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Reference #: Admin

**MS. VICKY TOON
HERON INSTRUMENTS INC.
2031 JAMES STREET
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RE: EXAMPLE OF WATER LEVEL DATA LOGGER USE

Further to your request, Geo Kamp Limited is pleased to present a typical hydrogeologic project using Heron Water Level Data Loggers (referred to as the dipperLog).

The accompanying hydrographs represent the data collected for a Test Well located near Lake Simcoe (north of Toronto) in 2010. It was difficult to coordinate the schedule of the water well contractor due to inclement weather (bitterly cold) and the project site was approximately two hours from Geo Kamp's office. The major advantages of deploying the three dipperLogs in this case were scheduling and to reduce the time required by the hydrogeologist to attend the site. In view of scheduling and time constraints, it was important that the water level data loggers used were deployed properly as well as reliable. The dipperLog software has clear big fonts in yellow and black which are day light readable. The software provides a summary of the logger's deployment information (such project, location, monitoring frequency and time of launch) and the battery and real time readings can be easily checked. The dipperLog software allows for detailed double checking of the logger's status to ensure the dipperLog is working, launched and recording data.

Geo Kamp's work is primarily focused on the exploration of groundwater resources where it is common to deploy 20 water level data loggers to record water level and temperature over many months. The attached project is considered to be a small project but illustrates the importance of deploying accurate and reliable water level data loggers to ensure proper data collection. The measurement frequency of the attached Test Well plot was at once every minute. Sometimes where too much data is collected, the readings can be jittery because of the sensor accuracy, but the attached data is smooth between readings and clearly illustrates when the water well contractor experienced difficulties in maintaining a constant flow or when there was domestic water use. The attached dipperLog data is considered more accurate than the manual readings collected by the water well contractor.

An advantage of the dipperLog is their size. The loggers are 19 millimeters in diameter and can fit into ¾ inch NTP pipes used in drive points or smaller diameter piezometers. The small diameter also allows the data loggers to also fit inside ½ inch NTP openings such as the well vent openings of well seals. This means that wells fitted with well seals can be monitored without having to take apart the well seal and lifting the pump to install a water level data logger. There are smaller diameter water level data loggers available at 18 millimetres in diameter, but these loggers lack the battery life, cost significantly more and do not have user friendly software.

A time advantage of the dipperLog software is the auto barometric correction. If one visits the barometer first before the other loggers, the software matches the project number and does the correction at the time of the field download. The individual readings are then flagged as barometric corrected or not barometric corrected in the spread sheet and as one file so the data can be plotted (using the dipperLog software) and checked in the field at the time of the download inspection. The barometric correction can actually be done at any time but making this your first step, ensures the data logger is working properly and collecting representative data.

The downloaded files can be managed and imported using the dipperLog software "Files" tab in which data can be exported as a CSV file with one mouse click. The dipperLog software avoids having to manually process the barometric correction (creating a second file) and exporting to CSV (in some cases having to create a third file). When dealing with numerous water level files, this is a significant time saver and avoids file confusion.

In cases where a client is frustrated with his water level data logger or it is a new situation, Geo Kamp Limited prefers to deploy the dipperLog because it cost comparable and reliable. Geo Kamp Limited has deployed thousands of data loggers and always maintains 35 dipperLog in stock for the next aquifer performance test.

GEO KAMP LIMITED



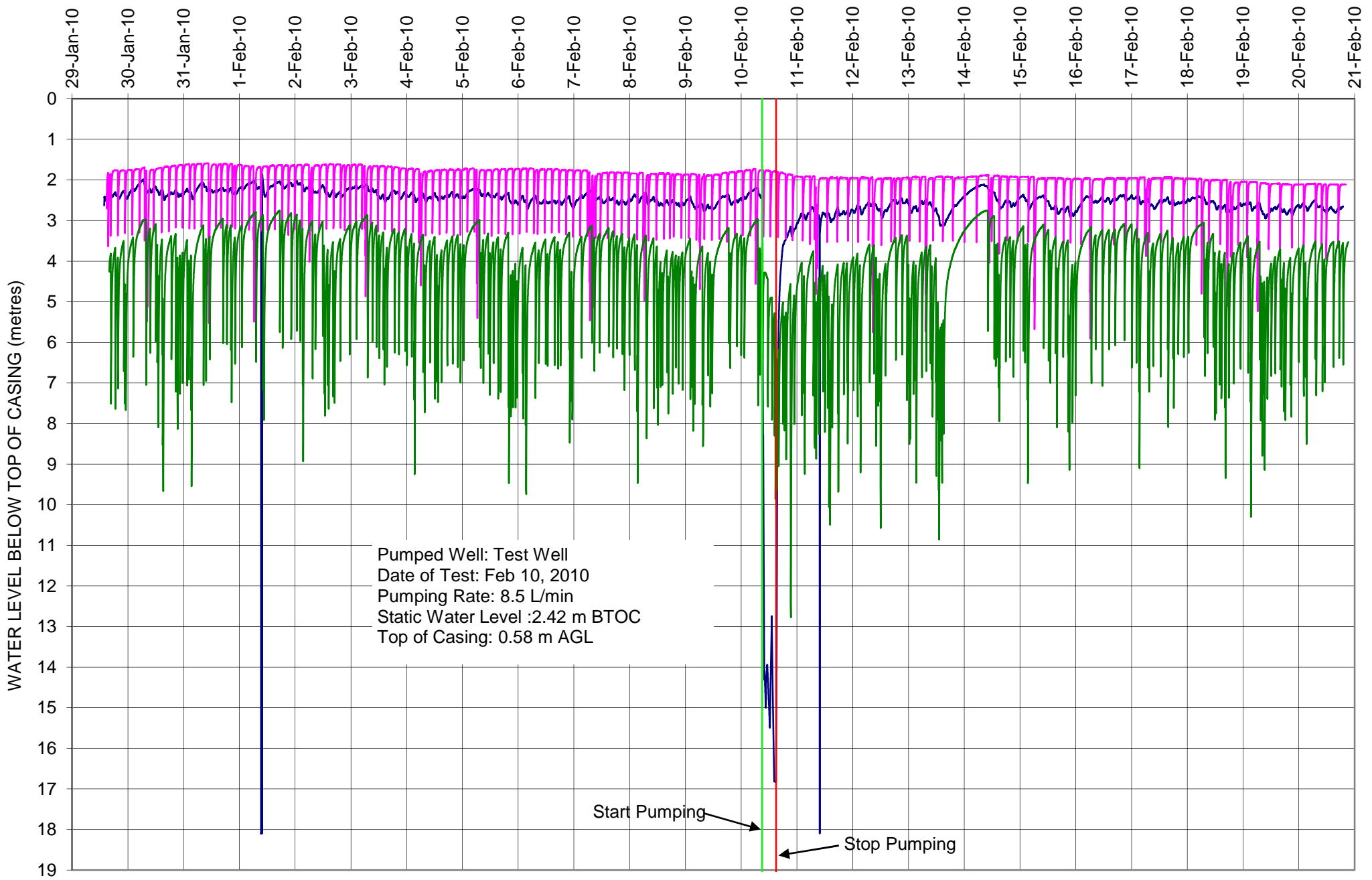
Bruce Hietkamp, P. Geo.
Hydrogeologist

Enclose:

Figure 1 – Hydrograph – All Data

Figure 2 – Hydrograph – Feb 10, 2010

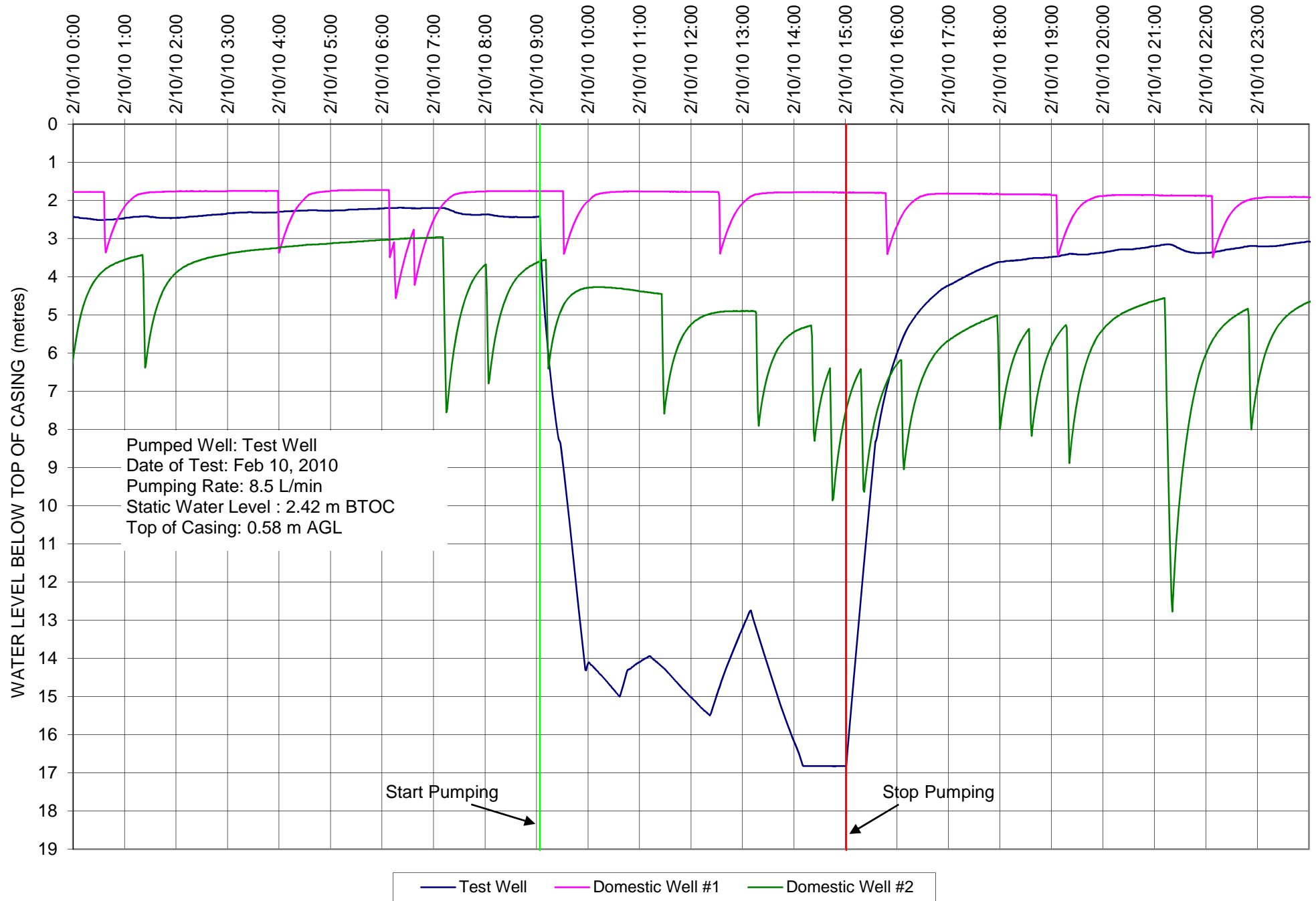
Figure 3 – Hydrograph – Pump Test



— Test Well
 — Domestic Well #1
 — Domestic Well #2

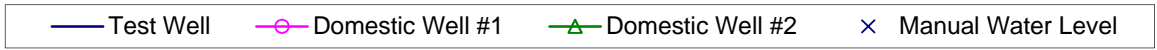
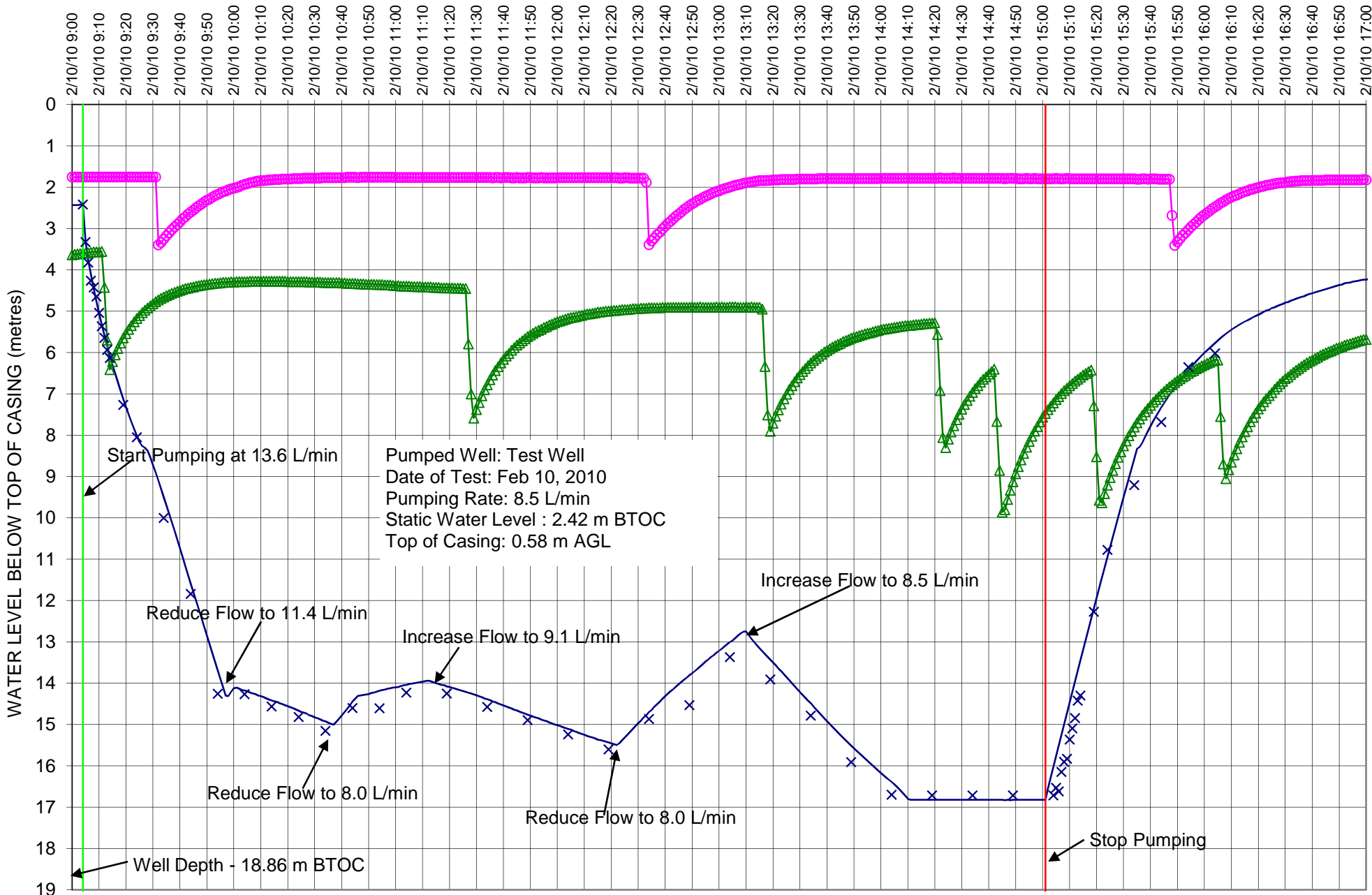
TEST WELL

HYDROGRAPH - ALL DATA
FIGURE 1



TEST WELL

HYDROGRAPH - FEB 10, 2010
 FIGURE 2



TEST WELL

HYDROGRAPH - PUMP TEST
FIGURE 3