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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 13, 2011

Mr. Geoffrey Reeder
gbreeder@up.com
Union Pacific Railroad Company

Re: Pastor, Behling & Wheeler, LLC (PBW) March 29, 2011 Response; Union Pacific Railroad Company, Houston Wood Preserving Works, 4910 Liberty Road, Houston, Texas; TCEQ SWR No. 31547; Hazardous Waste Permit and Compliance Plan No. 50343; EPA ID TXD000820266; Customer No. CN600131098; Regulated Entity No. RN100674613

Dear Mr. Reader:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced PBW Response providing revisions to address the TCEQ February 18, 2011 comments on the Updated Affected Property Assessment Report (APAR) Addendum, dated October 15, 2010. According to the report, soil and groundwater have been affected by the Former Wood Preserving Works such that a Response Action Plan is to be submitted to address the non-aqueous phase liquids and chemicals of concern concentrations exceeding critical protective concentration levels. Based on our review, the TCEQ approves the Updated APAR Addendum as revised by the PBW March 29, 2011 Response. The enclosed TCEQ interoffice memorandum from Mr. Charles Stone provides recommendations for your proposed Response Action Plan. Your Response Action Plan must be submitted in accordance with 30 TAC §350.94 and must be received on or before October 11, 2011. Please use the standard reporting forms found on our website at <http://www.tceq.state.tx.us/remediation/trrp/trrp.html>.

Please note that this approval applies only to conditions described in the APAR. The facility has not requested nor does this letter provide TCEQ concurrence of formal closure of any Waste Management Units (WMUs) accounted for on the facility's current Notice of Registration (NOR). If the facility is in the process of being sold and/or any WMUs will no longer be operating, the facility is required to notify the agency and formally close and/or transfer each of those WMUs currently listed on the NOR in accordance with 30 TAC §335.6 (Notification Requirements) and §335.8 (Closure Standards), respectively.

Questions concerning this letter should be directed to me at (512) 239-2362. When responding by mail, please submit an original and one copy of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted to the local TCEQ Region Office. Please note that the Remediation Division has instituted a policy of

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sending letters via Portable Document Format (PDF) and email when appropriate. Therefore, current email addresses and the site identification information in the reference block should be included in all future submittals.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Arthur".

Mark Arthur, P.G., Project Manager
VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MA/jdm

Enclosure: TCEQ Interoffice Memorandum, dated March 18, 2011

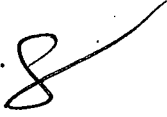
cc: Mr. Eric Matzner, Pastor, Behling & Wheeler, LLC, eric.matzner@pbwllc.com
Ms. Nicole Bealle, Waste Program Manager, TCEQ Region 12, Houston

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Mark Arthur, P.G.
Corrective Action Team 2
Remediation Division

Date: March 18, 2011

From: Charles D. Stone, P.G., P.E. 
Technical Support Section
Remediation Division

Subject: Technical Review: *Updated Affected Property Assessment Report Addendum: Union Pacific Railroad Company, Houston Wood Preserving Works, TCEQ SWR No. 31547, Houston, Texas – Volume 1 and Volume 2, October, 2010*

Per request, a technical review was performed on the subject report for the purpose of evaluating site specifics regarding NAPL occurrence in order to facilitate the scope and preparation of the site Response Action Plan (RAP). The following summarize the conclusions of the review.

Sec A Site Hydrogeology:

- A.1 The subject site is situated on the Pleistocene Beaumont Formation (BEG, 1982) within an outcrop area belonging to the formation's fluvial-deltaic facies that is predominately interdistributary mud with bay and floodplain depositional environments (BEG, 1972).
- A.2 The subject report identifies several groundwater-bearing units (GWBU) and zones of saturated soil (e.g., Appendix 7, Subject Report), most of which appear to be laterally extensive across the subject site.
- A.3 One GWBU, identified as B-TZ, appears to occur only on the western half of the subject site, pinching out to the east (e.g., Figure 5A-3, Subject Report), and to the west on the north edge of the subject site (see Cross-Sections A-A', B-B' and C-C'; Figure 4C-1, Subject Report).
- A.4 Monitoring well MW-35B is located just east of where the B-TZ unit pinches out (Figure 1A, Subject Report). However, the boring/well construction log for monitoring well MW-35B indicates the presence of a gravelly, silty clay unit containing a distinctive layer of calcareous nodules. This same layer also contains NAPL.
- A.5 The layer of calcareous nodules (Item A.4) occurs at the same approximate elevation as that of unit B-TZ to the west. After cursory analysis of the available subsurface information (including boring/monitoring well logs), the TCEQ concludes that the layer of calcareous nodules: 1) appears to be continuous and ubiquitous on the eastern half of the subject site; 2) contains NAPL; 3) is significantly transmissive (based on its coarse-grained nature and presence of NAPL); and 4) possesses basal elevations that dip in at least two directions.

Sec B Recommendations for a Proposed Response Action Plan:

- B.1 Prior to addressing the NAPL response issues at the subject site, the following evaluations should be completed:
1. The NAPL-containing layer of calcareous nodules (Item A.5) appears to be a shallow conduit for NAPL transport and from which NAPL recovery might be effective and rapid; this unit should be delineated separately in three dimensions for the purpose of determining the most advantageous location(s) for NAPL recovery;
 2. each individual GWBU and zone of soil saturation should be evaluated separately and each evaluation should include: a) all monitoring wells completed and screened in the respective hydrogeologic unit, b) groundwater elevations and NAPL occurrences (when present) in each well, and c) all other indications of NAPL based on all other subsurface probes and instruments (soil borings, ROST, etc.);
 3. the 1% aqueous solubility (or 1% effective aqueous solubility) isoconcentration contour (for the NAPL-forming COCs) should be delineated (when present) in the groundwater for each individual GWBU and zone of saturated soil; and
 4. all details about the DNAPL recovery pilot test should be reported, including: a) complete description and engineering plans for system used, b) identification of all individual GWBU and/or zone of saturation involved, c) boring/monitoring well logs for all system recovery wells, and d) all NAPL and/or groundwater volume/concentration(s) recovery test data.
- B.2 The Response Action Plan (RAP) Objective section should clearly define the intended response for each individual GWBU or zone of saturated soil. The intended response action(s) should result in the conclusion of active site remediation.
- B.3 The RAP Design section should include: a) complete design drawings for engineered remediation systems, b) descriptions of all associated tests, modeling, assumptions and results, c) proposed well placement and design, d) and a PMZ map (if applicable) showing PMZ boundaries, GW PCLE zones, AMPs, and all POEs.
- B.4 The RAP Performance section should include: a) methods that can clearly demonstrate that proposed response actions can accomplish objectives in reasonable timeframe, b) quantitative or statistical methods that can quantify performance effectiveness, c) description of potential problems that may result in response action failure or downtime, and d) a Contingency Plan describing actions to be taken in event that any potential problems are realized (including assets and equipment).
- B.5 The RAP Implementation Schedule should include: a) proposed response action duration, b) proposed response action start/finish dates, and c) proposed submittal dates for applicable reports or notifications.

Sec C References:

- BEG 1972 *Environmental Geologic Atlas of the Texas Coastal Zone – Galveston-Houston Area*, Bureau of Economic Geology, The University of Texas at Austin, Austin, TX.
- BEG 1982 *Geologic Atlas of Texas - Houston Sheet*, Bureau of Economic Geology, The University of Texas at Austin, Austin, TX.