DOCUMENT REVIEW FORM

SITE NAME: Flint Hills Resources – North Terminal
New Hanover Co.

DOCUMENT: Remediation Update Report for August 2005 – February 2006

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CONSULTANT: Catlin Engineers and Scientists

REVIEWED BY: Sam Watson on 11/01/06

COMMENTS:

Report presents summary of activities conducted between August 2005 to February 2006 for the Para-Xylene (PX) Area, Loading Rack Area (LRA), the new Gasoline/#2 Fuel Oil Area (GFOA), and the Facility Wastewater Treatment Plant Area (FWTP).

PX AREA:
Review of the data indicates that PX concentrations increased in 20 (63%) of the 32 wells sampled during the most recent site-wide monitoring event. PX concentrations decreased in 11 (34%) of the wells sampled. PX concentrations were unchanged at MW-10 with a concentration of 150,000 ppb, which is close to the 156,000 ppb solubility of PX as shown in Fetter. PX remains at levels above 2L in 24 (75%) of the wells sampled. PX is present in seven (7) wells at levels equal to or greater than 100,000 ppb. The levels in six of these wells are consistent with historical values. One well, MW-19, showed a relatively sudden spike from 42,000ppb to 120,000ppb. This increase may be due to the modifications to the air-sparge system in this area along with a surge of increased PX resulting from the application of hydrogen peroxide and subsequent flushing action conducted upgradient of this well. This flushing action may also be masking any reductions in other wells in this area.

It should be noted that sampling of MW-19 has occurred since the February sampling that marks the end of the timeframe for this report, and has been included in this report. This additional data indicates that since February 2006, PX has decreased in MW-19 from 120,000ppb to 3,700ppb. This decrease may reflect increased efficiency in the air-sparge coverage and/or the passing of a PX slug resulting from the flushing action produced by the hydrogen peroxide applications.

Overall there does not appear to be any significant changes in the PX Area during the timeframe covered. The recommendations in the report include modifications to the air-sparge system, continued use of the Fenton's Reagent, keeping the recovery wells off and converting to monitoring wells.

It is worth noting that there are comments to the recommendation to continue using Fenton's Reagent in areas where PX concentrations exceed 100,000ppb indicating that this activity has been completed. The documentation of this accomplishment is to be presented in the next report.

Given that the concentrations at the site have evidently changed significantly since the samples included in this report were collected, making comments on the recommendations is moot. In fact the next scheduled sampling event has already taken place.

I recommend that the recovery wells be kept in place until we can obtain a more current picture of what is occurring at the site. If concentrations have truly decreased as much as suggested, then conversion of the recovery wells to monitoring wells may be possible. If, however, concentrations remain high, then consideration must be given to re-starting the recovery well system, and/or modifying the system to better treat the areas of highest concentrations, or for a more aggressive/effective approach.

LRA:
Review of the data for the LRA indicates that contaminant concentrations are generally similar to the previous event. The greatest increase observed in this area is at KMW-3, which went from moderately high concentrations of most compounds to having free product. This presence of free product is likely due to the APEX Oil release. In this report, this well is now included in the section on the FWTP. However, given the influence of the APEX release, this well should not be considered at all for the Kock North Site.

The greatest decrease observed in this area is at KMW-8. Free product was detected in this well during the previous sampling event. No free product was detected during the latest sampling event. Contaminant concentrations at this location are currently relatively low considering there was product here the last time. Some of the compounds detected at KMW-8 are below their respective 2L Standards.

The most notable increases, not involving free-product, are increases in MTBE at wells KMW-15 and KMW-16. MTBE increased from 30ppb to 380ppb at KMW-15 and from 24ppb to 600ppb at KMW-16. The source of this increase is not known. [There are other increases in this area of greater magnitude than these, but those increases are reasonable given historical fluctuations and locations relative to the source and plume migration.]

Increases were observed in various compounds in the area of wells KMW-5, KMW-15, KMW-16, and KMW-17 (north of the traditional source area for the LRA) that are not easily attributable to the LRA source area.

The report recommends continued monitoring, to complete and report the ex-situ remediation activities (March 2006 excavation), and evaluate the influence of these activities on the natural attenuation of groundwater contamination. I concur with the recommendations for this area. Additional recommendations are discussed below.

GFOA:
The data for the new Gasoline/#2 Fuel Oil Area indicates moderately high contaminant concentrations at wells 11 and 21. The contaminants are consistent with gasoline and possible some diesel. The report recommends additional sampling before a determination is made on a remedial approach for this area. I concur with the recommendations for this area at this time.

FWTP:

The Facility Wastewater Treatment Plant Area includes the area affected by the APEX release. Much of report concerning this area deals with efforts associated with product recovery from the APEX incident. Additional assessment activities were conducted at the site in the area of the former AST in which lead and TPH were detected at levels above Soil-to-Groundwater MSCCs and Action Levels, respectively. Additional assessment is proposed in the report for this area. I concur that additional assessment should be conducted in this area.

Overview:
In general, the PX Area and the LRA are consistent with previous reports concerning magnitude and distribution of contaminants of concern. There are, however, several well locations that contain increases in contaminants that are not easily explained. During the data evaluation, it was realized that there is little data control in the area represented in the attached photo of combined groundwater contour maps. The evaluation indicates that there is no chemistry data for this area or groundwater elevation data. Chemistry data for this area may be helpful in ascertaining whether some of the contaminants, and increases in contaminants, in the northeast corner of the LRA maps are coming from other areas. Increased groundwater elevation data in this area would allow more refined groundwater contour maps, and better understanding of groundwater flow and potential migration between the areas of concern. It is recommended that additional wells be installed in this area.

Recommendations:

PX Area:

It is recommended that the recovery wells be retained in their current configuration, until more recent data is evaluated and the potential for re-starting the recovery system is dismissed. It is also recommended that reports be submitted in a timelier manner to allow for more timely review and comments by DWQ.

LRA:

I concur with the recommendations proposed for this area with the addition of the installation of monitoring wells in the area depicted on the attached figure. [As discussed in the overview section above.]

GFOA:

More assessment is needed in this area. I concur with the proposed recommendations in the report.

FWTP:

More assessment is needed in the area where lead and THP were detected. I concur with the recommendations proposed in the report for this area.