

# TECHNICAL MEMORANDUM

## Quality of Life Performance Standards - Phase 2 Changes

**TO:** United States Environmental Protection Agency (EPA)  
**FROM:** Ecology and Environment, Inc. (E & E)  
**DATE:** December 13, 2010  
**RE:** Changes to the Quality of Life Performance Standards at the Hudson River PCBs Superfund Site for implementation of Phase 2 of the Remedial Action

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The purpose of this memorandum is to document the changes to the *Phase 1 Quality of Life Performance Standards at the Hudson River PCBs Superfund Site* (QoLPS) (USEPA 2004) for implementation of Phase 2 of the Remedial Action. This document is not intended to replace the Phase 1 QoLPS as the majority of the Phase 1 standards will remain in effect. However, there are portions of the standards that have been updated to reflect the knowledge gained from Phase 1. These changes should improve the implementation of the standards for Phase 2. This memorandum serves to document the changes that EPA has made to the Phase 1 QoLPS for Phase 2. These two documents (the Phase 1 QoLPS and this memorandum) will serve as the Phase 2 Quality of Life Performance Standards.

No changes to the QoLPS values are required; however, changes will apply to the demonstration and documentation of compliance through monitoring, as described below. These changes are based on experience gained during Phase 1 to provide increased operational flexibility while maintaining an accurate and comprehensive monitoring program to protect human health and quality of life during Phase 2.

### ***AIR QUALITY***

#### **Standard Description**

The air quality performance standard for Phase 1 included three components: PCB levels, opacity, and National Ambient Air Quality Standards (NAAQS). For residential areas, a PCB Concern Level of 0.08 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and a standard of 0.11  $\mu\text{g}/\text{m}^3$ , both as 24-hour average PCB concentrations, were established. For commercial/industrial areas, a Concern Level of 0.21  $\mu\text{g}/\text{m}^3$  and a standard of 0.26  $\mu\text{g}/\text{m}^3$ , both as 24-hour average PCB concentrations, were established. Opacity during Phase 1 project operations was required to be less than 20% as a 6-minute average (one continuous 6-minute period per hour of not more than 57% opacity was allowed). The NAAQS for the following criteria pollutants were addressed

during project design: respirable and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and ozone (O<sub>3</sub>).

The QoLPS for PCBs in air will remain the same. The Phase 1 values were developed from data gathering, regulatory review, contingencies review, impact assessment, and variability considerations, and included public involvement. The standard has been developed for the protection of public health during remedial activities. In addition, EPA has reviewed new studies and documentation of other PCB air quality standards published since the creation of the QoLPS in 2004. PCB standards recently established to protect employees and children in schools have been calculated using a similar approach as used to develop the Hudson River PCB standard (USEPA 2009).

### **Changes to Monitoring Requirements**

High volume samplers were recommended in the original QoLPS. During Phase 1, low volume samplers were successfully implemented at receptor locations near the processing facility and along the river and to demonstrate compliance. Low volume samplers will continue to be used in Phase 2. It was also determined that sample turnaround time would be 72 hours during normal operations and turnaround time for expedited samples would be 48 hours.

The changes outlined below to the demonstration and documentation of compliance through monitoring will apply to Phase 2 air quality monitoring processes:

### **Dredging Corridor Monitoring**

The data collected during Phase 1 and modeling to be performed during Phase 2 design shall be the basis for identifying areas with the potential to emit PCBs to the air at levels close to or exceeding the standard, as well as considering the following criteria:

- Areas with an average total PCB concentration in the sediment of greater than 150 mg/kg over a 1-acre area;
- Areas with low water velocities (near the shore or in backwater areas); and
- Areas within 1,000 feet of a receptor.

Best Management Practices (BMPs), as discussed in the Phase 2 Remedial Action Community Health and Safety Plan (RA CHASP) and the Critical Phase 2 Design Elements (CDE), will be planned and implemented to meet the QoLPS in these areas.

Air monitoring on the river (i.e., near dredging) will focus on receptor locations in the proximity of dredging activities. The monitors will be placed at the closest receptor and at other nearby receptors that are within a direct line of the dredging operations. Focusing on receptors provides project personnel with a better understanding of project air emissions impacts. Monitoring locations will be pre-determined in consultation with EPA and approved by the EPA Oversight Team before dredging operations begin. The locations will be determined based on guidelines established in the Phase 2 Remedial Action Monitoring (RAM) Scope, including the closest and nearby receptors, PCB concentrations, predominant wind direction, operational considerations,

and lessons learned during Phase 1. The proper placement of monitoring will provide accurate assessment of ambient PCB levels at receptors and the potential risks. In the event that the monitoring station location cannot be placed to provide an accurate representation of the receptor, conservative modeling shall be used to assess compliance at the receptor, with approval of EPA.

In the event that monitoring shows an exceedance of the Concern Level, GE shall promptly notify EPA, but no later than 24 hours after receipt of the analytical results or otherwise becoming aware of the exceedance, whichever comes first, and shall evaluate the circumstances of the exceedance and the potential for future exceedances.

In the event that monitoring shows an exceedance of the standard, GE shall: 1) promptly notify EPA, but no later than 24 hours after receipt of the analytical results or otherwise becoming aware of the exceedance, whichever comes first; 2) investigate the cause of increased emissions; and 3) expedite sample turnaround time (from 72 hours to 48 hours) and implement increased monitoring, if appropriate.

If monitoring (or modeling, if used to assess compliance at the receptor, with approval of EPA) shows that the exceedances have continued for three consecutive days, GE shall work with the EPA Oversight Team to develop an action plan and implement appropriate mitigation measures in accordance with the Phase 2 RA CHASP Scope and the adaptive management provisions of the December 2010 Statement of Work for Remedial Action and Operations, Maintenance, and Monitoring (RA SOW) (Appendix B of the Consent Decree). If subsequent sample results show that mitigation is not effective, EPA will review the monitoring data, current and planned operations and weather conditions, and may require a temporary slowdown or relocation of dredging activities in the area to reduce ambient air PCB levels.

GE shall provide weekly status reports to EPA on exceedances of the PCB standards and actions taken in response to such exceedances. These reports may combine reportable situations that occur on consecutive days and similar circumstances.

### **Processing Facility Monitoring**

At the processing facility, the unloading of barges containing sediment with PCB levels exceeding 150 mg/kg Total PCBs will be expedited to reduce the potential of increased PCB air emissions. The staging of materials or sediment at the processing wharf for an extended period of time (i.e., more than 2 days) will be prohibited unless otherwise approved by EPA.

The air monitoring samples sent for analysis at the processing facility will be dictated by proximity to processing operations (i.e., material handling, staging, and processing) as well as wind direction. While wind direction plays an important part in the movement of air emissions, Phase 1 operations indicated that fence-line and off site ambient PCB levels also are affected by the locations of stored sediments/debris. When scheduling requires temporary staging at the processing wharf, monitors that are located near the storage or staging of sediments will be analyzed regardless of wind direction. Samples that are not analyzed will be stored so that when exceedances are measured by the chosen representative samples, other samples for that day and

preceding days can be analyzed to assess the extent of the exceedances and demonstrate the return to compliance.

In the event that monitoring shows an exceedance of the Concern Level, GE shall promptly notify EPA, but no later than 24 hours after receipt of the analytical results or otherwise becoming aware of the exceedance, whichever comes first, and shall evaluate the circumstances of the exceedance and the potential for future exceedances.

In the event that monitoring shows an exceedance of the standard, GE shall: 1) promptly notify EPA, but no later than 24 hours after receipt of the analytical results or otherwise becoming aware of the exceedance, whichever comes first; 2) investigate the cause of increased emissions; and 3) expedite sample turnaround time (from 72 hours to 48 hours) and implement increased monitoring, if appropriate.

If the exceedances have continued for three consecutive days, GE shall work with the EPA Oversight Team to develop an action plan and implement appropriate mitigation measures in accordance with the Phase 2 RA CHASP Scope and the adaptive management provisions of the December 2010 RA SOW. If subsequent sample results show that mitigation is not effective, EPA will review the monitoring data, current and planned operations at the location, and weather conditions to mitigate emissions and discuss with GE further mitigation.

GE shall provide weekly status reports to EPA on exceedances of the PCB standards and actions taken in response to such exceedances. These reports may combine reportable situations that occur on consecutive days and similar circumstances.

## ***LIGHTING***

### **Standard Description**

The Phase 1 lighting performance standard was developed based on a review of existing federal and state requirements, available literature, and standards pertaining to lighting. The standard was set as follows: 1) rural and suburban residential areas: 0.2 foot-candle; 2) urban residential areas: 0.5 foot-candle; 3) commercial/industrial areas: 1 foot-candle. When receptors were close to the dredging operation, monitoring was conducted at the property line of the receptors nearest dredging operations, to the extent practicable. Monitoring was repeated when the dredging operation was moved to a new location on the river. Monitoring was also performed at the processing facility perimeter and the receptor property line (as needed) when the facility initially began nighttime activities or significant changes in lighting for the facility occurred.

There will be no changes to QoLPS lighting values.

### **Changes to Monitoring Requirements**

During Phase 2, light monitoring shall be conducted by the contractor at the beginning of any operations that could result in increased light levels compared to Phase 1 operations or compared to operations previously implemented in Phase 2. Otherwise, light monitoring shall be conducted only in response to light complaints.

## *NOISE*

### **Standard Description**

The Phase 1 noise performance standard was developed using noise guidelines established by federal and state agencies. The standard was set as follows: for short term impacts, the residential Control Level during the daytime was 75 A-weighted decibels (dBA) as the maximum hourly average. The residential standard at night (10:00 PM to 7:00 AM) was 65 dBA, as the maximum hourly average. The residential standard during the daytime was 80 dBA, as the maximum hourly average. Finally, the commercial/industrial standard was 80 dBA, as the maximum hourly average. For long term impacts, the residential standard was 65 A-weighted decibels (dBA) as the day-night 24-hour average, and the commercial/industrial standard was 72 dBA, as the maximum hourly average.

There will be no changes to the QoLPS noise values.

### **Changes to Monitoring Requirements**

During Phase 2, noise monitoring shall be conducted by the contractor at the beginning of any operations that could result in increased noise levels compared to Phase 1 operations or compared to operations previously implemented in Phase 2. Otherwise, noise monitoring shall be conducted only in response to noise complaints. Continuous monitoring should not be necessary as long as compliance has been demonstrated and there are no complaints from the public.

## *NAVIGATION*

### **Standard Description**

The Phase 1 navigation performance standard was developed using guidelines established by federal and state agencies. The project should not unnecessarily hinder overall non-project-related vessel movement and should not create project-related navigation impacts or frequent, recurrent complaints regarding unnecessary hindrances to overall non-project-related vessel movement.

There will be no changes to the QoLPS navigation guidelines or monitoring.

## *ODOR*

### **Standard Description**

The Phase 1 odor standard was developed to protect the public from odors that unreasonably interfere with the comfortable enjoyment of life and property, and was established at a level that is much lower than that which would result in a health concern. Other than observations of odors, a measurable value for the standard was set for hydrogen sulfide (H<sub>2</sub>S): 0.01 ppm (14 ug/m<sup>3</sup>). Compliance with the odor standard requires measurements in response to complaints or observed problems.

There will be no changes to the QoLPS odor values or monitoring.

## **REFERENCES**

USEPA. 2004. *Final Quality of Life Performance Standards for Hudson River PCBs Superfund Site (Hudson QoLPS)*. Prepared by Ecology and Environment, Inc. for USACE on behalf of EPA.

USEPA. 2009. Public Health Levels for PCBs in Indoor School Air. Last updated on Friday, September 25, 2009 (<http://www.epa.gov/pcbsincaulk/maxconcentrations.htm>).