RAMBOLL

ENVIRONMENT
& HEALTH

Ms. Wanda Washington
FOCUS
PO Box 28
Tallevast, FL 34270

September 15. 2022

Re: Review of the 2022 Annual Wetlands Monitoring Report, Lockheed Martin Tallevast Site, Manatee County Florida

Dear Ms. Washington,

At your request, I have reviewed the 2022 Annual Wetlands Monitoring Report, recently prepared on behalf of LMC for the Tallevast Site (AECOM, August 31, 2022). This Report documents the results and interpretations of the recent monitoring of wetland conditions around the Tallevast Site and the potential impacts of the ground water pumping for remediation of the contamination historically released at the LMC facility on Tallevast Road. As a result of my review, I would offer the following observations and comments.

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The monitoring documented by AECOM appears to be following the approved plans for assessment of wetland impacts. This report covers the past year but also provides longer term data on trends in wetland conditions and ground water levels in the surrounding Upper Shallow Aquifer System (USAS). Only two wetlands are monitored today including: Target Wetland 6 (TW-6) located on the south side of Tallevast Road, east of the LMC facility, and Reference Wetland 3 (RW-3), located farther southeast of the LMC facility along the periphery of the area affected by pumping of the Ground Water Recovery and Treatment System (GRTS).

Ground water and seasonal surface water levels in and around TW-6 have remained below the long-term norm during this reporting period (June 2021-June 2022). AECOM attributes the lower water levels in part to recent drought conditions, but also the cessation of pumping treated return water to the infiltration gallery (RC-7002) on the south side of this wetland area beginning in June 2019.[1] Throughout this monitoring period the wetland apparently did not exhibit any ponded surface water (i.e. it was essentially dry, even in its deepest areas).[2] This wetland has been dry for the vast

[1] The decision by LMC in 2019 to stop returning water into this area was apparently intended to increase drawdown and expand the plume capture by the GRTS to control the area of contamination to the southeast around PZ-USAS-19.

[2] Normally, the wetland would be expected to contain some amount of ponded surface water at least during the summer rainy season and early Fall.

majority of the past three years, since LMC stopped the recharge of water into the adjoining infiltration gallery.[3]

The natural seasonal hydroperiod of both wetlands is illustrated in the first figure of Appendix D, which charts the groundwater elevations in the wetland monitoring wells from late 2009 to present. In the pre-pumping period (i.e. before November 2013), water levels seasonally varied over a range of four to five feet (from seasonal high to seasonal low), with periods of both ponding and dry conditions. After startup of the GRTS in 2013, the same temporal seasonal pattern is apparent in RW-3, but the range of seasonal water levels in TW-6 is much more dampened to only about 2 feet, with higher levels predominant until the use of RC-7002 ended in June, 2019. This suggests that TW-6 contained ponded water throughout most of the year when the infiltration gallery was operating. After June 2019, water levels in TW-6 substantially declined below the wetland floor and dry conditions have prevailed thereafter. Annual rainfall has been above normal[4] in two of the three years (2019 and 2020) since the return of water to RC-7002 ended, during which times the wetland has remained dry. This observation demonstrates that the drainage of the wetland is primarily caused by the GRTS operations and has little to do with seasonal rainfall patterns or drought.

AECOM reported that the drainage of water from the wetland area is allowing upland vegetation to gradually migrate and establish into the deeper portions of the wetland area. Thus far the infiltrating upland vegetation has been limited to ground cover (ceasarweed); but over time, if this drained condition persists, eventually trees and shrubs will also likely become established, thereby turning TW-6 into an area with more upland vegetation characteristics, rather than those of a wetland.

AECOM's sole focus on the changes in wetland vegetation as the primary basis for measuring wetlands impacts, in retrospect, seems too narrow. With the degree of the impacts to the wetland hydroperiod over the past three years, it would be more comprehensive and appropriate for AECOM to also comment in its report on the significance of other potential effects from the long-term drainage of the wetland, such as the loss of habitat, the potential interruption of reproductive cycles of aquatic organisms that may be natural to this area, and any collateral impacts on related ecological community structures.

While AECOM readily acknowledges the impact the GRTS operations are having on water levels in the TW-6 area, it seemingly considers this to be a temporary condition, recommending an additional two years of monitoring before engaging in any discussion with FDEP as to whether any mitigation may be warranted. In recent writings on the GRTS operations, however, LMC has seemingly settled on the current mode of operation of the GRTS as the approach it will use to address the contamination in the areas southeast of its facility, and has projected that GRTS operations could continue decades into the future. Assuming this will be the case, absent the occasional passage of a tropical storm through the area, (when some temporary surface ponding in TW-6 may be briefly restored) the current long-term drainage of TW-6 will likely continue for the

[3] The only observed period of ponded water in the wetland in the past three years followed the passage of a tropical storm in November 2020; ponding apparently lasted only for a few weeks thereafter.
[4] In 2020 the NWS recorded the third highest annual rainfall (57.42 inches) at the nearby SRQ weather station in the past 20 years.

foreseeable future. It is highly unlikely this conclusion would be changed by an additional two years of monitoring.

While it is important to maintain an effective strategy for the GRTS to recover and remove the contamination from the underlying USAS, mitigating collateral impacts on local ecological resources is also an important goal. There is already a sufficient basis in the last three Annual Wetland Monitoring Reports for FDEP's remediation specialists and its ecologists at the Wetlands Division to consider whether the benefits gained by the current mode of GRTS operation is an acceptable tradeoff, in light of the substantial and ongoing drainage of the TW-6 wetland. If it is not, then LMC should consider what modifications to the GRTS would be warranted to lessen the drainage of this area and to restore its natural hydroperiod, while still maintaining remediation effectiveness. Might it be feasible, for instance, to restore seasonal use of RC-7002 in the summer and early Fall, while allowing TW-6 to drain the remaining seven months of the year, without undermining the capture of contamination to the south? Would this be sufficient to restore the rainy season ponding this wetland previously experienced? If such modifications are not effective or readily implementable, however, and GRTS operations continue as-is, then the drainage of TW-6 is likely to be more-or-less permanent for the foreseeable future, in which case FDEP should consider whether some other offsetting wetlands mitigation project(s) are warranted.

AECOM is reporting that the planned development of the property further to the south of TW-6 will involve the removal of Reference Wetland 3 (RW-3) from the property.[5] With its removal no additional "background" records of the condition of unperturbed wetlands will be available in the future for comparison to TW-6. Instead, AECOM proposes to rely on historic records it has already collected to assess future "background" conditions. It is not apparent why they could not have replaced RW-3 with one of the other former Reference Wetlands, or one of the other Target Wetlands north of Tallevast Road, where the effects of pumping have been minimal, rather than lose this important baseline monitoring function all together.

If you have any questions regarding these observations and comments, I would be happy to discuss them with you further.

Very truly yours,

Robert L Powell PhD, PE
Principal

[5] There will apparently be some form of mitigation incorporated into this development project scope to offset loss of this wetland resource from the local area in light of the loss of RW-3.