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M E M O R A N D U M

TO: **Kevin Schick, Bureau Chief**
NJDEP, Bureau of Environmental Evaluation and Risk Assessment

FROM: **Mark D. Fisher, CHMM, LSRP**
The ELM Group, Inc.

DATE: **March 9, 2017**

RE: **Summary of NJDEP Technical Consultation Meeting - February 21, 2017**
Regarding the Hatco Corporation Remediation Project
Fords, Middlesex County, New Jersey
NJDEP PI#G000003943

A meeting pertaining to the Hatco Remediation Project was held on February 21, 2017, at the New Jersey Department of Environmental Protection (NJDEP) office in Trenton, NJ. The meeting attendees were as follows:

- Kevin Schick, Bureau Chief, NJDEP/SRWMP/BEERA
- Nancy Hamill, Eco Assessment Technical Coordinator, NJDEP/SRWMP/BEERA
- Matthew Turner, Supervisor, NJDEP/BIR
- Myrna Campion, Acting Bureau Chief, NJDEP/BIR
- Susan Schulz, Supervisor, Toxics Section, United States Environmental Protection Agency (USEPA)
- James Haklar, Environmental Engineer, USEPA
- Mark Fisher, President, LSRP, The ELM Group, Inc. (ELM)
- Jason Schindler, Project Manager, Weston Solutions, Inc. (Weston)
- Sally Jones, Vice President, Weston
- Steve Blarr, Director ERM, Weston
- Coleen Devorak, Project Assistant, Weston

Licensed Site Remediation Professional (LSRP) Mark Fisher and Weston previously received comments from NJDEP on the ecological components of the Remedial Investigation Report (RIR) for the Hatco Site, dated May 7, 2016. NJDEP comments were presented in an undated memorandum from Nancy Hamill to Matthew Turner and Gerald Hahn of the Bureau of Inspection and Review. On November 9, 2016, Weston and the LSRP of Record for the site

provided a letter responding to each comment. This meeting was requested by the LSRP and Weston to discuss the responses provided to NJDEP and identify any outstanding issues or concerns.

MEETING SUMMARY:

1. The meeting commenced with Kevin Schick (NJDEP) providing a summary of the technical consultation meeting that occurred in 2015, in which a proposed methodology regarding the derivation of a site-specific risk-based sediment remediation goal for bis(2-ethylhexyl)phthalate (BEHP) in Woodbridge Pond sediments for the Hatco remediation project was discussed. Schick stated the meeting took place two years ago and he was under the impression that the remediation would have been completed by now.

2. Susan Schulz (USEPA) asked what deadlines are being followed for this project. Fisher responded that the project is following the Remediation Timeframes under the LSRP Program. The RIR deadline was May 7, 2016, and the Remedial Action Completion deadline is May 7, 2021.

3. Jason Schindler (Weston) distributed a meeting agenda and provided a brief overview of the Hatco Environmental Liability Transfer Project: Weston assumed liability for Hatco releases prior to November 4, 2002; the project is currently in the Remedial Action (RA) phase; and the RIR submitted on May 7, 2016 was intended to fulfill the regulatory obligation. Schindler stated that considerable remediation work has progressed at the site; in the last 1 to 2 years Weston has spent approximately $10 million during on-site remediation. Approximately 11,000 tons of contaminated soil have been shipped offsite for disposal; portions of the engineered cap have been installed; and a cut-off wall and recovery trench system have been completed to fully contain the inaccessible Light Non-Aqueous Phase Liquid (LNAPL) that remains beneath the active chemical plant. With regard to the delay in the Woodbridge Pond remediation, Schindler noted that Weston and the property owner, Woodbridge Township, had a misunderstanding regarding the remediation approach. While Woodbridge and Weston are now in agreement with regard to the approach, the effort to resolve and obtain agreement on the remedial strategy for the Pond was protracted.

WOODBRIDGE POND REMEDIATION PLAN

4. Weston has recently received approval from Woodbridge Township on the revised remediation approach for Woodbridge Pond. Weston is finalizing the Conceptual Remediation Plan, and will be sharing the conceptual plan with regulators within the next

two weeks. The document is expected to be limited to approximately three pages of text and a map showing the extent of planned remediation.

5. James Haklar (USEPA) asked Schindler why Weston has chosen to circulate a conceptual plan instead of a Remedial Action Workplan (RAWP) Addendum. Schindler explained that the purpose of the conceptual plan is to ensure that the stakeholders are in general agreement regarding the remediation approach before a great deal of time and effort is spent preparing and reviewing the RAWP Addendum. Weston would like to provide a work plan that does not require significant modification before it is finalized. This will also allow Weston to begin the required permit applications now rather than awaiting comments on the full work plan. Once regulatory comments on the concept plan are received, the RAWP Addendum No. 4 will be prepared by Weston, certified by the LSRP of Record (Fisher) and will be submitted to USEPA and NJDEP.

6. Schindler stated that remediation will entail removal of sediments containing polychlorinated biphenyl (PCB) concentrations greater than 1 mg/kg and bis(2-ethylhexyl)phthalate (BEHP) greater than 22 mg/kg. Weston plans to conduct this remediation as a wet dredge. The pond will not be dewatered; based on current hydrogeological data, the pond appears to be a groundwater discharge area and dewatering would be impracticable. There is no room on the Woodbridge Pond property for construction support and staging areas. Therefore, Weston plans to establish support areas on the former Hatco site, currently owned and operated by Chemtura. Dredged sediments will be pumped as a slurry to a dewatering system that will be located on Chemtura's property. Water will be treated and discharged back to the pond in accordance with the pending discharge to surface water permit. A portion of the sediments will be reused in the Former Lagoon Area (prior to final capping of this area) and the remainder will be disposed offsite at an approved disposal facility. Site and wetland areas will be restored in accordance with permit requirements.

7. Haklar inquired why the on-site work is dependent upon the offsite work, referring to the capping of the Former Lagoon. Schindler explained that there is no room to work on the Woodbridge Pond parcel therefore construction support activity will take place on Chemtura property and a portion of the dredged sediments will be reused in the Former Lagoon Area before the final cap is installed.

8. Nancy Hamill (NJDEP) stated that based on information in the RIR, the delineation on Woodbridge Pond property does not appear to be complete. She questioned the delineation of contaminated sediment in the northeastern portion of the pond. Schindler explained that

while Weston did not obtain uncontaminated samples in this direction, Weston assumes that the contaminated sediments extend to the limit of the pond in this direction. Hamill questioned whether the area outside of the pond may have been contaminated by overland flow. Schindler presented a figure depicting Woodbridge Pond and Channels A, B and C, and explained that Channels A, B and C have been previously remediated and there is no pathway for contamination to enter the eastern side of the pond. In addition, Weston will propose additional pre-design samples in this area to ensure that the limits of contaminated sediment are defined before dredging begins. If additional step-out samples are needed Weston will collect them at that time (pre-design). However, Weston believes that delineation is complete for purposes of the remedial investigation and design of the remedial action.

9. Hamill explained to Haklar that NJDEP had previously agreed to a site-specific remediation standard of 22 mg/kg for BEHP in the Woodbridge Pond sediment, and asked if that was acceptable by USEPA. Haklar stated that USEPA is focused on PCBs and will defer to NJDEP for the BEHP goal. Haklar asked if 1 mg/kg remediation standard for PCBs is acceptable by NJDEP. NJDEP confirmed their acceptance of the risk-based remediation approval that includes this cleanup goal.

10. Hamill identified an erroneous statement in Weston's response to comments (RTC), on page 5, paragraph 1: "As discussed during the technical consultation meeting on March 6, 2015, it was our understanding that NJDEP agreed with the position that the current Ecological Screening Level of 0.75 mg/kg was based on a flawed study from Washington State and that it would be appropriate to adopt Washington State's current screening level of 22 mg/kg as a reasonable alternative for purposes of delineation." This statement should be replaced with the following text, previously included as part of the memorandum from the referenced technical consultation: "The Technical Consultation meeting on March 6, 2015 included a discussion of the NJ Ecological Screening Criteria (ESC) for BEHP and its derivation from the NOAA Screening Quick Reference Tables (SQuiRTs) by the State of Washington. Weston's specialty consultant, Windward Environmental (Windward) stated that the NJ ESC for BEHP in sediments (0.75 mg/kg) was derived from an evaluation that has since been disproven. Windward discussed their review of literature on the toxicity of BEHP and found No Observed Effect Concentration (NOEC) were identified at much higher concentrations than the current ESC set forth by NJDEP. NJDEP agreed that it would be appropriate to adopt Washington State's current screening level of 22 mg/kg as a reasonable alternative for purposes of delineation."

ECOLOGICAL RISK ASSESSMENT (FOR BEHP IN CHANNEL D)

11. Hamill asked if Weston is planning to perform a full ecological risk assessment, acknowledging that it can be a lengthy process, considering the May 2021 deadline. Hamill stated that an ecological risk assessment should be submitted as part of the RIR, but nothing regarding ecological toxicity had been provided in the RIR. Schick concurred that a Risk Assessment is typically required with the Remedial Investigation (RI). Fisher clarified that the work on-site is nearing completion with only the site-wide capping remaining, and that the Risk Assessment should apply to the offsite areas only. Hamill and Schick agreed that the need for a risk assessment applied to the offsite areas of concern. Schick stated that this is one of the top level of cases with environmental issues for the Agency and that given the long history and complexity of this site, it would be acceptable for the risk assessment to be completed at this time (after the submission of the May 2016 RIR and prior to any remedy evaluation for this offsite area).

12. Hamill stated the 22 mg/kg ESC for BEHP may be applied for sediment in areas that remain inundated by water, but for other areas, the current default ESC is 0.925 mg/kg. Hamill asked if BEHP is delineated to that criterion. Schindler explained that during the investigation of the offsite areas, it was assumed that PCBs and BEHP were within the same area. However, it appears that the PCB and BEHP footprints are not the same with BEHP extending further south than the PCBs. Schindler noted that the project is already in the RA phase and stated that Weston would incorporate the Risk Assessment into the Remedial Design for the offsite area. Sally Jones (Weston) clarified that the Risk Assessment applies to BEHP only, not PCBs. PCB remediation goals were already established with the March 2005 risk-based PCB disposal approval letter issued by NJDEP.

CHANNEL D POTENTIALLY RESPONSIBLE PARTIES

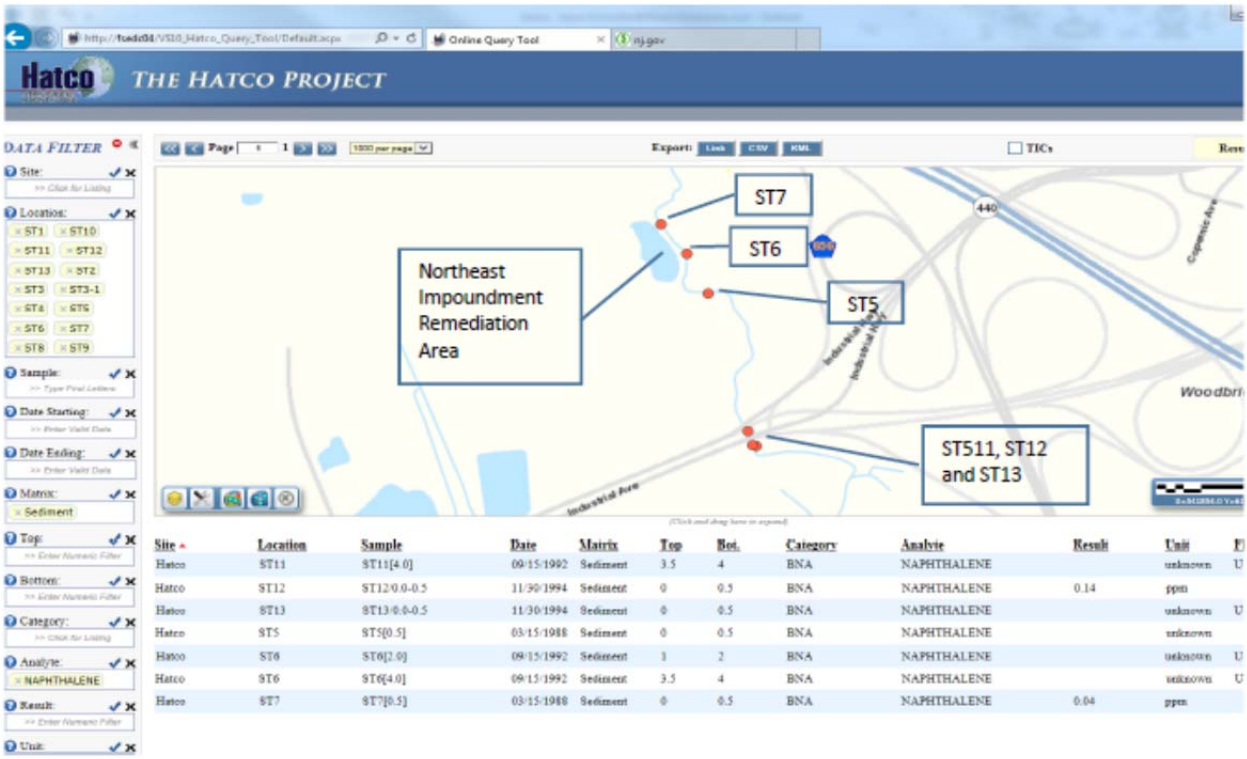
13. Schindler presented a map of AOC 25 and explained that Channel D is only a small part of AOC 25. AOC 25 covers an offsite area that is currently owned by multiple entities: EPEC Polymers (formerly Nuodex), GreDel, ConRail and Woodbridge Township. Weston noted that the distribution of contamination observed in AOC 25 beyond Channel D suggests additional source areas. Schick stated that Weston can pursue distribution/potential additional responsible parties separately. Weston will provide an update within the next two months.

SLINGTAIL CREEK

14. Hamill said she did not understand Weston's response to the Slingtail Creek comment. NJDEP stated that the historical sample data do not adequately characterize the sediment in Slingtail Creek and requested additional sample collection. NJDEP is concerned that the historical records indicate naphthalene releases in this area (proximate to the Creek) and not all of the sediment samples were analyzed for this parameter. Weston noted that under its remediation agreement with NJDEP, the RIR only addresses contamination from releases prior to November 2002. Naphthalene contamination in this area and releases to Slingtail Creek were associated with the phthalic anhydride plant operations. That plant was taken out of service in the 1970s. Dan Raviv Associates, Inc. (DRAI), conducted remediation in this area (phthalic anhydride plant) in the late 1980s and early 1990s on behalf of W.R. Grace (Grace). The sediment samples used to characterize the sediments in the creek were collected at that time. The work was subsequently halted due to a financial dispute between DRAI and Grace, and therefore the large excavation in the area of the phthalic anhydride plant was never backfilled. Runoff accumulated in the open excavation forming the Northeast Impoundment. Weston recently completed the removal of naphthalene-contaminated material from this area and backfilled the Northeast Impoundment with certified clean fill material; that work will be reported separately in a Remedial Action Progress Report. Weston explained that the samples collected by DRAI in the Creek to document conditions reflect conditions during the timeframe subject to the remediation agreement (i.e. prior to November 2002). No on-site releases were documented in this area or suggested by facility operations after the remediation of the area by DRAI. Weston is concerned that sediments in the creek could likely contain contamination associated only with urban runoff from upstream locations. Further sampling of the sediments would serve no purpose other than documenting current sediment conditions resulting from urban runoff, which are not the responsibility of Weston under the remediation agreement. NJDEP reiterated its concern that since not all of the sediment samples were analyzed for the full list of parameters that certain contaminants may have been missed. Fisher noted that the historical sampling had been performed under plans reviewed and approved by the agency and reflected the best understanding of appropriate sampling at the time. He suggested that Weston could review the existing data and, if the historical sediment samples near the remediation area were not analyzed for naphthalene then Weston would provide recommendations for further sampling of that area. NJDEP agreed that this approach would be appropriate and that the results of the evaluation and recommendations should be presented in this memorandum.

    Following the NJDEP meeting, Weston reviewed the historical data. Sediment samples were collected by DRAI between 1988 and 1994 from 13 locations within Slingtail Creek.

Sediment samples from six locations were analyzed for base neutral/acid extractable organic compounds including naphthalene. These included the three locations immediately adjacent to the Northeast Impoundment, which was the location of the waste from the former phthalic anhydride operations (Locations ST5, ST6 and ST7) as well as three locations where the stream leaves the site. Concentrations ranged from below the method detection limit at four of the six locations to 0.14 mg/kg. All of these results are less than the ESC of 0.176 mg/kg. Based on the locations and concentrations previously reported to NJDEP, Weston recommends no further investigation of this area. The image below shows the locations of the six samples along Slingtail Creek relative to the Northeast Impoundment remediation area. Detailed information regarding these samples were presented in the RIR.



RARITAN RIVER

15. Hamill asked Weston to take samples in the lower 1,000 feet of Crows Mill Creek just above the Raritan River. Schindler stated that Weston believes that the downstream extents of BEHP and PCB contamination have been delineated, upstream of the aforementioned area. Sampling in the lower portion of Crows Mill Creek, beyond the delineated area, would likely identify similar contaminants from other industrial sources. In this area, industrial properties border the lower reach of the Creek, including Tilcon and Bayshore Recycling, and there is

an industrial landfill associated with the former Union Carbine site, now Praxair, immediately upstream of this area. Schick noted that phthalates are a concern for recycling centers.

16. Schick stated that Weston needs to make a more compelling argument to demonstrate that BEHP from the Hatco site is delineated. Schindler noted that in Weston's response to comments, Weston proposed additional focused sampling to assess what appears to be an isolated BEHP exceedance in the stream channel upstream of Weston's final delineation locations. Weston will provide a map and concise sampling plan under separate cover.

LNAPL AREA IN CHANNEL D

17. Hamill asked Schindler to explain the "LNAPL Area" in Channel D. Schindler identified the location of the tarry area on a figure, identified in the RIR as EPEC AOC-4. This area appears to be historical surface spillage from the railroad track area. While sampling of the tarry material identified both PCBs and BEHP (among other contaminants), the area is not tied to any current or historical drainage from the Hatco site. The "LNAPL Area" identified on previous maps is located west of EPEC AOC-4 and Weston has not identified a connection between this area and the Hatco site. Historical aerial photographs show evidence of disturbance in this area beginning in the early 1950s, separate from Hatco's operations and drainage. The disturbance appears to expand southward through the following decades to cover what was later described as the "LNAPL Area." The RIR identifies this as AOC 25b (and not the responsibility of Hatco), separate from AOC 25a, which includes Channel D and the historical Crows Mill Creek channel that received drainage from Hatco. This separation of AOC 25b from any potential Hatco contribution is supported by a historical aerial photograph from 1979 that shows the surface water flow pathway based on placement of sorbent booms in Crows Mill Creek following a documented release from the Hatco site. Based on the placement of the booms, surface water flow at that time was down Channel D to the historical Crows Mill Creek channel along the eastern portion of AOC-25 (AOC-25a) with no direct pathway or connection to AOC-25b. Hamill said that the LNAPL area and tarry material remain an open issue and a source. Fisher noted that the burden of proof to establish an offsite source is on the property owner of AOC-25b (not Hatco).

WOODBRIDGE POND PERMITS

18. Haklar asked Schick how long the permitting process for Woodbridge Pond would take. Schick replied that NJDEP could expedite the review process. Weston will submit a list of required permits with the Woodbridge Pond Remediation Conceptual Plan and will work

with Matt Turner (NJDEP) when scheduling the permit pre-application meeting to expedite NJDEP approval to the extent possible.

19. Hamill asked if the fish will be euthanized and if the turtles can be relocated. The fish and amphibians will be addressed in accordance with the permit requirements. It is expected that all will be euthanized and removed as solid waste due to PCB contamination.

20. Schultz stated that according to a study, the wetlands surrounding Woodbridge Pond are considered a Pinelands Outlier and asked what Weston is going to do to protect it. Schindler reiterated that Weston will limit the disturbance and damage to the wetlands on the Woodbridge Pond property by using the Chemtura property as a construction laydown area. The wetlands will be restored in accordance with the required permits to be obtained from NJDEP.

FORMER LAGOON CAP

21. Haklar expressed concern with Weston's use of SoilTac on top of the Former Lagoon Area, instead of using tarps to cover the exposed soil. Schindler explained that the tarps previously used to cover the soil could not be anchored sufficiently to prevent movement and exposure. SoilTac is a dust control agent that is designed to stabilize the soil. This prevents dust and limits runoff. A berm surrounds the Former Lagoon Area which prevents runoff from escaping. This combination is a significant improvement to the limited cover previously provided by the tarps. Haklar noted that the 2 acres which comprise the Former Lagoon are exposed contaminated soil and should have been capped already and requested further information on the SoilTac material. Schindler noted that the Former Lagoon Area was included in the previously approved remediation plans for the site as a soil reuse area. That work is nearly complete and will be finished with the Woodbridge Pond remediation. Weston will provide documentation of the SoilTac and inspections to Haklar. The Former Lagoon Area will be capped in accordance with the previously-approved plans once the sediment from Woodbridge Pond has been placed on it.

PLAN FORWARD/ACTION ITEMS

1. An ecological risk assessment will be prepared for BEHP as part of the remedial design for Channel D. The risk assessment will be completed as part of the remedial action phase and within the current NJDEP Remedial Action Timeframe for the site of May 2021.

2. Weston will provide a conceptual work plan (i.e., several pages and a figure) to NJDEP and USEPA in the next several weeks for Woodbridge Pond. Weston will include the list of permits with the plan and will work through Turner for the pre-application meeting.

3. Weston will provide a sampling plan to refine the BEHP delineation in Crows Mill Creek sediment in the vicinity of sample location CDG_382 upstream from the tidegate. The plan will be provided within the next 90 days contingent upon concurrence by the property owners

4. As part of the sampling plan, Weston will provide a map showing the ownership, operations and land uses identified in this area including the landfill and recycling center.

5. Weston will provide a concise summary of the recent remediation efforts completed at the Hatco site with the sampling plan and in the upcoming remedial action progress report for the Southeast Leg remediation.

6. Weston will provide USEPA with information on SoilTac and its application as a temporary stabilizing agent for reused soil in the Former Lagoon Area.

NJDEP recommended further evaluation to develop additional lines of evidence that the LNAPL Area adjacent to the EPEC site is not the responsibility of Hatco. This issue will be addressed prior to the remedial action report. Weston will likely contact NJDEP to discuss this issue in a future Technical Consultation Meeting.