

1903

G-000-101.41

**IDENTIFICATION OF ADDITIONAL  
LABORATORIES TO BE UTILIZED AT THE FMPC**

07/26/91

~~DOE-898-91~~ 1898-91

DOE-FOS/USEPA

~~2~~ 99

~~LETTER~~ TRANSMITTAL



1903

**Department of Energy**

Fernald Site Office  
P.O. Box 398705  
Cincinnati, Ohio 45239-8705  
(513) 738-6319

JUL 26 1991

DOE-1898-91

Ms. Catherine A. McCord  
Remedial Project Director  
U. S. Environmental Protection Agency  
Region V - 5HR-12  
230 South Dearborn Street  
Chicago, IL 60604

Dear Ms. McCord:

**IDENTIFICATION OF ADDITIONAL LABORATORIES TO BE UTILIZED AT THE FMPC**

Reference: Letter, C. A. McCord to J. R. Craig, "Removal #2 Pit Storm Water Work Plan Mod Submittal U. S. DOE Fernald OH6 890 008 976," dated April 15, 1991

The Remedial Investigation/Feasibility Study's (RI/FS) demand for laboratory services requires additions to the FMPC list of acceptable laboratories. To facilitate this increased demand for laboratory services, an aggressive program to identify additional qualified laboratories has been initiated.

As a result of this process, two (2) laboratories have been identified which are, or have recently been, participants in U. S. EPA's Contract Laboratory Program (CLP). These two laboratories will provide mixed waste and radionuclide analyses.

These two (2) laboratories have met the first two critical criteria of this new initiative. First, they have sufficient capacity to reduce data turn-around times, and second, they can generate data that meet the strict quality standards necessary to support the FMPC RI/FS.

These two laboratories are:

1. EcoTek Laboratory Services Incorporated;
  - A. EcoTek has participated in the CLP for organic analysis.
  - B. EcoTek is under contract to the Remedial Design contractor to provide analytical services for remedial design activities and treatability studies.

- C. Performance Evaluation Sample Results and independent audits conducted (see enclosures) determined that EcoTek is capable of providing Data Quality Level IV data for organic analysis and Data Quality Level II data for inorganic analysis.
2. DataChem Laboratories;
    - A. DataChem is a participant in the CLP for inorganic analyses.
    - B. Apparently, DataChem has recently been awarded a contract to participate in the CLP for organic analyses.
    - C. Performance Evaluation Sample Results and independent audits conducted (see enclosures) determined that EcoTek is capable of providing Data Quality Level IV data for both organic and inorganic analysis.
    - D. Preliminary contract negotiations with DataChem have begun.

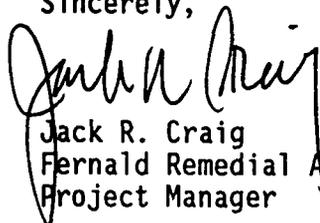
Based on this information, the following actions are requested:

1. U. S. EPA concurrence on the use of these two (2) Laboratories, under the conditions identified above, for the analysis of samples collected and analyzed to support current and future RI/FS activities including removal actions.
2. An EPA Region V audit of each of these two laboratories and their subsequent addition to the "Approved Laboratories List" being developed in the site-wide Quality Assurance Project Plan (QAPjP).

The laboratory qualification packages enclosed should meet the requirements identified in your correspondence of April 15, 1991 (Reference 1). To insure that data generated by these laboratories meets the criteria of the RI/FS QAPjP, the RI/FS contractor will conduct an audit prior to these laboratories receiving any FMPC samples.

A timely response is requested. If you have any questions concerning this transmittal, please contact Oba Vincent at (513) 738-6937 or FTS 774-6937.

Sincerely,

  
Jack R. Craig  
Fernald Remedial Action  
Project Manager

FSO:Vincent

Enclosures: As stated

cc w/encl.:

K. A. Hayes, EM-424, GTN  
G. E. Mitchell, OEPA-Dayton  
J. A. Saric, USEPA-V, 5HR-12  
J. Neyer, WEMCO  
R. Skalka, WEMCO  
B. Varchol, WEMCO  
J. Johnston, Datachem  
Charles Miller, EcoTek  
AR Files

cc w/o encl.:

J. J. Fiore, EM-42, GTN  
L. August, GeoTrans  
K. Davidson, OEPA-Columbus  
C. R. Holmes, USEPA-HQ  
W. E. Muno, USEPA-V, 5HR-13  
D. A. Ullrich, USEPA-V, 5H-12  
D. R. Schregardus, OEPA-Columbus  
M. Butler, USEPA-V, 5CS-TUB-3  
J. Benetti, USEPA-V, 5AR-26  
E. Schuessler, PRC  
R. L. Glenn, Parsons  
W. H. Britton, WEMCO  
H. F. Daugherty, WEMCO  
S. W. Coyle, WEMCO  
J. D. Wood, ASI

July 11, 1991

Mr. Oba Vincent  
Department of Energy  
Feed Materials Production Center  
7400 Willey Road  
Fernald, Ohio 45030

Dear Mr. Vincent:

EcoTek Laboratory Services, Inc. is pleased to submit the enclosed information which you requested today. The following documentation is provided:

1. U.S. Environmental Protection Agency CLP Performance Evaluation Sample Results.
2. USEPA Region IV Audit Report, June 7, 1991.
3. Audit reports from Westinghouse Savannah River Company, MK-Ferguson Company and Westinghouse Materials Company of Ohio.
4. Radioactive Materials License.

Please let me know if any additional information is required. We look forward to providing quality analytical laboratory services to the DOE at Fernald and other sites as the need arises.

Thank you for your interest in EcoTek LSI.

Sincerely,

**ECOTEK LABORATORY SERVICES, INC.**

*Charles J. Miller*

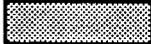
Charles J. Miller  
Sales Manager

CJM/cbk  
Enclosures

CLP Performance Evaluation Samples

1903

Quarter	Score
89-1	89.3
89-2	73.8
89-3	76.5
89-4	80.3
90-1	89.3
90-2	60.3
90-3	93.0
90-4	80.8
91-1	91.7
Average	81.7

 = Failed

Successfully passed  
reanalysis samples

CONTRACT  
EVIDENCE  
AUDIT  
TEAM

Rec'd 6-17-91  
1903

June 7, 1991

Mr. Thomas Bennett Jr.  
Technical Project Officer  
USEPA Region IV  
College Station Road, ASB  
Athens, GA 30613

RE: Transmittal of CEAT Laboratory Evidence Audit Report for EcoTek Laboratory Services, Inc.

Dear Mr. Bennett:

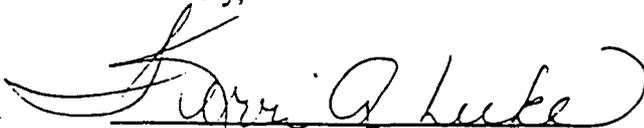
Enclosed is the Contract Evidence Audit Team (CEAT-TechLaw) laboratory evidence audit report for the organics audit conducted at EcoTek Laboratory Services, Inc. on May 15, 1991.

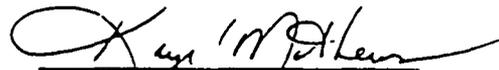
Procedures and documentation related to sample receiving, sample storage, sample identification, sample security, sample tracking, and case file organization and assembly were reviewed for conformance to Evidence Audit Requirements. Nonconformances to Evidence Audit Requirements are identified in the Findings section of the attached report. Procedures for developing written response to the findings are discussed in the Recommendations for Corrective Action section of the report.

If you have any questions, please contact Kaye Mathews, the NEIC Quality Assurance Manager, at (303) 236-5147, FTS 776-5147.

Sincerely,

Concurrence:

  
Kerri G. Luka  
Contract Evidence Audit Team

  
Kaye I. Mathews  
National Enforcement  
Investigations Center

KGL:mb

Enclosure

cc: Howard Fribush, USEPA Headquarters, APO  
Mike Buchanan, EcoTek Laboratory Services, Inc.

IF: D232-001

LABORATORY EVIDENCE  
AUDIT REPORT

ECOTEK LABORATORY SERVICES, INC.

EPA Identifier: WANTEC

Audit Date: May 15, 1991

ECOTEK LABORATORY SERVICES, INC.

3342 International Park Drive S.E.

Atlanta, GA 30361

(404) 244-0827

- Steve Schutt - Chief Operating Officer<sup>1</sup>
- Mike Buchanan - Chemical Laboratory Manager<sup>1,2,3</sup>
- Donald L. Dihel - Quality Assurance Manager<sup>1,2,3</sup>
- Tara L. Pipes - Quality Control Supervisor<sup>2</sup>
- Scott Selman - Acting OSP Supervisor<sup>2</sup>
- Phillip Mitchell - Chromatography Supervisor<sup>2</sup>
- Richard Brown - GC/MS Supervisor<sup>2,3</sup>
- Lee Smith - Production Supervisor<sup>2,3</sup>
- Brahm Prakash - Volatiles Technical Support<sup>2</sup>
- Mark Broxton - Sample Custodian<sup>2</sup>

USEPA Region IV - Athens, Georgia  
(404) 546-3112

Thomas Bennett, Jr. - Technical Project Officer

NEIC/CEAT (TechLaw, Inc.) - Lakewood, Colorado  
(303) 233-1248

Elizabeth Houston - Associate Consultant

---

<sup>1</sup> Present at pre-audit briefing  
<sup>2</sup> Contacted during audit  
<sup>3</sup> Present at post-audit debriefing

## I. INTRODUCTION

An audit of laboratory operations pertaining to laboratory security, sample chain-of-custody, and document control procedures for EPA organics contract 68-D9-0034 (IFB W802036D1), was conducted at EcoTek Laboratory Services, Inc. (EcoTek) in Atlanta, Georgia on May 15, 1991. This was the fourth routine audit of EcoTek conducted by NEIC's Contract Evidence Audit Team (CEAT-TechLaw) in support of the Contract Laboratory Program (CLP). The audit procedures, results of the audit, and recommendations for corrective action are identified in the following sections of this evidence audit report.

## II. EVIDENCE AUDIT PROCEDURES

Procedures and documentation related to sample receiving, sample identification, sample storage, sample security, sample tracking, and case file organization and assembly were reviewed for conformance to Evidence Audit Requirements. The audit consisted of two components, including a procedural audit and an evidence audit of the sample delivery group (SDG)/case file. The procedural audit consisted of review and examination of actual and written standard operating procedures (SOPs) and accompanying documentation. The evidence audit of the SDG/case file consisted of review and examination of SDG/case file documentation.

## III. FINDINGS

The following findings were discussed by the CEAT auditor during the debriefing with laboratory personnel at the conclusion of the audit on May 15, 1991. These findings reflect nonconformances to Evidence Audit Requirements. The first five findings are repeated from the previous audit which was conducted on May 8, 1990.

1. The following EPA case-related documents were not included in the case files:
  - Untitled tracking record,
  - Chain-of-Custody for Sample Preparation Worksheets,
  - LSDG Sample Tracking Sheets,
  - Sample Status Report,
  - GCC Worksheet Logbook,
  - LSDG Index, and
  - Instrument Worksheet.
2. Laboratory personnel did not identify the activities recorded on all laboratory documents:
  - Titles were not printed on the untitled tracking record or the OSP Daily Logbook; and
  - The type of information recorded in columns was not correctly identified in column headings on the untitled tracking record and the Chain-of-Custody for Sample Preparation Worksheets.

3. The name of the laboratory was not printed on the following documents:
  - Untitled tracking record,
  - Chain-of-Custody for Sample Preparation Worksheets,
  - LSDG Sample Tracking Sheets,
  - Sample Status Report,
  - GCC Worksheet Logbook,
  - LSDG Index, and
  - Instrument Worksheet.
4. The written SOPs for sample tracking and document control did not include examples of the following documents:
  - Untitled tracking record,
  - Chain-of-Custody for Sample Preparation Worksheets,
  - LSDG Sample Tracking Sheets,
  - Sample Status Report,
  - GCC Worksheet Logbook,
  - LSDG Index, and
  - Instrument Worksheet.
5. The written SOPs for case file organization and assembly did not include the following items:
  - A description of the current numbering and inventory method;
  - A description of the method used by the document control officer or by his representative to verify the consistency and completeness of case files;
  - A description of the method used to ship deliverable packages using custody seals; and
  - A description of the method used to ensure that the laboratory purges EPA case files within 180-240 days after the analyses are completed.
6. The following documents were not dated with the month/day/year or signed by the person responsible for performing the recorded activities at the time the activities were recorded:
  - Untitled tracking record,
  - LSDG Sample Tracking Sheet,
  - Sample Status Report,

- GCC Worksheet Logbook,
  - LSDG Index, and
  - Instrument Worksheet.
7. Pages in the GCC Worksheet Logbook were not sequentially numbered.
  8. The sample custodian did not record and cross-reference sample tag identification numbers to the EPA traffic report numbers on a laboratory document, if not already recorded on the EPA chain-of-custody record.

#### IV. RECOMMENDATIONS FOR CORRECTIVE ACTION

EcoTek personnel should submit the following items as written response to the CEAT's findings in order to satisfy Evidence Audit Requirements:

- A record of communication with the appropriate laboratory personnel in which the procedures described in findings 1, 6, 7, and 8 were discussed, as well as documentation of observations made by the laboratory Quality Assurance Manager or his representative indicating that the correct procedures have been implemented at the laboratory;
- Copies of the documents which have been revised to include document titles, correctly identify column headings, and include the name of the laboratory (findings 2 and 3); and
- Copies of the revised SOPs for sample tracking and document control and for case file organization and assembly (findings 4 and 5).

The response should be transmitted to Thomas Bennett, Jr., the EPA Region IV Technical Project Officer, within 30 days after receipt of this report and a copy should be transmitted concurrently to the CEAT. Upon receipt of the corrective action response, the CEAT staff will review the response. Following approval by the NEIC, a report of the corrective action results will be sent to Thomas Bennett, Jr., Howard Fribush, and EcoTek.

Periodic audits will be conducted to review continued conformance to Evidence Audit Requirements.

**Westinghouse Savannah River Company  
INTER-OFFICE MEMORANDUM**

JUNE 24, 1991

To: C. D. Rogers, 735-16A

From: M. Khalil, 735-11A  
B. S. Crandall, 735-A

Environmental Monitoring Section  
Operation Survey of Offsite Analytical Laboratories

As requested, a survey of EcoTeK Laboratories Services, Inc. (EcoTek LSI), located in Atlanta, Ga, was conducted. The purpose of the survey was to verify that the analytical laboratory could support the pending EMS Radiological analytical subcontract and produce quality results.

A full day was spent at the facility for this purpose. Initial and closing meetings were held with management from the laboratory. The majority of the survey day was spent reviewing personnel qualifications, sample handling procedures, instrumentation, chemistry procedures, and data validation protocols. Heavy emphasis was placed on QA/QC activities and included reviewing the lab's master QA/QC manual. Other QA areas which were reviewed included the calibration records, corrective action procedures, control charts, and documentation of QA/QC audits. The survey was conducted following the plan listed on Attachment I. A listing of observations for EcoTeK LSI is also included on Attachments II.

In summary EcoTeK LSI appeared qualified to handle EMS's analytical Radiological needs as specified in the RFP.

Comments can be addressed to M. Khalil at 5-1997

CC: J. D. Heffner, 735-A  
M. Spletzer, Brookhaven

**Attachment I****Review Plan for Analytical Laboratories  
Providing Service to WSRC****Facility Review****Personnel**

Training records  
Qualifications  
Job descriptions

**Sample handling**

Receiving  
Checks upon receipt  
Storage criteria  
Tracking system  
QA/QC of samples

**Instrumentation**

Calibration records - Standards used  
Control checks  
Audits: performance and accuracy  
Operation of instruments  
Written procedures  
Instrument maintenance records  
Preventive maintenance  
Corrective action

**Chemistry**

Procedures (EPA approved)  
Calibration of glassware  
Storage of glassware  
Grade of chemicals used  
Shelf life  
Recoveries and other QA/QC activities  
Training of personnel

**Attachment I****Review Plan for Analytical Laboratories  
Providing Service to WSRC  
(Continued)****Data validation and reporting**

Criteria for validation  
Procedures for validation  
Frequency of checks  
Who performs this task  
Documentation of numbers of data accepted and rejected

**QA/QC Review**

QA/QC manual  
QA/QC coordinator  
Calibration records  
Corrective action plans  
Preventive maintenance program for instruments  
Control checks for accuracy and precision of analyses  
Updating of procedures  
Internal and external documentation of QA/QC audits  
QA/QC reports

**Attachment II****Results of Laboratory Survey**

**EcoTeK Laboratory Services, Inc.**  
**Date visited: June 21, 1991**

**Atlanta, GA**

**Personnel - Adequate to Superior.** EcoTeK LSI personnel are well qualified. The management is clearly aggressive, while not compromising on technical or safety issues. The qualifications of the management are clearly presented in the design and organization of the laboratory facility which was specifically designed for the preparation and analysis of radiological samples. These features include lab wide NaHO scrubber system for all chemistry hoods, HEPA filtration, and negatively pressured labs. The Manager and Supervisor of Radiological Services are well qualified and experienced.

**Sample Handling - Adequate to Superior.** EcoTek has developed an in-house method for chain of custody and sample tracking. While the system is in the form of paper, it presents EcoTek with the ability of identifying the progress of any sample through the numerous labs. EcoTek has strong procedures in place to guide sample check-in and storage in their more than adequate refrigerated sample storage space.

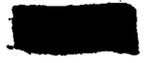
**Instrumentation - Superior.** The radiological Laboratory is well equipped with state-of-the-art instrumentation and has excellent professional support. All control charts were current and very well organized, offering easily audited records. Notable features of the laboratory included QA/QC software for instrumentation performance review, common acquisition units for the alpha and gamma spectroscopy platforms. There was some concern that the current staff might have to be increased in the Count Room to handle a significant increase in samples.

**Chemistry - Adequate.** The laboratories were well designed for optimum productivity. This section offers two complete sample preparation labs which were design to segregate radiological samples of varying activities. It was noted that the laboratory procedure manual is currently being revised and has not been issued in final form.

**Data Validation and Reporting - Adequate.** The audit revealed that all radiochemical results must pass through four levels of review before reporting. This chain of review (analyst, Count Room Supervisor, QA/QC Coordinator and Manager of Radiological Services) incorporates the QC group, which stands as a definite strong point in EcoTek's validation process. Currently, EcoTek does little trending analysis. This can be attributed to the nature of the samples received and a limited database system. Ecotek's ability for trending and reporting results will be enhanced (but limited) as reporting is incorporated into a PC based (not VAX) LIMS system.

**QA/QC Review - Superior.** The lab has a full-time QA/QC staff that consists of a supervisor and a staff of three people. The QA/QC manager is a versatile experienced chemist. There were many notable practices ongoing in each section to ensure quality. These practices included supervisory review of work logs and the recording and checking of sample position in GC and GCMS.

1903



ENGINEERS  
AND  
CONSTRUCTORS



**MK-FERGUSON COMPANY**  
A MORRISON KNUDSEN COMPANY

WELDON SPRING REMEDIAL ACTION PROJECT  
7295 HIGHWAY 94 SOUTH  
ST. CHARLES, MISSOURI 63303  
PHONE: (314) 441-8086

April 16, 1991

EcoTek  
ATTN: Donald Dihel  
3342 International Drive S. E.  
Atlanta, GA 30316

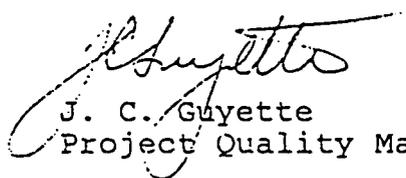
SUBJECT: ISSUANCE OF AUDIT REPORT FOR AUDIT #3589-051

Dear Mr. Dihel,

Attached is Audit Report #3589-051 summarizing our visit to your laboratory on April 2, 1991. As noted during the post-audit conference, there were three items requiring action by your laboratory to conform to the Technical Specification #SP-S-02-01470 and three observations made by our audit team that we feel should be mentioned for your consideration. No response is required to these observations.

Thank you very much for your time and cooperation. If you have any questions please contact Mr. Gregory Joyce of my staff.

Sincerely

  
J. C. Guyette  
Project Quality Manager

JCG/gdj/tls

Attachment



## AUDIT REPORT

Audit No.: 3589-051

Audit Location: EcoTek LSI  
3342 International Drive S.E.  
Atlanta, GA 30316

Audit Scope: Verification of EcoTek LSI's compliance with laboratory internal QA program requirements including SOPs, sample handling, laboratory QC, audits and data handling.

Audit Personnel: Gregory D. Joyce - Lead Auditor  
John R. Thompson - Technical Representative

Personnel Contacted: Donald Dihel + \*  
Tara Pipe + \*  
Steve Schutt + \*  
Charles Miller + \*  
Todd L. Hart + \*  
John Buchanan + \*

+ Pre-audit Conference  
\* Post-audit Conference

## AUDITED PROCEDURES/SPECIFICATIONS

WSSRAP Technical Specification #SP-S-02-01470

## AUDIT SUMMARY

EcoTEK LSI in Atlanta, Georgia, was audited April 2 and 3, 1991, to confirm their ability to conform to WSSRAP Technical Specification #SP-S-02-01470, as required for all laboratories on contract with the WSSRAP. The audit team identified three items requiring action by EcoTek LSI to meet the Technical Specification. There were also three observations which the audit team brought to the attention of EcoTek LSI for their consideration. The items and observations are listed below:

## ITEMS:

- Item 1. Vendor shall supply Contractor with a site specific QAPjP as stated in Section 3.01A, Specification for Analytical Support: SP-S-02-01470.
- Item 2. Vendor shall supply SOPs for review by Contractor to verify compliance with site specific QAPjP.

Item 3. Vendor shall demonstrate the ability to meet Contractor's requirements for electronic reporting format as stated in Section 4.01A, Specification for Analytical Support: SP-S-02-01470.

**OBSERVATIONS:**

Observation 1: Refrigerator used to hold VOAs should contain distilled water blanks as a check for contamination.

Observation 2: Balance calibration procedures should be standardized for all personnel using balances.

Observation 3: Volatile preparation area needs a fume hood to eliminate possible contamination of volatile organic lab area.

In closing, the audit team would like to recognize EcoTek's "state of the art" laboratory facilities and their foresight in laboratory environment control systems. EcoTek also has an excellent NQA-1 style Quality Assurance Program controlling the laboratory's activities. The audit team wishes to thank EcoTek for their cooperation with the audit.

G. D. Joyce  
Quality Assurance Engineer

GDJ/tls



From: D. W. Hoover WMCO:SQE:91-012

Date: January 7, 1991

Subject: PRE-AWARD SURVEYS CONDUCTED AT NSSI/RECOVERY SERVICES (HOUSTON, TX) AND ECOTEK LABORATORY SERVICES (ATLANTA, GA) - WMCO RFP JD-15520

To : J. L. Davis  
D. L. Herman

Two pre-award surveys were conducted in connection with WMCO RFP JD-15520 for treatment of radioactively contaminated barium chloride salts (mixed waste) currently on inventory at RMI and WMCO. The contract provides for analytical characterization and disposal of the treated wastes at the Nevada Test Site (NTS) as low level wastes (LLW). Pre-award surveys were conducted at the treatment facility in Houston, TX and the laboratory to be used to analytically characterize the treated wastes to evaluate technical capabilities to assure compliance with WMCO's contract requirements.

Based on technical evaluations conducted by the WMCO pre-award survey teams, the facilities identified for use in treating the RMI barium chloride salts and characterizing the treated wastes are technically capable of completing the work as specified in the proposed contract. Specific observations and comments are documented in the attached reports.

*D. W. Hoover*  
D. W. Hoover

dh

ATTACHMENTS: 1 - NRSI Pre-Award Survey Report  
2 - EcoTek LSI Pre-Award Survey Report

c: L. C. Bogar (Att. 2 )	A. M. Schwartzman (Att. 1&2)
H. A. Clawson (Att. 1&2)	M. S. Strickland (Att. 1&2)
J. E. Clements (Att. 1 )	Pre-Award Survey Files (Att. 1&2)
J. E. Curry (Att. 1&2)	Central Files (Att. 1&2)
T. M. Dall (Att. 2 )	
J. L. Davis (Att. 1&2)	J. Powell (DOE/FMPC) (Att. 1&2)
S. R. Eleton (Att. 1 )	
J. A. Grumski (Att. 1&2)	W. D. Black (EcoTek, (Att. 1&2)
D. L. Herman (Att. 1&2)	Erwin, TN)
R. H. Hilbert (Att. 2 )	D. L. Dibel (EcoTek, (Att. 2 )
D. W. Hoover (Att. 1&2)	Atlanta, GA)
H. W. Humphrey (Att. 2 )	R. D. Gallagher (NRSI, (Att. 1 )
W. E. Kortier (Att. 1&2)	Houston, TX)

## ATTACHMENT 2

Westinghouse Materials Company of Ohio (WMO)  
Pre-Award Survey - EcoTek Laboratory Services, Inc. (Atlanta, GA)  
WMO Request For Proposal JD-15520

December 5-7, 1990

December 18, 1990  
Report Issue Date

## 1. SURVEY SUMMARY

EcoTek LSI have developed the basic program requirements and implemented the required procedures and administrative controls necessary to provide WMO with analytical laboratory services for radiological, organic and inorganic constituents. EcoTek's organization is structured in a manner that provides independent QA overview of the laboratory operations to ensure that QA/QC activities are implemented and accomplished. The pre-award survey team recommends that WMO procurement include EcoTek LSI (Atlanta, GA) as a recommended supplier of analytical services.

## 2. BACKGROUND

WMO submitted Request For Proposal (RFP) JD-15520 in July, 1990 soliciting a firm fixed price proposal for treatment of 825 drums of radioactively contaminated barium chloride salts (Mixed Waste) to allow for the disposal of these wastes as Low Level Wastes (LLW), with an option for processing 400-500 additional drums. EcoTek Laboratory Services, Inc. in Atlanta, GA was one of the laboratories identified for use in characterizing waste for disposal at the Nevada Test Site (NTS).

## 3. PURPOSE OF SURVEY

The survey was conducted at EcoTek LSI facilities in Atlanta, GA during the period December 5-7, 1990 to evaluate the adequacy, effectiveness and implementation status of EcoTek's Quality Assurance Program, procedures, and managerial systems compared to the requirements outlined in WMO RFP JD-15520.

## 4. SURVEY SCOPE

The scope included a review and evaluation of Eco-Tek's Quality Assurance Plan, management controls, program implementation procedures, and analytical methods/procedures used to analyze samples.

Applicable requirements documents identified for use during the survey included:

### 4.1 WMO RFP JD-15520

.....Scope of Work For Characterizing Samples For RCRA  
Hazardous/Mixed Waste Constituents

## 4. SURVEY SCOPE

## 4.1 WMCO RFP JD-15520 - Cont'd

.....DOE Order 5400.xy, Chapter 10, Quality Assurance Program Requirements

.....Statement of Work (SOW) For Inorganics Analysis, U.S.EPA CLP

.....Statement of Work (SOW) For Organics Analysis, U.S.EPA CLP

## 4.2 Nevada Test Site Document, NVO-325, (Waste Stream Characterization For NTS)

## 5. CONDUCT OF SURVEY

## 5.1 Survey team members include:

Don Hoover - Senior Quality Engineer (Lead Auditor)  
 Harold Humphrey - Research Technologist (Technical Advisor)  
 Tim Dall - Senior Quality Engineer/Chemist (Technical Advisor)

5.2 The survey announcement letter (WMCO:PM&A(CS):90-702) was transmitted to EcoTek LSI on December 3, 1990.

5.3 A pre-survey meeting was conducted by the WMCO Survey Team at EcoTek's facility in Atlanta, GA with applicable EcoTek Management personnel in attendance. EcoTek personnel conducted a tour of the laboratory facility immediately following the meeting.

5.4 Interviews were conducted, program plans and procedure documents were presented and reviewed, record files were visited and laboratory operations were observed during conduct of the survey. Discussions interviews were conducted with a total of fourteen EcoTek management, technical, and analytical personnel during the survey period, as shown:

<u>PERSONNEL CONTACTED</u>	<u>ECOTEK JOB TITLE</u>	<u>PRE-SURVEY</u>	<u>DURING SURVEY</u>	<u>POST-SURVEY</u>
Steven Schutt	Executive VP/COO	X	X	X
Donald Dihel	QA Manager	X	X	X
Dr. Todd Hardt	Radiological Lab Mgr.	X	X	X
Mike Buchanan	Chemical Lab Mgr.	X	X	X
Dr. Norman Jacob	Applied Tech. Mgr (Erwin)	X	X	
John Kramer	WMCO/E-T LSI Project Mgr.	X		
Sushama Paranjape	Assist. QA/QC Mgr.			X
Craig Johnson	Project Support Serv. Mgr.			X
Timothy Welch	Sample Preparation Supv.		X	X
Tara Pipes	Chromatography Group Supv.		X	X

## 5. CONDUCT OF SURVEY

## 5.4 Cont'd

<u>PERSONNEL CONTACTED</u>	<u>ECOTEK JOB TITLE</u>	<u>PRE-SURVEY</u>	<u>DURING SURVEY</u>	<u>POST-SURVEY</u>
Brahm Prakash	Volatiles GC/MS Supv.		X	X
Richard Brown	Semivolatiles GC/MS Supv.		X	X
Keith Doran	Nuclear Spectroscopy Supv.		X	X
Judy Blair	Inorganic Section Supv.		X	X
R. S. Mull	Radiochemistry Section Supv.		X	X
John Puckett	Health and Safety Officer		X	
James Broxton	Sample Manager		X	

## 6. SURVEY OBSERVATIONS

- 6.1 Analytical throughput capabilities were evaluated and compared to current operating work loads on a weekly basis.

TCLP Extraction	90/40	VOAs	90/20
BNA (Semi-Volatiles)	90/10	ICP Metals	1250/250
Pest's/Herb's	90/10	AA Metals	400/250

EcoTek's Radiological Section is completely new; the first radiological samples were scheduled for receipt on 12/07/90. Equipment is in place to provide the analyses required by NTS for LLW burial. Throughput capabilities depend on types of materials and detection levels required.

- 6.2 EcoTek is currently upgrading laboratory procedures to reflect laboratory specific operations with references to the appropriate EPA methods. Full implementation of all QA and operating procedures is scheduled for January 1, 1991.
- 6.3 Training records contain method type qualification and training documentation. Procedure GL-1200-B for Implementation and Documentation of Training was Issued effective 9/1/90. Training is currently being scheduled for the newly formatted laboratory specific procedures/methods in accordance with procedure GL-1200-B.
- 6.4 Certifications currently awarded are identified by state, type of analyses and certification expiration dates, as shown, based on audit activity.

Florida	- Waste Water	- 06/30/91
Florida	- Drinking Water	- 06/30/91
North Carolina	- Waste Water	- 12/31/92

## 6. SURVEY OBSERVATIONS

## 6.4 Cont'd

State certifications currently awarded are identified by state, type of analyses and certification issue or expiration dates, as shown, based on reciprocal agreements with states identified.

South Carolina	- Waste Water	- Issued	07/26/90	- NC
South Carolina	- Drinking Water	- Issued	07/26/90	- NC
Tennessee	- Drinking Water	- Expires	10/23/93	- FL
Virginia	- Drinking Water	- Issued	10/03/90	- FL

- 6.5 Resumes are currently maintained for Managers, Supervisors and Key Personnel. Resumes for twenty of the thirty-nine laboratory operating personnel shown on the organization chart are included in EcoTek's "Statement of Qualifications & Experience" pamphlet provided during the survey. Expansion of this program to include all analytical operating personnel is not currently targeted. EcoTek Management indicated that this program could be easily expanded to cover all laboratory operating personnel.
- 6.6 EcoTek program/procedures do not contain positive methods to assure that equipment and process status indicators are used for information transfers during operation/analyst changes. Personnel interviewed indicated that verbal exchanges of information is a sufficient method of communicating transfer information.
- 6.7 EcoTek's Radiological and Inorganic Sections are located in a newly constructed 17,000 square foot facility separated from the Organics Section which is currently located in an 8,000 square foot building. Radiological sample analyses are a newly acquired capability and it appears that EcoTek have managed to staff the group with experienced and qualified personnel.
- Current plans call for a 16,000 square foot addition to the Organics Building (8,000 of which is basement area to be used for storage and coolers). This expansion is tentatively scheduled for completion December 31, 1991.
- 6.8 Hold time requirements are currently tracked manually. Hold time information accompanies the samples to each laboratory where they are manually recorded on log sheets that are continually updated. The hold time tracking feature is scheduled for inclusion in the LIMS system when the system is fully implemented.
- 6.9 QA/QC requirements for analytical work associated with the barium chloride salt treatment project (RFP JD-15520) will be included in work plans being developed by EcoTek (Erwin, TN). The work plans will be submitted to WMCO for review and approval. EcoTek

## 6. SURVEY OBSERVATIONS

## 6.9 Cont'd

LSI analyze a minimum of five percent QA/QC samples unless otherwise specified by the customer. WACO requirements on similar waste characterization samples are in accordance with US-EPA CLP Statements of Work for Organic and Inorganic analyses (ten percent QA/QC analyses).

The cooperation shown by EcoTek LSI's Management, Technical and Analytical staff was appreciated by the WACO Survey Team and contributed to the completion of the survey on schedule. This pre-award survey provided WACO with objective evidence concerning the capabilities of EcoTek LSI required prior to contract award. In addition, EcoTek is provided with an independent assessment of the implementation status of their QA program, procedures, and managerial systems. The information should be used by EcoTek on a constructive basis to improve program controls.

D. W. Hoover  
D. W. Hoover  
Lead Auditor  
Senior Quality Engineer

H. W. Humphrey  
H. W. Humphrey  
Technical Advisor  
Research Technologist

T. M. Dall  
T. M. Dall  
Technical Advisor  
Senior QE/Chemist

c: L. C. Bogar  
H. A. Clawson  
J. E. Curry  
T. M. Dall  
J. L. Davis

J. A. Grumski  
D. L. Herman  
R. H. Hilbert  
D. W. Hoover  
H. W. Humphrey

W. E. Kortier  
J. Powell (DOE/FMPC)  
A. M. Schwartzman  
M. S. Strickland  
Preaward Survey File  
Central Files

W. D. Black (EcoTek - Erwin, TN)  
D. L. DiHel (EcoTek LSI - Atlanta, GA)

# Georgia Department of Natural Resources

205 Butler Street, S.E., East Floyd Tower, Atlanta, Georgia 30334

Lonice C. Barrett, Commissioner

Harold F. Reheis, Assistant Director

Environmental Protection Division

1903

## RADIOACTIVE MATERIALS PROGRAM GEORGIA RADIOACTIVE MATERIAL LICENSE

Pursuant to the Georgia Radiation Control Act O.C.G.A. 31-13 (H.B. 947) 1990 and the Georgia Department of Natural Resources Rules and Regulations, designated Chapter 290-5-23, and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess, and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules and regulations of the Georgia Department of Natural Resources and orders of the Radioactive Materials Program, now or hereafter in effect, and to any condition specified below.

CORRECTED COPY

Page 1 of 5 Pages  
License No. GA. 1190-1

License (1. Name and 2. Address)

EcoTek Laboratory Services, Inc.  
3342 International Park Drive, S.E.  
Atlanta, Georgia 30316

3. License Number: GA. 1190-1

4. Expiration Date: September 30, 1995

5. Telephone Number: (404) 244-0827

6. Radioactive Material (Element and Mass Number)	7. Chemical and/or Physical Form	8. Maximum quantity licensee may possess at any one time
A. Any radioactive material with atomic numbers 1-96 except special nuclear material and 131-iodine	A. Any form	A. No sample or sealed source to exceed 5 millicuries
B. 131-iodine	B. Any form	B. 40 millicuries
C. 58-cobalt	C. Any form	C. No sample to exceed 20 millicuries
D. 60-cobalt	D. Any form	D. No sample to exceed 20 millicuries
E. 134-cesium	E. Any form	E. No sample to exceed 20 millicuries
F. 137-cesium	F. Any form	F. No sample to exceed 20 millicuries
G. Transuranium elements with atomic numbers 92-96 except as noted below for 6H.-K.	G. Any form	G. 10 millicuries each, total not to exceed 100 milli- curies

25

# Georgia Department of Natural Resources

Radioactive Materials License

1903

Supplementary Sheet

CORRECTED COPY

Page 2 of 5 Pages  
License No. GA. 1190-1

(Continued)

H. 235-uranium	H. Any form	H. 350 grams*
I. 239, 240-plutonium	I. Any form	I. 200 grams*
J. 232-thorium, with daughters (natural)	J. Any form	J. 5 kilograms
K. 238-uranium with daughters (natural or depleted)	K. Any form	K. 5 kilograms

\*For purposes of this license, when possession involves a combination of uranium-235 and plutonium-239, -240, the limit for the combination shall be such that the "sum of the ratios" will not exceed unity (Rule 290-5-23-23-.01(2)(ccc)).

---

## 9. Authorized Use

- A. The nuclides may be included in samples received for analysis or as sealed sources used as calibration or check sources.
- B. Iodine is used for testing the efficiency of radioiodine absorbers and studying the behavior of radioiodine.
- C. through J. The isotopes may be present in samples or used as a tracer in radiochemical separations.
- K. The isotope may be present in samples received for analysis.

---

## Conditions

- 10. Radioactive material shall be used only at the licensee's address stated in Item 2 above.
- 11. This license does not authorize distribution to persons licensed pursuant to Rule 290-5-23-.02(11)(j)
- 12. The licensee shall comply with the provisions of Georgia Department of Natural Resources Rule 290-5-23-.03, "Standards for Protection Against Radiation," and Rule 290-5-23-.07, "Notices, Instructions and Reports to Workers: Inspections."

000 26

Georgia Department of Natural Resources

Radioactive Materials License  
Supplementary Sheet

1903

CORRECTED COPY

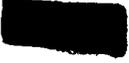
Page 3 of 5 Pages  
License No. GA. 1190-1

CONDITIONS (Continued)

13. Radioactive material shall be used by, or under the supervision of Todd L. Hardt, Keith S. Doran, Donald Paine, Stephen M. Schutt, Donald L. Dihel, Robert O. Lucas, John M. Puckett, Judy A. Blair, Annette K. Reynolds, Anthony G. Toney, or Harold M. Williams.
14. The Radiation Safety Officer in this program shall be John M. Puckett.
15. The licensee may transport radioactive material or deliver radioactive material to a carrier for transport in accordance with the provisions of Rule 290-5-23-.06, "Transportation of Radioactive Material, Amended."
16. Except for plutonium contained in a medical device designed for individual human applications, no plutonium regardless of form shall be delivered to a carrier for shipment by air transport or transported in an aircraft by the licensee except in packages the design of which the U.S. Nuclear Regulatory Commission has specifically approved for transport of plutonium by air.
17. The licensee shall not use radioactive material in or on human beings or in field applications where activity is released except as provided otherwise by specific condition of this license.
18. The licensee shall not transfer possession and/or control of materials or products containing radioactive material as a contaminant except:
  - A. By transfer of waste to an authorized recipient;
  - B. By transfer to a specifically licensed recipient; or
  - C. As provided otherwise by a specific condition of this license pursuant to the requirements of (4) of Rule 290-5-23-.03.
16. A. (1) Each sealed source containing radioactive material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed 6 months except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months.
  - (2) Notwithstanding the periodic leak test required by this condition, a licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.

# Georgia Department of Natural Resources

## Radioactive Materials License Supplementary Sheet

1903 

CORRECTED COPY

Page 4 of 5 Pages  
License No. GA. 1190-1

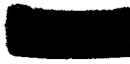
### CONDITIONS (Continued)

- (3) Except for alpha sources, the periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage before any use or transfer to another person unless they have been leak tested within 6 months before the date of use or transfer.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Department.
- C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Department regulations. A report shall be filed within five (5) days of the test with the Radioactive Materials Program, Georgia Department of Natural Resources, 7 Martin Luther King, Jr., Drive, Atlanta, Georgia, 30334 describing the equipment involved, the test results, and the corrective action taken.
- D. The licensee is authorized to collect wipe test samples on sealed sources possessed under this license using an approved leak test kit and instructions.
- E. Analysis of tests for leakage and/or contamination shall be performed by persons specifically authorized by this Department, the U.S. Nuclear Regulatory Commission, or an Agreement State to perform such services.
20. Sealed sources containing radioactive material shall not be opened by the licensee.
21. The licensee shall conduct a physical inventory every three (3) months to account for all licensed material received and possessed under this license. The records of inventories shall be maintained for inspection by the Department and shall include the quantities and kinds of radioactive material, location of sealed sources, and the date of the inventory.
22. No containers containing radioactive material in quantities above natural background shall be disposed of to the trash. Any such containers disposed of to the trash shall have all labels indicating radiation or radioactive material obliterated or removed.
- 

Georgia Department of Natural Resources

Radioactive Materials License

Supplementary Sheet

1903 

CORRECTED COPY

Page 5 of 5 Pages  
License No. GA. 1190-1

CONDITIONS (Continued)

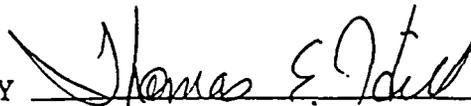
23. In accordance with DNR Board Policy adopted May 24, 1990 the fees associated with this license fee category C.13, are:  
Application fee \$420 Renewal fee \$420  
Amendment fee \$310 Routine Inspection fee \$950. Non-routine Inspection fee \$950. Renewal or amendment fees must accompany each licensure request, as appropriate. Inspection fees are payable upon receipt of each invoice from the Department following inspections.
24. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with statements, representations, and procedures contained in the documents including any enclosures listed below:
- A. Application dated September 11, 1989, signed by Steven M. Schutt;
  - B. Ecotek Laboratory Services, Inc. Health Physics Plan dated September 8, 1989;
  - C. Ecotek Laboratory Services, Inc. Quality Assurance Manual for Analytical Laboratory Services, Revision 0, dated October 4, 1989;
  - D. Letters dated November 29, 1989 and December 8, 1989 both signed by Todd L. Hardt, Ph.D., Manager, Radiological Laboratory;
  - E. Letter dated April 18, 1990, signed by Todd L. Hardt, Ph.D., Manager, Radiological Laboratory; and
  - F. Letters dated July 12, 1990 and July 17, 1990 both signed by Todd L. Hardt, Ph.D., Manager, Radiological Laboratory.

The Georgia Department of Natural Resources' regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

FOR THE GEORGIA DEPARTMENT OF NATURAL RESOURCES

Date September 25, 1990

BY



29 

1903

Original File Copy

# DATA CHEM LABORATORIES

July 15, 1991  
Ref: 91J096

Mr. Oba L. Vincent, CIH  
Department Of Energy  
7400 Willey Road  
Fernald, OH 45030

RE: DataChem Laboratories(DCL) EPA-CLP Performance

Dear Mr. Vincent:

Enclosed are the Performance Evaluation reports for DataChem Laboratories covering the previous four quarters of operation for our inorganic and organic contracts. The time periods covered are not coincident; we have had a time lapse in our organic operations due to an unsuccessful bid attempt. A summary of the results is as follows:

<u>Contract Type</u>	<u>Time Period</u>	<u>Audit Score</u>
Inorganic	3rd Quarter/FY91	94.6%
Inorganic	2nd Quarter/FY91	95.4%
Inorganic	1st Quarter/FY91	95.4%
Inorganic	4th Quarter/FY90	87.9%
Organic	3rd Quarter/FY90	79.1%
Organic	2nd Quarter/FY90	81.2%
Organic	1st Quarter/FY90	78.6%
Organic	4th Quarter/FY89	84.2%

On July 14, DCL was notified of an award approval on our response to IFB D100455/456R1(Organic). We had previously received the results of the pre-award samples analyzed for this solicitation. The results of these samples are 89.4%(Water) and 92.8%(Soil). Full EPA documentation of these results is enclosed for your review.

Date Rec'd \_\_\_\_\_  
Log E-3990  
File \_\_\_\_\_  
Library \_\_\_\_\_

30

July 15, 1991  
Ref: 91J096

In our previous conversation, you mentioned your requirement for correspondence relating to the site evaluations performed in conjunction with the EPA-CLP audit samples. I have included the letters from USEPA detailing the findings of the Contract Evidence Audit Team visits to DCL and the follow-up letters stating our compliance with all listed findings. However, these letters apply only to our present inorganic contracts.

As stated above, we have just received verbal notification of our successful organic bid. The site visit for this bid was on June 19; we have not yet received any official 'results' from the visit. Since we have been awarded a contract, I assume that the findings, if any, were minor. As soon as we receive written documentation of the site visit, I will send it to you by express mail. We anticipate this at any day.

If there is any additional information that I may provide you for your survey, or if you have any questions on this material, please contact me at the Salt Lake laboratory. If you have specific questions on our EPA contracts, you may contact Mr. Ken Olson (EPA Project Manager), also in Salt Lake.

Sincerely,



Jim Johnston  
Project Manager

cc: K.R. Olson (DCL)  
R.J. Jones (DCL)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

July 12, 1991

Mr. Ken R. Olson, J. D.  
Data Chem  
960 West LeVoy St.  
Salt Lake City, UT 84123

Dear Mr. Olson:

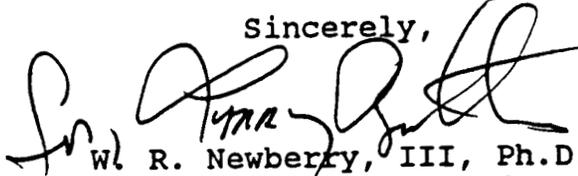
For you information and review, enclosed are the results of your participation in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) Second & Third Quarter Inorganic Performance Evaluation Study (QB2, QB3 FY91). The samples were prepared by the EMSL-LV and each consisted of one soil sample and two water samples. The homogeneous soil samples and all of the water samples were spiked with inorganic analytes. None of the waters sample were blanks. The samples were to be prepared and analyzed using methods specified in your current contract. All laboratories received the samples single blind. Enclosed are the Individual Laboratory Summary reports (ILSR's) for your laboratory and associated scoring information. Please accept my apology for the late delivery of the QB2 report. If your laboratories participated in only one of the QBs then only that report is enclosed.

Please note that two different scoring algorithms are included, one for QB2 and one for QB3. These are different from the QB1 scoring with respect to the way false positives were scored. For QB2, false positives were separated into two groups: Type I and Type II. Type I false positives were defined as any analyte not included in the sample that was reported with a value greater than the contract required detection limit (CRDL). Type II false positives were any analyte not in the sample that was reported with a value greater than the instrument detection limit (IDL) but less than the CRDL. Based upon further consideration and initial feedback, Type II false positives were dropped from the scoring of QB3 FY91. False positives now considered are only the Type I false positives. This is reflected in the scoring algorithm for QB3 FY91.

Please review your score and performance level. If the performance level indicates that corrective actions are necessary or mandatory, please describe the deficiencies and the actions taken to correct them in a letter to the Administrative Project Officer within 14 days after receipt of this letter. Copies should be sent to the Technical Project Officer and to me at EMSL-LV.

The EMSL-LV thanks you for your participation in these studies. We trust that this information is useful to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,



W. R. Newberry, III, Ph.D.  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosure

cc:

Michael Hurd, Administrative Project Officer, Analytical  
Operations Branch, HSED, OERR (OS-230)

1903

## INORGANIC QUARTERLY BLIND PERFORMANCE EVALUATION SAMPLE

## ILSR EXPLANATION

- c CI were not set since 40 % or more of the laboratories submitted a non-usable value.  
 d CI not used. See scoring notes, procedure for grading U-values No. 4.  
 U Analyzed for but not detected.  
 B Indicates an estimated value less than the CRDL.  
 E Indicates a value estimated or not reported due to the presence of interferences.  
 S Indicates value determined by the method of standard addition.  
 + Correlation coefficient for the MSA is less than 0.995.  
 X Value was outside both the warning and the action limit. Points deducted.  
 \$ Value was outside the warning limit only. No points deducted.  
 UX Element was not identified. Points deducted.  
 # Indicates a false positive (Type I) with value greater than the CRDL. Points deducted.  
 = Indicates a false positive (Type II) with value greater than the IDL but less than or equal to the CRDL. Points deducted.  
 & Value was not submitted.  
 ? Best estimate of value and/or qualifier. Poor copy and/or illegible value submitted.

## SCORING NOTES:

$$\% \text{ Score} = 100 - \left( \frac{\sum_{i=1}^n 10A_i + B_i + 4(C_I + 0.5C_{II})_i}{n} \right) - 0.5S - D$$

where A = number of elements that were not identified

$$B = \left[ 1 - \left[ \frac{T - x}{T} \right]^{1.5} \right] \cdot 100$$

- T = total number of elements  
 x = number of mis-quantitations + number of elements that were not identified  
 n = number of samples  
 C<sub>I</sub> = number of false positives (Type I)  
 C<sub>II</sub> = number of false positives (Type II)  
 S = number of matrix spikes outside the criteria  
 D = number of duplicates outside the criteria

Confidence intervals (CI) were derived from laboratory submitted values. Less than values (<x), U-values, and non-submitted values (-) were not used in the calculation of the CI.

## PROCEDURE FOR GRADING U-VALUES:

1. Any U-value response (instrument detection limit) > CRDL for the appropriate dilution, even if it is in the 95 % CI, causes a point deduction. If 25 % or more of the laboratories report a U-value over the CRDL, no points are deducted for any laboratory, possibly indicating a matrix interference in the sample.
2. If CRDL < lower CI, then use CI as set.
3. If lower CI < CRDL and CRDL < upper CI, then set lower CI to CRDL. No points deducted for identification or quantitation less than or equal to the CRDL.
4. If CRDL > lower and upper CI, then no CI used. Parameter dropped from the scoring. No points deducted for identifications or quantitations. False positives possible.

INORGANIC PERFORMANCE EVALUATION SAMPLE  
 INDIVIDUAL LABORATORY SUMMARY REPORT  
 FOR QB 2 FY 91

LABORATORY NAME: Datachem (UT) [R1] (DATAC)  
 PERFORMANCE LEVEL: ACCEPTABLE  
 LABORATORY RANK: Above = 5 Same = 0 Below = 35

% Score: 94.6  
 REPORT DATE: 3/12/1991  
 MATRIX: SOIL 1

ELEMENT NAME	95 % CI		LAB RESULTS				PROGRAM DATA				TOTAL #LAB
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS		#LABS MSPK OUT	#LABS DUP OUT	
							I	II			
ALUMINUM	15900	43601	37200		1	1	0	0	0	1	41
ANTIMONY	c	c	7.5	U	0	0	3	17	30	0	41
ARSENIC	7.1	16.6	11.4		0	3	0	0	12	3	41
BARIUM	62.9	118	102		0	2	0	0	1	1	41
BERYLLIUM	1.0	1.4	1.2		5	4	0	0	0	0	41
CADMIUM	2.2	5.1	3.3		1	6	0	0	2	1	41
CALCIUM	6810	9710	8860		0	1	0	0	0	0	41
CHROMIUM	16.8	35.4	32.5		0	1	0	0	0	3	41
COBALT	10.0	11.8	11.5	S	2	3	0	0	0	0	41
COPPER	35.9	47.1	45.6		0	7	0	0	0	6	41
IRON	24600	34201	32100		0	2	0	0	0	0	41
LEAD	805	1080	867		0	2	0	0	0	1	41
MAGNESIUM	2960	4190	3990		0	3	0	0	0	0	41
MANGANESE	665	838	751		0	2	0	0	0	1	41
MERCURY	0.72	1.1	0.84		0	3	0	0	8	0	41
NICKEL	11.2	22.6	21.3		0	1	0	0	0	2	41
POTASSIUM	1000.0	1420	1730	X	0	7	0	0	0	0	41
SELENIUM	c	c	0.81	UW	0	0	1	15	16	0	41
SILVER	2.0	4.6	3.6		4	5	0	0	7	3	41
SODIUM	d	d	116	U	0	0	0	27	0	0	41
THALLIUM	d	d	0.68	B =	0	0	0	21	6	0	41
VANADIUM	32.1	50.8	49.4	S	0	2	0	0	0	0	41
ZINC	358	494	431		0	3	0	0	2	0	41

# OF ELEMENTS NOT-IDENTIFIED: 0  
 # OF ELEMENTS MIS-QUANTIFIED: 1  
 # OF FALSE POSITIVES (I): 0  
 # OF FALSE POSITIVES (II): 1

# OF MATRIX SPIKES OUT: 3  
 SOIL : Sb, Se, Ag

# OF DUPLICATES OUT: 0  
 SOIL :

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 2 FY 91

LABORATORY NAME: Datachem (UT) [R1] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 5 Same = 0 Below = 35

% Score: 94.6  
REPORT DATE: 3/12/1991  
MATRIX: WATER 1

ELEMENT NAME	95 % CI		LAB RESULTS				PROGRAM DATA				TOTAL #LABS
			REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS I	#LABS MSPK OUT II	#LABS DUP OUT		
										LOWER	
ALUMINUM	c	c	40.1	B =	0	0	0	7	0	0	41
ANTIMONY	292	366	325		0	5	0	0	3	1	41
ARSENIC	40.8	60.0	48.8		0	2	0	0	4	0	41
BARIUM	c	c	22	U	0	0	0	5	0	0	41
BERYLLIUM	8.8	11.8	9.7		0	3	0	0	0	0	41
CADMIUM	5.0	10.1	7.1		1	1	0	0	1	2	41
CALCIUM	31800	37200	33200		0	3	0	0	0	0	41
CHROMIUM	10.0	17.5	14.1		5	3	0	0	1	2	41
COBALT	468	505	489		0	13	0	0	0	0	41
COPPER	c	c	4	U	0	0	2	10	1	1	41
IRON	453	576	506		0	2	0	0	1	1	41
LEAD	39.8	64.6	49.8		0	2	0	0	3	2	41
MAGNESIUM	c	c	664	U	0	0	0	8	0	0	41
MANGANESE	450	532	483		0	2	0	0	0	0	41
MERCURY	c	c	0.2	U	0	0	4	0	0	0	41
NICKEL	107	134	116		0	2	0	0	0	0	41
POTASSIUM	8850	10800	9980		0	5	0	0	0	0	41
SELENIUM	7.8	13.0	8.8		0	2	0	0	0	0	41
SILVER	89.5	113	103		0	2	0	0	4	0	41
SODIUM	c	c	576	U	0	0	0	16	0	0	41
THALLIUM	101	193	122		0	1	0	0	5	2	41
VANADIUM	c	c	4	U	0	0	0	2	0	0	41
ZINC	3260	3840	3560		0	4	0	0	1	0	41

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES (I): 0  
# OF FALSE POSITIVES (II): 1

# OF MATRIX SPIKES OUT: 0  
WATER :

# OF DUPLICATES OUT: 0  
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 2 FY 91

LABORATORY NAME: Datachem (UT) [R1] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 5 Same = 0 Below = 35

% Score: 94.6  
REPORT DATE: 3/12/1991  
MATRIX: WATER 2

ELEMENT NAME	95 % CI		LAB RESULTS				PROGRAM DATA				TOTAL #LABS
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS		#LABS MSPK OUT	#LABS DUP OUT	
							I	II			
ALUMINUM	6670	8100	7250		1	3	0	0	0	0	41
ANTIMONY	92.8	125	98.1		1	7	0	0	3	1	41
ARSENIC	41.2	60.9	45.2		0	1	0	0	4	0	41
BARIUM	540	646	580		0	4	0	0	0	0	41
BERYLLIUM	35.8	46.8	41.1		0	1	0	0	0	0	41
CADMIUM	61.6	77.4	70		0	5	0	0	1	2	41
CALCIUM	c	c	516	U	0	0	0	15	0	0	41
CHROMIUM	87.8	115	104		0	2	0	0	1	2	41
COBALT	68.1	81.0	75.2		0	5	0	0	0	0	41
COPPER	69.0	84.6	72.8		0	3	0	0	1	1	41
IRON	1350	1620	1500		0	2	0	0	1	1	41
LEAD	13.5	17.6	16		0	11	0	0	3	2	41
MAGNESIUM	5720	6390	5960		0	8	0	0	0	0	41
MANGANESE	c	c	2	U	0	0	0	2	0	0	41
MERCURY	3.8	10.8	7.9		0	3	0	0	0	0	41
NICKEL	c	c	20	U	0	0	0	1	0	0	41
POTASSIUM	c	c	723	U	0	0	0	5	0	0	41
SELENIUM	57.4	92.9	62.2		0	3	0	0	0	0	41
SILVER	21.6	36.1	24.3		0	1	0	0	4	0	41
SODIUM	43400	53400	46800		0	0	0	0	0	0	41
THALLIUM	c	c	3	U	0	0	0	3	5	2	41
VANADIUM	917	1080	982		0	1	0	0	0	0	41
ZINC	c	c	4	U	0	0	5	11	1	0	41

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES (I): 0  
# OF FALSE POSITIVES (II): 0

# OF MATRIX SPIKES OUT: 0  
WATER :

# OF DUPLICATES OUT: 0  
WATER :



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 · FTS 545-2100)

July 12, 1991

Mr. Ken R. Olson, J. D.  
Data Chem  
960 West LeVoy St.  
Salt Lake City, UT 84123

Dear Mr. Olson:

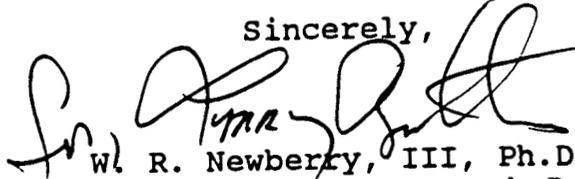
For your information and review, enclosed are the results of your participation in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) Second & Third Quarter Inorganic Performance Evaluation Study (QB2, QB3 FY91). The samples were prepared by the EMSL-LV and each consisted of one soil sample and two water samples. The homogeneous soil samples and all of the water samples were spiked with inorganic analytes. None of the waters sample were blanks. The samples were to be prepared and analyzed using methods specified in your current contract. All laboratories received the samples single blind. Enclosed are the Individual Laboratory Summary reports (ILSR's) for your laboratory and associated scoring information. Please accept my apology for the late delivery of the QB2 report. If your laboratories participated in only one of the QBs then only that report is enclosed.

Please note that two different scoring algorithms are included, one for QB2 and one for QB3. These are different from the QB1 scoring with respect to the way false positives were scored. For QB2, false positives were separated into two groups: Type I and Type II. Type I false positives were defined as any analyte not included in the sample that was reported with a value greater than the contract required detection limit (CRDL). Type II false positives were any analyte not in the sample that was reported with a value greater than the instrument detection limit (IDL) but less than the CRDL. Based upon further consideration and initial feedback, Type II false positives were dropped from the scoring of QB3 FY91. False positives now considered are only the Type I false positives. This is reflected in the scoring algorithm for QB3 FY91.

Please review your score and performance level. If the performance level indicates that corrective actions are necessary or mandatory, please describe the deficiencies and the actions taken to correct them in a letter to the Administrative Project Officer within 14 days after receipt of this letter. Copies should be sent to the Technical Project Officer and to me at EMSL-LV.

The EMSL-LV thanks you for your participation in these studies. We trust that this information is useful to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,



W. R. Newberry, III, Ph.D.  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosure

cc:  
Michael Hurd, Administrative Project Officer, Analytical  
Operations Branch, HSED, OERR (OS-230)

1903

## INORGANIC QUARTERLY BLIND PERFORMANCE EVALUATION SAMPLE

## ILSR EXPLANATION

- c CI WERE NOT SET SINCE 40 % OR MORE OF THE LABORATORIES SUBMITTED A NON-USABLE VALUE.  
 d CI NOT USED. SEE SCORING NOTES, PROCEDURE FOR GRADING U-VALUES NO. 4.  
 u ANALYZED FOR BUT NOT DETECTED.  
 B INDICATES AN ESTIMATED VALUE LESS THAN THE CRDL.  
 E INDICATES A VALUE ESTIMATED OR NOT REPORTED DUE TO THE PRESENCE OF INTERFERENCES.  
 S INDICATES VALUE DETERMINED BY THE METHOD OF STANDARD ADDITION.  
 + CORRELATION COEFFICIENT FOR THE MSA IS LESS THAN 0.995.  
 X VALUE WAS OUTSIDE BOTH THE WARNING AND THE ACTION LIMIT. POINTS DEDUCTED.  
 \$ VALUE WAS OUTSIDE THE WARNING LIMIT ONLY. NO POINTS DEDUCTED.  
 UX ELEMENT WAS NOT IDENTIFIED. POINTS DEDUCTED.  
 # INDICATES A FALSE POSITIVE WITH VALUE GREATER THAN THE CRDL. POINTS DEDUCTED.  
 & VALUE WAS NOT SUBMITTED.  
 ? BEST ESTIMATE OF VALUE AND/OR QUALIFIER. POOR COPY AND/OR ILLEGIBLE VALUE SUBMITTED.

## SCORING NOTES:

$$\% \text{ Score} = 100 - \left[ \frac{\sum_{i=1}^n (10A_i + B_i + 4C_i)}{n} \right] - 0.5S - D$$

where A = number of elements that were not identified

$$B = \left[ 1 - \left[ \frac{T-x}{T} \right]^{1.5} \right] \cdot 100$$

- T = total number of elements  
 x = number of mis-quantitations + number of elements that were not identified  
 n = number of samples  
 C = number of false positives  
 S = number of matrix spikes outside the criteria  
 D = number of duplicates outside the criteria

CONFIDENCE INTERVALS (CI) WERE DERIVED FROM LABORATORY SUBMITTED VALUES. LESS THAN VALUES (<x), U-VALUES, AND NON-SUBMITTED VALUES (-) WERE NOT USED IN THE CALCULATION OF THE CI.

## PROCEDURE FOR GRADING U-VALUES

1. ANY U-VALUE RESPONSE (INSTRUMENT DETECTION LIMIT) > CRDL FOR THE APPROPRIATE DILUTION, EVEN IF IT IS IN THE 95 % CI, CAUSES A POINT DEDUCTION. IF 25 % OR MORE OF THE LABORATORIES REPORT A U-VALUE OVER THE CRDL, NO POINTS ARE DEDUCTED FOR ANY LABORATORY, POSSIBLY INDICATING A MATRIX INTERFERENCE IN THE SAMPLE.
2. IF CRDL < LOWER CI, THEN USE CI AS SET.
3. IF LOWER CI < CRDL AND CRDL < UPPER CI, THEN SET LOWER CI TO CRDL. NO POINTS DEDUCTED FOR IDENTIFICATION OR QUANTITATION LESS THAN OR EQUAL TO THE CRDL.
4. IF CRDL > LOWER AND UPPER CI, THEN NO CI USED. PARAMETER DROPPED FROM THE SCORING. NO POINTS DEDUCTED FOR IDENTIFICATIONS OR QUANTITATIONS. FALSE POSITIVES POSSIBLE.

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 3 FY 91

LABORATORY NAME: Datachem (UT) [K3] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 4 Same = 0 Below = 32

% Score: 95.4  
REPORT DATE: 6/12/1991  
MATRIX: SOIL 1

ELEMENT NAME	95 % CI		LAB RESULTS				PROGRAM DATA				TOTAL #LABS
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT		
ALUMINUM	38001	55301	49400		0	2	0	0	0	37	
ANTIMONY	12.0	38.4	19.8		3	1	0	30	2	37	
ARSENIC	161	319	194	BS	0	5	0	1	1	37	
BARIUM	5460	15800	9500		1	3	0	0	4	37	
BERYLLIUM	1.0	6.2	4.3		4	0	0	2	0	37	
CADMIUM	1.0	4.3	0.92	B	9	7	0	3	0	37	
CALCIUM	18900	31900	26600		0	0	0	0	1	37	
CHROMIUM	253	477	444		0	1	0	0	2	37	
COBALT	10.0	36.2	23.6		0	0	0	0	0	37	
COPPER	107	163	143		0	3	0	8	2	37	
IRON	30500	36600	35100		0	10	0	0	1	37	
LEAD	2500	4210	3600		0	3	0	1	1	37	
MAGNESIUM	3110	4800	4200		0	0	0	0	1	37	
MANGANESE	6070	9490	8340		0	1	0	0	0	37	
MERCURY	0.14	0.64	0.38		1	1	0	4	1	37	
NICKEL	14.2	29.2	27.6		0	4	0	0	1	37	
POTASSIUM	1140	1930	1570		0	2	0	0	0	37	
SELENIUM	c	c	0.51	BW	0	0	3	22	1	37	
SILVER	2.0	7.4	1.2	B	5	3	0	5	2	37	
SODIUM	d	d	359	B	0	0	4	0	0	37	
THALLIUM	5.2	12.7	8.5		1	4	0	8	1	37	
VANADIUM	369	805	699		0	0	0	0	2	37	
ZINC	265	386	348		0	3	0	14	1	37	

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 2  
SOIL : Sb, Se

# OF DUPLICATES OUT: 0  
SOIL :

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 3 FY 91

LABORATORY NAME: Datachem (UT) [K3] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 4 Same = 0 Below = 32

% Score: 95.4  
REPORT DATE: 6/12/1991  
MATRIX: WATER 1

ELEMENT NAME	95 % CI		LAB RESULTS		#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA			TOTAL #LABS
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE			#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	c	c	58	U	0	0	1	0	0	37
ANTIMONY	535	658	609		0	4	0	2	0	37
ARSENIC	20.0	29.5	23.1		0	0	0	2	0	37
BARIUM	284	327	302		0	1	0	0	0	37
BERYLLIUM	133	160	145		0	0	0	0	0	37
CADMIUM	17.4	22.9	20.7		0	0	0	1	0	37
CALCIUM	c	c	48	U	0	0	0	0	0	37
CHROMIUM	91.8	110	106		0	0	0	0	0	37
COBALT	177	216	194		0	1	0	0	0	37
COPPER	275	319	291		0	1	0	0	0	37
IRON	727	932	827		0	4	0	0	1	37
LEAD	13.8	17.9	15.9		0	6	0	2	0	37
MAGNESIUM	14100	16100	15000		0	1	0	0	0	37
MANGANESE	c	c	1	UE	0	0	0	0	0	37
MERCURY	1.1	2.6	2		1	9	0	4	0	37
NICKEL	48.5	71.0	63.7		0	1	0	0	0	37
POTASSIUM	c	c	697	U	0	0	0	0	0	37
SELENIUM	12.0	18.8	12.5	\$	0	2	0	2	0	37
SILVER	13.9	25.0	18.1		0	2	0	0	0	37
SODIUM	d	d	107	B	0	0	0	0	0	37
THALLIUM	24.4	35.4	29.4		0	5	0	2	1	37
VANADIUM	c	c	4	U	0	0	0	0	0	37
ZINC	139	170	150		0	1	0	0	0	37
CYANIDE	374	466	418		0	13	0	3	1	37

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 1  
WATER : Se

# OF DUPLICATES OUT: 0  
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 3 FY 91

LABORATORY NAME: Datachem (UT) [K3] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 4 Same = 0 Below = 32

% Score: 95.4  
REPORT DATE: 6/12/1991  
MATRIX: WATER 2

ELEMENT NAME	95 % CI		LAB RESULTS			PROGRAM DATA				TOTAL #LAB.
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	4610	5260	4770		0	1	0	0	0	37
ANTIMONY	168	219	209		0	4	0	2	0	37
ARSENIC	98.5	138	111	S	0	4	0	2	0	37
BARIUM	c	c	1	U	0	0	0	0	0	37
BERYLLIUM	12.4	18.3	15.9		0	0	0	0	0	37
CADMIUM	180	207	190		0	3	0	1	0	37
CALCIUM	44701	52000	46700		0	1	0	0	0	37
CHROMIUM	13.8	26.0	21.1		1	3	0	0	0	37
COBALT	d	d	14.3	B	0	0	0	0	0	37
COPPER	c	c	5	U	0	0	0	0	0	37
IRON	7060	8600	7690		0	3	0	0	1	37
LEAD	59.7	85.2	68.7		0	4	0	2	0	37
MAGNESIUM	c	c	51	U	0	0	1	0	0	37
MANGANESE	129	161	142	E	0	0	0	0	0	37
MERCURY	0.22	0.92	0.65		5	7	0	4	0	37
NICKEL	c	c	12	U	0	0	0	0	0	37
POTASSIUM	22800	25100	23700		0	8	0	0	0	37
SELENIUM	35.0	56.1	85.4	S X	0	3	0	2	0	37
SILVER	84.1	109	91.7		0	3	0	0	0	37
SODIUM	15700	18900	16800		0	3	0	0	0	37
THALLIUM	c	c	1	U	0	0	0	2	1	37
VANADIUM	365	418	380		0	0	0	0	0	37
ZINC	c	c	4	U	0	0	2	0	0	37

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 1  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 1  
WATER : Se

# OF DUPLICATES OUT: 0  
WATER :



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 · FTS 545-2100)

February 5, 1991

Mr. Lee Harris  
Data Chem  
960 West LeVoy St.  
Salt Lake City, UT 84123

Dear Mr. Harris:

For your information and review, enclosed are the results of your participation in the Environmental Monitoring Systems Laboratory - Las Vegas (EMSL-LV) First Quarter Inorganic Performance Evaluation Study (QB1, FY91). The samples were prepared by the EMSL-LV and consisted of one soil sample and two water samples. The homogeneous soil sample and both of the water samples were spiked with inorganic analytes. The second water sample was not a blank. The samples were to be prepared and analyzed using methods specified in your current contract. All laboratories received the samples single blind. Enclosed is the Individual Laboratory Summary report (ILSR) for your laboratory and associated scoring information.

Please review your score and performance level. If the performance level indicates that corrective actions are necessary or mandatory, please describe the deficiencies and the actions taken to correct them in a letter to the Administrative Project Officer within 14 days after receipt of this letter. Copies should be sent to the Technical Project Officer and to me at EMSL-LV.

The EMSL-LV thanks you for your participation in this study. We trust that this information is useful to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,

A handwritten signature in cursive script, appearing to read "W. R. Newberry, III".

W. R. Newberry, III, Ph.D.  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosure

cc: (w/Enclosure)  
Michael Hurd, Administrative Project Officer, Analytical  
Operations Branch, HSED, OERR (OS-230)

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 1 FY 91

LABORATORY NAME: Datachem (UT) (X21) (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 10 Same = 0 Below = 31

% Score: 95.4  
REPORT DATE: 12/13/1990  
MATRIX: WATER 2

ELEMENT NAME	95 % CI		LAB RESULTS		#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA			TOT. #LA.
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE			#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	c	c	28	U	0	0	0	0	0	4
ANTIMONY	448	547	493		0	4	0	4	0	4
ARSENIC	100	152	117		0	3	0	3	1	4
BARIUM	272	316	296		0	4	0	0	0	4
BERYLLIUM	67.3	83.0	77		0	1	0	1	0	4
CADMIUM	47.6	65.8	54.1		0	1	0	0	1	4
CALCIUM	20600	23700	21500		0	1	0	0	0	4
CHROMIUM	20.0	30.4	25.4		1	1	0	0	0	4
COBALT	c	c	7	U	0	0	0	0	0	4
COPPER	28.2	51.8	37.4		0	5	0	0	0	4
IRON	239	290	254		0	4	0	0	1	4
LEAD	72.5	112	85.3		0	3	0	0	0	4
MAGNESIUM	20800	23900	20800	\$	0	3	0	0	0	4
MANGANESE	c	c	4	U	0	0	0	0	0	4
MERCURY	c	c	0.2	U	0	0	0	4	0	4
NICKEL	c	c	17	U	0	0	0	0	0	4
POTASSIUM	c	c	713	U	0	0	0	0	0	4
SELENIUM	16.4	25.4	19.9		0	2	0	4	1	4
SILVER	43.7	60.6	48.3		0	0	0	6	0	4
SODIUM	c	c	539	U	0	0	0	0	0	4
THALLIUM	c	c	3	U	0	0	0	6	2	4
VANADIUM	99.4	119	106		0	0	0	0	0	4
ZINC	c	c	6	U	0	0	0	0	0	4

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 0  
WATER :

# OF DUPLICATES OUT: 0  
WATER :

## INORGANIC QUARTERLY BLIND PERFORMANCE EVALUATION SAMPLE

## ILSR EXPLANATION

- c CI WERE NOT SET SINCE 40 % OR MORE OF THE LABORATORIES SUBMITTED A NON-USABLE VALUE.
- d CI NOT USED. SEE SCORING NOTES, PROCEDURE FOR GRADING U-VALUES NO. 4.
- U ANALYZED FOR BUT NOT DETECTED.
- B INDICATES AN ESTIMATED VALUE LESS THAN THE CRDL.
- E INDICATES A VALUE ESTIMATED OR NOT REPORTED DUE TO THE PRESENCE OF INTERFERENCES.
- S INDICATES VALUE DETERMINED BY THE METHOD OF STANDARD ADDITION.
  - CORRELATION COEFFICIENT FOR THE MSA IS LESS THAN 0.995.
- X VALUE WAS OUTSIDE BOTH THE WARNING AND THE ACTION LIMIT. POINTS DEDUCTED.
- S VALUE WAS OUTSIDE THE WARNING LIMIT ONLY. NO POINTS DEDUCTED.
- UX ELEMENT WAS NOT IDENTIFIED. POINTS DEDUCTED.
- # INDICATES A FALSE POSITIVE BY DIXON'S TEST. POINTS DEDUCTED.
- ? BEST ESTIMATE OF VALUE AND/OR QUALIFIER. POOR COPY AND/OR ILLEGIBLE VALUE SUBMITTED.

## SCORING NOTES:

$$\% \text{ Score} = 100 - \left( \sum_{i=1}^n 10A_i + B_i + 4C_i \right) / n - 0.5S - D$$

where A = number of elements that were not identified

$$B = \left[ 1 - \left[ \frac{T - x}{T} \right]^{1.5} \right] \cdot 100$$

T = total number of elements

x = number of mis-quantitations + number of elements that were not identified

n = number of samples

C = number of false positives

S = number of matrix spikes outside the criteria

D = number of duplicates outside the criteria

CONFIDENCE INTERVALS (CI) WERE DERIVED FROM LABORATORY SUBMITTED VALUES. LESS THAN VALUES (<x), U-VALUES, AND NON-SUBMITTED VALUES (-) WERE NOT USED IN THE CALCULATION OF THE CI.

## PROCEDURE FOR GRADING U-VALUES

1. ANY U-VALUE RESPONSE (INSTRUMENT DETECTION LIMIT) > CRDL FOR THE APPROPRIATE DILUTION, EVEN IF IT IS IN THE 95 % CI, CAUSES A POINT DEDUCTION. IF 25 % OR MORE OF THE LABORATORIES REPORT A U-VALUE OVER THE CRDL, NO POINTS ARE DEDUCTED FOR ANY LABORATORY, POSSIBLY INDICATING A MATRIX INTERFERENCE IN THE SAMPLE.
2. IF CRDL < LOWER CI, THEN USE CI AS SET.
3. IF LOWER CI = CRDL AND CRDL = UPPER CI, THEN SET LOWER CI TO CRDL. NO POINTS DEDUCTED FOR IDENTIFICATION OR QUANTITATION LESS THAN OR EQUAL TO THE CRDL.
4. IF CRDL > LOWER AND UPPER CI, THEN NO CI USED. PARAMETER DROPPED FROM THE SCORING. NO POINTS DEDUCTED FOR IDENTIFICATIONS OR QUANTITATIONS. FALSE POSITIVES POSSIBLE.

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR QB 1 FY 91

MATRIX: SOIL 1

REPORT DATE: 12/13/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					TOTAL #LABS
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	-	8240	20100	14175	2752	0	0	0	0	0	20
ANTIMONY	-	c	c	c	c	0	0	0	17	0	20
ARSENIC	-	8.3	18	13.1	2.25	0	1	0	7	1	20
BARIUM	-	104	170	137	15.1	0	1	0	0	0	20
BERYLLIUM	-	d	d	d	d	0	0	0	0	0	20
CADMIUM	-	2.5	5.7	4.13	0.744	0	2	0	1	0	20
CALCIUM	-	2250	3400	2824	266	0	2	0	0	1	20
CHROMIUM	-	84	126	105	9.70	0	1	0	1	0	20
COBALT	-	10.0	14	9.69	2.20	0	2	0	0	1	20
COPPER	-	54	78	66.3	5.60	0	2	0	1	0	20
IRON	-	18600	27900	23262	2148	0	2	0	0	0	20
LEAD	-	467	640	554	40.5	0	1	0	0	1	20
MAGNESIUM	-	1990	4230	3109	521	0	0	0	0	0	20
MANGANESE	-	830	1210	1020	87.9	0	3	0	0	2	20
MERCURY	-	0.33	0.82	0.577	0.116	0	1	0	4	0	20
NICKEL	-	16	31	23.1	3.50	0	3	0	0	3	20
POTASSIUM	-	1000.0	2300	1536	353	0	0	0	0	0	20
SELENIUM	-	c	c	c	c	0	0	0	7	0	20
SILVER	-	2.0	3.7	2.27	0.664	4	2	0	3	0	20
SODIUM	-	d	d	d	d	0	0	0	0	0	20
THALLIUM	-	c	c	c	c	0	0	0	2	0	20
VANADIUM	-	21	42	31.9	4.92	0	0	0	0	0	20
ZINC	-	286	435	360	34.7	0	2	0	5	1	20

# OF LABS WITH ACCEPTABLE PERFORMANCE: 12

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 7

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 1

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR QB 1 FY 91

MATRIX: WATER 1

REPORT DATE: 12/13/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					TOTAL #LABS
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	2000	1830	2210	2022	87.5	0	0	0	0	0	20
ANTIMONY	500	446	524	485	18.1	0	0	0	1	0	20
ARSENIC	25	20	31	25.6	2.63	0	1	0	3	1	20
BARIUM	-	c	c	c	c	0	0	0	0	0	20
BERYLLIUM	15	13	17	15.2	0.827	0	0	0	0	0	20
CADMIUM	-	c	c	c	c	0	0	0	0	1	20
CALCIUM	-	c	c	c	c	0	0	0	0	0	20
CHROMIUM	40	34	48	41.5	3.30	0	1	0	0	0	20
COBALT	500	447	539	493	21.5	0	0	0	0	0	20
COPPER	-	c	c	c	c	0	0	0	0	0	20
IRON	200	188	236	212	11.2	0	4	0	0	1	20
LEAD	125	103	154	128	11.8	0	1	0	0	0	20
MAGNESIUM	-	c	c	c	c	0	0	0	0	0	20
MANGANESE	90	82	99	90.4	4.06	0	0	0	0	0	20
MERCURY	2.5	c	c	c	c	0	0	0	1	0	20
NICKEL	75	66	86	76.5	4.72	0	2	0	0	0	20
POTASSIUM	15000	13100	15700	14398	606	0	2	0	0	0	20
SELENIUM	20	16	25	20.4	2.04	0	1	0	2	1	20
SILVER	20	16	25	20.4	1.95	0	3	0	1	0	20
SODIUM	25000	22100	26300	24198	986	0	2	0	0	0	20
THALLIUM	25	17	31	24.0	3.06	0	1	1	4	1	20
VANADIUM	-	c	c	c	c	0	0	0	0	0	20
ZINC	200	177	228	202	11.6	0	2	0	0	0	20

# OF LABS WITH ACCEPTABLE PERFORMANCE: 12

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 7

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 1

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR QB 1 FY 91

MATRIX: WATER 2

REPORT DATE: 12/13/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					TOTAL #LABS
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	-	c	c	c	c	0	0	0	0	0	20
ANTIMONY	500	448	547	498	23.1	0	0	0	1	0	20
ARSENIC	125	100	152	126	11.9	0	0	0	3	1	20
BARIUM	300	272	316	294	10.3	0	2	0	0	0	20
BERYLLIUM	75	67	83	75.2	3.66	0	0	0	0	0	20
CADMIUM	55	48	66	56.7	4.23	0	1	0	0	1	20
CALCIUM	22000	20600	23700	22147	718	0	0	0	0	0	20
CHROMIUM	20	20.0	30	21.0	4.35	1	1	0	0	0	20
COBALT	-	c	c	c	c	0	0	0	0	0	20
COPPER	40	28	52	40.0	5.47	0	1	0	0	0	20
IRON	250	239	290	264	11.9	0	2	0	0	1	20
LEAD	90	72	112	92.1	9.12	0	1	0	0	0	20
MAGNESIUM	22000	20800	23900	22360	711	0	0	0	0	0	20
MANGANESE	-	c	c	c	c	0	0	0	0	0	20
MERCURY	1	c	c	c	c	0	0	0	1	0	20
NICKEL	-	c	c	c	c	0	0	0	0	0	20
POTASSIUM	-	c	c	c	c	0	0	0	0	0	20
SELENIUM	20	16	25	20.9	2.08	0	0	0	2	1	20
SILVER	50	44	60	52.2	3.91	0	0	0	1	0	20
SODIUM	-	c	c	c	c	0	0	0	0	0	20
THALLIUM	-	c	c	c	c	0	0	0	4	1	20
VANADIUM	100	99	119	109	4.55	0	0	0	0	0	20
ZINC	-	c	c	c	c	0	0	0	0	0	20

# OF LABS WITH ACCEPTABLE PERFORMANCE: 12

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 7

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 1

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 1 FY 91

LABORATORY NAME: Datachem (UT) [X2] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 10 Same = 0 Below = 31

% Score: 95.4  
REPORT DATE: 12/13/1990  
MATRIX: SOIL 1

ELEMENT NAME	95 % CI		LAB RESULTS		#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA			TOTAL #LAB
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE			#LABS FALSE POS	#LABS HSPK OUT	#LABS DUP OUT	
ALUMINUM	8240	20100	18800		0	2	0	0	2	42
ANTIMONY	c	c	9.4	U	0	0	0	33	0	42
ARSENIC	8.3	18.0	12		0	5	0	13	2	42
BARIUM	104	170	161		0	1	0	0	0	42
BERYLLIUM	d	d	0.89	B	0	0	0	0	0	42
CADMIUM	2.5	5.7	3.8		1	6	0	1	1	42
CALCIUM	2250	3400	2950		0	2	0	0	1	42
CHROMIUM	84.3	126	117		0	1	0	4	0	42
COBALT	10.0	14.4	11.1		2	4	0	0	1	42
COPPER	54.3	78.4	62.5		0	3	0	3	0	42
IRON	18600	27900	24600		0	3	0	0	0	42
LEAD	467	640	506		0	3	0	0	2	42
MAGNESIUM	1990	4230	3690		0	2	0	0	0	42
MANGANESE	830	1210	1040		0	4	0	0	2	42
MERCURY	0.33	0.82	0.56		0	1	0	4	1	42
NICKEL	15.6	30.7	27.8		0	5	0	0	4	42
POTASSIUM	1000.0	2300	2280	\$	0	1	0	0	0	42
SELENIUM	c	c	0.53	B	0	0	0	12	0	42
SILVER	2.0	3.7	2.3		10	5	0	8	1	42
SODIUM	d	d	116	B	0	0	0	0	0	42
THALLIUM	c	c	0.61	U	0	0	0	3	0	42
VANADIUM	21.3	42.5	40.2		0	0	0	0	0	42
ZINC	286	435	382		0	2	0	10	1	42

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 0  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 3  
SOIL : Sb, Se, Ag

# OF DUPLICATES OUT: 0  
SOIL :

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 1 FY 91

LABORATORY NAME: Datachem (UT) [X2] (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE  
LABORATORY RANK: Above = 10 Same = 0 Below = 31

% Score: 95.4  
REPORT DATE: 12/13/1990  
MATRIX: WATER 1

ELEMENT NAME	95 % CI		LAB RESULTS		PROGRAM DATA					TOT #LA
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	1830	2210	1920		0	1	0	0	0	4
ANTIMONY	446	524	474		0	6	0	4	0	4
ARSENIC	20.0	31.3	4.6	S X	0	4	0	3	1	4
BARIUM	c	c	22	U	0	0	0	0	0	4
BERYLLIUM	13.4	16.9	16.8	\$	0	2	0	1	0	4
CADMIUM	c	c	3	U	0	0	0	0	1	4
CALCIUM	c	c	540	U	0	0	0	0	0	4
CHROMIUM	34.4	48.6	47.5	\$	0	1	0	0	0	4
COBALT	447	539	513		0	1	0	0	0	4
COPPER	c	c	5	U	0	0	0	0	0	4
IRON	188	236	227		0	6	0	0	1	4
LEAD	103	154	121		0	1	0	0	0	4
MAGNESIUM	c	c	591	U	0	0	0	0	0	4
MANGANESE	81.7	99.2	89.7		0	1	0	0	0	4
MERCURY	c	c	0.2	U	0	0	0	4	0	4
NICKEL	66.3	86.6	79.4		0	3	0	0	0	4
POTASSIUM	13100	15700	14400		0	4	0	0	0	4
SELENIUM	16.0	24.8	21.4		0	2	0	4	1	4
SILVER	16.2	24.7	20.4		0	7	0	6	0	4
SODIUM	22100	26300	24900		0	4	0	0	0	4
THALLIUM	17.4	30.6	21.4		1	3	1	6	2	4
VANADIUM	c	c	9	U	0	0	0	0	0	4
ZINC	177	228	204		0	2	0	0	0	4

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 1  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 0  
WATER :

# OF DUPLICATES OUT: 0  
WATER :



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

October 24, 1990

Mr. Lee Harris  
Data Chem  
960 West LeVoy St.  
Salt Lake City, UT 84123

Dear Mr. Harris:

For your information and review, enclosed are the results of your participation in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) Fourth Quarter Inorganic Performance Evaluation Study (QB4 FY90). The samples were prepared by the EMSL-LV and consisted of one soil sample and two water samples. The homogeneous soil sample and both of the water samples were spiked with inorganic analytes. The second water sample was not a blank. These samples were to be prepared and analyzed using methods specified in your current contract. All laboratories received the samples single blind. Enclosed is the Individual Laboratory Summary Report for your laboratory and associated scoring information.

Please review your score and performance level. If the performance level indicates that corrective actions are necessary or mandatory, please describe the deficiencies and the actions taken to correct them in a letter to the Administrative Project Officer within 14 days after receipt of this letter. Copies should be sent to the Technical Project Officer and to me at EMSL-LV.

EMSL-LV would like to thank you for your participation in this study. We trust that this information is useful to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,

W. R. Newberry, III, Ph.D.  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosure

cc: (w/Enclosure)  
Mike Hurd, Administrative Project Officer, Analytical Operations  
Branch, HSED, OERR (OS-230)

52

INORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR Q3 4 FY 90

LABORATORY NAME: Datachem (UT) (K2) (DATAC)  
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary  
LABORATORY RANK: Above = 14 Same = 0 Below = 14

% Score: 87.9  
REPORT DATE: 8/30/199  
MATRIX: WATER 1

ELEMENT NAME	95 % CI		LAB RESULTS		#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA			TC #L
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE			#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	244	387	235	X	1	4	0	1	0	
ANTIMONY	593	746	649		0	5	0	0	1	
ARSENIC	40.4	66.7	56.2		0	0	0	2	1	
BARIUM	925	1050	981		0	1	0	1	0	
BERYLLIUM	c	c	1	U	0	0	0	0	0	
CADMIUM	12.4	18.4	15.4		1	7	0	1	1	
CALCIUM	17300	21900	19400		1	1	0	0	0	
CHROMIUM	c	c	10.5		0	0	0	0	0	
COBALT	269	314	300		0	0	0	0	0	
COPPER	25.0	42.1	35.2		0	0	0	0	0	
IRON	877	1100	976	E	0	0	0	0	0	
LEAD	5.0	11.7	8.5		0	0	0	0	0	
MAGNESIUM	c	c	454	U	0	0	0	0	0	
MANGANESE	c	c	1	U	0	0	0	0	0	
MERCURY	c	c	0.2	U	0	0	0	1	0	
NICKEL	c	c	21	U	0	0	0	0	0	
POTASSIUM	20100	22600	21400		1	5	0	0	0	
SELENIUM	40.9	65.9	48.9		0	2	0	3	3	
SILVER	44.3	53.0	49.7		0	3	0	5	0	
SODIUM	8740	10600	9590		1	3	0	0	0	
THALLIUM	c	c	3	U	0	0	0	5	0	
VANADIUM	c	c	7	U	0	0	0	0	0	
ZINC	59.9	100	95		0	2	0	1	1	

# OF ELEMENTS NOT-IDENTIFIED: 0  
# OF ELEMENTS MIS-QUANTIFIED: 1  
# OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 2  
WATER : Se, Ag

# OF DUPLICATES OUT: 1  
WATER : Zn

INORGANIC PERFORMANCE EVALUATION SAMPLE  
 INDIVIDUAL LABORATORY SUMMARY REPORT  
 FOR Q8 4 FY 90

LABORATORY NAME: Datachem (UT) [K2] (DATAC)  
 PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary  
 LABORATORY RANK: Above = 14 Same = 0 Below = 14

% Score: 87.9  
 REPORT DATE: 8/30/1990  
 MATRIX: WATER 2

ELEMENT NAME	95 % CI		LAB RESULTS		#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA			TOT: #LAB
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE			#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	622	803	600	X	1	5	0	1	0	25
ANTIMONY	60.0	109	82		2	1	0	0	1	25
ARSENIC	41.9	67.2	55.8		1	1	0	2	1	25
BARIUM	c	c	18	U	0	0	0	1	0	25
BERYLLIUM	20.9	30.1	27.3		1	2	0	0	0	25
CADMIUM	c	c	3	U	0	0	0	1	1	25
CALCIUM	c	c	372	U	0	0	0	0	0	25
CHROMIUM	15.0	28.8	25.9		1	2	0	0	0	25
COBALT	c	c	6	U	0	0	0	0	0	25
COPPER	c	c	6.4	B	0	0	0	0	0	25
IRON	450	583	475	E	0	1	0	0	0	25
LEAD	24.0	35.7	30.2		0	1	0	0	0	25
MAGNESIUM	18900	21300	19600		1	4	0	0	0	25
MANGANESE	61.0	71.5	63.5		1	3	0	0	0	25
MERCURY	c	c	0.2	U	0	0	0	1	0	29
NICKEL	184	222	215		1	3	0	0	0	29
POTASSIUM	c	c	874	U	0	0	0	0	0	29
SELENIUM	5.0	9.0	6.1		0	1	1	3	3	29
SILVER	15.8	24.0	22.3		0	4	0	5	0	29
SODIUM	c	c	352	U	0	0	0	0	0	29
THALLIUM	75.4	125	104		0	2	1	5	0	29
VANADIUM	142	166	154		1	2	0	0	0	29
ZINC	d	d	105	#	0	0	0	1	1	29

# OF ELEMENTS NOT-IDENTIFIED: 0  
 # OF ELEMENTS MIS-QUANTIFIED: 1  
 # OF FALSE POSITIVES: 1

# OF MATRIX SPIKES OUT: 2  
 WATER : Se, Ag

# OF DUPLICATES OUT: 1  
 WATER : Zn

INORGANIC PERFORMANCE EVALUATION SAMPLE  
 INDIVIDUAL LABORATORY SUMMARY REPORT  
 FOR QB 4 FY 90

LABORATORY NAME: Datachem (UT) [K2] (DATAC)  
 PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary  
 LABORATORY RANK: Above = 14 Same = 0 Below = 14

% Score: 87.9  
 REPORT DATE: 8/30/1990  
 MATRIX: SOIL 1

ELEMENT NAME	95 % CI		LAB RESULTS				PROGRAM DATA			TO #L
	LOWER	UPPER	REPORTED VALUE	QUALIFIER CODE	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	16500	26500	20200		1	5	0	0	0	2
ANTHONY	12.0	30.1	15.5		6	1	0	20	0	2
ARSENIC	120	201	166		0	2	0	0	1	2
BARIIUM	108	156	135		0	2	0	0	0	2
BERYLLIUM	1.8	3.4	2.7		0	1	0	0	0	2
CADMIUM	7.6	11.3	10.2		0	4	0	1	0	2
CALCIUM	17800	22100	19400		1	1	0	0	0	2
CHROMIUM	24.7	33.3	26.6		0	2	0	0	2	2
COBALT	16.9	25.4	21.1		0	3	0	0	0	2
COPPER	622	808	699		0	2	0	0	0	2
IRON	23400	31800	26100		0	2	0	0	0	2
LEAD	1260	1730	1560		0	1	0	0	0	2
MAGNESIUM	11800	14700	12800		1	3	0	0	0	2
MANGANESE	6770	8750	7910		0	2	0	0	0	2
MERCURY	1.5	2.9	1.9		0	2	0	4	3	2
NICKEL	9.9	23.5	14.2		0	1	0	0	0	2
POTASSIUM	1120	1890	1610		1	4	0	0	0	2
SELENIUM	1.0	6.7	4.3	S	1	0	2	16	3	2
SILVER	2.0	8.4	3.3		1	2	0	6	0	2
SODIUM	d	d	354	B	0	0	0	0	0	2
THALLIUM	2.8	5.8	5	S	1	2	0	2	1	2
VANADIUM	28.0	42.7	34.8		0	1	0	0	0	2
ZINC	453	652	581		0	1	0	0	1	2

# OF ELEMENTS NOT-IDENTIFIED: 0  
 # OF ELEMENTS MIS-QUANTIFIED: 0  
 # OF FALSE POSITIVES: 0

# OF MATRIX SPIKES OUT: 2  
 SOIL : Hg, Ag

# OF DUPLICATES OUT: 1  
 SOIL : Cr

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR QB 4 FY 90

MATRIX: WATER 1

REPORT DATE: 8/31/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					TOTAL #LAE
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	300	244	387	315	32.6	0	1	0	1	0	16
ANTIMONY	700	593	746	670	35.1	0	1	0	0	0	16
ARSENIC	-	40	67	53.6	6.02	0	0	0	1	1	16
BARIUM	1000	925	1050	989	28.9	0	0	0	1	0	16
BERYLLIUM	-	c	c	c	c	0	0	0	0	0	16
CADMIUM	15	12	18	15.4	1.35	0	1	0	0	1	16
CALCIUM	20000	17300	21900	19604	1054	0	0	0	0	0	16
CHROMIUM	-	c	c	c	c	0	0	0	0	0	16
COBALT	300	269	314	292	10.4	0	0	0	0	0	16
COPPER	30	25.0	42	30.7	5.20	0	0	0	0	0	16
IRON	1000	877	1100	989	51.0	0	0	0	0	0	16
LEAD	5	5.0	12	6.93	2.17	0	0	0	0	0	16
MAGNESIUM	-	c	c	c	c	0	0	0	0	0	16
MANGANESE	-	c	c	c	c	0	0	0	0	0	16
MERCURY	-	c	c	c	c	0	0	0	1	0	16
NICKEL	-	c	c	c	c	0	0	0	0	0	16
POTASSIUM	22000	20100	22600	21346	540	0	3	0	0	0	16
SELENIUM	-	41	66	53.4	5.72	0	1	0	2	2	16
SILVER	50	44	53	48.7	1.98	0	1	0	4	0	16
SODIUM	10000	8740	10600	9703	434	0	1	0	0	0	16
THALLIUM	-	c	c	c	c	0	0	0	3	0	16
VANADIUM	-	c	c	c	c	0	0	0	0	0	16
ZINC	75	60	100	80.2	9.24	0	1	0	0	1	16

# OF LABS WITH ACCEPTABLE PERFORMANCE: 7

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 9

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 0

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR Q3 4 FY 90

MATRIX: WATER 2

REPORT DATE: 8/31/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TOT. #LABS
ALUMINUM	700	622	803	713	41.1	0	2	0	1	0	16
ANTIMONY	70	60.0	109	76.9	16.4	1	0	0	0	0	16
ARSENIC	-	42	67	54.6	5.72	1	1	0	1	1	16
BARIUM	-	c	c	c	c	0	0	0	1	0	16
BERYLLIUM	25	21	30	25.5	2.08	0	1	0	0	0	16
CADMIUM	-	c	c	c	c	0	0	0	0	1	16
CALCIUM	-	c	c	c	c	0	0	0	0	0	16
CHROMIUM	20	15	29	21.9	3.16	0	1	0	0	0	16
COBALT	-	c	c	c	c	0	0	0	0	0	16
COPPER	-	c	c	c	c	0	0	0	0	0	16
IRON	500	450	583	516	30.3	0	0	0	0	0	16
LEAD	25	24	36	29.8	2.68	0	0	0	0	0	16
MAGNESIUM	20000	18900	21300	20111	537	0	1	0	0	0	16
MANGANESE	65	61	72	66.2	2.39	0	1	0	0	0	16
MERCURY	-	c	c	c	c	0	0	0	1	0	16
NICKEL	200	184	222	203	8.64	0	1	0	0	0	16
POTASSIUM	-	c	c	c	c	0	0	0	0	0	16
SELENIUM	-	5.0	9.0	6.48	1.14	0	1	1	2	2	16
SILVER	20	16	24	19.9	1.88	0	2	0	4	0	16
SODIUM	-	c	c	c	c	0	0	0	0	0	16
THALLIUM	-	75	125	100	11.3	0	1	1	3	0	16
VANADIUM	150	142	166	154	5.50	0	0	0	0	0	16
ZINC	-	d	d	d	d	0	0	0	0	1	16

# OF LABS WITH ACCEPTABLE PERFORMANCE: 7

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 9

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 0

INORGANIC PERFORMANCE EVALUATION SAMPLE  
PROGRAM SUMMARY REPORT  
FOR Q8 4 FY 90

MATRIX: SOIL 1

REPORT DATE: 8/31/1990

ELEMENT NAME	SPIKE LEVEL	ELEMENT DATA				PROGRAM DATA					TOTAL #LAB
		95 % LOWER	CI UPPER	MEAN RESULT	STANDARD DEVIATION	#LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	
ALUMINUM	-	16500	26500	21489	2289	0	2	0	0	0	16
ANTIMONY	-	12.0	30	17.2	5.64	4	0	0	12	0	16
ARSENIC	-	120	201	160	18.4	0	1	0	0	1	16
BARIUM	-	108	156	132	11.0	0	0	0	0	0	16
BERYLLIUM	-	1.8	3.4	2.62	0.374	0	1	0	0	0	16
CADMIUM	-	7.6	11	9.45	0.851	0	2	0	0	0	16
CALCIUM	-	17800	22100	19960	986	0	0	0	0	0	16
CHROMIUM	-	25	33	29.0	1.97	0	0	0	0	2	16
COBALT	-	17	25	21.1	1.93	0	1	0	0	0	16
COPPER	-	622	808	715	42.6	0	0	0	0	0	16
IRON	-	23400	31800	27605	1902	0	1	0	0	0	16
LEAD	-	1260	1730	1500	107	0	1	0	0	0	16
MAGNESIUM	-	11800	14700	13222	659	0	0	0	0	0	16
MANGANESE	-	6770	8750	7759	442	0	2	0	0	0	16
MERCURY	-	1.5	2.9	2.19	0.316	0	1	0	3	1	16
NICKEL	-	9.9	24	16.7	3.09	0	0	0	0	0	16
POTASSIUM	-	1120	1890	1509	175	0	1	0	0	0	16
SELENIUM	-	1.0	6.7	3.85	1.30	1	0	2	12	2	16
SILVER	-	2.0	8.4	5.11	1.48	1	1	0	4	0	16
SODIUM	-	d	d	d	d	0	0	0	0	0	16
THALLIUM	-	2.8	5.8	4.29	0.697	1	1	0	2	1	16
VANADIUM	-	28	43	35.4	3.34	0	0	0	0	0	16
ZINC	-	453	652	552	45.5	0	0	0	0	0	16

# OF LABS WITH ACCEPTABLE PERFORMANCE: 7

# OF LABS WITH ACCEPTABLE PERFORMANCE - CORRECTIVE ACTION NECESSARY: 9

# OF LABS WITH UNACCEPTABLE PERFORMANCE - CORRECTIVE ACTION MANDATORY: 0

INORGANIC QUARTERLY BLIND PERFORMANCE EVALUATION SAMPLE

ILSR EXPLANATION

- c CI WERE NOT SET SINCE 40 % OR MORE OF THE LABORATORIES SUBMITTED A NON-USABLE VALUE.
- d CI NOT USED. SEE SCORING NOTES, PROCEDURE FOR GRADING U-VALUES NO. 4.
- U ANALYZED FOR BUT NOT DETECTED.
- B INDICATES AN ESTIMATED VALUE LESS THAN THE CRDL.
- E INDICATES A VALUE ESTIMATED OR NOT REPORTED DUE TO THE PRESENCE OF INTERFERENCES.
- S INDICATES VALUE DETERMINED BY THE METHOD OF STANDARD ADDITION.
- + CORRELATION COEFFICIENT FOR THE MSA IS LESS THAN 0.995.
- X VALUE WAS OUTSIDE BOTH THE WARNING AND THE ACTION LIMIT. POINTS DEDUCTED.
- \$ VALUE WAS OUTSIDE THE WARNING LIMIT ONLY. NO POINTS DEDUCTED.
- UX ELEMENT WAS NOT IDENTIFIED. POINTS DEDUCTED.
- # INDICATES A FALSE POSITIVE BY DIXON'S TEST. POINTS DEDUCTED.
- ? BEST ESTIMATE OF VALUE AND/OR QUALIFIER. POOR COPY AND/OR ILLEGIBLE VALUE SUBMITTED.

SCORING NOTES:

$$X \text{ Score} = 100 - \left( \sum_{i=1}^n 10A_i + B_i + 4C_i \right) / n - 0.5S - D$$

where A = number of elements that were not identified

$$B = \left[ 1 - \left[ \frac{T - x}{T} \right]^{1.5} \right] \cdot 100$$

- T = total number of elements
- x = number of mis-quantitations + number of elements that were not identified
- n = number of samples
- C = number of false positives
- S = number of matrix spikes outside the criteria
- D = number of duplicates outside the criteria

CONFIDENCE INTERVALS (CI) WERE DERIVED FROM LABORATORY SUBMITTED VALUES. LESS THAN VALUES (<x), U-VALUES, AND NON-SUBMITTED VALUES (-) WERE NOT USED IN THE CALCULATION OF THE CI.

PROCEDURE FOR GRADING U-VALUES

1. ANY U-VALUE RESPONSE (INSTRUMENT DETECTION LIMIT) > CRDL FOR THE APPROPRIATE DILUTION, EVEN IF IT IS IN THE 95 % CI, CAUSES A POINT DEDUCTION. IF 25 % OR MORE OF THE LABORATORIES REPORT A U-VALUE OVER THE CRDL, NO POINTS ARE DEDUCTED FOR ANY LABORATORY, POSSIBLY INDICATING A MATRIX INTERFERENCE IN THE SAMPLE.
2. IF CRDL = LOWER CI, THEN USE CI AS SET.
3. IF LOWER CI < CRDL AND CRDL = UPPER CI, THEN SET LOWER CI TO CRDL. NO POINTS DEDUCTED FOR IDENTIFICATION OR QUANTITATION LESS THAN OR EQUAL TO THE CRDL.
4. IF CRDL > LOWER AND UPPER CI, THEN NO CI USED. PARAMETER DROPPED FROM THE SCORING. NO POINTS DEDUCTED FOR IDENTIFICATIONS OR QUANTITATIONS. FALSE POSITIVES POSSIBLE.



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

JUL 13 1990

Ed Sanders  
Data Chem  
960 W. Levoy Dr.  
Salt Lake City, UT 84123

Dear Mr. Sanders:

The Individual Laboratory Summary Report (ILSR) summarizing your laboratory's results for the Third Quarter Organic Performance Evaluation Sample (QB3, FY90) is enclosed for your information and review. Please review your score as listed on the ILSR to determine the actions which are required to correct any deficiencies. Performance Categories:

o Acceptable, No Response Required (Score--90 or above):

Data meets most or all of the scoring criteria. No response is required.

o Acceptable, Response Explaining Deficiency(ies) Required (Score--Greater than or equal to 70, less than 90):

Deficiencies exist in your performance.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Administrative Project Officer, the Technical Project Officer and the EMSL-LV.

o Unacceptable, Response Explaining Deficiency(ies) Required (Score--Less than 70):

Deficiencies exist in your performance to the extent that the National Program Office has determined that you have not demonstrated the capability to meet the contract requirements.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Administrative Project Officer, the Technical Project Officer and the EMSL-LV.

You shall be notified by the Administrative Project Officer or Technical Project Officer concerning the remedy for your unacceptable performance. You may expect, but the Agency is not limited to, the following actions: reduction of the number of samples sent under the contract, suspension of sample shipment to you, a site visit, a full data audit, and/or analysis of remedial PE samples.

NOTE: Your prompt response demonstrating that corrective action has been taken to ensure your capability to meet contract requirements will facilitate continuation of full sample delivery.

Questions concerning the appropriate response to this letter must be forwarded to your Technical Project Officer. Questions concerning the scoring procedure used in QB3 or errors in scoring the QB3 sample must be directed to the EMSL-LV. Thank you for your cooperation in this study.

Sincerely,



Larry Butler, Ph.D., Supervisor  
Performance Evaluation Program  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosures:

Individual Laboratory Summary Report  
Performance Evaluation Material Preparation Instructions  
Organic Performance Evaluation Material Scoring Procedure  
Description of the Individual Laboratory Summary Report

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 3 FY 90

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 34 Same = 1 Below = 10

% SCORE: 79.1  
REPORT DATE: 07/03/90  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING		ACTION		DATA	Q				
	LOWER	UPPER	LOWER	UPPER	CONC					
TCL VOLATILE										
VINYL CHLORIDE	22	36	20	38	25		6	0	46	46
CHLOROETHANE	23	35	21	37	27		2	0	46	46
ACETONE	52	133	40	145	78		3	1	45	46
CARBON DISULFIDE	35	55	32	58	44		6	0	46	46
1,2-DICHLOROETHENE (TOTAL)	73	102	69	106	65	X	6	0	46	46
BROMODICHLOROMETHANE	47	58	45	60	46	S	4	0	46	46
DIBROMOCHLOROMETHANE	61	78	58	80	57	X	8	0	46	46
BROMOFORM	43	58	40	60	54		1	0	46	46
1,1,2,2-TETRACHLOROETHANE	16	22	15	23	19		6	0	46	46
STYRENE	67	96	62	100	75		4	0	46	46
TCL SEMIVOLATILE										
BIS(2-CHLOROETHYL)ETHER	29	50	26	53	40		1	1	45	46
2-CHLOROPHENOL	80	128	73	154	94		0	0	46	46
1,2-DICHLOROBENZENE	46	84	41	104	78		2	0	46	46
BIS(2-CHLOROISOPROPYL)ETHER	38	67	34	71	54		1	0	46	46
4-METHYLPHENOL	43	64	40	76	53		2	0	46	46
N-NITROSO-DI-N-PROPYLAMINE	49	78	44	82	59		2	0	46	46
2,4-DIMETHYLPHENOL	45	74	40	90	52		1	0	46	46
BIS(2-CHLOROETHOXY)METHANE	30	50	28	52	50		3	0	46	46
2-METHYLNAPHTHALENE	30	56	26	60	56		3	0	46	46
HEXACHLOROCYCLOPENTADIENE	11	54	10	78	7	S	0	7	39	46
2,4,6-TRICHLOROPHENOL	50	74	47	86	61		0	0	46	46
2,6-DINITROTOLUENE	31	46	29	54	43		2	0	46	46
ACENAPHTHENE	44	67	41	70	59		4	0	46	46
2,4-DINITROPHENOL	50	95	50	102	78		0	2	44	46
DIBENZOFURAN	65	97	60	101	96		4	0	46	46
DIETHYLPHTHALATE	27	103	15	115	5	X	10	3	43	46
FLUORENE	55	80	51	83	75		3	0	46	46
4-NITROANILINE	56	115	50	123	130	X	3	1	45	46
PHENANTHRENE	68	102	63	107	94		3	0	46	46
FLUORANTHENE	68	105	62	111	86		1	0	46	46
BUTYL BENZYL PHTHALATE	22	83	13	92	4	X	9	3	43	46
3,3'-DICHLOROBENZIDINE	47	125	35	136	100		6	0	46	46
BIS(2-ETHYLHEXYL)PHTHALATE	52	90	46	96	100	X	4	0	46	46
DI-N-OCTYL PHTHALATE	52	88	47	94	90	S	3	0	46	46
INDENO(1,2,3-CD)PYRENE	63	99	58	104	79		7	0	46	46
DIBENZ(A,H)ANTHRACENE	64	102	58	108	75		6	0	46	46
BENZO(G,H,I)PERYLENE	65	101	60	106	80		5	0	46	46
TCL PESTICIDES										
ALPHA-BHC	0.38	0.72	0.33	0.77	0.48		5	0	46	46
BETA-BHC	0.3	0.56	0.26	0.6	0.4		4	0	46	46
DELTA-BHC	0.25	0.5	0.21	0.54	0.34		3	0	46	46
GAMMA-BHC (LINDANE)	0.34	0.64	0.29	0.69	0.43		4	0	46	46
ENDOSULFAN I	0.34	0.59	0.3	0.62	0.45		1	1	45	46

1903

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 3 FY 90

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 34 Same = 1 Below = 10

% SCORE: 79.1  
REPORT DATE: 07/03/90  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	CONC	Q				
AROCLOR-1260	3.3	5.2	3	5.5	4.8		5	0	46	46
NON-TCL VOLATILE										
PROPANE,1,2-DIBROMO-3-CHLORO-METHANE,1000-					26			14	32	46
					96			3	43	46
NON-TCL SEMIVOLATILE										
BENZOPHENONE					100			3	43	46
BENZILATE,CHLORO-					0			24	22	46
PYRENE,BENZO(E)-					0			40	6	46
PYRIDINE					0			35	11	46
QUINONE,1,4-NAPHTHO-					0			37	9	46
TCL SEMIVOLATILE (Contaminants)										
BENZYL ALCOHOL					24			22	24	46
NON-TCL SEMIVOLATILE (Contaminants)										
1,4-NAPHTHALENEDIONE,2-HYDR					6.9			24	22	46
BENZOPHENONE,4,4'-DICHLORO-					5.4			43	3	46
BENZO(J)FLUORANTHENE					94			36	10	46

# OF TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 6  
# OF TCL CONTAMINANTS: 0

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

RECEIVED

MAY 02 1990

MAY 04 1990

Ed Sanders  
Data Chem  
960 W. Levoy Dr.  
Salt Lake City, UT 84123

Dear Mr. Sanders:

The Individual Laboratory Summary Report (ILSR) summarizing your laboratory's results for the Second Quarter Organic Performance Evaluation Sample (QB2, FY90) is enclosed for your information and review. Please review your score as listed on the ILSR to determine the actions which are required to correct any deficiencies. Performance Categories:

o Acceptable, No Response Required (Score--90 or above):

Data meets most or all of the scoring criteria. No response is required.

o Acceptable, Response Explaining Deficiency(ies) Required (Score--Greater than or equal to 70, less than 90):

Deficiencies exist in your performance.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Administrative Project Officer, the Technical Project Officer and the EMSL-LV.

o Unacceptable, Response Explaining Deficiency(ies) Required (Score--Less than 70):

Deficiencies exist in your performance to the extent that the National Program Office has determined that you have not demonstrated the capability to meet the contract requirements.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Administrative Project Officer, the Technical Project Officer and the EMSL-LV.

You shall be notified by the Administrative Project Officer or Technical Project Officer concerning the remedy for your unacceptable performance. You may expect, but the Agency is not limited to, the following actions: reduction of the number of samples sent under the contract, suspension of sample shipment to you, a site visit, a full data audit, and/or analysis of remedial PE samples.

NOTE: Your prompt response demonstrating that corrective action has been taken to ensure your capability to meet contract requirements will facilitate continuation of full sample delivery.

Questions concerning the appropriate response to this letter must be forwarded to your Technical Project Officer. Questions concerning the scoring procedure used in QB2 or errors in scoring the QB2 sample must be directed to the EMSL-LV. Thank you for your cooperation in this study.

Sincerely,



Larry Butler, Ph.D., Supervisor  
Performance Evaluation Program  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosures:

Individual Laboratory Summary Report  
Performance Evaluation Material Preparation Instructions  
Organic Performance Evaluation Material Scoring Procedure  
Description of the Individual Laboratory Summary Report

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 2 FY 90

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 39 Same = 1 Below = 10

% SCORE: 81.2  
REPORT DATE: 03/16/90  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING LOWER	UPPER	ACTION LOWER	UPPER	CONC	Q				
TCL VOLATILE										
CHLOROMETHANE	31	52	28	55	120	X	8	0	51	51
METHYLENE CHLORIDE	NU	NU	NU	NU	110		0	0	51	51
1,1-DICHLOROETHENE	21	33	19	40	27		1	0	51	51
1,2-DICHLOROETHENE (TOTAL)	27	38	25	44	33		4	0	51	51
CHLOROFORM	54	76	50	79	60		1	0	51	51
1,2-DICHLOROETHANE	73	98	69	102	70	\$	2	0	51	51
2-BUTANONE	41	115	30	126	10	U &	4	1	50	51
1,1,1-TRICHLOROETHANE	23	32	21	36	31		2	0	51	51
CARBON TETRACHLORIDE	26	38	24	44	30		2	0	51	51
TRICHLOROETHENE	49	66	46	76	56		1	0	51	51
1,1,2-TRICHLOROETHANE	84	118	80	123	90		6	0	51	51
BENZENE	58	79	55	82	65		4	0	51	51
TETRACHLOROETHENE	47	63	45	71	49		5	0	51	51
TOLUENE	71	94	68	107	79		0	0	51	51
CHLOROBENZENE	20	27	19	28	23		3	0	51	51
ETHYL BENZENE	17	27	16	33	21		2	0	51	51
XYLENES (TOTAL)	14	20	13	21	16		2	1	50	51
TCL SEMIVOLATILE										
PHENOL	12	36	10	49	27		0	1	50	51
2-CHLOROPHENOL	77	130	69	159	73	\$	3	0	51	51
1,3-DICHLOROBENZENE	43	71	39	86	61		4	1	50	51
1,2-DICHLOROBENZENE	48	76	44	91	66		5	0	51	51
2-METHYLPHENOL	20	42	17	53	29		1	0	51	51
NITROBENZENE	33	61	29	65	49		2	1	50	51
2-NITROPHENOL	21	37	19	45	19	\$	1	0	51	51
2,4-DICHLOROPHENOL	43	73	39	89	38	X	2	0	51	51
1,2,4-TRICHLOROBENZENE	39	64	35	77	59		3	0	51	51
NAPHTHALENE	54	86	50	103	72		3	0	51	51
4-CHLORO-3-METHYL PHENOL	54	87	50	91	57		4	0	51	51
DIMETHYL PHTHALATE	NU	NU	NU	NU	10	U	0	16	35	51
2,4-DINITROTOLUENE	10	112	10	128	97		0	5	46	51
DIETHYLPHTHALATE	10	52	10	77	8		0	6	45	51
FLUORENE	64	100	59	105	77		5	0	51	51
4-NITROANILINE	54	87	50	92	110	X	6	2	49	51
4,6-DINITRO-2-METHYLPHENOL	86	150	76	159	91		5	0	51	51
N-NITROSODIPHENYLAMINE	50	84	45	89	70		6	0	51	51
4-BROMOPHENYL PHENYL ETHER	32	48	29	50	35		1	0	51	51
BENZO(B)FLUORANTHENE	62	116	54	123	120	\$	3	0	51	51
BENZO(K)FLUORANTHENE	69	143	59	153	140		4	0	51	51
DIBENZ(A,H)ANTHRACENE	49	91	43	114	80		1	1	50	51
TCL PESTICIDES										
HEPTACHLOR	NU	NU	NU	NU	0.048		0	12	39	51
ALDRIN	0.25	0.45	0.22	0.56	0.32		4	1	50	51
HEPTACHLOR EPOXIDE	NU	NU	NU	NU	0.05	U	0	49	2	51

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 2 FY 90

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 39 Same = 1 Below = 10

% SCORE: 81.2  
REPORT DATE: 03/16/90  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING		ACTION		CONC	Q				
	LOWER	UPPER	LOWER	UPPER						
4,4'-DDE	0.22	0.42	0.19	0.44	0.39		5	1	50	51
4,4'-DDD	0.42	0.84	0.36	0.91	0.49		3	0	51	51
NON-TCL VOLATILE										
ALLYL ALCOHOL					0			51	0	51
BENZENE,1,1,1-TRIFLUORO-METHYL-					73			2	49	51
ETHANE,1,2-DIBROMO-					32			3	48	51
PROPENE,2,3-DICHLORO-					0			19	32	51
NON-TCL SEMIVOLATILE										
BENZOPHENONE					74			1	50	51
BENZENE,4-DINITRO-					17			0	51	51
ISOSAFROLE					52			8	43	51
NICOTINE					22			6	45	51
PHENOL,NONYL-					0			40	11	51
TOLUENE,2,3-DINITRO-					0			31	20	51
TCL VOLATILE (Contaminants)										
CIS-1,3-DICHLOROPROPENE					100			32	19	51
TCL PESTICIDES (Contaminants)										
METHOXYCHLOR					0.039			48	3	51

# OF TCL COMPOUNDS NOT-IDENTIFIED: 1  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 3  
# OF TCL CONTAMINANTS: 0

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

PE Organic  
1st qtr 90

Ed Sanders  
Data Chem  
960 W. Levoy Dr.  
Salt Lake City, UT 84123

Dear Mr. Sanders:

The Individual Laboratory Summary Report (ILSR) summarizing your laboratory's results for the First Quarter Organic Performance Evaluation Sample (QB1, FY90) is enclosed for your information and review. Please review your score as listed on the ILSR to determine the actions which are required to correct any deficiencies. Performance Categories:

o Acceptable, No Response Required (Score--90 or above):

Data meets most or all of the scoring criteria. No response is required.

o Acceptable, Response Explaining Deficiency(ies) Required (Score--Greater than or equal to 70, less than 90):

Deficiencies exist in your performance.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Project Officer, the Technical Project Officer and the EMSL-LV.

o Unacceptable, Response Explaining Deficiency(ies) Required (Score--Less than 70):

Deficiencies exist in your performance to the extent that the National Program Office has determined that you have not demonstrated the capability to meet the contract requirements.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Project Officer, the Technical Project Officer and the EMSL-LV.

You shall be notified by the Project Officer or Technical Project Officer concerning the remedy for your unacceptable performance. You may expect, but the Agency is not limited to, the following actions: reduction of the number of samples sent under the contract, suspension of sample shipment to you, a site visit, a full data audit, and/or analysis of remedial PE samples.

NOTE: Your prompt response demonstrating that corrective action has been taken to ensure your capability to meet contract requirements will facilitate continuation of full sample delivery.

Questions concerning the appropriate response to this letter must be forwarded to your Deputy Technical Officer. Questions concerning the scoring procedure used in QB1 or errors in scoring the QB1 sample must be directed to the EMSL-LV. Thank you for your cooperation in this study.

Sincerely,



Larry Butler, Ph.D., Supervisor  
Performance Evaluation Program  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

**Enclosures:**

Individual Laboratory Summary Report  
Performance Evaluation Material Preparation Instructions  
Organic Performance Evaluation Material Scoring Procedure  
Description of the Individual Laboratory Summary Report

1903

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 1 FY 90

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 51 Same = 2 Below = 9

% SCORE: 78.6  
REPORT DATE: 12/06/89  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	CONC	Q				
TCL VOLATILE										
VINYL CHLORIDE	25	51	21	65	56	\$	3	1	62	63
1,1-DICHLOROETHENE	43	67	39	80	46		1	1	62	63
1,1,1-TRICHLOROETHANE	44	65	41	75	47		1	1	62	63
1,2-DICHLOROPROPANE	76	99	72	103	74	\$	4	1	62	63
TRICHLOROETHENE	54	75	51	87	55		3	1	62	63
2-PENTANONE,4-METHYL-	37	93	28	102	47		5	3	60	63
2-HEXANONE	10	99	10	148	14		0	16	47	63
TCL SEMIVOLATILE										
2-CHLOROPHENOL	80	141	71	173	61	X	3	0	63	63
1,4-DICHLOROBENZENE	47	84	42	103	64		2	0	63	63
BENZYL ALCOHOL	NU	NU	NU	NU	10	U	0	51	12	63
1,2-DICHLOROBENZENE	21	39	18	48	27		1	0	63	63
4-METHYLPHENOL	28	58	24	73	20	X	4	0	63	63
HEXACHLOROETHANE	40	75	35	94	48		4	0	63	63
2,4-DIMETHYLPHENOL	14	36	11	47	12	\$	3	0	63	63
4-CHLOROANILINE	NU	NU	NU	NU	5		0	19	44	63
HEXACHLOROBUTADIENE	12	24	11	31	17		3	0	63	63
2,4,5-TRICHLOROPHENOL	76	128	69	156	49	X	3	0	63	63
4-NITROPHENOL	NU	NU	NU	NU	15		0	4	59	63
2,4-DINITROTOLUENE	34	62	30	76	24	X	5	0	63	63
DIETHYLPHTHALATE	15	50	10	55	23		1	4	59	63
FLUORENE	26	41	23	43	26		4	0	63	63
4-NITROANILINE	NU	NU	NU	NU	17		0	0	63	63
PYRENE	71	110	65	130	66	\$	0	0	63	63
BENZO(A)ANTHRACENE	50	74	46	87	55		2	0	63	63
CHRYSENE	54	78	51	81	59		6	0	63	63
BENZO(A)PYRENE	48	74	44	87	54		2	0	63	63
DIBENZ(A,H)ANTHRACENE	49	95	42	101	62		3	0	63	63
TCL PESTICIDES										
ENDOSULFAN I	0.26	0.44	0.23	0.46	0.27		8	1	62	63
ENDRIN	0.29	0.44	0.27	0.46	0.32		6	0	63	63
ENDOSULFAN II	0.24	0.42	0.21	0.52	0.26		4	1	62	63
4,4'-DDT	0.27	0.46	0.24	0.56	0.31		4	0	63	63
METHOXYCHLOR	0.62	1.3	0.52	1.4	0.61	\$	3	0	63	63
NON-TCL SEMIVOLATILE										
ATRAZINE					49			2	61	63
BENZOPHENONE					76			2	61	63
TRIFLURALIN					31			4	59	63
TCL VOLATILE (Contaminants)										
ACETONE							7	24	39	63

# OF TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 4  
# OF TCL CONTAMINANTS: 0

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0



1903

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF RESEARCH AND DEVELOPMENT  
ENVIRONMENTAL MONITORING SYSTEMS LABORATORY-LAS VEGAS  
P.O. BOX 93478  
LAS VEGAS, NEVADA 89193-3478  
(702/798-2100 - FTS 545-2100)

PE Organic  
4th Qtr 89

Ed Sanders  
Data Chem  
960 W. Levoy Dr.  
Salt Lake City, UT 84123

OCT 10 1989

Dear Mr. Sanders:

The Individual Laboratory Summary Report (ILSR) summarizing your laboratory's results for the Fourth Quarter Organic Performance Evaluation Sample (QB4, FY89), is enclosed for your information and review. Please review your score as listed on the ILSR to determine the actions which are required to correct any deficiencies. Performance Categories:

o Acceptable, No Response Required (Score--90 or above):

Data meets most or all of the scoring criteria. No response is required.

o Acceptable, Response Explaining Deficiency(ies) Required (Score--Greater than or equal to 70, less than 90):

Deficiencies exist in your performance.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Project Officer, the Deputy Project Officer and the EMSL-LV.

o Unacceptable, Response Explaining Deficiency(ies) Required (Score--Less than 70):

Deficiencies exist in the your performance to the extent that the National Program Office has determined that you have not demonstrated the capability to meet the contract requirements.

Within 14 days of receipt of this letter, please describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) listed on the ILSR in a letter to the Project Officer, the Deputy Project Officer and the EMSL-LV.

You shall be notified by the Project Officer or Deputy Project Officer concerning the remedy for your unacceptable performance. You may expect, but the Agency is not limited to, the following actions: reduction of the number of samples sent under the contract, suspension of sample shipment to you, a site visit, a full data audit, and/or analysis of remedial PE samples.

NOTE: Your prompt response demonstrating that corrective action has been taken to ensure your capability to meet contract requirements will facilitate continuation of full sample delivery.

Questions concerning the appropriate response to this letter must be forwarded to your Deputy Project Officer. Questions concerning the scoring procedure used in QB4 or errors in scoring the QB4 sample must be directed to the EMSL-LV. Thank you for your cooperation in this study.

Sincerely,



Larry Butler, Ph.D., Supervisor  
Performance Evaluation Program  
Quality Assurance Research Branch  
Quality Assurance and Methods Development Division

Enclosures:

Individual Laboratory Summary Report  
Performance Evaluation Material Preparation Instructions  
Organic Performance Evaluation Material Scoring Procedure  
Description of the Individual Laboratory Summary Report

1903

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 4 FY 89

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 33 Same = 3 Below = 31

% SCORE: 84.2  
REPORT DATE: 09/13/89  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
	WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	CONC	Q				
TCL VOLATILE										
BROMOMETHANE	34	67	29	72	65		10	1	67	68
METHYLENE CHLORIDE	NU	NU	NU	NU	58		0	0	68	68
ACETONE	23	69	16	76	32		4	1	67	68
CHLOROFORM	31	44	29	46	35		7	0	68	68
CARBON TETRACHLORIDE	12	21	11	26	16		2	0	68	68
VINYL ACETATE	NU	NU	NU	NU	10 U		0	67	1	68
BROMODICHLOROMETHANE	32	45	30	47	44		8	0	68	68
CIS-1,3-DICHLOROPROPENE	24	43	21	52	42		7	0	68	68
DIBROMOCHLOROMETHANE	33	44	31	46	41		10	0	68	68
BENZENE	5	8	5	10	6		1	4	64	68
1,1,2,2-TETRACHLOROETHANE	29	46	26	48	46		5	0	68	68
CHLOROBENZENE	6	9	6	11	9		2	1	67	68
ETHYL BENZENE	NU	NU	NU	NU	1		0	16	52	68
TCL SEMIVOLATILE										
BIS(2-CHLOROETHYL)ETHER	31	57	28	61	44		7	0	68	68
1,3-DICHLOROBENZENE	28	51	24	63	42		3	1	67	68
2-METHYLPHENOL	15	33	12	42	13 S		0	4	64	68
BIS(2-CHLOROISOPROPYL)ETHER	48	98	41	105	59		8	1	67	68
N-NITROSO-DI-N-PROPYLAMINE	29	52	26	56	28 S		5	0	68	68
NITROBENZENE	47	85	42	91	63		9	0	68	68
ISOPHORONE	32	59	28	63	40		5	0	68	68
2-NITROPHENOL	48	90	42	112	43 S		1	0	68	68
BIS(2-CHLOROETHOXY)METHANE	21	38	18	41	26		3	1	67	68
1,2,4-TRICHLOROBENZENE	26	48	23	60	40		3	0	68	68
NAPHTHALENE	20	38	17	41	30		4	0	68	68
2-METHYLNAPHTHALENE	25	50	21	64	39		3	0	68	68
2,4,6-TRICHLOROPHENOL	55	95	49	101	51 S		4	1	67	68
2-CHLORONAPHTHALENE	15	28	14	35	22		3	0	68	68
2-NITROANILINE	60	103	54	109	58 S		11	1	67	68
ACENAPHTHYLENE	43	70	39	74	55		6	0	68	68
3-NITROANILINE	63	158	50	172	46 S		7	2	66	68
4-CHLOROPHENYL PHENYL ETHER	23	43	20	46	28		1	0	68	68
HEXACHLOROBENZENE	64	110	58	135	94		6	0	68	68
PENTACHLOROPHENOL	50	77	50	81	52		3	0	68	68
ANTHRACENE	12	20	10	21	15		3	1	67	68
DI-N-BUTYLPHTHALATE	11	79	10	115	42		0	2	66	68
FLUORANTHENE	14	26	12	28	20		4	0	68	68
BENZO(B)FLUORANTHENE	46	92	39	117	81		3	3	65	68
TCL PESTICIDES										
HEPTACHLOR	0.062	0.13	0.052	0.16	0.05 U &		8	10	58	68
ALDRIN	0.17	0.37	0.14	0.4	0.27		6	14	54	68
HEPTACHLOR EPOXIDE	0.12	0.35	0.092	0.38	0.05 U &		4	21	47	68
DIELDRIN	0.44	0.88	0.37	0.94	0.55		5	0	68	68
ENDOSULFAN SULFATE	NU	NU	NU	NU	0.095		0	17	51	68
ALPHA-CHLORDANE	NU	NU	NU	NU	0.4		0	4	64	68
GAMMA-CHLORDANE	NU	NU	NU	NU	0.41		0	4	64	68
NON-TCL SEMIVOLATILE										
BENZOPHENONE					71			1	67	68
CHLORDIMEFORM					0			65	3	68
DICHLOROVOS					0			62	6	68
DICOFOL / 4,4'-DICHLOROBENZOPHENONE					35			4	64	68

1903

ORGANIC PERFORMANCE EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT  
FOR QB 4 FY 89

LABORATORY: DataChem (UT)  
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required  
RANK: Above = 33 Same = 3 Below = 31

% SCORE: 84.2  
REPORT DATE: 09/13/89  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA		#LABS MIS-QNT	PROGRAM	DATA	TOTAL #LABS
	WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	CONC	Q		#LABS NOT-ID	#LABS ID-CPD	
TCL VOLATILE (Contaminants)										
1,2-DICHLOROPROPANE					5			7	61	68
TRICHLOROETHENE					2			13	55	68
NON-TCL SEMIVOLATILE (Contaminants)										
BENZENE FORMAMIDE,CHLORO-METHYL-					31			67	1	68

# OF TCL COMPOUNDS NOT-IDENTIFIED: 2  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 0  
# OF TCL CONTAMINANTS: 0

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

June 11, 1991

OFFICE OF  
SOLID WASTE AND EMERGENCY RESPONSE

**MEMORANDUM**

**SUBJECT:** Performance Evaluation Sample Results for IFB Solicitations  
D100455R1 and D100456R1

**FROM:** Angelo M. Carasea, CLP National Organics Program Manager  
Hazardous Site Evaluation Division (OS-230)

**TO:** Bidders for IFB Solicitations D100455R1 and D100456R1

Attached are your performance evaluation sample results for IFB solicitations D100455R1 and D100456R1. Acceptable performance is defined as follows for each water and soil performance evaluation sample analyzed:

Preliminary Score (Total of I and II)	Greater than or equal to 1050 points
Final Score (Total of I, II, III and IV)	Greater than or equal to 1500 points

Questions concerning your results should be submitted in writing to:

Marian Bernd  
Contracting Officer  
USEPA  
Contracts Management Division (MD-33)  
Alexander Drive  
Research Triangle Park, NC 27711

Thank you for participating in the solicitations.

PREAWARD PERFORMANCE EVALUATION  
 SAMPLE SCORE SHEET  
 PA-291/SOW OLM01.5

The Preaward Performance Evaluation includes the analysis of one or more Performance Evaluation samples supplied to the laboratory by the EPA. Each sample is evaluated separately, according to the following scoring scheme. Each sample analyzed by the laboratory must receive a passing score in order for the laboratory to pass the Preaward Evaluation.

Laboratory:           Datachem (DATAC)            
 IFB:                   D100455/456R1                Date:                   05-13-91            
 Sample ID:                   PA291                Matrix:                   Water          

I.	IDENTIFICATION	(800 points)	
	Total number of I points deducted		<u>          0          </u>
	Points awarded for I		<u>          800          </u>
II.	QUANTIFICATION	(600 points)	
	Total number of II points deducted		<u>          143          </u>
	Points awarded for II		<u>          457          </u>
III.	QUALITY CONTROL	(400 points)	
	Total number of III points deducted		<u>          15          </u>
	Points awarded for III		<u>          385          </u>
IV.	REPORTING AND DELIVERABLES	(200 points)	
	Total number of IV points deducted		<u>          30          </u>
	Points awarded for IV		<u>          170          </u>
PRELIMINARY SCORE			
	Total of I and II		<u>          1257          </u>
FINAL SCORE			
	Total of I, II, III, and IV		<u>          1812          </u>
Number of Days Late: <u>          0          </u>			

Sample ID: PA291 Matrix: Water Laboratory Name: DATA

Minimum passing scores:

For I and II 1050

For I, II, III, and IV 1500

The following variables are used in the calculation of the preliminary score, which includes the identification and quantification sections:

- 21 = X = Number of target compounds included in the study; including those analytes with no acceptance windows.
- 0 = A = Number of target compounds in the study that were not identified.
- 1 = B = Number of target compounds misquantified.
- 0 = C = Number of target contaminants (i.e., target compounds not included in the study but identified by the laboratory).
- 0 = D = Number of tentatively identified compounds not identified.
- 0 = E = Number of tentatively identified compound contaminants (i.e., non-target compounds not included in the study but identified by the laboratory).

I. IDENTIFICATION (800 points)

A. Target Compound Identification (600 points)

$$(A)(6000)/(X) = (0) X (6000)/(21) = 0 \text{ points deducted.}$$

B. Target Compound Contamination (100 points)

$$(C)(50) = (0) X (50) = 0 \text{ points deducted.}$$

C. Tentatively Identified Compounds (100 points)

$$(D + E)(50) = (0 + 0) X (50) = 0 \text{ points deducted.}$$

II. TARGET COMPOUND QUANTIFICATION (600 points)

$$(B)(3000)/(X - A) = (1) X (3000)/(21 - 0) = 143 \text{ points deducted.}$$

PREAWARD PERFORMANCE EVALUATION  
 SAMPLE SCORE SHEET  
 PA-291/SOW OLM01.5

The Preaward Performance Evaluation includes the analysis of one or more Performance Evaluation samples supplied to the laboratory by the EPA. Each sample is evaluated separately, according to the following scoring scheme. Each sample analyzed by the laboratory must receive a passing score in order for the laboratory to pass the Preaward Evaluation.

Laboratory:           Datachem (DATAC)          

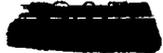
IFB:                   D100455/456R1                  

Date:                   05-13-91                  

Sample ID:                   PA291                  

Matrix:                   Soil                  

I.	IDENTIFICATION	(800 points)	
	Total number of I points deducted		<u>          100          </u>
	Points awarded for I		<u>          700          </u>
II.	QUANTIFICATION	(600 points)	
	Total number of II points deducted		<u>          0          </u>
	Points awarded for II		<u>          600          </u>
III.	QUALITY CONTROL	(400 points)	
	Total number of III points deducted		<u>          15          </u>
	Points awarded for III		<u>          385          </u>
IV.	REPORTING AND DELIVERABLES	(200 points)	
	Total number of IV points deducted		<u>          30          </u>
	Points awarded for IV		<u>          170          </u>
PRELIMINARY SCORE			
	Total of I and II		<u>          1300          </u>
FINAL SCORE			
	Total of I, II, III, and IV		<u>          1855          </u>
Number of Days Late: <u>          0          </u>			



Sample ID: PA291 Matrix: Soil Laboratory Name: DATA C

Minimum passing scores:

For I and II 1050

For I, II, III, and IV 1500

The following variables are used in the calculation of the preliminary score, which includes the identification and quantification sections:

18 = X = Number of target compounds included in the study; including those analytes with no acceptance windows.

0 = A = Number of target compounds in the study that were not identified.

0 = B = Number of target compounds misquantified.

2 = C = Number of target contaminants (i.e., target compounds not included in the study but identified by the laboratory).

0 = D = Number of tentatively identified compounds not identified.

0 = E = Number of tentatively identified compound contaminants (i.e., non-target compounds not included in the study but identified by the laboratory).

I. IDENTIFICATION (800 points)

A. Target Compound Identification (600 points)

(A)(6000)/(X) = (0) X (6000)/(18) = 0 points deducted.

B. Target Compound Contamination (100 points)

(C)(50) = (2) X (50) = 100 points deducted.

C. Tentatively Identified Compounds (100 points)

(D + E)(50) = (0 + 0) X (50) = 0 points deducted.

II. TARGET COMPOUND QUANTIFICATION (600 points)

(B)(3000)/(X - A) = (0) X (3000)/(18 - 0) = 0 points deducted.



Sample ID: PA291Laboratory Name: DATACHEM

## III. QUALITY CONTROL (400 points)

## A. Instrument Quality Control (175 points for volatile and semivolatile fractions)

## 1. Instrument Performance Check (40 points)

## a. DFTPP (20 points maximum)

1. For failure to perform a DFTPP instrument performance check at the required frequency, deduct 20 points. 0
2. For any DFTPP instrument performance check (analyzed separately or as part of the calibration standard) with any ion abundance ratios outside criteria, deduct 20 points. 0

## b. BFB (20 points maximum)

1. For failure to perform a BFB instrument performance check at the required frequency, deduct 20 points. 0
2. For any BFB instrument performance check (analyzed separately or added to reagent water) with any ion abundance ratios outside criteria, deduct 20 points. 0

III.A.1. Subtotal 0

## 2. Initial Calibration (75 points)

- a. For failure to perform initial calibration (for any fraction) at the required frequency, deduct 75 points. 0
- b. For initial calibration data (for volatile or semivolatile fraction), if more than 2 volatile or more than 4 semivolatile compounds fail to meet SOW-specified minimum RRF or maximum %RSD criteria, deduct 25 points for each initial calibration sequence of standards which does not meet the criteria. 0

III.A.2. Subtotal 0

## 3. Continuing Calibration (60 points)

- a. For failure to perform continuing calibrations (for any fraction) at the required frequency, deduct 30 points per fraction. 0

b.	For continuing calibration data (for volatile or semivolatile fraction), if more than 2 volatile or more than 4 semivolatile compounds fail to meet SOW-specified minimum RRF or maximum %D criteria, deduct 25 points for each continuing calibration standard which does not meet the criteria.	<u>0</u>
	III.A.3. Subtotal	<u>0</u>
	III.A. Subtotal	<u>0</u>
B.	Instrument Quality Control (100 points for Pesticide/Aroclor fraction).	
1.	Initial Calibration (75 points) (requirements apply to <u>both</u> GC columns).	
a.	For failure to perform an initial calibration (on either column) when required, deduct 75 points.	<u>0</u>
b.	If the standards in the initial calibration sequence are not analyzed in the order given in the SOW, deduct 5 points.	<u>0</u>
c.	If the resolution of any analytes in the resolution check mixture or the performance evaluation mixture (PEM) fail to meet the SOW-specified criteria (> or equal to 60% resolution for the resolution check standard, 100% resolution for the PEM), deduct 20 points.	<u>0</u>
d.	If the retention time of any analyte in the PEM falls outside a retention time window calculated during the initial calibration, deduct 10 points.	<u>0</u>
e.	If the relative percent difference between the calculated amount and true amount of any analyte in the PEM exceeds criteria, deduct 10 points.	<u>0</u>
f.	If the breakdown of either DDT or endrin exceeds 20.0 percent, or the combined breakdown exceeds 30% criteria, as defined in the SOW, deduct 15 points.	<u>0</u>
g.	If the %RSD of the calibration factors of any single component analyte exceeds 20 percent or the %RSD of the surrogates exceeds 30%, deduct 15 points. Allowances may be made for up to two single component target compounds, but not surrogates, to have %RSDs exceeding 20%, but those compounds must have %RSD less than or equal to 30%.	<u>15</u>
	III.B.1. Subtotal	<u>15</u>



Laboratory Name:                      DATACHEM

2. System Monitoring Compound and Surrogate Recovery (40 points)
- a. VOA System Monitoring Compound recovery
- For failure to meet recovery criteria for any system monitoring compound in any sample or blank, deduct 20 points. 0
- b. Semivolatile surrogate recovery
- For failure to meet surrogate recovery criteria listed in Exhibit D, SV, paragraph 8.5 in any sample or blank, deduct 20 points. 0
- III.C.2 Subtotal 0
- III.C. Subtotal 0
- D. Sample/Method Quality Control (45 points for Pesticide/Aroclor fraction)
1. Surrogate Retention Time Shift (20 points)
- a. For failure to meet the retention time criteria for the surrogates in any sample, blank, or standard, deduct 10 points per occurrence. 0
- III.D.1. Subtotal 0
2. Method Blank Analyses (20 points)
- a. If any Pesticide/Aroclor compound is detected in a method blank at > CRQL, deduct 20 points. 0
- b. For failure to perform method blank analyses on both columns, deduct 20 points. 0
- III.D.2. Subtotal 0
3. Gel Permeation Chromatography (5 points)
- a. For failure to perform gel permeation chromatography (GPC) on any soil sample, deduct 5 points. 0
- III.D.3. Subtotal 0
- III.D. Subtotal 0
- Total number of III points deducted 15

83

Laboratory Name:           DATAChem          

## IV. REPORTING AND DELIVERABLES (200 points)

## A. BFB and DFTPP (30 points maximum)

Mass listing and bar graph output must be submitted for each instrument and for every 12-hour period during which samples were analyzed.

Deduct 15 points for any violation.

0

## B. Reconstructed ion chromatograms (RIC) and quantitation reports (40 points maximum for volatile and semivolatile fractions).

Deduct 20 points for each of these required deliverables that are not submitted in accordance with the Statement of Work.

0

## C. Mass spectra (30 points maximum)

Deduct 15 points for each of the required deliverables in either volatile or semivolatile fractions that are not submitted in accordance with the Statement of Work.

0

## D. Contractual Forms for volatile and semivolatile fractions (30 points maximum)

Deduct 30 points if any of the required deliverables are not submitted in accordance with the Statement of Work.

0

## E. Chromatograms and Quantitation Reports (40 points for Pesticide/Aroclor fraction).

For failure to submit chromatograms that meet the specifications of Exhibits D and E, regarding baseline, peak response and on-scale peaks, deduct 20 points per occurrence.

0

## F. Contractual Forms for Pesticide/Aroclor fraction (30 points maximum)

For each of the required deliverables, forms not submitted in accordance with the Statement of Work, deduct 10 points.

30

Total number of IV. points deducted 30

**NOTE:** This is a preliminary score sheet which may be subject to minor modification when implemented.

Laboratory Name: DATA-CHEM**COMMENTS**

III.b.1.g. The laboratory's percent relative standard deviation (%RSD) of the calibration factors exceeded the 20 percent maximum allowed for the following single component compounds. Fifteen points were deducted.

<u>Component</u>	<u>%RSD</u>	<u>Column</u>	<u>Data Analyzed</u>
alpha-BHC	24.6	DB-1701	05-06-91
delta-BHC	25.5	DB-1701	05-06-91
4,4'-DDT	44.7	DB-1701	05-06-91
Methoxychlor	44.9	DB-1701	05-06-91
alpha-BHC	20.9	DB-608	05-03-91
delta-BHC	24.1	DB-608	05-03-91
gamma-BHC	21.9	DB-608	05-03-91
4,4'-DDD	21.8	DB-608	05-03-91

See Organic SOW OLM01.5 and Exhibit D, page D-43/PEST.

IV.F. The laboratory did not submit the Form I, Pesticide Organic Analysis Data Sheet, for the Pesticide Instrument Blanks analyzed on columns DB-608, and DB-1701. Four missing Form I's times 10 points equals 40 points. The maximum of 30 points was deducted.

See Organic SOW OLM01.5 and Exhibit B, page B-21.

ORGANIC PREAMWARD EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT

LABORATORY: DataChem (UT)

SCORE: 89.8  
REPORT DATE: 06/05/91  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA	
	WARNING		ACTION		CONC	Q
	LOWER	UPPER	LOWER	UPPER		
<b>TCL VOLATILE</b>						
CHLOROETHANE	34	53	31	56	57	X
CARBON DISULFIDE	32	56	28	59	50	
TOLUENE	43	57	41	59	52	
CHLOROBENZENE	89	110	85	120	110	
<b>TCL SEMIVOLATILE</b>						
1,3-DICHLOROBENZENE	11	20	10	25	12	
2,4-DICHLOROPHENOL	26	40	24	47	25	\$
HEXACHLOROBUTADIENE	NU	NU	NU	NU	3	
2-CHLORONAPHTHALENE	22	34	20	40	20	\$
DIMETHYL PHTHALATE	28	44	26	53	28	
4-NITROPHENOL	NU	NU	NU	NU	17	
4-NITROANILINE	NU	NU	NU	NU	8	
PHENANTHRENE	29	42	27	49	46	\$
PYRENE	18	28	17	33	32	\$
BENZO(K)FLUORANTHENE	18	32	16	40	29	
BENZO(A)PYRENE	27	42	24	50	38	
<b>TCL PESTICIDES</b>						
DELTA-BHC	0.22	0.33	0.21	0.35	0.3	
HEPTACHLOR	0.2	0.33	0.18	0.35	0.2	
DIELDRIN	0.46	0.65	0.43	0.67	0.53	
4,4'-DDE	0.34	0.52	0.31	0.55	0.41	
ENDRIN ALDEHYDE	0.19	0.41	0.16	0.44	0.27	
ALPHA-CHLORDANE	0.28	0.4	0.26	0.41	0.33	
<b>NON-TCL VOLATILE</b>						
BENZENE,1,4-DIBROMO-					0	
ETHANE,1,1,1,2-TETRACHLORO-					140	
URETHANE					0	
VINYL ACETATE					22	
<b>NON-TCL SEMIVOLATILE</b>						
ANILINE,2-FLUORO-					25	
BUTANE,1,4-DICHLORO-					21	
TOLUENE,PENTABROMO-					0	
PHTHALIC ANHYDRIDE					8	
<b>TCL VOLATILE (Contaminants)</b>						
METHYLENE CHLORIDE					0.8	

ORGANIC PREAMWARD EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT

LABORATORY: DataChem (UT)

SCORE: 89.8  
REPORT DATE: 06/05/91  
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA	
	WARNING		ACTION		CONC	Q
	LOWER	UPPER	LOWER	UPPER		
NON-TCL VOLATILE (Contaminants)						
2-PROPANOL					36	
ACETONITRILE					360	
NON-TCL SEMIVOLATILE (Contaminants)						
POLY BROMO HYDROCARBON					23	
UNKNOWN					7	

# OF TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 1  
# OF TCL CONTAMINANTS: 0

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0

ORGANIC PREAMWARD EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT

LABORATORY: DataChem (UT)

SCORE: 92.8  
REPORT DATE: 06/04/91  
MATRIX: SOIL

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA	
	WARNING		ACTION			
	LOWER	UPPER	LOWER	UPPER		
<b>TCL VOLATILE</b>						
TRICHLOROETHENE	9400	13000	8800	14000	9800	
DIBROMOCHLOROMETHANE	7800	12000	7100	13000	7900	
BENZENE	7900	10000	7500	11000	9500	
BROMOFORM	5400	8800	4900	9300	5200	\$
STYRENE	9700	14000	9100	15000	12000	
<b>TCL SEMIVOLATILE</b>						
2-CHLOROPHENOL	700	1300	600	1400	1000	
1,2-DICHLOROBENZENE	340	660	330	710	610	
2,2'-OXYBIS(1-CHLOROPROPANE)	450	940	380	1000	850	
2,4-DIMETHYLPHENOL	440	1300	330	1400	640	
2-METHYLNAPHTHALENE	700	1400	600	1500	1200	
ACENAPHTHYLENE	600	1100	530	1100	1000	
BIS(2-ETHYLHEXYL)PHTHALATE	780	1400	690	1500	1100	
DI-N-OCTYL PHTHALATE	570	1000	500	1100	1000	
<b>TCL PESTICIDES</b>						
BETA-BHC	10	22	8.8	23	17.9	
ALDRIN	4	12	2.7	14	12.1	\$
METHOXYCHLOR	NU	NU	NU	NU	13.2	
GAMMA-CHLORDANE	3.6	7	3.1	7.6	5.3	
AROCLOR-1254	96	190	82	210	154	
<b>NON-TCL VOLATILE</b>						
ETHANE,DIBROMO-1,1,2,2-TETRAFLUORO- METHANE,FLUORO-TRICHLORO-					23000 11000	
<b>NON-TCL SEMIVOLATILE</b>						
BENZENE,PENTACHLORO-NITRO- PHTHALIC ANHYDRIDE					600 150	
<b>TCL VOLATILE (Contaminants)</b>						
METHYLENE CHLORIDE					160	
2-BUTANONE					6800	
TOLUENE					130	
<b>TCL SEMIVOLATILE (Contaminants)</b>						
ACENAPHTHENE					24	
<b>TCL PESTICIDES (Contaminants)</b>						
ENDRIN					9.2	C

1903

ORGANIC PREAWARD EVALUATION SAMPLE  
INDIVIDUAL LABORATORY SUMMARY REPORT

LABORATORY: DataChem (UT)

SCORE: 92.8  
REPORT DATE: 06/04/91  
MATRIX: SOIL

COMPOUND	CONFIDENCE INTERVALS				LABORATORY DATA	
	WARNING		ACTION		CONC	Q
	LOWER	UPPER	LOWER	UPPER		
ENDOSULFAN II					2.7	
ALPHA-CHLORDANE					1.7	C
NON-TCL SEMIVOLATILE (Contaminants)						
ALDOL CONDENSATION PRODUCT					99	
ALDOL CONDENSATION PRODUCT					89	

# OF TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF TCL COMPOUNDS MIS-QUANTIFIED: 0  
# OF TCL CONTAMINANTS: 2

# OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0  
# OF NON-TCL CONTAMINANTS: 0

CONTRACT  
EVIDENCE  
AUDIT  
TEAM

1903

1 [REDACTED]

May 20, 1991

Mr. Steve Callio  
Technical Project Officer  
USEPA Region VIII  
999 18th Street  
Suite 500  
Denver, CO 80202-2405

RE: Review of Corrective Action Response by Data Chem Laboratories

Dear Mr. Callio:

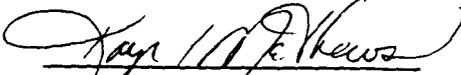
The Contract Evidence Audit Team (CEAT-TechLaw) conducted an audit of laboratory operations pertaining to laboratory security, sample chain-of-custody, and document control procedures for EPA inorganics contract 68-D9-0084 (IFB D900206R1) at Data Chem Laboratories on February 7, 1991. The CEAT auditor identified two nonconformances to Evidence Audit Requirements and made recommendations for corrective action during the debriefing at the conclusion of the audit. This information was also provided to the laboratory in a written report following review by the NEIC in Denver, Colorado.

The laboratory responded to the report by documenting implementation of corrective action in a letter to you on April 25, 1991. The CEAT conducted a review of the response and found that the implementation of corrective action for both nonconformances satisfies Evidence Audit Requirements.

Sincerely,

Concurrence:

  
\_\_\_\_\_  
Stephen A. Coll  
Contract Evidence Audit Team

  
\_\_\_\_\_  
Kaye I. Mathews  
National Enforcement  
Investigations Center

SAC:mb

cc: Russell McCallister, USEPA Headquarters, APO  
Ken Olson, Data Chem Laboratories

IF: D232-001

1903

CONTRACT  
EVIDENCE  
AUDIT  
TEAM

March 19, 1991

Mr. Steve Callio  
Technical Project Officer  
USEPA Region VIII  
999 18th Street  
Suite 500  
Denver, CO 80202

RE: Transmittal of CEAT Laboratory Evidence Audit Report for Data Chem  
Laboratories

Dear Mr. Callio:

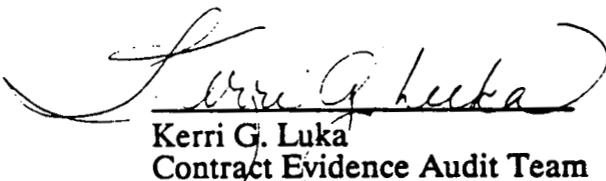
Enclosed is the Contract Evidence Audit Team (CEAT-TechLaw) laboratory evidence  
audit report for the inorganics audit conducted at Data Chem Laboratories on February 7,  
1991.

Procedures and documentation related to sample receiving, sample storage, sample  
identification, sample security, sample tracking, and case file organization and assembly  
were reviewed for conformance to Evidence Audit Requirements. Nonconformances to  
Evidence Audit Requirements are identified in the Findings section of the attached report.  
Procedures for developing written responses to the findings are discussed in the  
Recommendations for Corrective Action section of the report.

If you have any questions, please contact the NEIC Quality Assurance officer, Kaye  
Mathews, at (303) 236-5147, FTS 776-5147.

Sincerely,

Concurrence:

  
Kerri G. Luka  
Contract Evidence Audit Team

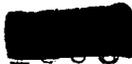
  
Kaye I. Mathews  
National Enforcement  
Investigations Center

KGL:mb

Enclosure

cc: Russell McCallister, USEPA Headquarters APO  
Ken Olson, Data Chem Laboratories

IF: D232-001



**LABORATORY EVIDENCE  
AUDIT REPORT**

**DATA CHEM LABORATORIES**  
EPA Identifier: **DATAAC**

**Audit Date: February 7, 1991**

**DATA CHEM LABORATORIES**  
960 West LeVoy Drive  
Salt Lake City, UT 84123-2547  
(801) 266-7700

Lee Paris	-	Sample Control Section Manager <sup>1,2,3</sup>
Julie Williams	-	Document Control Officer <sup>1,2,3</sup> ,
Blaine Tidwell	-	Document Control Officer <sup>1,2,3</sup>
Ken Olson	-	Project Manager <sup>1,2,3</sup>
Brent Stephens	-	Section Manager <sup>1,2,3</sup>
Carlos Arrayo	-	Cyanide Preparation Analyst <sup>2</sup>

**USEPA Region VIII**  
(303) 294-7509

- **Denver, CO**

Steve Callio

- **Technical Project Officer**

**NEIC/CEAT (TechLaw, Inc.)**  
(303) 233-1248

- **Lakewood, Colorado**

Cynthia L. Miller

- **Associate Consultant**

---

<sup>1</sup> Present at pre-audit briefing  
<sup>2</sup> Contacted during audit  
<sup>3</sup> Present at post-audit debriefing

## I. INTRODUCTION

An audit of laboratory operations pertaining to laboratory security, sample chain-of-custody, and document control procedures for EPA inorganics contract 68-D9-0084 (IFB D900206R1), was conducted at Data Chem Laboratories (DataChem) in Salt Lake City, Utah on February 7, 1991. This was the sixth routine audit of Data Chem conducted by NEIC's Contract Evidence Audit Team (CEAT-TechLaw) in support of the Contract Laboratory Program (CLP). The audit procedures, results of the audit, and recommendations for corrective action are identified in the following sections of this evidence audit report.

## II. EVIDENCE AUDIT PROCEDURES

Procedures and documentation related to sample receiving, sample identification, sample storage, sample security, sample tracking, and case file organization and assembly were reviewed for conformance to Evidence Audit Requirements. The audit consisted of two components, including a procedural audit and an evidence audit of the sample delivery group (SDG)/case file. The procedural audit consisted of review and examination of actual and written standard operating procedures (SOPs) and accompanying documentation. The evidence audit of the SDG/case file consisted of review and examination of SDG/case file documentation.

## III. FINDINGS

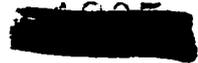
The following findings were discussed by the CEAT auditor during the debriefing with laboratory personnel at the conclusion of the audit on February 7, 1991. These findings reflect nonconformances to Evidence Audit Requirements. The first finding is repeated from the previous audit, which was conducted on May 2, 1990.

1. The written standard operating procedures (SOPs) for sample storage did not include an accurate description of all storage area locations.
2. The written SOPs for sample receiving did not include a description of the procedures used for receiving samples during evening and weekend work shifts.

## IV. RECOMMENDATIONS FOR CORRECTIVE ACTION

Data Chem personnel should submit the following items as written response to the CEAT's finding in order to satisfy Evidence Audit Requirements:

- Revised written SOPs for sample storage and sample receiving (findings 1 and 2).



The response should be transmitted to Steve Callio, the EPA Region VIII Technical Project Officer, within 30 days after receipt of this report and a copy should be transmitted concurrently to the CEAT. Upon receipt of the corrective action response, the CEAT staff will review the response. Following approval by the NEIC, a report of the corrective action results will be sent to Steve Callio, Russell McCallister, and Data Chem Laboratories.

Periodic audits will be conducted to review continued conformance to Evidence Audit Requirements.



CONTRACT  
EVIDENCE  
AUDIT  
TEAM

May 20, 1991

Mr. Steve Callio  
Technical Project Officer  
USEPA Region VIII  
999 18th Street  
Suite 500  
Denver, CO 80202-2405

RE: Review of Corrective Action Response by Data Chem Laboratories

Dear Mr. Callio:

The Contract Evidence Audit Team (CEAT-TechLaw) conducted an audit of laboratory operations pertaining to laboratory security, sample chain-of-custody, and document control procedures for EPA inorganics contract 68-D0-0149 (IFB D000461R1) at Data Chem Laboratories on February 7, 1991. The CEAT auditor identified five nonconformances to Evidence Audit Requirements and made recommendations for corrective action during the debriefing at the conclusion of the audit. This information was also provided to the laboratory in a written report following review by the NEIC in Denver, Colorado.

The laboratory responded to the report by documenting implementation of corrective action in a letter to you on April 30, 1991. The CEAT conducted a review of the response and found that the implementation of corrective action to all five nonconformances satisfies Evidence Audit Requirements.

Sincerely,

Concurrence:

  
\_\_\_\_\_  
Stephen A. Coll  
Contract Evidence Audit Team

  
\_\_\_\_\_  
Kaye J. Mathews  
National Enforcement  
Investigations Center

SAC:mb

cc: Russell McCallister, USEPA Headquarters, APO  
Ken Olson, Data Chem Laboratories

IF: D232-001

**CONTRACT  
EVIDENCE  
AUDIT  
TEAM**

March 19, 1991

Mr. Steve Callio  
Technical Project Officer  
USEPA Region VIII  
999 18th Street  
Suite 500  
Denver, CO 80202

RE: Transmittal of CEAT Laboratory Evidence Audit Report for Data Chem  
Laboratories

Dear Mr. Callio:

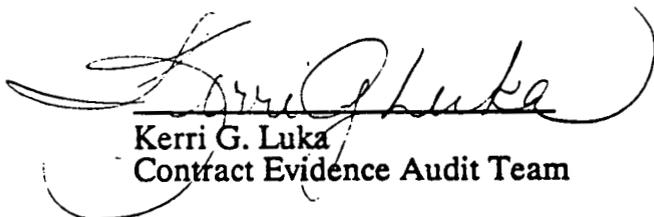
Enclosed is the Contract Evidence Audit Team (CEAT-TechLaw) laboratory evidence audit report for the inorganics audit conducted at Data Chem Laboratories on February 7, 1991.

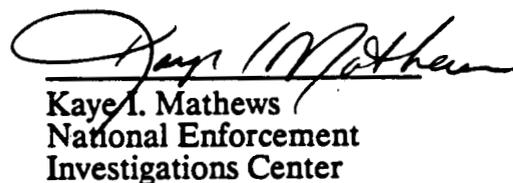
Procedures and documentation related to sample receiving, sample storage, sample identification, sample security, sample tracking, and complete sample delivery group file, (CSF) organization and assembly were reviewed for conformance to Evidence Audit Requirements. Nonconformances to Evidence Audit Requirements are identified in the Findings section of the attached report. Procedures for developing written responses to the findings are discussed in the Recommendations for Corrective Action section of the report.

If you have any questions, please contact Kaye Mathews, the NEIC Quality Assurance Manager, at (303) 236-5147, FTS 776-5147.

Sincerely,

Concurrence:

  
Kerri G. Luka  
Contract Evidence Audit Team

  
Kaye I. Mathews  
National Enforcement  
Investigations Center

KGL:mb

Enclosure

cc: Russell McCallister, USEPA Headquarters, APO  
Ken Olson, Data Chem Laboratories

IF: D232-001

**LABORATORY EVIDENCE  
AUDIT REPORT**

**DATA CHEM LABORATORIES**  
EPA Identifier: DATAC

Audit Date: February 7, 1991

**DATA CHEM LABORATORIES**  
960 West LeVoy Drive  
Salt Lake City, UT 84123-2547  
(801) 266-7700

Lee Paris	-	Sample Control Section Manager <sup>1,2,3</sup>
Julie Williams	-	Document Control Officer <sup>1,2,3</sup>
Blaine Tidwell	-	Document Control Officer <sup>1,2,3</sup>
Ken Olson	-	Project Manager <sup>1,2,3</sup>
Brent Stephens	-	Section Manager <sup>1,2,3</sup>
Carlos Arrayo	-	Cyanide Preparation Analyst <sup>2</sup>

**USEPA Region VIII**  
(303) 294-7509

- Denver, CO

Steve Callio

- Technical Project Officer

**NEIC/CEAT (TechLaw, Inc.)**  
(303) 233-1248

- Lakewood, Colorado

Cynthia L. Miller

- Associate Consultant

---

<sup>1</sup> Present at pre-audit briefing  
<sup>2</sup> Contacted during audit  
<sup>3</sup> Present at post-audit debriefing

## I. INTRODUCTION

An audit of laboratory operations pertaining to laboratory security, sample chain-of-custody, and document control procedures for EPA inorganic contract 68-D0-0149 (IFB D000461R1), was conducted at Data Chem Laboratories (DataChem) in Salt Lake City, Utah on February 7, 1991. This was the first routine audit of Data Chem conducted by NEIC's Contract Evidence Audit Team (CEAT-TechLaw) in support of the Contract Laboratory Program (CLP). The audit procedures, results of the audit, and recommendations for corrective action are identified in the following sections of this evidence audit report.

## II. EVIDENCE AUDIT PROCEDURES

Procedures and documentation related to sample receiving, sample identification, sample storage, sample security, sample tracking, and complete sample delivery group file (CSF) organization and assembly were reviewed for conformance to Evidence Audit Requirements. The audit consisted of two components, including a procedural audit and an evidence audit of the sample delivery group (SDG)/case file. The procedural audit consisted of review and examination of actual and written standard operating procedures (SOPs) and accompanying documentation. The evidence audit of the SDG/case file consisted of review and examination of SDG/case file documentation.

## III. FINDINGS

The following findings were discussed by the CEAT auditor during the debriefing with laboratory personnel at the conclusion of the audit on February 7, 1991. These findings reflect nonconformances to Evidence Audit Requirements.

1. The complete eight digit date (i.e., month/day/year) in the date was not recorded in the *Log for Technicon Auto Analyzer* logbook.
2. The written standard operating procedures (SOPs) for sample receiving did not include a description of the procedures used for recording information on Form DC-1.
3. The written SOPs for sample storage did not include an accurate description of all storage area locations.
4. The written SOPs for CSF organization and assembly did not include a description of the procedures used for recording information on Form DC-2.
5. The written SOPs for CSF organization and assembly did not include a description of the procedures used for placing the document name on copies of logbook pages.

#### IV. RECOMMENDATIONS FOR CORRECTIVE ACTION

Data Chem personnel should submit the following items as written response to the CEAT's finding in order to satisfy Evidence Audit Requirements:

- A record of communication with the cyanide analysis staff which discusses the procedure for recording complete dates on analysis documents as well as documentation of observations made by the laboratory quality assurance manager indicating that the correct procedure has been implemented at the laboratory (finding 1); and
- Copies of revised written SOPs for sample receiving, sample identification, sample storage, and CSF organization assembly (findings 2, 3, 4, and 5).

The response should be transmitted to Steve Callio, the EPA Region VIII Technical Project Officer, within 30 days after receipt of this report and a copy should be transmitted concurrently to the CEAT. Upon receipt of the corrective action response, the CEAT staff will review the response. Following approval by the NEIC, a report of the corrective action results will be sent to Steve Callio, Russell McCallister, and Data Chem Laboratories.

Periodic audits will be conducted to review continued conformance to Evidence Audit Requirements.