



September 26, 2007

Mr. Herb Meade and Ms. Yolande Norman  
Remediation Division, Oil Control Program  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230-17197

Re: Proposed GWRS Modifications  
Former Upper Crossroads Exxon Service Station #2-8329  
2800 Fallston Road  
Fallston, Maryland

Dear Mr. Meade and Ms. Norman:

Exxon Mobil Corporation (ExxonMobil) is submitting this proposal for modifications to the existing groundwater recovery system (GWRS) in operation at the abovementioned site. These proposed modifications are part of an overall remedial optimization strategy for this site, the components of which are described below:

- Connect and operate two additional recovery wells (as proposed and described herein) with the purpose of establishing additional hydraulic control northeast (RW-12R) and the south (RW-7) of the current primary extraction well (RW-14).
- Following approval, implement the previously proposed soil vapor extraction (SVE) program, which is designed to remove low-level residual impacts observed in soil in the southwestern corner of the former gasoline tank field.
- Evaluate groundwater concentrations following the completion of the activities described above. If overall influent groundwater quality remains low, ExxonMobil intends to propose the initiation of a pulsed pumping program. The program would be designed to recover any additional residual constituents located between the current pumping level and the former static water level. It is envisioned that the two currently proposed additional recovery wells (RW-12R and RW-7) would remain operational during pulsed pumping to maintain recovery to the northeast and south of recovery well RW-14. Pulsed pumping will not be initiated until a workplan has been submitted to and approved by the Maryland Department of the Environment (MDE).

As part of the remedial plan, three new potential groundwater recovery wells (RW-6, RW-7 and RW-12R) were installed from May 17 to May 21, 2007. Based on the results of aquifer and analytical testing of these new wells, the following modifications to the GWRS are proposed:

- Replace extraction well RW-12 with the newly installed RW-12R; and
- Connect the recently completed RW-7 to the existing GWRS extraction well network.

The locations of the recovery well network and the proposed GWRS layout are presented on **Figure 1**. A summary of the step-testing and analytical testing performed on the new wells and proposed modifications are presented below.

#### **Summary of Step-Testing and Analytical Testing**

As discussed in the Second Quarter 2007 *Quarterly Status and Remedial Update*, each of the new wells were "step tested" or pumped at varying rate cycles to determine their short-term groundwater yield

properties. These tests were conducted from June 25 to June 28, 2007. Overall, the sustained short-term yields for the wells were in the approximate range of 0.3 to 0.5 gallons per minute. See **Figures 2 through 4** for the drawdown-versus-time plots for the new wells during these tests.

Groundwater grab samples were collected during periods of drawdown stabilization for each well and were submitted for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl ether (MTBE), tertiary-amyl methyl (TAME) and other oxygenates by USEPA Method 8260. As summarized on **Table 1**, the highest MTBE results were identified in well RW-7 at a concentration of 140 micrograms per Liter ( $\mu\text{g/L}$ ). Relatively low levels of MTBE were identified in RW-6 and RW-12R at concentrations of 2.6  $\mu\text{g/L}$  and 30.7  $\mu\text{g/L}$ , respectively.

#### **Summary of Proposed GWRS Modifications**

As discussed above, the proposed GWRS modifications include the replacement of recovery well RW-12 with newly installed RW-12R and the connection of RW-7 to the GWRS. The construction specifications for the proposed new recovery wells are presented in **Table 2**.

Recovery well RW-12 was taken offline in December 2006 due to repeated GWRS shutdowns related to silt in the GWRS influent stream. The replacement well, RW-12R, incorporates a screen and sand pack construction as opposed to open-hole construction employed in the original RW-12. This revised construction is expected to remedy any suspended silt issues for groundwater extraction conducted in this area of the site.

Based on its location and MTBE concentrations, ExxonMobil recommends connecting RW-7 to the current GWRS. The connection of RW-7 will provide further hydraulic control and enhance groundwater recovery efforts in the southern portion of the site.

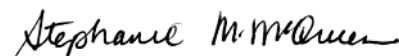
Testing indicates newly installed RW-6 does not have significant concentrations of MTBE. In addition, aquifer testing indicated that RW-6 has low yield, and would likely result in limited recovery that would compete with the immediately proximate recovery well, RW-1. Based on these results, ExxonMobil does not recommend connecting RW-6 to the GWRS at this time. Instead, the well will be utilized for monitoring purposes.

The proposed wells will be connected to the existing GWRS trench line either from an existing junction box (RW-7) or directly with the trench line (RW-12R). Groundwater recovery rates from these proposed pumping wells, in conjunction with current withdraw rates of the GWRS, is not expected to exceed the permitted allocation.

As discussed above, it is ExxonMobil's intention to optimize remediation activities at the site by connecting RW-12R and RW-7 to the GWRS and operating the proposed SVE system. Following a performance evaluation of the upgraded remedial system, ExxonMobil may propose to initiate a pulse-pumping program at the site. If pulse pumping is employed, the newly proposed recovery wells will remain operational to maintain recovery efforts.

Thank you for your consideration regarding these requests. Please feel free to contact me with any questions or comments regarding the information presented above.

Sincerely,



Stephanie M. McQueen

C: Susan Bull –MDE  
Jamie Slimm – Archer & Greiner, P.C.  
Mary Koch – Law Offices of Peter Angelos, P.C.  
Greg Martin – Roux Associates, Inc.  
Project File

Attachments

**Table 1**  
**Step Test Analytical Summary**  
**For RW-6, RW-7 and RW-12R**

**Former Exxon Service Station #2-8329**  
**2800 Fallston Road**  
**Fallston, MD**

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Total Depth of Well (ft.)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	tert-Butyl Alcohol (µg/L)	Diisopropyl ether (µg/L)	ethyl tert-butyl ether (µg/L)	tert-amyl methyl ether (µg/L)
RW-6	06/25/07	572.46	35.55	536.91	74.8	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.0)	2.6	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)
RW-7	06/26/07	573.74	38.12	535.62	79.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.0)	140	2.9 J	ND(5.0)	ND(5.0)	ND(5.0)
RW-12R	06/27/07	578.22	45.09	533.13	73.6	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.0)	30.7	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)

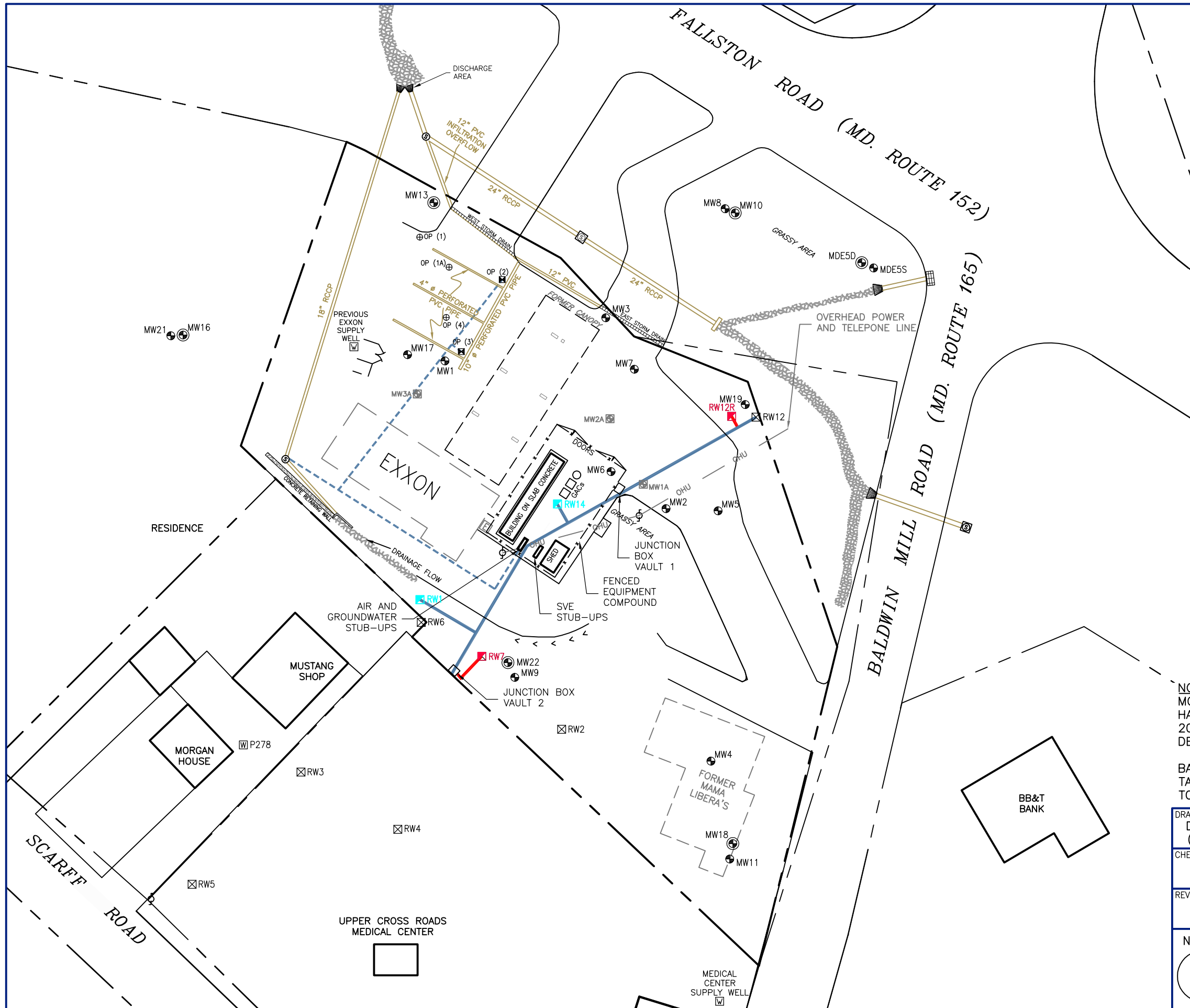
µg/L = Micrograms/liter  
mg/L = Milligrams/liter  
BTEX = The sum of Benzene, Toluene, Ethylbenzene, and Total Xylene  
MTBE = Methyl tertiary butyl ether  
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics  
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics  
TIC = Tentatively Identified Compounds  
NA = Not Available/Not Applicable  
ND = Not detected (# is method detection limit)  
J = Estimated Concentration  
DRY = No water detected in monitoring well  
- = Not available or not analyzed for that specific compound  
NR = Not Recorded

**Table 2  
Recently Installed GWRS  
Well Construction Summary**

**Former Exxon Service Station #2-8329  
2800 Fallston Road  
Fallston, MD**

<b>Well ID (MDE)</b>	<b>Well Diameter (inches)</b>	<b>Well Type</b>	<b>Completion Date</b>	<b>Total Depth From Grade (feet)</b>	<b>Set Casing Depth from Grade (feet)</b>	<b>Casing Length (feet)</b>	<b>Borehole Diameter (inches)</b>	<b>Depth to Top of Screen from Grade (feet)</b>	<b>Set Screen Depth from Grade (feet)</b>	<b>Screen Length (feet)</b>
RW-6	6	Screened	5/17/2007	76	NA	NA	10	26	76	50
RW-7	6	Screened	5/18/2007	80	NA	NA	10	20	80	60
RW-12R	6	Screened	5/21/2007	76	NA	NA	10	16	76	60

Notes: RW = Recovery well  
fbg = Feet below grade  
NA = Not applicable



### LEGEND

- PROPERTY BOUNDARY
- [E] FORMER ELECTRICAL SERVICE
- [ ] FORMER DISPENSER ISLAND
- [W] POTABLE WELL
- [X] GROUNDWATER RECOVERY WELL
- [X] DISCHARGE WELL
- x-x- CHAIN-LINK FENCE
- [|||||] STORMWATER DRAIN
- [|||||] RIP-RAP CHANNEL
- [X] OBSERVATION PIPE
- [+ ] UPPER UNIT MONITORING WELL
- [+ ] MIDDLE/LOWER UNIT MONITORING WELL
- [+ ] ABANDONED MONITORING WELL
- [S] STORM DRAIN MANHOLE
- [ ] STORM WATER OUTLET
- [ ] STORM WATER INLET
- [S] STORM DRAIN INLET & ACCESS
- [W] DOMESTIC/POTABLE WELL
- [ ] RECOVERY WELLS ON LINE
- [ ] GWRs EXTRACTION AND SVE PIPING
- [ ] GWRs DISCHARGE PIPING
- [ ] PROPOSED RECOVERY WELL TRENCH CONNECTION
- [ ] PROPOSED ON LINE RECOVERY WELL

**NOTES:**  
 MONITORING WELLS WERE SURVEYED BY FLANNERY, WEBB & HANSEN SEPTEMBER 2004, DECEMBER 2004 AND JANUARY 2005 AND BY MORRIS & RITCHIE ASSOCIATES, INC. IN DECEMBER 2006 AND JUNE 2007.

BASEMAP ADOPTED FROM MD DEPT. OF ASSESSMENT AND TAXATION MAP. WELL LOCATIONS ARE APPROXIMATE RELATIVE TO BASEMAP PROPERTY LINES.

DRAFTED BY: D.M.K. (N.J.)	<b>PROPOSED GROUNDWATER RECOVERY SYSTEM LAYOUT</b>		
CHECKED BY:	<b>FORMER EXXON SERVICE STATION #2-8329 2800 FALLSTON ROAD FALLSTON, MARYLAND</b>		
REVIEWED BY:	<b>Groundwater &amp; Environmental Services, Inc.</b> 2142 PRIEST BRIDGE COURT, SUITE 1, CROFTON, MD 21114		
NORTH 	SCALE IN FEET (APPROXIMATE) 	DATE 8-21-07	FIGURE 1

Figure 2  
Step Test Drawdown Data for RW-6

Former Exxon Station 2-8329  
2800 Fallston Road, Fallston MD  
June 25, 2007

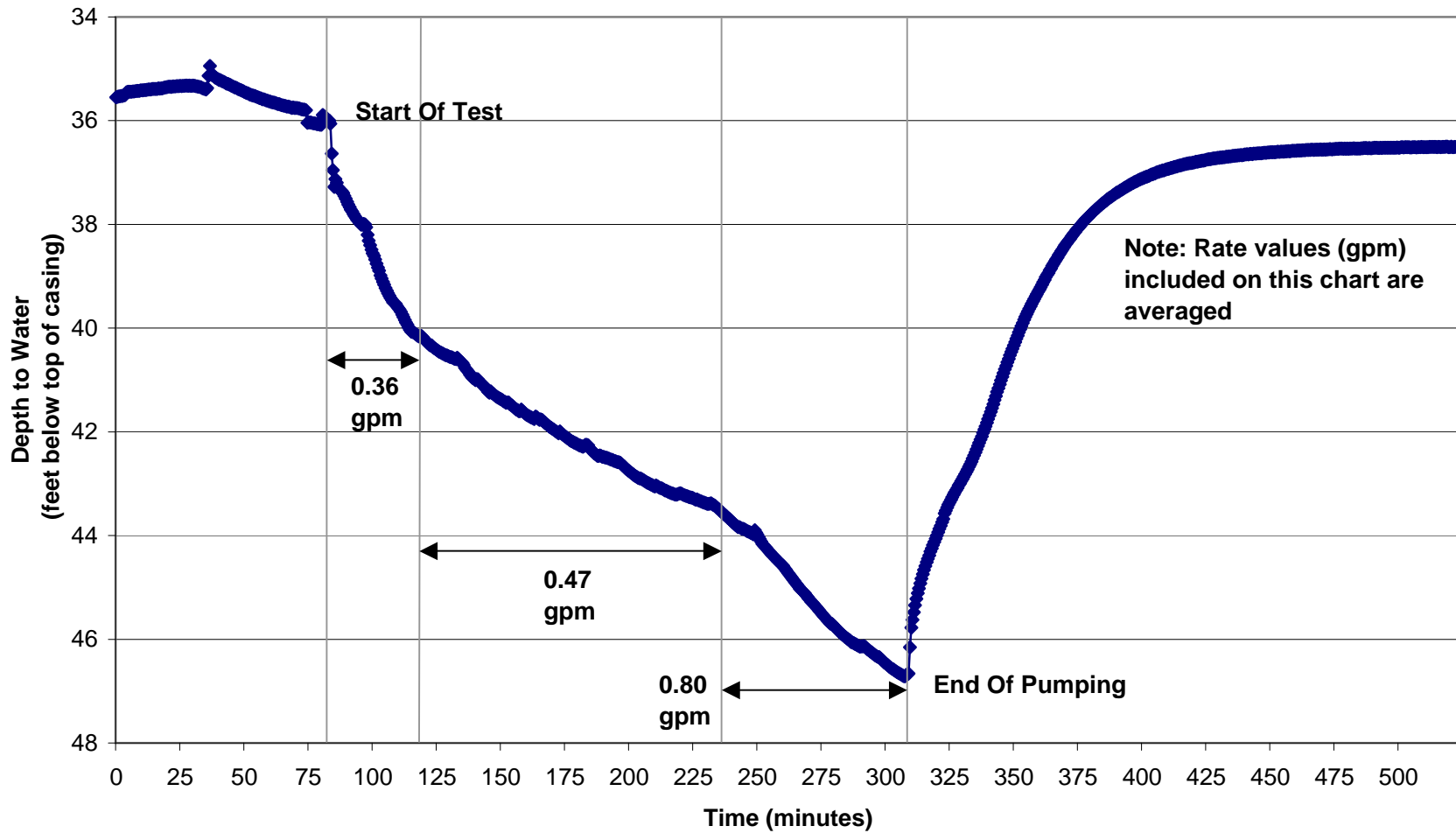


Figure 3  
Step Test Drawdown Data for RW-7

Former Exxon Station 2-8329  
2800 Fallston Road, Fallston MD  
June 26, 2007

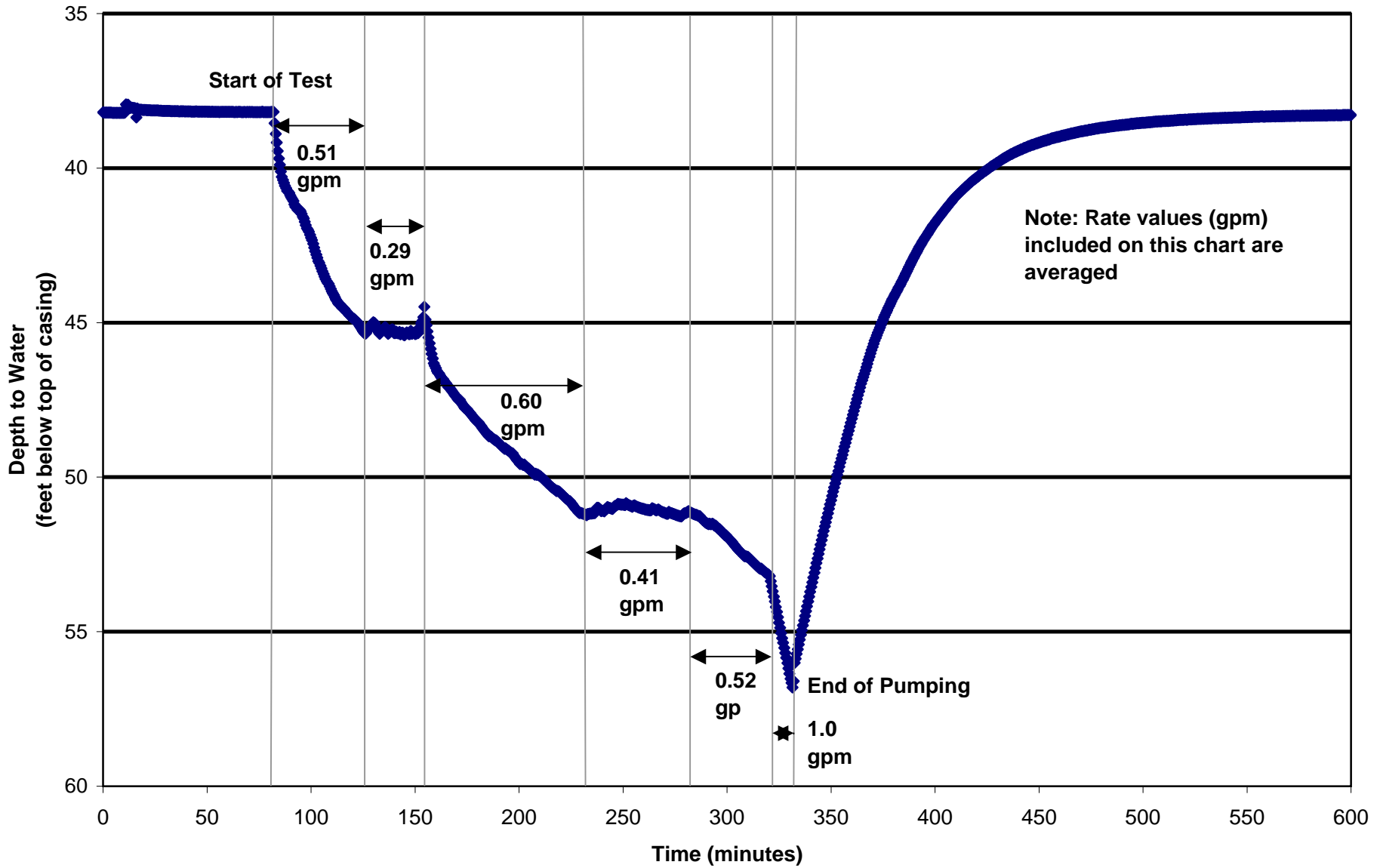


Figure 4  
Step Test Drawdown for RW-12R

Former Exxon Station 2-8329  
2800 Fallston Road, Fallston MD  
June 27, 2007

