

PLF

TO: Bioassay Team Members
FROM: T. W. Heller, Houston, TX
DATE: March 29, 1989

Interoffice
Communication

SUBJECT: MINUTES OF BIOASSAY TEAM MEETING -
MARCH 13, 1989

VISTA

The bioassay team met on March 13, 1989 at 1 PM by conference call. Team members present for the meeting were:

Paul Fetzer - LCVCM
Sheila Edgmon - R&D
Duane Every - LCCP
Sandra Corkran - LCVCM
Wendy Call - PED
Tom Heller - PED

Sandra obtained control charts for the chlorine addition to the VCM plant cooling towers and distributed them to the team. The chlorine level in the VCM cooling towers, CT-50, averages 0.34 ppm free chlorine with the upper control limit being about 0.5 ppm free chlorine. The target control range for free chlorine is 0.15 to 0.40 ppm.

Zinc levels in CT-50 have averaged about 4.8 ppm with frequent analyses showing greater than 5.6 ppm zinc. The targeted control range for zinc in CT-50 is 4.5 to 6.5 ppm. All additives are added continuously and automatically.

Duane distributed control charts for the chemical additions to the Alcohol cooling tower system. Free chlorine in this system averages 0.2 to 0.3 ppm. Biocide is added batchwise into this system twice per month. The biocide has a shock effect which disappears in 12-24 hours. They may be important when controlling blowdown to reduce effluent toxicity.

Paul had previously distributed control charts for the ethylene cooling tower showing the average chlorine level there to be about 0.3 ppm to 0.4 ppm.

The group discussed the various chlorine levels and concluded that, because ethylene plant chlorine levels are generally higher than VCM plant chlorine levels, chlorine was not the cause of the higher reported toxicity of the VCM plant cooling tower blowdown.

Effluent flow rate data for February was presented and discussed. The data is:

OUTFALL 001

<u>FLOW</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Average</u>
MM lb/day	28.94	10.53	21.4
MM gal/day	3.47	1.26	2.57
GPM	2416	879	1787

Approximately 800 gpm of these reported flows was cooling tower blowdown.

A summary of bypass or "clean" stream toxicity tests is:

<u>Location</u>	<u>LAB</u>	<u>Date</u>	<u>LC-50</u>	<u>Flowrate (gpm)</u>	<u>Species</u>
Ethylene/LAB Cooling Tower	Battelle	2/06/89	39	400	Pulex
	ENSR	1/24/89	>100	400	Pulex
	ENSR	2/07/89	>100	400	Pulex
	ENSR	2/27/89	>100	400	Pulex
VCM Plant Cooling Tower	ENSR	1/24/89	14.1	200	Pulex
	ENSR	2/27/89	13.1	200	Pulex
Steam Plant Boiler Blowdown	ENSR	1/24/89	34.1	40	Pulex
	ENSR	1/24/89	70.1	(pH corrected 8.0)	
		2/27/89	35	40	Pulex
Alcohol Plant Cooling Tower	ENSR	1/24/89	79.6	73	Pulex
	ENSR	2/27/89	>100	73	Pulex
Ethylene Waste Heat Boiler	ENSR	1/24/89	61.9	36	Pulex
	ENSR	2/27/89	68.3	36	Pulex
Composite Based on Flow rates	ENSR	2/27/89	>100	749	Pulex

The group feels ENSR's results are consistent. It appears that the VCM plant cooling tower blowdown has toxicity and should be studied further. Also, the composite pH of all the bypass streams was 9.3. This is high and will be brought to the attention of the LCCC Wastewater Study Team. Paul will collect existing chemical analysis data on the VCM cooling towers.

Paul will inquire with ENSR why they are slow in issuing their written reports. ENSR has offered to consult with us on

biotoxicity using all our existing data. Their estimated charges are \$5600 to do the work.

R&D recommends doing a paper study of the various chemical additives in use at the LCCC to determine likely sources of toxicity. The team will try to get vendors of the various chemicals to do as much of this as possible by supplying us with toxicity data. Duane will make the request to Calgon & Drew, Sandra will call Nalco & Betz, and Wendy will contact Unichem.

An action step for each team member is to think about ways to validate the existing data and understand the differences between ENSR's and Battelle's results.

The meeting ended with a discussion of the recent bioassay conference put on by EPA in Arlington, Texas. Wendy Call, Paul Fetzner, Tom Heller, and Ed Taylor attended.

The next meeting will be a conference call on March 21, 1989 at 1 PM. The topic for the next meeting will be to discuss the need for a consultant to review all the existing Vista biotoxicity test data and to discuss and understand the differences between Battelle and ENSR results.

Thomas W. Heller.

T. W. Heller
Senior Process Engineer
Process Engineering Department
Houston

/jw

Houston:	WSC
Ponca City:	SJE AMN
LCVCM:	PLF SVC
LCCP:	DAE

cc: GEH TGG MGH JCS JRA RAC OCK FGJ
File: A-7

057.TWH/PED1

CWH 000010033

PLF

TO: Lake Charles Biototoxicity Team Members

FROM: S. J. Edgmon, Ponca City

DATE: February 24, 1989

SUBJECT: MINUTES OF BIOTOXICITY TEAM MEETING - 2/16/89

The Lake Charles Biototoxicity Team met via conference call on February 28, 1989. Attendees were:

P. L. Fetzer, G. E. Hopkins	- LCVCM
S. V. Corkran	- LCVCM
D. A. Every	- LCCP
W. S. Call, T. W. Heller	- PED, Houston
S. J. Edgmon	- R&D, Ponca City

Paul Fetzer introduced Sandra Corkran as new team member (replacing George Hopkins.)

Review of Cooling Tower Biomonitoring Results

SVC commented that there could be a problem with drawing the VCM cooling tower sample. This line discharges into a ditch that has water in it. Sample may be difficult to get depending on ditch water level.

PLF noted high chlorine concentration in VCM cooling tower sample (0.27 ppm) The level recommended by vendor is 0.1-0.4 ppm. The VCM and Ethylene/LAB cooling towers have continuous chlorination systems.

ENSR reports adjusted LC50s. This adjustment or correction is made based on the "natural" mortality in the controls.

DAE provided cooling tower flowrates.

The team decided to sample all cooling towers again and send to ENSR. Any samples that have high pHs are to be split and run with and without pH adjustment. A proportionally blended sample of these cooling tower streams will also be tested. (Blend proportions based on flowrates.)

We will not have Battelle duplicate any of these tests. Want to wait until we get reports on effluent samples and try to determine reasons for the differences in results from ENSR and Battelle.

Review of Effluent Biomonitoring Results

PLF explained that ENSR ran the 001 sample using both freshwater organisms (D. pulex) and, after salinity adjustment with artificial sea salts, marine organisms (mysids).

The salinity of the clarifier overflow dictated that mysids be used. (Sample was not run "as is.") The salinity of this sample was adjusted to 23 ppt, the level at which mysids are normally cultured.)

CWH 000010034

Battelle did not coordinate with their marine testing lab so that both freshwater and marine tests could be run.

PLF stated that both ENSR's and Battelle's results on the 001 sample will have to be reported.

TRE Seminars

The team discussed two upcoming TRE seminars. One is being offered by the USEPA at The University of Texas at Arlington, Feb. 22 & 23. The other is by Battelle at Michigan State University, Mar. 28 & 29. Some team members will try to attend the USEPA seminar.

ACTION STEPS

SJE: Send LC50 calculations to team members
SVC: Define cooling tower operations for VCM plant
DAE: Define cooling tower operations for Chem plant
PLF: Get and distribute chemical dosage data (control charts, analyses, etc.) for VCM and Ethylene/LAB cooling towers
PLF: Determine 001 flowrate from daily charts
TWH: Call UT, Arlington to see if there are still openings for the USEPA TRE seminar next week. (PLF, TWH, SJE will try to attend.)

Next meeting will be scheduled after receipt of biomonitoring reports from ENSR and Battelle.

S. J. Edgmon

S. J. Edgmon
R&D, Ponca City

DIST:	PLF SVC GEH	- LCVCM
	DAE	- LCCP
	WSC TWH	- Houston
	SJE AMN	- Ponca City

CWH 000010035

SUMMARY RESULTS FROM NOV. '88 EFFLUENT MONITORING

Lab	Conc. (% effluent)	Mortality *		LC 50 (% effluent)		Stat. Method
		24-h	48-h	24-h	48-h	
Battelle (Non-renewal)	0 (control)	0/20	0/20			Binomial Moving avg. angle Probit
	3	0/20	1/20			
	6	0/20	0/20	75.09	65.54	
	12	0/20	0/20	75.09	<u>61.44</u>	
	25	0/20	1/20	—	63.56?	
	50	2/20	2/20			
	100	16/20	20/20			
ENSR (Renewal)	0 (control)		0/30			Binomial Moving avg. angle Probit
	6.25	Not reported	0/30		37.53	
	12.5		0/30		<u>38.08</u>	
	25		2/30		38.07?	
	50		25/30			
	100		30/30			
Gulf Eng. (Non-renewal)	0 (control)	1/30	1/30			Binomial Moving avg. angle Probit
	6.25	0/20	0/20	70.66	<u>37.20</u>	
	12.5	1/20	1/20	70.66	35.46	
	25	2/20	4/20	75.18?	34.98?	
	50	9/20	13/20			
	100	11/20	20/20			

* Mortality is recorded as a fraction where the numerator represents the number of dead organisms and the denominator represents the number of live organisms placed in that dilution at the start of the test.

— LC50 could not be calculated using that method

? Due to statistical difficulties beyond my control (or comprehension) this method should probably not be used for this particular set of data.

 value closest to that reported by ab.

Interoffice
Communication

TO: Bioassay Team Members

FROM: T. W. Heller, Houston, TX

DATE: December 20, 1988

SUBJECT: MINUTES OF BIOASSAY TEAM MEETING -
November 30, 1988

VISTA

The bioassay Team met on November 30, 1988 in the Lake Charles VCM Plant. Team members present were:

Paul Fetzer - LCVCM
Sheila Edgmon - R & D
Wendy Call - PED
George Hopkins - LCVCM
Tom Heller - PED

The meeting began at 9:30 AM with a review of action steps from the previous meeting.

T. W. Heller reviewed the data base investigations. Enviroline and Pollution Abstracts are part of the Dialog system and are available to us through P. V. Atri of the Business Information Center (Vista, Houston offices). Those are the most comprehensive databases, offering research data, articles, papers and studies relevant to bioassay studies. Another firm offers Micro-OHM-TADS and CHRIS, two physical property and toxicological data bases. The cost of these two databases is \$2500. No decision has been made by the team concerning their purchase. T. G. Grumbles, Manager of the Environmental Department has reviewed them and reports that his department will not be purchasing them. Experimental searching within the Dialog system was recommended by the team.

P. L. Fetzer presented E. R. Taylor's meeting notes from the WPCA 1988 Annual Technical Conference. The notes discussed the new Louisiana toxics program and NPDES permit issues. Copies of the notes were distributed to team members.

W. S. Call discussed water treatment chemicals used in the LCCC facilities for boiler and cooling water treatment, waste water treatment, and miscellaneous uses. She is working with the manufacturers of those chemicals to obtain any information relevant to biotoxicity. A matrix will be developed to show the amount of each chemical used and its area of use.

S. J. Edgmon reported that Don Grothe of Monsanto believes EPA Region 6 will put more emphasis on chronic bioassay

003/PED1

CWH 000010037

testing in the future, and that third round NPDES permits will have toxicity limits and Toxicity Reduction Evaluation requirements.

If the Vista effluent fails a toxicity test required under a third round permit, we would have to do one of the following;

- A) immediately plan and conduct a TRE, or
- B) conduct additional bioassay tests to determine if toxicity truly is present, followed by a TRE if toxicity was determined to be present.

One failed bioassay test should not force us into a TRE situation. Vista's Aberdeen PVC plant failed one of their bioassays and the state of Mississippi requested six additional monthly tests to be performed. Those six tests did not indicate toxicity was present, so no TRE was required.

Don Grothe also reports that a treatability study (to reduce effluent toxicity by effective end of pipe treatment) is often more time and cost effective than a TRE, which identifies and removes sources of toxicity. He feels Battelle and Ecological Analysts Labs are two good TRE firms and that Burlington and AWARE are on a second level of quality. He has no knowledge of ENSR's ability or expertise at performing TREs. Monsanto is doing in-house TREs. Mr. Grothe knew of no specific actions being taken against companies which have failed bioassay tests.

M. G. Hayes updated the group on chemical manufacturing firms in the Mississippi River area. They are all about where we are in the process. All are doing quarterly acute bioassay tests on 100% effluent. None have been forced into any broader assessments (TREs). They aren't as concerned as we are because the Mississippi River provides such an enormous dilution factor. Their acute LC-50 results vary widely. Dow, Stauffer and Union Carbide all manufacture chlorinated hydrocarbons and have shown less than 20 % survival.

The team then revised the original statement of objective issued June 22, 1988, to read as follows:

"The prompt evaluation of biomonitoring data and the associated LCCC processes using the problem solving model to develop recommendations to identify possible causes of biotoxicity and to reduce the level and variability of biotoxicity in the LCCC wastewater effluent as defined by EPA test method EPA 600/4-85/013"

The steps of the problem solving model and team actions associated with those steps are:

- 1) Defining the problem -- The team developed the following problem statement:

"The LCCC wastewater effluent toxicity level is unacceptable based on testing so far and on anticipated future regulatory requirements. The upcoming NPDES permit is expected to require at least 80% survival of test organisms in the plant effluent. Acute LC-50 biomonitoring tests performed to date have not indicated that 80% survival will occur. The acute LC-50 test results to date range from six percent to sixty percent, with an average of twenty-six percent. The LC-50 is the concentration of Vista wastewater in a control water which is lethal to fifty percent of the test organisms. Survival of organisms in screening tests performed so far have ranged from zero percent to eighty-five percent with an average of fourteen percent."
- 2) Analyze the process -- The team determined that all existing data indicates toxicity, but is of questionable reliability. Test results are scattered across a wide range. The outside labs performing the tests may not be doing the test procedure consistently.
- 3) Identify solutions -- The team decided to select a lab or labs which will use more consistent and better documented test procedures.
- 4) Implement solutions -- The recent quarterly acute bioassay samples were sent to three labs selected through a thorough lab screening and evaluation process developed by the team.
- 5) Evaluate the action -- This will be the next step, as we see if the results between the three labs are consistent.
- 6) Change system -- If the three labs are consistent on the quarterly test results they will become our labs of choice for future bioassay testing.
- 7) Start over -- Then we will use the newly chosen labs to generate more reliable data to allow us to identify toxicity and possible causes of toxicity.

Following lunch there was lengthy discussion of how much a contractor should do on the study versus how much should be done by Vista. Opinions were varied, e.g;

- a) lab does TRE work, but we tell them what to do. We select streams for testing and we interpret the results
- b) give more responsibility to the contractor. They will perform tests on streams they have selected. Ask the two leading labs, ENSR and Battelle, to propose how they would do the job. They would study the existing plant and data and recommend a course of action.
- c) Vista performs screening source survey. We do the sampling and the lab only does the analyses.
- d) Vista to decide which streams to select for initial screening based on lab recommendation. The lab is to serve as a consultant, and Vista makes all decisions. Based on the results of this screening, the labs would make proposals to us for a study program.
- e) Use the contractor to evaluate past data to identify some likely starting points. Vista would do a limited amount of individual stream testing, especially on the clean, bypassed streams. Then the contractor would develop a study program for our approval.

No firm conclusions were made about the level of involvement or control the contractor will have on the study. This will be discussed further in the next meeting.

The team discussed some in-plant testing of selected streams. We outlined several streams for 24 hour screening tests only, which we termed "Class I" samples. Those streams were:

*LCCP effluent
*LCVCM effluent

- 1 VCM Cooling Tower Blowdown
- 2 Ethylene/LAB Cooling Tower Blowdown
- 3 ~~lime settling pit effluent~~
- * VCM acid neutralization tank effluent
- * LCCP North Lagoon effluent.
- 3 alcohol cooling tower Blowdown

~~Boiler Blowdown~~
Boiler Blowdown Steam
Plant waste boiler
5. Once through
well water

Steam Plant
Boiler Blowdown
dr

This Class I work may be done by one lab, (probably ENSR), if the two labs being considered feel that they could work confidently with data generated from another lab. If the labs feel strongly that there must be continuity, i.e., one lab

does the project from start to finish, then Vista may employ both labs for the Class I work. In this manner, the duplicity of the Class I work serves as the final lab screening and selection tool. The team agreed that the contractors should be used to review our Class I sampling plan before we do the sampling.

(In a subsequent conversation between P. L. Fetzer and Battelle labs, Battelle recommended against any Class I type study. The team will re-evaluate the Class I study plan based on the Battelle comment).

Vista will request proposals from the contractors outlining costs to perform the study, time required for the study, and products of the study. The Vista team will work on preparing the request for proposal over the next few weeks. The team also needs to determine how money for any contractor work will be appropriated.

W. S. Call presented a plan for Class I sampling work. All the individual streams mentioned above were listed as sampling points, plus some additional sampling points. The plan described the timing of the sampling. Additional discussion of the sampling plan is required, but was deferred to a later meeting.

Action Steps

<u>ITEM</u>	<u>Responsibility</u>	<u>Date</u>
• issue meeting notes	TWH	1-1-89
• provide WSC residence times of VCM secondary treatment system	GEH	12-2
• modify Class I sampling plan and circulate to team	WSC	12-7
• determine where, and how much of the various treatment chemicals are used	WSC	1-5
• provide WSC with characteristics of LCCP wastewater streams	DAE	12-13

- provide WSC with characteristics of VCM plant wastewater streams PLF 12-13
- continue data base searching TWH 1-5
- call labs and ask if they would accept and use past data from other labs PLF 1-5
- issue biomonitoring data to team PLF 1-5
- provide WSC a list of streams which will be bypassed TWH 12-2

The next meeting will be by conference call at 2:30 PM, on January 5, 1989. Objectives of the meeting will be to review action steps and continue defining the scope of work for a contractor.

Thomas W. Heller.

T. W. Heller
PED
Houston

/jw

Dist:	Houston:	WSC
	Ponca City:	SJE AMN
	LCVCM:	GEH PLF MRK
	LCCP:	DAE JRA

cc: VEM TGG MGH JCS RAC WPS OCK FGJ
File: A-7

MCH

PLF

DEC 30 1988

I'd like to see some of the info Heller digs up.

literature searches using keywords through existing

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Phase let me know when should get involved again, from the info on # stand points

VISTA

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X
Probably not

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- Ethylene/LAB Cooling Tower Blowdown
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11
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Thomas W. Heller.

T. W. Heller
PED
Houston

/jw

Dist: Houston: WSC
Ponca City: SJE AMN
LCVCM: GEH PLF MRK
LCCP: DAE JRA

cc: VEM TGG MGH JCS RAC WPS OCK FGJ
File: A-7

To: Biotoxicity Team Members

From: Wendy S. Call, Houston

Date: November 16, 1988

VISTA

Interoffice
Communication

Subject: MINUTES OF BIOTOXICITY TEAM MEETING - NOVEMBER 9, 1988

The biotoxicity team held a meeting via conference call on November 9, 1988. Team members participating in the meeting were:

Lake Charles - Paul Fetzer
Duane Every

Ponca City - Sheila Edgmon

Houston - Tom Heller
Wendy Call

Mike Hayes (LCCP) and Ed Taylor (LOVCM) were guests in the meeting.

Paul Fetzer began the meeting by reviewing a summary of the biotoxicity test data for 12-9-86 through 7-25-88.

Mike Hayes was asked to update the team on the LA DEQ's regulatory intentions and timing. Mike said the EPA, not the state, was the concern, but that the EPA would probably not make any moves until our 8 quarters of quarterly biomonitoring testing expire. The 8 quarters of testing began in April 1987 and will expire in April 1989. Mike feels the EPA will probably require a TRE in the three or six months following the end of the quarterly testing because Vista has repeatedly failed the quarterly testing. After the TRE, the EPA will probably require Vista to take the actions necessary to reduce the toxicity of the effluent. Mike said that EPA will probably require 80 percent survival, but that the State of Louisiana would require 80 percent or greater survival.

Our receiving stream is Bayou Verdine. The Bayou Verdine has a low flow of zero, which means that the LCCC has no dilution benefits from the receiving stream. Mike said that LA DEQ has not decided what they want to do with small polluted bayous like Bayou Verdine.

Mike suggested that Vista should pursue some investigatory testing now, perhaps in an experimental design format, instead of waiting for the DEQ or EPA to require the testing.

Mike suggested that Vista should not sit down with the DEQ and the chosen bioassay lab in a 3-way negotiation or information gathering meeting. He felt this meeting might accelerate the DEQ's actions. He also advised that the chosen bioassay lab not mention Vista's name when talking to the DEQ or EPA.

CWH 000010049

008/PED52

Several action steps developed in the meeting were:

<u>RESPONSIBILITY</u>	<u>ACTION STEP</u>	<u>DATE</u>
TWH	Check into data bases through the Houston Business Information Center	11-28
	Ask Tischler/Kocurek, the wastewater project consultants, about future regulatory requirements in biotoxicity	11-28
MGH	Contact LCA and Mississippi River dischargers about biotoxicity	11-28
ERT	Talk to other companies at the 1988 Annual Technical Conference	11-28
WSC	Obtain water treatment additive information for the LCCC from the Purchasing Dept. in Houston	11-28
	Develop a testing strategy and distribute to the team	11-23
SJE	Call Don Grothe to ask him what direction he thinks Region VI will go with biomonitoring and to ask what actions have been taken against companies like us who have failed their biomonitoring testing	11-28

CWH 000010050

NEXT MEETING

An all-day meeting is scheduled for Wednesday, November 30 starting at 9:30 a.m. at the VCM Plant.

Wendy Call

Wendy Call
PED-Houston

WC/ek

Biotoxicity Team Members:

PLF, GEH, MRK- LCVCM
DAE - LCCP
SJE, AMN - R&D
TWH, WSC - Houston

cc: RHG, TGG - Houston
MGH, JCS - LCCP
RAC, WPS, ERT - LCVCM
OCK - R&D
FGJ - Aberdeen

CWH 000010051

008/PED52

To: Bioassay Team Members

From: D. A. Every
Date: November 14, 1988

VISTA

**Interoffice
Communication**

Subject: Minutes of Bioassay Team Meeting - Nov. 4, 1988

The bioassay team met in Houston on November 4, 1988 to review the findings from the Battelle and ENSR lab visits and to select an analytical lab to do our biomonitoring and TIRE work.

Tom questioned the need for a "basic" lab that would do only routine bioassay testing. The group agreed that it would be best to have one lab doing the biomonitoring and TIRE work.

Paul and Duane visited ENSR briefly before the team meeting. Mo Jones said that if ENSR was chosen they would bring personnel in from the Ft. Collins lab and use a team approach to set up a program and to make decisions at critical parts of the TIRE. Mo showed us ENSR's fourth floor analytical lab. Unlike their biomonitoring lab, this analytical lab was small and had little equipment.

The group discussed the Battelle lab visit. Battelle is a nonprofit organization that does a lot of basic research for government and industry. The Environmental Sciences division could help Vista with routine biomonitoring, permit review, negotiations with state and federal agencies, and TIRE work. By charter they do not do routine sample analysis or detail design work. The group concluded that Battelle's advantages and disadvantages were:

Advantages

- . Knowledgeable/experienced staff
 - several years of biomonitoring experience
 - many advanced degrees in related fields
- . Large diverse company
 - 7,000 employees
 - multi-discipline staff
- . Good QA/QC practices
- . Helped EPA develop TIRE procedures
- . Certified in California and New Jersey (?)
- . Established company with good references
- . Have the most TIRE experience (6-7 TIREs in progress)
- . Experience with chemical industry effluent
- . Friendly personnel
- . Adequate facility and equipment

CWH 000010052

- . Knowledge of regulations and the ability to work with the State
- . Staff seemed to interact well

Disadvantages

- . Location
- . All marine testing done at Mass lab
- . Routine analytical work handled by an outside lab
- . Toxicant reference was EPA approved by not charted SPC style

To compare ENSR and Battelle the group used the previously determined list of criteria present in a good lab. To select the most important factors, each group member chose ten criteria they considered the most important. The votes were added together and used as a weighting factor. The results of this process follow:

Criteria present in a good lab

	<u>ENSR</u>	<u>Battelle</u>
Reference toxicant (RT) control chart	4	
Established lab with references		3
Adherence to the protocol (tie)		
Extended capability		6
Best equipment possible		1
Predictable/reasonable turnaround time (tie)		
Lab facility (air, temperature, control, etc.)	2	
Knowledgeable experienced staff		6
Good recordkeeping	2	
Professionalism of personnel (tie)		
Work primarily with industrial effluents		3
Site inspection (lab can give information) (tie)		
"Openness" (provide data on request, easy to talk with) (tie)		
Experience with particular test organism (hold)		
Culturing species - how it is handled (control charts, etc.) (tie)		
Outward appearance of cleanliness	1	
Close to plant	1	
"Well defined" QA/QC program	4	
Lab water quality (tie)		
Ability/willingness to experiment		6
Price (skip)		
Confidentiality	3	
Knowledge of regulations and ability to work with government agencies	<u>5</u>	<u> </u>
TOTAL	22	25

After comparing the ratings of each lab using the list of criteria, the group decided that more information was needed before a decision could be made. To gather more information the group decided to split the sample in order to get reports from ENSR, Battelle and GSRI. ENSR and Battelle will also be asked for a bid proposal to get a cost estimate for the project and to determine their approach to conducting a TIRE.

The following action steps were developed in the meeting.

<u>Action Steps</u>	<u>Person Responsible</u>	<u>Date</u>
Call both labs to find out when they can take our quarterly sample	PLF	week of Nov 7
Ask Battelle about their consultant fee for study proposal (review of past data)	SJE	week of Nov 7
Ask MGH to attend the Wednesday meeting	DAE	Nov 7
Split effluent and send samples to Battelle, ENSR, and GSRI to do screen test and acute test	PLF	Nov 27
Ask each lab what past data they need to review to make a proposal	TWH (ENSR) SJE (Battelle)	undetermined
Ask how much guidance we need to give them so that they will know what to propose	TWH (ENSR) SJE (Battelle)	undetermined

Duane Every

D. A. Every

/dla

Dist: Houston: TWH, WSC
Ponca City: SJE AMN
LCVCM: PLF MRK GEH
LCCP: JRA

CWH 000010054

Interoffice
Communication

To: Bioassay Team Members

From: T. W. Heller, Houston, TX

Date: October 28, 1988

Subject: MINUTES OF BIOASSAY TEAM MEETING - October 21, 1988

VISTA

The bioassay team held a meeting by conference call on October 21, 1988. Team members participating in the meeting were:

Sheila Edgmon - Ponca City
Paul Fetzner, Duane Every - Lake Charles
Wendy Call, Tom Heller - Houston

The team discussed the bioassay labs that had been visited earlier in the week. Four labs have been inspected by the team to date. Those labs, and the team members conducting the site inspection were:

C. K. Associates - Baton Rouge - PLF DAE SJE
ABL - Baton Rouge - PLF DAE SJE WSC TWH
ENSR - Houston - PLF DAE SJE WSC TWH
NUS - Houston - PLF DAE SJE WSC

Aggregate comments by team members on the labs were discussed. For C. K. Associates:

- o Personnel were OK.
- o Lab was clean, but small - some concern about how many samples they could handle.
- o Toxicant reference was EPA approved and test results were charted, although not SPC-style.
- o They have some EPA cont acts.
- o Only one person runs the bioassay tests
- o Glassware cleaning is questionable
- o Culturing and testing are performed in one lab, leading to questions about contamination.
- o They don't do TRE's
- o They farm out analytical work to West Payne.

For ABL labs:

- o Test space is very small
- o Personnel are knowledgeable

- o Two separate environmental chambers is good
- o Glassware cleaning was fair
- o Too few advanced degrees
- o No EPA contacts or interaction
- o Good culturing lab and personnel
- o Culturing lab is separate from testing lab.
- o Do not do TRE's
- o Analytical work done by outside labs

For ENSR labs:

- o Knowledgeable personnel
- o Large company
- o Labs are large and well kept
- o They have EPA contacts
- o Good QA/QC manual, only lab that had one
- o Could go beyond just doing test and actually help us determine causes of any problems
- o Good record keeping
- o Full service engineering company
- o Cleanest and best equipped of labs visited
- o Ex-Battelle employee worked for them
- o Personnel have strong theoretical backgrounds
- o They are certified in California
- o Good client confidentiality
- o Knowledgeable about likely future test requirements
- o They have micro-tox, (a quick toxicity screening test)
- o Their sister lab in Ft. Stockton, Colorado, can do TRE's
- o Physical separation of culture and test labs was good

For NUS labs:

- o Communication problem within lab
- o Not very professional
- o No QA/QC charts
- o Lab was dirty cluttered and messy
- o Equipment was good, they are building a new lab
- o Client confidentiality was questionable
- o McGregor is knowledgeable, but his time is limited
- o Overall, their personnel are fair, not real impressive
- o May not have time to do TRE's
- o They have no agency contacts
- o Their price appears high

CWH 000010056

Overall, the group felt ENSR is the best choice of the labs seen so far. We will not visit GSRI labs. We do plan to visit Battelle labs in Columbus, Ohio. SJE will call Battelle to set up a visit, perhaps November 1. The next team meeting was not scheduled. SJE will notify the team of the schedule for the Battelle visit.

Thomas W. Heller,

T. W. Heller
PED
Houston

/jw

Dist:

Houston:	WSC
Ponca City:	SJE AMN
LCVCM:	PLF MRK GEH
LCCP:	DAE JRA

CC: CRD TGG MGH JCS RAC WPS OCK FGJ

File: A-7

CWH 000010057

007/PED51

To: Bioassay Team Members

From: T. W. Heller, Houston, TX

Date: October 28, 1988

VISTA

Interoffice
Communication

Subject: MINUTES OF BIOASSAY TEAM MEETING - October 21, 1988

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- o They have some EPA cont acts.
- o Only one person runs the bioassay tests
- o Glassware cleaning is questionable
- o Culturing and testing are performed in one lab, leading to questions about contamination.
- o They don't do TRE's
- o They farm out analytical work to West Payne.

For ABL labs:

- o Test space is very small
- o Personnel are knowledgeable

CWH 000010058

- o Two separate environmental chambers is good
- o Glassware cleaning was fair
- o Too few advanced degrees
- o No EPA contacts or interaction
- o Good culturing lab and personnel
- o Culturing lab is separate from testing lab.
- o Do not do TRE's
- o Analytical work done by outside labs

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- o Lab was dirty cluttered and messy
- o Equipment was good, they are building a new lab
- o Client confidentiality was questionable
- o McGregor is knowledgeable, but his time is limited
- o Overall, their personnel are fair, not real impressive
- o May not have time to do TRE's
- o They have no agency contacts
- o Their price appears high

CWH 000010059

Overall, the group felt ENSR is the best choice of the labs seen so far. We will not visit GSRI labs. We do plan to visit Battelle labs in Columbus, Ohio. SJE will call Battelle to set up a visit, perhaps November 1. The next team meeting was not scheduled. SJE will notify the team of the schedule for the Battelle visit.

Thomas W. Heller

T. W. Heller
PED
Houston

/jw

Dist:

Houston:	WSC
Ponca City:	SJE AMN
LCVCM:	PLF MRK GEH
LCCP:	DAE JRA

CC: CRD TGG MGH JCS RAC WPS OCK FGJ

File: A-7

CWH 000010060