Responses to the January 2009 Comments on the
Pathways Analysis Report (PAR)
Kentucky Avenue Wellfield Site
Koppers Pond

Preface

The General and Specific Comments provided in the January 2009 comment document from USEPA are numbered for clarity. These responses also include points discussed during conference call with USEPA and NYSDEC on 18 March 2009.

GENERAL COMMENTS:

General Comment #1: The document did not clearly explain how lead in the various media will be addressed in the assessment i.e., will the Integrated Exposure Uptake Biokinetic Model or the Adult Lead Model be used to assess blood lead levels associated with specific exposures or will default assumptions such as the soil remediation level of 400 ppm be used. It is suggested that each of the Chapters in the Pathways Analysis Report should clearly describe the approach for addressing lead i.e., statistical approach for evaluation lead concentrations in soil, comparison of lead concentration in soil to 400 ppm under a residential framework; comparison of surface water samples to the EPA Action Level for Lead; and a description of any other models or approaches for evaluating lead in various media. We suggest that the assessment evaluate multipathway lead exposures (including fish consumption) using the EPA Integrated Exposure and Uptake Biokinetic (IEUBK) Model (as was done for Koppers Pond sediments.) (Information on this approach is available at: http://www.epa.gov/superfund/lead/products/fishadvisoryexample.pdf and http://www.epa.gov/superfund/lead/products/twa-final-nov2003.pdf. The list of references should be updated to identify the Lead TRW Webpage at http://www.epa.gov/superfund/lead/ as a source of information.

Response: The USEPA comment is correct in that the PAR did not clearly specify how lead will be addressed. In response to the suggestions presented in the comment, the following describes how we intend to evaluate lead in each medium. Lead was retained as a COPC in Koppers Pond sediment because the maximum concentration exceeded Region IX residential PRG for lead (400 ppm). The 400 ppm is the allowable concentration for lead in soil that is derived when default assumptions are used in EPA's Integrated Exposure and Uptake Biokinetic (IEUBK) model. USEPA has suggested that this model be used to evaluate lead exposure for Koppers Pond. However, because this model is based on residential exposure to young children (0-7 years), and agreement with USEPA has been reached that the potential receptors at this Site are of adolescent age or older, the adult lead model that is designed for non-residential exposures (outdoor soil and indoor dust) and appropriate for older children (USEPA, 2003) will be used in the BHHRA. Furthermore, when the adult lead model is used, the exposure frequency will be adjusted for less than occupational exposures. The adjusted frequency will represent infrequent contact, while maintaining steady state blood levels of lead as recommended by USEPA. EPA's action level for lead (15 ppb), which was used to screen lead in surface water, will also be used in the BHHRA as the benchmark when exposure to lead in surface water is evaluated. During the screening process, the maximum lead concentration in fish did not exceed the screening value for lead based on the Columbia River Basin Fish Contaminant Survey 1996-1998,

USEPA (2002). Therefore, lead exposure via fish consumption will not be evaluated further in the BHHRA.

General Comment #2: EPA has considered the ingestion rate for the Koppers Pond and offers the following responses to questions raised at the previous meeting.

EPA conducted a brief survey of other Regional risk assessors across and found that those interviewed did not adjust ingestion rates based on the size of the waterbody. Further, several regions are using the 1991 Standard Default Exposure Assumption of 54 grams/day in their assessments while others have used site-specific creel surveys with ingestion rates that were higher than the 25 grams/day recommended for this assessment. EPA contacted the Region 5 risk assessor but was not able to identify the site mentioned where the ingestion rate was adjusted based on the size of the waterbody.

An Ecological Risk Assessor evaluated the productivity of the Koppers Pond as demonstrated in the attached spreadsheet. The spreadsheet was developed using the fish data collected from Kopper's Pond to see how many fishing days would be required to reach a consumption rate of 25 grams/day. Overall, for most of the sport species, less than four days of successful fishing (i.e., catching the legally allowable number) is all that it would take to meet the 25g/day consumption rate. The bluegill and pumpkinseed may be a bit misleading as the fish that were collected were forage fish (generally small and not what anglers would keep) and the assessor suspects that there are larger bluegill and pumpkin seed, so the number of fishing days would decrease. (see attached spreadsheet).

Response: In this comment, USEPA is responding to questions raised in previous discussions regarding the MESA. While these comments will not be addressed in the revised PAR, we have provided the following response to the comments raised on the MESA.

We do not disagree that the USEPA productivity analysis demonstrates that, over the short-term (i.e., a few days, weeks, or even months), an angler may be able to catch enough fish from Koppers Pond to consume fish at a rate of 25g/d. However, estimating potential excess lifetime cancer risk generally assumes that consumption occurs over the course of many years. USEPA's analysis does not demonstrate that this would be possible. The productivity analysis performed by the USEPA ERA staff did not include a determination of whether the consumption rate could be sustained over the assumed exposure period, but rather based the assessment of fish caught using an approach that differs from those used by recreational anglers. An analysis that estimates the sustainable yield of Koppers Pond is required.

Nevertheless, the BHHRA will use what we believe to be an unsustainable long-term fish consumption rate of 25 g/d for the RME as directed and required by USEPA. We reserve the option to conduct a more realistic fish consumption scenario for Koppers Pond and to present this scenario as the CTE or in the uncertainty section of the Risk Characterization. If we elect to proceed with the alternative fish consumption scenario, we will collect and/or analyze additional data to provide the scientific basis in support for our evaluation. The alternative evaluation is likely to include the following components:

- Evaluating the fish productivity of Koppers Pond and determining whether the pond can "support" anglers consuming at the default EPA rate on a sustainable basis;

- Examining the 1992 and 1996 New York Angler Survey to determine whether we could develop consumption rates for waterbodies of similar size and characteristics as Koppers Pond (if the more recent 2007-2008 NY angler survey is publically ; and

- Relating the potential fish consumption rates (EPA defaults or pond-specific) to the productivity of Koppers Pond.

General Comment #3: Cooking losses were also evaluated within Region 2. The risk assessor contacted other assessors within the Region and they indicated that they do not adjust for cooking losses for the RME individual. Also, the TMDL guidance provides an approach for evaluating fish consumption where the assessment approach assumes no cooking losses. The only example where cooking losses were evaluated in Region 2 was the Hudson River where the RME cooking loss was 0 cooking loss and the CTE or average cooking loss was 20% for PCBs. This remains the recommendation for this assessment.

Response: In this comment, USEPA is responding to questions raised in previous discussions regarding the MESA. While these comments will not be addressed in the revised PAR, we have provided the following response, based on the principle that the use of unrealistic assumptions yields unrepresentative and highly conservative risks, which are of little value to risk managers. Data in the scientific literature support a net loss of PCBs on a mass basis from cooking fish using a number of different cooking methods. The cooking loss occurs whether it is an RME or CTE evaluation. This is an example of an assumption that cannot be viewed in isolation. One can ask the question "Is it possible for someone to cook a single meal of fish in a way that results in almost no cooking loss?" The answer to that question is, "Yes." But if someone is assumed to eat about a meal of fish from Koppers Pond every week of the year for many years, is it likely they will always prepare fish in an identical way, or at least in ways that always lead to no cooking loss? The answer to that question is, "No, because people are likely to cook fish in a variety of ways, and available data show that cooking loss is associated with most fish preparation methods." It is very unlikely and not reasonable to assume the absence of cooking loss when using a relatively high fish consumption rate. Nevertheless, we will, as directed by EPA, assume no PCB loss from cooking when evaluating the RME individual and a 20% PCB loss from cooking when evaluating the CTE.

General Comment #4: Based on this analysis of fish ingestion rates and cooking loss approaches, it is recommended that the ingestion rate for this analysis be 25 grams/day with no cooking loss for the RME individual. Discussions with NYSDOH indicate that they agree with this ingestion rate. EPA and NYSDOH both agree that the RME individual should be evaluated assuming no cooking loss based on the individual performance (and efficacy) of fish contaminant reduction from cooking and trimming fish may be highly variable. Adjustments for the CTE individual include an ingestion rate of 8 grams/day and a cooking loss of 20% for the PCBs.

Response: See responses for General Comments #2 and #3.

SPECIFIC COMMENTS:

Specific Comment #1: Chapter 2 – Memorandum of Exposure Scenarios and Assumptions: PCB Fish Advisories Bullet, page 4: The text should be expanded to indicate that there is also an advisory for children under the age of 15 years to not eat fish from the Koppers Pond.

Response: The PAR text has been revised as follows (revision is underlined):

"Because of PCB levels in fish found in 1988 sampling, the New York State Department of Health (NYDOH) issued a fish advisory for Koppers Pond. The NYSDOH advisory, which is still in effect, is for carp with a recommendation to eat no more than one meal per month and <u>for infants, children under the age of 15</u>, and women of childbearing age to eat no fish from Koppers Pond."

Specific Comment #2: Chapter 3. Chemicals of Potential Concern Bullets 2 and 3, page 6: For both bullets further discussion of the amount of decline in the chemical concentrations in the various media should be presented. Further, it is unclear from the description if the intent of the statement is that the earlier data was collected in a manner not consistent with the QAPP, etc. and therefore the data will not be used in the assessment. The statement that the QA/QC is better understood with the current assessment leaves a number of questions including whether the QAPPS from the current and earlier assessments are comparable or are the deficiencies in the earlier QAPP? What are the differences in the QAPPS from both sampling results? Are the techniques used for sampling significantly different between the sampling events so that the earlier data can not be used? If both datasets met QA/QC requirements why select only the latest data? From a risk perspective, the major question is whether the exclusion of the earlier data, if it met appropriate QA/QC requirements, will reduce the number of samples significantly and ultimately the EPC. This should be evaluated along with further discussions regarding the rate of decline in the COPCs with time.

<u>*Response:*</u> The rationale for using the 2008 dataset is summarized in the PAR and is fully discussed in the Site Characterization Summary Report (AMEC, 2008a). In addition, it was agreed during the 26 February 2009 SLERA conference call that the 2008 surface water, sediment, and fish data are appropriate to use for the RI/FS and risk assessments, assuming that reference will be made to the prior data for historical perspective.

Specific Comment #3: Chapter 3. Chemicals of Potential Concern Second to Last Paragraph, page 7: EPA recommends using the screening level and not the MCLs. The MCLs are not strictly risk based and include a number of risk management decisions. To provide consistency, it is more appropriate to compare the data to risk based levels:

<u>*Response:*</u> The maximum concentrations for tetrachloroethene, arsenic, benzo(a)anthracene and benzo(b)fluoranthene exceeded the USEPA Region IX tapwater values, but are less than their respective maximum contaminant levels (MCLs) under the Safe Drinking Water Act. Both the Region IX tapwater and MCL values are highly conservative for this Site because the surface water is not a drinking water source. However, because USEPA does not recommend using the MCLs for screening purposes,

tetrachloroethene, arsenic, benzo(a)anthracene and benzo(b)fluoranthene will be retained as COPCs and carried forward in the BHHRA.

Specific Comment #4: Chapter 3. Chemicals of Potential Concern Last paragraph, page 7: EPA's meeting with the PRPs to discuss the RI/FS Workplan included a comment that the Region 3 Screening Levels for fish should be used in the selection of COPCs. The statement at the end of this page indicates that Region IX PRGs for this pathway were not available. The comparison of fish data should use the Regional Screening Level Tables which are available on Region 3's homepage at: http://www.epa.gov/reg3hwmd/risk/human/index.htm**:**

Response: In the revised PAR, maximum concentrations detected in fish from Koppers Pond were screened against Region 3 fish values, except for lead, which was screened against USEPA (2002) acceptable lead concentration in fish of 500 micrograms per kilogram (µg/Kg) (0.5 milligrams per kilogram [mg/Kg]). As discussed in the revised PAR, the fish COPCs are total PCBs, arsenic and mercury and will be carried forward in the BHHRA.

Specific Comment #5: Chapter 3. Chemicals of Potential Concern, page 8 and Comparison Table: The summary of COPCs presented on page 8, and in the Comparison Table, indicate data is only available for Aroclor 1254. However, Table 35 in the "Draft Site Characterization Summary Report Kentucky Avenue Wellfield Site, Operable Unit 4 (dated 10/17/08) lists fish data on Aroclor 1254, Aroclor and total PCBs. The human health risk assessment should address total PCBs, and references to Aroclors and total PCBs should be consistent in these reports.

Response: Agreed. The BHHRA will address total PCBs. The PAR has been revised to consistently reference PCBs as "total PCBs." In some cases, a specific Aroclor has been indicated parenthetically when that Aroclor is the only Aroclor. Individual Aroclor results were also presented in the Site Characterization Summary report (and the Screening Level Ecological Risk Assessment) for completeness only.

Specific Comment #6: Chapter 4. Exposure Point Concentrations, CTE Concentration, page 9: EPA's approach to evaluating the CTE or average exposure is to use the same EPC for the RME and CTE. The factors that change in the risk equations are the exposure assumptions.

Response: While we believe that it is scientifically defensible, reasonable, and appropriate to use the average for the EPC when evaluating the CTE exposure, we will, as directed by EPA, use the UCL EPC for the CTE analysis and assess the average EPC as part of the uncertainty analysis.

Specific Comment #7: Chapter 5.0. Toxicological Data and Other Chemical-Specific Data, page 10: The discussion of toxicity values did not identify the EPA Toxicity Hierarchy that includes Tier 1 – IRIS; Tier 2 – Provisional Peer Reviewed Toxicity Values and Tier 3 – CalEPA, ATSDR and other toxicity database sources including HEAST. The full hierarchy should be used in determining toxicity values. In addition, for those chemicals missing toxicity values, it is recommended that the consultants contact the Superfund Technical Support Center that is part

of EPA's National Center for Environmental Assessment for input on surrogate toxicity values that may be used. See: http://www.epa.gov/oswer/riskassessment/superfund_toxicity.htm

Response: We followed USEPA hierarchy and revised the PAR as follows to reflect the approach:

"In selecting the appropriate toxicity value, AMEC followed USEPA's hierarchy for sources of toxicological information:

Tier 1. Integrated Risk Information System (IRIS).

Tier 2. The Provisional Peer Reviewed Toxicity Values (PPRTV) developed for the EPA OSWER Office of Superfund Remediation and Technology Innovation (OSRTI) programs.

Tier 3. Other toxicity values.

The "other" level of the hierarchy includes several sources of toxicity values that are commonly consulted by the EPA Superfund program when a relevant toxicity value is not available from either IRIS or the PPRTV database. These sources include: 1) California Environmental Protection Agency (Cal EPA) toxicity values;, 2) the Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs, addressing noncancer effects only); 3) the EPA Superfund Health Effects Assessment Summary Tables (HEAST) database; and 4) additional sources of toxicity values.

In cases where no toxicity values are available for a given chemical, USEPA recommends contacting the National Center for Environmental Assessment (NCEA) for surrogate values. For this analysis, there are no chemicals that lack toxicity values."

None of the COPCs selected for the BHHRA are missing toxicity values.

Specific Comment #8: Chapter 5.0. Toxicological Data and Other Chemical-Specific Data Table 5.1: contains Reference Doses (RfDs) to assess potential non-cancer risks from COPCs. The RfD selected to assess potential risks from total arsenic measured in fish was derived for inorganic arsenic. Since arsenic in seafood is largely in an organic, less-toxic form, this will likely result in an over-estimation of risk. This issue should be addressed in the Risk Characterization section of the Risk Assessment as an uncertainty.

Response: Agreed. Both the risk characterization and uncertainty sections of the BHHRA will include discussion of why potential arsenic risk associated with fish consumption is likely substantially overestimated for all receptors.

Specific Comment #9: Chapter 7. References Page 12: It would be helpful to clarify the source of the 1992 Office of Science Advisory chapter on assessing health risks from inorganic lead in soil. It is unclear why the EPA's TRW lead homepage was not used as the basis for the lead information. The lead webpage is: http://www.epa.gov/superfund/lead

Response: The CalDTSC OSA (1992) reference was used in Table 1 (and not the text) for the dermal absorption factor for lead from soils. An alternative reference for the absorption

factor is Moore et al. (1980) that is cited in USEPA (2001) – *Review of Adult Lead Models, Evaluation of Models for Assessing Human Health Risks Associated with Lead Exposures at Non-Residential Areas of Superfund and Other Hazardous Waste Sites.* Final draft. OSWER #9285.7-46. Prepared by the Adult Lead Risk Assessment Committee of the Technical Review Workgroup for Lead (TRW). Office of Solid Waste and Emergency Response. U.S. Environmental Protection Agency. Washington, D.C. August.

The revised PAR cites this alternative reference.

Specific Comment #10: Chapter 7. References: The Child-Specific Exposure Factors Handbook was updated in 2008 and this reference should also be updated.

Response: Agreed. The PAR was revised as follows:

"USEPA. 2008. *Child-Specific Exposure Factors Handbook (Final).* EPA/600/R/06/096F. National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency. Washington, D.C. September."

Specific Comment #11: Table 1. If the assessment is evaluating dermal exposure to the Polyaromatic Hydrocarbons then this section should address the evaluation of the Mutagenic Mode of Action for the PAHs (see 2005 Cancer Guidelines and Supplemental Guidance). EPA's Webpage on this type of assessment is available at: http://www.epa.gov/oswer/riskassessment/sghandbook/index.htm

Response: Pending. On the 18 March 2009 conference call with USEPA, Marian Olsen committed to researching this issue further with senior agency people to see if there was a way of resolving the issue because it will not make a difference at the Koppers Pond Site in terms of whether potential risk associated with PAHs are allowable. We continue to believe that inclusion of the Mutagenic Mode of Action adjustments for PAHs, as presented in the Supplemental Guidance cited in the above comment, contain substantial uncertainty that would need to be addressed and resolved before use in a risk assessment for a site like Koppers Pond.

Specific Comment #12: Attachment A – Tables.

***Specific Comment #12a:* Table A-2.3, A-2.4 and A-2-5**. Another criteria for including chemicals of potential concern is the designation as "Known Human Carcinogen" (see EPA's Risk Assessment Guidance for Superfund – Part A). The Rationale and Table should be updated to include this information.

Response: In RAGs Part A, USEPA states, "before eliminating potentially carcinogenic chemicals, the weight-of-evidence classification should be considered in conjunction with the concentrations detected at the site. It may be practical and conservative to retain a chemical that was detected at low concentrations if that chemical is a Group A carcinogen (Known Human Carcinogen)". Although it does not state that Group A carcinogens must be retained, this screening condition has been added to Tables A-2.1, A-2.2, A-2.3, A-2.4 and A-2.5. Using classifications in IRIS to identify known human carcinogens, arsenic is the only

chemical that is classified as a known human carcinogen. Given that arsenic is already identified as a COPC, the comment has no effect on the outcome of the BHHRA.

Specific Comment #12b: **Table A-2.5**. This Table should be updated with the values from the Region 3 fish ingestion screening levels (see above).

Response: See Response to Specific Comment #4; Table A-2.5 of the PAR has been revised accordingly.

Specific Comment #12c: **Table A-3.5a**. Lead assessment should clarify whether the lead model is being used and follow appropriate guidance regarding the development of the EPC: www.epa.gov/lead.

Response: Table A-3.5a presents the EPCs for the fish COPCs. Lead is not a fish COPC; therefore, clarification regarding the appropriate lead model and guidance to develop the EPC is not required. See Response to General Comment #1 for further discussion of how lead will be handled in the BHHRA.

Specific Comment #12d: **Table A-3.5b**. This Table should present the same EPCs as in Table A-3.5a.
RME vs CTE EPCs

Response: As discussed in the Response to Specific Comment # 6, we will use the UCL EPC for the CTE analysis and assess the average EPC as part of the uncertainty analysis. Table A-3.5b presents the EPCs that will be used in the uncertainty analysis.

Specific Comment #12e: **Table 5.2**. The appropriate reference for the inhalation RfC for arsenic is CalEPA's homepage.

Response: Agreed. The CalEPA reference has been cited as the reference for the inhalation RfC for arsenic.

Specific Comment #12f: **Table 6.1**. The discussion of the PAHs should address changes in the toxicity values for these chemicals based on the Mutagenic Mode of Action.

Response: See Response to Specific Comment #11.

Specific Comment #12g: **Table 6.2**. The appropriate reference for the PAHs is CalEPA and not the EPA Region IX PRGs.

Response: Agreed. The CalEPA reference has been cited as the reference for the inhalation toxicity values for the PAHs.