



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

December 1, 2006

Mr. Gregory L. Simpson
Project Manager
Textron, Inc.
40 Westminster Street
Providence, RI 02903

RE: Former Gorham Manufacturing Facility – Park Parcel, 333 Adelaide Ave., Providence, RI
Supplemental Site Investigation Report - Comments
Case No. 2005-059 (Associated with Case No. 97-030)

Dear Mr. Simpson:

On February 24, 2004, the Rhode Island Department of Environmental Management (the Department) amended the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, (the Remediation Regulations). The purpose of these Regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in an efficient manner. In the matter of the above referenced property (the **Site**), the Department's Office of Waste Management (OWM) has received the following document, submitted on behalf of Textron, Inc. (Textron):

- Supplemental Site Investigation Report, Former Gorham Manufacturing Site, 333 Adelaide Avenue, Providence, Rhode Island (SSIR), prepared by MACTEC Engineering and Consulting, Inc. (MACTEC), dated July 2006, received August 9, 2006.

Based upon review of the referenced document in accordance with Sections 7.00 (Site Investigation) and 8.00 (Risk Management) of the Remediation Regulations, Department personnel have the following comments, clarifications, and questions:

- 1) It should be noted that there are paging and spacing differences between the original hard copy SSIR report submitted to the Department, and the subsequent electronic PDF file submitted and posted on the Department's web site. The following references to sections, pages, paragraphs and quotes are all referenced to the original hard copy SSIR report.
- 2) In our March 14, 2006 comment letter on Mactec's November 2005 draft Supplemental Site Investigation Work Plan to Support Human Health and Ecological Risk Assessment Activities – Park Parcel/Mashapaug Cove (SSIWP), the Department requested a site figure depicting measured fill depths throughout the Park Parcel (Comment 3). As this SSIR is intended to

address all of the Department's comments on the SSIWP, please include the requested figure in the response to this comment letter.

- 3) Regarding SSIR Section 2.1 (Property and Site History), page 2-1, paragraph 1, the Order of Approval for Parcel B (Providence Public School) was issued on June 9, 2006, and the Order of Approval for Parcel C (YMCA) was issued on April 24, 2006. The text of the referenced paragraph incorrectly indicates that both Orders were issued on October 11, 2001, which is the date of the original Order of Approval for Parcel A (former Stop & Shop).
- 4) SSIR Section 3.1 (Soil Sampling), page 3-3, paragraph 1, states, "*Samples collected from the upland area of the debris pile and from the adjacent sampling grid generally appeared to be fill soils which contained varying amounts of construction debris. Hand excavations indicated that a thin layer of fill (generally one to two feet) likely overlies the original native sandy soil in this area of the Site.*" Did the hand excavations conclusively determine the depth of fill (i.e. always reach native soils), and does the fill cover the entire upland area?
- 5) SSIR Section 3.4 (Magnetic Survey), page 3-5, paragraph 2, references "*known intake pipes of cove water for process operations...located along the western and southern shores of the Inner Cove.*" Please add these items to Figure 3.4 (Magnetic Survey Results, Mashapaug Pond) or identify which of the 16 distinct magnetic anomalies correspond to the intake pipes. Please provide a copy of the map (or if already submitted, reference the location in the specific document) used to determine that the subject pipes were historic water intake pipes as opposed to discharge pipes.
- 6) SSIR Section 3.4.5 (Collection of Sediment Samples), page 3-8, paragraph 1, indicates, "*The deeper samples were analyzed for the principal Site-related COPCs (VOCs, PPMs, and PAHs).*" It should be noted that total petroleum hydrocarbons (TPH) was detected in 24 of 28 soil samples and 19 of 29 sediment samples, and dioxins/furans were detected in all 33 soil and all 28 sediment samples, indicating that they are also principal Site-related constituents of potential concern (COPC).
- 7) Regarding SSIR Section 4.1.3 (Inorganics and Metals), page 4-2, during conversations and meetings (including the meeting on October 4, 2006), representatives of Textron have consistently expressed the belief that the lead contamination in the fill surrounding the slag pile area (i.e. fill at the outer limits of the slag pile excavation area that does not contain visible pieces of slag), is consistent with lead contamination in fill throughout the site. Review of the SSIR results and Figure 4.7 (Concentrations of Lead in Soil) do not support Textron's interpretation of the data. When compared to the majority of the lead sample results from Parcel D, the compliance samples collected from the slag pile walls and base of the slag pile excavation exhibit elevated levels of lead contamination indicative of a concentrated "hot spot," rather than uniform or random lead distribution in fill.
- 8) Regarding SSIR Section 4.2.6 (Dioxins), page 4-7, your report should note that according to Table 4.6, the calculated dioxin toxic equivalents (TEQs) for all three surface water samples were greater than the surface water screening value standards.

- 9) Regarding Section 4.3.1 (Physical Characterization of Sediments in Mashapaug Cove), page 4-8) paragraph 2, this sentence suggests that several sediment samples (referring to SD-29 to SD-32) "*included slag in [the] upper part of the cores*" and that "*the slag was subsequently removed from the shallow portion of the cove immediately to the north of the slag pile.*" Since these sample locations were spread out, has it been conclusively determined that all slag potentially above the upper concentration limit (UCL) was removed from the cove or will this need to be addressed at some later date?
- 10) SSIR Section 4.3.2 (Chemical Characterization of Sediments in Mashapaug Cove), page 4-9, paragraph 2, indicated "*Four samples collected by RIDEM in 2005 are included in the discussion of current results.*" Please clarify whether "four" is a typographical error and all five samples collected by RIDEM were included. If not, please indicate which four were used and why.
- 11) Regarding SSIR Section 4.3.3 (VOCs), additional investigation of sediment sampling location SD-19 should be performed, since several volatile organic compounds (VOCs) as well as arsenic were reported to be increasing with depth. This investigation should be included in the additional sediment investigation activities described in Section 4.4.5.
- 12) SSIR Section 4.3.4 (SVOCs), page 4-10, states that sampling location SD-20 reported the highest semi-volatile organic compound (SVOC) concentrations, and indicates "*Stormwater from the new shopping center discharges near this location and this result may be indicative of an influence from the large pavement areas that drain the new development.*" SSIR Section 5.2 (Ecological Risk Assessment for Mashapaug Cove), page 5-8, also states "*The source of PAHs appears to be the storm drain which discharges near SED20.*" In order to determine if this hypothesis is correct, the runoff route and the complete upgradient pathway should be sampled appropriately, including the storm water detention/infiltration basin located behind the former Stop & Shop building. Consideration must also be given to the likelihood that storm water runoff may be a contributing source of polycyclic aromatic hydrocarbons (PAHs), but not be the only source.
- Is it known whether the subject storm drain is old or new?
 - If old, what was it connected to (i.e. what did it drain) prior to the current development configuration?
 - Has the storm drain been inspected (videoed) for gaps, cracks and loose joints that could be allowing groundwater to enter the drain?
- 13) Regarding SSIR Section 4.3.8 (Organic Carbon), page 4-12, paragraph 2, the citation for the table of Organic Carbon Content of Sediments in Mashapaug Cove, should be Table 4.10, not Table 4.9.
- 14) Regarding SSIR Section 4.3.9 (Dioxins and Furans), page 4-12, paragraph 3, the citation for the figure of Concentrations of Dioxin TEQ in Surficial Cove Sediment (0-1 or 0-2 ft), should be Figure 4.31, not Figure 4.30.

15) Regarding SSIR Section 4.4.5 (Groundwater Quality and Potential Chemical Transport), page 4-16, paragraph 3, a conclusion has been drawn that *“Analytical data for deep wells between the plume and Mashapaug Cove indicate the deep plume does not extend to the cove.”* This conclusion is based upon 11-year-old data (1995) and probably is not accurate today based upon current estimates of groundwater direction (*“across the site towards the pond”* [Sec. 4.4.4]) and predicted rate of flow (*“groundwater could traverse the entire property within a range of approximately one to 18 years”* [Sec. 4.4.4]). These groundwater flow characteristics indicate that the plume may well extend to the Cove today and, at a minimum, represents a substantial future threat to the Cove. Also, SSIR Section 4.4.6 (Potential Groundwater/Sediment Interaction), states that *“the June 2006 sediment sampling and analysis program in Mashapaug Cove did indicate that sediments at several sampling locations within the cove did contain a similar suite of VOCs as has been reported in groundwater...These data are suggestive of a link between groundwater discharge and sediment quality in Mashapaug Cove.”* And concludes that *“If the VOC concentrations reported in sediments are associated with discharging groundwater, further study appears to be needed to fully understand the accumulation or retardation mechanisms that would explain the sediment concentrations. Other explanations for the VOC concentrations reported in sediments may also need to be investigated.”*

Therefore, since *“The vertical hydraulic gradient along the southern shore of Mashapaug Cove is upward, indicating that groundwater discharges into Mashapaug Pond”* [Sec. 4.4.4], the Department requires properly investigating groundwater migrating toward the cove. In addition to further study of the cove sediments, a representative number of new groundwater monitoring wells (shallow and deep) should be installed at appropriate locations within Parcel D, to properly assess and gauge (or conversely to definitively rule out) any ongoing impacts to cove sediments from the chlorinated solvent groundwater plume originating on Parcel A, and/or to determine if there are any other previously unidentified groundwater contamination sources.

16) Regarding SSIR Section 4.5.2 (Migration Pathways and Receiving Media), page 4-22, paragraph 2, a conclusion has been drawn that *“There have not been highly leachable materials identified in soils within the Site that might migrate to groundwater via leaching or infiltration.”* This statement is contradicted by the statements made earlier in the same section (page 4-21, paragraph 2); *“Potentially, release of metals from the former slag pile might have occurred via infiltration of precipitation and subsequent leaching of metals. The leachate may have infiltrated into groundwater and subsequently flowed to surface water or it may have flowed directly into the cove from the slag pile.”* Furthermore, analytical data from the slag pile has indicated that at least one metal (lead) has been demonstrated to have the potential to leach.

17) SSIR Section 5.1.2 (Sediment and Surface Water), page 5-3, paragraph 2, should clearly state that RME stands for Reasonable Maximum Exposure and CT stands for Central Tendency.

18) SSIR Section 5.1.3 (Industrial/Commercial Worker), page 5-3, paragraph 4, makes an assumption that *“Only those sediments at locations with two feet or less of standing water have*

been considered accessible to human receptors. This assumption is consistent with USEPA Region 1 risk assessment practice.” Please provide a copy of the reference indicating USEPA Region 1’s approval of this assumption, as well as documentation clearly indicating which data points have been excluded from consideration based upon the use of this assumption. Also, please explain whether and to what extent reasonably foreseeable (i.e. seasonal) changes in the water level in the pond and cove over time were considered when excluding data?

19) SSIR Section 5.1.4 (Trespasser) page 5-4, paragraph 1:

- a) The 2nd sentence of the 1st paragraph is not entirely consistent with field observations. During two site visits, trespassers (homeless?) were observed camping on the shore of Parcel D. According to Mr. Robert Dorr, the site has a long history of trespassers entering and living along the cove shoreline. In addition to catching fish, Mr. Dorr has observed trespassers wading and bathing in the inner cove as well as cooking with water from the inner cove. Please respond.
- b) The final two sentences in this paragraph state that *“In the summer months which is when swimming and wading are likely to occur, the Inner Cove becomes covered with aquatic vegetation making it a less desirable place for wading or swimming as compared to the Outer Cove. Also the water in the Inner Cove is relatively shallow (generally less than 3 feet during the summer) which would make swimming difficult.”* However, shallower water in the summer also makes wading easier and more inviting, particularly near areas that are typically clear of mass vegetation such as outfall pipes and overland storm water discharge channels, which also appear to be locations where elevated levels of contamination have been detected at this site.

20) Regarding SSIR Section 6 (Remedial Alternative Evaluation), the Department acknowledges that construction of an engineered cap over areas of contaminated soil, along with long term maintenance and monitoring of the cap, and recording an Environmental Land Usage Restriction (ELUR) on the Site, is typically an acceptable remedial alternative. In this case however, due to the proximity of the proposed capped area to Mashapaug Cove, and the significant impact that installation of any type of cap would have on the established wetlands, the Department cannot conceptually concur with either of the two capping remedial alternatives as currently proposed. The Department’s Freshwater Wetlands Program (Wetlands) has jurisdiction over the 50-foot perimeter of Mashapaug Cove, and any disturbance in that jurisdictional area must receive prior Wetlands review and approval. The limited description of the proposed activities is insufficient to evaluate either capping remedial alternative. At a minimum, the following questions must be addressed:

- a) Please clarify whether and to what extent installation of either proposed cap involves any of the following activities and include comprehensive explanations or descriptions as applicable:
 - i) Cutting or removal of any vegetation (trees, shrubs, bushes, plants, etc.);

- ii) Modification of the existing wetlands terrain by excavation, removal of material, filling, consolidation, regrading or other disturbance;
 - iii) Modification of the existing shoreline boundary and dimensions or grades by addition or subtraction of fill, or the use of bulkheads, riprap or other engineered structures.
- b) Since it is understood that placement of an engineered cap thick enough to provide a protective cover over contaminated site soil would also result in the death of existing trees, shrubs and plants, please clarify how the proposed capping will be implemented.
 - c) Please clarify how placement of the geofabric mentioned in the second proposed remedial alternative will be implemented (i.e. removal of all existing vegetation followed by placement of the geofabric, or excavation and placement around existing vegetation, etc.).
 - d) How will the engineered cap be constructed and maintained on the steep slopes of the site?
 - e) Note that the fence installed by the City around Parcel D pursuant to the March 29, 2006 Consent Order (Parcels B and C) was intended as a temporary barrier to facilitate the development of residential uses on Parcels B and C while the investigation and remediation of Parcel D was completed. Please explain whether the City was consulted on or has agreed to this proposal and discuss how this proposal is consistent with the limited public recreational uses that have been proposed for Parcel D.
 - f) Who (Textron or the City) will assume long term monitoring and maintenance of the engineered cap, including but not limited to periodic inspections, tending of any restored vegetation, repair of damaged or eroded areas, and annual certification requirements under the ELUR?

In addition, please be advised of the following related issues:

- g) The Department recognizes that limited disturbance of the existing wetlands for the purpose of removing the slag pile and/or UCL exceedances is unavoidable. As noted by Wetlands personnel during correspondence regarding the slag pile area remedial activities, any disturbance of jurisdictional wetlands requires appropriate restoration and replanting of the disturbed area to its prior forested condition. As such, the proposal to simply loam and seed the cap would not meet Wetlands minimum requirements.
- h) As currently proposed, the remedial work in the 50-foot perimeter of Mashapaug Cove would not fall under the Site Remediation exemption listed in Rule 6.01 (General Conditions for Exempt Activities) and Rule 6.08 (Site Remediation) of the Department's Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (Wetlands Regulations), but would require a formal Wetlands application and permit (typically averaging eight to ten months).
- i) The Department requires that any engineered cap provide a minimum degree of protection equivalent to two feet (24 inches) of clean fill over regulated soil. As currently proposed,

neither of the two capping remedial alternatives (15 inches and 21 inches) meets that minimum requirement.

- j) An acceptable alternative to capping contaminated soil in a jurisdictional wetland is to remove the contaminated soil and restore the disturbed area to its prior forested condition.
- k) When submitting the revised remedial alternatives, please include one additional hard copy for submittal to Wetlands. This requirement also applies to submittal of the draft Remedial Action Work Plan (RAWP).
- l) A site specific, post construction Soil Management Plan (SMP), detailing plans for long term monitoring and maintenance of the engineered cap, must be developed and submitted for Department review and approval during the RAWP phase of the project, and shall be required to be recorded with the final Department approved ELUR for the property.

21) Section 6.1 should include a statement that dioxins/furans were also found at concentrations that exceeded the calculated Method 2 Industrial/Commercial Direct Exposure Criteria (I/CDEC).

22) Regarding SSIR Section 6.2 (UCL Exceedance), page 6-2, paragraph 1, please be reminded of the following:

- a) All confirmatory compliance samples shall be grab samples collected from the excavation floor and walls, in order to adequately demonstrate that removal actions have been completed and the remedial objective goal achieved. Samples collected from the excavated material may not be used as confirmatory compliance samples.
- b) When submitting any samples to the laboratory for analysis (whether for investigation or remedial compliance purposes), please confirm that all of the laboratory detection limits are below the Department's criteria, as a number of samples from previous sampling events reported method detection limits higher than the applicable Department criteria. Contaminants noted to have detection limit exceedances on the laboratory analytical data reports in this SSIR included benzo(a)pyrene, benzo(a)anthracene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, chrysene, antimony and thallium.

23) Regarding SSIR Section 7.1.3 (Fate and Transport), page 7-5, paragraph 3, the statement that "Groundwater containing low levels of chlorinated VOCs is currently being remediated on Parcel A." is misleading, as (a) the groundwater on Parcel A contains very high levels of chlorinated VOC contamination, and (b) remedial efforts to date have been unsuccessful.

24) SSIR Section 7.1.4 (Risk Characterization and Remedial Requirements), page 7-6, paragraph 4, states that "Specific to the Outer Cove, only arsenic in sediment is associated with cancer risk greater than one in one million, even though the cumulative cancer risk is less than one in one hundred thousand. It is not clear, however, that the arsenic sediment concentration used to evaluate the Outer Cove represents a Site-related impact or if it is typical of the variability

within Mashapaug Pond sediments.” It should be noted that the determination of the source of the arsenic (or any other contaminant detected at the Site), does not change the potential risk associated with exposure to the contaminant.

- 25) SSIR Section 7.2 (Conclusions of the Supplemental Site Investigation Report), page 7-9, paragraph 3, states, *“Removal of the slag material along the southern shore of Mashapaug Cove was completed on July 17, 2006.”* This statement is not accurate. It should be noted that there are outstanding issues that need to be resolved before the Department considers the slag removal to be complete. These issues will continue be addressed in correspondence separate from this SSIR.
- 26) SSIR Section 7.2, page 7-10, paragraph 1, states, *“Additional sampling and analysis is necessary to delineate the extent of sediment contamination by metals and dioxins and furans and to distinguish Site-related impacts from the current sediment conditions in Mashapaug Pond.”* Is Textron proposing to complete a comprehensive assessment of the surface water and sediments of Mashapaug Pond in order to characterize *“current sediment conditions in Mashapaug Pond?”* It would be necessary to fully assess Mashapaug Pond in order to accurately distinguish between Pond related and Site related impacts, and to determine if cove related contamination was extending into the pond, or vice versa.
- 27) SSIR Section 7.2, page 7-11, paragraph 3, states, *“It is not clear that the arsenic concentrations in the Outer Cove sediment are typical of the variability within Mashapaug Pond or are Site-related so additional site investigation is warranted prior to determining the need for remediation of the Outer Cove sediments.”* It should be noted that the need for remediation is typically based upon the measured and calculated risks from exposure to contamination, not upon the source of the contamination. It should be further noted that the Cove is part of the Site for which Textron is a responsible party.
- 28) Table 4-1 of the Health and Safety Plan (HASP) in Appendix A should also list dioxins and furans. The 4th paragraph of HASP Section 4.1 should state that certain sediment and soil locations are known to contain dioxins, furans and PCBs. The Department also requests that Textron strike the following language from the 4th paragraph of HASP Section 4.1 *“...that are not thought to have originated at the Site...”* because it is unsupported and speculative.
- 29) Area of Proposed Cap, Figure 6.1. A soil sample at location SS-210 is shown to have exceeded a Method 1 I/CDEC. Will additional testing be conducted to define the boundaries of contamination? How will it be determined that all contaminated soil above the Method 1 I/CDEC has been identified and placed under the soil cap as proposed in the “Notes” section on Figure 6.1?
- 30) Regarding SSIR Appendix G (Human Health Risk Assessment), the Department has the following comments:
 - a) In accordance with Rule 8.03 (Method 3 Remedial Objectives) of the Remediation Regulations, *“Site-specific human health risk assessments shall be conducted only after review and approval of a Human Health Risk Assessment Workplan by the Department.*

The methodology proposed in the Human Health Risk Assessment Workplan must be consistent with scientifically acceptable risk assessment practices and the fundamentals of risk assessment under EPA's Risk Assessment Guidance for Superfund. The Human Health Risk Assessment Report, when completed according to the approved workplan, shall propose remedial objectives for all impacted environmental media, as appropriate."

According to the SSIWP previously referenced in comment 2, (SSIWP page 1-2, paragraph 2), "A proposed Work Plan for the expanded risk assessment for the Park Parcel and Mashapaug Pond will be submitted to RIDEM following a review of this supplemental site investigation of the Cove." No such Work Plan was ever submitted to the Department by Textron.

The Department expected the submittal of a Human Health Risk Assessment Workplan prior to submittal of the Human Health Risk Assessment. Many of the Department's Risk Assessment related comments and concerns would have been addressed during the work plan review.

- b) It should be noted that the reported human health risks, associated with potential exposure to cove contaminants (excluding dermal contact with PAHs and dioxins), exceed Department cancer risk benchmarks (Appendix G, Table 14). When dermal exposures to PAH's and dioxin were added into the cumulative risk calculations for the inner cove trespasser scenario (Appendix G, Table E14), the total cancer risk for this receptor is given as 3E-04, which is an order of magnitude above the Department regulatory standard.

- c) In the Department's 2002 report "Mashapaug Pond Data Report and Analysis," fish tissue (Carp) was found to be "high for certain dioxins and furans...and some values were at or around [the EPA fish consumption limit of 1.2 ng/kg]." Also, the concentrations of PCBs in "some of the Carp tissue samples appear[ed] high, but the limit for PCBs [was] 94 ug/kg and the highest recorded [value] was 54.93 ug/kg." Given those findings and considering Department observations in the field and those of Mr. Robert Dorr concerning homeless people living in the park parcel and eating fish, cumulative risk calculations should include the fish ingestion pathway for both homeless trespassers who live along the inner cove and community members (adolescent/adult trespassers and family members, e.g. children) who consume fish from the pond. This is an important pathway to consider as long-term risk management options will need to incorporate more effective measures than currently exist (i.e., fencing and signage) for preventing exposure to COPCs in fish tissue. Section 6 of Appendix G concludes that PAHs and dioxins in sediment have the potential to bioaccumulate in fish and that the consumption of fish "could potentially result in exposure." Questions to be addressed include the range of COPCs that may need to be tested for in fish tissue (for example, it does not appear that earlier testing included PAHs or lipophilic VOCs of concern) and the number of samples to be taken. Also, the conceptual site model (fate and transport) should be modified to show that a complete exposure pathway from site sources to biota (including fish) exists, while risks from ingesting contaminated fish would need to be added to the adolescent and adult trespasser cumulative risk calculations as acknowledged on page 10 of the risk assessment report (App. G).

- d) Appendix G, Sec. 4.4. Current EPA guidance indicates that the 95 percent upper confidence limit (UCL) should be used in both reasonable maximum exposure and central tendency estimates. Therefore, central tendency estimates should include the 95 percent UCL concentration term.
- e) Appendix G, Table B2. Why is 2004 given as the access date for EPA's Integrated Risk Information System (IRIS) Oral Reference Dose (RfD) values? All toxicity values tabulated and used in risk calculations should be current. The same is true for Tables F1 through F4.
- f) Appendix G, Tables 2 & 7. Antimony was shown to be detected in 2 out of 28 samples at concentrations of 2.7 and 1.6 ppm. The Region IX screening Preliminary Remediation Goal (PRG) for antimony is 3.1 mg/kg. Table 2 shows that most sediment sample detection limits for antimony are elevated above the 3.1 mg/kg screening level; this is reflected in the arithmetic mean of 6.0 mg/kg when ½ the detection limit was used. Since most detection limits are above the screening level, it cannot be determined whether actual sediment values were above or below the screening level. Antimony should, therefore, be evaluated for its potential contribution (attributable incremental increase) to the overall hazard index.
- g) Dioxins and Furans. The "Unimpacted Soil Sample SS-SI208" which is the subject of the chart on SSIR Figure 4.12, is not identified on Site Figure 4.10. Please clarify where this sample was taken.
- h) Appendix G, Tables 8 & 10: Commercial/Industrial Worker. The ingestion rate for water is given as 5 ml/hr. This should be changed to 50 ml/hr and calculations revised accordingly.
- i) Typically, the default values used in RME calculations are equal to or greater than those for central tendency estimates.
 - i) Appendix G, Tables 8 & 10: Surface Water. Why are skin surface areas used in the central tendency dermal exposure trespasser calculations higher than for RME scenarios? Also, why are the exposure times (ET) for ingestion and dermal intake calculations higher for CT (1.5 hr/event) than RME (1.0 hr/event) scenarios?
 - ii) Appendix G, Tables 9 & 11, Sediment. Why is the fraction ingested (FI) for the CT Commercial/Industrial Worker equal to 1.0 whereas it is listed as 0.5 for the same receptor in the RME scenario?
- j) Appendix G, Tables 8 & 10, Surface Water. The permeability coefficient (PC) event table cited in the "Intake Equation/Model Name" column of Tables 8 & 10 appears to be missing.

- k) Construction worker receptor, pages 9 & 10. This receptor is described as having a potentially complete exposure pathway (Appendix G, pg. 10). The scenario for this receptor, however, has not been developed and risks were not evaluated; also, the receptor is not listed in Figure 4.41 Conceptual Site Model (site soil). Please explain.
 - l) Appendix G, Tables 16 & 17: Calculation of Blood Lead Concentrations. The variables used in the adult lead model (excel spreadsheets) for soil ingestion (IR_S) and baseline PbB_O should be consistent with the RME tabulated values for sediment (Table 9); i.e., IR_S should equal 0.1g/dy for the trespasser scenario. Also, the baseline blood lead level used in the calculation should more nearly reflect the ethnic makeup of the surrounding community using the most recent National Health and Nutrition Examination Survey (NHANES) and Rhode Island Department of Health (RIDOH) data.
 - m) Please double check dermal cancer risk calculations in Table D1 (RME Trespasser 7-18) of Appendix G as they appear to be low by a factor of ~3.
 - n) Planned development for Parcels B and C respectively include a school and a YMCA. The proposed remedial alternative for the terrestrial portion of Parcel D involves placing an engineered cap over any soil with contamination that exceeds the Department's Method 1 I/CDEC or the calculated Method 2 I/CDEC. As proposed, remaining terrestrial areas of Parcel D will be uncapped. Please conduct a separate assessment of the remaining uncapped areas of the terrestrial portion of Parcel D, utilizing the trespasser scenario (adult and adolescent combined).
- 31) Regarding SSIR Appendix H (Screening Level Ecological Risk Assessment), the Department has the following comments:
- a) Regarding Section 2.3 (Exposure Pathways), page 7, this section of the report discusses all of the potential sources of contamination at the site. As the site is complex, and as this is a public document it is recommended that these sources, along with other sources not noted, such as historic storm drains, historic discharge pipes from the plant, historic storage areas, etc., be included on a figure(s). Depending upon the scale of the figure(s) it may also be possible to include information concerning general contaminant distribution in the soil and groundwater. These figures would provide the reader with a link to onsite sources and the sampling stations for sediment and surface water (which would also be included in the figure).
 - b) Regarding Section 2.4 (Historical Investigations and Data Used in the SLERA), page 10, paragraph 2, the report notes that historical information from three previous studies was not included in the Screening Level Ecological Risk Assessment (SLERA) as they may not represent current conditions. Certain contaminants, such as metals and SVOCs are not expected to degrade or are expected to degrade relatively slowly. In addition, this data may provide supplemental information concerning contaminant distribution. Finally, this is a SLERA and questions concerning the data from these reports may be addressed in an uncertainty analysis. Therefore, please include the data from the previous studies in the SLERA.

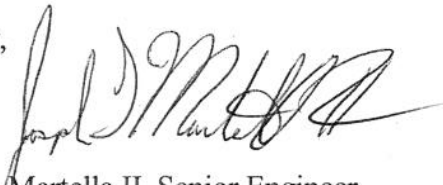
- c) Regarding Section 3.1 (Surface Water Screening Values), page 12, this section of the report proposes eliminating inorganics from the screening process as levels were detected below benchmark values. Locations, which were found to contain high levels of metals in the sediments, were, in some cases, not sampled for surface water. This needs to be evaluated in this section of the report prior to eliminating all metals from the screening process. As part of this evaluation please provide overlays of surface water sampling stations on to the figures depicting elevated sediment sampling locations.
- d) Regarding Section 4.0 (Screening Level Exposure and Risk Calculation), page 14, the report notes that contaminants detected at frequencies less than five percent were eliminated from further screening. Elimination based upon frequency is typically coupled with an evaluation of the data including, but not limited to, adequacy of the investigation for the locations where elevated levels were observed, whether the observed contamination represents a hot spot, a discharge point, etc. Please include this evaluation in the screening process.
- e) Section 4.0 (Screening Level Exposure and Risk Calculation), page 14, states "*The SLERA divided the cove into two exposure areas in order to facilitate risk calculations.*" Please include a discussion indicating the criteria that were used to develop the two areas, why it was necessary to develop two areas, etc.
- f) Regarding Section 4.2.1/4.2.2, page 17, the report has proposed eliminating certain VOCs, SVOCs and other organics from the surface water screening process based upon detected concentrations. Similar to the inorganic analysis please include an evaluation of the adequacy of the surface water/sediment sampling overlap and provide the appropriate figures. In addition, please include a discussion of sample depth, that is, were the samples collected at the top, midpoint or bottom of the water column. Finally, in addition to spatial considerations the report should evaluate seasonal affects as the samples were collected in the summer when ambient water temperature is high.
- g) Regarding Section 4.3.2 (Sum PAH Method), page 19, the Sum PAH Method evaluates PAH toxicity through a process involving equilibrium partitioning, and sample-specific total organic carbon. While this model may be used in a qualitative sense to predict toxicity at a certain location, it has limitations and it should not be used as a substitute for either a sample specific toxicity assessment and/or diversity analysis. Further, it should not be used in a screening assessment to eliminate sediment stations with elevated levels of PAHs. The report should note this and state that additional analysis must be performed, including toxicity test and diversity analyses before quantitative statements and conclusions concerning the toxicity of a particular sampling station can be made.
- h) Section 5.1.1 (Risk Characterization Cove Study Area), page 21, of the report states that three SVOCs were detected above ambient water quality criteria at sampling station SW-19. However, the Sum PAH model for SED-19 predicted that the elevated levels of PAHs found in the sediment sampling station would be tightly bound to the sediment and therefore not bioavailable in the water column. This appears to be a contradiction in that

according to the model the PAHs should be tightly bound to the sediments and no leaching of PAHs should occur, yet exceedances of water quality criteria are evident at this location. Please explain what appears to be a contradiction.

- i) Section 5.1.1 (Risk Characterization Cove Study Area), page 22, of the report has stated that Arochlor 1254 was eliminated, as it was not a site-related compound. In support of this position the report should note whether any PCBs were detected on the site, whether the Arochlor 1254 is a degradation product, etc. Furthermore, it is inappropriate for a responsible party to remove any contaminant from an investigation simply because it is not believed to be site-related. As a former property owner, Textron is responsible for all contaminants found on its property.
 - j) Regarding Section 5.2 (Uncertainties), page 26, TPH was not used in the screening process due to the lack of a suitable screening benchmark. This is a public document, therefore the report must include a discussion and a list of all of the benchmarks for TPH that were reviewed, the benchmark values and why they were considered unsuitable.
 - k) Regarding Section 5.2 (Uncertainties), page 26, SVOCs and BTEX were used as substitutes to evaluate TPH. In support of this position please provide a figure depicting Total PAH concentrations, BTEX and TPH.
 - l) Section 5.3 (Conclusions), page 26, of the report proposes proceeding forward with the development of an ecological risk assessment. As indicated in the above comments there are a number of concerns associated with the SLERA. These concerns must be addressed prior to the development of an ecological risk assessment for the site.
- 32) Textron, as a Responsible Party, must notify all abutting property owners, tenants, and interested parties that additional investigation is about to occur prior to the implementation of any investigation field activities in accordance with the Industrial Property Remediation and Reuse Act (Rhode Island General Law 23-19.14-5) and the Remediation Regulations. The notice should be printed in English and Spanish and should briefly indicate the purpose of the investigation, the work to be performed, the approximate scheduled date of activities, and the names and telephone numbers of contacts from Textron, MACTEC and the Department. Failure to comply with any of the aforementioned laws and regulations may result in enforcement actions as specified in Rhode Island General Law 23-19.1-17 and 23-19.1-18.

If you have any questions regarding this letter, please contact me by telephone at (401) 222-2797 x7109 or by e-mail at joseph.martella@dem.ri.gov.

Sincerely,



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