

**On-Site Evaluation Report
O'Brien And Gere Laboratories
Syracuse, NY
March 7-8, 2000**

**AFCEE EVALUATORS
Mr. Edward Brown, AFCEE/ERC
Dr. Joe Fernando, Informatics Team**

The environmental chemistry on-site evaluation of O'Brien and Gere laboratories (OBG), Syracuse, NY was prompted by problems identified during the review of analytical data for environmental programs for Camp Stanley. A significant percentage of sample data for volatile organic compounds were qualified as unusable or having matrix interference. As a result of these qualifications the data were presumed unusable for risk assessment. The focus of the evaluation was to review sample management, volatile organic compound analysis by gas chromatography/mass spectrometry (GC/MS), the process of data review, the laboratory's policy of flagging the data and the involvement of the laboratory Quality Assurance (QA) officer in the data review. Parsons ES, the prime contractor for the Camp Stanley program conducted an on-site evaluation of OBG in June 1999 and indicated to AFCEE that OBG has successfully carried out corrective actions addressing the deficiencies identified during Parson's audit.

During the on-site evaluation, Ms. Jo Jean Mullen, AFCEE Team Chief for Camp Stanley, Mr. Brian Murphy, CSP, Environmental Officer and Dr. John Kearns, QA Officer for Dames and Moore were present as observers.

I. COMPARABILITY OF DATA

A. Traceability

A review was not required.

B. Performance Evaluation Programs

A review was not required.

II. SAMPLE MANAGEMENT

Samples are received and checked against the information on chain of custody forms for anomalies. Temperatures of the coolers are checked and documented. The project manager reviews all chain of custody forms after samples are processed and contacts the prime contractor for resolution of any problem. Samples with short holding times are treated as rush samples and section supervisors are notified immediately. Sample information is logged in to the laboratory information management system (LIMS). The following exceptions were noted:

1. Sample coolers were not opened under a ventilated hood. Opening sample coolers under a ventilated hood is required to prevent accidental or adverse exposure of workers to hazardous materials. This practice should be implemented as a standard operating procedure. This is a repeat finding from the initial laboratory audit conducted in June 1999 by Parsons ES.
2. AFCEE requires that the condition of incoming samples be checked and documented for anomalies. Water sample vials for volatile organic analysis were not inspected for the presence of head space or air bubbles during sample processing.
3. AFCEE requires that all federal, state and local safety and health regulations be followed. The auditors observed a section staff member handle samples without wearing gloves or safety glasses.
4. AFCEE requires that all temperature-measuring devices be calibrated regularly. The IR-temperature gun used in the sample receiving section is currently calibrated once a year. Although OBG meets the basic requirement, the newness of the IR-gun in the industry warrants additional checks to assure proper functioning of the device. AFCEE recommends that the IR-gun be checked daily against the refrigerator temperature blank to see if the two temperatures match, and document the daily checks in a logbook.
5. AFCEE requires that all sample containers be assigned unique laboratory identification numbers. Unique numbers provide an unambiguous links of data and related documentation to individual sample containers that allows an external reviewer to recreate the events in the life of samples. OBG's current practice does not allow a reviewer to recreate such events.
6. AFCEE requires that sample acceptance criteria be used during sample processing. There was no evidence of use of acceptance criteria during sample processing. The use of a sample processing check-list would provide documentation that all necessary checks have been performed and all acceptance criteria were met. The completed check-list should become part of the finished data package.

III. QUALITY CONTROL

A. Method Detection Limit Studies

A review was not required.

B. Data Package Review

1. Four levels of data review, at the analyst, supervisor, QA officer and project manager levels were identified and the process is in conformance with AFCEE requirements. However, there is no documented evidence to indicate what parameters were reviewed at each stage and what corrective actions to data packages were performed. AFCEE recommends the

introduction of a checklist for data review and to document all actions at each stage of the review. The completed list should become part of the data package to be submitted to the prime contractor.

2. The data review process failed to identify and correct inaccurate flagging of volatile organic compounds for soil samples at the QA officer and project manager levels. The analyst and the supervisor erroneously flagged the data for rejection and for matrix interference. The data review process at the management levels should be more rigorous and should take into consideration the analytical method, AFCEE, and project requirements.
3. The standard operating procedure (SOP) for data review requires that the QA officer generate a case narrative for data packages. This procedure has been changed by OBG and the current responsibility for a case narrative rests with the analyst. The SOP should be updated to reflect the change.

IV. VOLATILE ORGANICS

A. SW 8015 (Modified)

A review was not required.

B. SW 8020A

A review was not required.

C. SW 8260B

1. When the auto-tune program failed, manual integration was performed on one occasion to bring the tune within acceptance criteria. This practice is not acceptable to AFCEE. AFCEE requires that when a tune fails, the analyst must retune the instrument and verify its acceptance using the automatic program.
2. Low EICP area counts for internal standards in AFCEE samples were erroneously attributed to matrix effects. Degradation of internal standards area counts should be investigated and corrective actions performed prior to assigning qualifying flags to sample results. In the particular AFCEE sample batch, the matrix spike (MS) and the matrix spike duplicate (MSD) recoveries were within acceptance criteria. The AFCEE data for the affected batch should now be reviewed using recoveries of laboratory control sample (LCS), surrogates and MS/MSD and any erroneous flags should be removed. A preliminary review of the data during the on-site evaluation indicated that many of the flags for the AFCEE samples in question will be unnecessary.

3. SW 8260B method cautions the analyst to be aware of progressive degradation of internal standard EICP area counts. Although the method does not specify acceptance criteria for the standard counts in samples, AFCEE recommends that OBG introduce limits for sample internal standard area counts that would require a corrective action by the analyst.
4. A review of the LCS control chart for SW 8260B revealed that recoveries of several analytes were below acceptance limits on November 12, 1999. OBG needs to conduct an investigation into the corrective actions performed to bring the analysis into statistical control. Sample results for the affected analytes should have been rejected and the affected samples reanalyzed after corrective actions were performed.
5. OBG should continue to use the project approved acceptance limits for all target analytes. Acceptance limits should not be widened based on out-of-control events observed on November 12, 1999 or any other out of control events.

V. SEMI-VOLATILE ORGANICS

A. Semi-Volatile Organic Preparation

A review was not required.

B. SW 8081A/8082 Pesticides and PCBs

A review was not required.

C. SW 8270C Semi-volatile organics

A review was not required.

VI. INORGANIC METALS, WET CHEMISTRY AND MISCELLANEOUS ANALYSES

A review of above sections was not required.

VII. LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

1. The LIMS system is programmed to automatically assign qualifying flags to AFCEE data. Because of time constraints during the on-site evaluation, the accuracy of LIMS flagging could not be reviewed. OBG should provide a copy of LIMS-generated table of flagging criteria for AFCEE review.

2. Currently the LIMS system is not programmed to alert a reviewer if data has been altered after initial input. OBG needs to assure AFCEE that the LIMS has a mechanism to identify any altered data. If alteration is genuine, it should also have a mechanism to show that the QA officer and the program manager authorized the alteration. Any alteration should be explained in the case narrative.

VII. CORRECTIVE ACTIONS

The standard operating procedure (SOP) for corrective actions was made available to AFCEE auditors at the end of the audit. The analysts were not aware of the SOP. AFCEE recommends that the SOP be made available to all technical sections and implemented.

IX. AFCEE PROGRAM REQUIREMENTS

A. Quality assurance

The QA officer should implement generation of control charts for all sections. Charts should be updated periodically, preferably quarterly, reviewed for acceptance and displayed in respective analytical sections.

B. Project Management

No exceptions noted.

X. EVALUATION CONCLUSIONS AND RECOMMENDATIONS

Based upon the on-site evaluation, OBG has the required instrumentation, equipment and technically trained personnel in the laboratory to perform the required methods of analyses for AFCEE program. AFCEE/ERC recommends:

1. OBG review and resubmit the affected AFCEE data to Parsons ES with explanations of all alterations to previous submission.
2. OBG continue to receive samples for AFCEE projects.
3. OBG should provide corrective actions to this on-site evaluation report no later than 3 May 2000.