From: **Jeanne Zokovitch Paben** <jeanne.pabenlaw@gmail.com>
Date: Thu, Dec 19, 2024 at 3:57 PM
Subject: Lockheed Contamination in Tallevast: Comments from Consent Order Consultant Ramboll on the 2024 RASR
To: Sellers, Robert <Robert.Sellers@floridadep.gov>, Bland, Mike <Mike.Bland@floridadep.gov>

Mike and Rob,

Attached please find comments from Dr. Rob Powell of Ramboll. As you know, Dr. Powell is the technical consultant that Lockheed is obligated to support with a small stipend to work with FOCUS based on the terms of Lockheed's 2004 Consent Order with the State. As you can see, Dr. Powell continues to raise serious concerns about both Lockheed's understanding of the contamination and the effectiveness of the cleanup. This includes comments now for several years noting **that Lockheed's own data indicates that Lockheed has either never delineated the full extent of the plume in multiple directions or has failed to control the plume in multiple directions with its approved Remedial Action Plan.**

The only reason we do not know which is accurate is because of a failure for Lockheed to completely assess the contamination at the time that FDEP approved the Site Assessment with the SARA 3 Addendum as is required by law. FDEP's position at that time indicated that it was approving the SARA but that it was also going to require Lockheed to do additional assessment as it prepared its Remedial Action Plan. FDEP specifically agreed that for this reason, FOCUS would still be allowed to raise challenges with site assessment once the RAP was approved. At the point of RAP approval it was clear that Lockheed's assessment deficiencies still existed and yet FDEP chose to approve the RAP. **If Lockheed's assessment was complete and its representations of the effectiveness of its cleanup were accurate, the plume would have been stable during RAP implementation. Instead, contamination in Tallevast has continued to grow and expand by Lockheed's own admission beyond its cleanup ability.**

While we are appreciative that FDEP has acknowledged this and requested additional assessment and clean up changes to date, **Lockheed has resisted all directions from FDEP** in these areas with the exception of additional assessment of the Southeast edge of the plume. That additional assessment did in fact confirm that the plume was not delineated and that it was beyond the reach of Lockheed's cleanup system. Lockheed complying with FDEP's directive then made changes to the cleanup to address this.

In the current RASR **once again it is clear that contamination has again expanded further into the Southeast and is again beyond the cleanup system's abilities**. While this may have been in part impacted by the recent hurricanes, proper delineation and proper clean up construction and operation should have addressed such foreseeable events. Part of the State's justification for approving the RAP without full plume characterization was that the capture zone

of the system was much larger than the plume and was very conservative. If this were accurate, the system should have been able to accommodate climatic events. Also, our consultants have questioned the accuracy of the capture zone limits shown by Lockheed on their maps, and this plume movement provides additional evidence that these capture zone lines are inaccurate, so the amount of contamination being contained is likely even less than being acknowledged by Lockheed.

Further, how to address the situation becomes a longer and more arduous process because the lack of data points in unassessed or underassessed areas means trying to answer questions of delineation and cleanup construction and operation without the necessary information. In the meantime, contamination remains uncontrolled. **This flies in the face of the entire cleanup program under Florida Statutes Chapter 376 and its corresponding regulations.**

While understanding the nuances of the program requires significant technological understanding the basics are simple.

- **Contamination is discovered**
- **Contamination is reported**
- **Assessment of contamination is completed (fully completed)**
- **While this assessment is being done interim measures are put in place to begin cleanup and prevent expansion**
- **When assessment is fully complete a cleanup plan is approved - that cleanup plan is required to be effective, efficient, to prevent risk of further exposure to anyone, and to contain the contamination.<u>LOCKHEED'S CLEANUP IN TALLEVAST HAS FAILED AT ALL OF THESE</u>**.

To be clear, yes, we acknowledge that contamination is being removed but the law is not designed to require just effort with some success. Additionally, we recognize that no cleanup of contamination this vast will be quick, but to allow Lockheed to continue trying to clean up contamination that they continue to allow to expand (or later find) and to allow them to resist FDEP's instructions to correct the flaws of their assessment and cleanup is not consistent with the law nor is it in anyway protective of the Tallevast community. If the extent of contamination is not understood, then you cannot design an effective cleanup nor can you prevent exposure risks. This historic community which endured decades of exposure to this contamination deserves better from FDEP and Lockheed.

**<u>Therefore, it is imperative that FDEP immediately demand</u>**

1. **<u>that Lockheed swiftly implement assessment efforts to define the edges of the plume in all directions AND</u>**
2. **<u>that Lockheed swiftly follow through with FDEP's instructions two years ago to address the insufficiencies in their assessment within the densely populated area closest to the site to inform residents of their risk.</u>**

**Every day that Lockheed is allowed to delay these actions risk continues to this community and now others.**

Thanks

Jeanne

RAMBOLL

ENVIRONMENT
& HEALTH

Ms. Wanda Washington
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Re: Review of AECOM's 2024 Remedial Action Status Report for the Groundwater Recovery and Treatment System, Tallevast Site, Florida

December 12, 2024

Dear Ms. Washington,

At your request I have reviewed the latest *Remedial Action Status Report for Groundwater Recovery and Treatment System* (AECOM; October 2024) for the Tallevast Site. This report describes the past and then-current ground water conditions beneath and around the Lockheed Martin Corporation (LMC) facility on Tallevast Road in Manatee County, Florida (the "Site"), and covers the operating/reporting periods of September 2023 through August 2024. The ground water in aquifers beneath the Site and surrounding areas has been undergoing remediation since 2013, by pumping/treatment to remove contaminants (principally 1,4-Dioxane [1,4-D] and certain chlorinated volatile organic compounds, or CVOCs) that were previously released from the LMC facility. Having completed my review of this report, I would offer the following observations and recommendations.

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Overall, the ground water recovery and treatment system being operated by AECOM for LMC continues to generally perform within the operating parameters defined in the approved RAP and operating permits for the Site. By this statement I mean that ground water continues to be recovered and the treatment system is successfully removing contaminants from the water (approximately 15.7 lbs. of contaminants were removed in the 2024 reporting period) before it is disposed to the ground water reinjection systems, or to the county sewer. This is about 89 percent of what was removed in the prior reporting period. This persistent year-over-year decline in the amount removed is consistent with the asymptotic behavior of this type of remediation system, which my predecessor (Dr. Varney) noted as a concern prior to the RAP approval and which I have raised in past reviews. As more contaminants are removed, the annual removal rate slows down. This pattern is normal and expected and demonstrates that these types of remediation systems are not particularly efficient in removing contaminants in the latter stages of a remediation project when diffusion from finer grained sediments in the aquifer zone becomes a more limiting process. For this reason, it is sometimes necessary, as Dr. Varney recommended in his prior comments on the RAP, to employ additional hotspot treatment techniques to assure effective, efficient, thorough, and timely clean-up of pervasive groundwater contamination such as exists at this Site.

Based on its groundwater monitoring/testing in 2024, AECOM reported that the composite contaminant plume across all the affected aquifers declined slightly from 112 acres in 2023 to 109 acres in 2024. The reported decrease in plume size is primarily attributable to a 5-acre reduction in the mapped contamination in the USAS, with the deeper aquifer plume maps remaining more-or-less stable in size. Based on my analysis of the monitoring record and mapping of the USAS plume boundaries for the principal remaining contaminant (1,4-Dioxane)[1], however, there may actually have been an expansion of the plume in this aquifer this past year, not the contraction AECOM is reporting. A further discussion of this issue is provided below.

In the deeper confined aquifer units, LMC reports that removal of COCs has continued and the overall size of contaminant plumes are stable to trending slightly downward, however this removal has proven to be more difficult and slower acting in the deeper units due to the smaller amounts of clean water available for flushing. Contamination in the LSAS remains the most widespread. The plume boundary in the LSAS was stable at 82 acres in 2023 and 2024. Like the USAS, the overall plume boundary in the LSAS is primarily defined by 1,4-Dioxane, which has historically spread to the north across Tallevast Road, to the east and southeast, and beneath the golf course to the southwest. Concentrations of 1,4-D remain relatively high (e.g., above 100 ug/L) in several areas of this aquifer well beyond the LMC property.

Significant areas of the Arcadia Formation, lying immediately beneath the LSAS, are also contaminated, with the plume decreasing slightly from about 46 to 45 acres in 2024, again defined primarily by 1,4-D. As the contaminant plumes in the shallower USAS are resolving, the 1,4-D contamination in these next two deeper aquifers is emerging as the most widespread and recalcitrant contamination remaining beneath the Site today.

The remaining plumes of contaminants in the deepest Salt & Pepper Sands are small and primarily confined to the LMC property. This plume boundary is more-or-less consistent as compared to 2023 data.

With regard to individual areas of the plumes, I would provide the following more-specific observations:

**Southeast Area near PZ-USAS-19**

The area southeast of the LMC was historically affected by 1,4-D migration into distant monitoring piezometers (e.g., PZ-USAS-19)[2] at concentrations above the GCTL of 3.2 ug/L. The outer-most reaches of this contaminant plume likely extended beyond the capture zone of the GRTS as it was originally configured and operated. In response to this finding in 2019 LMC increased pumping in the ground water drains to the north and reduced the recharge water to the RC-7002 drain that protected the wetland (TW-6) along Tallevast Road in an effort to expand the capture zone further south.

[1] The most widespread contaminant in the USAS is 1,4-D, which historically spread to the north of Tallevast Road and to the east and southeast. Low levels, above the GCTL remain in both areas.

[2] This piezometer is located a few hundred feet southwest of the Amazon facility on Tallevast Road.

Subsequently in 2021, at FDEP's request, LMC undertook a direct push technology (DPT) investigation to more fully define this area of contamination. DPT probes revealed low levels of 1,4-D primarily existed in the lower portion of the USAS, just above the hard streak, and extended an additional several hundred feet beyond PZ-USAS-19 to the south-southeast. Additional sampling of the piezometers in this same area in February 2021 showed 1,4-D in piezometers PZ-USAS-15, -17, 18, and 19, respectively, at concentrations well above the applicable GCTL. Other targeted Site-related COCs (primarily CVOCs) were reported at low concentrations (i.e., below the GCTLs) to ND in this same area. This southeastern USAS 1,4-D plume likely traces back to the area just east of the LMC facility, where 1,4-D has historically been much higher (e.g., over 1 mg/L at the start of the GRTS in well MW-27 circa 2013).

LMC constructed 12 new monitoring wells in the southeast area in June 2022 (nine in the USAS and three in the LSAS) in accordance with FDEP approved workplans. Water level measurements in 2022/2023 in these wells indicated the capture zone from horizontal galleries, which are pumping farther to the north in the USAS, extended to the area between PZ-USAS-17 and -18 and encompassed the region where 1,4-D was then currently exceeding the GCTL in the USAS[3] (see 2023 RASR Figures 8 and 13E).

Over this span of several years, Amazon constructed a new warehouse facility on Tallevast Road, which included a large, unlined storm water pond just northeast of PZ-USAS-19. Seepage from this pond contributed to the formation of hydraulic ridge west of the pond, which along with LMC's pumping, helped form the southern boundary of the USAS capture zone in this area. Through 2023 and into the early summer of 2024 the combined effects of pumping, natural infiltration and seepage from the pond caused the 1,4-D plume to stabilize and then begin to decrease.

Unfortunately, this constructive trend seemingly reversed in August 2024, when Hurricane Debbie dropped 15+ inches of rain over the Tallevast area, causing a rise of more than 5 feet in the USAS water table. AECOM's mapping of the water table in August 2024 demonstrates a significant shrinkage of the capture zone in the USAS (compare figures 8A and 8B of the 2024 RASR). Concurrently the amount of 1,4-D reported in PZ-USAS-19 rose to 6.6 ug/L, more than double what was measured the prior year. AECOM has mapped this new data as if it were an isolated area around the piezometer (see figure 13A), using in part data from an adjoining piezometer (PZ-USAS-18) from the prior year, which clearly was no longer relevant to the new situation. Such an interpretation would seemingly suggest 1,4-D was flushing from the overlying vadose zone, but this doesn't seem plausible because the DPT study showed the local 1,4-D plume was primarily at the bottom of the USAS, and not being sourced above the water table. An alternate interpretation/mapping of the data could suggest a reformed 1,4-D plume now extends continuously along the piezometer network to just beyond PZ-USAS-19, which if true would be an expansion of the prior year's plume by several acres. Unfortunately, this can't be resolved in the 2024 RASR because AECOM did not retest the PZ-USAS-17 and -18 piezometers this past year.[4] Absent new data points that demonstrate this is not a continuous plume. AECOM should

[3] Lower concentrations, below the GCTL, were found outside the capture zone farther to the south.
[4] I have previously recommended that PZ-USAS-17 and 18 should both be tested each year in comments on prior RASRs to allow a more complete mapping of the progress of the contaminant plume in this area.

have at least acknowledged that it could be an extension of the larger plume to the northeast by showing a dotted line extension of the plume boundary on Figure 13A.

Whether an isolated area, or part of a larger plume, the contamination now being reported around PZ-USAS-19 likely lies beyond the capture zone for the USAS pumping system as depicted in the 2023 RASR (see figure 8), with the Amazon pond now in place.[5] Absent further efforts to recover this contamination, it will likely continue to slowly drift across the property to the southeast and disperse/dilute in the shallow groundwater. I understand from discussions with FOCUS that this property is planned for development as multi-family housing in the near future. Although the 1,4-D concentrations are low and may not present an impediment to such use of the property, it is an issue none-the-less that FDEP and the developer should consider to ensure protection of construction workers and residents living on the property in the future.

LMC is planning to conduct an additional, limited water level and chemical monitoring of this southeast area in December 2024 to further examine the progress in reestablishing the larger capture zone in the southeast area. I understand this program will also include retesting of piezometers PZ-USAS-17 and -18. This is prudent on their part, but the wells that are tested for 1,4-D should also include MWs-259 and MW-260, which are on the fringe of this same plume area and showed low, but increasing, concentrations of 1,4-D in the August 2024 testing. The prior year both of these wells reported 1,4-D concentrations as “Not Detected”.[6]

I note that water levels were again not reported (like was also the case in 2023) in the 2024 water level survey in five piezometers/wells located in the southeast area and a number of adjoining monitoring wells. Apparently, based on my discussion with Paul Calligan, LMC’s Project Manager for the site, the casings for these wells were extended to a higher elevation in the late Spring of 2023 to facilitate the construction that was beginning on Project Woodworking in this area[7]; and the new casings had not yet been resurveyed to allow for accurate water level reporting. In light of the recent questions about the extent of the USAS capture zone in this area, it is important that the modification of these piezometers and their resurvey be completed soon to allow for accurate water level reporting in the next water level survey in February 2025.

Like in the USAS, the LSAS capture zone has been interpreted by AECOM to extend sufficiently far to the southeast to also encompass the GCTL exceedances, but like I noted in last year’s RASR review comments, the boundary control on the LSAS 1,4-D plume in the area is poorly defined as there are no wells on the southern boundary of this plume. Consistent with my

[5] In the 2024 RASR AECOM amended its depiction of the pre-hurricane USAS capture zone in February 2024 to now extend it further south to the drainage ditch on the north side of the Project Woodworking property (see Figure 8A). The basis for this extension is unknown, as no water level measurements were made in the wells to the north that could justify this change. I understand this ditch is not a permanent, unlined water impoundment, (i.e. it’s not like the nearby Amazon pond), and is unlikely, therefore, to be a significant source of ground water recharge to the extent it would overcome the natural flow of water to the southeast. At this point, absent new water level measurements and based on available data, the 2023 depiction of the long-term capture zone is likely more realistic, once the excess water recharged to the water table from the hurricanes in late 2024 has been drained.

[6] I recently communicated this recommendation to Paul Calligan (LMC) via email, to which he responded that he agreed and would add these two wells to the December monitoring event.

[7] This information was later confirmed in the 2023 RASR Addendum 1, issued on October 27, 2023.

recommendation, LMC has agreed to construct a new LSAS well near MW-260 to hopefully close this monitoring gap but asserts that this construction should be delayed by the construction work at Project Woodworking and now also another property to the north, in the area around former wetland RW-3. My understanding from FOCUS however is that the Project Woodworking construction has been completed for some time and timing for development of the adjoining property is unknown in light of the recent discovery of PFOS/A in shallow groundwater during an associate Due Diligence review. This new LSAS well is a continuing, ongoing need that should be completed as soon as possible, because without this data the current extent of the 1,4-D LSAS plume in the southeast area and the effectiveness of the LSAS capture system are unknown.

**East of the LMC Facility near MW-27 and MW-28**

This area is about 300-500 feet east of the LMC facility, on the East side of the railroad beyond the densely populated residential area closer to the facility. It is the location of two infiltration galleries (EW-2103 and -2104) that collect groundwater and COCs in the USAS aquifer. Contaminants are being drawn into this USAS collection system from the surrounding area, extending west to the eastern portion of the LMC property and east to the Amazon property. Portions of this area still contain 1,4-D contamination in the USAS, particularly west of gallery EW-2103 and extending to the south to near PZ-USAS-17, however concentrations of 1,4-D have moderately declined over the past few years. To the east/northeast of the galleries concentrations of 1,4-D are now low to ND.

Similarly, USAS concentrations of CVOCs in monitoring wells west of gallery EW-2103 remain above GCTLs but have also continued to decline over the past year. Concentrations in monitoring wells east of the galleries, extending to the Amazon property, are mostly non-detect for CVOCs. This data collectively indicates that the cleanup of the USAS in the areas to the east/northeast of the galleries is approaching completion; but west of the galleries, concentrations above the GCTLs still persist.

I also note that LMC restored use of infiltration gallery RC-7002 adjoining the TW-6 wetland in January 2023. This has restored historic water levels in and around the wetland, which I commented on in my separate review of the 2024 Wetland Monitoring Report.

Generally, concentrations of 1,4-D and CVOCs in the deeper units (beneath the USAS) in this area meet the GCTLs east of the galleries, but remain above GCTLs farther west, extending back to the eastern boundary of the LMC property. These COC are being controlled/removed by deeper pumping systems.

**North of the LMC Facility across Tallevast Road**

This area lies due north of the LMC facility on the north side of Tallevast Road within a densely populated residential area. It is currently an area with concentrations of 1,4-D contamination in the USAS, LSAS and Arcadia aquifers above the GCTLs. In a few wells there are also some low detections of other CVOCs (e.g., 1,1 DCA and 1,1 DCE). Generally, LMC's data indicates that the remaining contamination in the deeper (LSAS and Arcadia) units in this area is contained by the

current GRTS pumping, but the effectiveness of the containment in the USAS unit remains an open question. I noted in my review of several prior years' RASRs that there is little drawdown of the water table in the USAS north of Tallevast Road in the areas of EW-2011 and -2012. Looking at the longer term record the current pumping of the USAS north of Tallevast Road has been minimally effective in reducing the 1,4-D contamination in the USAS in areas between EW-2011 and EW-2012, particularly as compared to wells/areas just to the south on the LMC property. Why these extraction wells have such a minimal influence on water levels and COC flushing is unclear. I have noted in prior writings that an investigation of this area with DPT would be beneficial to confirm the gradation of the aquifer materials (useful information to confirm well screen and gravel pack designs) as well as to more accurately map the extent of 1,4-D found in wells like MW-109 and EW-2012. Unfortunately, to my knowledge, those investigations have not been requested by FDEP, nor have they been performed by LMC. At present the full northern extent of 1,4-D in this area of the USAS, and the ability for the GRTS to effectively contain and remediate it, remain unknown.

This concern, which I have noted repeatedly in prior RASR reviews, has become even more acute with the release of the 2024 RASR report. Chemical tests of water from well MW-116 in August reported 1,4-D concentrations of 2.9 ug/L, only slightly less than the GCTL (3.2 ug/L). In prior tests a trace amount (0.54 ug/L) was reported in August 2023. Prior to that, all tests in this well had been "Not Detected" going back to 2009. This rise in concentration coincides with a distinctive northwestern shift in the USAS gradient in the area due to the rise in water levels following hurricane Debbie (see Figures 8A vs 8B). The current trend reflected in these data suggest a plume of 1,4-D could be migrating and expanding to the northwest in this area and today partially resides outside any capture zones AECOM has depicted (whether pre or post Hurricane Debbie). In very recent communications with Paul Calligan, he shared that AECOM believes the increasing amount of 1,4-D in MW-116 may be from another nearby industrial/commercial property operated by Tropitone on Commerce Blvd, lying 200 feet north of the well; a property where 1,4-D was reportedly detected in ground water and remained after facility corrective action. This may or may not prove to be the case, but the lack of data showing a clean boundary on the north/northwest side of the LMC plume proximate to its contaminated wells, as AECOM is assuming, remains problematic in any case. The wells they currently rely upon for this mapping are too far afield, or subject to contamination by other industrial properties, to be appropriate for this purpose. I therefore reiterate my prior recommendations to conduct a DPT investigation to more accurately define this boundary and confirm the effectiveness of the GRTS in containing this area of contamination north of Tallevast Road**.**

I also note that for the first time 1,4-D was reported above the GCTL in a private AF Gravel well underlying this same area at 7571 15$^{th}$ Street. 1,4-D had only been detected in this well once before going back to 2009, at trace levels. All other tests had reported "Not Detected". The source of this new contamination is unclear, as no plume of 1,4-D has been reported in the AF Gravel around or northwest of this private well. It is certainly possible that the contamination migrated along the well casing from a shallower aquifer (1,4-D has been reported in the overlying USAS and LSAS nearby), a migration that could have been triggered by the rapid rise in the water table from the Hurricane Debbie rainfall. LMC apparently plans to retest this well more frequently going

forward. This is a prudent step. I also concur that the well should not be used for potable supply in the future, and the home should be connected to the municipal water system if it is not already.

**South and Southwest of the LMC Facility**

In the most recent water quality tests in 2024, monitoring well (MW-35), located in the eastern golf course property just west of an adjoining populated residential area, showed PCE and TCE concentrations around and slightly above the GCTL. These new data continued an upward trend in TCE/PCE concentrations after the use of two bracketing pumping wells (EW-2102 and EW-2035) ended the prior year. In light of these recently reported increases, LMC has restored pumping in EW-2102 to continue remediation of the USAS under the golf course and containment of the plume, which would have otherwise migrated westward. This is a prudent step as the plume in this area is clearly outside the current capture zone unless the pumping is restored.

Based on the continued presence of CVOCs in this area and our continued questions about the reliability of extraction wells data to accurately represent conditions in the aquifer, I previously recommended a DPT investigation of the residential area south of LMC, the purpose of which was to verify if any CVOCs remain above GCTL levels in areas. FDEP concurred with this recommendation and has twice asked LMC to perform this investigation. In a recent (October 24, 2023) letter, however, LMC declined FDEP's request, citing its prior (2005) VP investigations of this area as adequate to understand the contamination. These prior tests, however, are now 19 years old and provide little useful information on the status of contamination in the community today, 11 years after the GRTS began operation

Historic (2005) testing showed that CVOCs were found in the USAS beneath the golf course and the adjoining residential portion of the Tallevast community. It was likely a southern extension of more diffused migration bordering the pronounced contamination migration pathway flowing to the east from the LMC facility, centered near MW-27 and MW-28 today. The observed concentrations of TCE/PCE in MW-35 above the GCTLs (both 3 μg/L) in the 2024, show this issue has not been completely resolved, nor have lingering questions about the extent of residual regions of contamination been fully answered. Instead of moving forward with this additional assessment as requested by FDEP, in the 2024 RASR AECOM is now recommending the closure of USAS monitoring wells in the residential area, which would further limit data points needed to understand the contamination and make good cleanup decisions. This is premature in light of this recent test data and should not occur until further investigation of CVOCs in the USAS, as requested by FDEP, has been performed.

Contamination in the deeper aquifers in this broader area is generally centered on the southern portion of the golf course property. In particular the concentrations of 1,4-D and to a lesser extent other CVOCs in the underlying LSAS unit remain high, with the most contaminated well still reporting a 1,4-D concentration above 200 ug/L, about 70 times the GCTL. Concentrations in the most contaminated wells have declined somewhat or remained stable over the past year, however, indicating the pumping is gradually reducing overall mass. This region of LSAS contamination has been mapped by AECOM as extending east-southeast through well MW-101 (and potentially into the Southeast Area as I discussed above) suggesting it may be the principal

source of the LSAS contamination found today in the Southeast Area, as well. Given the historic slow progress in cleanup of the COCs, particularly 1,4-D in the LSAS unit in this area, it is likely that this contamination will persist and operation of the LSAS recovery wells in this region of the Site will continue for many years into the future unless LMC can implement some form of secondary in situ treatment.

**PFOS/A Contamination in Groundwater**

Recent testing of groundwater in the USAS aquifer south of the LMC facility by a contractor (Arcadis) for the FDEP has identified a plume of PFOS/A is migrating to the north (generally along the rail ROW) from a former fire training facility operated as part of the Sarasota airport. The highest concentrations are reported in the USAS, but more limited deeper migration was also found. This contamination was first reported in the shallow aquifer during a due diligence investigation of properties lying southeast of LMC which were being considered for light industrial development. Although former operations on LMC's property are not believed to be a source of this contamination, the PFOS/A plume has migrated to an extent that it has entered certain LMC monitoring wells and is being drawn into the extraction wells of the GRTS. The exact points of entry of PFOS/A into the GRTS are at this point unknown, but the reported detections in the plant influent documented in the 2024 RASR (see Table 12 and 13) demonstrate that this new class of contaminants is and likely will continue to affect the GRTS in the future.

LMC has apparently only tested for this class of contaminants once, in November 2023. Low concentrations (up to 4.4 ng/L PFOS) were found in the combined influent, but only a trace amount of one compound was found in the Publicly Owned Treatment Works (POTW) effluent, suggesting that the current Granular Activated Carbon (GAC) treatment system is removing most of the contamination. It is possible, indeed likely, however, that influent concentrations could increase in the future, and the current removal process may not be particularly efficient going forward. A greater breakthrough of PFOS/A compounds in the plant effluent could affect the ability to discharge to both the POTW and the infiltration galleries being used to sustain area wetlands in the future. This is a particular risk since USEPA recently lowered the proposed MCL for PFOS/A to 4 ng/L, well below the provisional GCTL (70 ng/L) AECOM used to compare these test results. It would be prudent, therefore, that LMC continue to periodically monitor (e.g. quarterly with the POTW reporting) both their influent/effluent for this class of chemicals. It would also be helpful if the point(s) of PFOS/A entry into the extraction system could be identified and an evaluation made as to whether the pumping could be modified to reduce the amount of PFOS/A in the GRTS, and more broadly the collateral spreading of PFOS/A in the Tallevast community by the GRTS operations.

**Wetlands**

I have previously commented on the impact of the GRTS operations on the local wetlands in my review of the 2024 Annual Wetlands Monitoring Report (see Ramboll; September 2024). In the interest of brevity, I would refer you to that document for my current thoughts on wetland conditions and impacts from operation of the GRTS. Nothing reported in the 2024 RASR has materially changed my thoughts on this topic.

Finally, I would encourage LMC and FDEP to engage the community in evaluating changes to the remedial action system so that community concerns and potential impacts can be fully discussed and evaluated as part of the decision-making process. I am happy to continue to constructively engage with you and LMC in this process if the community feels it is providing the independent technical assistance it needs in evaluating progress in fulfilling the goals of LMC's Consent Order with the FDEP.

If you have any questions regarding these thoughts and comments on the 2024 RASR, I would be happy to discuss them with you further.

Very truly yours,

Robert L Powell, PhD, PE
Principal