GAINESVILLE REGIONAL UTILITIES

Strategic Planning Department

December 3, 2008

Mr. Scott Miller
Remedial Project Manager
United States Environmental Protection Agency
Region IV, Superfund North Florida Section
61 Forsyth Street, SW
Atlanta, GA 30303

RE: GRU Comments on Beazer Comprehensive Groundwater Monitoring and Sample Analysis Plan (October 8, 2008)

Dear Mr. Miller:

Attached are GRU's comments to the Beazer Comprehensive Groundwater Monitoring and Sample Analysis Plan (October 8, 2008).

Thank you very much for your on-going effort in addressing the Cabot/Koppers Superfund site. If you need additional information, please contact me at 352-393-1218.

Sincerely,

Richard N Hutton

Rick Hutton, P.E.
Supervising Utility Engineer

xc: John Mousa (ACEPD)
Kelsey Helton (FDEP)
Mitchell Brourman (Beazer East, Inc.)
John Herbert, Brett Goodman (Jones Edmunds)
David Richardson, Ron Herget (GRU)
Correspondence

MEMORANDUM

JONES EDMUNDS

TO: Rick Hutton

FROM: DNAPL Team

DATE: December 3, 2008

XC:

RE: Comments on Beazer Comprehensive Groundwater Monitoring and Sample Analysis Plan dated October 8, 2008

The GRU DNAPL Team offers these comments and observations to the Comprehensive Groundwater Monitoring and Sample Analysis Plan (CGMSAP) dated October 8, 2008.

Proposed Analytical Reporting Limits

If it is intended that only chemical concentrations will be reported only for those concentrations exceeding the reporting limits shown in Tables 5-3, 5-4 and 5-6, this is unacceptable. The reporting limits proposed by Beazer equal to the GCTLs for the various chemicals.

Past sampling and analyses from the site have been able to achieve Method Detection Limits (MDLs) and Practical Quantitation Limits (PQLs) or Method Reporting Limits (MRLs) that are factors of 10-fold or more lower than the proposed reporting limits. The use of the proposed reporting limits will serve to cloak the results of lower, but valid, data which would otherwise assist the interpretation of groundwater flow and contaminant migration pathways and provide early warning of the presence of groundwater contamination.

For example, if the reporting limit proposed by Beazer for acenaphthene (20 µg/L) was applied, the consistent findings of acenaphthene in: FW-22B; FW-23B; FW-24B would continue to be unrecognized. Although these acenaphthene concentrations do not exceed GCTLs, they confirm that there are contaminant migration pathways for Koppers site contaminants to reach the site boundary at these locations – locations that are not "downgradient" of the recognized source areas; locations at which contamination would not have been expected based on mapped groundwater gradient in the Floridan. Also, in the 2nd Quarter of 2008, naphthalene was detected for the first time in FW-22B-Z2 and Z3, at 13 µg/L and 24 µg/L respectively. The presence of naphthalene in Zone 2 at 13 ug/L would have gone unrecognized if the proposed reporting limit of 14 ug/L was used. Note also that the concentration of naphthalene in this well increases with depth (nondetect in Zone 1, 13 ug/L in Zone 2, 24 ug/L in Zone 3) – similar to the situation at FW-12B.

The following table shows the reporting limits proposed in the CGMSAP compared to the MDLs and MRLs achieved for the majority of the groundwater analyses for 2006 and 2007.

Chemical	Beazer Proposed Reporting Limit (µg/L)	Method Detection Limit (µg/L)*	Method Reporting Limit (µg/L)*
Arsenic	10	0.28	0.50
Benzene	1	0.088	1
Ethylbenzene	30	0.12	1
Toluene	40	0.13	1
Xylenes	20	0.27	3
2,4-Dimethylphenol	140	0.61	5.8
2-Methylnaphthalene	28	0.49	5.8
2-Methylphenol	35	0.51	5.8
4-Methylphenol	3.5	0.84	5.8
Acenaphthene	20	0.37	5.8
Acenaphthylene	210	0.40	5.8
Anthracene	2100	0.30	5.8
Carbazole	1.8	0.64	5.8
Dibenzofuran	28	0.51	5.8
Fluoranthene	280	0.30	5.8
Fluorene	280	0.42	5.8
Naphthalene	14	0.48	5.8
Pentachlorophenol	1	0.45	23
Phenanthrene	210	0.30	5.8
Phenol	10	2	5.8
Pyrene	210	0.50	5.8

*Values for sample from FW-22B Zone 1 2nd Quarter 2007.

A further comment on Tables 5-3, 5-4 and 5-6 is warranted also. These tables note GCTLs having a range of a factor of 10, for example 14 – 140 µg/L for naphthalene. However, according to Floridan Administrative Code 62-777, this higher value should apply only to low yield or poor quality groundwater that could not be used for potable water supply. The low yield or poor quality criteria should not be applied to any of the aquifer units at the Koppers Site.

Floridan Aquifer

Issue #1 Frequency and Locations for Groundwater Elevation Monitoring in Floridan Aquifer

Based on the CGMSAP, measurement of groundwater elevations would occur only when the wells are sampled. The CGMSAP proposes that, in the Floridan Aquifer, only the multi-port system wells would be sampled, most on a semi-annual or annual frequency. The standard completion wells (FW-2 through FW-9) would not be monitored.

Groundwater elevations measured in the standard wells have fluctuated by as much as 10 feet to 11 feet (see attached Figure 1) based on quarterly monitoring from 2006 to 2008 and there could be site-scale changes in groundwater flow direction associated with such fluctuations. Continued monitoring of these wells on a quarterly frequency, at least, will be necessary to identify changes in groundwater flow direction that might be the cause of changes in groundwater chemistry observed at any given location.

Beazer currently uses no data from multiport wells to construct potentiometric maps that are submitted in the Quarterly Groundwater Monitoring Reports. The Third Quarter 2008 sampling report provides a detailed discussion of the rationale for using data from only the standard completion wells. Using data loggers to continuously record water levels in wells FW-2 through FW-8 might be the most effective way to assess temporal fluctuations in groundwater elevation and flow direction beneath the Koppers site.

Although there are more multi-port system wells than the standard-completion monitoring wells in the Floridan Aquifer, the pattern of groundwater elevations from the multi-port wells is more variable in indicated flow direction than the general southwest-northeast pattern exhibited from the standard wells. It is not clear whether which pattern is more representative of conditions in the aquifer. Monitoring of both types of wells should continue as part of the CGMSAP.

Issue #2 Frequency and Locations for Groundwater Chemistry Monitoring in Floridan Aquifer

The CGMSAP proposes annual sampling of multi-port system wells FW-22B, FW-23B and FW-24B. However, the consistent findings of acenaphthene in FW-22B, FW-23B, and FW-24B confirm that there are contaminant migration pathways for Koppers site contaminants to reach the site boundary at these locations. In order to provide an adequate early warning of contaminant migration approaching GCTLs (or other trigger concentrations) at the site boundary, these wells should be sampled on a semi-annual frequency. In the 2nd Quarter of 2008, naphthalene was detected for the first time in FW-22B-Z2 and Z3, at 13 µg/L and 24 µg/L respectively. All previous sample results from these locations had been less than detection (~0.5 µg/L). Only continued monitoring can determine whether these 2nd Quarter 2008 results indicate a first arrival of naphthalene near the GCTL at the site boundary.

For the reasons stated above, we believe that:

a. Groundwater chemistry should be measured semiannually – at a minimum - at all Floridan monitoring wells and sample ports (and all Hawthorn Group wells) where Koppers-related contaminants have been detected below GCTLs (or other trigger concentrations) with relative consistency over at least 4 sampling rounds - for example various phenolic compounds detected in 50% to 75% of the samples collected from FW-3, or acenaphthene detected in 50% to 100% of the samples collected from FW-22B, FW-23B and FW-24B.

b. Beazer may consider reducing the sample frequency to annual for only those site boundary or off-site wells that have yielded concentrations less than detection (~1 µg/L or lower) with relative consistency over at least 4 sampling rounds for all Koppers-related contaminants, for example all zones in FW-10B and FW-17B.

c. Beazer may consider reducing the sample frequency to annual for only those interior wells that have yielded concentrations less than GCTLs (or other trigger concentrations) with relative consistency over at least 4 sampling rounds for all Koppers-related contaminants, for example all zones in FW-13B and FW-14B.

d. All newly installed Floridan and Hawthorn monitor wells should be sampled quarterly to compile a sufficient body of data before consideration is given to reducing the frequency of sampling.

e. If any Koppers-related contaminant is detected above the GCTL (or other trigger concentration) in a well or sample port that is sampled annually or semiannually, then quarterly sampling should be initiated.

Issue #3 Additional Floridan Wells at the Northern Property Boundary

Based on the consistent findings of acenaphthene in FW-22B, FW-23B and FW-24B at the northwest site boundary, the high contaminant concentrations in FW-12B, and the proposal to eliminate FW-7 from the sampling program, two additional multi-port system wells should be installed on the northern property boundary as part of this CGMSAP. One location should be between FW-22B and FW-23B; the other location should be between FW-23B and FW-4C. Well FW-7 should be retained for measuring water levels.

Issue #4 Additional Interior Floridan Wells

Additional multiport Floridan wells, previously proposed by Beazer to investigate the extent of contamination detected by FW-12B should be installed and monitored quarterly as described in the discussion of Floridan Issue #2 above.

Issue #5 Arsenic

Data should be gathered to explain the occurrence of As along the west side of the site from FW-3, to FW-10B, FW-11B to FW-24.

Issue #6 Status of FW-3 and FW-6

FW-3 and FW-6 should be retained in the CGMSAP. FW-3 should remain part of the CGMSAP because benzene, phenolic compounds, and arsenic have been detected relatively consistently at that location and there is no multi-port system well nearby.

FW-6 should be retained – for sampling and recording groundwater levels – during and after the "pumping test". Concentrations of Naphthalene show a general increasing trend between September 2007 (110 ug/L) to the June 2008 reported concentrations of 860 ug/L and 980 ug/L (duplicate samples in June 2008). The Sept 2008 sample contained 430 ug/L Naphthalene. The trend of Naphthalene concentrations in well FW-6 generally mirrors the trend in groundwater gradient across the site - see attached Figure 2).

Hawthorn Group

Issue #1 Frequency and Locations for Groundwater Elevation Monitoring in the Hawthorn Group

It is not clear what frequency GeoTrans intends for monitoring water levels in the Hawthorn Group. We believe that water levels should be measured quarterly. This frequency would provide data regarding seasonal changes in water levels.

Issue #2 Frequency and Locations for Groundwater Chemistry Monitoring in Hawthorn Aquifer

All perimeter and off-site Hawthorn wells should be sampled quarterly, for at least four quarters, until a sufficient body of data is compiled showing consistent concentrations. In the event that all Koppers-related contaminants are consistently reported at concentrations less than detection (~1 µg/L or lower), then reduction of sampling frequency to annual could be considered. If monitoring data show that Koppers-related contaminants are detected, but are at concentrations consistently below action levels, then reduction of the frequency of groundwater sampling to semiannual could be considered. If any Koppers-related contaminant is detected above the GCTL or other action level, then quarterly sampling should continue or should be initiated."

Issue 3 Monitoring of the Source Concentrations Potentially Migrating Off-Site and to the Floridan Aquifer

The CGMSAP does not include monitoring of the groundwater quality in the Hawthorn Group units near the release areas (source zones) on the Koppers site that would be the source of lateral off-site migration and the source of existing or potential leakage downward into the Floridan Aquifer. Groundwater samples have been analyzed only once in 2004 for wells HG-9S, 10S, 11S, 12S, 15S, 16S, 10D, 12D, 16D. Although there was evidence of DNAPL in all these wells and groundwater concentrations are expected to be very high reflecting dissolution of the DNAPL, knowledge regarding any spatial pattern in groundwater chemistry / DNAPL composition will be valuable in assessing the results of groundwater monitoring in lateral downgradient directions in the Hawthorn and in the underlying Floridan Aquifer. Therefore, the CGMSAP should include semi-annual monitoring of Upper Hawthorn Group monitoring wells HG-9S, -11S and -15S at the southern end of the site, of HG-10S and -16S at the Former North Lagoon, and HG-12S at the Former Drip Track. Semi-annual monitoring of monitor wells in the Lower Hawthorn Group should include HG-12D, -10D and -16D, all of which have produced some DNAPL. The exclusion of these Hawthorn Group monitor wells reduces our ability to understand the role of the Hawthorn Group in controlling contamination of the Floridan aquifer.

Surficial Aquifer

Issue #1 Frequency and Locations for Groundwater Elevation Monitoring in the Surficial Aquifer

It is not clear what frequency GeoTrans intends for monitoring water levels in the Surficial Aquifer. We believe that water levels should be measured quarterly. This frequency would provide data regarding seasonal changes in water levels.

Issue #2 Frequency and Locations for Groundwater Chemistry Monitoring in the Surficial Aquifer

The CGMSAP proposes very limited sampling of monitor wells in the Surficial Aquifer. We believe that surficial wells, sufficient in number and distribution to evaluate distribution of COCs throughout the site – including the interior and locations near source areas - should be sampled semiannually.

Well PW-1 in the Former Process Area should be included in the CGMSAP as a well to be sampled. For some time this well produced DNAPL. A contact-water sample can be analyzed to determine what this particular source is comprised of. Other Surficial Aquifer monitor wells that should be included - in order to provide regular information on the status of the groundwater quality in the Surficial Aquifer - are M-1 [Former North Lagoon], M-3BR [northeast of the Former North Lagoon], M-12 [Former Drip Track], ESE-001 [off-site to the northeast] and a replacement well for ITW-21. Please see attached Figure 3 that shows the locations of these

monitor wells. We see no reason to continue monitoring ITW-12 and -22, once ITW-21R has been installed.

All surficial monitoring wells including in the CGMSAP should be monitored on a semiannual basis. PCP should be added to the list of analytes for all Surficial Aquifer monitoring wells because that compound was reported in 1984 from wells M-3B (1,900 ug/L) and M-9B (520 ug/L), (see also the comment below re: Arsenic and PCP). Table 2-1 of the Plan should identify all Surficial Aquifer wells as being monitored for SVOCs, VOCs, As and PCP. All surficial wells -except those monitoring effectiveness of the groundwater extraction trenches and the perimeter extraction system – should be monitored on a semiannual basis. Wells monitoring the effectiveness of extraction systems should be monitored quarterly (see Issue #3)

Issue #3 Monitoring of Perimeter Extraction Wells and IRM Extraction Trenches

The CGMSAP does not indicate whether the monitoring of the perimeter extraction wells or the IRM groundwater collection trenches would be part of the program. We suggest that monitoring related to the perimeter extraction system and the IRM groundwater extraction system should be included in this plan to make it truly comprehensive. Groundwater samples should be collected quarterly from these monitoring points. Water levels should be recorded monthly. Additional surficial wells and piezometers proposed by GRU to monitor performance of the groundwater extraction trenches and the perimeter extraction system should be included in the CGMSAP – see GRU's Review of the Surficial Aquifer Interim Remedial Measure (IRM) and Soil Solidification/Stabilization Pilot Test Work Plan dated October 22, 2008 - Specific Comment #3 to Surficial Aquifer Extraction System Modifications.

Arsenic and Pentachlorophenol (PCP) Monitoring

Arsenic and PCP occur in the highest concentrations in the Surficial Aquifer nearest the release areas (source zones). However, it has not been established that PCP concentrations in the Hawthorn Group beneath the release areas are low. Wells HG-9S, 10S, 11S, 12S, 15S, 16S, 10D, 12D, 16D have only been sampled once - in 2004. Those samples had detection limits for PCP ranging from 22 µg/L to 430 µg/L. The MCL for PCP is 1 ug/L. PCP concentrations in HG-10S, HG-11S, HG-10D were 587 µg/L 3,690 µg/L and 208 µg/L, respectively.

As a result, PCP should be included in the CGMSAP for the Hawthorn Group wells and the Floridan Aquifer wells – in addition to the Surficial wells as proposed by GeoTrans.

Although the elevated concentrations of arsenic found at some locations in the Floridan Aquifer cannot be identified clearly as Koppers-related contamination, arsenic should continue to be part of monitoring program for the Hawthorn and Floridan.

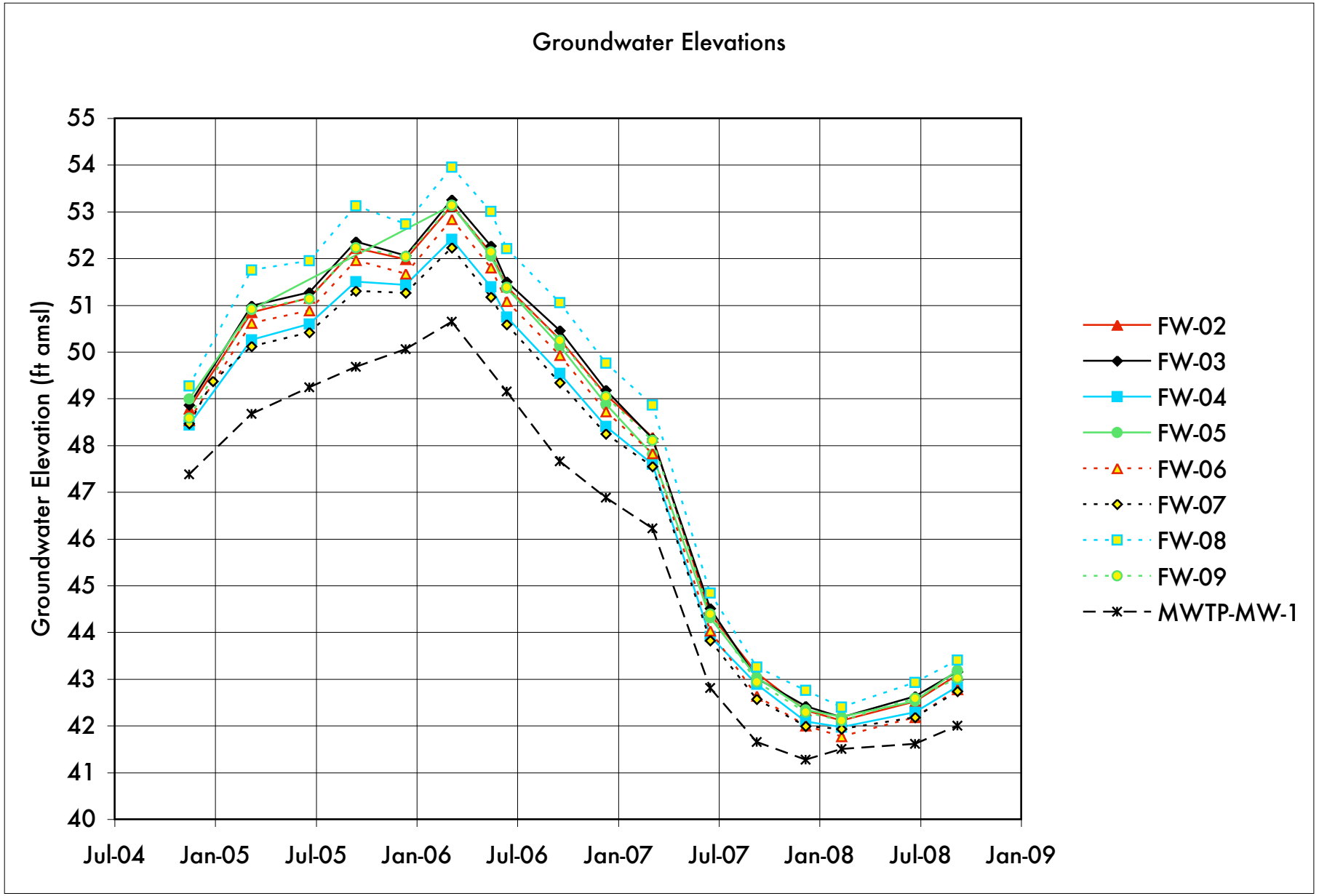

Figure 1. Temporal fluctuation in groundwater elevations measured in standard-completion monitoring wells.

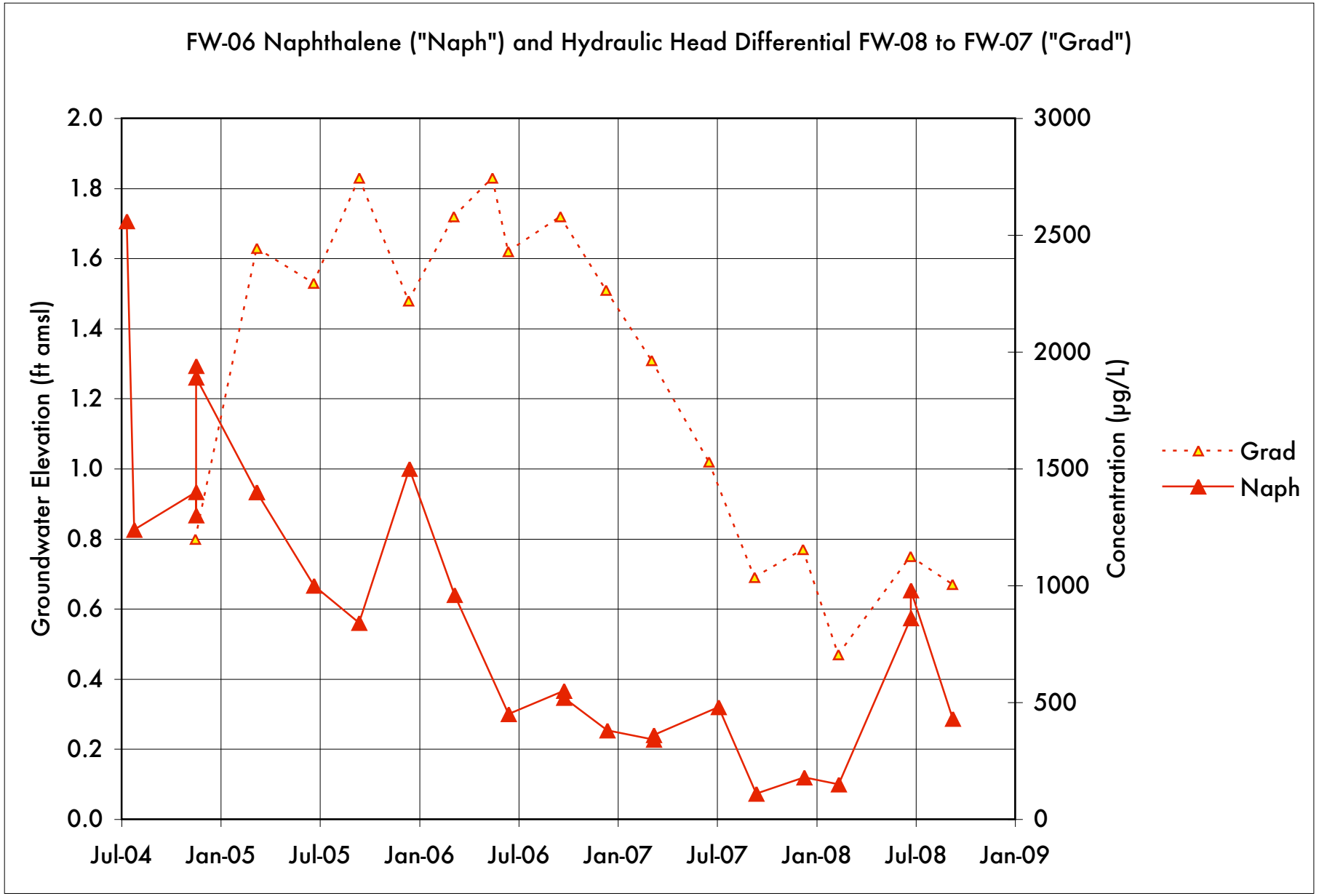

Figure 2. Comparison of temporal fluctuations in naphthalene concentrations in FW-6 with the fluctuations in cross-site hydraulic gradient estimated between FW-08 (southwest) and FW-07 (northeast).

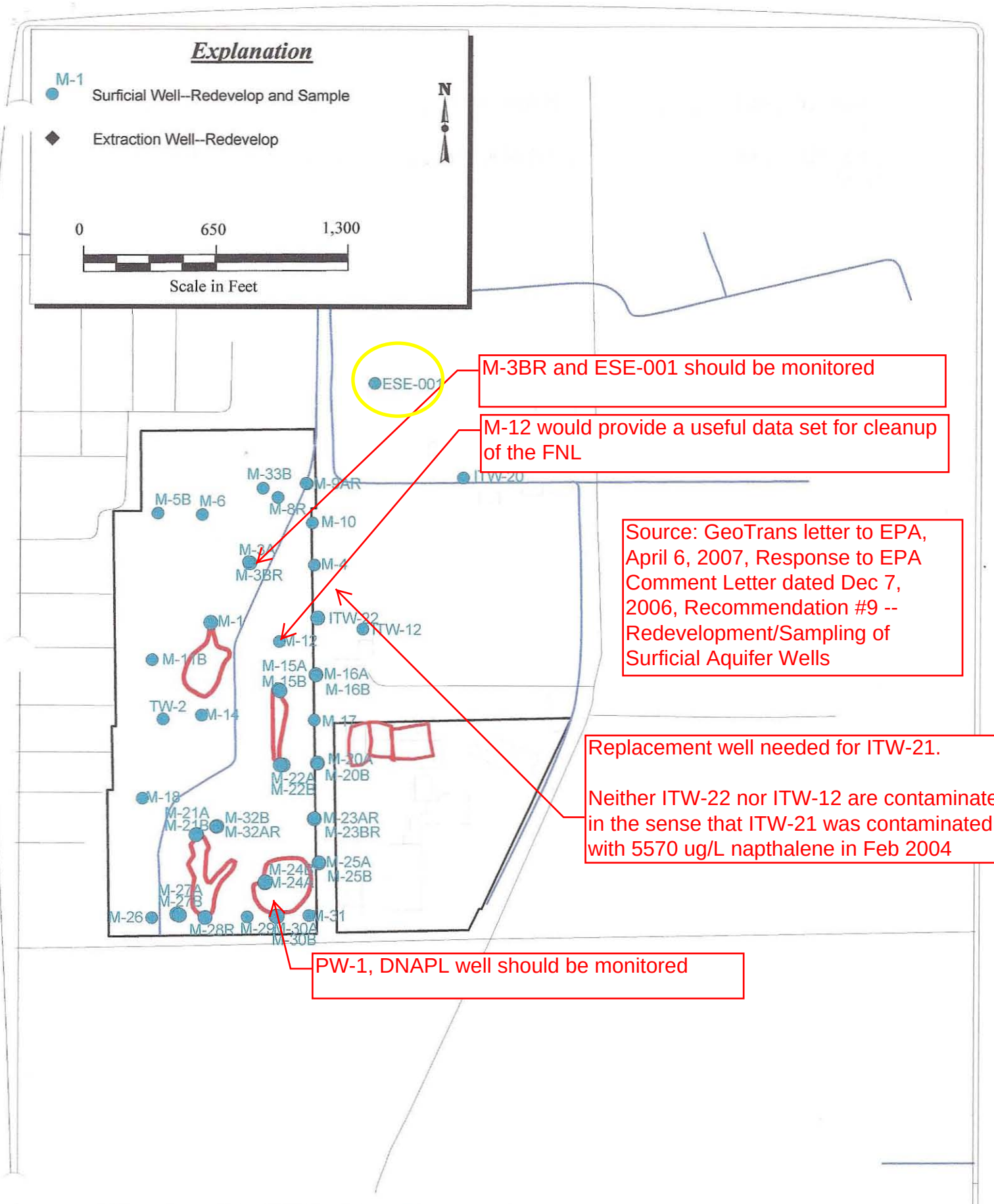

Figure 3: Selected Monitor Wells Referenced in Discussion of Surficial Aquifer - Issue #3

GeoTrans, Inc. A TETRA TECH COMPANY

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