From: Haklar, James
To: Ferreira, Steve
Subject: Hatco Office (Channel D) Document for Your Records
Date: Tuesday, February 23, 2021 9:07:43 AM
Attachments: Jhaklar-scan-20210223-080538.pdf
Importance: High

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Brown AND Caldwell

December 21, 2016

Mr. Anthony Findley
New Jersey Department of Environmental Protection
Office of Brownfield Reuse
401 East State Street
PO Box 420, Mail Code: 05K
Trenton, New Jersey 08625

149101.100.001

Subject: Review of documents regarding to the Hatco Corporation Site, PI No. G000003943:
"Remedial Investigation Report, Hatco Site, Fords, New Jersey", (Weston Solutions Inc., May 2016).
"Ecological Component Review, Hatco Site, Fords, NJ: Remedial Investigation Report, May 2016", (NJDEP, ETRA, August 22, 2016).

Dear Mr. Findley:

On behalf of EPEC Polymers (EPEC), Brown and Caldwell (BC) reviewed the above-referenced Remedial Investigation Report (Hatco RIR) and the related comments provided by the New Jersey Department of Environmental Protection (NJDEP). This letter sets forth BC's comments to these documents that address and/or relate to issues that directly, or indirectly, impact or affect EPEC's property (i.e., Former Nuodex Site, NJDEP PI No. G0000001659). Accordingly, the comments primarily focus on Hatco's Area of Concern (AOC) 25, which is located on land at the Former Nuodex Site that is owned by EPEC. However, BC's review and comments expressed herein also addresses other related issues including, but not limited to, groundwater transport, applicable remediation standards and criteria that also have bearing on the Former Nuodex Site.

At the request of BC, Weston recently provided EPEC with the above-mentioned memorandum prepared by Ms. Nancy Hamill of the NJDEP Environmental Toxicology and Risk Assessment (ETRA). In the memorandum, Ms. Hamill provides a technical and regulatory review of the ecological components of the Hatco RIR and also addresses a number of AOC 25 issues.

Overall, the Hatco RIR does not meet the NJDEP's Technical Requirements for Site Remediation (Technical Requirements) set forth in N.J.A.C. 7:26E, et seq. Specifically, the Hatco RIR does not present findings and recommendations that include a determination whether remedial action is required for each AOC as required by N.J.A.C. 7:26E-4.9(a)6.ii(2).

Hatco AOC 25 - Channel D Remedial Investigation

The scope of the AOC 25 investigation activities was performed at the direction of NJDEP and U.S. Environmental Protection Agency (USEPA) and pursuant to access agreements with EPEC. Technical reviews were performed by BC of draft Sampling and Analysis

Plans (SAPs) prepared by Weston that were related to multiple phases of sediment and soil investigations within Channel D (AOC 25). Comments were provided to Weston and NJDEP by EPEC in numerous written and oral communications from 2009 to the present.

The RIR defines Area of Concern (AOC) 25 as the off-site contamination from the Hatco site that is located in the area described by Weston as the "Offsite Lowlands." This area corresponds with two AOCs within the Former Nuodex Site: AOC D (Northeastern Wetlands) and AOC 4 (Stressed Vegetation near Railroad Tracks). A man-made surface water channel referred to as "Channel D" is identified by Weston as "a pathway for runoff from Hatco" within AOC 25. Accordingly, the terms AOC 25, Channel D, and EPEC Northeastern Wetlands are often used interchangeably by Weston.

The information presented in the Hatco RIR identifies the widespread presence of elevated concentrations of Hatco contaminants of concern (COCs) throughout AOC 25, most notably total polychlorinated biphenyls (PCBs) and bis-(2-ethylhexyl) phthalate (BEHP). Weston also describes other potential sources of industrial contamination and disturbances within AOC 25. However, Weston provides no characterization of contaminant pathways either for the Hatco COCs or for other potential contaminant sources in AOC 25 and provides no information confirming the need for and extent of remediation of AOC 25.

Comments regarding specific sections of the RIR as they relate to AOC 25 are presented below.

Section 2.3.33 AOC 25: Channel D

Section 2.3.33 presents information regarding historic Hatco discharges, potential other releases, and historic phases of delineation in AOC 25 through 2011. This section also, for the first time, presents the subdivision of AOC 25 into three areas. The subdivisions are on RIR Figure 2.3.33-1 (Attachment A) and described by Weston as the following:

- **AOC 25a** – "Channel D and the historical Crows Mill Creek channel including the associated drainage area. AOC 25a extends downstream to the point where historical disturbance and apparent discharge areas meet."
- **AOC 25b** – "An area disturbance in the northwest corner of Block 62, Lot 2, first noted in an aerial photograph dated 1954."

  Note: AOC-25B comprises much of the NAPL area in EPEC's Northeastern Wetlands.
- **AOC 25c** – "The area extending downstream from the point where AOC 25a and AOC 25b meet and including other areas of apparent disturbance and historical discharges not associated with Hatco site/operations."

BC Comments: BC disagrees with Weston's interpretation of the data and the related characterization of AOC 25 presented in the RIR. The basis for the disagreement includes the following:

- No conclusions or supporting information is presented regarding the identification and characterization of contaminant migration pathways as they relate to Weston's subdivision of AOC 25 to include a downstream area (AOC 25c) that is "not associated with Hatco site/operations" as is required by N.J.A.C. 7:26E-4.1(a)4.

- Weston lists numerous "... potential pathways for impact to the lowlands [AOC 25] ..." from the EPEC and GreDel sites but provides no analysis or characterization of how these relate to the three subdivisions of AOC 25 as is required by N.J.A.C. 7:26E-4.1(a)4. Some of the information that is provided includes the following:
  - The statement (Section 2.3.33.2) that "Tributaries naturally drained from west to east across the EPEC properties ..." to Crows Mill Creek (AOC 25) without the appropriate context regarding the temporal component of potential contaminant pathways. While historic topographic mapping (1925 and before) does reveal natural drainage patterns as Weston states, the natural west-to-east drainage pattern was extensively modified as a result of the clay mining and clay railroad activities that occurred in the late 19th and early 20th centuries prior to site development for chemical manufacturing. Furthermore, the "new channel" (Section 2.3.33.2) that was established on the west side of the EPEC properties to carry drainage to the Raritan River historically joined Crows Mill Creek far downstream of the downstream extent of AOC 25c. Weston has not presented a case, technical or otherwise, on how these drainage features could be a source of contaminants within AOC 25.
  - The expansive discussion of historic phases of delineation sampling in Section 2.3.33.4 provides no information regarding contaminant transport pathways and some of the text of the RIR is inconsistent with the data mapping.
  - Weston states in Section 2.3.33.4 that GreDel filling appears to have "redistributed" BEHP impacts. While fill placement could redirect post-filling contamination, Weston does not provide explanation on how fill placement would redistribute existing contamination.
- Most of the descriptions of the potential source/pathways lack adequate technical support and no specific conclusions are offered. The RIR does not provide an adequate characterization of contaminant migration pathways to demonstrate that AOC subdivisions AOC 25b and AOC 25c are not associated with Hatco operations, as is required by N.J.A.C. 7:26E-4.1(a)4.
- No information is provided in the RIR regarding the differentiation between "soil" and "sediment" environmental media that was sampled in AOC 25. This differentiation is critical given the fact that the remedial criteria applied by Weston for each medium are considerably different, as is described in RIR Section 4.3 (see discussion below).

Section 4.3 Regulatory Standards

Section 4.3 provides a brief description of the regulatory criteria that are utilized in the RIR. The Hatco RIR states that remediation criteria in effect at the time of the April 2005 NRD settlement are applicable to the current RIR, despite the promulgation of updated soil remediation standards in 2008 [N.J.A.C. 7:26D]. Specifically, Weston maintains that the 2005 NRD settlement included the approval by NJDEP of a Remedial Action Workplan (RAW) submitted to NJDEP in 2001 by Hatco and Grace which effectively fixed the remediation criteria in effect as of that time, with certain exceptions.

The regulatory criteria utilized in the RIR are different for certain constituents than the current remediation standards and criteria, including the following:

1. **PCBs in Soil:** 0.49 mg/kg for residential soil compared to the current Residential Soil Remediation Standard (SRS) of 0.2 mg/kg.
2. **PCBs in Sediment:** 1.0 mg/kg compared to the current "Lowest Effects Level" (LEL) ecological criterion of 0.0598 mg/kg in fresh water sediments and the "Effects Range – Low" (ER L) of 0.023 mg/kg in saline water sediments.
3. **BEHP in Soil:** Weston refers to a 49 mg/kg criterion for Residential soil as "proposed" whereas the current Residential SRS is 35 mg/kg. No support is provided in the RIR for the proposed criterion.
4. **BEHP in Sediment:** Weston utilizes a proposed 22 mg/kg sediment criterion as a remediation goal and also references a 0.750 mg/kg "Severe Effects Criterion" (SEL) ecological criterion, whereas the current LEL ecological criterion in sediments is 0.182 mg/kg in fresh water sediments.

BC Comment: BC agrees with ETRA Comment No. 5.h. which disputes the applicable remediation criteria proposed by Weston. It should also be noted that EPEC has not considered or agreed to the application of alternative remediation standards or the use of engineering or institutional controls as part of any remedial action on its property.

Section 7.1.14 AOC 25: Channel D

Section 7.1.14 presents a description of the 2014 delineation sampling, including surface water and sediment. A brief delineation summary is presented in Section 7.1.14.3.

BC Comments: BC disagrees with Weston's position that delineation is complete, based upon the following:

- The horizontal and vertical distribution of BEHP in the southern extents of the northern AOC subdivisions (AOC 25a, AOC 25b) are not distinguishable from contiguous areas of AOC 25c.
- Weston makes reference to and utilizes the "site-specific" remediation criteria for soil and sediment that were described above in Section 4.3, which are inconsistent with current Soil Remediation Standards (SRS) and ecological screening criteria.

Note: Refer to BC comment under Section 4.3.

- Delineation in soil [per N.J.A.C. 7:26E-4.2(a)2] and sediment [per N.J.A.C. 7:26E-4.8(b)] of the Hatco COCs [PCBs and BEHP] is not complete for either the site-specific criteria or the current remediation standards.

Appendix 60 – Discussion of Potential Impacts to AOC 25

Appendix 60 provides a 3-page narrative that presents information from certain file documentation regarding potential sources of contamination to AOC 25 not related to the Hatco site. The text includes the following sections:

File Documentation for Potential Concerns to [sic] the West

This section references potential sources of contaminants from the west, from the Former Nuodex Site, that may impact AOC 25, including "erosional features in the side of the former clay railroad berm", EPEC's Northern Landfill, EPEC's Wetlands Ditch, and evidence of PCBs on the former Nuodex site.

BC Comments: BC disagrees with Weston's presentation of historical information and interpretation of that information, based upon these deficiencies:

- Limited evidence for the presence PCBs on the former Nuodex site is provided. Total PCBs are a primary Hatco COC.
- No evidence of BEHP on the former Nuodex site is presented. BEHP is a primary Hatco COC.
- No explanation is presented for the relative absence of the primary EPEC COCs (2-CT and 4-CT) in AOC 25. 2-CT and 4-CT are primary former Nuodex site COCs.
- The requirement to perform a Site Investigation to evaluate off-site sources of contamination in soil and groundwater, as is presented herein, was not performed as required per N.J.A.C. 7:26E-3.10.
- No specific lines of evidence or conclusions are offered regarding specific source/migration pathways from former Nuodex to AOC 25, as is required by N.J.A.C. 7:26E-4.1(a)4.

File Documentation for Potential Concern at the Northwest Corner of the Lowland

This section describes potential migration pathways potentially associated with EPEC's AOC-4 and the NAPL area. These include a potential connection beneath Industrial Blvd. (a.k.a. Riverside Drive) via a catch basin from the Northern Landfill, runoff from Industrial Blvd., and potential spills from the Conrail tracks.

BC Comments: BC disagrees with Weston's presentation of historic information and interpretation of that information, based upon these deficiencies:

- Weston mischaracterized the surface water drainage from the vicinity of the EPEC Northern Landfill as it was presented in the document entitled, "Impacts from Hatco Drainage on the Former Nuodex Site", (BC, August 2010). While there is a drainage ditch along the railroad tracks, it did not receive drainage from the Northern Landfill, based upon available information, nor was it characterized as such in the referenced document (Attachment B).
- The requirement to perform a Site Investigation to evaluate off-site sources of contamination in soil and groundwater, as contended by Weston, was not performed as required per N.J.A.C. 7:26E-3.10.
- No specific lines of evidence or conclusions are offered regarding specific source/migration pathways to the northeast corner of the lowland (AOC 25), as is required by N.J.A.C. 7:26E-4.1(a)4.

File Documentation for Potential Concerns East of the Lowlands Area

This section describes potential sources of contamination of AOC 25 that may originate from the east. These include PCBs, PAHs, and metals in the fill on the Gredel property that is currently being capped as part of a remedial action of that site. Also, the NAPL data obtained by BC and Weston is described including the statement that each party disagrees on the "nature/identification of the NAPL material" albeit with agreement that the material is complex and heterogeneous.

BC Comments: BC disagrees with Weston's presentation and interpretation of historic information, based upon these deficiencies:

- Weston makes no statements as to the source of the AOC 25 NAPL, despite the fact that it contains Hatco's primary COCs, including PCBs and BEHP.
- BC's statements of the NAPL forensic analyses in "Impacts from Hatco Drainage on the EPEC Site" (BC, August 2010) are not correctly represented by Weston, particularly regarding petroleum and coal tar.
- The requirement to perform a Site Investigation to evaluate off-site sources of contamination in soil and groundwater, as contended by Weston, was not performed as required per N.J.A.C. 7:26E-3.10.
- Weston provides no specific lines of evidence or conclusions regarding source/migration pathways to support its position that the AOC 25 NAPL did not originate from the Hatco site, as is required by N.J.A.C. 7:26E-4.1(a)4.

Other Hatco RIR Issues Relating to the Former Nuodex Site

N.J.A.C 7:26E-1.8 states that a Remedial investigation is "... a process to determine the nature and extent of a discharge of a contaminant ..." in various environmental media. A brief review of the nature and extent of various contaminants and AOCs in relation to the Former Nuodex Site as presented in the Weston RIR is provided below.

On-Site Hatco NAPL

An extensive area of non-aqueous phase liquids (NAPL) has existed on the Hatco site that is separate and distinct from the AOC 25 NAPL. The on-site Hatco NAPL has been the subject of substantial characterization and remediation and may have a bearing on contaminant sources and transport pathways to the former Nuodex site.

BC Comments: BC disagrees with Weston's interpretation of the Hatco on-site NAPL data, for the following reasons:

- The Hatco RIR (Section 5.2.3) provides that the Hatco NAPL "... is composed primarily of phthalates and PCBs." If this was accurate, it would be dense NAPL (DNAPL); however, to the contrary, Weston's data reveals the NAPL to have a density of 0.95 and also includes a mixture of "... phthalate esters, ketones, and plasticizers ..." and is therefore a light NAPL (LNAPL).
- No analysis is presented to demonstrate the absence of a separate phase PCB DNAPL plume which is important given the high density of PCBs (1.182 to 1.566 mg/kg). The presence of DNAPL could have a bearing on deeper (bedrock) groundwater contamination that was not investigated by Weston as part of the RIR.

Hydrogeological Site Characterization

A cursory discussion of the hydrogeologic conditions is presented in the Hatco RIR text which relies on RI reports presented in 1993 to 1995 by Dan Raviv Associates, Inc. (DRAI) contained in Appendices 9 through 11.

BC Comments: Weston's RIR inadequately characterizes the hydrogeological conditions at the site, as is required by N.J.A.C 7:26E-4.3. Moreover, information presented in the RIR is not sufficient to demonstrate the absence of a groundwater transport pathway from Hatco to the downgradient former Nuodex site. Specific examples are provided below:

- No analysis is provided regarding hydrostratigraphic conditions (i.e. how groundwater flow conditions relate to the site-specific geologic conditions, including factors such as lateral continuity of the "two aquifer zones," hydraulic separation between the zones, vertical flow conditions, etc.).
- The assignment of shallow and deep overburden monitoring is based on an inadequate evaluation of the hydrostratigraphic conditions, as described above.
- There is essentially no discussion of groundwater flow as it relates to contaminant transport, as is required in N.J.A.C 7:26E-4.3 (a)4 through 7.
- Although data from the existing groundwater monitoring well network suggests that the groundwater quality may be delineated in the down-gradient (southerly) direction, current data points are sparse and include only two shallow wells (MW-5S and MW-7S) and a single deep well (MW-7D). Other downgradient wells that historically were used to monitor groundwater quality have not been sampled since about 1999.
- No current potentiometric surface mapping is provided. The mapping used by Weston is from the Phase II Remedial Investigation (RI), which presents data from 1994 and represents conditions prior to various stages of site remediation which would have the potential to alter groundwater flow conditions.
- There is no discussion regarding bedrock groundwater flow or bedrock groundwater quality. This is important in relation to the aforementioned regulatory requirements given the following site conditions:
  - Possible presence of DNAPL given there is no systematic approach to demonstrate the lack of separate phase PCBs and/or phthalates not dissolved in other light constituents.
  - Historic presence of GW contamination in deep monitoring wells.
  - Inadequate understanding and characterization of groundwater flow.
  - Absence of site-specific stratigraphic information to demonstrate confining layer between the overburden and underlying bedrock, e.g., horizontally-extensive clay and/or saprolite.

Groundwater Investigation in EPEC's Northeast Wetlands (Hatco AOC 25)

There has not been a groundwater investigation by Weston in areas downgradient (south) of the Hatco site, including the Northeast Wetlands.

BC Comments: BC finds the lack of a groundwater investigation in AOC 25 to be unacceptable for the following reasons:

- No evaluation is presented of Impact to Groundwater (IGW) soil criteria in unsaturated soils.
- The groundwater-to-surface-water transport pathway has not been described in the Hatco RIR. Rather, sources of surface water contamination are solely attributed to direct discharges from on-site and other off-site sources.

Ecological Risk Assessment

There is no discussion of ecological risk for any area of the site, including the extensive wetlands in AOC 25, except as follows:

- Comparison of sediment samples from the NE wetlands and Woodbridge Pond to site-specific ecological criteria.
- Reference to a Baseline Environmental Evaluation (BEE) that was prepared in 1996 in reference to Crows Mill Creek and the adjacent wetlands.
- Numerous ecological comments are provided by NJDEP ETRA, as described in a later section.

BC Comment: The lack of an ecological risk assessment is unacceptable given the exceedances of certain ecological screening criteria. The RIR is required to include an Ecological Risk Assessment pursuant to N.J.A.C 7:26E-4.8.

Determination of Remedial Action for Each AOC

The remediation, including status of prior IRMs and remedial actions is discussed in the RIR text for most AOCs However, remediation of contaminated media within AOC 25 (the Northeast Wetland) is not presented in the RIR.

BC Comment: BC finds the lack of a determination whether remedial action is required in AOC 25 to be unacceptable. The Tech Rule [7:26E-4.9(a)6.ii.(2)] requires that the following findings and recommendations be presented for each AOC: "1) A detailed description, including dimensions, contaminants and suspected source of the contamination; and 2) A determination whether remedial action is required for each area of concern;"

- Neither of these requirements is addressed for contaminated media within AOC 25 (Northeast Wetland).
- Although these requirements are generally discussed in the text for other AOCs, they are not consistently addressed in a comprehensive or particularly coherent manner.

Comments from NJDEP ETRA

BC concurs with the comments offered in the memorandum by Ms. Hamill of NJDEP ETRA regarding the ecological components of the Hatco RIR. Specific points from the ETRA memorandum are mentioned below that have particular importance to the Former Nuodex Site:

- **ETRA Comment No. 4** - This comment discusses the incomplete delineation of PCBs and BEHP in Woodbridge Pond. This has particular importance given the stated connection of Woodbridge Pond to the Middle Pond and West Pond, each of which is located on the Former Nuodex Site.
- **ETRA Comment No. 5a** –ETRA stated that Weston understates the concentrations of BEHP (Hatco's COC) in the RIR and characterizes the BEHP as being "... extraordinarily elevated, percent level ...".
- **ETRA Comment No. 5b** – ERTA states that lack of data from the northern portion of Area D represents a data gap that should be identified in the RIR and recommends that additional supplemental sampling should be performed in this area.
- **ETRA Comment No. 5.h.** – This comment discredits the Weston's differentiation between soil and sediment media for the purposes of remediation criteria. Also, ETRA discourages Weston's use of human health-based soil remediation criteria for "soil" as they "... are not paramount in an ecological exposure area such as AOC 25". ETRA states that "... for wetland or upland soil in an ecological exposure area, the ecologically-based soil screening criterion of 0.93 mg/kg should be used ... and that if human exposure is likely, the Soil Remediation Standards should also be considered (see N.J.A.C.7:26E-3.6 (c)4) and the lower of the ecological criterion or current Soil Remediation Standards should be used."
- **ETRA Comment No. 6** – ETRA states that the Hatco RIR is not complete, as the required determination for remedial actions is not presented for specific AOCs, including AOC 25, per the Tech Rule [7:26E-4.9(a)6.ii.(2). This comment is nearly identical to BC's comment, discussed above.
- **ETRA Comment No. 6** – ETRA states that the RIR should specifically state that "... the USEPA-directed remedial goal of 1 mg/kg [for PCBs] will be achieved in all off-site soil and sediment".

Summary of Significant Issues

A summary of the Hatco RIR issues of significance to EPEC is provided below:

- The Hatco RIR identifies the widespread presence of elevated levels of Hatco COCs, including PCBs and BEHP, throughout AOC 25 on the Former Nuodex Site. These include levels of BEHP described by ETRA as being "extraordinarily elevated."
- In the RIR, Weston has informally subdivided AOC 25 into three areas. The technical basis for this subdivision is not defined as required by the regulations.
- Weston based the RI on site-specific remediation criteria for soil and sediment that are inconsistent with current New Jersey standards and criteria that have not been accepted by the NJDEP or EPEC in off-site areas (e.g., AOC 25 on EPEC property).

The proposed remedial criteria may result in the need for engineering and institutional controls that have not been accepted by the property owner (i.e., EPEC).

- Weston provides no characterization of the contaminant migration pathways from Hatco and other potential sources. No explanation is provided for the presence of Hatco COCs in the NAPL found in AOC 25b, a medium for which Weston denies responsibility.
- The horizontal and vertical delineation of Hatco COCs within AOC 25 is not complete.
- No determination was made in the RIR of the need for a remedial action in AOC 25, as is required by N.J.A.C. 7:25E-4.9(a)6.ii.(2).
- Hydrogeological site conditions at the site are inadequately characterized such that RIR data is insufficient to demonstrate the absence of a groundwater transport pathway from Hatco to the downgradient former Nuodex site. Furthermore, most of the data are old (pre-2000) and may not represent current conditions.
- ETRA provided a regulatory and technical review that raises serious questions regarding the ecological issues in the Hatco RIR, including AOC 25, concerns which BC shares. Of particular note are ETRA's comments regarding the BEHP criteria for sediment, the "extraordinarily elevated" levels of BEHP, incomplete delineation, and the lack of determinations for the need for remedial action.

We would be glad to discuss this matter with you in additional detail. Please contact us at your earliest convenience to discuss this or any other matter.

The above is without waiver or admission of any kind and with full reservation.

Very truly yours,
Brown and Caldwell

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cc: Brian Kellmann, EPEC
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Jason Schindler, Weston
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Attachments (2)

1. Attachment A: Hatco RIR Figure 2.3.33-1
2. Attachment B: "Impacts from Hatco Drainage on the Former Nuodex Site", (BC, August 2010)