

cc: PLF, DKW, CRD, JCS, GLF,
SAR, AAS

JUN 22 1990

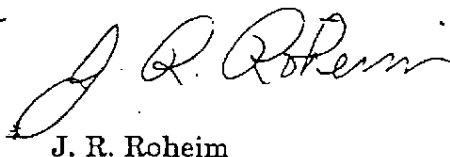
Interoffice
Communication

To: V. W. Weiss
From: J. R. Roheim
Date: June 15, 1990
Subject: **AMERICAN LABORATORIES AND RESEARCH
SERVICES, HATTIESBURG, MISSISSIPPI**

VISTA

As a result of the previous experience we had with American Laboratories, it is my recommendation we do not use them again. The analytical work required for the upcoming analysis to show that our lagoons and ponds are below the 500 ppb TC levels is too important to entrust with this company. I have listed below the reasons for this recommendation.

- Driver arrived at our plant drunk and did not pick up samples.
- Wrong sample bottles were provided by American Labs and plant personnel had to find replacements at the last minute.
- First estimates to R&D were incorrect. Required an additional \$1,500.
- Underestimated time to complete sample analysis.
- Made a serious mistake on chromium analysis. They did not bother to communicate the correct results in a timely manner. I called later to follow up and was told "by the way, those chromium numbers were wrong". This was after a telephone conversation confirming that the results were firm.



J. R. Roheim

cc:
J. Friend, T. G. Grumbles

CWH 000009840

To: Distribution

From: T. R. Bell
Date: June 15, 1990

Subject: Biotoxicity Team Meeting Minutes from June 12

I. Objective: To develop a plan to meet the 6/93 operating system deadline.

II. Discussion of the Austin meeting took place

- New limits for zinc and nickel as per EPA-304 (L) letter
 - Most locations have both a biotoxicity limit as well as a chemically specific limit.
 - The 304 (L) letter indicates we can choose either the biotoxicity or the chemically specific limit.
 - We think we will accept biotoxicity as a surrogate for nickel. We do not have a choice on the zinc, but must accept the chemically specific limit. Vista management and the EPA are not completely signed off on the idea.

III. TIE/RE Status (PLF and Battelle)

- We are currently 6 months into a 12 month plan.
 - 12 acute biotoxicity samples have been done on LCCC EPA 001 effluent to date.
 - Battelle has summarized the data and found filtration and ion exchange remove the toxicity.
 - Bulk toxicity is removed by 1 μ c pressure filtration, 0.22 μ c pressure filtration and the C-18 column (which will also remove nonpolar organics).
 - The remaining toxicity correlates well with the NaCl standard toxicity tests. This indicates ions are the other toxicity source.
 - When the filtered sample is passed thru either an anionic or cationic bed, singly, not all of the toxicity is removed. However, when the filtered sample is passed thru both columns, or a mixed bed resin, an ion-free, non toxic material results.
- It was concluded that a chronic toxicity check is necessary at this point.
 - Battelle will do a chronic toxicity test on the c-18 column effluent. If it shows no chronic toxicity, no more chronic tests will be done. If toxicity is present, a chronic test will be performed on the effluent after passing thru a mixed bed filter.

CWH 000009841

- Battelle is looking into what the filterable material is. They will start to subcharacterize the filterable material into inorganic and organic fractions.
 - An extraction with methylene chloride removes the same amount of toxicity as filtration removes.
 - This indicates that the filterable toxicity seems to be organic.
 - A methanol extraction of the filter pad solids was done to remove the filtered organics. The extract was tested for toxicity as the raw effluent. This again points to an organic toxicant.
 - A portion of the toxicity seems to be chlorides.
 - Lower chloride containing samples demonstrate no inorganic toxicity.
 - Chloride levels below about 1200 ppm appear non-toxic.
 - Battelle will confirm this.
 - This works into pricing/availability of effluent sized fixed bed catalyst by PED.
 - The filtration used is at the fringe of microfiltration. The following could be happening in the filtration step:
 - TSS removal (however more than just TSS is removed)
 - Colloidal material removed
 - High molecular weight fractions absorbed
 - Colloidal materials may be broken up, but not removed.
 - The next step is to fractionate the filterable organic constituents using a graduated methanol/water extraction procedure, and then to do biotoxicity testing on the fractions to determine in what fraction the toxicity is present. This allows the toxicity window to be found before doing chronic testing on every fraction.
- * Mick DeGraeve warned against rushing ahead based on preliminary TIE work to design an End of Pipe [EOP] solution without really understanding what is being done or why. It is often more efficient and cost effective to remove a toxicant at the source instead of fixing it in a large treatment system. Any attempts at the identification of toxicants must be accompanied with biotoxicity tests. The TIE plan should also be followed to prevent jumping to the wrong conclusions.

IV. CRW Timeline

<u>Date</u>	<u>Regulations</u>
9/90	Toxicity Characteristics (500 ppb-benzene, 500 ppb-EDC, 200 ppb-VCM)
9/91	OCPSF (Compliance plan delayed until 6/93) 3rd round NPDES permit, discharge limits lowered for BOD, TSS, zinc, EDC, benzene...
3/92	Benzene NESHAPS (<10ppm benzene)
6/93	304 (L) Letter (Nickel-8 ppb or biotoxicity limit Zinc-86 ppb)

* The biotoxicity limit may be either:

- A chronic test on 100% effluent in the Bayou Verdine, or a chronic test with dilution from the Calcasieu river and an acute test on 100% effluent. This would prevent the use of the Calcasieu for dilution without improving effluent quality.
- If the LCCP effluent river discharge point is changed to the Calcasieu River, a 90 - 99% dilution allowance is expected, for chronic toxicity testing, but an acute toxicity test with no dilution is also expected. Thus, the \$2 MM pipeline to the Calcasieu may not solve all the wastewater problems.

Estimates of OCPSF Permit: Monthly Average
(Pounds / Day)

<u>Parameter</u>	<u>Current Permit</u>	<u>Actual Effluent</u>	<u>Proposed OCPSF Limit</u>
BOD	1120	800	100
TSS	1445	1000	166
Zinc	80	10-50	4.0
EDC	3	1.0	0.1

* OCPSF limit was calculated using an estimated process water flow of 300 GPM.

V. Rough Schedule for Compliance

	<u>Nice Schedule</u>	<u>Panic Schedule</u>
6-93	Compliance	6-93
1-93	Finish Construction/ Start-up Project	3-92
6-91	Begin Construction	3-92
2-91	Process Designs Done Sign AFE's Mechanical Design Begins	9-91
12-90	Toxicants Identified Treatment Scheme Identified Process Designs Started	6-91
6-90	Today	6-90

- * Mick feels it may be ok to slip past the 6-93 date if we show progress and good faith. The group was not in full agreement with this, however.

VI. Aware effluent (simulated 1993 effluent)

- Recipe of process wastewater sent to AWARE

5.6% Lime settler blowdown	10 gallons
33.0% VCM West basin feed	60 gallons
5.6% LAB Wastewater (downstream of CPI)	10 gallons
55.6% P-10, Chemical Plant Wastewater	100 gallons
- Aware simulated the secondary with Eckerfelder boxes.
 - Summer box (warm)
 - Winter box (cold)
 - 2 F/M ratios
- Battelle did acute and chronic tests on the Aware effluent.
 - The resultant mixture was significantly less toxic than LCCC effluent, but it is still toxic.
 - 65% dilution - cerio daphina reduced reproduction
 - 85% dilution - no effect
 - This is a rough estimate of the expected 1993 effluent

- This does not fully represent the 1993 influent flow.
 - Ethylene Unit Quench stream still included inflow
 - Methyl Chloride Stream is currently going to VCM
 - Alcohol cooling tower is currently going to CPI and thus to P-10
 - Cooling towers have not been included in effluent
 - 420 GPM Ethylene / LAB cooling tower
 - 150 GPM LCVCM cooling tower
 - 100 GPM Alcohol cooling tower
 - 1000 GPM Process Wastewater
 - Battelle will do a characterization on the new effluent for one month. After the first confirmation, if the toxicants appear to be the same, fractionation will be started. Battelle will concentrate on the characterization of the toxicants, but will continue with the confirmation steps. Battelle may be able to have the toxicant class identified in 6 months. The toxicant identification will be started using shortcut chronic tests on the fractions from the first characterization.
 - * The AWARE test runs stop in August. We need to keep them running to generate the effluent, or switch the work with the Eckerfelder boxes to R & D ourselves.
 - * Battelle has spent \$30,000 so far. They will accelerate their work, and could expect to spend \$12,000/month for the next 6 months about \$72,000. There is \$35,000 left in the 1990 budget.
- Next planned Battelle conference call from 6-22-90 has been postponed to July 9, 1990.

Action Steps

1. All future biotoxicity testing for the TIE/RE will be done on a combination of the AWARE effluent and cooling tower blowdown.
 - 110 parts AWARE effluent (treated wastewater)
 - 57 parts combined Ethylene/LAB/LCVCM cooling tower
2. MRW will contact AWARE to sent effluent to Battelle.
3. TRB will mix cooling tower samples and send to Battelle.
4. Battelle will characterize the AWARE/Cooling Tower Blowdown, projected 1993 effluent for 1 month and will start characterizing the toxicants as soon as possible.

Distribution
June 15, 1990
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5. CRW will talk with MRW and discuss keeping AWARE running to provide effluent for testing.
6. Battelle will cost estimate a bid for them to examine new technologies. Mick will talk to AMN about alternate treatment technologies.
7. Mick will send a proposal addendum to PLF for the accelerated biotoxicity testing.
8. R & D will begin testing with cooling tower blowdown and AWARE effluent.
9. R & D will look at AWARE effluent followed by sand filtration and activated carbon, membranes and other new technologies.
10. Vista needs to look at chlorine management. Chronic toxicity threshold in about 500ppb.

Theresa R Bell

T.R.Bell
jrb

Distribution
JCS GLF MRW PDC JF DKW - LCCP
SVC PLF GWB - LCVCM
TWH CRW WSC TN - Houston
AMN GLR JRR DLW DAP - Austin

Interoffice
Communication

TO: Distribution

FROM: S. V. Corkran

DATE: June 1, 1990

SUBJECT: Biototoxicity Team Meeting of May 22, 1990

VISTA

R & D

Biototoxicity results are showing good comparison with ENSR.

R & D Filtration of 001 - was expected to be LC_{50} of 70 - 100, NOEL = ~40% (with fish).

ENSR Fathead minnow tentative LC_{50} of 37.5%

R & D is working on validation of cerrio daphnia per EPA protocol (reproduction and growth, etc.).

R & D may duplicate ENSR test in early July using cerrio daphnia.

According to PLF, AMN, JRR, Burns concerned about not knowing status of team and what is causing toxicity.

AWARE is testing for treatability. It will continue another 4-5 weeks. June 5 sample from AWARE to Battelle - unofficial chronic testing. Additional test - max cost \$6M - two species. R & D will consider testing AWARE's June 6 effluent. AWARE may be doing some spot acute tests. (In previous tests, 2° eff. was toxic and carbon bed removed toxicity).

Cooling Tower
Studies

- Drew Chemical sent toxicity data to Vista but not using our species. Drew was requested to rerun using the appropriate species.

Nalco study complete. Testing failed biototoxicity requirements.

Dearborn Chemical testing is complete. Testing passed - met dilution water criteria - at twice the level in the cooling tower (21 ppm in tower). Dearborn is interested in performing a test run.

CWH 000009847

TRE - The team will not consider any labs except Battelle and ENSR for the TRE due to the previous laboratory screening efforts. Battelle is the recommendation of the team due to their current efforts, performance, and inside information from TIE work.

TIE - Cost currently under budget. Additional Battelle chronic testing on the effluent will increase cost ~15% but will not exceed budget.

Nielsen is to talk to Roheim about budgeting money for R & D to perform work parallel to Battelle's work.

Action Steps

TWH - Work with Wittman to get AWARE's biotoxicity testing results.

GLR - Discuss doing chronic testing on AWARE effluent with AMN.

PLF - Send Drew Chemical biotoxicity testing results to the Team.

PLF - Send a letter to RAC stating selection of Battelle to perform TRE.

PLF - Issue Dickson's letter to the Team regarding recommendation on TRE cost.

Next meeting - June 15 at 8:00 (TEAm)
June 22 (Battelle)

Sandra Corkran

S. V. Corkran

lk(4)

Distribution

PLF, SVC, GWB (LCVCM)

TWH, WSC (Houston)

AMN, GLR (R & D)

TRB (LCCP)

CWH 000009848

Interoffice
Communication

To: Distribution
From: A. M. Nielsen
Date: May 10, 1990
Subject: BIOTOXICITY TEAM MEETING APRIL 26, 1990

VISTA

Attendees: LCCC: P. Fetzer, S. Corkran, T. Bell; Houston: T. Heller, W. Call; Austin: A. Nielsen, G. Russell; Denton: K. Dickson.

BUSINESS

1991 Budget

The new budget cycle requires that the team and K. Dickson think about what to do with TRE work in the 1991 budget year soon. The information must be into the budget coordinator by mid-June. The plant will require approximately two months to have the budget proposal sent to Houston by August 17.

Therefore all team members and K. Dickson should be ready to give proposals for 1991 budget by the conference call on May 11, 1991. All team members should review the list of laboratories visited. A.M. Nielsen is to talk to John Roheim about what is going to be R&D's funding of biotoxicity in 1991. Also Ken Dickson is to give us a critique of the TRE program to date and what he expects will happen in the next year and what should VISTA do to meet the upcoming challenges.

ENSR/R&D Comparison Study for April effluent sample

The comparison between R&D and ENSR was good. R&D only ran the fish and did not do the Ceriodaphnia. The comparison is as follows:

	R&D	ENSR
LC50	15%	25%
NOEL	<10%	<18%

Note: ENSR aerated their test chambers continuously during the test; R&D did aerate the chambers at the beginning but did not aerate during the test. Also, both R&D and ENSR observed that the third batch of effluent (April 13) was definitely more toxic than the first two batches of waste water sent.

ACTION STEPS: 1. G. Russell will supply the validation data for the fish test to the team members and K. Dickson.

CWH 000009849

2. G. Russell will summarize the comparison between Vista's and ENSR's results.

BATTELLE TIE WORK

Greg Smith reports that filtration is still removing the bulk of the toxicity. However, the first sample in April showed some loss of toxicity after passage across a C18 column following filtration.

The Quarterly Report is due the week of May 7-11. The next conference call with Battelle is scheduled for May 11, 1990 at 9:00 AM CST.

SCORECARD

T. Bell will get a temporary to do the typical scorecard, Theresa will continue to record the unusual events.

Allen M. Nielsen
Allen M. Nielsen

Interoffice
Communication

TO: Biotoxicity Team

FROM: T. W. Heller
DATE: April 19, 1990

SUBJECT: Minutes of Biotoxicity Team Meeting
Held April 16, 1990

VISTA

The biotoxicity team held a conference call meeting at 8:45 a.m. on April 16, 1990. Team members in attendance were:

P. L. Fetzner	A. M. Nielsen	W. S. Call
D. R. Booth	G. L. Russell	T. W. Heller
T. R. Bell		

Also, Chuck Levesque, GED, participated in part of the meeting.

The group discussed appropriate next steps for the R&D testing program and decided that the next group of tests would be done on the three streams that combine to form the 001 effluent. This testing will not begin until after the various wastewater stream rerouting projects are completed and the treatment system has acclimated to those changes.

Also, R&D wants to test in parallel with AWARE using one or two "Eckenfelder boxes", (bench scale ASU's) followed by filtration then doing biotoxicity tests on the effluents. The decision to proceed with this testing hinges on getting John Roheim's approval (AMN action step) and on availability of influent water (AMN action step).

R&D would do acute testing first for both the 001 make-up streams and the filtered Eckenfelder box effluents, probably with daphnia magna. These tests would be followed by chronic bioassays using ceria daphnia if the acute data indicates a need for chronic testing. These tests would also provide some ASU treatability data. R&D reports they may have a shortage of organisms for a short time. R&D is testing in parallel with ENSR & Battelle already.

Vista's well water failed the reproduction portion of the chronic bioassay performed recently at ENSR labs. The team decided to repeat the test. (PLF action item)

PLF discovered through discussions with ENSR that they are indeed using the easier-to-pass definition of death as their test endpoint, (death occurs when there is no motion whatsoever by the organism). PLF told them to switch to the more stringent definition of death, (once the organisms can no longer get around they are dead, even if they can still wiggle appendages), and they said they would.

BIOTOX.TWH

CWH 000009851

Nalco began their cooling tower test program the week of 4/9/90. They will begin biotoxicity testing 4/18/90. ENSR will do the bioassays. We need to resolve if Nalco can supply enough water from their test unit for ENSR to do a bioassay (Chuck Levesque action item).

Nalco has done some static acute testing on their new system. We want ENSR to do chronic toxicity tests on waste from the pilot system. Nalco can't do chronic in-house bioassays anyway.

Drew Chemicals test data on cooling tower toxicity has not been received yet. Chuck Levesque will follow up on it, (action step). Drew did pilot testing work at our alcohol plant last year and got good test results on fouling. They are doing chronic bioassays on that treatment chemical mix now. Drew and our team feel that automation of the alcohol cooling tower additive system would improve its operations.

No information has been received from W. R. Grace yet. They have had a big personnel turnover recently, and this could be contributing to the delay.

The team feels that Vista's legal and environmental people should review our completed TI/RE proposal. Booth, Ledvina and McClain will be asked to comment on it, (action item) in terms of acceptability and salability to EPA.

Our TIE work, while budgeted through 12-90, is only funded thru 9-90. We need to carry over some of the money budgeted for the TIE from FY 90 to FY 91. Some TRE funding discussions will be held in our next Battelle conference call on May 11, 1990.

Our next team conference call is set for 8:30 a.m. on April 26, 1990.

Action Steps

1. AMN get JRR approval to biotox test in parallel with AWARE.
2. AMN resolve influent water sample availability with Mark Wittman (LCCP).
3. PLF get our well water tested again.
4. Chuck Levesque to resolve if Nalco can supply enough test cooling tower water for ENSR to do the bioassays.
5. Chuck Levesque to follow up with Drew Chemical, provide test results to us.

BIOTOX.TWH

CWH 000009852

Minutes (cont'd)

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6. PLF ask Dickson for written comments on TI/RE by 4/19/90.
7. TWH copy JCL and WLMc on TI/RE and request them to review and comment on it. Request by 5/1/90.
8. SVC, TRB send cooling tower chemical data to Battelle by 5/1/90.
9. Team members to review TRB scorecard and comment to her on it by 5/1/90.

Thomas W. Heller

Thomas W. Heller
Process Engineering Department
Houston, Texas

/mh

cc: Biotoxicity Team, (includes WSC, PLF, SVC, TRB, AMN, GLR, DRB)
GEH, CRW, C JL
File LCC.0.900419.1

BIOTOX.TWH

CWH 000009853

PLF

To: Biotoxicity Team

From: P. L. Fetzner
Date: April 4, 1990

VISTA

Interoffice
Communication

Subject: Minutes of the 3-30-90 Meeting
TIE Update by Battelle

Attendees:

Vista

P. L. Fetzner	S. V. Corkran
D. R. Booth	T. R. Bell
T. W. Heller	W. S. Call
A. M. Nielsen	G. L. Russell

Consultaat

K. Dickson, Ph.D.

Battelle

M. DeGraeve, Ph.D.	W. Clement, Ph.D.
G. Smith, Ph.D.	

TIE Project Update

Four additional samples have been tested. Test results substantiate the earlier work and shows the stream toxicity to be highly variable. The acute toxic units ($TU_a = 100/48$ hr. LC_{50} value) ranged from 14 to 76.9 on the four samples. However, the 14 was determined when a 7% dilution was the lowest dilution used. Dilutions of three and one percent were used to define the range of the toxicity on the latter samples.

Filtration through a 1 micron filter effectively reduces the TU_a . TU_a decreases from the 77 range to a 2 to 4 TU_a range. Additional filtration through a 0.22 micron filter reduced the TU_a only slightly.

Subsequently treatment with a C_{18} column did not result in further reduction of the toxicity. Further treatment with Chelex, Bio-Rex Cation or anion resin did not reduce the biotoxicity. However, on one occasion, the use of a mixed resin bed essentially removed all remaining toxicity. This use of a mixed resin bed will be tested on subsequent samples during April.

CWH 000009854

Aeration of the effluent showed no toxicity reduction which reinforced earlier conclusions, that organics are not the source of toxicity. Treatment of the effluent with thiosulfate showed no toxicity reduction indicating no oxidants were causing the toxicity. Effluent treated with EDTA at 6/10 hardness equivalent showed a slight reduction in the toxicity units.

Changing the pH of the effluent by one unit either up or down showed an increase over the toxicity unit of the effluent itself. Further work to define the cause of the toxicity increase may be undertaken.

The synthetic salt mixture, blended to meet the typical hardness and component makeup of our effluent, showed toxicity at levels consistent with the toxicity remaining in the effluent following the filtration treatment, around 2 - 4 toxicity units.

Key items to be examined during April are:

1. Continued evaluation of the filtration and begin evaluating the nature of the solids removed by suing organics, solvent, acid and bases.
2. Take a closer look at the pH issue.
3. Increase the data base on the synthetic salt.
4. Continue evaluation of the mixed resin bed to substantiate removal of the toxicity remaining after filtration.

TRE Proposal

The TRE proposal rewritten by T. Heller and reviewed by the Biotoxicity Team was discussed briefly. Battelle concluded there was no substantive changes in the proposal and would support the document. Mick DeGraeve suggested the Agencies are paying more attention to the company actually doing the TRE and examining their qualifications and TRE treatment experience.

The biotoxicity team will decide the next step in the TRE program at its next meeting April 16 at 08:30.

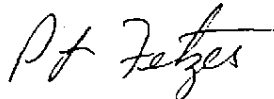
Cooling Tower Test Run

Calgon has requested that they be considered in cooling studies being planned.

Nalco has submitted a report summarizing the acute toxicity testing results. Nalco is proposing a pilot

study be conducted during April. They proposed that testing of the pilot system be conducted once the unit stabilizes under the proposed chemical treatment system.

Testing has been completed with the Dearborn Chemical. Vista is awaiting distribution of the test reports before proceeding. Reports on the testing of well water conducted in conjunction with the Dearborn samples were received. The data showed the cerrio daphnia in the 80% and 100% dilutions did not reproduce.



P. L. Fetzer
Chief Chemist

lk

Distribution

PLF-DRB-GWB-SVC (LCVCM)

TRB (LCCP)

TWH-WSC (Houston)

AMN-GLR (Austin)

Interoffice
Communication

TO: Distribution

FROM: S. V. Corkran
DATE: March 29, 1990

SUBJECT: 3/23/90 Biotoxicity Team Meeting

VISTA

Attendees: PLF AMN TRB SVC TWH GLR WSC

The objective of the meeting was to discuss Westlake Polymers TRE proposal and Tom Heller's rewrite of Battelle's proposal, and to develop plans for future work.

Westlake Polymer's proposal is much simpler. Still unclear on what the agency wants in a TI/RE Plan.

DRB: At end of 18 month time frame, Westlake Polymers has to know exactly what is required but not have it done. They are applying for an extension.

Battelle update conference call on 3/30 (9 am) will not include discussion of TI/RE plan.

The following pages summarize the Team's revisions to TWH's rewrite of the Battelle proposal, questions for Battelle and Ken Dickson, and action steps resulting from the meeting.

Sandra Corkran

S. V. Corkran
Process Engineer

br(4)
Distribution
PLF DRB GWB SVC (LCVCM)
TRB (LCCP)
TWH WSC (HOUSTON)
AMN - GLR (AUSTIN)

CWH 000009857

COMMENTS FROM TWH TI/RE

<u>Page</u>	<u>Paragraph</u>	<u>Comments</u>
2	1	Add methyl chloride, normal paraffin, and ethoxylates to list of products.
2	6	Does Battelle have authority to use Vista's information?
2	5	"implementation" should be "development of implementation plan".
4		"TRE" should be "TI/RE" throughout.
4	5	"collection, handling, <u>and</u> testing procedures". Also add ", including proper reference toxicant(s) testing", after "testing" in line 5.
5	3	"the approach to performing the TI/RE will be presented.
5	4	Did Vista supply catalyst/initiator information to Battelle?
7	2	After "the regulatory requirements" add "for sampling and reporting".
7	3	Task 4 - could be completed after the following steps
8	1	No. 4. Confirmation of identified toxicant(s) or toxicant characteristic(s).
7	2	(such as 24-96 hour <u>acute</u> tests)
5		Highlight "Phase I" title more
8		Move list of characterization tests to after the following paragraph about Phase I.
9		Use complete titles for EPA procedures.
9		Use headings CHEMICAL IDENTIFICATION and CONFIRMATION to sub-divide writeup. Also CHARACTERIZATION and EVALUATION on page 8.
10		Highlight PHASE II title more.

11	2	The team <u>may</u> design a process stream discharge study. Change "would" to "will".
13	4	Take out "(tasks 1 and 2 requiring ~ 2 months)"
14	last	Take out references to "we".

QUESTIONS FOR BATTELLE

- 1) Do they need information on production catalysts/initiators?
- 2) Do we restart schedule at time that order is received or leave January 1990 as initial start date?

QUESTIONS FOR KEN DICKSON

- 1) What does agency want to see in a TI/RE plan?
- 2) What does a process stream discharge study involve?
- 3) Do we restart schedule at time that order is received or leave January 1990 as initial start date.

CWH 000009860

ACTION STEPS

- Done*
- 1) PLF to send Ken Dickson copies of Westlake Polymers TI/RE Plan, original Battelle proposal, and TWH rewrite by 3/23/90.
 - 2) PLF ask DRB if data/results are public knowledge.
 - 3) TRB ask Legal about limit of information that can be supplied to Battelle.