200 East Dania Beach Blvd, Suite 106
Dania Beach, FL 33004

Corporate Headquarters
6575 West Loop South, Suite 300
Bellaire, TX 77401
Main: 713.520.5400

October 21, 2022

Mrs. Laura Ward
Mrs. Wanda Washington
FOCUS
PO Box 338
Tallevast, Florida 34270-0038

Subject: Review of Temporary Point of Compliance (TPOC) Status 5-Year Notice for:
Lockheed Martin Tallevast Site
1600 Tallevast Road
Sarasota, Florida
FDEP Site No. ERIC_11531/Project No. 238148
RES Project Number 1-1440-005

Dear Mrs. Ward and Mrs. Washington:

Per your request, RES Florida Consulting, LLC dba E Sciences (RES) has reviewed the package of information provided in an email to the Florida Department of Environmental Protection (FDEP) on August 4, 2022, by Tetra Tech, Inc., a consultant for Lockheed Martin Corporation (LMC). This package of information consists of the following information, herein referred to as the 2022 TPOC update:

- Email to Serge Kiyali, serving to transmit several documents referenced as the 5-year TPOC mailing and publication for the Tallevast Site and included in this list;
- Tracking sheets with disposition of each mailing;
- Certified mailing receipts;
- Copies of each letter mailed;
- Bradenton Herald Proof of Publication; and
- The Bradenton Herald Publication.

Since the notices were issued in April, the 30-day period for comments to be provided to FDEP ended in May 2022. Because the package of information was provided to FDEP after the May 2022 deadline and not made publicly available within the comment period, we could not review and respond within that time frame. However, this letter provides comments based upon our current review of these documents for your consideration. The notices state that comments can be directed to the Southwest District Office of FDEP via email to lockheedmartin.tpoc@dep.state.fl.us. We did not find any public comments posted to FDEP's OCULUS page regarding these documents.

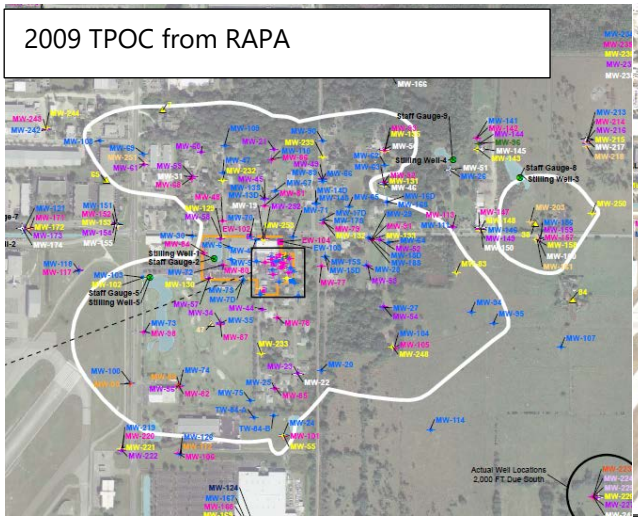
This letter summarizes our concerns with the TPOC as submitted, but also includes concerns associated with Lockheed Martin's *Plume Stability Analysis Report* dated June 14, 2022. Lockheed submitted this document in response to FDEP's concerns regarding the RAPs failure to perform as predicted. This included a request by FDEP to address the detection of exceedances of groundwater cleanup target levels in samples collected from monitoring wells located outside of the TPOC and hot spots that the treatment system did not appear to be affecting.

As stated in the FDEP document titled *Guidance for Establishing a Temporary Point of Compliance Beyond the Source Property Boundary* dated June 2019 (FDEP June 2019 guidance document) "the TPOC is the location beyond which a site's contaminants of concern (COCs) concentrations in the groundwater do not exceed Groundwater Cleanup Target Levels (GCTLs)" based on the outermost composite plume boundary. Section 376.30701(2)(b) of the Florida Statutes (FS) states that "when temporarily extending the point of compliance beyond the property boundary, it cannot be extended further than

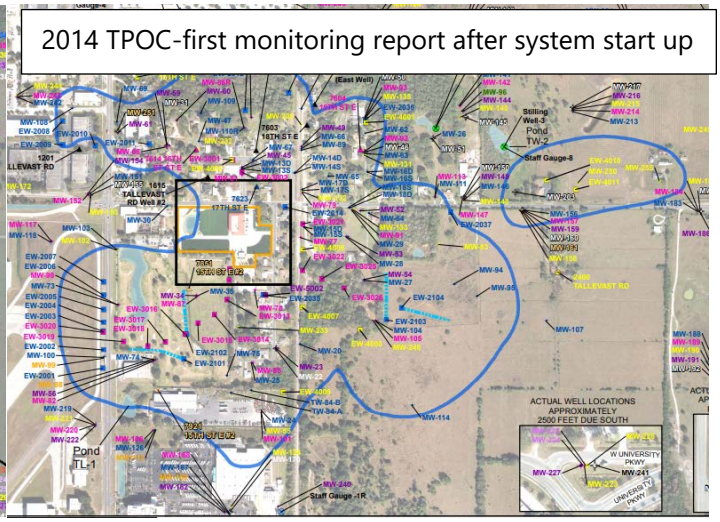
the lateral extent of the plume, if known, ***at the time of execution of a cleanup agreement***, if required, ***or the lateral extent of the plume as defined at the time of site assessment***." Per the FDEP June 2019 guidance document, ***exceedance of a GCTL in a TPOC monitoring well should be evaluated as a possible violation of the TPOC*** and if the contaminant ***plume expands beyond the TPOC, the effectiveness of the remedial strategy should be evaluated***. In response to FDEP's request to address the detection of exceedances of groundwater cleanup target levels in samples collected from monitoring wells located outside of the TPOC, Lockheed Martin prepared a *Plume Stability Analysis Report* dated June 14, 2022. Content from this document is also discussed below in the context of the ineffectiveness of the remedial strategy from plume spread, resulting in the need to revise the TPOC.

- **The TPOC has been modified multiple times as the plume has expanded confirming that the RAP as approved was ineffective in containing the plume.** After the 2010 RAPA approval order was issued, we expressed concerns that the 2009 TPOC was based upon insufficient assessment data and therefore the adequacy of the approved RAP design could not be properly evaluated. One example given was that the southeastern boundary of the TPOC was drawn between two USAS monitoring wells that were more than 600 feet apart: specifically, clean monitoring well MW-114 and contaminated monitoring well MW-104. By 2011, 1,4-dioxane was regularly detected above the standard in samples collected from MW-114, indicating that the contamination plume was likely larger than anticipated during the preparation of the RAP and the initial TPOC that was sent with notices to affected parties. Lockheed Martin has had to adjust the TPOC accordingly in subsequent years as additional assessment required by FDEP revealed that the lateral extent of the plume is much larger than initially defined and accepted. Over time, data collected through Lockheed Martin's remedial action effectiveness monitoring confirmed our concern that the plume was not delineated but also that it was not being contained and recovered by the approved remediation system. Valuable time was lost as the plume continued to spread unaffected by the remediation system.
- **The TPOC is to be established at the SAR or RAP stage and not be regularly revised.** Florida statute 376.30701 acknowledges that in some cases a plume is known to extend off a source property but authorizes the FDEP to extend the point of compliance beyond the source area ***temporarily***, while cleanup is underway. The TPOC may only be moved beyond the property boundary to address conditions of the plume and therefore may not be extended further than the plume at the time of the site assessment or RAP approval order. FS 376.301(47) defines the TPOC as the boundary represented by one or more designated monitoring wells at which GCTLs may not be exceeded while site rehabilitation is proceeding. Essentially, the TPOC is an acknowledgement that the Responsible Party has identified the edge of the contamination plume and is given leeway to conduct cleanup within that TPOC with the understanding that the plume will be contained and mitigated through remediation efforts. The purpose of setting the TPOC is defining the starting extent of the contamination and the intent is to remediate the contamination within, and therefore reduce the TPOC boundaries. However, Lockheed Martin has been granted the ability to continually extend the TPOC each time they identify monitoring wells with contamination exceeding GCTLs while site rehabilitation is proceeding. This should be considered to be a violation of the TPOC, which should trigger evaluation of the effectiveness of the remediation system. The following snips show snapshots of the TPOC changes over time as documented in Lockheed Martin reports.

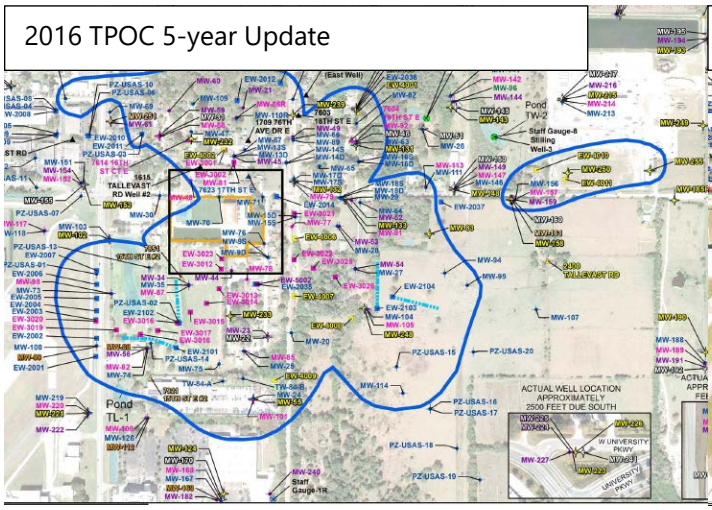
2009 TPOC from RAPA



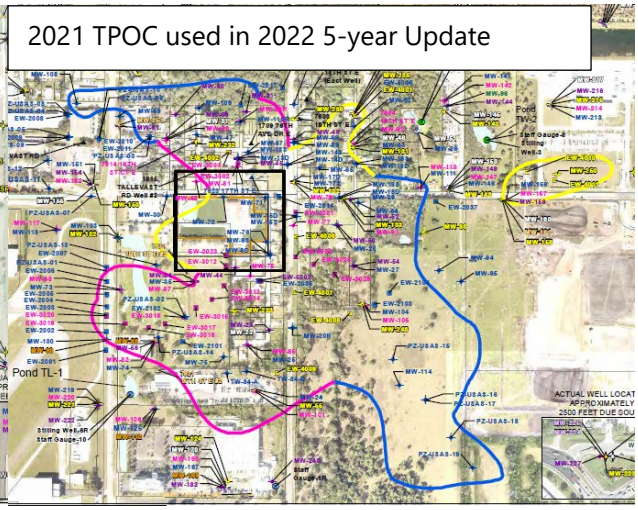
2014 TPOC-first monitoring report after system start up



2016 TPOC 5-year Update



2021 TPOC used in 2022 5-year Update



- **A violation of the TPOC indicates that the effectiveness of the remedial strategy should be evaluated.** The FDEP is relying on Lockheed Martin to make the determination of whether or not the remediation system is effective. One example is through modeling. A Responsible Party can assert their findings and conclusions, but it is expected that FDEP will review all the data submitted taking into consideration the history of the site to provide expert feedback and guidance. To this effect, no independent review of the models and capture zones were conducted during review of the RAP documents or during the updates included in the RASRs. The 2019 RASR provided an updated groundwater model with data through 2018. The model predicted that an area of about 100 feet by 400 feet of the 1,4-dioxane plume in the northwest portion of the plume was not being included in the capture zone.

  The updated model also predicted the 1,4-dioxane simulated contour extended nearly 1,000 feet southeast of the plume boundaries depicted in the RASR. Neither of these findings were reported in the RASR text. This is particularly important because it suggests that the 1,4-dioxane plume was not being contained and captured by the remediation system. Instead of reporting the model's findings in the text and representing this in graphics, the capture zones depicted in the RASR maps are drawn based upon "professional judgement" and are not supported by the groundwater elevation data and potentiometric curves that are mapped. No acknowledgement or explanation of these discrepancies are included in the RASRs. Further, it has now been proven through Lockheed's actual analytical data that the plume is migrating to the southeast over time because the area was never properly assessed and therefore, not in fact captured by the remedial system.

  Additionally, in a letter dated November 24, 2020, FDEP indicated that there were several hot spots that the treatment system did not appear to be affecting and suggested that Lockheed Martin look into treatment methods that could enhance cleanup. We appreciate FDEP requesting additional analysis by Lockheed Martin. During a meeting on December 16, 2020, Lockheed Martin indicated that it was performing an internal plume stability

analysis to evaluate system progress and concentrations trends. After multiple follow up requests from FDEP, Lockheed Martin submitted a plume stability analysis report document dated June 14, 2022, to FDEP. In evaluating plume effectiveness and the need for modifications to the remedial system, it is our opinion that FDEP should have an independent review of the plume stability analysis and not rely on Lockheed's assertions of its findings and its relevance to whether modifications are required. It is our opinion that the plume stability analysis was improperly applied to the site conditions and therefore the conclusions should not be used to determine that the remedial strategy is sufficient. This is discussed in the next bullet.

- **The plume stability analysis was improperly applied to the site conditions.** Rule 62-780.610(2) of the Florida Administrative Code (FAC) indicates that any fate and transport model shall be selected from a referenced ASTM document or from the list of approved fate and transport models maintained by the Department. Alternative methods may be submitted for FDEP's inclusion onto their approved list. The plume stability analysis prepared by Lockheed Martin in June 2022 used two methods as a basis for the study: Mann-Kendall Statistical Analysis and Groundwater Plume Analytics. The Mann-Kendall Statistical Analysis is included in FDEP's list of approved models, but the Groundwater Plume Analytics, which is a proprietary program, is not on FDEP's approved list or in the ASTM standard. Regardless, the FDEP rule indicates that the fate and transport models and statistical methods are to be used to support an evaluation pursuant to the provisions associated with risk assessment, no further action and natural attenuation monitoring, not for the evaluation of effectiveness of an active remediation. The FDEP approved models may be utilized to evaluate the appropriateness of natural attenuation monitoring, if soil will leach into the groundwater, to justify a No Further Action proposal and to establish that a groundwater plume is stable or shrinking for groundwater contamination that is contained within the property boundaries, less than ¼ acre and limited to the immediate vicinity of the source area. The rule does not contemplate use of these tools to evaluate a plume stability for a dynamic plume undergoing cleanup such as the case with the site. Neither of these studies contemplated the inappropriateness of using data collected from dynamic samples collected from extraction wells (40% of the USAS sample locations used in the analysis) in the analysis. Dynamic samples are a mixture of water that is being extracted from the area captured by the extraction wells, not the static conditions that are represented by collecting a static sample from a monitoring well which would be representative of actual groundwater conditions. These dynamic samples are not representative of the plume concentrations, rather they are representative of the groundwater influent of the remediation system. The analysis also includes data from the delineating monitoring wells located outside of the plume that exhibit no contaminant detections and do not represent the conditions related to the interior of the plume, which should be the subject of the plume stability analysis. This biases the analysis by including data that is outside of the contamination plume. Overall, the methods and data selected for analysis were not appropriate for the site.
- **The plume stability analysis did not evaluate the stability of the plume in the southeast area where an unstable plume is migrating.** According to the plume stability analysis, data sets with less than four occurrences are not appropriate for use in the analysis. Therefore, the area newly determined to be contaminated, as represented by the results from one round of samples in February 2021 from PZ-USAS-15, 17 and 18 were excluded from the stability analysis. While we agree that a trend cannot be assessed when there is only one data point, it should be understood that by omitting data from these wells, a large and misunderstood part of the contamination plume was excluded from the analysis. Based on this, we conclude that the results of the plume stability analysis should be properly vetted in the context of the actual contamination plume in the areas of persistent contamination reflected by static monitoring conditions within the contamination plume. We would encourage FDEP to engage experts to independently review the analysis. The community is depending on the responsible party to provide accurate information and the FDEP to consistently review historical and current project data to ensure that the contamination and TPOC delineations are accurate, the plume is not migrating, and the information is effectively conveyed to the affected community.
- **FDEP should also acknowledge that the 2022 TPOC as submitted did not comply with the relevant regulatory requirements.**
    - **The 2022 TPOC notice is one year late to be considered to be a five-year update.** Chapter 62-780.220 (4) states that when utilizing a TPOC beyond the boundary of a source property, an additional notice concerning the status of site rehabilitation shall be similarly provided every five years to the classes of

persons who received notice pursuant to 62-780.220 (3). Per FS 376.30702, the intent is to notify potentially affected persons through actual and constructive notices. The previous TPOC notice was sent in 2016; therefore, the updated TPOC notice should have been sent in 2021 and include an update of the site rehabilitation status.

- **The 2022 actual TPOC notice fails to meet regulatory requirements.** Per Chapter 62-780.220(3) and the 2019 FDEP guidance document, the actual notice shall include the following information:
  - The type of proposed agency action needs to be included. The rule provides an example of "temporary extension of the point of compliance." The notice does not include a proposed agency action, it does not indicate that the TPOC from the 2016 notice has changed. This is critical information and without it the notice does not meet the intent of providing a five-year update.
  - The location where complete copies of any relevant documents concerning the site and the proposed remedial strategy, including temporary extension of the point of compliance, are available for public inspection. The notice provides a link to OCULUS that does not work for us and the old FDEP ID number is listed. Even if the link did work, Lockheed Martin cannot assume that all affected parties possess the sophistication necessary to navigate OCULUS. The letter does state that copies of relevant documents are available at the Southwest District office, which is located 60 miles away. A document repository within the community would provide appropriate access for affected parties.
  - The FDEP's TPOC notice template, if followed, would have included a list of the categories of contaminants and the affected media. These were not included in the 2022 TPOC Update notice and this information has been omitted in previous notices. The property owners are entitled to this information, as the presence of the contamination has created stigma and impacted their lives.
  - The notice letter should include a vicinity map with a legible scale and include the proposed TPOC line along with street names or landmarks to allow the recipient to identify the area in the TPOC. The package provided to FDEP did not include a map and the narratives did not refer to a map, but the Temporary Point of Compliance Map was listed as an attachment. Either the map was omitted from the mailing, or it was omitted from the package provided to FDEP. Either way, this should be resolved. FDEP should verify that a compliant map was included with the mailing, or an updated mailing should be conducted.
- **The 2022 constructive TPOC notice fails to meet requirements.** While the copy of the constructive notice provided to FDEP was included in the TPOC package, it is illegible. Nonetheless it is clear that it does not comply with the noticing requirements outlined above, which requires the proposed agency action, a map of legible scale and the categories of contaminants of the affected media. Neither of those were included in the constructive notice. It is noted that the constructive notice states that FDEP approved the establishment of the TPOC for the contaminated sites in 2010, but it does not state that the boundaries have been modified since. When providing public notices, care must be taken to ensure that the intent of the notice is met and that the affected parties receive an accurate and understandable message. This was not the case.
- **The 2022 actual notice failed to notify all affected parties.** It is important that the intent of the noticing is met and affected parties are notified. Lockheed Martin should take action to ensure that the mailing information is accurate and resolve noticing issues when they can easily be rectified. Two examples follow:
  - The first line in the 2022 TPOC update tracking spreadsheet is for the Airport Commerce Center listed with an address of 7602 15th St. E, Sarasota, FL. This notice was recorded as "unclaimed" with a reason of "return to sender not deliverable as addressed." The Manatee County property appraiser's information for this property shows several other addresses assigned to the property that the notice was not mailed to. A simple check of the property card would have been a prudent step to resolve this issue and the notice should have been sent to all property addresses associated with this property.

- It appears that there was not a proper notice sent for the 246-acre property where the leading southeastern edge of the plume has been identified. A property with an address listing of 1950 Tallevast Road and parcel number 2007300059 is listed on the tracking sheet, which presumably references this property. The notice was unclaimed with a reason listed is that no parcel number or address found. This address actually corresponds to parcel number of 2006500109 on the property appraiser which was not included on the tracking sheet. Again, a quick review of the information on the property card could have resolved this error and proper noticing could have been conducted. FDEP should review the prior and current TPOC notifications to confirm that all affected property owners and residents are notified of the actual environmental conditions affecting their properties in accordance with the Florida Statutes. Accurate notification of affected property owners is of paramount importance to the community.

The lack of care used during this very important and legally required noticing event is obvious from its tardiness to inaccurate mailing information, incomplete submittal of information to FDEP, incomplete information in the notices and failure to provide notices to all affected parties. We note that due to the social and economic detriment suffered by the community by the widespread migration of the contamination plume, we feel that FDEP should provide a higher degree of scrutiny to ensure that the rights of affected parties and the public are met and protected.

Thank you,

Maria Paituvi, PE, Senior Engineer
mpaituvi@res.us | 305-984-9162

Nadia Locke, PE, Senior Engineer
nlocke@res.us | 954-937-9678