M E M O R A N D U M

MWH
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To:	All Attendees	**Date:**	10/4/01
From:	Montgomery Watson Harza Dallas, Texas	**Reference:**	9/20/01 Bosque and Leon Rivers Watershed Study Project Team Meeting
Subject:	Meeting Notes		

The following is a final copy of the meeting notes from the events and issues discussed during the September 20, 2001, perchlorate project team meeting held in Waco, Texas. The topics are organized in the same order as the meeting agenda.

Attendees:
United States Army Corps of Engineers – Fort Worth District (USACE) - Brian Condike and Wayne Elliott
Brazos River Authority (BRA) - David Collinsworth, Mike Meadows and Rob Fuentes
Montgomery Watson Harza (MWH) – Ron Hartline, Kristie Witter and Kartik Gandhi
The Institute of Environmental and Human Health at Texas Tech University (TIEHH) - Todd Anderson and Scott McMurry
Texas Natural Resource Conservation Commission (TNRCC) - Mike Honeycutt
Environmental Protection Agency (EPA Region 6) – Jeff Riley and Cheryl Overstreet
City of Waco – Rick Howard

I. Welcome and Housekeeping

A. Welcome and introduction of attendees.

II. Progress Report – U.S. Army Corps of Engineers – Mr. Condike

A. USACE and MWH have agreed to the GIS scope of work to be performed during the project and are currently developing independent cost estimates based on this scope of work. MWH cost estimates are due to USACE on 9/24/01.
B. A contract has been finalized between USACE and Ensafe that will allow Ensafe to assemble and provide documentation regarding their studies at NWIRP McGregor and associated offsite properties. The contract was awarded on 9/15/01 in the amount of $ 25,000.00. Ensafe believes it can deliver this data in 30 days, but the Navy has set an official 45-day submission deadline.
C. USACE has set the dates for the first public meetings to be held for the project. These meetings will be held in Waco and Temple on October 15 and October 16, 2001. The Waco meeting will be held in the Waco High School Cafeteria and the Temple meeting will be held at the Mayburn Convention Center. USACE, BRA, TNRCC, MWA and TIEHH will all have a part in developing and presenting relevant information at both meetings. The same

information will be discussed at each meeting and will include information concerning what the team has completed to date and what we plan to do in the future.

Mr. Condike asked if anyone had any comments regarding the meeting agenda or the format of the meetings.

- *Mr. Meadows indicated that he would like to have one speaker do all the discussion and have the team members answer specific questions that might be asked.*
- *Mr. Condike indicated that Anita Horkey (USACE Community Relations Officer) recommended a booth type format – similar to a job fair.*
- *Dr. Anderson indicated that TIEHH would provide slides or graphs as requested or follow any format suggested. He was in favor of a combination setting that would include a typical meeting presentation format and the booth setting so that people who feel nervous about asking questions in a public setting can ask one-on-one. He indicated that no data would be presented that the team has not yet reviewed.*
- *Mr. Hartline prefers the formal presentation setting to the job fair set up and had no preference regarding the single vs. multiple speakers' format.*
- *Ms. Overstreet: It would be nice to have posters that indicate the type of work to be performed.*
- *Mr. Collinsworth: BRA will either have posters prepared or use existing posters.*
- *Mr. Hartline suggested using an agenda similar to the recently completed Stakeholders meeting as a start for the public meeting.*

The following tentative speaking schedule is planned based on information discussed in the team meeting:

- Mr. Meadows will introduce the project and provide a description of the project history.
- Mr. Condike will provide an overview of the project.
- Mr. Honeycutt will discuss applicable regulatory guidelines and research regarding perchlorate.
- TIEHH will discuss toxicology and biological sampling to be performed (Ecological Evaluation)
- MWH will discuss the technical aspects of data collection, data gap analysis, GIS, watershed modeling and the overall fate and transport study.
- The presentation will close with a public Q&A session.
- A one-on-one question and discussion period will occur after the meeting to allow any additional questions to be answered.

Additional meeting items that were discussed:

- The team decided to use a multiple speaker approach with posters distributed around the meeting room and to include the one-on-one Q&A session following the meeting.
- The map showing perchlorate concentrations detected in the watersheds will be used as one poster.
- Notes will be maintained regarding who is asking questions and what questions are being asked. These questions and their associated answers will be included on our website in a FAQ page.
- A draft public meeting agenda will be prepared by Mr. Condike by Friday Sept 21, 2001 and distributed to team members for review and approval.
- USACE will prepare and distribute a news release prior to the public meetings.
- Mr. Meadows recommended that USACE consider having the Mayors of Waco and Temple provide some opening remarks at the meeting. He also recommended inviting representatives from Congressman Chet Edward's office and Senator Hutchinson's office to provide opening remarks and participate in the meeting.

- Team members will develop their Powerpoint presentation materials and forward to Mr. Condike by October 5th, 2001. He will consolidate these materials into the final presentation format.
- Hardcopies of the presentation will be available for the public to pick up at the meeting.
- Mr. Condike indicated that Anita Horky would be sending announcements to local newspapers to advertise the meetings.
- It was suggested that the news release also be sent to the team and stakeholders for review prior to publication.

III. Progress Report - Texas Tech University – Dr. Anderson

A. TIEHH has recalculated some previous sample results based on wet weight vs dry weight data. They have also completed the analyses of some fillets from fish that previously exhibited perchlorate detections during past analyses of the heads.
B. Samples from reference areas have now been processed and will be distributed to the group in the next month.
C. Additional sediment and water samples were collected after the August meeting.
D. A handout was distributed and is attached for further review that identifies analytical results from the water, tissue and sediment samples collected. Perchlorate was detected in several water, sediment and tissue samples as presented in these tables.
E. The sediment samples were centrifuged to remove the water that is held in the pores of the sediment. The detection limit for this process is 2 ppb.

Comments:

Mr. Condike suggested that Liver data needs to be analyzed.

Mr. Honeycutt: Is there a suspected uptake mechanism?
Dr. Anderson This is not being tested at this time.

Mr. Meadows: Are you going to go back to re-analyze the data that shows ND (non-detect)?
Dr. Anderson: No. We can go back and run less diluted samples.

Dr. Anderson: We also recently collected some doves for testing. Frogs were also collected a month ago from the south Bosque area. Small mammals from previous trip are currently being analyzed.

Mr. Howard: Which mammals are you looking at?
Dr. Anderson: Standard rodents, mice, rabbits and squirrels near water bodies.
Mr. Howard: Pigmy mice may be good to study and deer may be tracked through hunter checkpoints.

Dr. Anderson: Sediment sampling – cumulative samplers with a semipermiable membrane were used for 1 week. Data was collected from the Harris creek area. Nitrate levels and Perchlorate levels seem to correlate. Possibly competing electron acceptors. Nitrates can be tested from the pore water extracts.

Dr. Anderson: Blood plasma testing planned. Dr. Anderson has agreed to send data from today's handout to Mr. Condike electronically.

Ms. Witter: How does the fillet data relate to known/acceptable levels in fillets? And, how many samples at that level have to be collected before a fish advisory is issued?

Mr. Honeycutt: The limit is 2.1 ppm in fillets. A representative number of samples exceeding this level would have to be documented before an advisory is issued. 1 out of 16 fish

does not appear to be enough for an advisory, and the levels were below 2.1 ppm.

Ms. Overstreet: Is the research being shared with other researchers?
Dr. Anderson: The methodology is being shared with other researchers.

Ms. Witter: Is there any evidence to suggest bioaccumulation?
Dr. Anderson: No further studies on bioaccumulation – possible gill studies could be conducted to determine how the perchlorate is processed. However, it is thought that the perchlorate is not retained in the fish.

F. Future work will include sampling small mammals, frogs, birds and snakes

IV. Progress Report - Montgomery Watson Harza - Mr. Hartline

A. A draft project bibliography was distributed at the meeting. This bibliography included all data sources researched to date with the exception of the Navy data. Mr. Hartline noted that the majority of the data collected is in hard copy format.
B. Mr. Hartline asked if BRA had a copy of the GIS layers and SWAT model that were previously developed within the study area by the Blacklands Institute. Mr. Collinsworth is checking into this matter.
C. MWH has met with Dr. Lind (Lymnologist) and Dr. Yelderman (a local geology expert) to discuss the conceptual site model. Both professors are under contractual agreements with MWH and will assist in the development of the conceptual site model.
D. Discussed the data collection schedule as it related to Navy data collection efforts. Mr. Hartline noted that the data collection and conceptual site model due dates will need to be extended once we receive the Navy data. Mr. Condike agreed that the schedule for these deliverables had been effected and would need to be revised.

Comments:

Mr. Condike: Was Tarltan University contacted during data collection efforts?
Mr. Meadows: They are not going to have any perchlorate data that we don't already have. They would have water quality data (Larry Hauck) – but this should be available in the TNRCC database.
Mr. Condike: They may have some point-flow data.
Mr. Hartline: MWH will check with Tarleton to see what data they have available for the project.

VII. Next Meeting:

The next team meeting is scheduled at 1:00PM on December 6th, 2001 at a location in the Waco area. David Collinsworth will determine the meeting location and inform attendees.

Adjourn

Table 1. Perchlorate concentrations in water within the Lake Waco and Lake Belton watersheds. Perchlorate concentrations are in ng/mL (ppb). Samples were collected in August-September, 2001. Collection dates are indicated parenthetically.

Harris Creek at Highway 317

00490	ND	(082801)
00253	ND	(090601)*
00247	ND	(090601)*

Harris Creek at Oglesby Road

00457	ND	(082801)
00264	ND	(090601)*
00265	ND	(090601)*

Harris Creek at Highway 84

00483	ND	(082801)

Harris Creek at Oglesby Road North

00454	ND	(082801)

Spring on Oglesby Road

00462	62	(082801)
00263	50	(090601)
00261	48	(090601)

Water Facility in McGregor at Intersection of Highway 317 and Highway 84

00482	ND	(082801)

Willow Creek at Highway 317

00453	ND	(082801)
00271	36	(090601)
00270	34	(090601)

North Branch of South Bosque at Highway 317

02303	388	(090701)
02245	402	(090701)

South Branch of South Bosque at Highway 317

00452	ND	(082801)
02301	ND	(090601)*
02302	ND	(090601)*

South Bosque at Indian Trail

00469	36	(082901)*
00477	34	(082901)*

South Bosque at Highway 84

00492	ND	(082801)*
00459	ND	(082801)*
00520	ND	(082801)*

00466	ND	(082801)*
00481	ND	(082801)*

Station Creek at Highway 107

00451	ND	(082801)
02277	32	(090601)
02276	29	(090601)
02314	30	(090701)
02319	32	(090701)

Station Creek at Leon River

00267	ND	(090601)
00266	ND	(090601)
02298	ND	(090701)*
02294	ND	(090701)*

Station Creek at Old River Road

00464	ND	(082901)
00275	ND	(090601)
00246	ND	(090601)

Station Creek at Oglesby Road

00455	ND	(082801)

Onion Creek at Highway 107

00450	33	(082801)

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*Date of fish collection (See Table 3).
ND = not detected by the analytical procedure [detection limit = 2 ppb].
TRACE = perchlorate was detected, but the perchlorate concentration was below the limit of quantitation (2.5 ppb).

Table 2. Perchlorate concentrations in sediment porewater within the Lake Waco and Lake Belton watersheds. Perchlorate concentrations are in ng/mL (ppb). Samples were collected in August-September, 2001 primarily from areas where fish samples were also collected. Collection dates are indicated parenthetically.

Harris Creek at Highway 317		
00234	ND	(090601)*
00235	ND	(090601)*
Harris Creek at Oglesby Road		
02244	ND	(090601)
Willow Creek at Highway 317		
02304	ND	(090601)
02321	ND	(090601)
North Branch of South Bosque at Highway 317		
02300	ND	(090701)
02320	ND	(090701)
South Bosque at Indian Trail		
00478	ND	(082901)*
00479	ND	(082901)*
South Bosque at Highway 84		
00468	ND	(082801)*
00448	ND	(082801)*
00519	ND	(082801)*
00420	ND	(082801)*
00518	ND	(082801)*
Station Creek at Leon River		
00269	ND	(090601)
00268	ND	(090601)
02243	ND	(090701)*
02272	ND	(090701)*

*Date of fish collection.
ND = not detected by the analytical procedure [detection limit = 2 ppb].
TRACE = perchlorate was detected, but the perchlorate concentration was below the limit of quantitation (2.5 ppb).

Table 3. Perchlorate concentrations in tissues from aquatic organisms within the Lake Waco and Lake Belton watersheds. Perchlorate concentrations are in ng/g (ppb) expressed based on tissue wet weight. Data represent the results of analyses of individual tissues (fillets), except where indicated, with the number of analyses indicated parenthetically. Samples were colleted in August-September, 2001 from areas previously identified through water quality analyses as having received perchlorate.

Harris Creek at Highway 317						
	Green sunfish (2)	ND	Large mouth bass (4)	TRACE	Yellow bullhead (1)	ND
		ND		ND		
				ND		
				ND		
Harris Creek at Oglesby Road						
	Green sunfish (2)	ND	Yellow bullhead (1)	TRACE		
		ND				
South Bosque at Highway 84						
	Carp (2)	ND	Channel catfish (6)	ND	Flat head catfish (1)	ND
		ND		ND		
				ND		
				ND		
				ND		
				ND		
	Green sunfish (1)	ND	Large mouth bass (5)	690	Sunfish (2)	ND
				ND		ND
				ND		
				ND		
				ND		
	Sucker (1)	ND	White bass (1)	ND		
South Bosque at Indian Trail						
	Large mouth bass (16)	590	ND	Sunfish (6)	ND	Sucker (1)	ND

	ND	ND		ND
	ND	ND		ND
	ND	ND		ND
	ND	ND		ND
	ND	ND		ND
	ND	ND		
	ND	ND		

South Branch of South Bosque at Highway 317

Green sunfish (2)	260		
	ND		

Station Creek at Leon River

Channel catfish (4)	ND	Yellow bullhead (1)	ND
	ND		
	ND		
	260		

ND = not detected by the analytical procedure [detection limit in wet tissue = 170 ppb].
TRACE = perchlorate was detected, but the perchlorate concentration in the extract was below the limit of quantitation (2.5 ppb).