

**Interoffice
Communication**

TO: Distribution

FROM: T. W. Heller, Houston, Tx

DATE: September 11, 1989

SUBJECT: Biotoxicity Team - Meeting Notes from August 21, 1989

file: LCCM.
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VISTA

The biotoxicity team held a meeting at 1:00 p.m. on August 21, 1989 in the Lake Charles VCM Plant. Attendees were:

Paul Fetzer - VCM	Tom Heller - PED
David Booth - VCM	Bill McClain - Legal
Tony Salah - LAB	Ken Dickson - Consultant
John Friend - LCCP	Allen Nielsen - R&D
Dick Conrad - VCM	Joe Ledvina - Environmental
Duane Every - LCCP	Gary Foshee - LCCP
Sue Rey - VCM	Mike Hayes - LCCC
Sandra Corkran - VCM	

Paul Fetzer opened the meeting with a review of the agenda topics and reasons for the meeting. The primary reasons for having the meeting were to address the environmental issues facing the Lake Charles Chemical Complex in the next few years that relate to biotoxicity, and to come to a consensus decision concerning the need for an outside firm to perform toxicity evaluation work on various wastewaters in the LCCC.

Paul Fetzer reviewed the biotoxicity work performed to date. Vista has had a permit requirement to perform quarterly acute biotoxicity screening for the past two years. If survival is less than 80%, then we must perform an acute 48 hour test using daphnia. In the two years of testing to date, Vista has never passed the test. Additionally, to characterize our waste, we have had many samples run at many different labs. All these results have been summarized in previous reports.

The team is continuing to study the toxic effects of the wastewater in order to isolate and identify causes of the toxicity. The team has evaluated various labs and consultants. Dr. Ken Dickson has been selected as a consultant. The team has selected, and recommended to management, the use of ENSR labs for various required biotoxicity testing, and Battelle labs to perform a Toxicity Identification Evaluation (TIE).

Tests performed to date indicate toxicity may be caused, in part, by cooling tower blowdown zinc levels. The various tests and experiments the team has done were explained.

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Vista's Round 2 NPDES permit expires in September of 1991. Normally the EPA asks for one year of chronic tests to start at that time for data gathering purposes. However, the EPA, by way of a Section 308 letter, has requested this data be collected beginning in August of 1989. EPA also requested Zinc and Nickel in the effluent to be measured. The Zinc and Nickel testing will be performed July through September of 1989.

Results so far show Nickel in our effluent to be about 40 ppb, which is greater than its published toxicity threshold of 8-13 ppb. Likewise, Zinc is present in the Vista effluent at a level of about 500 ppb, which is greater than its toxicity threshold of about 80 ppb.

Louisiana DEQ lists Bayou Verdine as estuarine (sometimes freshwater, sometimes saltwater) but Vista is required to do toxicity testing with freshwater species. We are currently testing to identify the best species for use in our effluent and will then ask the state to allow us to use that species in future testing.

The 308 letter mentioned above requires us to do monthly chronic biomonitoring tests (with any failed tests repeated in 15 days). The one test result in so far indicates Vista's effluent has significant survival effects at 52% effluent concentration. There was zero percent survival of cerio daphnia at greater than 52% concentrations. The Bayou Verdine water run as control water had no deaths.

The team, based on knowledge and experiences of other firms and contacts with EPA, expects to receive an administrative order (A.O.) to do a TRE soon after we fail several consecutive chronic tests. Westlake Polymers was told to do a TRE after they completed a year of chronic testing. They did not fail every test like we believe we will.

Because of the likelihood that Vista would be required to do a TRE, the team researched firms reputable in this work, and selected Battelle labs as the best choice. We requested Battelle to bid on a TRE up through the Toxicity Identification Evaluation (TIE) phase. A TIE is the first two parts of a TRE. They quoted us \$75,000 and 9-12 months to do the work. Money was put in the FY90 budget to do this work, as well as continue with the other required biomonitoring tests.

Ken Dickson explained the main steps of a TRE (see Attachment I). Once EPA asks for a TRE, we would have 60 days to submit a plan to do the TRE. By starting now, we could develop a TRE plan without the added pressure of the 60 day deadline and end up with a better plan.

The TIE work identifies chemical characteristics leading to toxicity. The next step is to identify the actual compounds contributing to those characteristics. Once specific compounds are identified, a confirmation procedure is followed, then there are 2 pathways to follow; source elimination (Causative Agent Approach) or end of pipe treatment (Toxicity Treatability Approach).

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Vista would probably need 18 months to do the entire TRE process, then 18 months more to implement solutions.

The group discussed the possibilities of doing a TRE in-house. The team consensus was that Vista does not have the knowledge or resources in-house to do a TRE. The effort to develop in-house TRE capability is tremendous. The cost to develop and maintain a lab necessary to do the tests would be over \$200,000. Vista would require years to gain the experience and knowledge that Battelle has.

Additionally, the knowledge gained from having a well managed TRE performed soon would be valuable in the design of the new LCCC wastewater treatment facilities and would provide useful data for the 308 request and the Section 304 stream toxicity program.

Action Steps

- 1) a) Answer questions and concerns about Battelle scope of work.
b) Arrange a plant visit for Battelle
- 2) Develop a contract for Battelle work.

Thomas W. Heller.
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/bjc

Distribution:

Biotoxicity Team: PLF, WSC, SVC, DAE, AMN, GLR, MGH, AAS, JF,
RAC SAR GLF WLM ICL DRB

Mr. Ken Dickson

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Attachment I

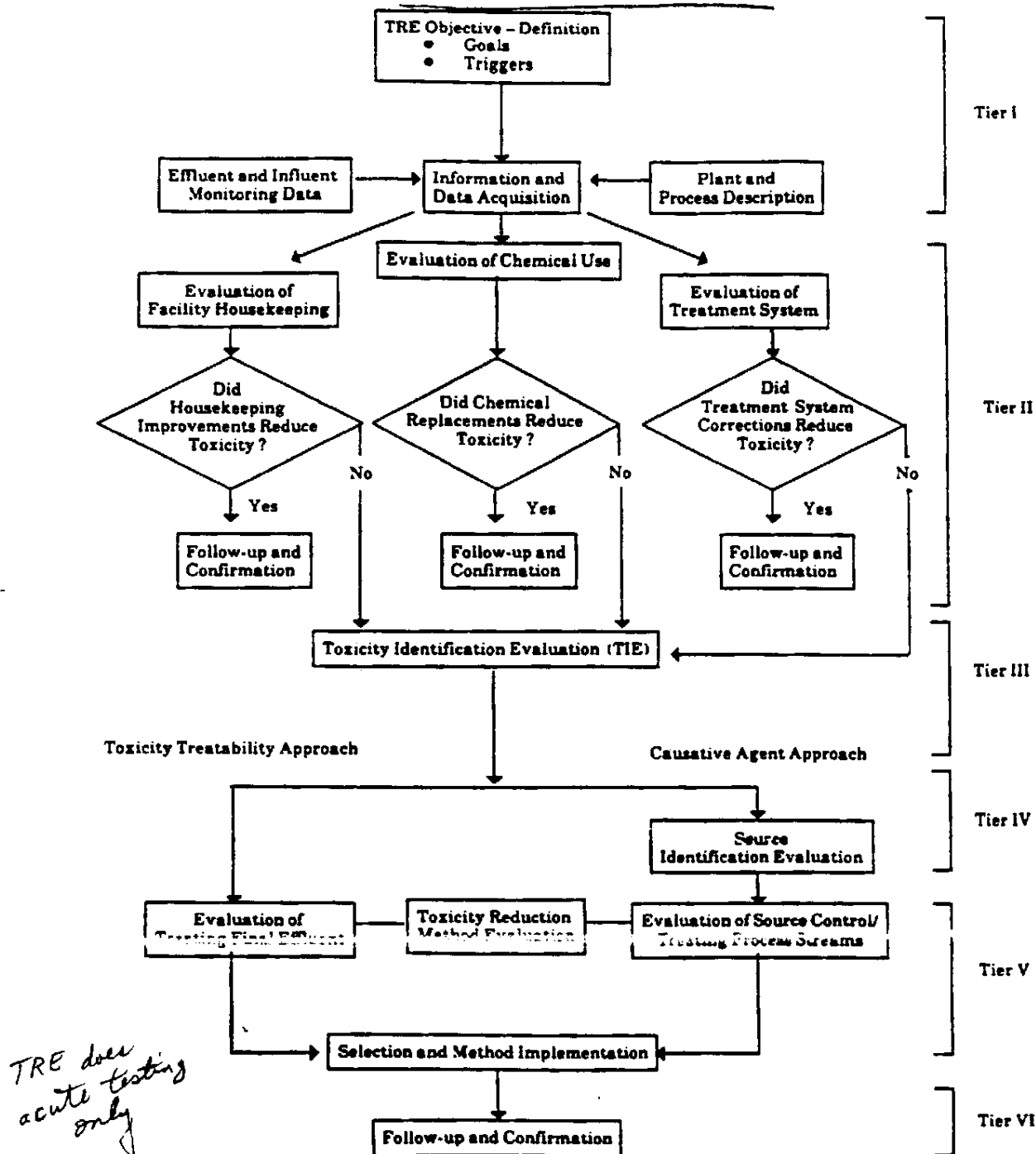


Figure 1.2. Toxicity Reduction Evaluation (TRE) flow chart.