UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

September 29, 2005

MEMORANDUM

SUBJECT: CSTAG Recommendations on the Anniston PCB Superfund Site

FROM: Stephen J. Ells ***/s/ Stephen J. Ells***
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TO: Pamela Scully, Remedial Project Manager
EPA Region 4

Background

OSWER Directive 9285.6-08, Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites (February 12, 2002), established the Contaminated Sediments Technical Advisory Group (CSTAG) to monitor the progress of and provide advice regarding a small number of large, complex, or controversial contaminated sediment Superfund sites. The main purpose of the CSTAG is to assist Regional site project managers manage their sites throughout the Superfund process in accordance with the eleven risk management principles set forth in the OSWER Directive. CSTAG membership consists of nine regional representatives, two from the Office of Research and Development, and two from the Office of Superfund Remediation and Technology Innovation (OSRTI).

Brief Description of the Site

The Anniston PCB Site (the Site) is located in the north-central part of Alabama. Hazardous substances, including PCBs, have been released from the site as a result of the operations, including waste disposal, of a manufacturing facility in Anniston owned by Solutia Inc., Monsanto Company, and predecessor companies. The facility occupies approximately 70 acres. Hundreds of other acres have may have been impacted by the facility, including downstream drainage ditches, creeks, and associated floodplains. The extent of the site-related contamination has not yet been determined.

Manufacturing operations at the facility began in 1917 with the production of phosphoric acid and ferro-manganese, ferro-silicon, and ferro-phosphorous compounds by the Southern Manganese Corporation. In 1927, the production of organic chemicals began with the introduction of biphenyl, which remains a major product of the facility. A variety of organic and inorganic chemicals have been produced at the facility during its history, including PCBs, ethyl parathion (parathion), and phosphorus pentasulfide. The facility currently manufactures polyphenyl compounds for use in a variety of heat-transfer fluid, plasticizer, and lubricant applications. PCBs were produced at the facility from 1929 to 1971 by reacting chlorine and biphenyl. Chlorine was also produced using a mercury cell process between the 1950s and 1969 for the sole purpose of supporting PCB manufacturing.

It is suspected that PCBs have been transported to off-site soils as a result of sediment transport associated with surface water runoff. During precipitation events, surface water flowed through areas with PCB-containing soil or waste, across the Solutia facility and into various drainage ditches leading to Snow Creek. Subsequently, PCBs adsorbed to suspended solids settled in the floodplains of these drainage ditches, Snow Creek, Choccolocco Creek, and possibly further downstream. Non-surface water transport mechanisms have also contributed to PCB-contamination in soils. Typical non-surface water transport mechanisms include the direct disposal of possible PCB-containing materials, such as foundry sand; or the relocation of sediment, foundry sand and/or floodplain soils. In addition, the air and groundwater pathways are of concern for transport of PCBs.

Corrective Actions were taken by Monsanto and Solutia from 1995 through 1998, including recapping of the west and south-end landfills, diversion of surface water runoff, construction of a storm water detention pond, and lining of the drainage ditch along Highway 202 with concrete. The pipes at the manufacturing facility were cleaned and encapsulated. Several unused collection sewers connecting to a trunk main were sealed and the trunk main was lined.

Division of the Site into operable units (OUs) has been done to provide an efficient means of reaching closure for the differing areas of this large and complex site. OUs 3 and 4 include contaminated sediments. OU3 includes Snow Creek, and OU4 comprises the reach of Snow Creek and its floodplain downstream of Highway 78 to the confluence of Snow and Choccolocco Creeks, Choccolocco Creek and its floodplain downstream to lake Logan Martin, the backwater area of the Choccolocco Creek upstream of the Snow Creek confluence, and the embayment at the confluence of the Creek and Lake Logan Martin. A decision on whether investigations of Lake Logan Martin and the downstream areas of the Coosa River are required will be made after the RI data from OU4 is evaluated.

EPA, Solutia, and the State and local Natural Resource Trustees are working together to develop the Sampling and Analysis Plan for OU4. The initial OU4 Field Sampling Plan was submitted to document the fish tissue sampling program that was already implemented under the RCRA program. The Screening Level Ecological Risk Assessment (SLERA) was based on data collected by the RCRA program. Sampling in OU4 has not yet been conducted as part of the Superfund program.

The CSTAG visited the site and met with the EPA project team on June 21 and 22, 2005. Three of the invited stakeholders made presentations to the CSTAG. The three presenters included: Solutia Inc., the U.S. Fish and Wildlife Service, and Betrand Thomas, a registered Hydrologist, working for the Citizen Education on CERCLA Process (TAG advisor). Several community members and the Alabama Department of Environmental Management also attended as observers.

CSTAG Recommendations

Based upon our site visit, a review of the site information provided to us, and the presentations made by stakeholders, the CSTAG offers the following recommendations to the site project manager in order that she may more fully address the 11 principles. The CSTAG expects that the site manager will consider these recommendations as the site characterization continues, as the conceptual site model is refined, and as remedial alternatives are developed and evaluated. The site manager is asked to submit, within 60 days, a written response to these recommendations to the CSTAG co-chairs.

<u>Principle #1, Control Sources Early</u>

- The OU4 RI should include a review of available data and an assessment of all potential contaminant sources to Snow and Choccolocco Creeks. It should also include an evaluation of what source control measures beyond the OU1, 2, and 3 cleanups might be needed to prevent recontamination. This evaluation should include an assessment of potential sources of contaminants to Snow Creek other than the 11th Street ditch and an assessment of potential residual PCB loading to stormwater that may enter OU4 after the OU1, 2 and 3 cleanups have been completed. Releases from the Anniston and Oxford Wastewater Treatment Plants should also be evaluated to determine whether they might be a source of PCB loading to the creeks.
- As part of the conceptual site model, estimate the relative distributions of all contaminant sources to the site.

<u>Principle #2, Involve the Community Early and Often</u>

- The CSTAG commends the Region 4 project team for its outreach efforts (*i.e.*, monthly meetings, local office, data/information sharing).
- As requested by community representatives at the meeting, distribute information regarding PCB chemistry and nomenclature (*e.g.*, differences between Aroclor and congener analyses) to the community.
- Insofar as it is available based on existing data, communicate to the community what activities may pose significant risks to humans (*e.g.*, is swimming or playing on the banks a risk to children?).

- Enhance outreach efforts to communicate the existing fish consumption advisory information (*e.g.*, coordinate with the fishing license issuing agency, speak at various community meetings, use signs with pictures and symbols to communicate advisories to those who may not be able to read, or speak English).
- Consider undertaking a creel survey (or searching whether such data already exist) to determine site-specific ingestion rates, whether subsistence fishing exists at the site, how fish are typically prepared, types of species collected, *etc.*

<u>Principle #3, Coordinate with States, Local Governments, Tribes, and Natural Resource Trustees</u>

- Evaluate the possible extent of sediment transport from Choccolocco Creek during planned water draw downs of more than two feet in Lake Logan Martin. This will probably require coordination with the dam owners and the State to better understand lake level management plans with respect to the potential for causing erosion of contaminated sediment in the lower reach of Choccolocco Creek.
- Determine the status of the Alabama Department of Environmental Management's Total Maximum Daily Load development for the Choccolocco Creek and Coosa River and coordinate as appropriate.

<u>Principle #4, Develop and Refine a Conceptual Site Model that Considers Sediment Stability</u>

- Sample upstream of the backwater area on Choccolocco Creek to determine the quality of water and sediment that are entering OU4. Consider the potential for recontamination of the backwater area should remediation be conducted on Choccolocco Creek.
- Evaluate the dissolved phase PCB levels in Choccolocco Creek and conduct dissolved phase PCB sampling in order to determine the relative significance of exposure from dissolved versus particulate-sorbed PCBs.
- If temporal trends in fish tissue contaminant data are included in the RI, such as those presented in the stakeholder presentation, ensure that the presentation includes an analysis of data quality and discusses the statistical significance of the findings. The analysis should include presentations reporting all data, data that are lipid normalized, and data for specific species, gender, and age class or size.
- Evaluate how the Natural Resources Conservation Service of the United States Department of Agriculture dredging event in Choccolocco Creek may have affected the stream, including potential effects on contaminant concentrations in fish and sediment stability and transport.
- In developing the OU4 field sampling plan, consider how the relationship between fish and sediment data will be developed (*i.e.*, BSAF, food web model), and what data needs to be collected to support this effort.
- Use regional or site-specific data to determine whether sampling the top 2 inches of sediment appropriately assesses the biologically active zone for this site. It is possible that different depths may be needed in different areas of the site.
- Owing to the use of mercury in mercury cell chlorine production, evaluate whether sufficient data have been collected to adequately characterize potential site risks from

mercury in fish tissue (*i.e.*, more than 10% of samples may need to be analyzed for mercury).

- Evaluate the stability of non-armored sediments in depositional areas and identified hot spots (*e.g.*, the backwater area, confluence with Snow Creek).
- The Conceptual Site Model presented as part of the SLERA is not comprehensive and should be expanded to better represent the entire OU.
- When developing the baseline Ecological Risk Assessment, consider effects to threatened and endangered species relevant to the site.

<u>Principle #5, Use an Iterative Approach in a Risk-Based Framework</u>

- In order to develop a more coordinated and comprehensive sampling effort, concomitantly develop Data Quality Objectives for the Human Health Risk Assessment, the Ecological Risk Assessment, and the fate and transport data collection efforts.
- Evaluate the need for potential cleanup of residential properties in the floodplain of Choccolocco Creek (*e.g.*, determine if these floodplain soils exceed risk-based screening levels) and evaluate if floodplain soils contribute to contamination in Choccolocco Creek.

<u>Principle #6, Carefully Evaluate the Assumptions and Uncertainties Associated with Site Characterization Data and Site Models</u>

- Estimate the mass balance of PCBs transported into and out of OU4. Use this information to evaluate exports out of OU4 and determine whether the study area needs to be expanded to incorporate areas farther downstream.

<u>Principle #7, Select Site-specific, Project-specific, and Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals</u>

- When establishing risk management goals for OU4, consider other areas of contamination in the surrounding area (*e.g.*, Coosa River) and ensure that selected goals are realistically achievable.

<u>Principle #8, Ensure that Sediment Cleanup Levels are Clearly Tied to Risk Management Goals</u> - The CSTAG will evaluate consistency with this principle later in the process.

<u>Principle #9, Maximize the Effectiveness of Institutional Controls and Recognize their Limitations</u> - The CSTAG will evaluate consistency with this principle later in the process.

<u>Principle #10, Design Remedies to Minimize Short-term Risks while Achieving Long-term Protection</u> - The CSTAG will evaluate consistency with this principle later in the process.

Principle #11, Monitor During and After Sediment Remediation to Assess and Document Remedy Effectiveness

- Consider as early as possible what monitoring data may be necessary to assess remedy effectiveness to ensure that adequate baseline data can be developed before any response action. For example, bivalves, aquatic invertebrates, or tree swallows could be considered as monitoring organisms.

Regional Response

Please send a written response to these recommendations within 60 days. If you have any questions or would like a clarification to any of these recommendations, please call either Steve Ells at (703) 603.-8822, or Leah Evison at (703) 603-9022.

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