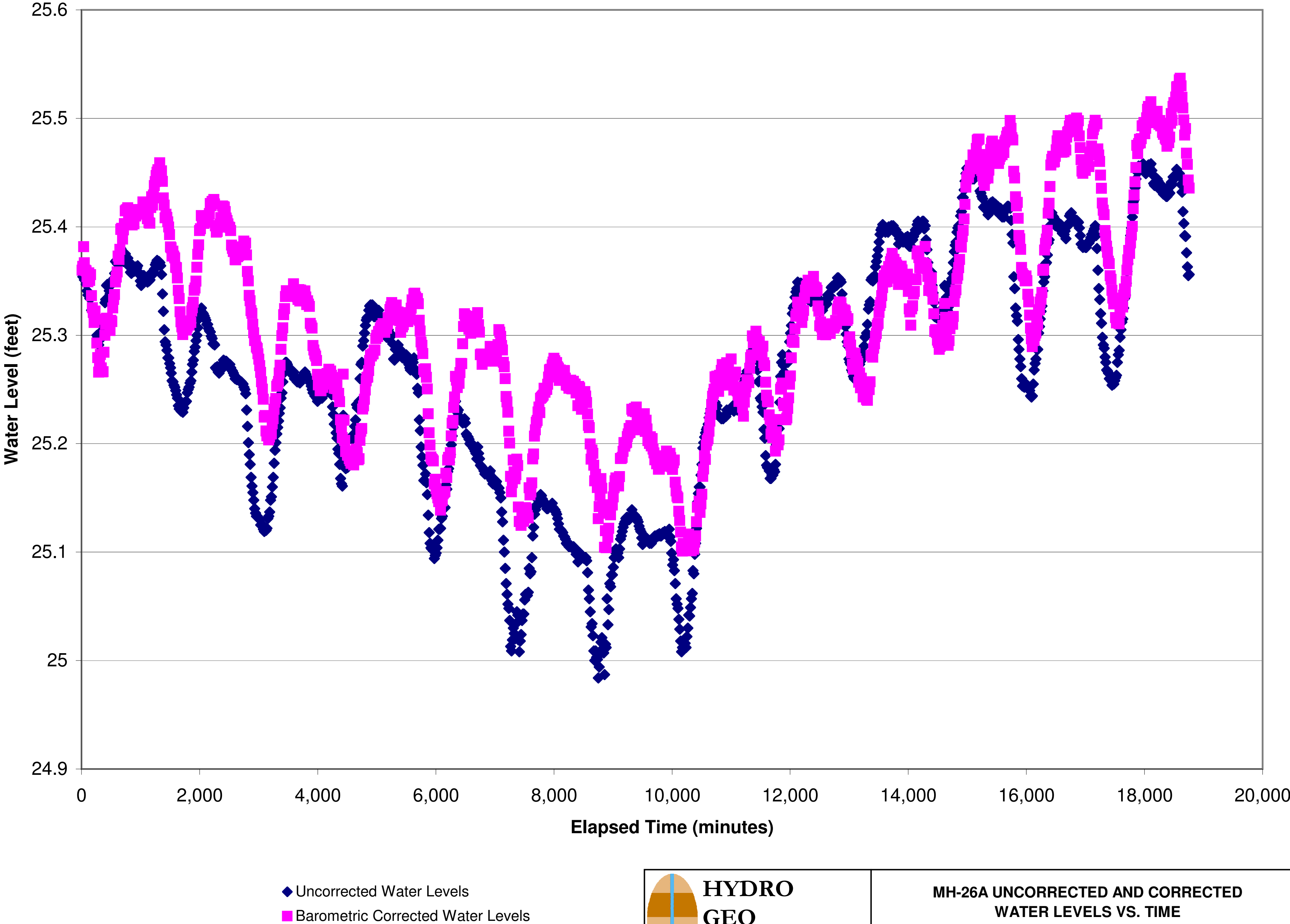

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MH-26A UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
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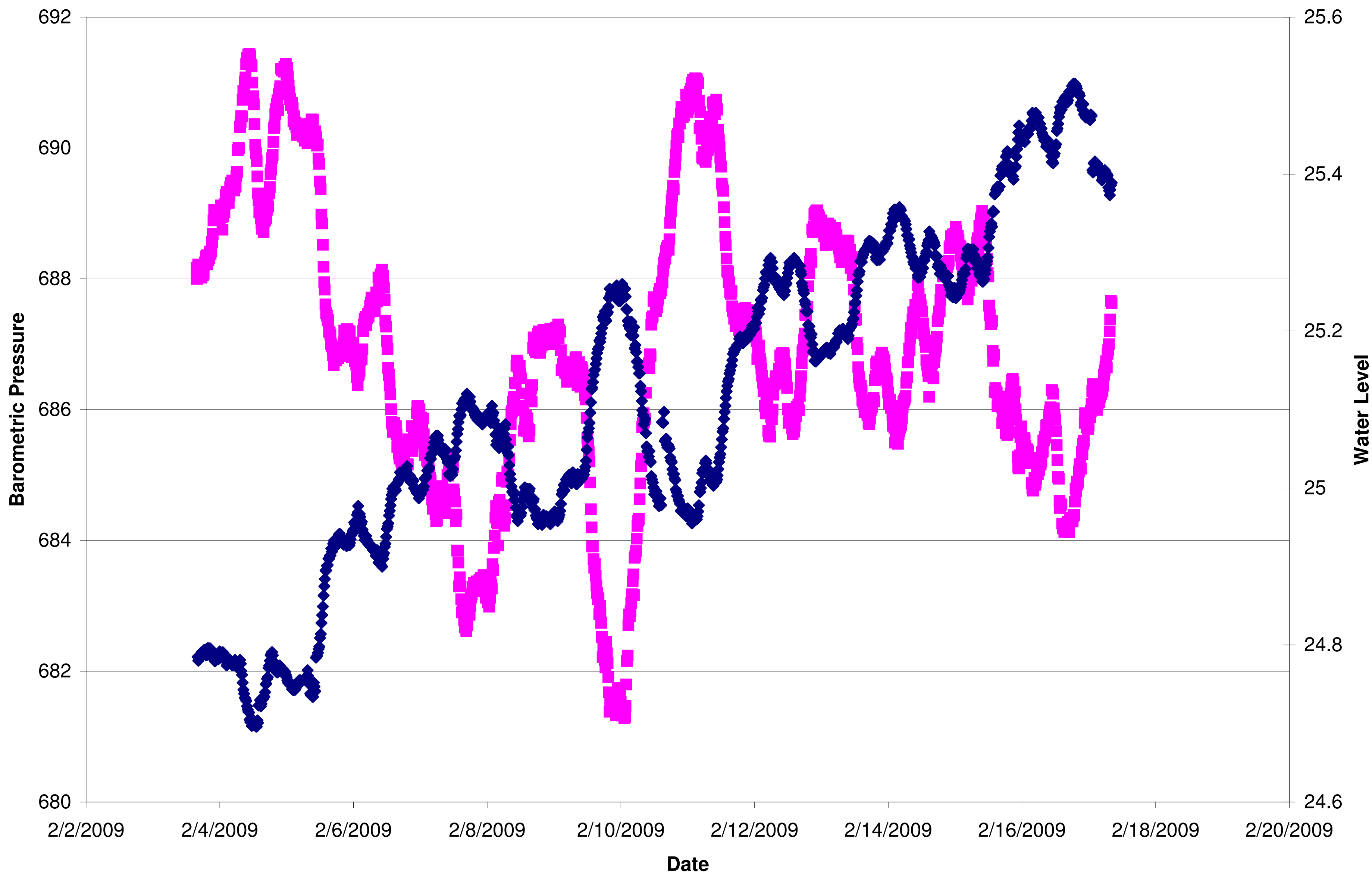

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MH-26A BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
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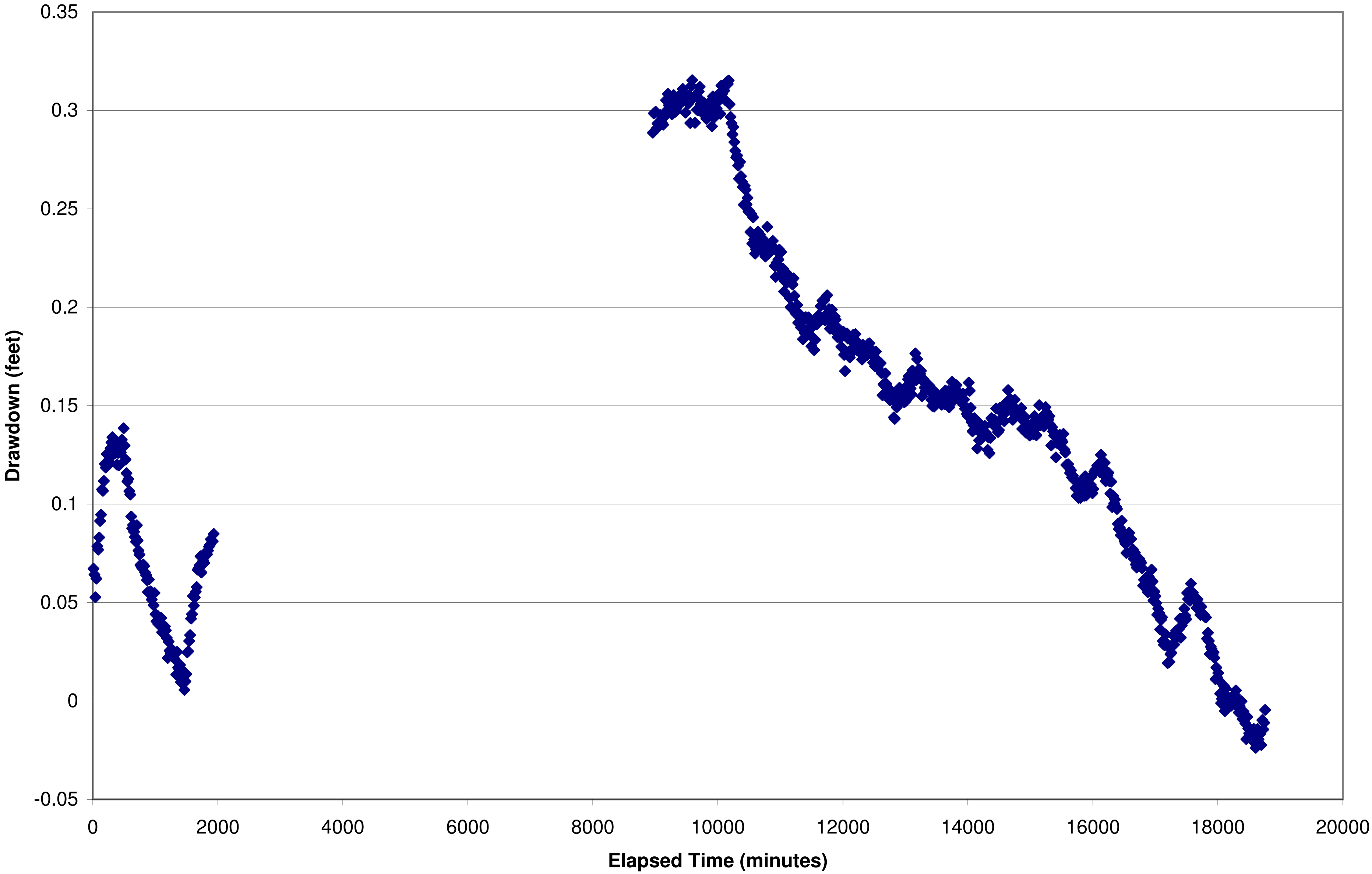

HYDRO GEO CHEM, INC.

MH-26B 2ND X-DUCER CORRECTED DRAWDOWN VS. TIME					
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26B 2ND X-DUCER 2009-03-02	B.1 MH-26B

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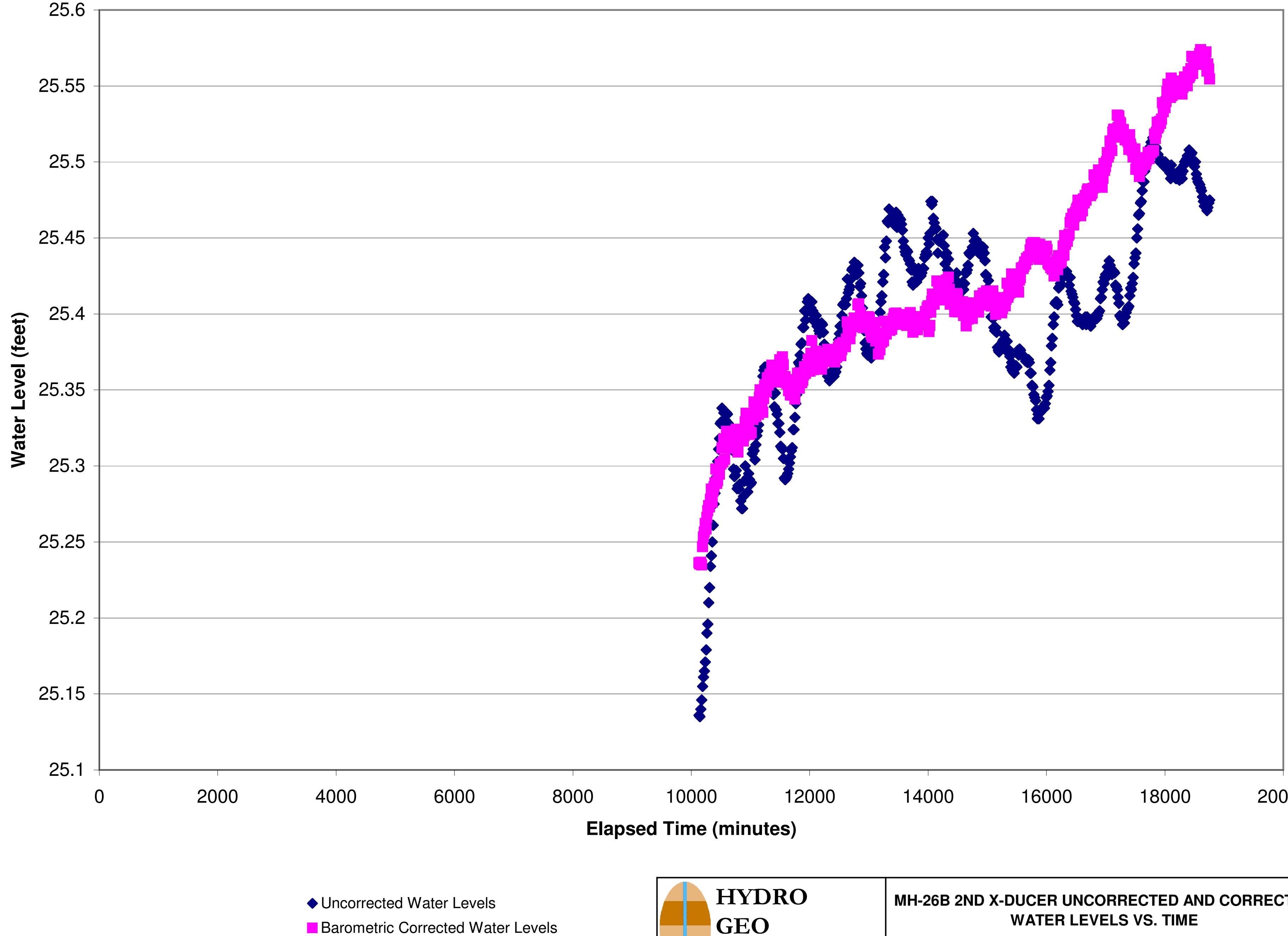

HYDRO GEO CHEM, INC.

MH-26B 2ND X-DUCER UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26B 2ND X-DUCER 2009-03-02	B.2 MH-26B

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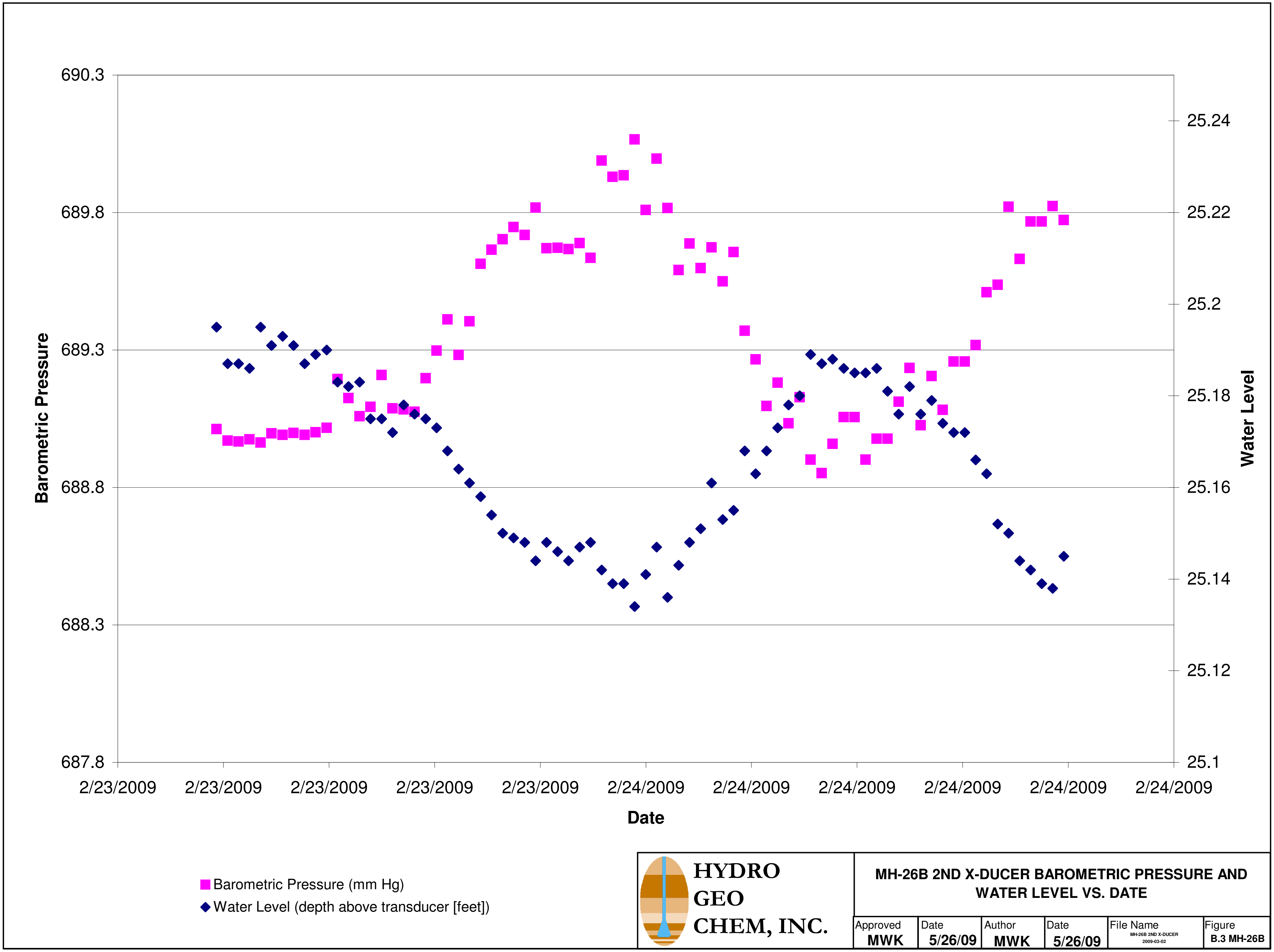
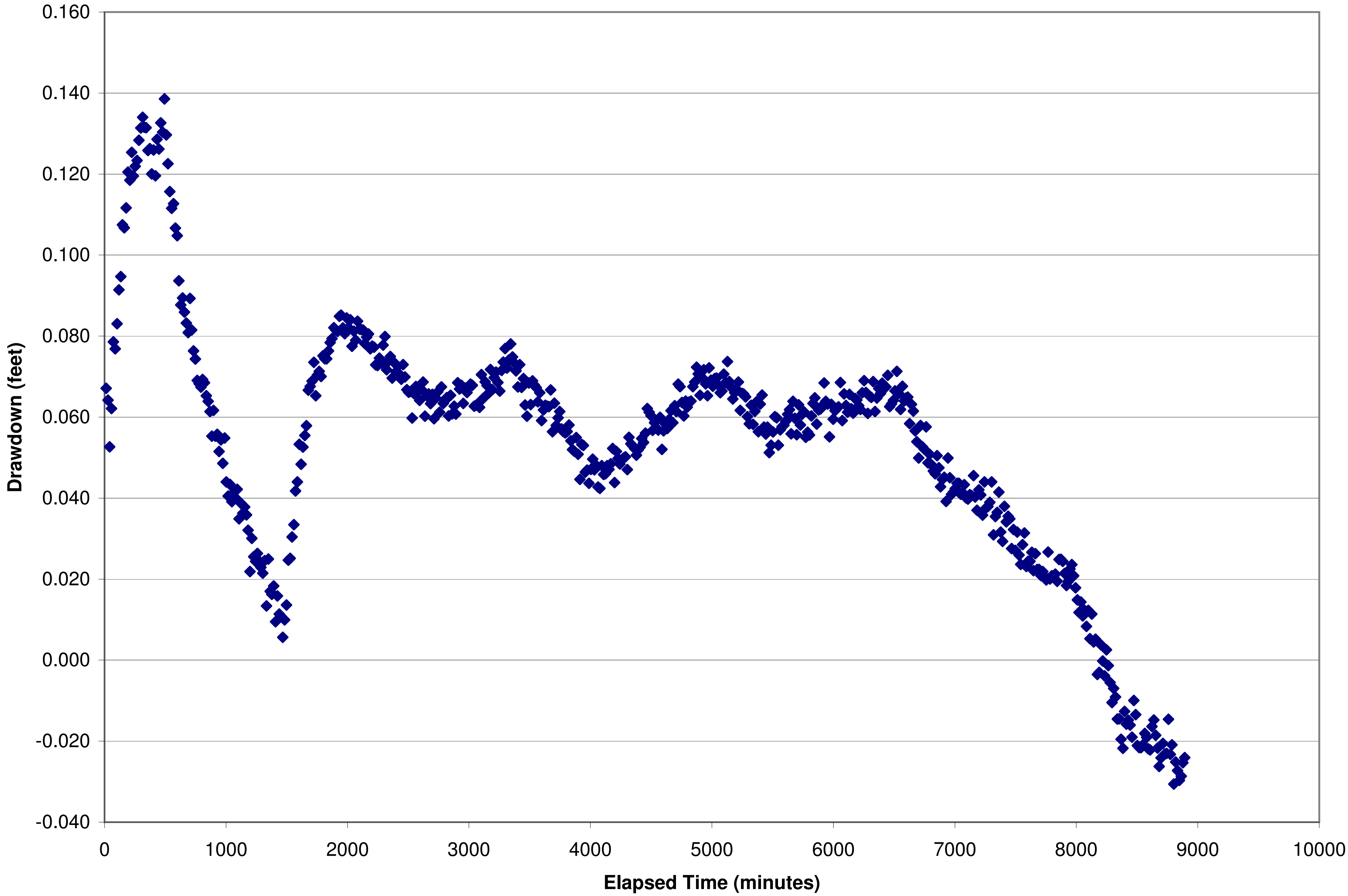
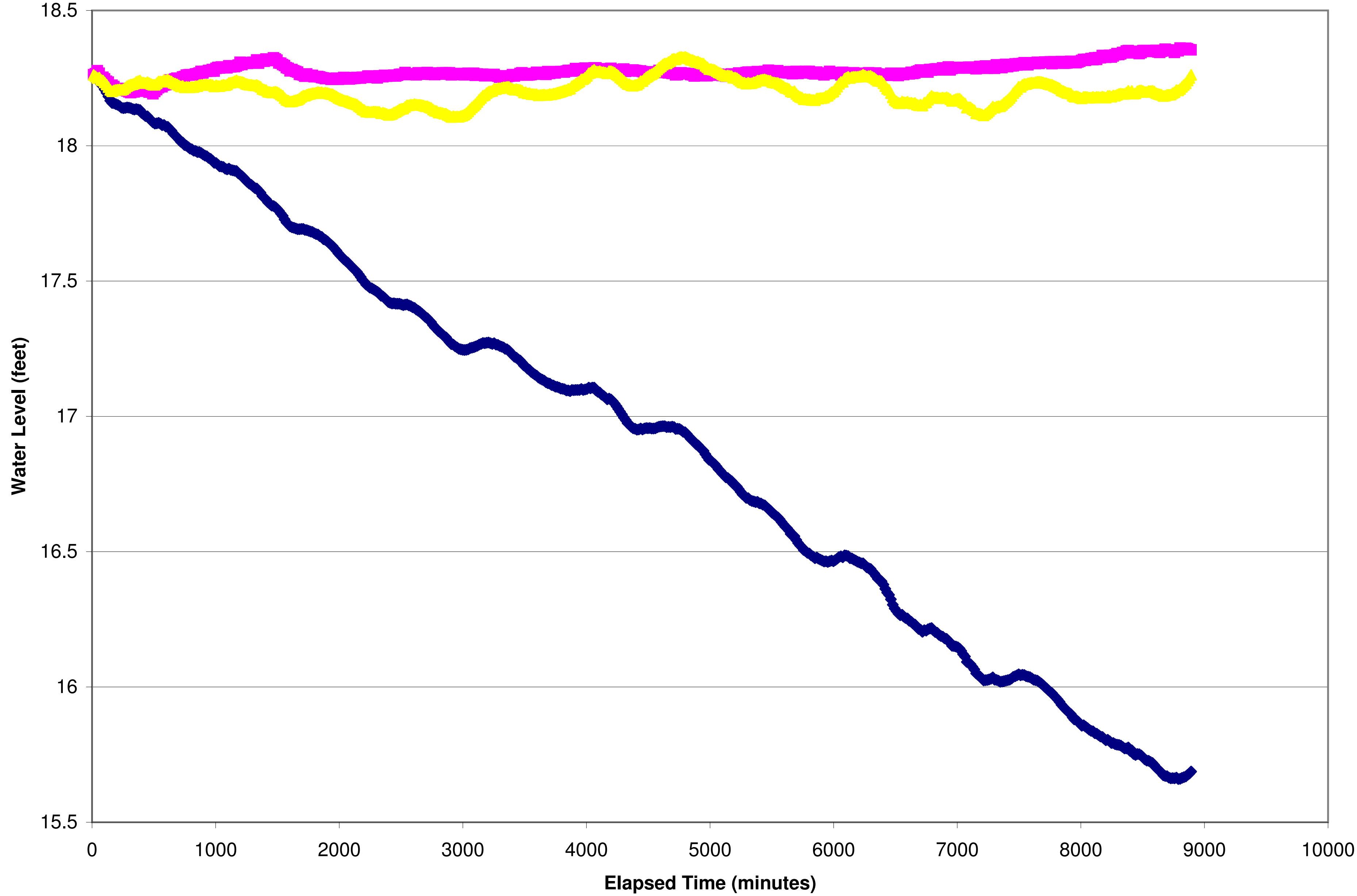
Prepared at the Direction of Legal Counsel


690.3
689.8
689.3
688.8
688.3
687.8
Barometric Pressure
25.24
25.22
25.2
25.18
25.16
25.14
25.12
25.1
Water Level
2/23/2009
2/24/2009
Date
Barometric Pressure (mm Hg)
Water Level (depth above transducer [feet])
HYDRO
GEO
CHEM, INC.
MH-26B 2ND X-DUCER BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE
Approved
MWK
Date
5/26/09
Author
MWK
Date
5/26/09
File Name
Figure
B.3 MH-26B



HYDRO GEO CHEM, INC.	MH-26 B CORRECTED TRANSDUCER DRIFT AND DRAWDOWN VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MH-26B 2009-03-02	Figure B.1 MH-26B



HYDRO GEO CHEM, INC.

MH-26B UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26B 2009-03-02	B.2 MH-26B

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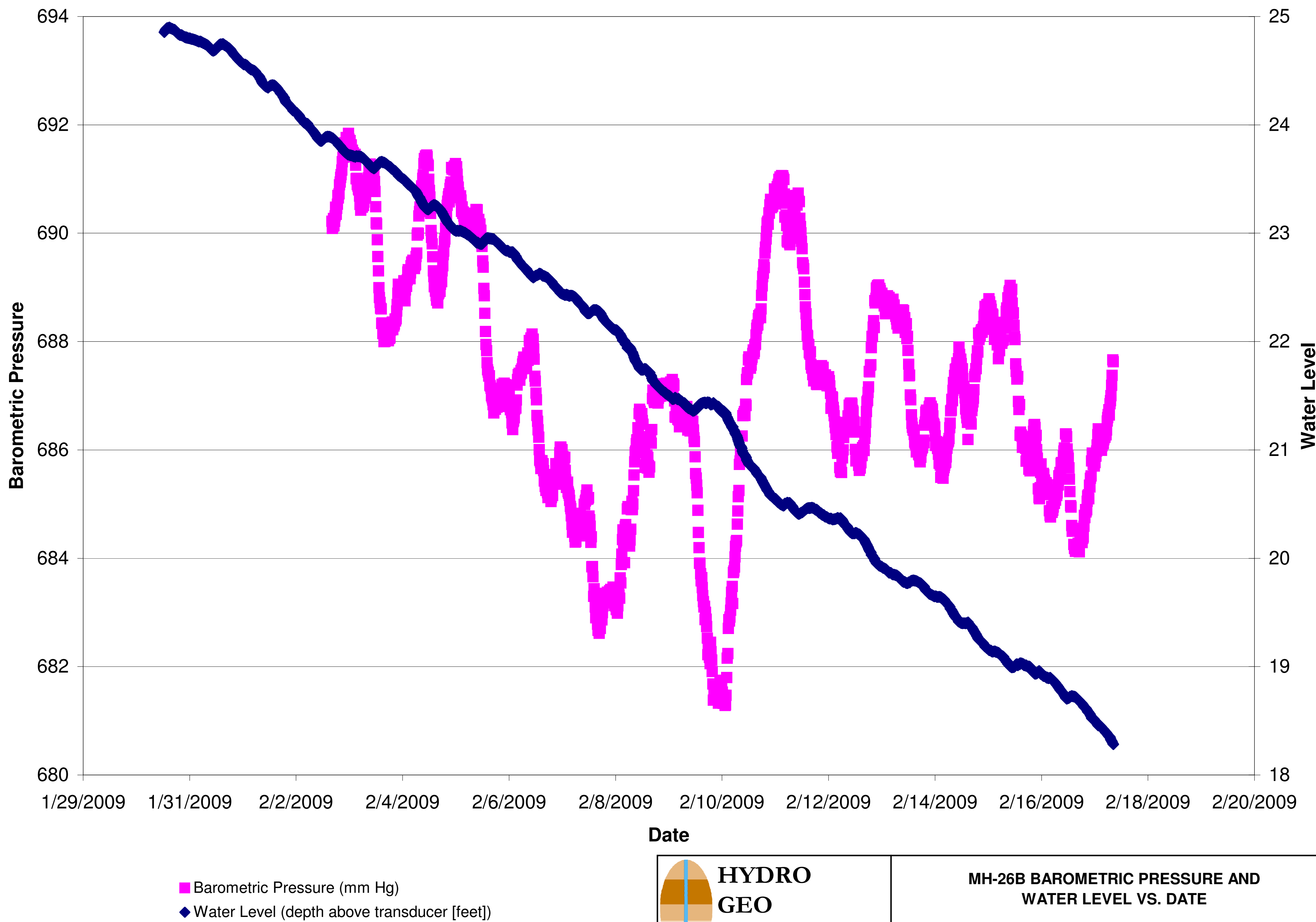

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MH-26B BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26B 2009-03-02	B.3 MH-26B

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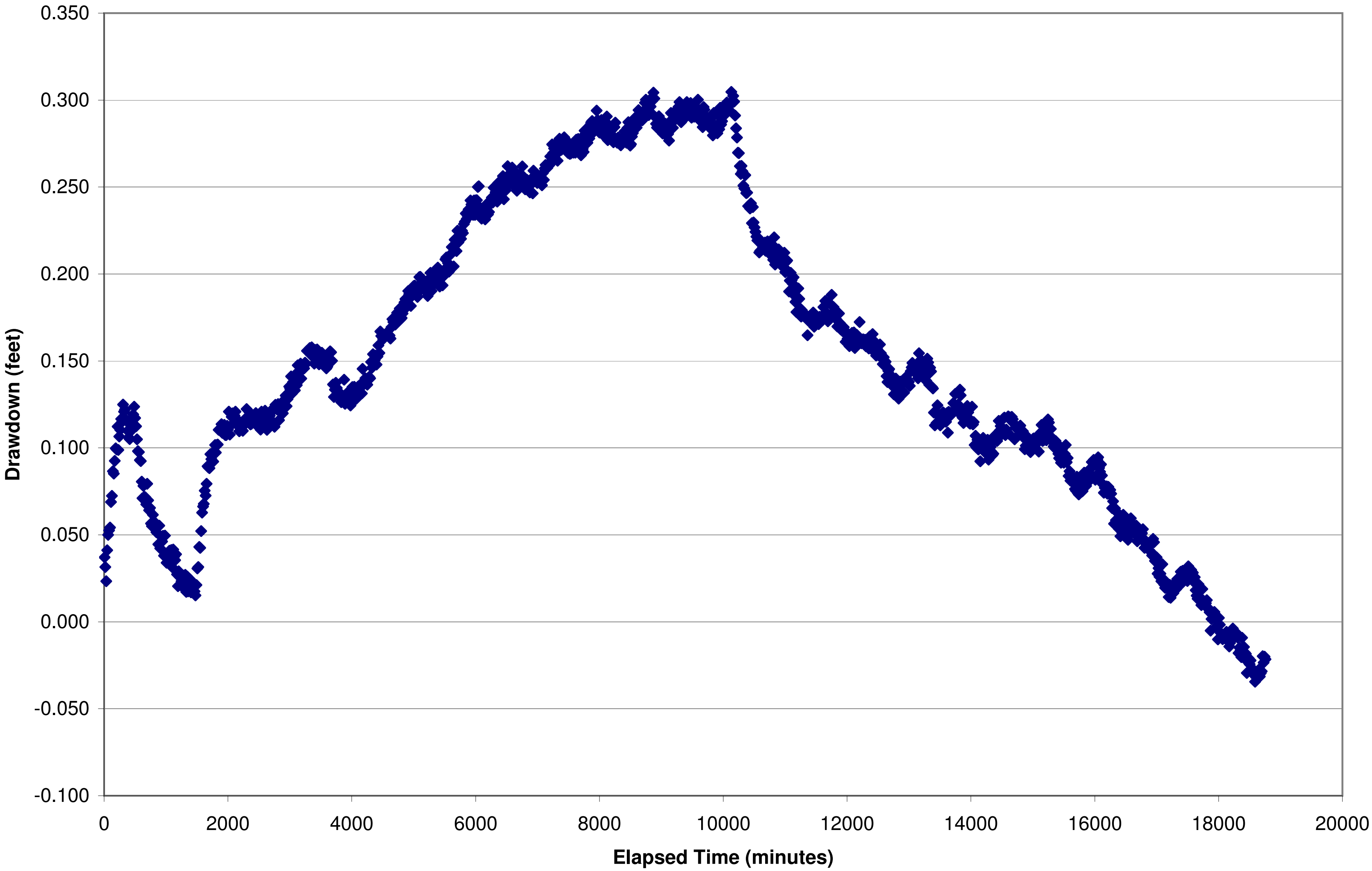

HYDRO GEO CHEM, INC.

MH-26C CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26C 2009-03-02	B.1 MH-26C

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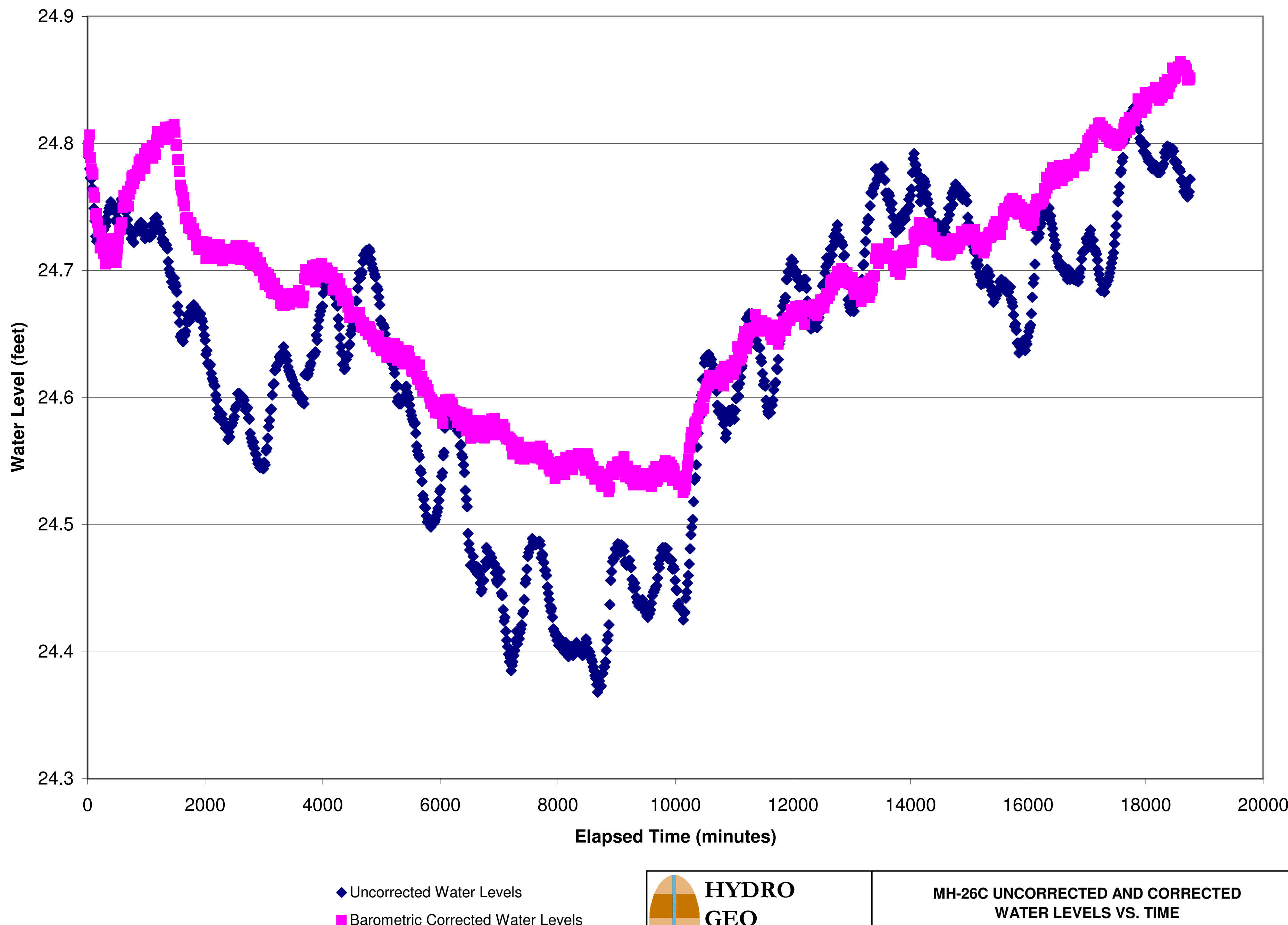
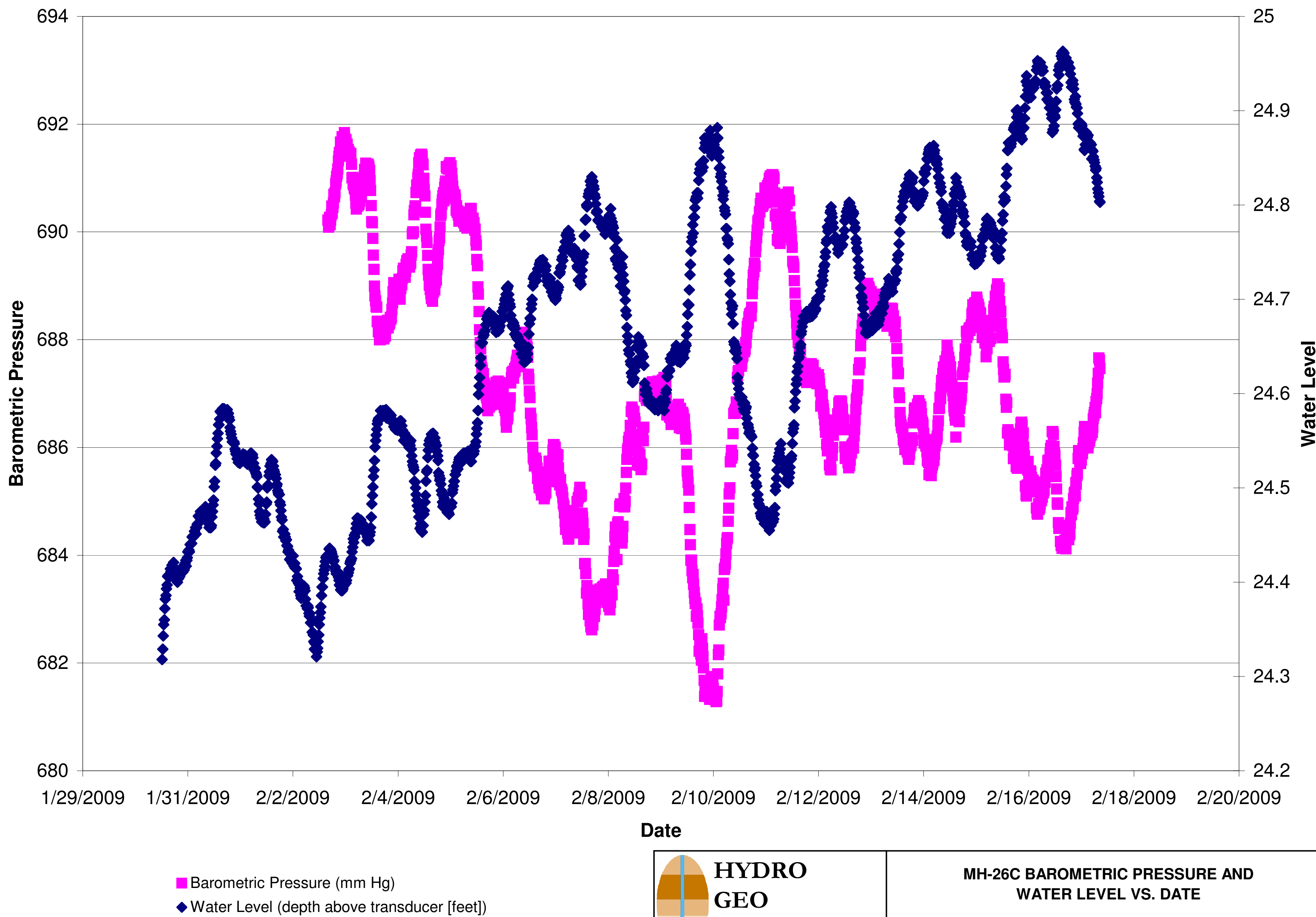


HYDRO GEO CHEM, INC.

MH-26C UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

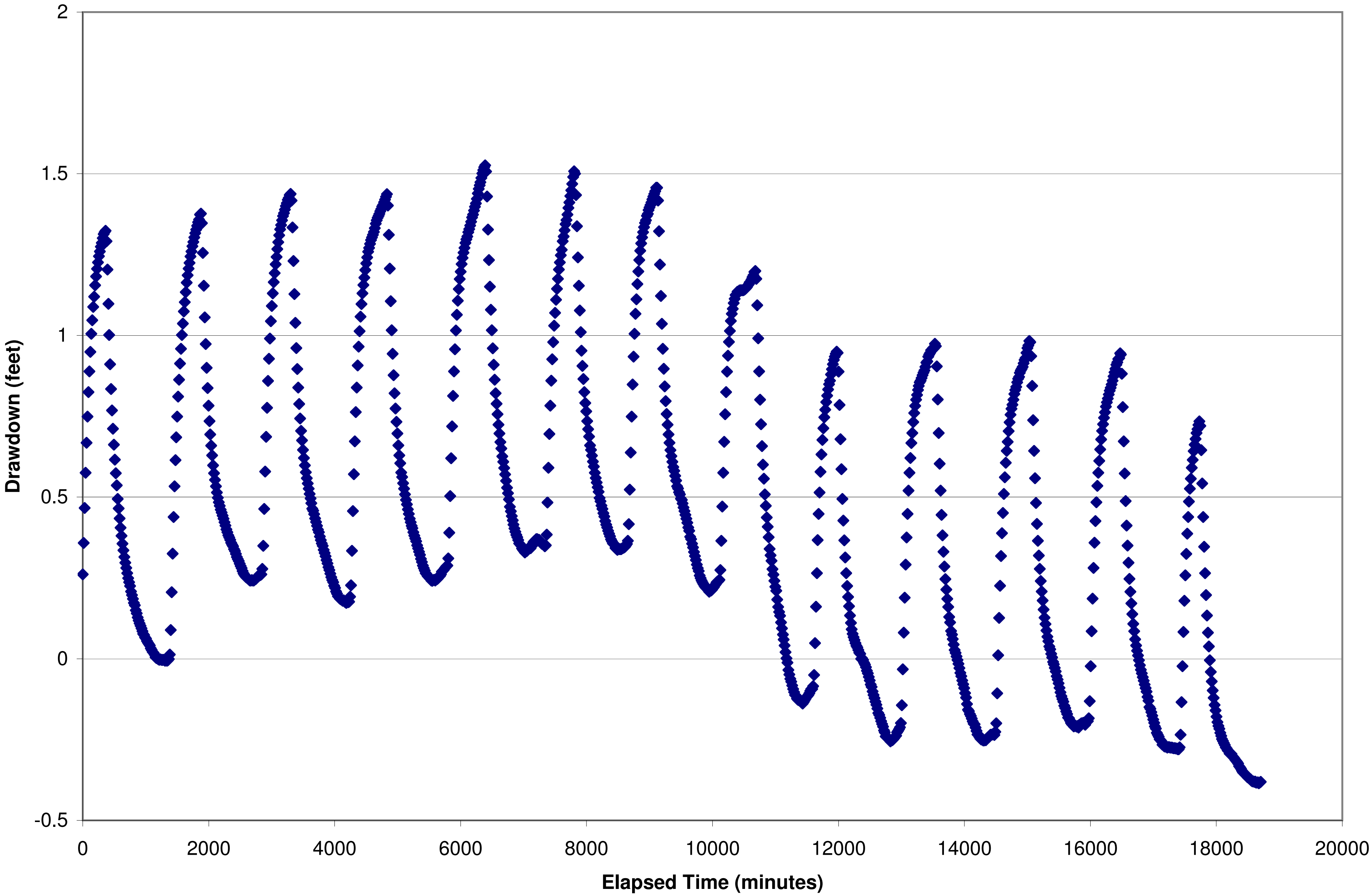
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26C 2009-03-02	B.2 MH-26C



HYDRO GEO CHEM, INC.

MH-26C BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MH-26C 2009-03-02	B.3 MH-26C



HYDRO GEO CHEM, INC.

MO-2007-3B CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-3B 2009-03-02	B.1 MO-3B

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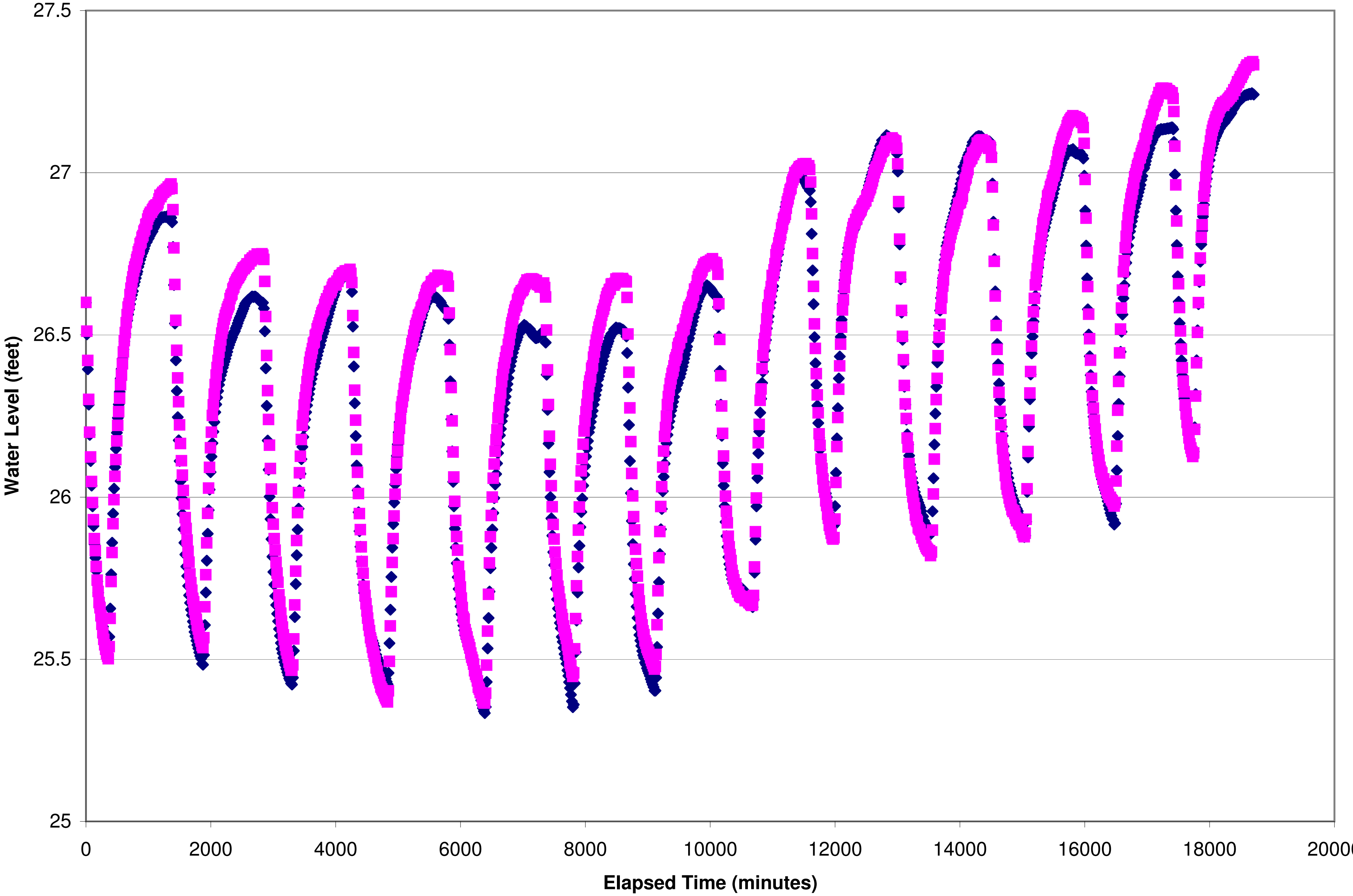
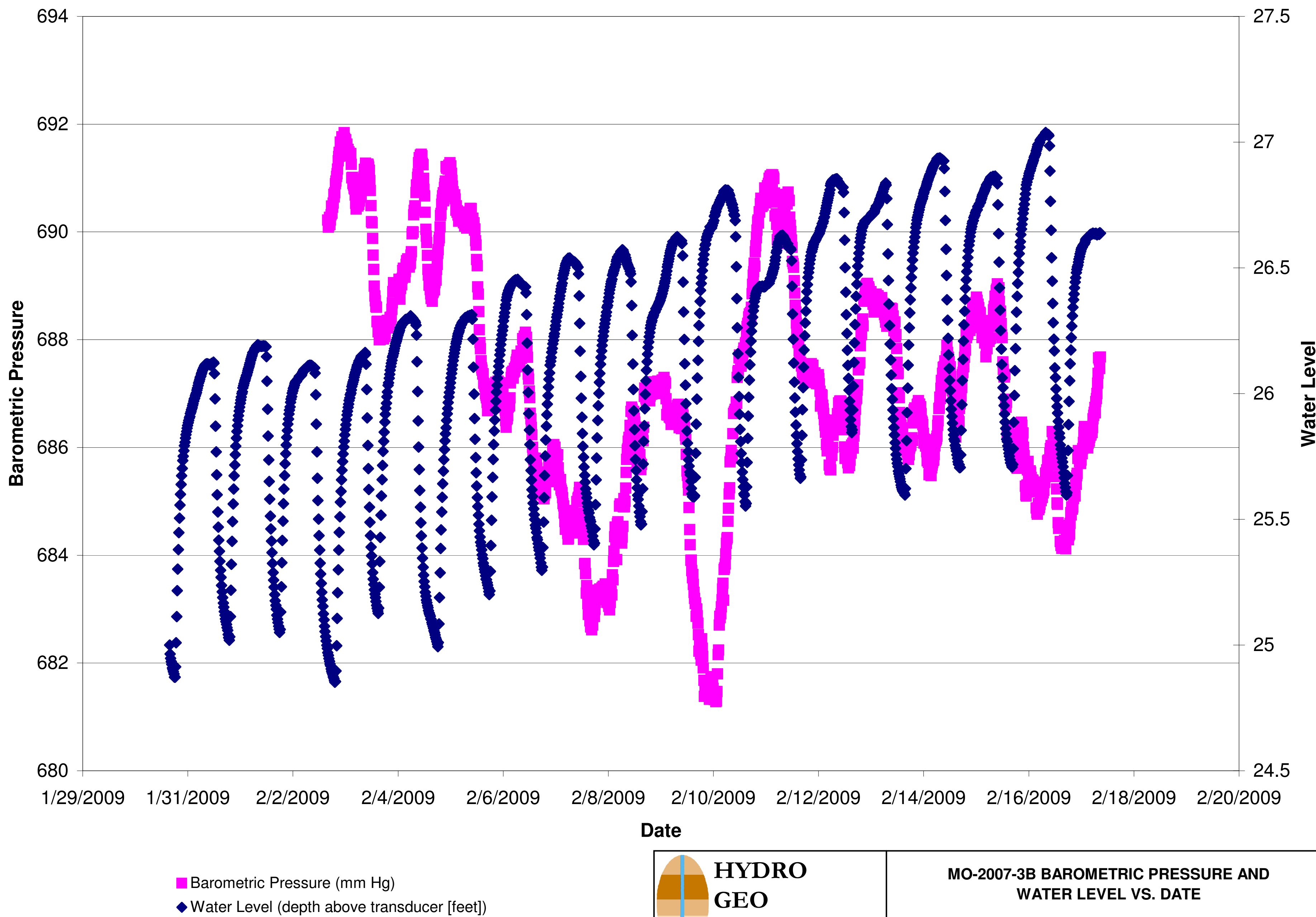


HYDRO GEO CHEM, INC.	MO-2007-3B UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MO-2007-3B 2009-03-02	Figure B.2 MO-3B



HYDRO GEO CHEM, INC.

MO-2007-3B BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
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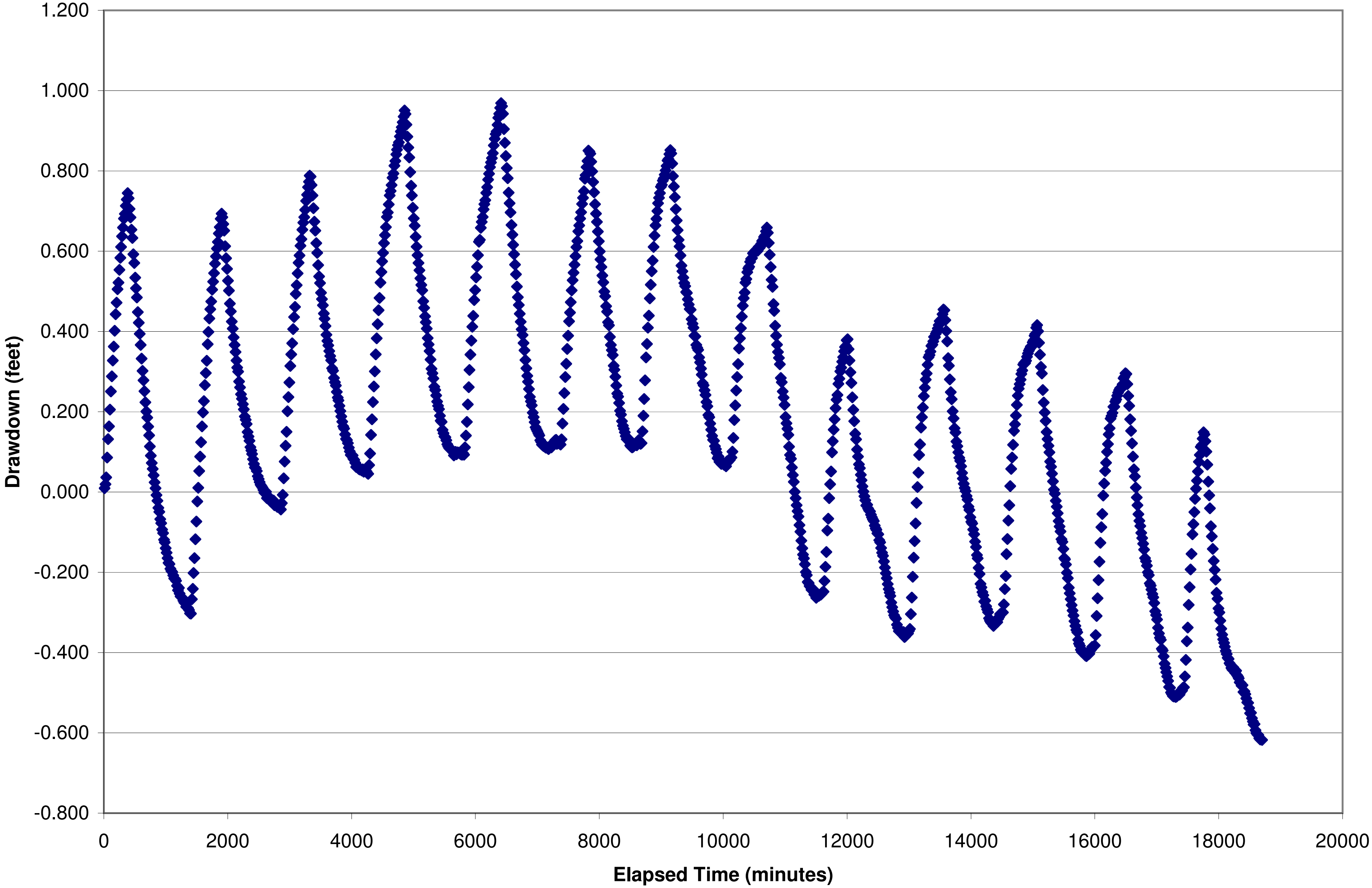

HYDRO GEO CHEM, INC.

MO-2007-3C CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-3C 2009-03-02	B.1 MO-3C

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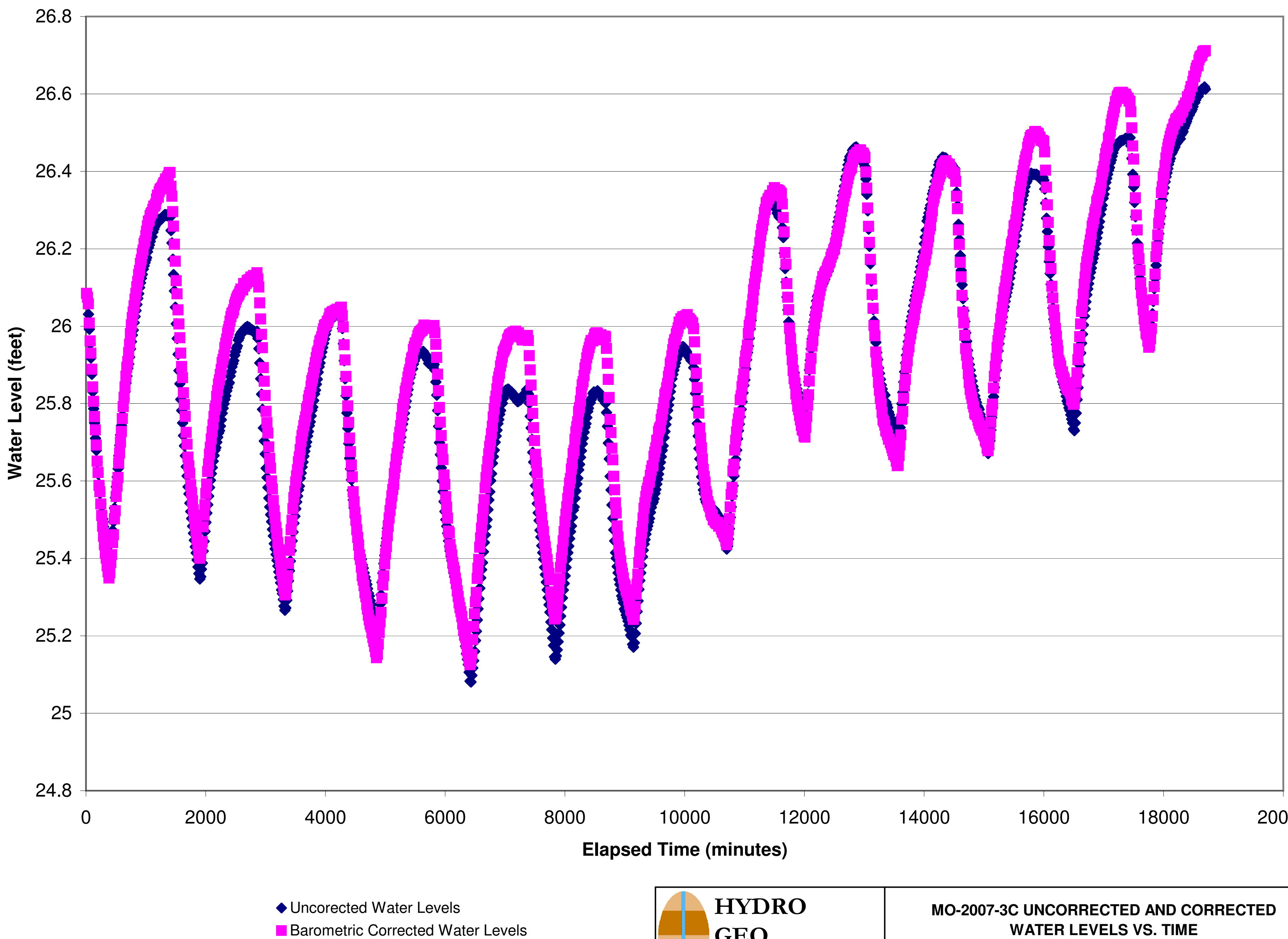

HYDRO GEO CHEM, INC.

MO-2007-3C UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
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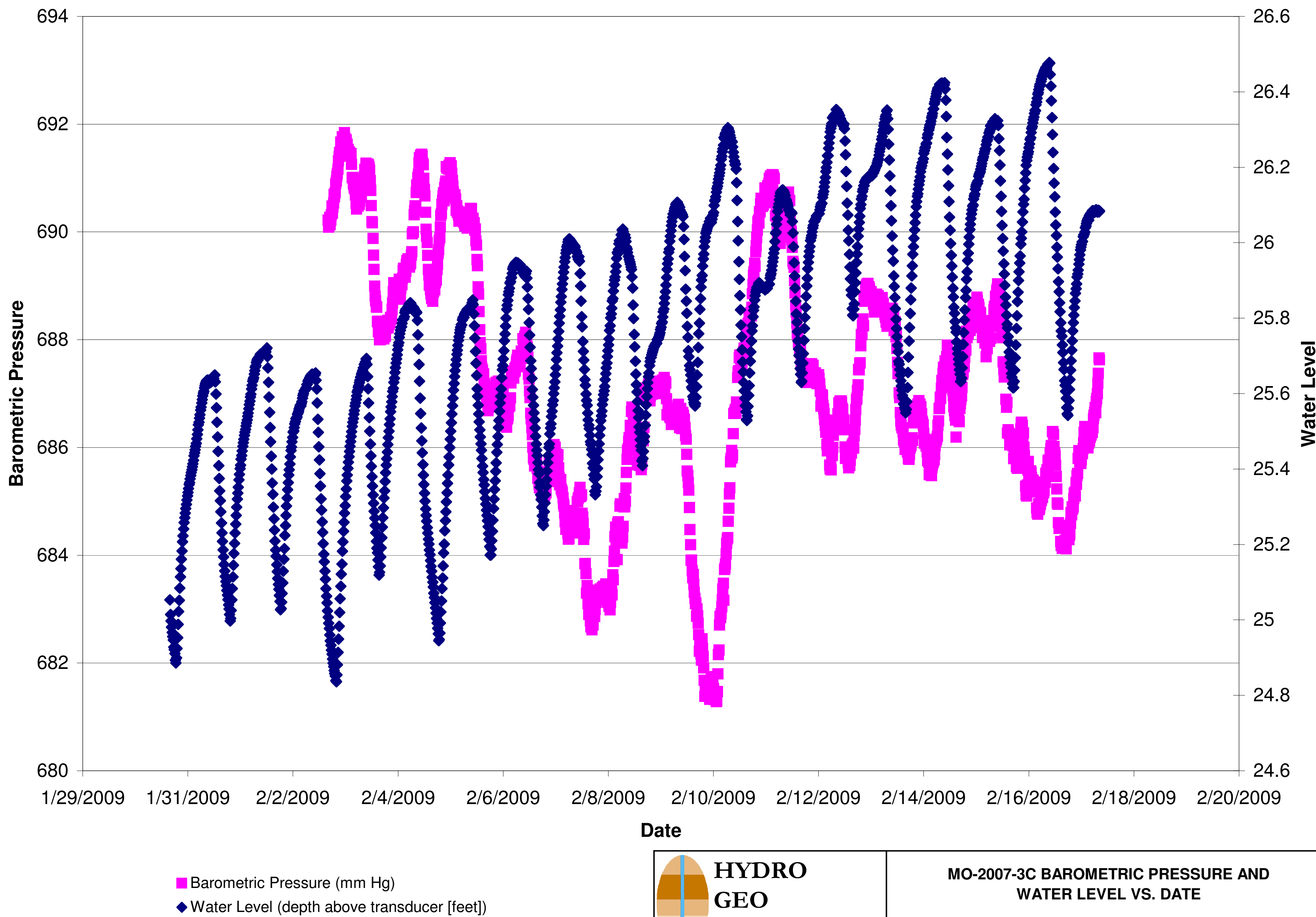
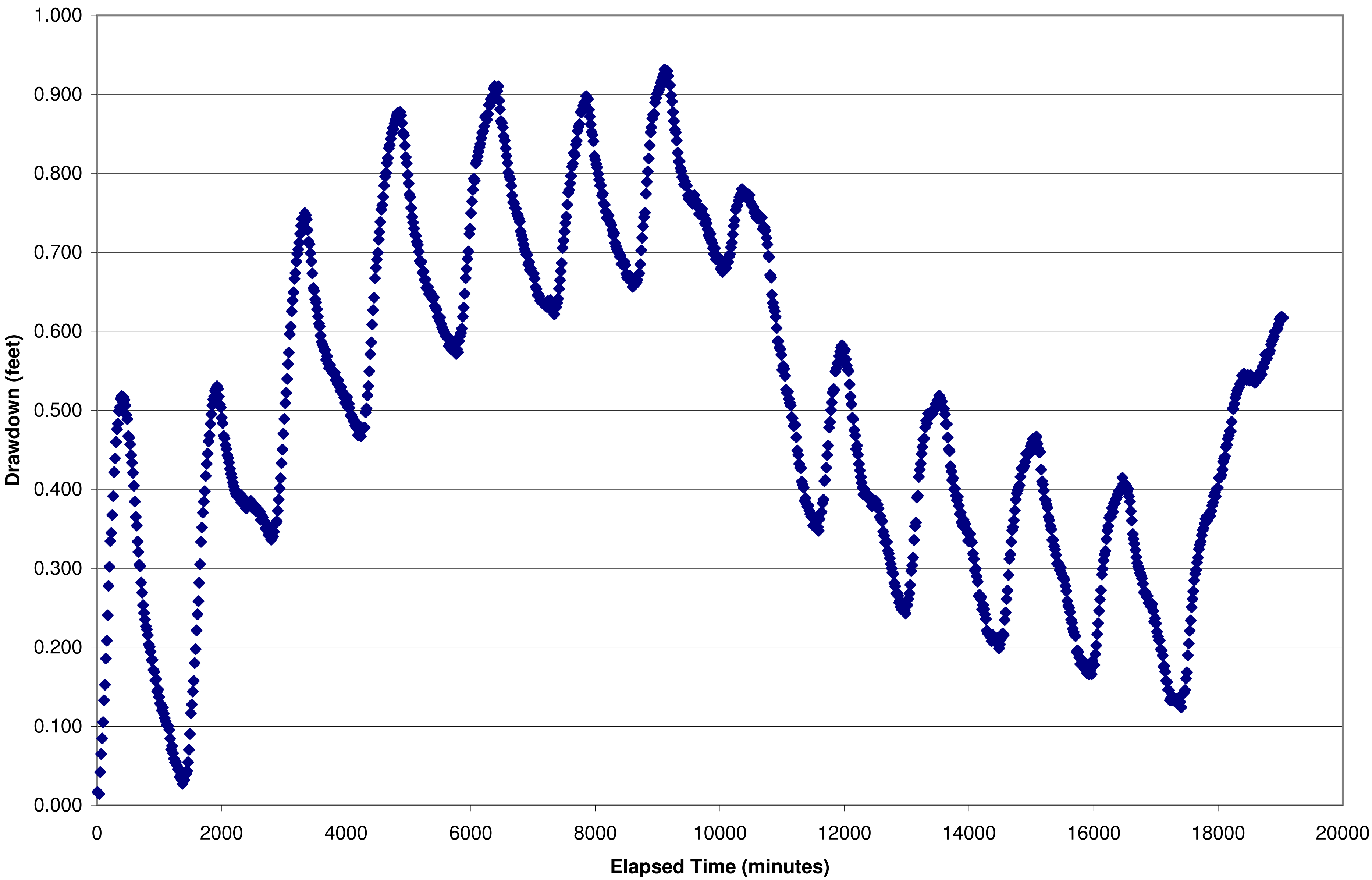


HYDRO GEO CHEM, INC.

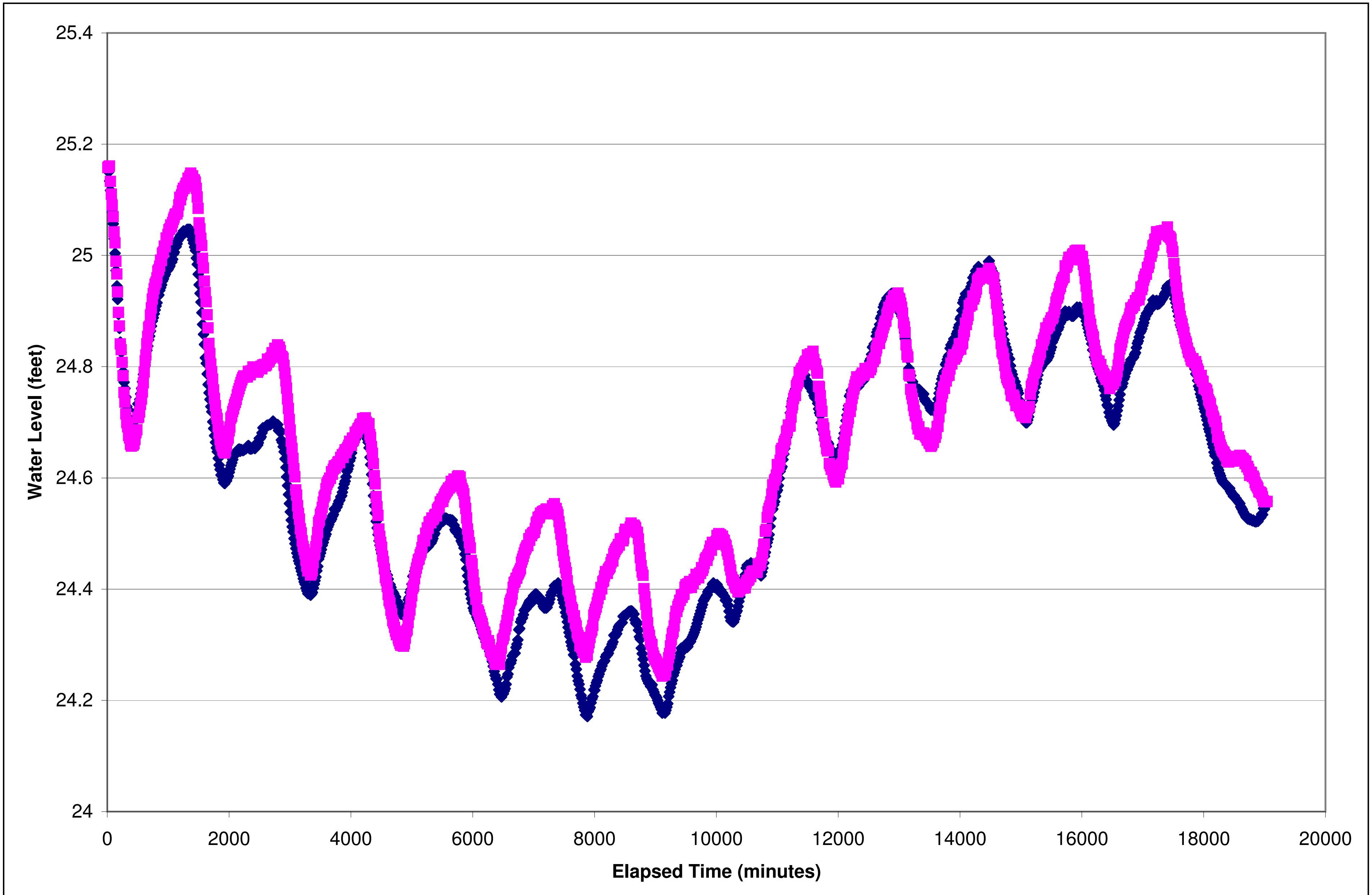
MO-2007-3C BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE					
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MO-2007-3C 2009-03-02	Figure B.3 MO-3C



HYDRO GEO CHEM, INC.

MO-2007-4A CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	4/21/09	MWK	4/21/09	MO-2007-4A 2009-03-02	B.1 MO-4A



HYDRO GEO CHEM, INC.	MO-2007-4A UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME				
Approved MWK	Date 5/26/09	Author MWK	Date 5/26/09	File Name MO-2007-4A 2009-03-02	Figure B.2 MO-4A

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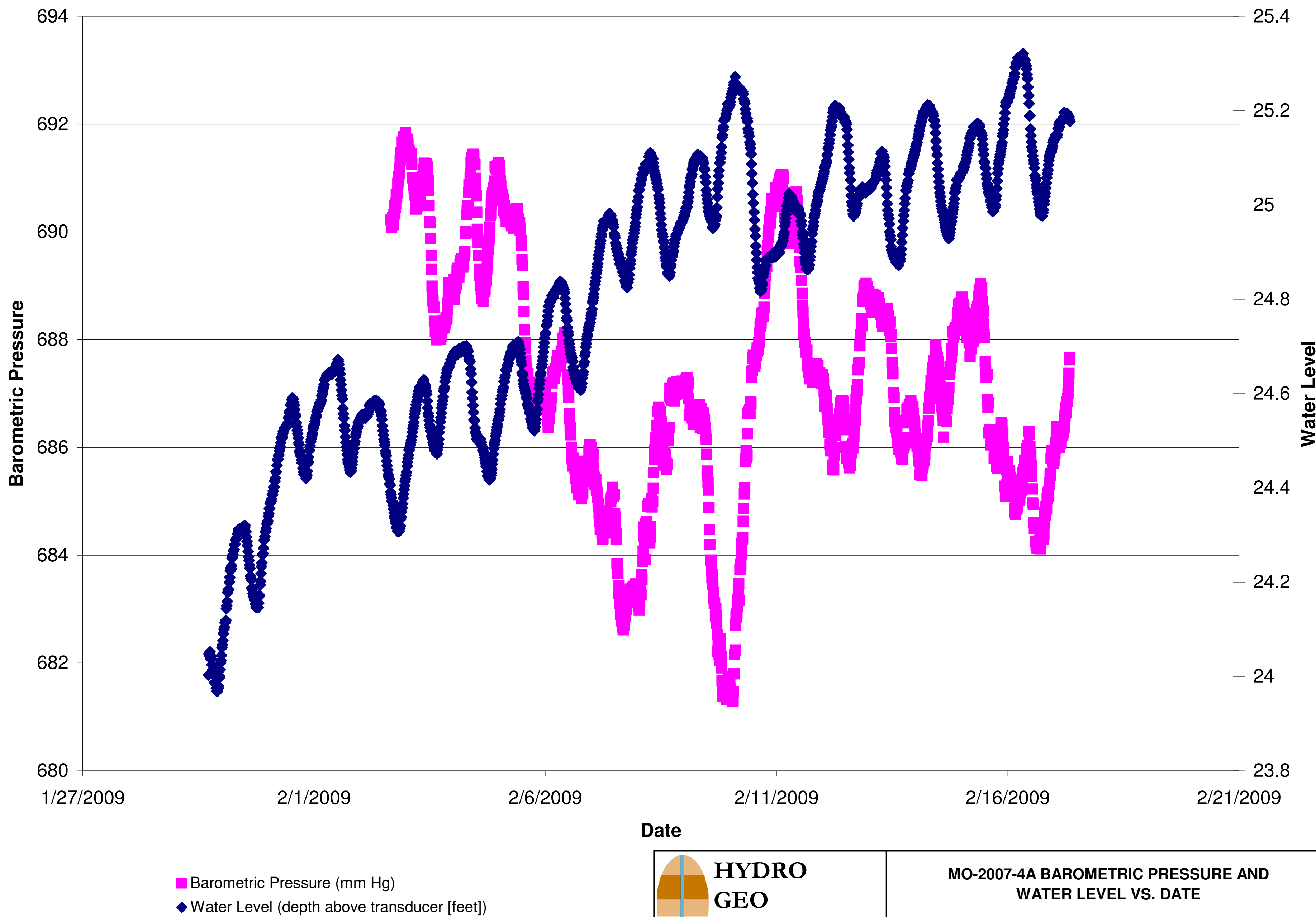

HYDRO GEO CHEM, INC.

MO-2007-4A BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4A 2009-03-02	B.3 MO-4A

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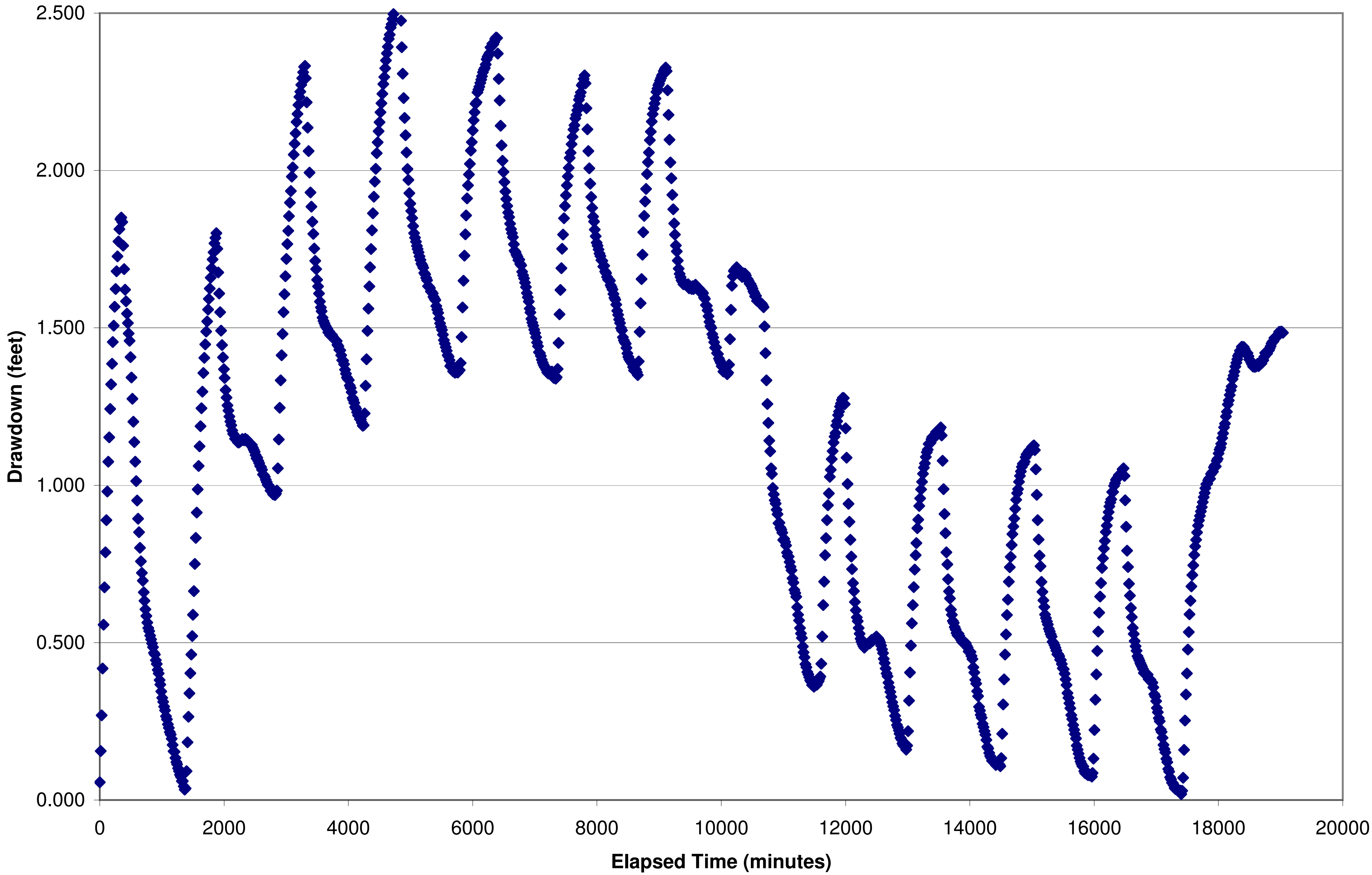
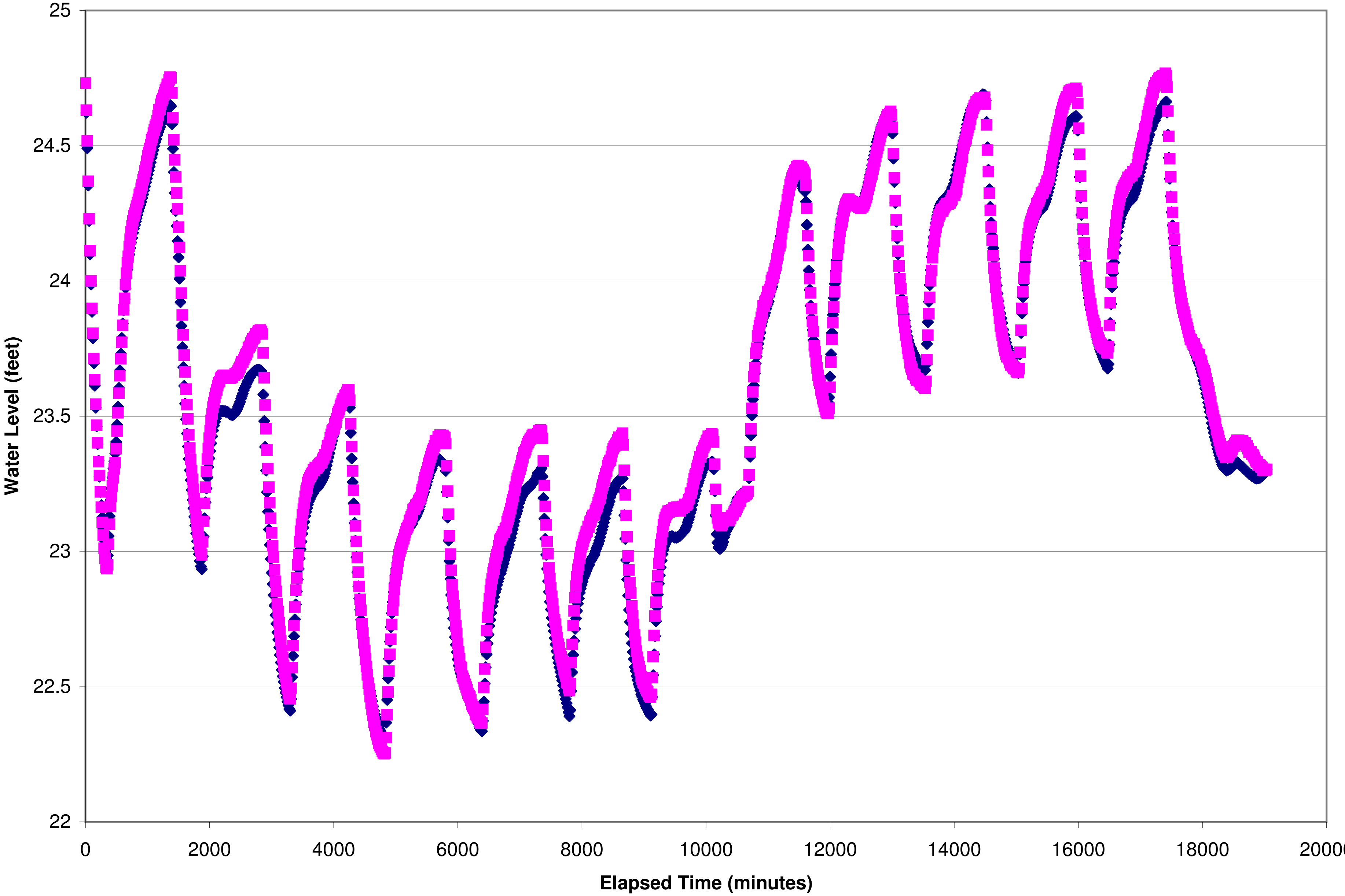


HYDRO GEO CHEM, INC.

MO-2007-4B CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4B 2009-03-02	B.1 MO-4B



◆ Uncorected Water Levels
■ Barometric Corrected Water Levels

HYDRO GEO CHEM, INC.

MO-2007-4B UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4B 2009-03-02	B.2 MO-4B

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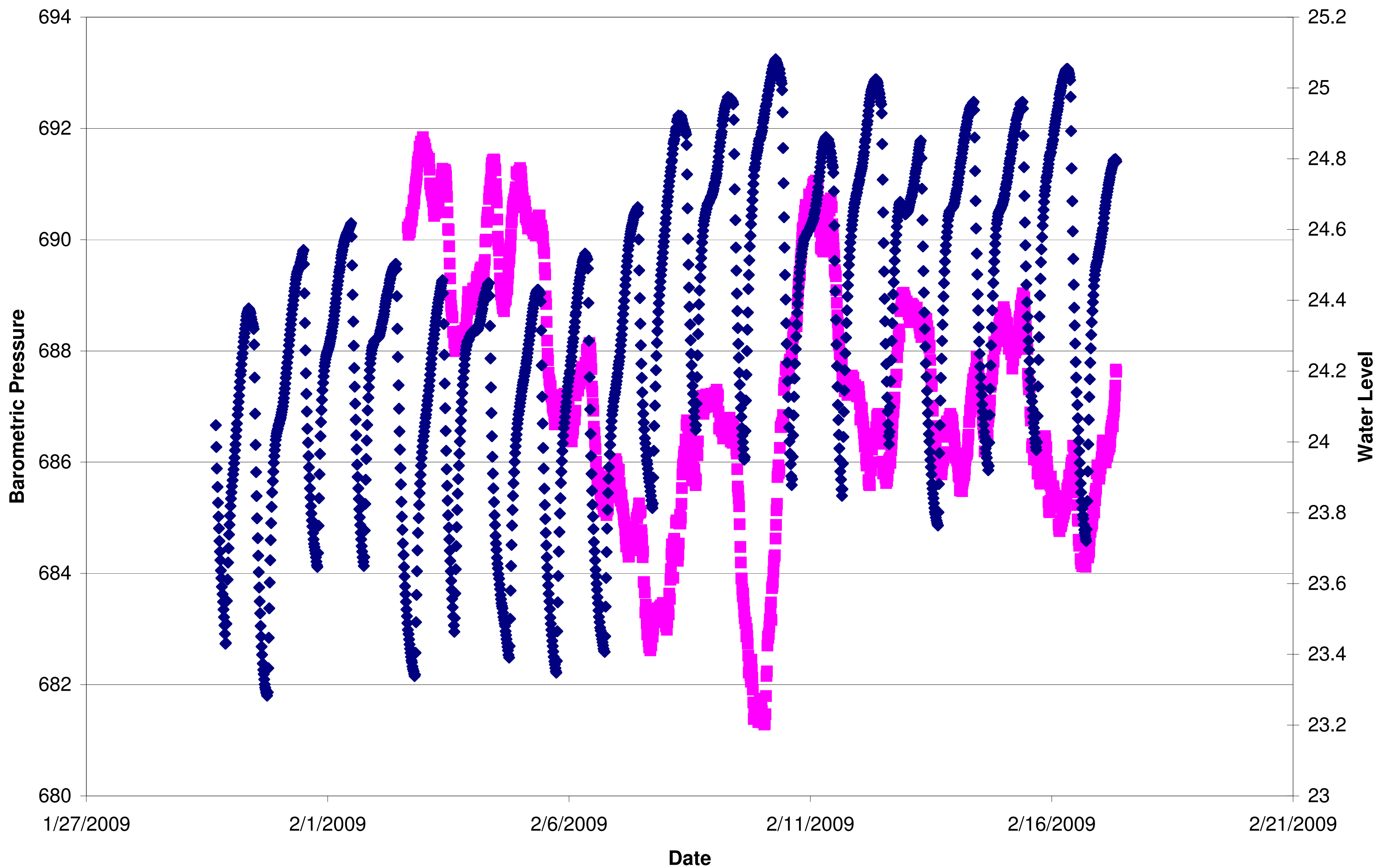

HYDRO GEO CHEM, INC.

MO-2007-4B BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4B 2009-03-02	B.3 MO-4B

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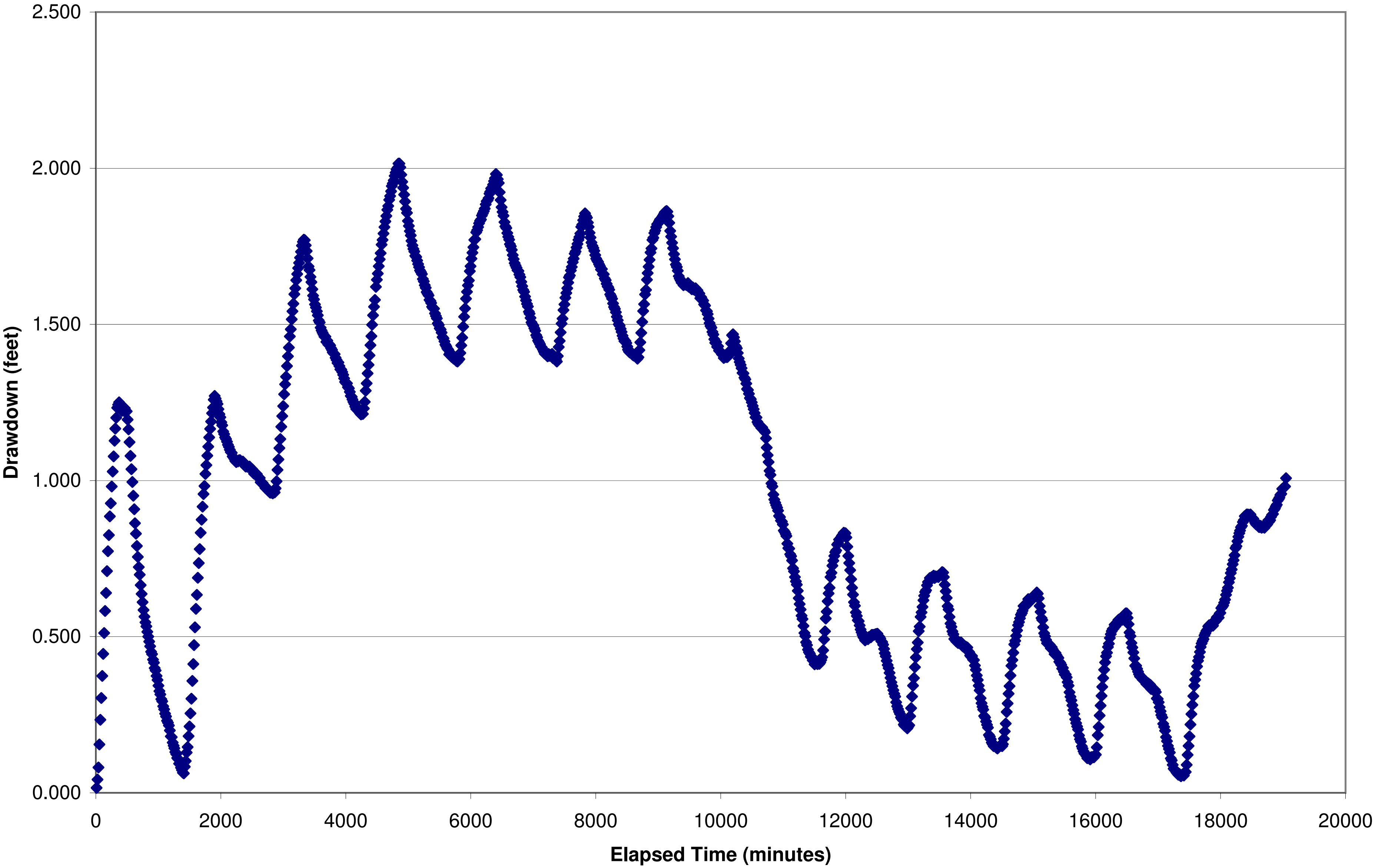
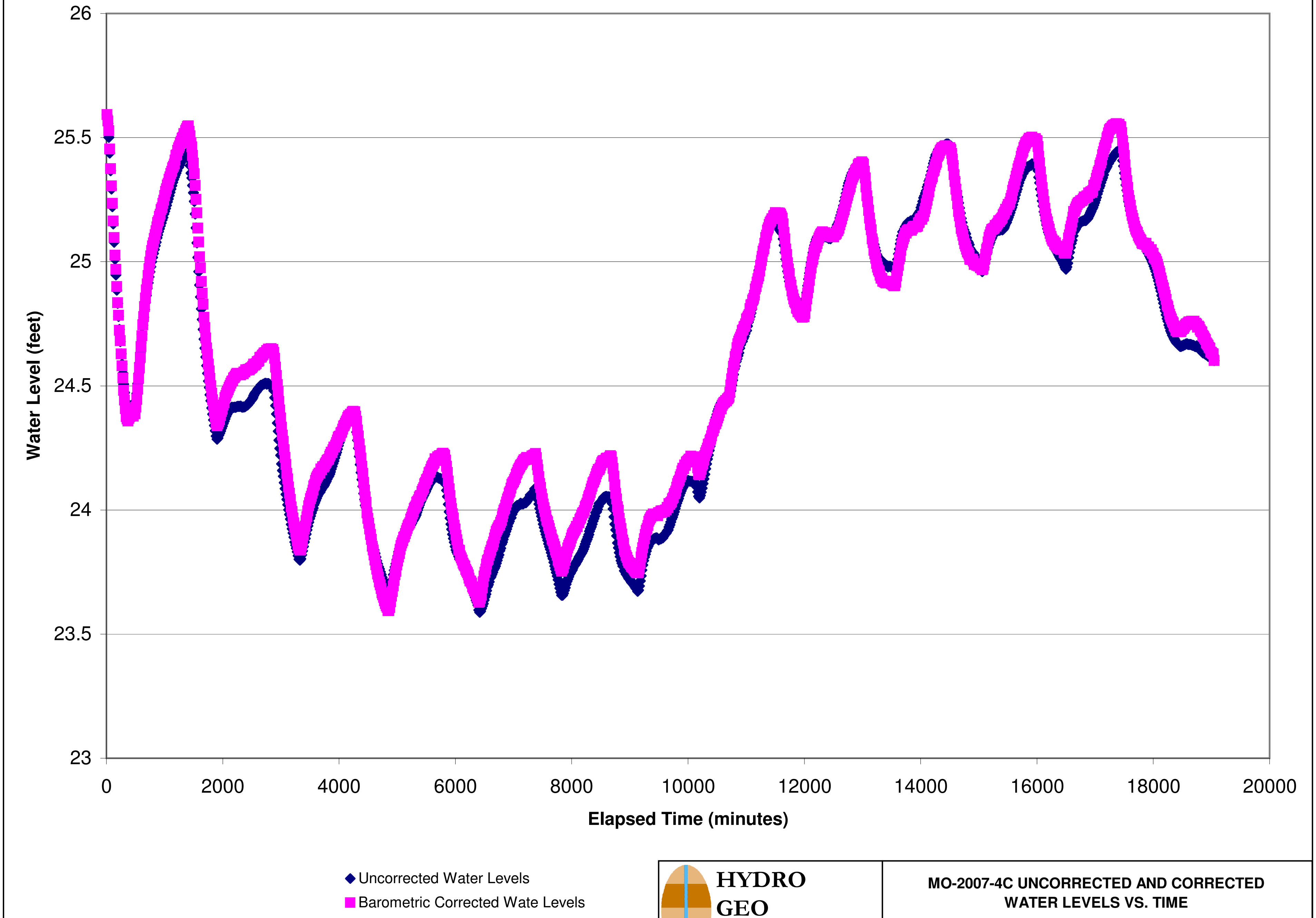


HYDRO GEO CHEM, INC.

MO-2007-4C CORRECTED DRAWDOWN VS. TIME

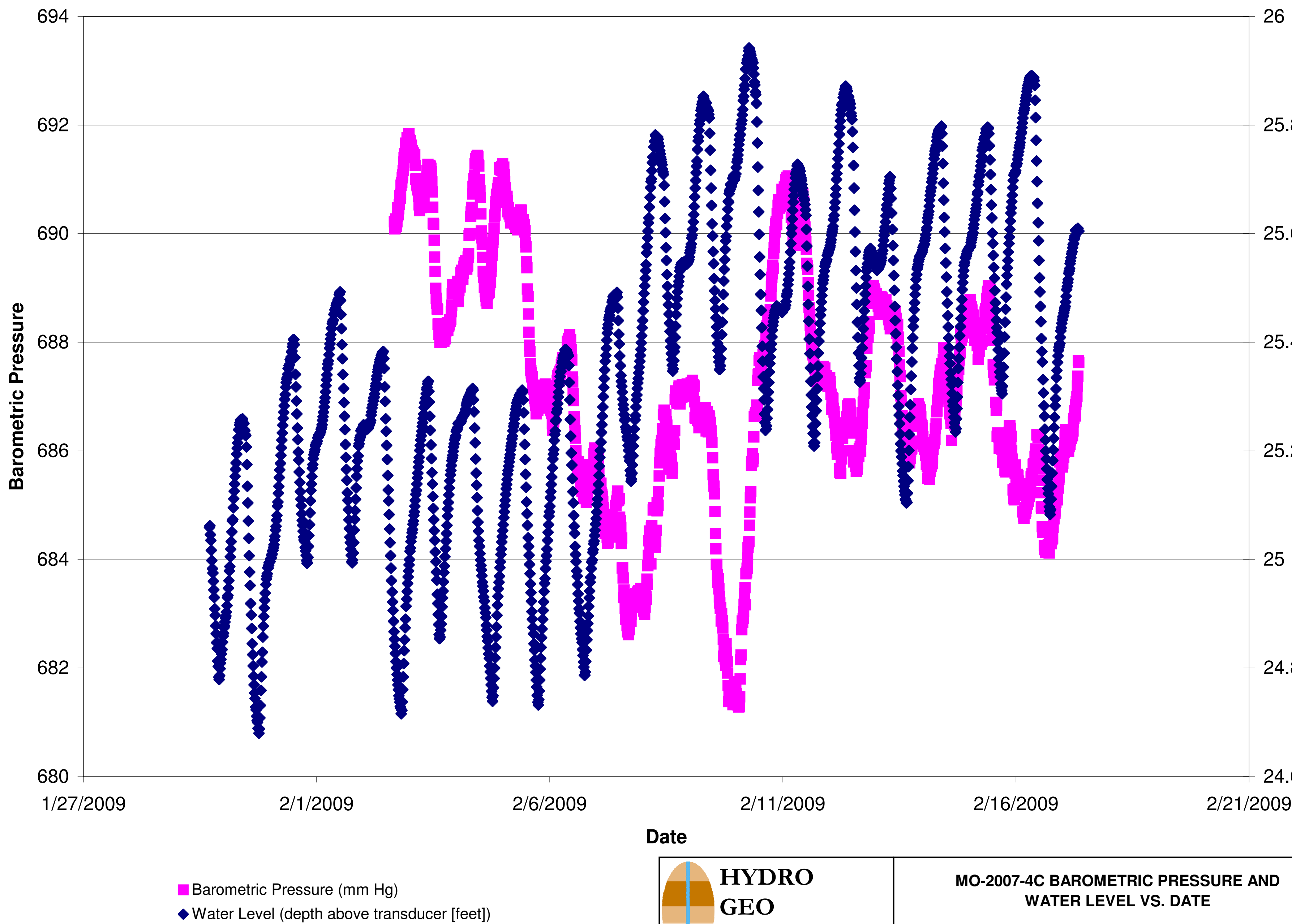
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4C 2009-3-02	B.1 MO-4C



HYDRO GEO CHEM, INC.

MO-2007-4C UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

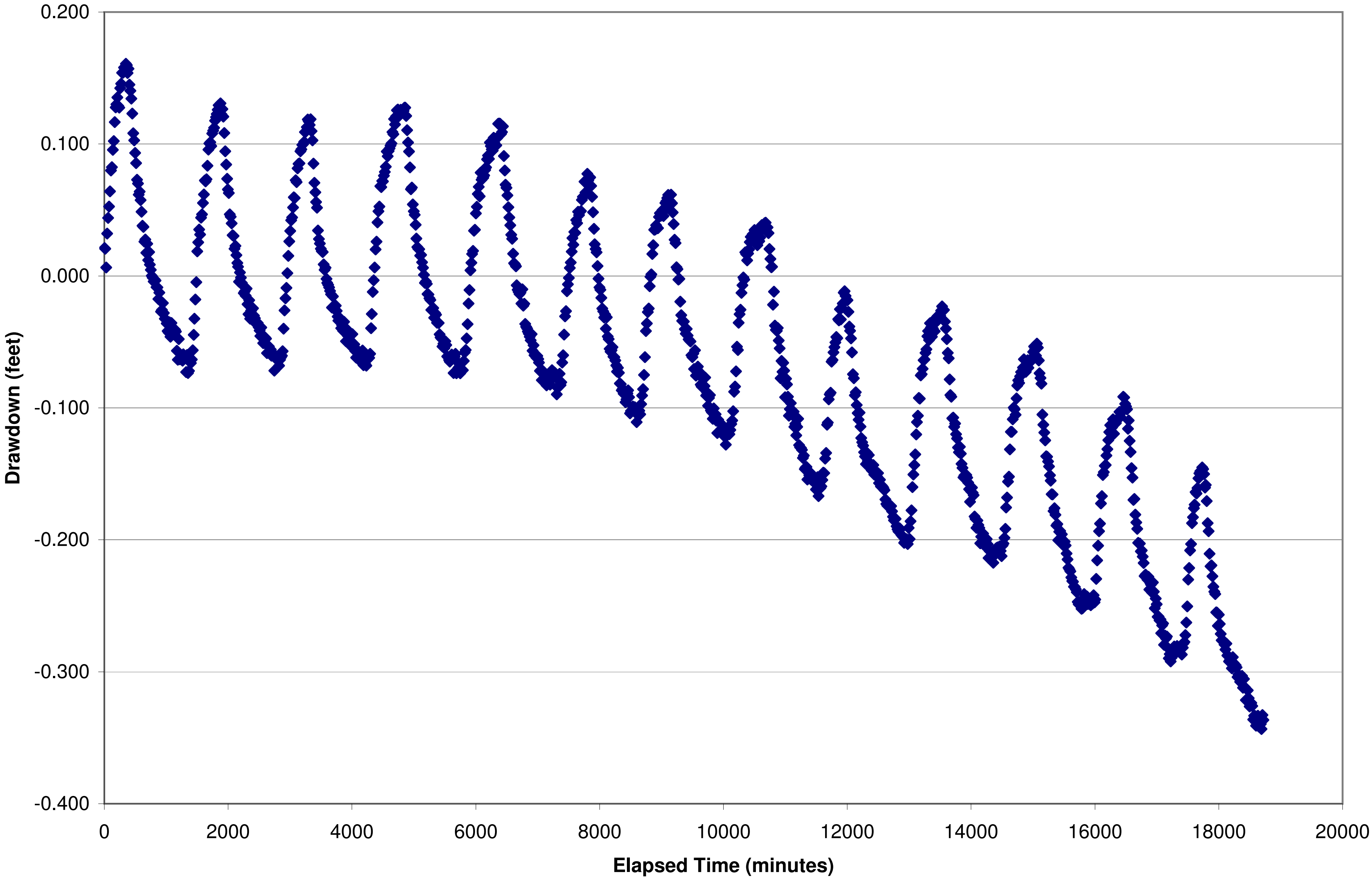
Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4C 2009-03-02	B.2 MO-4C



HYDRO GEO CHEM, INC.

MO-2007-4C BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	MO-2007-4C 2009-03-02	B.3 MO-4C



HYDRO GEO CHEM, INC.

NP-2 CORRECTED DRAWDOWN VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	NP-2 2009-03-02	B.1 NP-2

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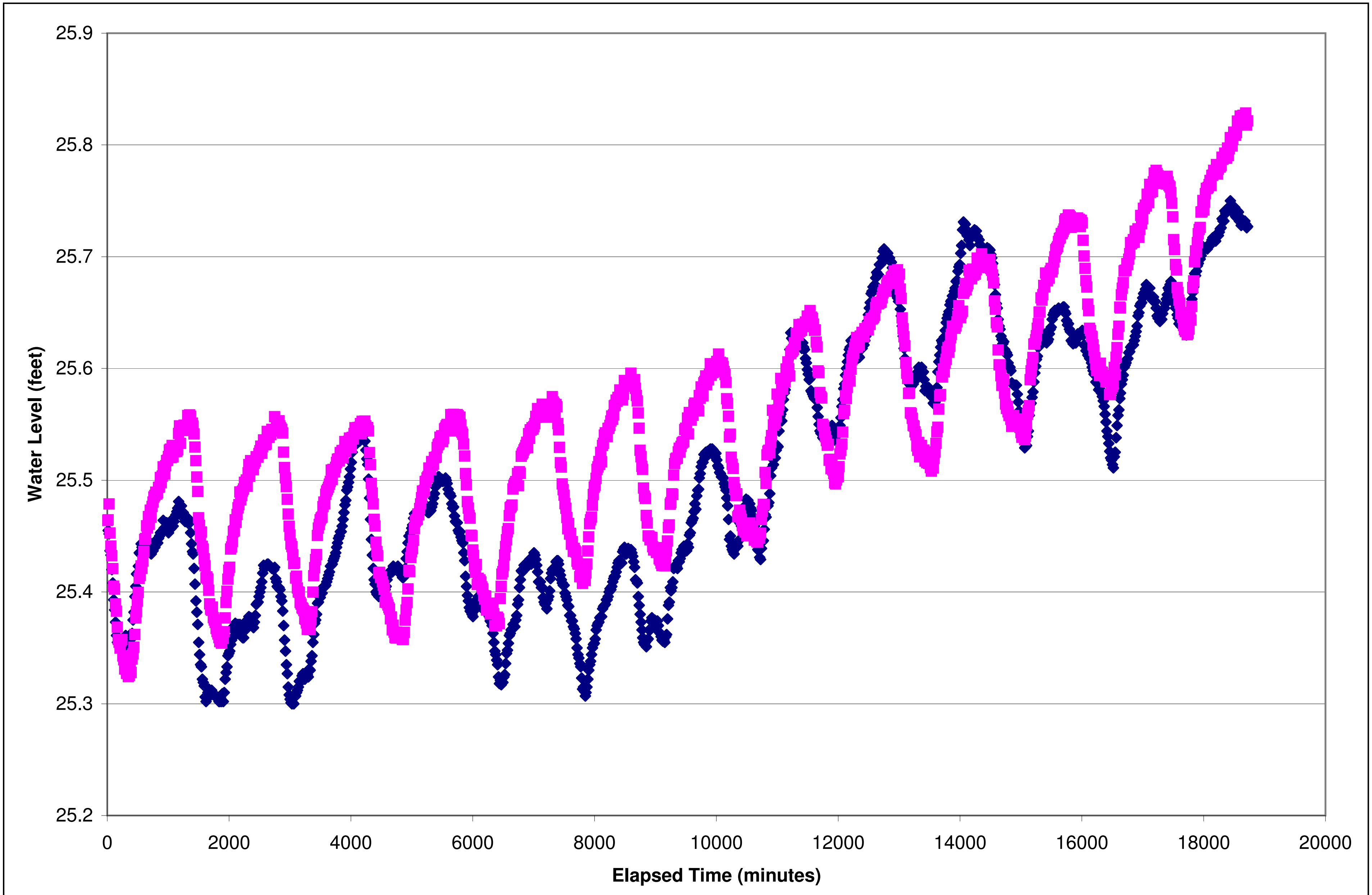

HYDRO GEO CHEM, INC.

NP-2 UNCORRECTED AND CORRECTED WATER LEVELS VS. TIME

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	NP-2 2009-03-02	B.2 NP-2

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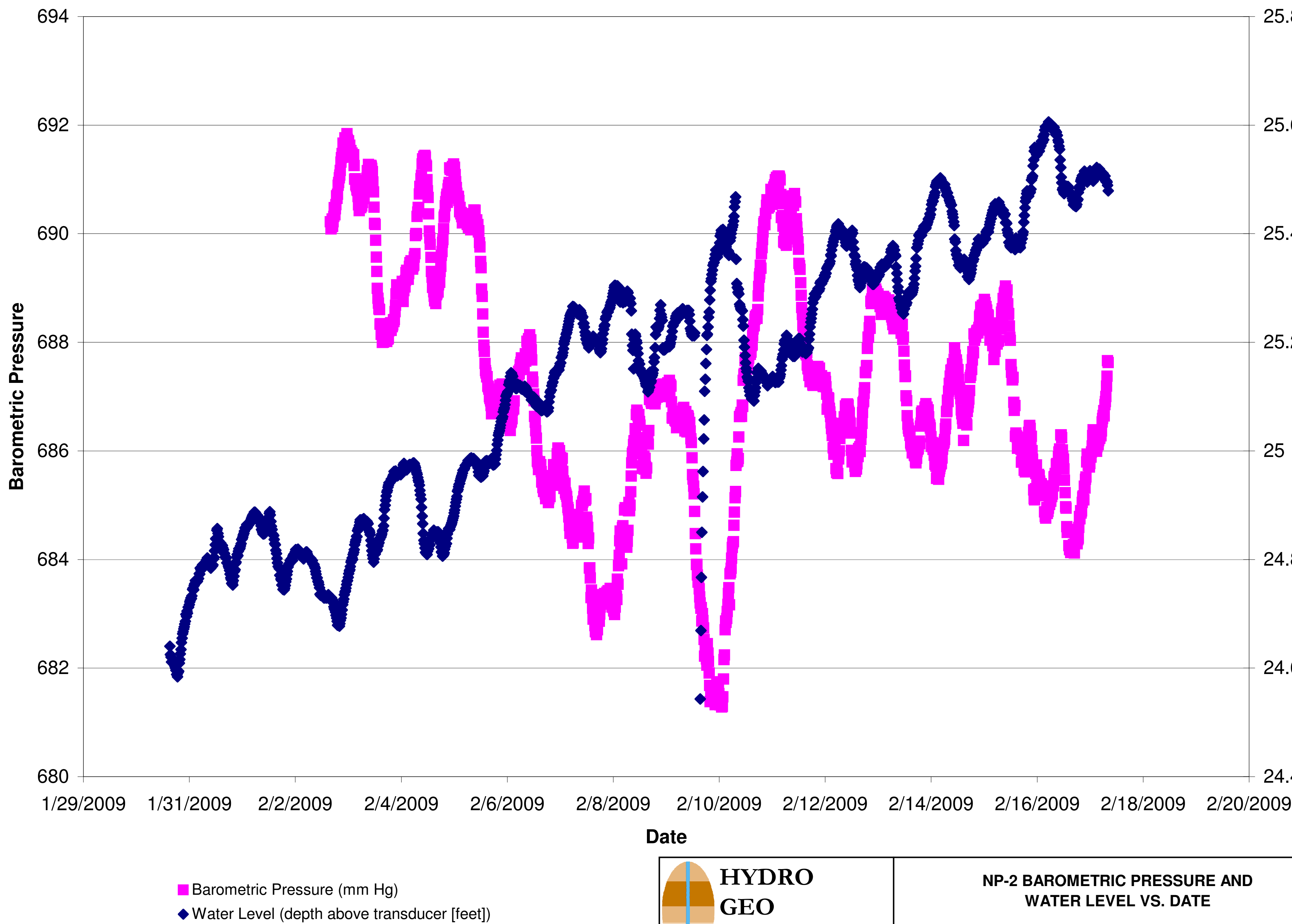

HYDRO GEO CHEM, INC.

NP-2 BAROMETRIC PRESSURE AND WATER LEVEL VS. DATE

Approved	Date	Author	Date	File Name	Figure
MWK	5/26/09	MWK	5/26/09	NP-2 2009-03-02	B.3 NP-2