UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

July 17, 2014

4SD-SRB

Ms. E. Gayle Macolly
Manager, Remedial Projects
Solutia, Inc.
702 Clydesdale Avenue
Anniston, Alabama 36201-5328

RE: Streamlined Ecological Risk Assessment for Operable Unit (OU)-1/OU-2
Anniston PCB Site, Anniston, Alabama

EPA CERCLA ID # ALD000400123
EPA RCRA ID # ALD004019048

Dear Ms. Macolly:

The United Stated Environmental Protection Agency has reviewed the revised Streamlined Ecological Risk Assessment (SERA) dated December 2013, for Operable Unit (OU)-1/OU-2 at the Anniston PCB Site in Anniston, Alabama. Most of the EPA's technical comments were addressed by the revision. However, the inclusion of risk management language within this document is inappropriate because the SERA should present only the risk characterization results from the risk assessment process. Furthermore, it is the EPA's responsibility to make risk management decisions. It must be understood that decisional language in the SERA does not represent the Agency's decision making.

Instead of revising the document again, please include this comment letter with the December 2013 SERA in Appendix E of the Remedial Investigation Report. The summary of the SERA included in the RI must be revised to reflect these comments (i.e., risk management decision language should be removed). Approval of the SERA will be provided when the RI for OU-1/OU-2 is approved.

GENERAL COMMENTS:

1. The SERA was revised to enhance the description of the urbanized terrestrial habitat in OU-1/OU-2. Text on Page 1-2 indicated that the exposure to terrestrial receptors was expected to be within acceptable limits. Since no ecological risk assessment was performed for the terrestrial portion of OU-1/OU-2, the text should clarify that statements regarding the acceptability of risks to terrestrial wildlife are based on professional judgment. While habitat is generally limited in OU-1/OU-2, the operable unit contains riparian habitat. The EPA's decision to limit the evaluation of the

terrestrial risk assessment at the Screening Level Ecological Risk Assessment in OU-1/OU-2 is due to the disturbed nature of the area due to development and higher levels of human activity. A more complete ecological risk assessment is being performed in OU-4 where the terrestrial habitat is of higher quality.

2. Habitat to aquatic or riparian wildlife is limited in OU-1/OU-2. Wide-ranging wildlife, however, utilize the habitat of OU-4 as well as OU-1/OU-2. The conclusion in Sections 2.3 and 6.4.4 that wildlife populations cannot be exposed due to the limited habitat provided is too narrowly focused on Snow Creek, when wildlife do not recognize the operational boundaries established for risk management purposes. The risk conclusions should not assume wide-ranging wildlife are exposed only in Snow Creek. The risks to wide-ranging wildlife should be described holistically over the entire extent of contamination. If OU-1/OU-2 is too small to support populations of wildlife receptors, conclusions regarding effects to populations should be deferred to the OU-4 BERA, at which time the description of the spatial extent of risk should assume wildlife are exposed to the combined area of OU-1, OU-2, and OU-4. This comparison is not intended to be in terms of tables or calculations, but in terms of the description of the spatial extent of the risk in the overall risk conclusions. Risk conclusions made in the SERA should be limited to the assessment endpoints and risk questions.

SPECIFIC COMMENTS:

1. *Appendix A, Section 2.2.2, Emergent Insects, and Section 6.3.2, Pages 6-13 & 6-14.* Text on Page 6-14 adds several paragraphs of information about crane flies. The text explains that terrestrial forms of crane flies might have been collected. The comparison to the PCB concentration in nearby soils (instead of using the nearby sediments for comparison) partially explained the higher bioaccumulation factors observed in the emergent insect samples that were composed primarily of crane flies. Text suggests that crane fly samples might not be representative of aquatic emergent insects based on comparisons with emergent insect data from other sites. The suggestion is that the crane flies collected were terrestrial. The text is implying uncertainty in the crane fly data. Text should be clarified to explain that uncertainty was only surrounding the lack of knowledge of whether the crane flies were aquatic or terrestrial but not uncertainty in the analytical data.

2. *Appendix A, Section 2.2.2, Emergent Insects, and Section 6.3.2, Page 6-14.* Text on Page 6-14 further explains that Housatonic River and Kalamazoo River sites developed their bioaccumulation factors by taking the higher of the median or the geometric mean of the bioaccumulation factors for individual data pairs. Since for the BAFs for the tissues (other than the crane flies) used the median BAF, please comment on whether use of the median BAF versus the higher of the median BAF or the geometric mean BAF makes a difference.

3. *Figures 3-1 and 3-2.* The figures from the RI that add the concentrations of dioxin TEQs should be part of the SERA.

4. *Section 6.3.3.2, TECs and PECs. Page 6-19.* The end of the section indicated that the MacDonald *et al.* 2000 screening values will likely overestimate toxicity due to un-addressed co-contaminants in chemical mixtures and un-addressed site-specific factors that may influence bioavailability. These issues can confound both the MacDonald *et al.* 2000 screening values and the toxicity evaluation at this site, which uses dose-response curves, but still largely ignores co-contaminants and site-specific factors affecting bioavailability. Rather than simply concluding that the TECs and PECs are overly conservative, additional discussion should be included about the co-contaminant and confounding factors issues relative to the site-specific toxicity data. In addition to enhancing the discussion of confounding factors to the toxicity tests in the uncertainty section, the text on Page 6-19 should be modified to state that the MacDonald *et al.* 2000 screening values *can* overestimate toxicity instead of *are likely to* overestimate toxicity.

5. *Section 6.4, Risk Findings, and 6.4.4, Summary, Pages 6-21 through 6-24.* The summary should add a paragraph referring back to the assessment endpoints and risk questions. The conclusions should be worded relative to the risk questions, which speak of survival, growth and reproduction versus stating conclusions in terms of effects on individual animals or local populations near the site. Risks to local populations that are exposed to the site should not be discounted due to the small size of OU-1/OU-2, given that the size of the site is the extent of contamination not the size of any given operable unit.

6. *Appendix B, Section 3, Results and Discussion, Pages 5-6.* Appendix B on the interpretation of sediment toxicity testing added the EC0, EC10, EC20, etc. range of total PCB Aroclor concentrations associated with toxic effects on the benthic community assessment endpoint. The values the EPA requested were included. The text, however, stated that the regression-predicted PCB concentration at the bottom of the reference envelope (EC0) should not be used as a threshold for remediation decisions. The text indicated that the EC20 value should be used for remedial decisions. It is premature to recommend a remedial decision in the SERA. The EC0 is intended for use as a sensitive toxicity threshold. The reason given in the SERA not to use the EC0 as a cleanup decision was the large variability in control responses in the tests.

   Variability in the control responses was accounted for in the development of the EC0. The control treatments were included in the study design to evaluate test acceptability. In addition, the control results provided a way of normalizing the results obtained for samples that were tested in two or more batches. Such normalization of the results accounts for any non-treatment related factors (e.g., differences in starting size of test organisms, etc.) that could influence the results of the toxicity test. Such normalization makes the data generated in multiple batches comparable and, hence, amenable to aggregation during data analyses.

   Comparison of toxicity test results obtained for sediment samples from the exposure area to the negative control results is not relevant for several reasons. First, an

approach to data analysis that treated negative controls as something other than a control was not described in the study plan. Second, there are many uncertainties associated with designating toxicity based on comparisons to the negative controls. The control samples were not reference sediments. They were tests run on laboratory sediment of a different makeup from those collected for the study. The controls do not represent site-specific conditions.

In addition to normalizing by the control response, the selection of the reference envelope for interpreting the sediment toxicity data accounted for the variability in the toxicity test responses. A response lower than the average response observed at a reference station is used when a study has one or two reference samples, but taking the average response and adjusting it 20 percent lower is not necessary when a study has five reference samples. With five reference samples, the lowest response among the reference samples is a good predictor of the lowest possible response within the reference population. There is no need to take the lowest response within the reference population and adjust it even lower as was done for the EC20.

Sediment samples were collected from the reference area and from various exposure areas for use in toxicity testing. The results of such toxicity testing facilitated determination of the reference envelope for each species tested and endpoint measured. Reference envelopes developed in this way provide a robust basis for evaluating the toxicity of sediment samples at the site; because they explicitly account for the site-specific factors that can influence organism response, with the exception of exposure to COPCs. Hence, response outside the range of the reference envelope can be attributed to COPC exposure. This is a very powerful approach for that reason.

7. *Appendix B, Section 3, Results and Discussion, Pages 5-6.* The terminology EC0, EC20, etc. is misleading because it implies that these quantities were estimated by a statistical fit to a dose response curve, when the EC0 was actually the bottom of the reference envelope and the EC20 was 20 percent lower than the bottom of the reference envelope. The true EC0 is the mean of the reference envelope and the true EC20 is 20 percent lower than the mean of the reference envelope. The EC0 as used in Appendix B is more like an apparent effects threshold, because all responses above the EC0 are toxic relative to the reference envelope. The EC20 as used in Appendix B is a value 20 percent higher than the apparent effects threshold, which means that concentrations above the EC20 are 20 percent more toxic than the most impaired reference sediment. Toxicity at a site 20 percent higher than the highest adverse response observed at a reference station means that the EC20 value is less than conservative.

8. *Appendix B, Section 3, Results and Discussion, Pages 5-6.* Using the bottom of the reference envelope accounts for variability in the test endpoints by factoring in the observed variability within the reference envelope. The approach assumes that the variability within the reference envelope is similar to the variability in the test response at a given exposure. Figures B-2 and B-3 show that the variability in the test

responses does not appear to increase with increasing exposure concentration. The figures illustrate how the bottom of the reference envelope is effective in accounting for variability. There is no reason to recommend the EC20 value on account of variability in test conditions affecting the EC0. The EC0 has already factored in all the variability described in Appendix B.

If you should have any questions please feel free to contact me at (404)562-8935.

Sincerely,

Pamela J. Langston-Scully, P.E.
Remedial Project Manager
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cc: Mr. Julie Peshkin, Monsanto
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