

AP - 057

**GENERAL
CORRESPONDENCE**

2008-2010

Griswold, Jim, EMNRD

From: Griswold, Jim, EMNRD
Sent: Wednesday, July 02, 2008 10:03 AM
To: Cliff Brunson (cbrunson@bbcininternational.com)
Subject: AP-57, Hess Corporation, State G Battery
Attachments: AP-57 new wells.pdf

Hi Cliff,

Thanks for taking the time to speak with me last week. I enjoyed meeting you. With regards to the Stage 1 Abatement Plan AP-57 for the Hess Corporation's Texaco New Mexico "G" State Battery near Monument, I have the following comments/needs:

Use of a PID to gather headspace data during the drilling program was discussed on Page 5 of the 12/06 addendum but no data was contained in the report. Provide all headspace data along with any written visual field assessments for all soil borings (or any other soil sample locations) including those wherein monitoring wells were installed.

Provide logs for the bores not completed as wells.

Well logs indicate screened intervals 10 feet long on each of the six existing monitoring wells. If this is correct, the water table sat above the screen for the 8/23/06 gauging data in all wells except MW5. Please verify the screened intervals.

What might be the reason for the average 2.8 foot rise in water table observed between the gauging data when each of the wells was first installed (June and July of 2006) and the levels gathered on 8/23/06? Was one set of information gathered relative to ground surface and the other from to top-of-casing?

When MW3 was sampled on 12/7/06, what was the apparent thickness of LNAPL in the well?

All wells were sampled on 8/23/06 via low flow purging. Provide information regarding the depth of placement for the pump within the water column, purge rate and total volume removed per well, along with observed drawdown during pumping.

BBC states the dissolved-manganese observed in groundwater from MW4 is "*...not likely...a result of reducing conditions that could be caused by anaerobic degradation of volatile organic compounds in the subsurface or ground water.*" based upon dissolved-sulfate levels. Explain in greater detail why you believe this? It would seem plausible, given the age of release and the low levels of manganese in the other wells (MW3 has not been tested), that natural anaerobic biodegradation would be the reason for the elevated manganese in the downgradient well. BBC could consider checking the concentration of dissolved-oxygen in the groundwater. This can be done with a relatively inexpensive field test kit (electronic selective-membrane meters are not reliable when exposed to hydrocarbons), but care must be taken to not agitate the sample.

It is unclear as to the actual depth below undisturbed ground surface from which the numbered series of soil samples was gathered on 6/21/06. Are the stated depths (for example: 5 @ 1') meant to represent the depth below surface or depth below the "*...floor of the excavation...*" as stated on Page 6 of the addendum text? Soil excavation was undertaken only at the west and east ends based on the drawings and photographs. All but two of the eleven samples were gathered from outside those excavations.

Sufficient information has not been gathered that would allow for the design of an effective remedial strategy. Further assessment is necessary. I have attached a site map identifying six locations where additional monitoring wells need to be installed:

Location A is in the former associated pit. This is the likely area of highest contamination.

Location B is east of SB3 and is based on observed levels of adsorbed-TPH and -chloride in the vadose zone soils along with indications of LNAPL on the water table.

Location C is downgradient of MW6 and MW4. The level of dissolved hydrocarbon in those wells are low, but they contain the highest measured concentrations of chloride and manganese.

Location D is to the south-southwest of the associated pit. This well will help define the lateral extent of both soil and groundwater contamination cross-gradient from the former associated pit. This location is also justified based on the amount of TPH previously assayed in soils from SB5 at or near the water table.

Location E is within the "tank battery area" and is included based on historic soil data from sampling locations 5, 8, and 9.

Location F is within the battery excavation, another potential source of groundwater contamination.

Representative soil samples should be gathered using splitspoon samplers at five foot intervals beginning five feet below surface and continuing to the water table in each new boring. Each of the soil samples should be field screened for headspace and chloride. At least two soil samples from each bore should be split for laboratory analysis (even if they appear grossly contaminated) by Method 8260B, Method 8310, Method 8015B (GRO and DRO), Method 418.1, Method 6010B/6020 for RCRA and WQCC metals including mercury by Method 7470/7471, along with general chemistry by methods described in 40 CFR 136.3 to include chloride, fluoride, calcium, sodium, potassium, magnesium, bicarbonate and carbonate alkalinity, sulfate, nitrate, phosphate, and bromide. Clean cuttings can be spread at the site. Contaminated soils should either be containerized and disposed or placed on sheet plastic within a berm for later disposal.

Groundwater monitoring wells should be completed at each of the six bores incorporating no more than 15 feet of screen set to span the water table (approximately 10 feet into groundwater with 5 feet above the water table). Each well should be developed of fines after installation and allowed to stabilize at least 24 hours before undertaking groundwater sampling. Development water needs to be contained and properly disposed. The top-of-casing elevation of each new well needs to be established to an accuracy of 0.01 feet and the basemap updated.

As part of the sampling process, each well should be gauged for depth-to-NAPL (if any) and depth-to-water from each surveyed mark, along with total well depth to gauge the accumulation of sediments. Representative groundwater samples must be gathered from each well (new and existing) for laboratory analysis and regardless of the presence of NAPL.

For wells with NAPL, use a bailer to retrieve groundwater immediately beneath the layer of oil.

The wells without NAPL can be pumped or bailed. Gather those laboratory water samples after the purged water is stable ($\pm 10\%$) in temperature, conductivity, and pH. If a pump is used, it must be situated within the upper half of the saturated interval of the well and this pumping depth must be noted along with the purging rate, total purged volume, and observed drawdown (if possible). If bailers are used, they must be chemically compatible and either of a single-use disposable type or properly decontaminated between wells. Purge water needs to be contained and properly disposed.

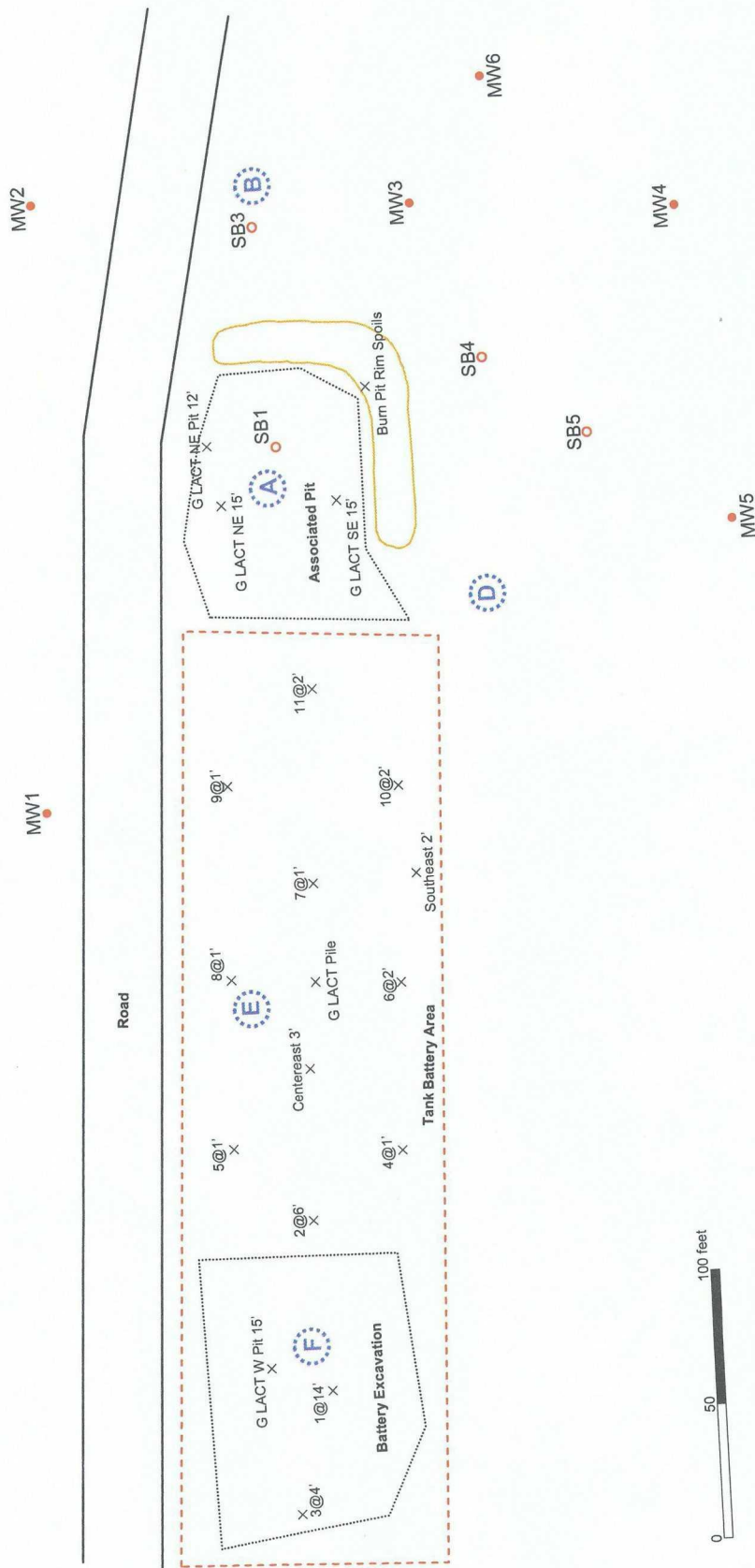
All groundwater samples are to be analyzed via Method 8260B, Method 8310, Method 6010B/6020 for RCRA and WQCC dissolved-metals including mercury by Method 7470/7471, along with general chemistry by methods described in 40 CFR 136.3 to include chloride, fluoride, calcium, sodium, potassium, magnesium, bicarbonate and carbonate alkalinity, sulfate, nitrate, phosphate, bromide, TDS, and pH. The scope of these assays, including the requirement to sample wells containing NAPL, may be reduced in subsequent monitoring depending on the available data.

Implement recovery of NAPL from monitoring wells even if it is as simple as regular bailing or passive skimmers.

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AP-57 new
wells.pdf (17 KB)



New Well Locations

AP-57: Texaco New Mexico "G" State Battery #22

Hess Corporation
Unit N, Section 19, T19S, R37E
(based on BBC International, Inc. drawing of 10/4/06)