

DATE: OCTOBER 26-27,1999

LOCATION EnSafe Office, Knoxville, Tennessee

N00204.AR.001840

TEAM LEADER Bill Hill

NAS PENSACOLA

RECORDER Ron Joyner

5090.3a

GATE KEEPER/UTIMEKEEPER Gena Townsend

PROCESS FACILITATOR Anne Marie Lyddy

ATTENDEES:

TEAM MEMBERS:

Brian Caldwell
Joe Fugitt
Terry Hansen
Allison Harris
Bill Hill
Ron Joyner
Gena Townsend

SUPPORT MEMBERS:

Paul Stoddard Tier II
Robbie Darby Tier II

GUESTS:

John Williams (CH2M Hill)
Tom Johnston (Tetra Tech)

CHECK-IN

Amy Twitty notified the team that she would not be able to attend due to an illness in her family. Her proxy was given to Ron. Tom Dillon Turned **50 YEARS OLD!!!!!!** Bill Hill went shrimping. Stinky is doing well.

Ground rules were reviewed.

The Team reviewed the action items and prioritized the agenda.

ACTION ITEM REVIEW

*9907-A63 Joe needs to determine what will FDEP expect to occur if groundwater exceedences are found in downgradient wells at bayou, **Complete***

*9907-A67 Gena is to get concurrence **from** ESD stating that they (ESD) will comply with the Site 2 sampling plan developed by EnSafe -**Complete** - Gena has the plan*

*9908-A72 Bill suggested using the Navy's database because it is complete and for consistency between the agencies. Robbie agreed that Tier II should discuss this issue. **Open - Robbie is trying to contact Tim Bahr***

*9908-A73 Robbie to discuss the three agency databases at the Tier II conference call. Each agency has their own database, and consistency should probably be applied. **Open - Joe is currently inputing information with an estimated completion date is spring of 2000.***

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9908-A74 Allison and Pei are to revise the models for Site 40 by the next meeting
Pending 9908-A75

9908-A75 Joe to get the University of Florida comments out on the Site 40 RI report.
Open

9908-A81 Review previous success stories after Rich May has revised them. **Open - Rich is still in the process of converting them.**

9908-A89 Gena to check with Tom on Fish Sampling. **Pending 9908-A75**

9909-A90 Gena to have EPA Official to sign all three copies and forward to Joe. Joe in turn will have FDEP sign all three copies, retain one and send one to Gena and one to Ron. Ron will send a copy to Allison to be included in the Administrative Record.
Pending – EPA has signed and forwarded to FDEP. Eric Nuzie received it on October 13th.

9909-A91 Bill will submit application for a new Site to NAVFACHQ to get it listed so funding can be acquired. **Bill was asked to postpone until after NORM database is completed. Estimated completion date is November 30th.**

9909-A92 Bill to develop detailed schedules for each deliverable and present it to the Team to consider if they are achievable or not. **Complete**

9909-A93 Joe and Gena to compare the Schedules provided are compatible with both EPA's and FDEP's. **Complete**

9909-A94 Allison to e-mail response to Mr. Uicci's comment on the Site 15 ROD for inclusion in the Responsive Summary for everyone to comment on.. **Complete. E-Mailed on October 20th.**

9909-A95 Allison will send literature of Diffusion Sampling to all Team members.
Completed on October 7th.

9909-A96 Gena will check to see if ESD can support Tox and Diversity test in lieu of performing full TAL/TCL testing at each sample location as stated. **Complete – They cannot support..**

9909-A97 Gena to check with Tox group on experimental design and full definitive are included in the workplan submitted by ESD. **Complete – They cannot support.**

9909-A98 Joe to check with his Dept. if contaminates at depth can be left in place with a NFA with no monitoring is proposed. **Pending**

9909-A99 Bill to obtain the services from Dean Neptune assists us in developing DQO processes on the Site 2 related agenda topics. **Dean Neptune was not available. Tom Johnston will attend instead.**

Reminders:

These items are understood to be works in progress and are carried forward to remind the team of their presence.

- 9903-A13: Bill will submit a letter to EPA and State requesting that OU 10 be handled under RCRA authority.
- 9802-A14: Brian to follow up on the list of wells to be kept for future modeling.
- 9806-A44: Review Tier II deliverable packages (rev.9) for corrections and respond to Bill.
- 9811-M03: Bring MBTI materials to all meetings.
- 9908-A82: Team will review the new success stories.
- 9908-A83: ***Members will email success stories to Team. All team members to review the successes and be ready to discuss at the next meeting.*** It will be the responsibility of each author to send success stories in the new Tier II format to each member.

Training

Ann provided the Team training on Listening Skills which included an exercise in which the team separated into groups of two and completed a the exercise.

Tetra Tech Update

The items (which included 19 drums) found at Site 43 were excavated. When the analytical results of the soil surrounding the buried materials are completed, the meethod of disposal of the items will be determined.

Site 15 Record Of Decision

The groundwater monitoring will be performed in accordance with the Groundwater Monitoring Plan vice a 5 year review.

Gena wanted clarification on the link (or lack thereof) between soil and groundwater contamination. Surface soils were not a source of groundwater contamination, rather it is linked to the past operational practices of the golf course maintenance shop. The surface soil is being removed to eliminate a pathway. It is not a source removal concerning groundwater contamination.

9910-A100 Allison will research leachability numbers and may add text to Site 15 ROD to clarify surface soil removals.

Concerning Site 15 monitoring, aggressive action would be required if the second round of sampling shows an increasing trend of contamination in the most downgradient wells.

Tier II Update

Robbie reported a joint Tier I/Tier II meeting has been proposed for early next year. February 14* appeared to be the most agreeable date. A survey will be sent to Tier I Teams asking for agenda topics.

It has been requested that Success Stories be submitted by 1 December.

Site 38

The Feasibility Study will be completed by November 25, 1999.

Pensacola Site 2 Data Quality Objectives Summary

(10/25-27/99)

(DRAFT, 11/3/99)

"DQO Step 0." Establish an Effective Planning Team

Allison Harris (EnSafe, geologist)

Ann Marie Lyddy (Center for Leadership Development, facilitator)

Bill Hill (EFD South, EIC, environmental engineer)

Brian Caldwell (EnSafe, Hydrogeologist)

Gena Townsend (EPA Region 4, RPM, environmental engineer)

Joe Fugitt (FDEP, RPM geologist)

Jon Williams (proxy for Amv Twitty, CH2MHill, geologist)

Paul Stoddard (Tier II, EnSafe, engineer)

Robbie Darby (Tier II liaison, EFD South, IR Branch manager)

Ron Joyner (PWCPENS, RPM)

Terry Hansen (TtNUS, geologist)

Tom Johnston (TtNUS, DQO facilitator, chemist)

DQO Step 1. State the Problem

Initial Conceptual Site Model:

Untreated plating shop (Bldg. 71) liquid discharges have entered the Pensacola Bay Site 2 area through outfalls. The bay sediments along the shoreline that may have been affected by these discharges have been sampled previously on a rectangular grid oriented along the shore line. Some of the sediments within a few hundred feet of the shore have generated a hazard index (HI) greater than 10 for the benthic communities, presumably a consequence of accumulated chemicals from the discharges. Despite the observed HI values for the benthic communities, the U.S. EPA Region 4, FDEP and the Navy agree a human health risk does not exist in the Site 2 area.

Two hurricanes were experienced in the bay in the same time frame as past data collection activities, and the hurricanes were observed to have relocated some of the sediment. The relocation amounted to about a 200 ft movement to the west. Since the last data set was collected in 1994, a third hurricane was experienced and there is some uncertainty concerning its effect on sediments. In addition, past data collection efforts focused on the top six inches of sediment and there is now concern about the chemical concentrations at greater depths.

Problem Statement:

It has been five years since the last data collection and a hurricane has been experienced at Pensacola during that time period. If conditions adverse to benthic communities in the Pensacola Bay Site 2 area still exist, the conditions will need to be rendered acceptable.

DQO Step 2. State the Decision

Primary Study Question:

Are chemicals in Pensacola Bay Site 2 sediments creating a condition adverse to benthic communities and, if so, do they warrant remedial action?

Primary Potential remedial actions:

- Monitored natural attenuation (MNA)
- Dredging only
- Dredging with possible recapping of the sediments with clean sediment
- In-situ remediation

Note: Dredging to only 6' depth is not practical. However, dredging to greater than 6' with recapping with clean sediment, or simply dredging deep enough to encounter acceptable chemical concentrations would be feasible. The fluidity of the sediments will have to be considered when evaluating remedial options.

Alternate Potential remedial actions:

- No further action (no remediation)

Decision Statement:

Based on measured chemical concentrations, toxicity testing and benthic assessments in the Site 2 sediments as compared to established acceptance levels, determine whether remediation is required. If site conditions are acceptable, no remediation is required; if they are unacceptable, evaluate remedial options and implement the option that is the most cost-effective and protective of human health and the environment.

DQO Step 3. Identify Inputs to the Decision

Assumptions:

- **The assessment end point is the benthic community. Therefore, higher trophic levels are not of interest.**
- Upper trophic levels are not exposed in a significant way to the benthic community sediments. Bioaccumulators were not measured at unacceptable concentrations in the top 6' of sediment, thus posing no threat to upper trophic levels.
- Chemical/physical testing methodologies must be consistent with past testing to maintain comparability.
- At least three samples from each AOC are needed for benthic assessment.

Acceptance Criteria:

- Toxicity: Test population survival rate < 0.8*(survival rate of control population) is unacceptable.
- Sediment Chemistry: Any chemical concentration > TELs &/or PELs is unacceptable.

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- Biodiversity (benthic assessment): This will be evaluated through species counts (number of each species observed). Proposed **unacceptable** condition (observed effect) is:
 - an observed proportion of pollution-tolerant species in the test population that is > 50% of the proportion observed in the control population.

Action Item: Gena Townsend (with EnSafe) will define the chemical categories to list each specific chemical for which concentrations will be measured.

Leptocheirus plumulosus and/or *Mysid* shrimp species are to be used for toxicity testing. Methodology consistent with past toxicity testing methodology will be used to maintain comparability of results with past evaluations.

Action Item: Gena Townsend will return to the partnering team with a recommendation for which species to use for toxicity and biodiversity evaluations and whether to use the full toxicity test or the “simple” test.

Decision making will be staged. The first test to perform is an evaluation of chemistry in the top 6' of sediment. If chemistry is acceptable, an immediate NFA will be selected. If chemistry is unacceptable, the benthic assessment and toxicity will be evaluated. Decision making will proceed based on the triads or assessment results presented in the matrix below:

Condition	Sediment Chemistry	Toxicity Test	Benthic Assessment	Interpretation
1	+	+	+	Strong evidence for pollution-induced degradation.
2				Strong evidence for absence of pollution-induced degradation.
3	+			Contaminants are not bioavailable.
4		+		Unmeasured contaminants or conditions exist that have the potential to cause degradation.
5			+	Alteration of benthic community is probably not due to toxic chemical contamination.
6	+	+		Toxic chemicals are probably stressing the system.
7		+	+	Unmeasured toxic chemicals are causing degradation.
8	+		+	Benthic community degraded by toxic chemicals but toxicity tests not sensitive to toxic chemicals present or chemicals are not bioavailable or alteration is not due to toxic chemicals.

Testing areas:

- Areas of Concern (AOCs) were identified and associated hazard indices (HIs) were computed from past data. Past data indicate a division of the Site 2 bay into geographical regions and depths that will have different acceptance criteria.

Toxicity Testing Inputs:

- Species and species survival rates for test and control populations (need enough sample material to conduct toxicity and chemistry tests). Acceptance rate will be survival in test population 280% of the control population survival rate, measured to 1% resolution.
- Might also need to establish growth and fecundity acceptance criteria.

Action Item: Gena Townsend will return to the partnering team with a recommendation concerning growth and fecundity acceptance criteria. The recommendation will include a recommendation for how to combine survival, growth and fecundity (e.g., equal weight on each) to establish a “+” or “-“ on the “Triad Chart”. The recommendation will also

include a recommendation for the resolution to which the factors will be measured and reported. The resolution to which the benthic assessment parameters are measured will likely dictate the minimum number of organisms required to be included in the testing.

Action Item: Gena Townsend will investigate whether *in-situ* toxicity testing is useful. There is a concern over potential interference from outside effects such as vandalism or fishing, and the concomitant lack of control over the test and control populations if *in-situ* testing is used. She will report back to the partnering team with a recommendation on this issue.

Chemistry Inputs:

- Acid Volatile sulfides
 - Simultaneously extracted metals
 - Total metals
- | | |
|--|-------------------------------|
| <ul style="list-style-type: none">• Herbicides• Organochlorine Pesticides• SVOCS | extractable organic chemicals |
|--|-------------------------------|
- Sediment chemistry Quality criteria: defined in the SQAGs and EPA's action levels (SSVs)
 - TOC
 - Inorganic and organic tin
 - Grain size

DQO Step 4. Establish Decision Unit Boundaries

Assumptions:

- Habitats span only the top 6" in sediment (that's where the benthic communities are). Thus, contaminants in this region exhibit a pathway to benthic communities.
- Acceptable sediment chemistry in the top 6" would effectively constitute a cap on the deeper sediments.
- Based on calculations of sedimentation rates, 48" appears to be a reasonable maximum depth to which chemical concentrations should be measured. Any chemicals deeper than 48" in sediment are not likely to generate unacceptable environmental risks because they are much deeper than the typical benthic communities. Even dredging to remove any chemicals is not likely to expose sediments at depths of ≥ 48 " to the benthic communities.
- Site A2 (east of Site 2) is not part of this problem, even though it may be possible for sediments to have migrated from Site 2A to Site 2. Other monitoring is expected to be useful for evaluating this effect.
- Depths greater than 6" will be used to evaluate sedimentation rates and potential remedial actions, but will not be used for decision making for this problem.

Areas of primary interest within the Site 2 region (based on past toxicity data):

- those where HI in top 6" of sediment is > 10
- those where HI top 6" of sediment is ≤ 10

Each area with HI > 10 is a circle of radius = 50'. The radius criterion was established based on the 100' arid used in past data collection and the fact that sampling in open water from a boat deck can not be conducted with precision much greater than this.

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There are five areas with HI > 10 at grid nodes F3, G2, H1, H3, I0. Based on these boundaries, the chemistry inputs are divided as follow:

- Outside the five areas with HI > 10
 - TOD 6" of sediment:
 - TAL metals
 - Cyanide
 - Inorganic tin
 - Organic tin
 - Grain size

<ul style="list-style-type: none">• <u>TOC</u>• <u>AVS</u>• <u>SEM</u>	For bioavailability assessment
--	--------------------------------

 - Sediment depths > 6"
 - TAL metals
 - Cyanide
 - Inorganic tin
 - Organic tin
 - Grain size
- Inside the five areas with HI > 10
 - TAL metals
 - Cyanide
 - Inorganic Sn
 - Organic Sn
 - Extractable organic chemicals, including organochlorine pesticides.

<ul style="list-style-type: none">• <u>AVS</u>• <u>SEM</u>	For bioavailability assessment
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 - Grain Size

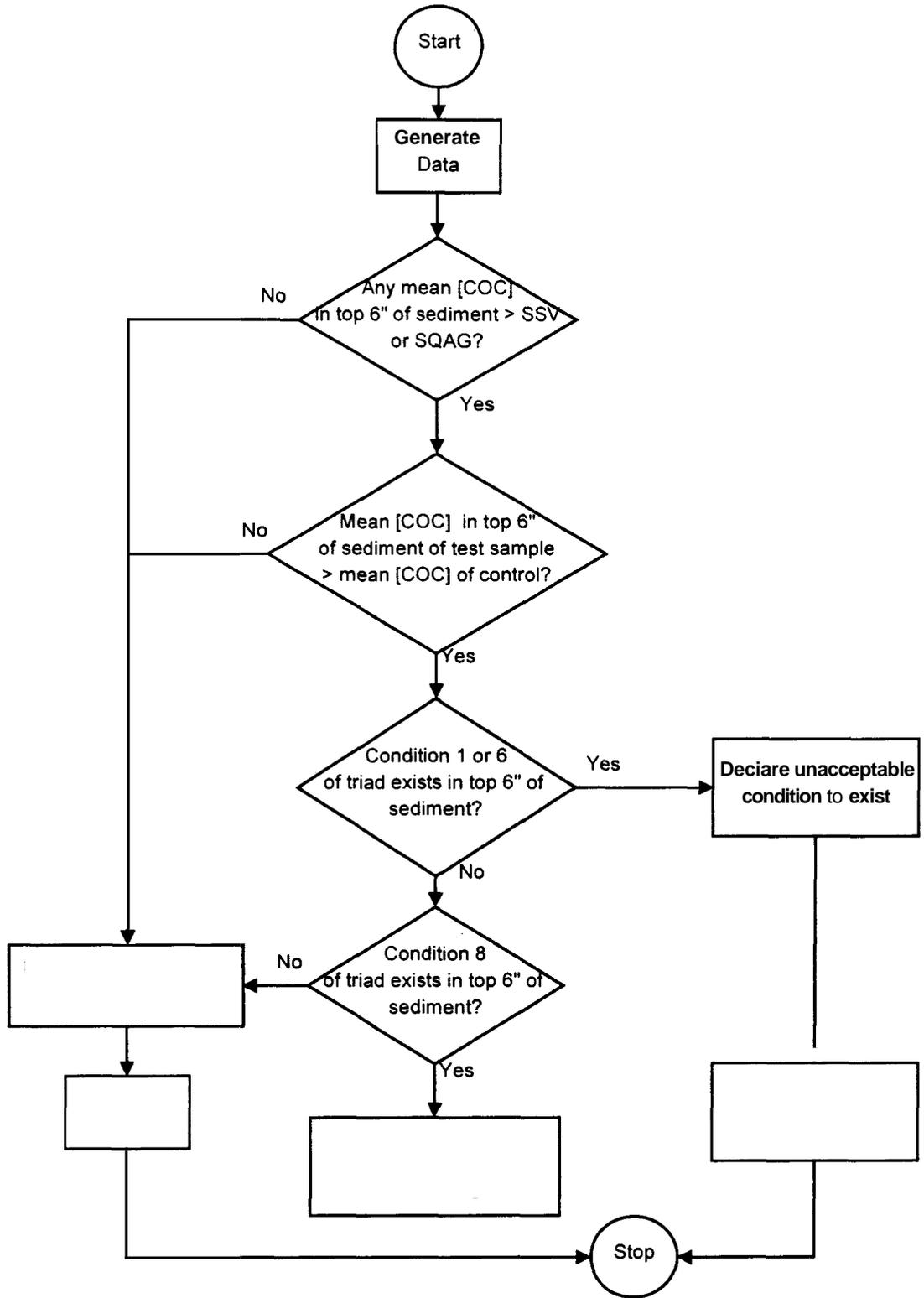
Toxicity testing and benthic assessment will be performed for the five areas with HI > 10.

The "control" area will be to the west of the Site 2 bay area. This area is least impacted by chemical discharges and is adjacent to or within areas previously established to exhibit no unacceptable concentrations of chemicals.

DQO Step 5. State the Decision Rule

See flow chart. Mean COC concentrations ([COC]), toxicity and benthic assessments identified as "Condition x" in the flow chart refer to conditions within the top 6" of sediment in an AOC (and in the control area, as appropriate). Five AOCs (50' circles centered on previously established grid nodes F3, G2, H1, H3, I0), will be sampled. One control area west of Site 2 (also a circle with a 50 radius?) will be sampled as a benchmark against which to evaluate AOC conditions. All other grid nodes were determined not to pose unacceptable risks to benthic communities or higher trophic levels. Chemistry data will be needed at depths greater than 6" for evaluating remedial options.

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DQO Step 6. Establish Quantitative Tolerances for Decision Errors

There are two types of decision error = **rejecting** the null hypothesis when it is true; and failing to **reject** the null hypothesis when it is false. Establishment of the null hypothesis rests on establishing the **severity of consequences** for making each **type** of error.

Site-specific Errors and Consequences:

Walk away from a dirty site ⇒ more severe consequence.

Clean up a clean site ⇒ less severe consequence.

Establish the null hypothesis

The null hypothesis is the true state of nature that exists when the error having the more severe consequence is made. The error with the more severe consequence is to walk away from a dirty site, so the null hypothesis is that the site is dirty:

H_0 = site is dirty.

Then the alternative hypothesis is:

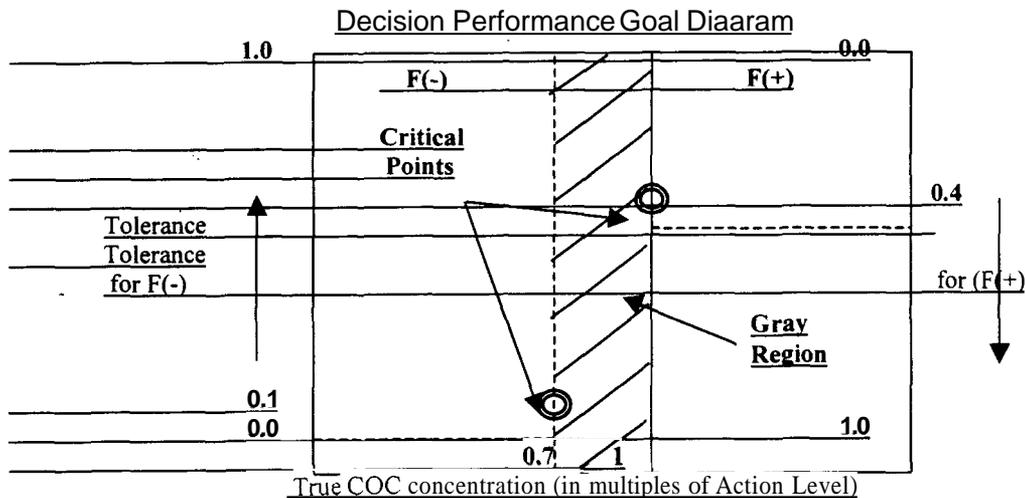
H_a = site is clean.

The Type I error is **rejecting** H_0 when it is true. Therefore, the type I error is: Walk away from a **dirty** site.

Then the **Type II** error is: Clean **up** a clean site.

<u>True Concentration</u>	<u>Error Type</u>	<u>Tolerance</u>
<u>0.7* Action Level</u>	<u>False negative [F(-)]</u>	<u>0.1 (10% tolerance)</u>
<u>Action Level</u>	<u>False Positive [F(+)]</u>	<u>0.4 (40% tolerance)</u>

These specifications are contrary to the proclaimed tolerances for decision errors because they indicate a greater tolerance for making the Type Two Error. Generate the performance goal diagram, anyway, to indicate this decision performance.



Next Meeting

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EnSafe Office
201 North Palafox St
Pensacola, FL

Agenda
December 15 and 16, 1999

Meeting Leader Ron Joyner
 Scribe Gena Townsend
 Timekeeper/Gatekeeper Amy Twitty
 Facilitator Anne Marie Lyddy

Topic	Goal	Leader	Duration
Check-In	Say Hey	Ron Joyner	1 hour
Site 2	Finalize	GT / AH	4 hour
Training	Learn	Anne Marie Lyddy	1 hour
OU 13	Finalize PP & RI Addendum	Allison Harris	1 hour
Mercury Model	Finalize	Allison Harris	1 hour
TtNUS	Update on field work	Terry Hanson	0.5 hour
Site 38	Finalize Preferred Alternative	Allison Harris	1 hour
RAB	Prepare for meeting	Ron Joyner	0.5 hour
RAB	Recover from meeting	Ron Joyner	0.5 hour
Tier 2 Update	Update	Paul Stoddard	0.5 hour
		Robbie Darby	
Review Past RODs	Review	Joe Fugitt	1 hour
Check-Out	Say Bye/Establish next meeting's agenda	Ron Joyner	1 hour

Future Meeting Dates

January 25 & 26, 2000
February 22 & 23, 2000
March 28 & 29, 2000
April 25 & 26, 2000
May 23 & 24, 2000
June 27 & 28, 2000

July 25 & 26, 2000
August 22 & 23, 2000
September 26 & 27, 2000
October 24 & 25, 2000
December 5 & 6, 2000