



March 26, 2009

Mr. John Nordine  
US EPA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

Dear Mr. Nordine,

Attached to this letter is a reply questions contained in your email of March 24, 2009.

I look forward to receiving the conditional approval for Lockheed Martin to proceed with the remediation and restoration of Haley's Ditch.

If you have any additional questions, please feel free to contact me at any time.

Sincerely,

A handwritten signature in dark ink, appearing to read "David Gunnarson", with a long horizontal flourish extending to the right.

David Gunnarson

Attachment: Questions and Responses

cc: Vanessa Steigerwald-Dick, Ohio EPA, Twinsburg

Responses to John Nordine's 3/24/2009 email. John's original text is in bold

**Here are the last of my questions.**

**Q1. Will the proposed Remediation Work Plan and Restoration Work Plan include a Sample Analysis Plan, Standard Operating Procedures, and an Operation and Maintenance Plan (O & M Plan)?**

A1. We will include a sample analysis plan (SAP) and standard operating procedures (SOPs) for the verification sampling program in the Remediation Plan. The SAP and SOPs will address the confirmation sampling approach, sampling methods, sample handling, quality assurance/quality control, sampling equipment decontamination and other pertinent issues. An O&M plan will be included in the Restoration Plan and the content will be as dictated by the US Army Corps of Engineers conditions of the Nationwide 38 Permit and any other permit conditions.

**Q2. The goal is to improve the habitat quality by adding meandering curves to the stream channel and using native species appropriate to the location, grade, and localized hydrology. LMC plans to "create a foundation for ecological recovery potential through stream, wetland, and riparian restoration." LMC has made appropriate plans for distinct areas of the floodplain, e.g., the plan is to establish an early successional forest with the goal of forest recovery in an area appropriate for a forested floodplain vegetation type. Other vegetation types selected for other areas are also consistent with localized hydrology. The recontoured/restored floodplain is anticipated to be more frequently inundated which will sustain more wetland plants. It is not clear whether the three depressional areas planned for the floodplain will intersect the water table; EPA recommends that this design be considered for the grading plan if the water table is sufficiently high, to sustain wetland vegetation.**

A2. The proposed wetlands areas have been considered for groundwater hydrology but it is deemed unlikely because the wetlands will be supported primarily by precipitation and hydrologic connectivity to Haley's Ditch.

During the existing wetland assessment an Ohio Rapid Assessment Method (ORAM) evaluation was completed and part of this evaluation (Metric 3) assesses the contributing hydrology to the wetlands. The identified sources of hydrology supporting the wetlands came from precipitation and seasonal/intermittent inundation and particularly flooding from Haleys Ditch. The existing condition of Haleys Ditch limits the interaction with the wetland due to bank levees but the restored condition will strengthen this hydrologic connection. Recently a few piezometers have been installed in the project area to assess groundwater elevations. Readings in March 2009 indicate that groundwater is below the stream channel so that the wetlands areas will not be recharged by groundwater. Furthermore, certain vegetation such as skunk cabbage (*Symplocarpis foetidus*) is a strong indicator of groundwater seepage to a wetland area in Northeast Ohio especially in headwater areas of the Cuyahoga River if it were present. This vegetation does not exist on the site. Therefore, groundwater contribution to the restored wetlands has been considered and investigated and determined to be unlikely. The increased connection with Haley's Ditch and the existing soil conditions will be sufficient.

A majority of the restored wetlands are being placed back into an area of existing wetlands over hydric carlisle muck (Cg) soils. According to Summit County Soil Survey, depth of these soils range from "4.5 ft to as much as 100 ft". Thus, hydric soils will remain as the primary foundation for the wetland.

**Q3. The species list is appropriate for a floodplain and wet meadow. It is recommended that a local natural resource office be consulted to ensure that none of these species, although native, behave as invasive locally. Include in the Restoration Plan or O & M Plan how LMC will deal with invasive species and/or controlling them.**

A3. Local Soil and Water Conservation staff will be consulted. Comparing the preliminary vegetation to the list of Ohio noxious weeds, none of the plants are considered invasive or nuisance species. Some are more aggressive native plants are *Carex vulpinoidea*, *Leersia oryzoides*, *Senecio aureus*, *Juncus effusus*, *Onoclea sensibilis*, *Eupatorium fistulosum*, and *Eupatorium maculatum*. However, these plants are all part of the native floodplain and wetland plant communities in Northeast Ohio. Aggressive native plants will not be a dominant part of the seed mix, and most species will be limited to less than 5% of the total seed mix. It is not anticipated that with such a diverse mix of species that any single species will be able to become invasive.

**Q4. Figure 6 Haley's Ditch Proposed Confirmation Sampling Grid. The U.S. EP A strongly recommends additional conformational sampling north of 32N8E and 32N7E north and west and north of 5N1E and west of 6N2E.**

A4. As discussed in the Risk Based Disposal Approval Request (Section 4.6 Verification Sampling), Lockheed Martin will conduct additional characterization sampling along the perimeter of the excavation to compliment prior characterization samples. As part of this additional characterization Lockheed Martin will collect and analyze samples from the areas recommended by USEPA. These samples will be collected prior to commencing the remediation. If the additional characterization indicates the presence of PCBs at concentrations above 1 mg/kg the remediation area will be adjusted to include remediation of those soils. The location of the additional samples will be identified in the Remediation Plan.