Florida Department of
Memorandum Environmental Protection

TO: Satish Kastury, Program Administrator
Hazardous Waste Regulation

From: Andrew R. Tintle
Environmental Assessment Section

Date: April 7, 2003

Subject: Field Audit; Lockheed Martin Orlando; Sampling Consultant – HSW Engineering, Inc.

The following is the preliminary report for the field audit conducted at Lockheed Martin Orlando on August 21, 2002. The DEP Hazardous Waste Regulation Section in fulfillment of cooperative agreements with EPA Region IV requested this audit for the management of RCRA permitting activities.

The findings of the DEP auditor, Andrew Tintle, are listed below and in the attachments.

REPORT FORMAT

The audit summary in this correspondence, in the attached checklists and copy of the sampler's field notes comprise the audit report. The checklist findings are coded with the following notations, as follows:

Y The activity is in compliance with the audit statement and no deficiency was found.
N The activity was not in compliance with the audit statement and a deficiency is noted.
N/A The activity was not applicable to the sampling event or was not audited.
? There was insufficient information to determine compliance with the audit statement.

Checklist entries may also include explanatory comments, where indicated.

The groundwater portion of the checklist is based on FS 2200 from the "Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01, which was published as a final version on January 1, 2002. All other portions of the checklists are based on the 1992 version of the DEP Sampling Standard Operating Procedures (SOPs), DEP-QA-001/92. Differences in the 1992 and 2002 SOPs will be detailed where project protocols are impacted by the differences.

NARRATIVE

Introductory Meeting and Orientation

DEP personnel arrived on site at 8:50 a.m. to conduct the audit and split sampling event. Mr. Freddie Pedrosa of Lockheed Martin Orlando met the DEP auditor and introduced him to the HSW sampling crew consisting of Phil Yeager from the HSW Tampa office and Bob Cassese from the Orlando office.

Observations of Sampling Procedures and Documentation for Monitoring Wells

Observation of sampling procedures and split sampling were conducted at project wells designated as MP – 8LS, MP – 11LS and CD – 13D. Total well depths were measured before the sampling event and were recorded on the sampling log for each well. Depths to water were taken at the time of sampling. Calibration activities for the field measurements were conducted just prior to the sampling event. Field measurements for turbidity, dissolved

oxygen, pH, temperature and conductivity were monitored at each of the wells to ascertain purge water stabilization. Calibration was checked again 3.25 hours after the initial calibration and again the next morning before sampling activities.

Wells were purged using an ISCO 150 portable peristaltic pump having silicon tubing in the pump-head and high density polyethylene (HDPE) in-take tubing. All new tubing was used at each well and plastic was placed around the well-head to prevent accidental contamination. The in-take tubing was placed in the top 2 feet of the water column by measuring the tubing before placement in the well. Drawdown was monitored while the well was being purged and the tubing lowered with the drawdown as needed. Purge rates were minimized to balance the drawdown with the well recharge. Once the drawdown was stabilized and a minimum of one well volume including equipment volume had been purged, field measurements were initiated. Following the first set of field measurements, subsequent measurements were taken every ¼ well volume until stabilization of pH, conductivity and temperature was achieved and turbidity was < 20 NTUs and dissolved oxygen < 20% of saturation for three consecutive measurements. Well CD – 13D recharged very slowly and took and extended time to purge.

Samples were only collected for volatile organics for this project. The straw method was used for collecting the VOC samples. The pump was shut off, the tubing disconnected from the pump and removed from the well. The sample trapped inside of the tubing was then allowed to gravity flow out of the in-take end of the tubing into the sample vials. The tubing was stretched out and elevated to allow slow flow into the vials. It was obvious that the sampling crew was experienced in this procedure and the technique employed was very good.

Since all new tubing was used the only equipment decontamination observed was that of the tape for the water level measuring device. This was decontaminated between wells with Liquinox detergent, DI water, isopropyl alcohol and allowed to air dry.

All purge water was captured and stored for disposal in the on-site remediation system.

All Audited Wells

1. Sampling personnel indicated that the groundwater sampling protocols followed for this event were those found in FS 2200 from the "Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01, which was published as a final version on January 1, 2002 and the site Quality Assurance Project Plan (QAPP), #910120, which referenced the 1992 version of the DEP sampling SOPs.
2. HSW personnel collected samples for volatile organics (VOCs). DEP collected split samples for VOCs.
3. Split samples were collected by alternating each organization's VOC vials.
4. The auditors presume that no other field documentation was prepared other than that exhibited to the auditors. Auditors were not present at the time of preparation of samples for shipping or transmittal of samples or documentation to the receiving laboratory.
5. Specific records on water levels, purging, field measurements and sampling are attached to this report.

Exit Interview

An exit interview was conducted between DEP staff and the HSW sampling crew. Acceptable aspects of the observed sampling event and noted deficiencies were discussed. It was indicated that other issues might be addressed in the audit report after review of the project documentation and the DEP auditor's notes. The audit reporting process was briefly explained by which HSW would have the opportunity to clarify audit points and deficiencies noted in the report and respond to any requests for corrective actions.

Summary of Deficiencies Requiring Corrective Actions

1. Calibration of field measurement instruments:
   - Only one standard was used for pH calibration with no documentation or link to a required two standard initial calibration.
   - The pH standard was also used as a calibration standard for conductivity measurements. Supporting documentation to justify this as an acceptable conductivity standard was not provided. The standard container identified the standard as a pH standard but no information on conductivity was provided on the container. Conductivity standards must be

prepared or purchased which have a certified known concentration. Records need to be kept identifying the standard by lot number/preparation date and documentation maintained linking the standard to specific testing events.

- Only a zero standard was used for turbidity calibration. At least one non-zero standard should be used in each expected sample range to ensure the instrument is responding properly.
- No records were available for temperature calibration.
- Acceptance criteria were not documented or established for field measurement calibrations. Initial calibrations must be verified no longer than 24 hours after the initial calibration according to the DEP 2002 SOPs. Calibration verifications involve running a standard as if it were a sample and comparing it to established acceptance criteria to verify the initial calibration. This process does not involve re-calibrating the instrument unless the calibration verification fails. If the verification fails, then a complete initial calibration must be performed and results generated under the failed verification qualified. See FT 1000 of the 2002 version of the DEP SOPs for further information and the individual test measurement SOPs for acceptance criteria.
- Turbidity results from the Horiba U -10 were recorded in the field records without identifying the results as estimated as a result of calibration problems and obvious anomalous values. The field records did identify which turbidimeter was used to produce the recorded results but the U-10 data was not identified as estimated. It was also noted that the turbidimeter readings from the HF Scientific turbidimeter were used to demonstrate an acceptable purge.

2. Trip blanks should remain with the project sample containers throughout the sampling event.
3. It may be necessary to either modify the flow through cell design, protect the purging equipment from exposure to the sun or take measurements in-situ to get representative samples for temperature and dissolved oxygen measurements.
4. Tubing in-take position in the water column should be documented.

Differences between the 1992 (DEP-QA-001/92) and 2002 versions of the DEP Sampling SOPs that should be noted:

1. The purging activities met the requirements of FS 2212 (2.2) of the 2002 SOPs. The amount of water purged would not have met the requirements of the 1992 DEP SOPs where a minimum of 3 well volumes must be purged.
2. HDPE tubing is allowed for sampling volatile organics with the straw method in the 2002 SOPs.

RESPONSE REQUIREMENTS

1. A response is required for each specific deficiency listed above in the summary of deficiencies requiring corrective actions and in the attached checklists.
2. The response may include clarifications, corrections, or explanations for any of the specifically noted deficiencies.

CONSEQUENCES OF NON-RESPONSE

Failure to respond with a corrective Action Plan by established due dates may result in a recommendation to reject all or selective portions of the data for use by the Department. See item #3 under “Department Actions” below.

DEPARTMENT ACTIONS

1. When the Corrective Action Plan has been received, the Environmental Assessment Section will review the proposal to determine if appropriate corrective actions have been taken. If the Plan is acceptable, the Department will issue a final audit report based on the preliminary report and the proposed corrective actions.
2. If modifications to your proposed corrective actions are required, you will be provided another opportunity to propose acceptable corrective actions before the final report is issued.

3. Where circumstances warrant, the Department may recommend to its project managers that any or all data produced from this sampling event should be qualified or rejected, based on audit findings, and regardless of corrective actions initiated by the respondent or his agent. Any such recommendation will be formally communicated to the project manager and or other users of the affected data in accordance with the DEP Quality Assurance rule, 62-160, F.A.C., and all other applicable rules in effect at the time of this audit.

Please call me at (850) 245-8075 or e-mail me at Andrew.Tintle @dep.state.fl.us if you have any questions concerning the audit report, response requirements, or appropriate corrective actions.

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Attachments (3): Copy of completed 1992 SOP Field Checklist
Copy of completed FS 2200 Groundwater Checklist from 2002 SOPs
Copy of Sampler's Field Records