Appendix D – NASA Memo – PFAS Investigation Derived Waste Disposal

National Aeronautics and
Space Administration

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Washington, DC 20546-0001

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Reply to Attn of: OSI EMD

TO: NASA Restoration Project Managers

FROM: Restoration Program Manager

SUBJECT: PFAS Investigation Derived Waste Disposal

The following requirements apply to sites or locations where known or suspected releases of per- and polyfluoroalkyl substances (PFAS) have occurred. Investigation derived waste (IDW) from remediation sampling activities must be containerized and sampled for PFAS. If PFAS concentrations are below the EPA's Drinking Water Lifetime Health Advisory (HA) levels (70 parts per trillion, ppt, combined PFOS and PFOA) or state specific promulgated concentrations, if applicable, then the Center will handle the IDW per normal protocols. If other contaminants of concern (COCs) exceeding regulatory standards are identified in the waste, then the waste will be managed to address the regulated COC according to applicable legal requirements.

For liquid IDW, if PFOS and PFOA are detected above 70 ppt, combined, or state specific promulgated concentrations, if applicable, then the IDW must be treated on-site so that the concentrations of PFAS are below the applicable levels prior to discharge. Treated effluent can be discharged/released per normal Center protocols (note: this assumes that any other regulated contaminant concentrations are below applicable regulatory discharge standards). Concentrated waste resulting from the use of separation treatment technologies must either be incinerated at a facility that the Defense Logistics Agency (DLA) uses for the disposal of Department of Defense (DoD) AFFF waste, disposed of by solidification and landfill via U.S. Ecology, or be further treated to destructively degrade all PFOS/PFOA to the extent measurable using appropriate methods. Heritage Thermal Services is the recommended waste treatment facility from the DLA Qualified Facilities list (https://www.dla.mil/DispositionServices/Offers/Disposal/HazardousWaste/QualifiedFacilitiesList/). The selection of any other facility requires approval from the Center Environmental Office. Treated media can be subsequently disposed of as municipal solid waste. Consult with EMD for guidance on appropriate treatment technologies applicable to Center-specific circumstances. Because PFAS are unregulated chemicals, if treatment

is not a short-term available option, then the liquid IDW may be stored onsite in polyethylene containers until EPA disposal guidance is released or a treatment system is available.

For solid IDW, if PFAS are detected above the US EPA risk-based screening level (RSL) for soil of 0.126 parts per million (ppm), determined by calculation using the US EPA oral reference dose for PFOS/PFOA, then the waste must be disposed of using incineration or by solidification and landfill via U.S. Ecology. While treatment of liquid IDW may be commercially feasible and cheaper than incineration, on-site treatment options for soils and other solids are currently limited.

Alternative options for the management of PFAS contaminated IDW may be considered on a case-by case basis based on site-specific conditions, best engineering judgment, and applicable regulations. If an alternative option is being considered, then Restoration Project Managers must consult with EMD HQ for approval.

Please contact Tim Appleman at timothy.d.appleman@nasa.gov with any questions or concerns.

Mark J. Schoppet

cc:
Environmental Management Division/ Ms. Thaller