To: Satish Kastury, Program Administrator
Hazardous Waste Regulation

Through: Russel Frydenborg, Administrator
Environmental Assessment Section

From: Andrew Tintle, Environmental Specialist III
Thomas Deck, Environmental Specialist II
Environmental Assessment Section

Subject: Field Audit; Cape Canaveral EOD Range; Cape Canaveral Air Force Station, 45th CES/CEV, 1224 Jupiter Street, Patrick Air Force Base, FL 32925; Sampling Consultant – SGS/CHS Environmental Health & Services

Dear Mr. Williams

The following is the preliminary report for the field audit conducted at Cape Canaveral EOD Range on August 13, 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 auditors Thomas Deck and Andrew Tintle are listed below and in the attachments.

## REPORT FORMAT

The audit summary in this correspondence and in the attached checklist, photographs 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.

## NARRATIVE

### Introductory Meeting and Orientation

DEP personnel, Mr. Thomas Deck and Mr. Andrew Tintle, arrived at the Pass and ID building the morning of August 13, 2002, at 7:20a.m. to conduct the audit and split sampling event. Mr. Eric Johnson Senior Environmental Scientist, Spec-Pro Inc., Environmental Support Contractor for Cape Canaveral Air Force Station met DEP personnel outside the Pass an ID building and escorted them back to the SGS/CHS Environmental Health & Services sampling team, Dave Dobbs (lead), John Williams, and Tom Hendricksen (observer).

Introductions were conducted outside the gates to the EOD range.

## Observations of Sampling Procedures and Documentation for Monitoring Wells

Water levels for each of the wells to be sampled, MW 3, MW 4 and MW 5, were taken before implementing purging. The depths were taken from the top of the well casing from the north side of the well using a Keck Instruments electronic water level measuring device. Purge calculations and field records recorded during the sampling event can be found attached to this report. The total depths of the well were taken annually. All of the wells were protected with locked well covers.

The first well sampled was MW-3. Instruments used for field measurements were calibrated in SGS/CHS Environmental Health & Services laboratory before going into the field. A duplicate set of field instruments were used in order to allow purging to be completed ahead of sampling crew.

## Field Test Meter Calibrations and Measurement for All Audited Wells

1. A YSI 63 meter was used for analyzing pH, Temperature, and specific conductance.
2. A YSI 58 meter was used for analyzing DO.
3. The conductivity probe was calibrated using a standard of 700 μmhos/cm.*
4. The pH probe was calibrated using standards of 7 and 10.
5. A Hach 2100P turbidimeter was employed for turbidity measurements and was calibrated with <0.1, 20, 100, and 800 NTU standard.
6. Conductivity calibration was verified using only one standard
7. There was no record of DO calibration.

*= Standards units were determined from a post audit telephone call.

## All Audited Wells

For all of the audited wells, the following was noted:

1. All of the field notes associated with the sampling of the three audited wells are attached to this report.
2. Purging and sampling activities for this project were conducted according to an existing sampling and analysis plan and the SGS/CHS Environmental Health & Services Quality Assurance Plan (CompQAP), #980157.
3. SGS/CHS Environmental Health & Services personnel collected samples for explosives, extractable organics (EOs), metals and nutrients. DEP collected split samples for EOs, metals, and nitrate/nitrite. DEP also collected samples for sulfate.

The EOs, nitrate/nitrite and metals containers were alternated between each organization's sample containers filling half of the container at a time.

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 and no presumption is made about information transmitted to the laboratory.

## Purging and Sampling Activities

Purging activities were conducted with a Masterflex peristaltic pump with silicone tubing in the pump head. Wells had dedicated HDPE tubing, pre-measured within the well screen. The pump rate was 0.5 gallons per minute and was pumped for 3-5 minutes. The purge water was collected in a stainless steel bucket and allowed to flow onto the ground. Waste in the stainless steel bucket was not containerized.

Using a constant associated with the casing diameter and multiplying by the feet of water within the well casing the volume of water within the casing was calculated. Field measurements of pH, conductivity, dissolved oxygen, turbidity and temperature were measured in order to determine purging completion. An acceptable purge was determined by three successive measurements of Temperature, pH, Specific Conductance, and a turbidity that is no greater than 20 NTUs. Purge water was not containerized, and allowed to run on the ground.

The purging equipment was also used for sampling. The pump tubing (excluding silicone that is used in the pump head) was dedicated and stored in locked well casing. The sampling tubing was pre-measured and lowered within the well screen with care and were rinsed with sample before samples were procured. Samples were taken through the pump head into the un-preserved sample container. Samples for metal were pre-preserved with Nitric Acid and pH was checked with narrow range pH paper. Samples were place on ice in a cooler immediately after collection.

Preparation of paper work and coolers for shipment to the laboratory was not observed during the course of the audit.

## Decontamination

1) Water level devices were rinsed with analyte free water between wells.
2) Sampling team replaced silicone tubing in pump before each well.
3) Used dedicated HDPE tubing in well, which is changed annually. No decontamination needed.

## Preservation

1) The contract laboratory supplied pre-preserved sample containers for metals analysis.
2) Efficacy of preservation was checked on each chemically preserved sample.

## Quality Control

1) Field sampling personnel collected duplicates for MW-3.
2) DEP personnel collected duplicate samples for EOs at MW-3.

## Documentation

Documentation observed during the audit included:

1) Site name and well ID.
2) Date and time of sampling
3) Calibration standards for pH and conductivity
4) Purging date and time, volume purged and purge equipment
5) Temperature, conductivity, DO, turbidity, and pH readings for stabilization
6) Date and time of sample and initials of sampler.
7) Sampler signature with associated date and time
8) Remarks
9) Water Level and well depth.

Documentation was legible and no instances were observed of occurrences of multiple line cross outs or where corrections were not initialed.

Specific records on water levels, purging, field measurements and sampling are attached to this report.

Sampling procedures were reviewed based on the organizations CompQAP, and Florida DEP 1992 revision SOPs. Comments and differing protocols from the revised SOPs dated January 1, 2002 have been added where deemed appropriate.

## Exit Interview

Present at the exit interview were DEP staff and SGS/CHS Environmental Health & Services Staff as listed above. Acceptable aspects of the observed sampling event and noted deficiencies were discussed. The audit reporting process was briefly explained by which SGS/CHS Environmental Health & Services 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. Criteria used for determining purge water stabilization were consecutive stable field measurements of temperature, pH, conductivity, and turbidity without any discernable acceptance criteria.

2. The field organization calibrated instrument at the base of operations. The organizations CompQA plan requires calibration on site. The 2002 version of DEP Field SOPs states that pH calibration needs to be done or checked in field before sampling begins. Field organization had no calibration standards on hand to perform this check in field.

3. The field organization had no documentation for the calibration of the dissolved oxygen probe.

4. The field organization provided no documentation of temperature checks.

5. Turbidity calibration was verified with only one turbidity standard. Per the 1992 SOPs the initial calibration must meet method specifications; 2 standards that bracket the range or a single check in each instrument range. One standard must then be checked in field. The 2002 version of DEP Field SOPs states that field measurements must be bracketed between acceptable calibrations results. In order to verify that the turbidimeter is read correctly within an expected range two standards (or secondary standards) bracketing the range of turbidity values must be read.

6. The field organization sampled extractable organic compounds through the silicone tubing in the pump head of the peristaltic pump. DEP Field SOPs state that if the tubing in the pump head is not polyethylene or PP, or is not Teflon lined, use the pump and vacuum trap method.

**RESPONSE REQUIREMENTS**

1) SGS/CHS Environmental Health & Services must respond to each specific deficiency outlined in the "suimmary of Deficiencies Requiring Corrective Actions" section of this correspondence as well as all of the "**N**" designations in the attached checklist. The response must include the specific measures to be taken in correcting the deficiency, the timetable for implementation and any other information pertinent to the evaluation of generated data.
2) The response may include clarifications, corrections, or explanations for any of the specifically noted deficiencies.

3) The corrective action plan specified in item #1 above must be received by the Department on or before (45 days from report date).

**CONSEQUENCES OF NON-RESPONSE**

Failure to respond with a corrective Action Plan by the specified date 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) 921-9733 or e-mail me at Andrew.Tintle @dep.stae.fl.us if you have any questions concerning the audit report, response requirements, or appropriate corrective actions.

Sincerely,

Andrew R. Tintle
Environmental Assessment Section

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Attachments (2): Completed audit Checklist
Field Records

Cc: Camille Stein; DEP hazardous Waste Regulation w/attachments
Thomas Deck, DEP EAS w/attachments
Russ Frydenborg, DEP EAS w/attachments