ORNL/TM-11236, WL2AJ*

Idaho National Engineering Laboratory

Sampling and Analysis Data Document

This document contains uninterpreted sampling and analytical data. The data will be interpreted by the DOE Environmental Survey Team and used to modify, as appropriate, the tentative Survey findings contained in the Environmental Survey Preliminary Report. Final Survey findings will be presented in the Environmental Survey Summary Report.

DRAFT

Volume II A
September 1989

DEPARTMENT OF ENERGY

ENVIRONMENTAL SURVEY

ORNL/TM-11236

THE IDAHO NATIONAL ENGINEERING LABORATORY SAMPLING AND ANALYSIS DATA DOCUMENT (DRAFT)

VOLUME II A

September 1989

Prepared by:
DOE Environmental Survey and
Oak Ridge National Laboratory

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Appendix A

UPDATED LIST OF SAMPLING AND ANALYTICAL REQUESTS

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TABLE A.1
INEL SITE ENVIRONMENTAL SAMPLES
WITH FIELD QC SAMPLES
SORTED BY ENVIRONMENTAL PROBLEM AND REQUEST NUMBER

REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTU AL	NUMB SAMP ACTU NED	NUMB SAMP PLAN AL	NUMB SAMP PLAN NED	TYPE	ANIONS ACTU AL	ANIONS ACTU NED	ANIONS PLAN AL	ANIONS PLAN NED	METALS ACTU AL	METALS ACTU NED	METALS PLAN AL	METALS PLAN NED	SOIL GAS ACTU AL	SOIL GAS ACTU NED	SOIL GAS PLAN AL	SOIL GAS PLAN NED	PES/H/PCB ACTU AL	PES/H/PCB ACTU NED	PES/H/PCB PLAN AL	PES/H/PCB PLAN NED	SEMIVOLS ACTU AL	SEMIVOLS ACTU NED	SEMIVOLS PLAN AL	SEMIVOLS PLAN NED	VOLS ACTU AL	VOLS ACTU NED	VOLS PLAN AL	VOLS PLAN NED	RADS ACTU AL	RADS ACTU NED	RADS PLAN AL	RADS PLAN NED
IN301	1		DELETED	CFA	DRAINFIELD	SOIL	0	3	0	3	GRAB	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	0	0	0
IN301	1		DELETED	CFA	DRAINFIELD	SUR WATER	0	1	0	1	QC RN	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0
IN301	1		17/06/88	CFA	DRAINFIELD	SOIL	1	1	1	1	GRAB	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
IN301	1		21/06/88	CFA	DRAINFIELD	SOIL	5	5	5	5	GRAB	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	0	0	0	0
IN301	1		22/06/88	CFA	DRAINFIELD	SOIL	3	3	3	3	GRAB	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	0	0	0	0
IN401	2		13/07/88	WELL P&H 2	WELL	GRN WATER	2	2	2	2	PUMP	2	2	2	2	2	2	2	2	0	0	0	2	0	0	0	0	0	0	2	2	2	2	2	2	2	2
IN401	2		15/07/88	WELL P&H 2	WELL	GRN WATER	1	1	1	1	PUMP	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IN402	2		15/07/88	USGS-19	WELL	GRN WATER	2	2	2	2	BAILR	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2	2	2	2	2	2
IN403	2		DELETED	USGS-27	WELL	GRN WATER	0	1	0	1	PUMP	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1
IN403	2		20/07/88	USGS-27	WELL	GRN WATER	2	2	2	2	PUMP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN404	2		20/06/88	ANL M-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN405	2		28/06/88	WELL 90	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN406	2		17/06/88	WELL ANP-8	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN407	2		17/06/88	WELL FET-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN408	2		17/06/88	WELL ANP-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN409	2		22/06/88	USGS-86	WELL	GRN WATER	2	2	2	2	PUMP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN410	2		23/06/88	USGS-105	WELL	GRN WATER	2	2	2	2	PUMP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	1	2	2	2
IN411	2		23/06/88	USGS-110	WELL	GRN WATER	2	2	2	2	PUMP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN412	2		17/06/88	FIRE STA.	WELL	GRN WATER	2	2	1	2	TAP	1	2	2	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	2
IN413	2		DELETED	USGS-107	WELL	GRN WATER	0	1	0	1	PUMP	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1
IN414	2		16/06/88	WELL CFA-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN415	2		16/06/88	WELL SL-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN416	2		DELETED	USGS-90	WELL	GRN WATER	0	1	0	1	PUMP	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
IN416	2		22/06/88	USGS-90	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN417	2		28/06/88	USGS-113	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN418	2		14/07/88	USGS-37	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN419	2		28/06/88	WELL 116	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN420	2		20/07/88	USGS-82	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN421	2		21/06/88	USGS-43	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN422	2		21/06/88	USGS-65	WELL	GRN WATER	1	1	1	1	PUMP	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
IN423	2		17/06/88	WELL TRA-1	WELL	GRN WATER	2	2	2	2	TAP	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	2	2	2	2	2	2	2	2
IN501	3		DELETED	TRA 1952	WASTE POND	SUR WATER	0	12	0	12	GRAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	0	0	0	0
IN501	3		20/07/88	TRA 1952	WASTE POND	SUR WATER	1	1	1	1	QC FL	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
IN501	3		20/07/88	TRA 1952	WASTE POND	SUR WATER	6	6	6	6	GRAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	0	0	0	0
IN501	3		20/07/88	TRA 1952	WASTE POND	SUR WATER	6	6	6	6	S COM	6	6	6	6	6	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	6	6	6
IN502	3		20/07/88	TRA 1952	WASTE POND	SEDIMENT	6	6	6	6	GRAB	6	6	6	6	6	6	0	0	0	0	0	6	0	0	0	0	0	0	6	6	6	6	6	6	6	6
IN502	3		20/07/88	TRA 1952	WASTE POND	SUR WATER	1	.1	0	1	QC RN	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1
IN503	3		28/09/88	TRA 1952	WASTE POND	SOIL	2	2	2	2	GRAB	2	2	2	2	2	2	0	0	0	0	0	2	0	0	0	0	2	2	1	2	2	2	2	2	2	2
IN503	3		28/09/88	TRA 1952	WASTE POND	SUR WATER	1	1	1	1	QC RN	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1
IN503	3		29/09/88	TRA 1952	WASTE POND	SOIL	1	1	1	1	GRAB	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1
IN504	3		DELETED	TRA NE CLD	WASTE POND	SUR WATER	0	12	0	12	GRAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	0	0	0	0
IN504	3		22/06/88	TRA NE CLD	WASTE POND	SUR WATER	6	6	6	6	GRAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	0	0	0	0
IN504	3		22/06/88	TRA NE CLD	WASTE POND	SUR WATER	6	6	6	6	S COM	6	6	6	6	6	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6	6	6	6

TABLE A.1
INEL SITE ENVIRONMENTAL SAMPLES
WITH FIELD QC SAMPLES
SORTED BY ENVIRONMENTAL PROBLEM AND REQUEST NUMBER

REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTUAL	NUMB SAMP PLANNED	TYPE	ANIONS ACTUAL	ANIONS PLANNED	METALS ACTUAL	METALS PLANNED	SOIL GAS ACTUAL	SOIL GAS PLANNED	PES/H/PCB ACTUAL	PES/H/PCB PLANNED	SEMIVOLS ACTUAL	SEMIVOLS PLANNED	VOLS ACTUAL	VOLS PLANNED	RADS ACTUAL	RADS PLANNED
IN505	3		22/06/88	TRA NE CLD	WASTE POND	SEDIMENT	6	6	GRAB	6	6	6	6	0	0	0	0	0	0	6	6	6	6
IN506	3	DELETED		TRA NE CLD	WASTE POND	SOIL	0	1	GRAB	0	1	0	1	0	0	0	0	0	0	0	1	0	1
IN506	3		22/09/88	TRA NE CLD	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN506	3		23/09/88	TRA NE CLD	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN506	3		23/09/88	TRA NE CLD	WASTE POND	SUR WATER	1	1	QC RN	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN507	3	DELETED		TRA CHEM	WASTE POND	SUR WATER	0	14	GRAB	0	0	0	0	0	0	0	0	0	0	0	14	0	0
IN507	3	DELETED		TRA CHEM	WASTE POND	SUR WATER	0	2	S COM	0	2	0	2	0	0	0	2	0	0	0	0	0	2
IN507	3		23/06/88	TRA CHEM	WASTE POND	SUR WATER	4	4	GRAB	0	0	0	0	0	0	0	0	0	0	4	4	0	0
IN507	3		23/06/88	TRA CHEM	WASTE POND	SUR WATER	4	4	S COM	4	4	4	4	0	0	4	4	0	0	0	0	4	4
IN508	3	DELETED		TRA CHEM	WASTE POND	SEDIMENT	0	2	GRAB	0	2	0	2	0	0	0	2	0	0	0	2	0	2
IN508	3		23/06/88	TRA CHEM	WASTE POND	SEDIMENT	4	4	GRAB	4	4	4	4	0	0	4	4	0	0	4	4	4	4
IN509	3		26/09/88	TRA CHEM	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	1	1	0	0	1	1	1	1
IN509	3		27/09/88	TRA CHEM	WASTE POND	SOIL	2	2	GRAB	2	2	2	2	0	0	2	2	0	0	1	2	2	2
IN510	3	DELETED		TAN TSF	WASTE POND	SUR WATER	0	14	GRAB	0	0	0	1	0	0	0	0	0	0	0	14	0	0
IN510	3	DELETED		TAN TSF	WASTE POND	SUR WATER	0	2	OTHER	0	2	0	2	0	0	0	0	0	0	0	0	0	2
IN510	3		29/06/88	TAN TSF	WASTE POND	SUR WATER	4	4	GRAB	0	0	0	0	0	0	0	0	0	0	4	4	0	0
IN510	3		29/06/88	TAN TSF	WASTE POND	SUR WATER	4	4	OTHER	4	4	4	4	0	0	0	0	0	0	0	0	4	4
IN510	3		29/06/88	TAN TSF	WASTE POND	SUR WATER	1	1	QC RN	1	1	1	1	0	0	0	0	0	0	0	0	1	1
IN511	3	DELETED		TAN TSF	WASTE POND	SEDIMENT	0	2	GRAB	0	2	0	2	0	0	0	0	0	0	0	2	0	2
IN511	3		29/06/88	TAN TSF	WASTE POND	SEDIMENT	4	4	GRAB	4	4	4	4	0	0	0	0	0	0	3	4	4	4
IN512	3	DELETED		TAN TSF	WASTE POND	SOIL	0	1	GRAB	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN512	3		14/09/88	TAN TSF	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN512	3		19/09/88	TAN TSF	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	0	0	0	1	1	1	1
IN513	3	DELETED		TAN LOFT	WASTE POND	SUR WATER	0	14	GRAB	0	0	0	0	0	0	0	0	0	0	0	14	0	0
IN513	3	DELETED		TAN LOFT	WASTE POND	SUR WATER	0	2	OTHER	0	2	0	2	0	0	0	2	0	0	0	0	0	2
IN513	3		30/06/88	TAN LOFT	WASTE POND	SUR WATER	1	1	QC FL	0	0	1	1	0	0	0	0	0	0	0	0	1	1
IN513	3		30/06/88	TAN LOFT	WASTE POND	SUR WATER	4	4	GRAB	0	0	0	0	0	0	0	0	0	0	4	4	0	0
IN513	3		30/06/88	TAN LOFT	WASTE POND	SUR WATER	4	4	OTHER	4	4	4	4	0	0	0	4	0	0	0	0	4	4
IN514	3	DELETED		TAN LOFT	WASTE POND	SEDIMENT	0	2	GRAB	0	2	0	2	0	0	0	2	0	0	0	2	1	2
IN514	3		30/06/88	TAN LOFT	WASTE POND	SEDIMENT	4	4	GRAB	4	4	4	4	0	0	0	4	0	0	4	4	4	4
IN515	3		12/09/88	TAN LOFT	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	1	0	0	1	1	1	1
IN515	3		13/09/88	TAN LOFT	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	1	0	0	1	1	1	1
IN515	3		14/09/88	TAN LOFT	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	1	0	0	0	1	1	1
IN516	3	DELETED		ICPP 2	WASTE POND	SUR WATER	0	14	GRAB	0	0	0	0	0	0	0	0	0	0	0	14	0	0
IN516	3	DELETED		ICPP 2	WASTE POND	SUR WATER	0	2	OTHER	0	2	0	2	0	0	0	2	0	0	0	0	0	2
IN516	3	DELETED		ICPP 2	WASTE POND	SUR WATER	0	1	QC RN	0	1	0	1	0	0	0	1	0	0	0	0	0	1
IN516	3		24/06/88	ICPP 2	WASTE POND	SUR WATER	4	4	GRAB	0	0	0	0	0	0	0	0	0	0	4	4	0	0
IN516	3		24/06/88	ICPP 2	WASTE POND	SUR WATER	4	4	OTHER	4	4	4	4	0	0	0	4	0	0	0	0	4	4
IN517	3	DELETED		ICPP 2	WASTE POND	SEDIMENT	0	2	GRAB	0	2	0	2	0	0	0	2	0	0	0	0	0	2
IN517	3	DELETED		ICPP 2	WASTE POND	SUR WATER	0	1	QC RN	0	1	0	1	0	0	0	1	0	0	0	1	0	1
IN517	3		24/06/88	ICPP 2	WASTE POND	SEDIMENT	4	4	GRAB	4	4	4	4	0	0	0	4	0	0	4	4	4	4
IN518	3	DELETED	09/88	ICPP 2	WASTE POND	SOIL	0	1	GRAB	0	1	0	1	0	0	0	1	0	0	0	1	0	1

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WITH FIELD QC SAMPLES
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REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTUAL	NUMB SAMP PLANNED	TYPE	ANIONS ACTUAL	ANIONS PLANNED	METALS ACTUAL	METALS PLANNED	SOIL GAS ACTUAL	SOIL GAS PLANNED	PES/H/PCB ACTUAL	PES/H/PCB PLANNED	SEMIVOLS ACTUAL	SEMIVOLS PLANNED	VOLS ACTUAL	VOLS PLANNED	RADS ACTUAL	RADS PLANNED
							AL	NED		AL	NED	AL	NED	AL	NED	AL	NED	AL	NED	AL	NED	AL	NED
IN518	3		21/09/88	ICPP 2	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	1	0	0	0	1	1	1
IN518	3		22/09/88	ICPP 2	WASTE POND	SOIL	1	1	GRAB	1	1	1	1	0	0	0	1	0	0	0	1	1	1
IN519	3	DELETED		ANL-W	WASTE POND	SUR WATER	0	12	GRAB	0	0	0	0	0	0	0	0	0	0	0	12	0	0
IN519	3		20/06/88	ANL-W	WASTE POND	SUR WATER	6	6	GRAB	0	0	0	0	0	0	0	0	0	0	6	6	0	0
IN519	3		20/06/88	ANL-W	WASTE POND	SUR WATER	6	6	OTHER	6	6	6	6	0	0	0	6	0	0	0	0	6	6
IN520	3		20/06/88	ANL-W	WASTE POND	SEDIMENT	6	6	GRAB	6	6	6	6	0	0	0	6	0	0	6	6	6	6
IN521	3	DELETED		ANL-W	WASTE POND	SOIL	0	3	GRAB	0	3	0	3	0	0	0	3	0	0	0	3	0	3
IN522	3		20/06/88	ANL-W	DITCH	SOIL	3	3	GRAB	3	3	3	3	0	0	0	3	0	0	3	3	3	3
IN522	3		21/06/88	ANL-W	DITCH	SOIL	3	3	GRAB	3	3	3	3	0	0	0	3	0	0	3	3	3	3
IN522	3		21/06/88	ANL-W	DITCH	SUR WATER	1	1	QC RN	1	1	1	1	0	0	0	1	0	0	1	1	1	1
IN523	4	DELETED		CFA STP	CFA STP	SUR WATER	0	1	GRAB	0	0	0	0	0	0	0	0	0	0	0	1	0	0
IN523	4		15/06/88	CFA STP	CFA STP	SUR WATER	2	2	GRAB	0	0	0	0	0	0	0	0	0	0	2	2	0	0
IN523	4		15/06/88	CFA STP	CFA STP	SUR WATER	1	1	T COM	0	0	1	1	0	0	0	0	1	1	0	0	1	1
IN523	4		16/06/88	CFA STP	CFA STP	SUR WATER	3	3	GRAB	0	0	0	0	0	0	0	0	0	0	3	3	0	0
IN523	4		16/06/88	CFA STP	CFA STP	SUR WATER	1	1	T COM	0	0	1	1	0	0	0	0	1	1	0	0	1	1
IN523	4		17/06/88	CFA STP	CFA STP	SUR WATER	1	1	QC FL	0	0	1	1	0	0	0	0	0	0	0	0	1	1
IN523	4		17/06/88	CFA STP	CFA STP	SUR WATER	3	3	GRAB	0	0	0	0	0	0	0	0	0	0	3	3	0	0
IN523	4		17/06/88	CFA STP	CFA STP	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	0	1	1	0	0	1	1
IN523	4		17/06/88	CFA STP	CFA STP	SUR WATER	1	1	T COM	0	0	1	1	0	0	0	0	1	1	0	0	1	1
IN801	5		18/07/88	OMRE	LEACH POND	SOIL	1	1	GRAB	0	0	1	1	0	0	0	0	1	1	1	1	0	0
IN801	5		20/07/88	OMRE	LEACH POND	SOIL	2	2	GRAB	0	0	2	2	0	0	0	0	2	2	2	2	0	0
IN802	5	DELETED		OMRE	LEACH POND	SOIL	0	6	GRAB	0	0	0	0	0	0	0	0	0	0	0	6	0	0
IN802	5		17/06/88	OMRE	LEACH POND	SOIL	4	4	GRAB	0	0	0	0	0	0	0	0	0	0	4	4	0	0
IN802	5		18/07/88	OMRE	LEACH POND	SOIL	5	5	GRAB	0	0	0	0	0	0	0	0	0	0	5	5	0	0
IN803	5		27/06/88	OMRE	LEACH POND	SOIL	5	5	S COM	0	0	5	5	0	0	0	0	0	0	0	0	0	0
IN803	5		28/06/88	OMRE	LEACH POND	AIR	2	2	QC FL	0	0	0	0	2	2	0	0	0	0	0	0	0	0
IN803	5		28/06/88	OMRE	LEACH POND	AIR	5	5	GRAB	0	0	0	0	5	5	0	0	0	0	0	0	0	0
IN804	5		28/06/88	OMRE	LEACH POND	SOIL	1	1	GRAB	0	0	1	1	0	0	1	1	0	0	0	0	0	0
IN804	5		29/06/88	OMRE	LEACH POND	SOIL	5	5	GRAB	0	0	5	5	0	0	5	5	0	0	0	0	0	0
IN805	5		23/06/88	OMRE	LEACH POND	SOIL	6	6	S COM	0	0	6	6	0	0	0	0	0	0	6	6	0	0
IN806	5	DELETED		OMRE	LEACH POND	SOIL	0	8	GRAB	0	0	0	8	0	0	0	0	0	0	0	8	0	8
IN806	5		25/07/88	OMRE	LEACH POND	SOIL	7	7	GRAB	0	0	7	7	0	0	0	0	0	0	7	7	7	7
IN806	5		25/07/88	OMRE	LEACH POND	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	0	0	0	1	1	1	1
IN806	5		26/07/88	OMRE	LEACH POND	SOIL	5	5	GRAB	0	0	5	5	0	0	0	0	0	0	5	5	5	5
IN807	5	DELETED		OMRE	LEACH POND	SOIL	0	5	GRAB	0	0	0	5	0	0	0	0	0	0	0	5	0	5
IN807	5		22/07/88	OMRE	LEACH POND	SOIL	2	2	GRAB	0	0	2	2	0	0	0	0	0	0	1	2	1	2
IN807	5		25/07/88	OMRE	LEACH POND	SOIL	2	2	GRAB	0	0	2	2	0	0	0	0	0	0	1	2	1	2
IN807	5		25/07/88	OMRE	LEACH POND	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	0	0	0	1	1	1	1
IN808	5		12/07/88	OMRE	LEACH POND	SOIL	5	5	GRAB	0	0	5	5	0	0	0	0	0	0	0	0	0	0
IN809	5		28/06/88	OMRE	LEACH POND	SOIL	5	5	GRAB	0	0	0	0	0	5	0	0	0	0	5	0	0	0
IN810	5		27/06/88	OMRE	LEACH POND	SOIL	2	2	BKGRN	2	2	2	2	0	0	0	0	0	0	0	0	2	2
IN811	5		28/06/88	OMRE	LEACH POND	SOIL	2	2	GRAB	2	2	2	2	0	0	0	0	0	0	0	0	2	2

TABLE A.1
INEL SITE ENVIRONMENTAL SAMPLES
WITH FIELD QC SAMPLES
SORTED BY ENVIRONMENTAL PROBLEM AND REQUEST NUMBER

REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTUAL	NUMB SAMP PLANNED	TYPE	ANIONS ACTUAL	ANIONS PLANNED	METALS ACTUAL	METALS PLANNED	SOIL GAS ACTUAL	SOIL GAS PLANNED	PES/H/PCB ACTUAL	PES/H/PCB PLANNED	SEMIVOLS ACTUAL	SEMIVOLS PLANNED	VOLS ACTUAL	VOLS PLANNED	RADS ACTUAL	RADS PLANNED
							AL	NED		AL	NED	AL	NED	AL	NED	AL	NED	AL	NED	AL	NED	AL	NED
IN812	6		DELETED	ICPP	INJ. WELL	SOIL	0	4	GRAB	0	0	0	4	0	0	0	0	0	0	0	0	0	4
IN814	7		DELETED	TAN/WRRTF	BURN PITS	SOIL	0	1	GRAB	0	0	0	1	0	0	0	1	0	0	0	1	0	0
IN814	7		14/07/88	TAN/WRRTF	BURN PITS	SOIL	8	8	GRAB	0	0	8	8	0	0	8	8	0	0	8	8	0	0
IN814	7		14/07/88	TAN/WRRTF	BURN PITS	SUR WATER	1	1	QC RN	0	0	1	1	0	0	1	1	0	0	1	1	0	0
IN814	7		15/07/88	TAN/WRRTF	BURN PITS	SOIL	3	3	GRAB	0	0	3	3	0	0	3	3	0	0	3	3	0	0
IN815	7		DELETED	TAN/WRRTF	BURN PITS	SOIL	0	7	GRAB	0	0	0	7	0	0	0	7	0	0	0	7	0	0
IN815	7		18/07/88	TAN/WRRTF	BURN PITS	SOIL	2	2	GRAB	0	0	2	2	0	0	0	2	0	0	2	2	0	0
IN815	7		19/07/88	TAN/WRRTF	BURN PITS	SOIL	11	11	GRAB	0	0	11	11	0	0	0	11	0	0	11	11	0	0
IN815	7		19/07/88	TAN/WRRTF	BURN PITS	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	1	0	0	1	1	0	0
IN816	7		DELETED	TAN/WRRTF	BURN PITS	SOIL	0	3	GRAB	0	0	0	3	0	0	0	3	0	0	0	3	0	0
IN816	7		20/07/88	TAN/WRRTF	BURN PITS	SOIL	12	12	GRAB	0	0	12	12	0	0	0	12	0	0	12	12	0	0
IN816	7		21/07/88	TAN/WRRTF	BURN PITS	SOIL	5	5	GRAB	0	0	5	5	0	0	0	5	0	0	5	5	0	0
IN816	7		21/07/88	TAN/WRRTF	BURN PITS	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	1	0	0	1	1	0	0
IN817	7		DELETED	TAN/WRRTF	BURN PITS	SOIL	0	11	GRAB	0	0	0	11	0	0	0	11	0	0	0	11	0	0
IN817	7		21/07/88	TAN/WRRTF	BURN PITS	SOIL	5	5	GRAB	0	0	5	5	0	0	0	5	0	0	5	5	0	0
IN817	7		21/07/88	TAN/WRRTF	BURN PITS	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	1	0	0	1	1	0	0
IN818	7		DELETED	TAN/WRRTF	BURN PITS	SOIL	0	8	GRAB	0	0	0	8	0	0	0	8	0	0	0	8	0	0
IN818	7		20/06/88	TAN/WRRTF	BURN PITS	SOIL	4	4	GRAB	0	0	4	4	0	0	4	4	0	0	4	4	0	0
IN819	7		DELETED	TAN/WRRTF	BURN PITS	AIR	0	1	GRAB	0	0	0	0	0	0	0	0	0	0	0	1	0	0
IN819	7		27/06/88	TAN/WRRTF	BURN PITS	SOIL	7	7	GRAB	0	0	4	4	0	0	0	0	0	0	3	3	0	0
IN820	8		29/06/88	TAN/TSF	LEACH FLD	SOIL	2	2	GRAB	0	0	2	2	0	0	0	0	0	0	2	2	0	0
IN820	8		30/06/88	TAN/TSF	LEACH FLD	SOIL	4	4	GRAB	0	0	4	4	0	0	0	0	0	0	4	4	0	0
IN821	8		DELETED	TAN/TSF	LEACH FLD	SOIL	0	6	GRAB	0	0	0	0	0	0	0	0	0	0	0	6	0	6
IN821	8		DELETED	TAN/TSF	LEACH FLD	SUR WATER	0	1	QC RN	0	0	0	0	0	0	0	0	0	0	0	1	0	1
IN822	8		13/07/88	TAN/TSF	LEACH FLD	SOIL	9	9	GRAB	0	0	9	9	0	0	0	0	0	0	9	9	0	0
IN823	9		DELETED	PM-2A TANK	TANK	SOIL	0	6	GRAB	0	0	0	6	0	0	0	0	0	0	0	0	0	6
IN823	9		22/07/88	PM-2A TANK	TANK	SOIL	14	14	GRAB	0	0	14	14	0	0	0	0	0	0	0	0	14	14
IN824	9		DELETED	PM-2A TANK	TANK	SOIL	0	3	GRAB	0	0	0	3	0	0	0	0	0	0	0	0	0	0
IN824	9		16/06/88	PM-2A TANK	TANK	SOIL	3	3	GRAB	0	0	3	3	0	0	0	0	0	0	0	0	0	0
IN825	9		DELETED	PM-2A TANK	TANK	AIR	0	1	GRAB	0	0	0	0	0	1	0	0	0	0	0	0	0	0
IN825	9		17/06/88	PM-2A TANK	TANK	AIR	2	2	GRAB	0	0	0	0	2	2	0	0	0	0	0	0	0	0
IN826	9		20/07/88	PM-2A TANK	TANK	OTHER	1	1	QC FL	0	0	0	0	1	1	0	0	0	0	0	0	0	0
IN826	9		20/07/88	PM-2A TANK	TANK	OTHER	1	1	GRAB	0	0	0	0	1	1	0	0	0	0	0	0	0	0
IN826	9		20/07/88	PM-2A TANK	TANK	OTHER	2	2	S COM	0	0	0	2	2	2	0	0	0	0	0	0	0	0
IN827	9			PM-2A TANK	TANK	SOIL	1	32	GRAB	0	0	0	32	0	0	0	0	0	0	0	0	0	0
IN827	9		15/07/88	PM-2A TANK	TANK	SOIL	11	11	GRAB	0	0	11	11	0	0	0	0	0	0	0	0	0	0
IN827	9		15/07/88	PM-2A TANK	TANK	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	0	0	0	0	0	0	0
IN827	9		18/07/88	PM-2A TANK	TANK	SOIL	9	9	GRAB	0	0	9	9	0	0	0	0	0	0	0	0	0	0
IN827	9		19/07/88	PM-2A TANK	TANK	SOIL	4	4	GRAB	0	0	4	4	0	0	0	0	0	0	0	0	0	0
IN827	9		20/07/88	PM-2A TANK	TANK	SOIL	8	8	GRAB	0	0	8	8	0	0	0	0	0	0	0	0	0	0
IN827	9		20/07/88	PM-2A TANK	TANK	SUR WATER	1	1	QC RN	0	0	1	1	0	0	0	0	0	0	0	0	0	0
INN01	99		17/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0

TABLE A.1
INEL SITE ENVIRONMENTAL SAMPLES
WITH FIELD QC SAMPLES
SORTED BY ENVIRONMENTAL PROBLEM AND REQUEST NUMBER

REQ NUMB	PROB NUMB	ST	DATE COLL. DD/MM/YY	LOCATION	TYPE LOCATION	MEDIA	NUMB SAMP ACTUAL	NUMB SAMP PLANNED	TYPE	ANIONS ACTUAL	ANIONS PLANNED	METALS ACTUAL	METALS PLANNED	SOIL GAS ACTUAL	SOIL GAS PLANNED	PES/H/PCB ACTUAL	PES/H/PCB PLANNED	SEMIVOLS ACTUAL	SEMIVOLS PLANNED	VOLS ACTUAL	VOLS PLANNED	RADS ACTUAL	RADS PLANNED
INN04	99		17/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN05	99		20/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN07	99		20/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN08	99		20/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN14	99		21/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN16	99		22/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN19	99		22/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN23	99		23/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN25	99		24/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN26	99		24/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN30	99		27/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN35	99		28/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN39	99		30/06/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN47	99		13/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN49	99		14/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN50	99		14/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN51	99		18/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN52	99		18/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
INN59	99		21/07/88	TRIP BLANK	TRIP BLANK	WATER	1	1	QC BL	0	0	0	0	0	0	0	0	0	0	1	1	0	0
						TOTAL	411	637		133	161	312	440	13	19	37	213	16	20	269	444	170	230

Appendix B

BACKGROUND CONCENTRATION LEVELS OF ANALYTES

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NOTE

No background data were available for preparing this Appendix at the time this draft data document was issued.

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Appendix C

AUDITS

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- Letter dated October 28, 1988, from H. A. Vincent to P. C. Lindahl. Subject: Results of ANL participation in the EMSL-LV fourth quarter Organic Performance Evaluation Study (QB4, FY88, Organic). C-162

- Letter dated November 23, 1988, from P. Lindahl to V. Fayne. Subject: Corrective actions in response to ANL's score on QB4FY88 Organic Performance Evaluation Study (QB4, FY88, Organic). C-166

- Letter dated August 8, 1988, from H. A. Vincent to P. C. Lindahl. Subject: Results of ANL participation in the EMSL-LV third quarter Organic Performance Evaluation Study (QB3FY88 Organic). C-168

- Letter dated August 26, 1988, from M. D. Erickson to H. Vincent. Subject: Corrective actions in response to ANL's score on QB3FY88 Organic Performance Evaluation Study (QB3, FY88, Organic). C-171

- DOE Log-In Table for second quarter Organic Blind Study (QB2, FY88, Case No. 8783). C-173

On-site Evaluation Audit of ORNL Sampling Team at the INEL

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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)

Mr. John B. Murphy
Oak Ridge National Laboratory
P. O. Box 2008, 4500S, MS-102
Oak Ridge, TN 37831-6102

AUG 10 1988

Dear Mr. Murphy:

Final reports describing the on-site evaluation audit for the field sampling at the Idaho National Engineering Laboratory are enclosed. Included are the completed check list and comments by LEMSCO, and the field evidence report from CEAT-Techlaw. The items of comment should be identical to those items used for comments during the June 23rd debriefing by the LEMSCO and Techlaw team members. Some change in the text from preliminary to final draft may have been introduced for clarity.

The sampling audit reports and the response by the ORNL sampling team, with reports of corrective actions instituted as a result of the audit, will become part of the quality assurance record for the DOE environmental survey for the INEL site. In order that we may meet scheduling requirements, please respond to the comments by the auditing teams within 30 days of your receipt of these reports so that we can review and assemble a package to be included in the data document report for the INEL site. The response should be addressed to this office (Attn: H. A. Vincent) with copies to DOE headquarters (Attn: D. K. Knight) and the ORNL program manager (R. B. Fitts).

If you have any questions regarding this matter, you can call me at FTS 545-2129 or (702)798-2129.

Sincerely,

Harold A. Vincent
Analytical Chemist
Quality Assurance Research Branch, QAD

-R.B. FITTS-

17 AUG 88

Enclosures

cc:
D. Karen Knight, DOE HQ
Robert B. Fitts, ORNL
William Newberry, QAB (w/o enclosures)
Kevin Cabble, LEMSCO (w/o enclosures)
Betty Malone, Techlaw (w/o enclosures)
Robert Thielke, Techlaw (w/o enclosures)

CONTRACT
EVIDENCE
AUDIT
TEAM

July 25, 1988

Mr. Harold Vincent
USEPA
Environmental Monitoring
Systems Laboratory (EMSL)
944 East Harmon Avenue
Las Vegas, NV 89119-5027

RE: Transmittal for CEAT Field Evidence Audit Report for Idaho National Engineering Laboratory

Dear Mr. Vincent:

Enclosed is a copy of the Contract Evidence Audit Team (CEAT-TechLaw) evidence audit report for the field audit conducted at Idaho National Engineering Laboratory (INEL) on June 21 through 23, 1988.

Based on the results of the audit and examination of the audit documentation and procedures used, the chain-of-custody, document control, and evidence security procedures followed by INEL that do not meet EPA's National Enforcement Investigations Center's (NEIC) Evidence Audit Requirements are expressed as exceptions and observations in the attached report.

CEAT-TechLaw has conducted a management review of the audit report and audit workpapers. The review was made in accordance with generally accepted evidence auditing standards and included such tests of the documentation and other such auditing procedures as were considered necessary in the circumstances.

TECHLAW, INC. • 1953 W. COLFAX • SUITE 210 • LAKEWOOD, CO 80215 • (303) 233-1240

The subject evidence audit report has been received and approved by NEIC. If you have any questions please contact the NEIC Project Officer, Bob [illegible], at (303) 236-5122, FTS 776-5122.

Yours sincerely,

Jeffrey C. Weinstein
Contract Evidence

Enclosure

Donald J. Rocher
National Enforcement [illegible]

Enclosure

cc: D. Karen Knight, DOJ (V/attachment)
Betty Malone, [illegible] (V/attachment)
IX: 111-817

U.S. DEPARTMENT OF ENERGY

Environmental Survey

FIELD EVIDENCE AUDIT REPORT

IDAHO NATIONAL ENGINEERING LABORATORY

Scoville, Idaho

June 21-24, 1988

National Enforcement Investigations Center

Contract Evidence Audit Team

12600 West Colfax Avenue, Suite C-310

Lakewood, Colorado 80215

This work was conducted on behalf of the Environmental Protection Agency's (EPA) National Enforcement Investigations Center (NEIC) under EPA Contract #68-01-7369.

FIELD EVIDENCE AUDIT REPORT

U.S. Department of Energy
Office of Environmental Audit & Compliance

Idaho National Engineering Laboratory
Scoville, Idaho

June 21-28, 1988

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Bob Thielke
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INTRODUCTION

On June 21-23, 1988, NEIC's Contract Evidence Audit Team (CEAT-TechLaw) personnel conducted a field audit of the document control, chain-of-custody, and sample handling procedures followed by the Oak Ridge National Laboratory (ORNL) during sampling conducted at the Idaho National Engineering Laboratory (INEL) site in Scoville, Idaho. Present were those personnel listed on the cover page of this report. U.S. Geological Survey personnel were also present to obtain samples, but were not involved in the scope of the audit.

The INEL Sampling and Analysis Plan was provided to the CEAT personnel by ORNL prior to the audit. Field sampling activities were reviewed for conformance to the Sampling and Analysis Plan and NEIC's Policies and Procedures Manual.

This field evidence audit report contains a description of the audit activities conducted by the CEAT during the June 21-23, 1988 sampling episode. The report of these activities is arranged into the following sections: Audit Sequence, Sampling Plan, Accountable Field Documents, Field Observations, and Summary.

AUDIT SEQUENCE

On June 21-23, 1988, sampling of groundwater, surface water, and soil took place. Sampling-related documents were examined by the CEAT auditors in the field during sampling activities and at the DOE Environmental Survey on-site office. On the morning of June 23, 1988, CEAT auditors observed packing of samples for shipment.

A debriefing was held at the conclusion of the audit on June 23, 1988. Recommendations and comments concerning the overall performance of the sampling teams were made at this time by the EMSL and CEAT auditors.

SAMPLING PLAN

A Sampling and Analysis Plan was prepared for the sample collection effort by the Department of Energy (DOE) Environmental Survey and ORNL. The Sampling and Analysis Plan was reviewed and approved by the DOE, ORNL, and EPA/EMSL-LV.

The sampling plan included the following:

- Introduction describing purpose and goals of the DOE Environmental Survey
- INEL site background information

- Sampling and analysis strategy.
- Field sampling guidelines and sample control.
- Quality assurance/quality control.
- Data management and analysis.
- Logistics, schedule, and cost.
- Health, safety, and security.

Applicable sections of this Sampling and Analysis Plan were used by the auditors as part of the basis for the field evidence audit.

ACCOUNTABLE DOCUMENTS

An accountable document system was used. As specified in the Sampling and Analysis Plan, field logbooks, custody records, and sample tags contained document control numbers. Custody of the documents was maintained by C. Wear. Control numbers and disposition of the documents were recorded in Document Control Logbooks, which remained in the on-site survey office.

Project Logbook

A Project Logbook was maintained by J. Murphy, the field sampling team leader. The following information was recorded in this logbook:

- Table of Contents
- Organization Information
- Sample Team Member Names, Signatures, and Initials
- Sample Team Assignments
- Shipment Log
- Weather Conditions
- Sample Deviations
- Visitors Log
- Chronology of Samples and Daily Meeting Notes
- Auditor Comments/Training

The logbook was organized and appeared to contain all required information, with the following exceptions:

- Numbers such as "0011" and "415" which appeared in the Shipment Log and Chronology of Samples sections were not identified.
- Logbook entries were, at times, difficult to read.

(The CEAT auditors recommended that numbers be identified at the beginning of each logbook section or as column headings on each logbook page, and that logbook entries be written legibly.)

Field Logbooks

General Field Logbooks were used by sampling team members to record information and data pertaining to the collection of water and soil samples. The field logbooks contained pertinent sample collection information for specific request numbers. The information was recorded on the following forms:

- Table of Contents
- Task Team Activity Log Sheet
- Sample Log Sheet

Forms for each day's sampling activities were stapled and inserted into report folders, with separate folders for each media team. The forms in each folder were numbered, beginning with page 1, prior to the sampling team entering the field.

Following sample collection, data was entered into the computer from the logbook forms. The forms were then grouped by media (water, soil, air, etc.) into "three-ring" binders.

The CEAT auditors noticed that, in the absence of one of the document control personnel, the blue folders had accumulated to a sizeable backlog. This situation had the potential for folders being misplaced or lost without being noticed until a later date, if at all.

(The auditors recommended that, if hardbound logbooks are not used, daily folders should be placed into the three-ring binder at the end of each day. As a post-audit recommendation, pages should be assigned unique numbers rather than always beginning with page 1, so that if pages somehow become separated, they can be easily reassembled.)

Field sampling observations were recorded in the General Field Logbooks and appeared to contain all required information, with the following exceptions:

- Blank sections of pages containing narrative entries and field measurements were not lined through.
- Sampling locations and weather observations were not consistently included in the narrative portion of the Task Team Activity Log sheet.

- Field observations, container descriptions, and preservative types were not consistently included in the Sample Log sheet.
- One or two entries did not make sense, e.g. "9000 - 1000 gal purged."
- Some errors were written over rather than lined through making numerical data, in particular, difficult to read.
- Page numbers were often used as references for sketches. Since page numbers were not unique, it was suggested that a more detailed reference should be given, such as "See Page 3, Sample No. IN50518."
- Some information, such as team member names, appeared to have been filled out in advance of the day's activities. The auditors noted that one team member had been listed in the logbook, but was not present during the sampling. One of the packets of logbook forms from the previous day's activities was not available for review, since the forms had apparently not yet been completed.
- Logbook covers did not indicate the sampling organization and logbook title.
- Some voided logbook pages were not numbered, indicating that page numbers were assigned subsequent to being taken into the field. These logbooks would therefore not be considered accountable documents.
- Some information in logbooks was recorded in pencil.
- Some information was recorded on the back of a logbook page, and the back of the page was not numbered.

The auditors made the following recommendations:

- Blank portions of logbook entries and unused lines for data should be lined through.
- Sampling locations and weather observations should be consistently included in the narrative portion of the Task Team Activity Sheet.
- Sample Log sheets should consistently include field observations, container descriptions, and preservative types.
- Entries should be checked for content and accuracy.

- Errors should be corrected by lining through the error and signing and dating the correction.
- If logbook pages are not uniquely numbered, references to sketches and other information should contain more detailed identification, e.g., "See Page 3, Sample Identification Not Applicable."
- Logbook forms should be completed at the time of sampling, rather than before or after the day's sampling activities.
- Logbook covers should indicate the sampling organization and logbook [illegible].
- All logbook pages should be numbered before field activities begin.
- All information should be recorded in permanent ink, with exception that pencil may be used in inclement weather. The use of pencil should be documented in the project logbook.
- All field-[illegible] should be recorded on numbered, accountable [illegible].

Instrument Calibration and Quality Assurance Logbooks

Instrument Calibration Logbooks were maintained by ORNL sampling team members. However, these logbooks were not available for review by the [illegible].

Document Control Logbooks

Two Document Control Logbooks were used to record control numbers and disposition of the documents. Document Control Logbook 1 contained information pertaining to the assignment of Chain-of-Custody (COC) records. Document Control Logbook 2 contained sections pertaining to the assignment of sample tags and general field logbooks, and the [illegible] circulation of trip blank sample identification [illegible].

The auditors made the following observations regarding the two logbooks:

- The assignment of [illegible] records to team members was not recorded.
- Unused COC records were reassigned new document numbers rather than being voided or retaining the original number.

- Some logbook pages in the Assignment of Sample Tags section were signed in advance of entering required written information.

- The logbooks were signed out to Ivy McCullough, who was not present at the site, and whose name was signed on the pre-printed logbook pages.

(The following recommendations and suggestions were made by the CEAT auditors:

- The logbooks should include a record of team member assignments. The auditors suggested that the existing Sample Identification column, which was not necessary for the assignment of COC records, be replaced by a Team Member/Chain-of-Custody Assignment column.

- New document numbers should not be assigned to COC records. Rather, forms should be voided or used with their original numbers.

- Logbook pages should not be signed prior to completion.

- The name of the person maintaining the logbook should be included in the front of the book.)

Shipping Logbook

A shipping logbook maintained by D. Pickel and W. Alexander was also examined by the auditors. The logbook contained shipping addresses and laboratory contacts; cooler, sample request, and airbill numbers; shipment dates and dates received; cooler temperatures before and after shipment; and comments concerning the condition of the samples.

Entries in the logbook were legible and organized. The auditors noted that the Comments section, however, contained unsigned entries in three different handwritings. Each entry was dated.

(The auditors recommended that each entry be signed as well as dated.)

Sample Tags/Labels

Sample tags were affixed to each sample container. Tags were examined by the CEAT auditors during field collection activities and prior to the packaging of samples into coolers.

Sample tags were pre-printed with sequential document control numbers to uniquely identify each sample. The tags were completed correctly and included the following information:

- o Sample Identification Number
- o Date and Time of Sample Collection
- o Concentration
- o Radiation Screening Results
- o Sampler Name

Throughout the audit, numerous sample labels were examined by the CEAT auditors. Sample labels contained the following information:

- o Sample Identification Number
- o Date and Time of Sample Collection
- o Analysis Required
- o Preservative

The auditors observed that several sample tags contained the sampler's signature prior to sampling at the sampling location. The sampler's name was then crossed out, because this person had been assigned to a different sampling team and was therefore not present. In comparing information on the tags with the labels, the auditors noticed a discrepancy in the couple of the collection time.

(It was recommended by the CEAT auditors that sample tags be signed at the time of sample collection to eliminate confusion. The auditors also recommended that tags and labels be checked carefully for consistency of information.)

Chain-of-Custody (COC) Records

EPA-type COC records were used during the sampling episode. All sample numbers were listed on the COC records. Samples were arranged on the records according to organic or inorganic analysis parameters. The custody forms were color-coded and uniquely titled to indicate their destination upon receipt at Oak Ridge National Laboratory, Argonne National Laboratory and Battelle Columbus.

The auditors made the following observations regarding the color-coding of the COC records:

- o Other than color-coding the forms, there was no way to distinguish which laboratory within a facility would receive the samples. Samples going to two different facilities were on different COC records, but the COC records were assigned identical form numbers. The facility name was not included.

- There was no reference to the yellow COC record in the Sampling and Analysis Plan.

(The following recommendations and suggestions were made:

- The CEAT auditors noted that, while the color-coding method appeared to be a useful aid, the COC records should have additional means of identification to avoid possible confusion at a later date. Therefore, it was recommended by the auditors that a unique form number be assigned to each COC record.
- The Sampling and Analysis Plan or project logbook should clarify the use of the yellow COC record.
- As a post-audit suggestion, the facility name within a laboratory should be included on the appropriate COC record.)

All COC records examined by the auditors were complete and appeared to be consistent with the following exceptions:

- Some forms indicated samples were relinquished by personnel not shown as samplers at the top of the form.
- Samplers' names were not recorded on some COC records.
- Form numbers were not written in the designated space, creating confusion as to whether they were form numbers or page numbers.

(The CEAT auditors recommended that:

- Samples should only be relinquished by one of the samplers indicated at the top of the COC record.
- Samplers' names should be included on all COC records.
- COC record numbers should be written in the space provided.)

OBSERVATIONS

Water and soil samples were collected during the three-day audit period. Collection of soil samples was observed by the CEAT auditors on June 21-22, 1988.

On June 21, 1988, the CRAT auditors observed the collection of soil samples by C. Muhr, S. Lewis, S. Hall, and L. Barker. Since a drill rig was not allowed inside the fenced area, pits were dug by S. Lewis. S. Hall then used a split spoon device to obtain the soil samples. Sample labels and tags were completed by L. Barber, and S. Hall recorded logbook entries.

On June 21-22, 1988, the auditors also observed the collection of soil samples by W. Parsons, J. Lisco, and D. Gillespie. A drill rig was operated by W. Parsons and J. Lisco to obtain soil cores. Soil was extracted from each core and placed into sample jars by D. Gillespie, who then completed the sample jar labels and tags. Logbook entries were also recorded by D. Gillespie.

Groundwater samples were obtained on June 22, 1988 by K. Owenby and D. Herrera. Field measurements including pH, temperature, and conductivity were obtained by K. Owenby and recorded by D. Herrera. Associated documentation was completed by D. Herrera.

Surface water samples were obtained on June 22, 1988, by J. Murphy, D. Pickel, C. Muhr, and S. Hall. Field measurements including pH, temperature, dissolved oxygen, and conductivity were obtained by J. Murphy and D. Pickel recorded the measurement data in the logbook. Water samples were obtained by S. Hall, and collection times, tags and labels were completed by C. Muhr. Logbook entries were recorded by S. Hall and C. Muhr.

Sample Shipment Procedures

Procedures for preparing samples for shipment were observed by the CRAT auditors. Labels were prepared by B. Alexander. Labels, tags, and COC records accompanying several coolers were examined for completeness. Tags and custody records were compared to ensure that sample numbers and sample information were consistent.

Samples were prepared for shipment according to specifications in the sampling plan with the following exceptions:

- Shipping records were placed in paper envelopes rather than plastic bags.
- For packing of soil samples, vermiculite was placed outside the coolers rather than within it, as specified in Appendix A of the Environmental Survey Manual.

(The CEAT auditors recommended that shipping papers be placed in plastic bags within each cooler, and that for consistency with DOE procedures, vermiculite be placed in each cooler's liner bag.)

SUMMARY

A debriefing was held on June 23, 1988 at the on-site office. Present were all personnel listed on the cover of this report.

The following comments and recommendations were made regarding logbooks, sample tags/labels, custody records, and shipping procedures:

Project Logbook

- Entries such as Request Numbers and Sample Identification Numbers should be identified as such, either at the beginning of the appropriate logbook section or as column headings.
- All logbook entries should be legible.

Field Logbooks

- Logbook forms should be placed into their respective three-ring binders at the end of each day to avoid losing any of the forms.
- If possible, unique numbers should be assigned to logbook pages.
- Blank portions of logbook entries and unused data fields should be lined through to prevent unauthorized entries and to eliminate confusion of whether data was omitted.
- Sampling locations and weather observations should be consistently included in the narrative portion of the Task Team Activity Sheet.
- Field observations, container descriptions, and preservative types should consistently be included in the Sample Log sheet.
- Entries should be checked for content and accuracy.
- Errors should be corrected by lining through the error and signing and dating the correction.

- Because logbook pages are not uniquely numbered, references to sketches and other information should contain unique identification.
- Logbook forms should be completed at the time of sampling, rather than before or after the day's sampling activities.
- Logbook covers should indicate the name of the sampling organization and logbook title.
- All logbook pages should be numbered before field activities begin.
- Accountable documents should be completed in permanent ink. Pencil may be used only during inclement weather, and this should be documented in the project logbook.
- All field information should be recorded on numbered, accountable logbook pages.

Document Control/Logbooks

- Assignment of COC records should include the team member's name to whom the forms were assigned.
- Unused COC records should not be assigned new numbers. Either the original numbers should be used, or the forms should be marked
- Logbook pages should not be signed prior to completion.
- The name of the person maintaining the logbook should be included in the front of the book.

Sh[illegible] Logbook

- Each logbook entry should be signed as well as dated.

Sample Tags/Labels

- Sample tags should not be signed prior to arrival at the sample location.
- Tags and labels should be checked for consistency of information.

COC Records

- A unique form number should be assigned to each COC record.

- If samples are going to more than one laboratory within a facility, the laboratory name should be included on the COC record.
- All colors used for COC records should be described in the Sampling and Analysis Plan, and any changes noted in the project logbook.
- Samples should only be relinquished by one of the sampling team members indicated on the COC record.
- Samplers' names should be included on each COC record.
- COC record numbers should be written in the designated space.

Sample Shipment Procedures

- Shipping papers should be placed in plastic bags rather than paper envelopes.
- Vermiculite should be placed inside each liner bag.

The field evidence audit of ORNL's sampling team at the Idaho National Engineering Laboratory site was concluded on June 23, 1988.

Lockheed Engineering and Management Services Company

Environmental Programs Office
1050 E. Flamingo Road, Suite 120, Las Vegas, Nevada 89119
(702) 734-3200

July 13, 1988

United States Environmental
Protection Agency
P. O. Box 93478
Las Vegas, Nevada 89119-3478

ATTENTION: MR. W. L. KINNEY

VIA: R. D. FLOTARD R. D. Flotard

SUBJECT: FIELD SAMPLING AUDIT OF OAK RIDGE NATIONAL LABORATORY PERSONNEL AT IDAHO NATIONAL ENGINEERING LABORATORY

Dear Mr. Kinney:

On June 21-23, a field sampling audit of Oak Ridge National Laboratory (ORNL) personnel was conducted at Idaho National Engineering Laboratory near Idaho Falls, Idaho. The audit was conducted in support of the DOE Environmental Survey by Lewis Todechiney, Kevin Cabble (Lockheed-ESCO) and Betty Malone, Bob Thielke (TechLaw). Also present were Harold Vincent, Bob Newberry (USEPA); Lee Stevens (DOE Headquarters); and Pete Lindahl (Argonne National Laboratory).

The attached comments and checklist are those of Lewis Todechiney and Kevin Cabble only. Comments from Betty Malone and Bob Thielke will be sent under separate cover.

If you have any questions, I can be contacted at 734-3268.

Very truly yours,

Kevin J. Cabble

K. J. Cabble
Senior Scientist
DOE Environmental Survey

KJC/ahh

cc: H. A. Vincent
J. T. Gerard
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L. R. Todechiney
H. B. Kerfoot
J.O. 70.23
W. Newberry
R. D. Flotard
QA 7-3

COMMENTS FOR FIELD SAMPLING AUDIT OF ORNL PERSONNEL AT INEL

Soil and Sediment

1. The sampling team had to operate the large drill rig while sampling. A dedicated experienced drill rig operator should be hired at future sites as serious injury could result from an accident by an inexperienced operator.

2. Sub-surface soil sampling was performed without a photoionization detector (PID). A PID should be used when sampling for volatile or semi-volatile organics. This is especially true when sub-surface sampling.

3. The beta/gamma radiation meter was left in the sun causing it to malfunction. The sampling team was in a roped off radiation area. The site HP was of little assistance as he stopped by only once for a few minutes during a period of over two hours.

4. Threads on the sample bottles were not being wiped clean prior to capping. Soil particles on bottle threads may provide an avenue of escape for volatile organics.

5. Exhaust on large rented drill rig was not vented far enough away from the sub-surface sample hole. Recommend a long exhaust line be placed over the exhaust pipe and vented down wind from the sampling activity.

6. Extra soil from split spoon should be discarded with soil to be placed back into the hole from where it came instead of being discarded on the surface of the ground.

7. The first inch of soil to come in contact with the split spoon (previously in contact with the auger bit) should be discarded. Also be careful to watch for loose soil at the top of the split spoon which may have fallen to the bottom of the hole while removing the auger bit.

8. In one case the decontamination equipment was not placed on plastic. The decontamination area in this case was also downwind from the sampling area causing dust from footsteps etc., to enter the pans and land on clean equipment which was drying.

9. At request 805 the soil was being sampled at the wrong depth. The situation was brought to their attention by the auditors and corrected. The sampling teams should not rely only on Chapter Four but also Chapter Three prior to sampling. Read plans carefully.

10. The ORNL sampling plan for INEL called for pH and temperature parameters to be collected for Request 805, 522, 507 and 508. This was not performed.

11. In one case the split spoon was raised, allowing the sample to fall into the VOA sample container. Recommend using spoon, spatula etc., to gently push sample into sample container.

12. Recommend all equipment to come in contact with sample media (i.e., boots) be decontaminated prior to placing in plastic bags.

13. If algae is present when sampling sediment, brush away algae prior to collection of sample. This was not performed at Request 505.

14. Place VOA samples and other aliquots requiring refrigeration into coolers as soon as possible. At Request 505, two VOA aliquots were left in the sun for approximately ten minutes.

Water

1. The Horiba was left out in the sun at Requests 422 and 507. Keep all electronic instruments out of the sun.

2. Purge water from the USGS wells were purged onto the ground around the well. If ORNL purges non-USGS wells, receive written permission from the site.

3. In one case the Horiba probe was not decontaminated prior to leaving the site. Decontaminate probe prior to leaving site.

4. At Request 507, the first sample was collected downstream from the sampler allowing some sediment from disturbance by samplers feet to enter the water collection area. Sample up stream from sampler when standing in media.

5. A checklist should be used so equipment is not forgotten. In one case the Horiba was forgotten.

6. In one instance a samplers clothing came in contact with the media being sampled. If this occurs, change coveralls.

General

1. Methanol, or any other solvent, was not used as a final rinse for decontamination of equipment. Use of a final solvent rinse is strongly recommended.

2. Eye wash units should be available in all sampling vehicles in the event that the media being samples comes in contact with the samplers eyes.

3. Recommend that a safety officer that is an industrial hygienist be on site for at least the first week of sampling to evaluate the many safety considerations encountered during the sampling operation. Many of the comments noted here are safety related.

4. Although ORNL team members wore a pocket dosimeter and a TLD issued by INEL at all times, audit team members requested but did not receive either of these. Above background radiation areas were entered by audit team members. ORNL or INEL should have provided these items.

5. Many of the sampling technique items listed in these comments are considered minor. For that reason sampling techniques with regard to sample integrity were rated good.

ON-SITE SAMPLING EVALUATION FOR
Idaho National Engineering Laboratory
Idaho Falls, Idaho

This checklist was compiled utilizing the
Sampling Plan for the Idaho National Engineering Laboratory
Dated June 1988

by

Lewis R. Todechiney and Kevin J. Cabble
Lockheed Engineering and Management Services Co., Inc.
Las Vegas, Nevada 89119

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

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SAMPLING FIELD AUDIT

I. GENERAL INFORMATION

Purpose: The purpose of this sampling evaluation is to document the extent to which procedures identified in the sampling protocol and/or quality assurance plan are being followed with respect to implementing specified field tests, chain-of-custody, record keeping, quality assurance, sampling procedures and techniques, and sample handling methods.

Audit Dates: 06/21/88 to 06/24/88

Facility/Site Information

Facility/Site Name: Idaho National Engineering Laboratory

Facility/Site Address or Location: CFA 601 Warehouse

Scoville, ID 83415 Attn: A. Anselmo

Facility/Site Telephone No.: (208) 526-2414 |_| N/A

Facility Contact (Name/Title): A. Anselmo (EG&G Idaho)

Function/Description of Facility/Site: Programs at the site include test irradiation services, uranium recovery from highly enriched spent fuels, calcination of liquid radioactive waste solutions, light-water-cooled reactor safety testing and research, operation of research reactors and storage and surveillance of solid transuranic (TRU) wastes.

Media Being Sampled:

|X| Soil

|_| Air (Soil Gas)

|X| Sediment

|X| Surface Water

|X| Ground Water

Sampling Team Information

Team Contact (Name/Title/Affiliation): John Murphy, Team Leader,
Oak Ridge National Laboratory

Team Members (Name/Title/Affiliation):

1. Keith Owenby, Assistant Team Leader, ORNL, Oak Ridge
2. Bill Alexander, Sample Control, ORNL, Oak Ridge
3. Leslie Barker, Sample Control/Sample, ORNL, Oak Ridge
4. Dan Gillespie, Sampler, ORNL, Grand Junction
5. Steve Hall, Sampler, ORNL, Grand Junction
6. Steve Lewis, Sampler, ORNL, Oak Ridge
7. Jack Lisco, Sampler, ORNL, Grand Junction
8. Chris Muhr, Sampler, ORNL, Grand Junction
9. Wayne Parsons, Sampler, ORNL, Oak Ridge
10. Donna Pickel, Sampler/Sample Control, ORNL, Oak Ridge
11. Dean Herrera, Sampler, ORNL, Grand Junction
12. Cindy Wear, Data Management, ORNL, Oak Ridge
13.
14.
15.

Permanent Contact Telephone No.: (615) 576 - 7929 FTS 626 - 7929

Permanent Contact Address: Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, TN 37831

Audit Team Information

Team Leader (Name/Title/Affiliation): Kevin Cabble, Senior Scientist, Lockheed-EMSCO

Team Members (Name/Title/Affiliation)

1. Lewis Todechiney, Research Analyst, Lockheed-EMSCO
2. Harold Vincent, DOE Project Manager, USEPA
3. Betty Malone, Technical Specialist, TechLaw
4. Bob Thielke, Staff Associate, TechLaw
5. Bob Newberry, Chemist, USEPA
6. Peter Lindahl, Chemist, Argonne National Laboratory
7. Steve Wegner, Hydrologist, USGS (USGS well sampling only)
8. Chuck Ljungberg, Environ. Scientist, DOE INEL (Escort)
9. Lee Stevens, Asst. Team Leader, DOE Headquarters
10.

Team Contact Telephone No.: (702) 798 - 2129 FTS 545 - 2129.

Team Contact Address: U.S. Environmental Protection Agency
944 East Harmon
Las Vegas, NV 89119

Debriefing

A debriefing will be conducted onsite with sampling personnel.

Date/time and location of debriefing: Debriefing was held in the ORNL sampling headquarters on June 23, 1988 at 1700 hours.

Names of those attending debriefing:

1. Harold Vincent
2. Lee Stevens
3. Kevin Cabble
4. Lewis Todechiney
5. Betty Malone
6. Bob Thielke
7. Bob Newberry
8. Keith Owenby
9. Bill Alexander
10. John Murphy
11. Leslie Barker
12. Dan Gillespie
13. Steve Hall
14. Steve Lewis
15. Jack Lisco
16. Chris Muhr
17. Wayne Parsons
18. Donna Pickel
19. Dean Herrera
20. Cindy Wear

II. ORGANIZATION AND PERSONNEL - MANAGEMENT STRUCTURE

Project Manager: Karen Knight (Lee Stevens and Peter Lindahl represented)

Sample Team Leaders: John Murphy

QA Officer: Kieth Owenby

Data Management: Cindy Wear

Air Sampling: John Murphy and Fred Taylor

Sediment Sampling: None

Radiation Sampling: Keith Owenby, Bill Alexander

Surface Water Sampling: None

Ground Water Sampling: None

Soil Sampling: None

Sample Control Officer: Bill Alexander, Donna Pickel

Health and Safety Officer: Keith Owenby, Bill Alexander

1. Sample Preparation: (Individual(s) responsible for preparing samples for analysis). Name, Media, and Experience.

   Bill Alexander, previous DOE sites

   Donna Pickel, previous DOE site

2. Do personnel assigned to this project have the appropriate education and/or experience to successfully accomplish the objectives of this program?

   |X| Yes |_| No Comments: MOST PERSONNEL HAVE PREVIOUS SAMPLING EXPERIENCE. THREE TEAM MEMBERS (S. LEWIS, L. BARKER, AND D. PICKEL) HAVE LITTLE OR NO DOE PROJECT SAMPLING EXPERIENCE.

3. Are resumes available for all sampling personnel?

|_| Yes |X| No Comments: _____

4. Is the sampling organization adequately staffed to meet project commitments in a timely manner?

|X| Yes |_| No Comments: SAMPLING WAS ON SCHEDULE

5. Was the Project Director and/or Manager available during the evaluation?

|X| Yes |_| No Comments: LEE STEVENS (ASSISTANT DOE TEAM LEAD) AND PETE LINDAHL (ARGONNE NATIONAL LAB) WERE BOTH AVAILABLE IN THE ABSENCE OF KAREN KNIGHT.

6. Are the same personnel performing on-site sampling procedures as those described in the Sampling Plan and/or QA plan?

|_| Yes |X| No Comments: ALL MEMBERS WITH ONE EXCEPTION (DEAN HERRERA) ARE THE SAME AS INDICATED ON THE S&A PLAN.

III. GENERAL FACILITIES

The sampling field work is headquartered at Idaho National Engineering Laboratory, near Idaho Falls, Idaho. Sample team personnel and the on-scene manager work out of this facility.

1. Do the sampling and/or sample preparation facilities have adequate workspace?

   |X| Yes |_| No Comments: _____

2. Is the sampling and/or sample preparation facility maintained in a clean and organized manner?

   |X| Yes |_| No Comments: _____

3. Are hoods provided for work with dusty, volatile or radioactive materials?

   |X| Yes |_| No Comments: _____

4. Are adequate facilities (including cold storage) provided for storage of samples?

   |X| Yes |_| No Comments: SAMPLES ARE SHIPPED DAILY AND STORED IN COOLERS ON BLUE ICE.

5. Are the temperatures of the cold storage units recorded daily in logbooks?

   |_| Yes |X| No Comments: TEMPERATURES ARE RECORDED AS COOLERS ARE RECEIVED BY THE ANALYTICAL LAB.

6. Are contingency plans available if freezers malfunction?

|_| Yes |X| No Comments: _____

_____

_____

7a. ASTM Type II water is produced by distillation or deionization so that its conductivity is less than 1 μmho/cm. Is the sampling facility utilizing ASTM Type II water?

|X| Yes |_| No Comments: MILLI-Q SYSTEM

7b. If yes, is the conductivity of the ASTM Type II water routinely checked and recorded?

|X| Yes |_| No Comments: _____

7c. Can the sampling supervisor document that ASTM Type II water is available for preparation of standards and blanks?

|X| Yes |_| No Comments: _____

7d. What is the source of the ASTM Type II water? BUILDING 612, CFA MILLIPORE REAGENT WATER SYSTEM, RM 108

_____

8. Are waste disposal policies/procedures adequate?

|X| Yes |_| No Comments: SITE DISPOSES WASTE

_____

_____

9. Is the sampling and/or sample preparation facility secure?

|X| Yes |_| No Comments: LOCKED AREAS FOR ALL EQUIPMENT AT NIGHT, WEEKENDS, AND WHILE UNATTENDED.

_____

IV. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN-SAMPLING PROTOCOLS

1. Is a QA/QC Plan available for review?

|X| Yes |_| No Comments: JUNE 1988 REVISION 02

2. Does the QA/QC Plan and/or sampling protocol discuss the objectives of the sampling program and how the sampling approach(es) will satisfy program requirements?

|X| Yes |_| No Comments: SECTION ONE OF THE ORNL S&A PLAN

3. Are levels of precision and confidence levels identified in the QA/QC Plan?

|X| Yes |_| No Comments: SECTION ONE OF THE ORNL S&A PLAN

4. Does the QA/QC Plan and/or sampling protocol describe documentation and sample control procedures, i.e. the system to be used for chain-of-custody identifying, logging and tracking all samples?

|X| Yes |_| No Comments: SECTIONS FIVE AND SIX OF THE ORNL S&A PLAN

5. Are sampling methods, and sampling equipment discussed in the QA/QC Plan and/or sampling protocol?

|X| Yes |_| No Comments: SECTIONS THREE AND FOUR OF THE ORNL S&A PLAN

6. Does the QA/QC Plan and/or sampling protocol identify criteria used for selecting the media (e.g., soil, etc.) to be sampled?

|X| Yes |_| No Comments: SECTION THREE OF THE ORNL S&A PLAN

7. Does the sampling protocol identify criteria for selecting sampling sites for each media?

|X| Yes |_| No Comments: SECTION THREE OF THE ORNL S&A PLAN

8. Does the QA/QC Plan and/or sampling protocol identify the size, number, locations, and types of samples to be collected?

|X| Yes |_| No Comments: SECTIONS THREE AND FOUR OF THE ORNL S&A PLAN

9. Does the QA/QC Plan and/or the sampling protocol describe procedures, for compositing or other sample reduction methods?

|X| Yes |_| No Comments: SECTION THREE OF THE ORNL S&A PLAN

10. Are the type of sample containers identified in the sampling plan?

|X| Yes |_| No Comments: SECTION FOUR OF THE ORNL S&A PLAN

11. Are methods and materials used to clean sample containers identified in the sampling plan?

|X| Yes |_| No Comments: CONTAINERS CLEANED BY I-CHEM

12. Are procedures and materials for field decontamination of sampling equipment discussed in the sampling plan?

|X| Yes |_| No Comments: SECTION 4.3 OF THE ORNL S&A PLAN

13. Has a Health and Safety Project Plan been prepared?

|X| Yes |_| No Comments: SECTION NINE OF THE ORNL S&A PLAN

14a. For all instruments, is the date of each calibration or inspection recorded in the instrument's logbook?

|X| Yes |_| No Comments:

14b. If yes, does the information include date, person performing the activity, type of inspection, and a list of any discovered defects?

|X| Yes |_| No Comments:

15. Are the results of routine calibration checks recorded in the field sampling logbook?

|X| Yes |_| No Comments: _____

16. Are the date, time, standards used, and the name of the person conducting the calibration recorded in the field sampling logbook?

|X| Yes |_| No Comments: _____

17. Are direct radiation instruments only used by personnel trained in their use?

|X| Yes |_| No Comments: SITE PERSONNEL SURVEY RADIATION POTENTIAL AREAS

18. Are blanks prepared and packaged by the appropriate personnel, at the appropriate time?

|X| Yes |_| No Comments: KEITH OWENBY PREPARES ALL BLANKS

V. SAMPLING PROCEDURES

1 Have any changes (additions or deletions) to the listed media been made?

|X| Yes |_| No Comments: _____

_____

_____

Are these changes noted in the program's logbook?

|X| Yes |_| No Comments: _____

_____

_____

2. The number of subsamples collected for a composite should be recorded in the field logbook; is this being done?

|X| Yes |_| No Comments: _____

_____

_____

3. Are sampling depths being documented?

|X| Yes |_| No Comments: FIELD LOGBOOKS

_____

_____

4. Are samples being preserved and stored in ice chests?

|X| Yes |_| No Comments: _____

_____

_____

Table V-1. The following soil samples will be collected during the period of June 20 - June 24 at Idaho National Engineering Laboratory.

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
3	521	ANL West Pond Perimeter	soil	Auger or Drive Tube	Three vertical composite grab, depth-top of saturated zone to bed rock.	ph, temp
5	805	ANL West Ditch	soil	Auger or Drive Tube	Six grab spatial composite. Depth-2 ft below fill and 7-9 ft below fill.	ph, temp
7	818	ANL West Burn Pit	soil	Auger or Drive Tube	Twelve grab samples from 5-7 ft, 10-12 ft, and 15-17 ft.	ph, temp
5	801	OMRE Leach Pond	soil	Auger or Drive Tube	Three grab depth-1 foot above bedrock	ph, temp
3	506	TRA Cold Pond	soil	Auger or Drive Tube	Three vertical composite grab. Top of saturated zone to bedrock.	ph, temp
3	509	TRA Chem Pond	soil	Auger or Drive Tube	Three vertical composite grab. Top of saturated zone to bedrock.	ph, temp

Table V-1. (Continued)

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
3	518	ICPP Pond	soil	Auger or Drive Tube	Three vertical composite grab. Depth-top of saturated zone to bedrock.	ph, temp
5	807	ICPP Gravel Pit	soil	Core Sample	Six or 9 grab samples. Depth-60 ft or refusal.	HNU (PID)
1	301	CFA Sanitary Drainfield	soil	Auger or Drive Tube	Twelve spatial composites 0-5, 5-10, 10-15 at 4 locations	HNU (PID)

V.1 Soils

1. For 506:

1a. Were samples collected from three locations on the perimeter (as close to the berm as possible) of the TRA northeastern cold waste pond?

|_| Yes |_| No Comments: NOT OBSERVED

2. For 509:

2a. Were samples collected from three locations on the outside perimeter (as close to the berm as possible) of the TRA chemical corrosive pond?

|_| Yes |_| No Comments: NOT OBSERVED

3. For 521:

3a. Were samples collected from three locations on the outside perimeter of the ANL-W disposal pond?

|_| Yes |_| No Comments: NOT OBSERVED

3b. After reaching the saturation zone, were samples collected at 2-1/2 ft intervals to a depth of 60 ft?

|_| Yes |_| No Comments: NOT OBSERVED

3c. Was a portion of each 2-1/2 ft increment placed in a 1 L glass jar and tested for VOAs?

|_| Yes |_| No Comments: NOT OBSERVED

3d. Was the increment with the highest reading submitted to the laboratory for analysis?

|_| Yes |_| No Comments: NOT OBSERVED

4. For 805:

4a. Were samples collected 2 ft below the point where the fill material changes to native soil and 5-7 ft below the first sample?

|X| Yes |_| No Comments: ORIGINALLY SAMPLE TEAM MISREAD SAMPLING PLAN AND COLLECTED THE FIRST SAMPLE TWO FEET BELOW GUESTIMATED DEPTH OF DITCH (5-1/2 FT). THEY WERE STILL IN FILL MATERIAL. THIS WAS CORRECTED WHEN BROUGHT TO THEIR ATTENTION BY THE AUDIT TEAM.

5. For 801:

5a. Were samples collected at three randomly selected segments at a depth one foot above the basalt layer?

|_| Yes |_| No Comments: NOT OBSERVED

6. For 807:

6a. Was water present in the ICPP Gravel Pit 1?

|_| Yes |_| No Comments: NOT OBSERVED

6b. Were samples collected at locations with the highest PID or RAD meter reading?

|_| Yes |_| No Comments: NOT OBSERVED

6c. If both PID and RAD readings were zero or background, were samples collected at 3 ft for metals and 60 ft for VOAs and RAD?

|_| Yes |_| No Comments: NOT OBSERVED

7. For 818:

7a. Were samples collected at 5-7 ft, 10-12 ft, and 15-17 ft intervals at four locations?

|_| Yes |_| No Comments: NOT OBSERVED

8. Are the samples collected using an auger or drive tube?

|_| Yes |_| No Comments: NOT OBSERVED

9. If an auger is used:

9a. Is the exhaust of the auger motor vented away from the sampling area?

|_| Yes |X| No Comments: EXHAUST VENTED WITHIN FIVE FEET OF HOLE AT A 90° ANGLE. RECOMMENDED MUCH LONGER EXHAUST LINE (REQUEST 301).

9b. Is care taken to prevent cross contamination between soil cores?

|X| Yes |_| No Comments: _____

_____

_____

9c. Are accumulated soils periodically removed to prevent loose materials from falling back into the bore hole?

|X| Yes |_| No Comments: _____

_____

_____

9d. After reaching the desired depth, is the auger removed slowly and carefully?

|X| Yes |_| No Comments: _____

_____

_____

9e. Is the surface area cleared of debris?

|X| Yes |_| No Comments: _____

_____

_____

10. Are the sample containers wiped clean using disposable towels?

|_| Yes |X| No Comments: RECOMMEND THREADS ON BOTTLES BE WIPED PRIOR TO CAPPING BOTTLE.

_____

11. Are QA, rinsate samples collected after the final methanol rinse?

|_| Yes |X| No Comments: NO METHANOL OR ANY OTHER SOLVENT USED DURING SAMPLING AUDIT.

_____

12. Are sample containers placed in individual plastic bags before being placed in ice chest?

[ ] Yes [X] No Comments: ALL ALIQUOTS FROM SAME SAMPLE PLACED IN ONE BAG UNTIL PREPARATION FOR SHIPMENT.

13. Do sample labels include date, time of collection, and the preservative?

[X] Yes [ ] No Comments: _____

14. Are samples requiring refrigeration immediately placed in a 4°C environment?

[X] Yes [ ] No Comments: _____

15. Are the sample jar lids retightened after initial cool down or immediately prior to shipping?

[ ] Yes [X] No Comments: RECOMMEND THIS BE PERFORMED

16. For volatile organic samples:

16a. Are the volatile organic samples collected first?

[X] Yes [ ] No Comments: _____

16b. Is the headspace in the sample container minimized?

|X| Yes |_| No Comments: _____

_____

_____

17. Is the sampling equipment decontaminated as described?

|_| Yes |X| No Comments: NO METHANOL RINSE

_____

_____

18. Are the decontamination liquids contained for disposal?

|X| Yes |_| No Comments: _____

_____

_____

19. Is the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments: _____

_____

_____

Table V-2. The following sediment samples will be collected during the period of June 20 - June 24 at Idaho National Engineering Laboratory.

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
3	505	TRA Cold Pond depth = 15 ft	sediment	TURCO sampler	Six grabs (two from each of three areas, inlet, outlet & point of less flow velocity.	ph, temp
3	508	TRA Chem Pond depth = 15 ft	sediment	TURCO sampler	Six grabs (two from each of three areas, inlet, outlet & point of less flow velocity.	ph, temp
3	517	ICPP Pond depth = 15 ft	sediment	TURCO sampler	Six grabs (two from each of three areas, inlet, outlet & point of less flow velocity.	ph, temp

V.1 Sediment

1. For request numbers 505, 508 and 517, are six sediment samples (two each from the inlet, outlet, and a point with decreased flow velocity) collected from each pond with a TURCO sampler?

|_| Yes |X| No Comments: NO OUTLET FOR 505. OUTLET SAMPLE COLLECTED NEAR END OF POND WHERE WATER PERCOLATES INTO THE GROUND. COLLECTION METHOD WAS A POST HOLE DIGGER.

2. For request numbers 505, 508, and 517, are the two grab samples collected from each area in the pond sampled randomly from two segments in a 20 square foot area, 40 segment grid?

|X| Yes |_| No Comments: SAMPLING LOCATIONS GRIDED AND MARKED WITH ORANGE GLOVES.

3. For request numbers 505, 508, and 517, are temperature and pH of the sediment monitored?

|_| Yes |X| No Comments: TEMPERATURE AND pH NOT MONITORED IN SOIL OR SEDIMENT.

4. TURCO method for sediment sampling in INEL pond:

4a. Was the sampler lowered slowly, allowing a very slow contact with the bottom?

|_| Yes |_| No Comments: TURCO NOT REQUIRED AS WATER WAS VERY SHALLOW (LESS THAN ONE FOOT).

4b. Was there a sufficient sediment layer to collect a sample?

|X| Yes |_| No Comments: REQUEST 505. RECOMMEND ALGAE BE REMOVED FROM SAMPLE IF POSSIBLE.

4c. Was the depth of sample recorded in the field logbook?

|_| Yes |X| No Comments: REQUEST 505 FIELD TEAM DID NOT HAVE LOG BOOK AT SITE.

4d. Is the sampler placed in a stainless steel or Teflon® tray for extraction of sample?

|X| Yes |_| No Comments: STAINLESS STEEL

4e. Is the sample transfer accomplished using a stainless steel or Teflon® spoon?

|X| Yes |_| No Comments: STAINLESS STEEL

5. Are all sampling tools non-plated stainless steel?

|X| Yes |_| No Comments:

6. Do sample labels include date, time of collection, and preservative?

|X| Yes |_| No Comments: _____

7. For volatile organic samples:

7a. Are volatile organic samples collected first?

|X| Yes |_| No Comments: ALGAE LAYER WAS NOT REMOVED (REQUEST 505)

7b. Is the headspace in the sample containers minimized?

|X| Yes |_| No Comments: _____

7c. Are the samples immediately placed in a 4°C environment?

|_| Yes |X| No Comments: REQUEST 505. VOA's LEFT IN DIRECT SUNLIGHT FOR UP TO TEN MINUTES.

8. Are sample jar lids retightened after initial cool down or immediately prior to shipping?

|_| Yes |X| No Comments: _____

9. Is the sample equipment decontaminated as described?

|_| Yes |X| No Comments: A METHANOL RINSE, OR ANY OTHER SOLVENT RINSE, WAS NOT USED.

10. Are the decontamination liquids contained for disposal?

|_| Yes |X| No Comments: ONE TEAM CONTAINED THE LIQUIDS. THE OTHER TEAM DISPOSED OF THE LIQUIDS BACK INTO THE POND FROM WHICH THE SAMPLE WAS TAKEN.

11. Is the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments: _____

Table V-3. The following water samples will be collected during the period of June 20 - June 24 at Idaho National Engineering Laboratory.

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
2	403	USGS Well-27	Ground water	Bailer	Two grabs from 255 feet	ph, sp. cond., temp.
2	404	ANL-West Well W-1	Ground water	Tap	One grab from tap nearest wellhead.	ph, sp. cond., temp.
2	405	Well 98	Ground water	Existing Submersible pump.	One grab using the dedicated pump.	ph, sp. cond., temp.
2	407	Well FET-1	Ground water	Tap	One grab from tap nearest wellhead.	ph, sp. cond., temp.
2	406	ANP-8 Well	Ground water	Tap	One grab from tap nearest wellhead.	ph, sp. cond., temp.
2	408	ANP-1 Well	Ground water	Tap	One grab from tap nearest wellhead.	ph, sp. cond., temp.
3	504	TRA Cold pond depth=15 ft	Surface water	COLIWASA; dipper	Six vertical composite samples; 6-18 grabs for volatiles: inlet, outlet, a point of least flow velocity.	ph, sp. cond., temp.

Table V-3. (Continued)

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
2	409	USGS Well-88	Ground water	Existing submersible pump	Two grabs	ph, temp. sp. cond.
2	410	USGS Well 105	Ground water	Existing submersible pump	Two grabs	ph, sp. cond., temp.
2	411	USGS Well 110	Ground water	Existing submersible pump.	Two grabs	ph, sp. cond., temp.
3	507	TRA Chem Pond Depth=15 ft	Surface water	COLIWASA; dipper	Six vertical composite grabs; 6-18 grabs for volatiles.	ph, sp. cond., temp.
2	423	TRA-1 Well	Ground water	Tap	Two grabs from tap nearest wellhead.	ph, sp. cond., temp.
3	516	ICPP Pond depth=15 ft	Surface water	COLIWASA; dipper	Six vertical composite samples; 6-18 grabs for volatiles	ph, sp. cond., temp.
2	422	USGS Well-65	Ground water	Existing submersible pump	One grab	pH, sp. cond., temp.

Table V-3. (Continued)

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
2	416	USGS Well-90	Ground water	Existing submersible pump	One grab	ph, temp. sp. cond.

V.3 Water

1. For 403 (bailer)

1a. While purging, is temp., ph, and conductivity, monitored before and after collection?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1b. Does sampling begin upon stabilization of the above parameters or removal of at least 4-bore volumes?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1c. Is care taken not to contaminate the bailer with the samplers hands?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1d. Is the bailer lowered slowly into the water?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1e. Is the bailer rinsed at least twice with well water before collecting a sample?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1f. When the bailer is lifted to the surface, is the bailer line allowed to touch the ground?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

1g. Is the bailer tipped to allow slow discharge down the side of the sample container?

|_| Yes |_| No Comments: BAILER NOT OBSERVED

2. For 404, 406, 407, 408, 416, 422, and 423 (taps, valves, faucets)

2a. For samples collected from a tap, valve, or faucet, is the aerator, strainer, and hose attachment removed?

|X| Yes |_| No Comments: FAUCET CONTAINED A COMBINATION OF BRASS, STAINLESS STEEL AND GALVANIZED STEEL FITTINGS (REQUESTS 416 AND 422).

2b. Is care taken not to let the sample containers touch any part of the tap or faucet?

|X| Yes |_| No Comments:

2c. Is the flow from the tap or faucet smooth and at a moderate pressure to prevent splashing?

|X| Yes |_| No Comments: FLOW REDUCED AS MUCH AS POSSIBLE WITHOUT INTRODUCING AIR TO SAMPLE.

2d. Was the flow from the tap or faucet readjusted during sampling?

[ ] Yes [X] No Comments: FLOW WAS STEADY FOR ALL ALIQUOTS

2e. Was sufficient time allowed for flushing prior to sampling to ensure the sample is clean and free of any rust or residue?

[X] Yes [ ] No Comments: pH, TEMPERATURE AND CONDUCTIVITY HAD STABILIZED

2f. Were the sample containers tilted slightly to minimize sample disturbance?

[X] Yes [ ] No Comments:

3. For 405, 409, 410, and 411 (existing submersible pump):

3a. Was sufficient time allowed for purging at least 4 bore volumes?

[X] Yes [ ] No Comments:

3b. While purging, are temperature, pH, and conductivity monitored?

[X] Yes [ ] No Comments: PURGING CONTINUED UNTIL ABOVE PARAMETERS STABILIZED. PARAMETERS CHECKED APPROXIMATELY EVERY 3-5 MINUTES.

3c. Is purge water discarded somewhere other than near the well?

|_| Yes |X| No Comments: PURGE WATER DISCARDED ON GROUND WITHIN THREE FEET OF WELL CASING (REQUEST 422 AND 416). IT WAS NOTED IN THE FIELD LOG BOOK THAT PERMISSION WAS GRANTED TO DISCARD WATER ON GROUND.

3d. Are the sample containers tilted to allow for minimal entry turbulence?

|X| Yes |_| No Comments: _____

4. For 504, 507, and 516 (COLIWASA or dipper):

4a. Were two segments each sampled near the inlet, outlet, and a point in the pond where flow velocity is decreased?

|_| Yes |X| No Comments: NO OUTLET. OUTLET SAMPLE COLLECTED AT FAR END OF POND WHERE WATER PERCOLATES INTO THE GROUND (REQUEST 504 AND 507)

4b. Were depth measurements taken and recorded prior to sampling at each segment?

|X| Yes |_| No Comments: _____

4c. Was a COLIWASA or dipper used for sampling?

|X| Yes |_| No Comments: DIPPER

5. If a COLIWASA sampler is used:

5a. Were samples collected at 5 ft intervals and composited?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

5b. Were volatile organic samples collected at each 5 ft interval?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

5c. Is the sampling device lowered slowly to permit the level of the liquid inside and outside the sampler tube to be about the same?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

5d. After the sampler is in the closed position, is the sampler withdrawn slowly, to minimize disturbance?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

5e. Is the outside of the sampler tube wiped with a disposable cloth prior to the collection of VOAs?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

5f Are sample containers tilted slightly to minimize entry turbulence?

|_| Yes |_| No Comments: COLIWASA WAS NOT USED

6. If a dipper was used:

6a. Was the dipper allowed to fill slowly and continuously?

|X| Yes |_| No Comments: SAMPLER STOOD UP STREAM FROM WHERE WATER SAMPLE WAS COLLECTED FOR FIRST SAMPLE COLLECTED AT 507 CAUSING SOME DISTURBED SEDIMENT TO FLOW INTO DIPPER COLLECTION AREA. SECOND SAMPLE WAS COLLECTED DOWN STREAM.

6b. Does the dipper have a volume of at least 500 ml?

|X| Yes |_| No Comments: 1000 ml STAINLESS STEEL

6c. Was the dipper emptied slowly to minimize entry disturbance?

|X| Yes |_| No Comments:

6d. Was the sample container tilted slightly to fill with the least amount of disturbance?

|X| Yes |_| No Comments:

7. For volatile organic samples:

7a. Are volatile organic samples collected first?

|X| Yes |_| No Comments: _____

_____

_____

7b. Is the headspace in the sample containers minimized?

|X| Yes |_| No Comments: NO HEADSPACE

_____

_____

7c. Are samples immediately placed in a 4°C environment?

|_| Yes |X| No Comments: ONLY VOA's WERE PUT IN COOLERS IMMEDIATELY. OTHER SAMPLES LEFT IN SUN UNTIL ALL ALIQUOTS WERE COLLECTED.

8. Are sample jar lids retightened after initial cool down or immediately prior to sampling?

|_| Yes |X| No Comments: THIS WAS RECOMMENDED.

_____

_____

9. Is the sample equipment decontaminated as described?

|_| Yes |X| No Comments: METHANOL RINSE, OR ANY SOLVENT RINSE, WAS NOT USED

_____

10. Are the decontamination liquids contained for disposal?

|_| Yes |X| No Comments: RINSE WATER PLACED BACK INTO POND. THIS IS ACCEPTED PRACTICE SINCE NO SOLVENTS WERE PLACED BACK IN POND.

11. Is the decontamination procedures performed at or near the sampling location?

|X| Yes |_| No Comments: _____

12. Are samples preserved immediately after collection?

|X| Yes |_| No Comments: SAMPLES ARE PRESERVED PRIOR TO SAMPLE COLLECTION. SAMPLE pH OF LESS THAN TWO WAS NOT CONFIRMED PRIOR TO SHIPMENT.

13. Did sample labels include date, time of collection and the preservation?

|X| Yes |_| No Comments: _____

Table V-4. The following air (soil gas) samples will be collected during the period of June 20 - June 24 at Idaho National Engineering Laboratory.

Env. Prob.	Req #	Location	Media	Sampling Method	Sample Type	Other
5	809	LCCDA Pit	soil gas	desorption tube	Five grab samples of 500 ml each	Each tube to be buried 2 ft north of soil grabs collected for request 308

V.4 Air (soil gas)

1. For 809:

1a. Are five samples collected from five randomly selected grids in a 100 grid area?

|_| Yes |_| No Comments: NOT OBSERVED

1b. Are the soil gas samples collected in the same grid (two feet north) as the soil samples collected for request 808?

|_| Yes |_| No Comments: NOT OBSERVED

1c. Is the desorption tube placed in a 2" x 4' hole for 24 hours?

|_| Yes |_| No Comments: NOT OBSERVED

1d. Is a 500 ml sample drawn through each desorption tube?

|_| Yes |_| No Comments: NOT OBSERVED

2. Are PID readings taken during augering?

|_| Yes |_| No Comments: NOT OBSERVED

3. Are the desorption tubes stored in 2000 ml, C-TRAP containers?

[ ] Yes [ ] No Comments: NOT OBSERVED

4. Are tubes stored in coolers at 4°C?

[ ] Yes [ ] No Comments: NOT OBSERVED

VI. SAMPLE PREPARATION FIELD PROCEDURES

1. Sample size, container, preservatives, holding times and other comments are identified in the Sampling Plan. Are these procedures being followed?

|_| Yes |X| No Comments: RAN OUT OF 250 ml WIDE MOUTH OUT, USING 500 ml INSTEAD

2. If no, are different procedures identified and documented?

Comments: THE BOTTLE SIZE CHANGE WAS DOCUMENTED

3. Are all solid volatiles stored in 125 ml glass jars?

|X| Yes |_| No Comments: _____

4. Are all liquid volatiles stored in 40 ml septum capped glass bottles?

|X| Yes |_| No Comments: _____

5. Are aqueous gamma spectrometry samples collected in a 1000 ml HDPE cubitainer?

|X| Yes |_| No Comments: _____

6. Are solid gamma spectrometry collected in 250 ml wide mouth HDPE jars?

|X| Yes |_| No Comments: _____

7. Are ICP metals aqueous samples collected in 500 ml HDPE bottles?

|X| Yes |_| No Comments: _____

8. Are ICP metals solid sample collected in 250 ml HDPE wide mouth bottles?

|_| Yes |X| No Comments: FOR REQUEST 505, 500 ml HDPE WM BOTTLES WERE USED

9. Are pesticides aqueous samples collected in amber glass 1-liter bottles?

|X| Yes |_| No Comments: _____

10. Are solid semivolatile/PCB samples collected in 125 ml glass wide mouth jars?

|X| Yes |_| No Comments: _____

11. Are anion aqueous samples stored in 500 ml wide mouth HDPE bottles?

|X| Yes |_| No Comments: _____

12. Are anion solid samples stored in 250 ml wide mouth HDPE bottles?

|_| Yes |X| No Comments: FOR REQUEST 505, 500 ml HDPE WM BOTTLES WERE USED

13. If a sample requires refrigeration, is a sufficient quantity of freezer packs being used to maintain the sample at 4°C?

|X| Yes |_| No Comments: _____

_____

_____

14. Are all samples sealed in plastic bags?

|X| Yes |_| No Comments: _____

_____

_____

15. Are all samples placed in a plastic bag lined ice chest and packed in vermiculite?

|X| Yes |_| No Comments: _____

_____

_____

16. Are all sample preparation procedures filled out and up-to-date in the sample logbook?

|X| Yes |_| No Comments: _____

_____

_____

17. Are sample preparation equipment being stored in a secure, non-contaminatory environment?

|X| Yes |_| No Comments: _____

_____

_____

18. Are all disposable sample preparation equipment being properly disposed of?

|X| Yes |_| No Comments: BY INEL SITE PERSONNEL

_____

_____

19 Are swipes being conducted to check for contaminated equipment in the sample preparation area?

|_| Yes |X| No Comments: _____

_____

_____

20. Are all concentrated acids used for preserving the samples stored in a vented storage cabinet?

|X| Yes |_| No Comments: STORAGE UNDER HOOD

_____

_____

21. Are any food, drink, tobacco or lotions being used in the sample preparation area?

|_| Yes |X| No Comments: _____

_____

_____

22. Are volatile organic samples shielded from light?

|X| Yes |_| No Comments: _____

_____

_____

23. Are the appropriate number of shipping blanks packed in each cooler?

|X| Yes |_| No Comments: _____

_____

_____

VII. HEALTH AND SAFETY

1. Is a Health and Safety Coordinator (HSC) on site during the entire Survey?

|X| Yes |_| No Comments: _____

2. Is appropriate protective clothing and equipment made available to the sampling teams by the site contractor or ORNL?

|X| Yes |_| No Comments: ORNL SUPPLIED THE EQUIPMENT. NOT ALL SAMPLERS WORE COVERALL UNIFORMS

3. Are all members of the sampling team formally trained in appropriate health and safety considerations?

|X| Yes |_| No Comments: WINCO SAFETY COURSE, NUS SAFETY ~~SAFETY~~ COURSE, AND SARA 40 HR COURSE PLUS OTHERS

4. For sampling sites where routine operations do not occur and there is no established protocol, are the principal hazards and the protective measures taken determined by document review by the team leader, and the contractor H&S representative?

|X| Yes |_| No Comments: _____

5. Are acid/base spill kits and eye wash kits available in each sampling vehicle?

|_| Yes |X| No Comments: RECOMMEND EYE WASH KITS FOR ALL LIQUID SAMPLING OPERATIONS

6. Are all normal on-site field sampling activities conducted in at least Level-D-protection? (Coveralls, steel toed boots, latex surgical gloves, safety glasses, and hard hats where required).

|X| Yes |_| No Comments: _____

_____

_____

7. Are any food, drink, tobacco or lotions being used during sampling activities?

|_| Yes |X| No Comments: _____

_____

_____

8. Are sampling personnel fit-tested, and trained in the use of respiratory protection?

|X| Yes |_| No Comments: _____

_____

_____

9. Are any members of the sampling team trained in First Aid/CPR?

|X| Yes |_| No Comments: _____

_____

_____

10. Have all sampling personnel undergone medical examination?

|X| Yes |_| No Comments: EACH YEAR OR 18 MONTHS

_____

_____

11. Do all sampling personnel have their radiation exposure histories completed prior to beginning sampling?

|X| Yes |_| No Comments: _____

_____

_____

12. Is the HSC a professional Industrial Hygienist?

|_| Yes |X| No Comments: _____

_____

_____

13. Are Material Safety Data Sheets available at all times for inspection by the Field Sampling Team?

|X| Yes |_| No Comments: LOCATED WITH CHEMICALS IN ROOM 108 OF BUILDING 612

_____

14. Are sample locations surveyed for radiation and vapor hazards using portable instruments?

|_| Yes |X| No Comments: OVA's WERE NOT USED AT MANY AREAS WHERE VOLATILES WERE A PARAMETER OF CONCERN. INEL SITE PERSONNEL DID A POOR JOB OF RADIATION SCREENING AT REQUEST 301.

15. When augering, is the sample media surveyed for radiation and vapor hazards?

|_| Yes |X| No Comments: REQUEST 301 (NO PID). RADIATION EQUIPMENT WAS USED BUT DETECTOR BROKE WHEN LEFT TOO LONG IN THE SUN. AN INEL SITE HP WAS NOT PRESENT AS REQUESTED BY ORNL.

16. If any of the following instruments is used (Portable Oxygen Monitor, Portable Combustible Gas Indicator, Portable Flame Ionization Detector, Photoionization Detector):

16a. Is the instrument clean and serviceable?

[ ] Yes [ ] No Comments: NONE OF THE ABOVE INSTRUMENTS WERE USED WHILE THE AUDITORS WERE OBSERVING THE SAMPLING.

16b. Is the battery checked and sufficiently charged?

[ ] Yes [ ] No Comments: NA

16c. Has the instrument been properly calibrated?

[ ] Yes [ ] No Comments: NA

16d. Has the instrument been allowed to warm up properly before measurement begins?

[ ] Yes [ ] No Comments: NA

16e. Is the operator fully trained and knowledgeable in the use of the instrument?

[ ] Yes [ ] No Comments: NA

16f. Is the intake positioned close to the area in question?

|_| Yes |_| No Comments: NA

16g. Is the intake moved with slow, sweeping motions?

|_| Yes |_| No Comments NA

VIII ON-SITE WORK PERFORMANCE

1. Indicate sampling team performance in the following areas observed during the on-site audit. (NOTE: Identify poor work practices and violations of protocol under comments.)

Work Practice	Good	Fair	Poor
Sampling technique	[X]	[ ]	[ ]
Safety procedures	[ ]	[ ]	[X]
Forbidden personal practices (e.g., smoking, eating in forbidden areas)	[X]	[ ]	[ ]
Equipment use/maintenance/calibration	[ ]	[X]	[ ]

Comments: A DEDICATED SAFETY OFFICER SHOULD BE ON SITE TO INSURE THAT SAFETY CONSIDERATIONS (i.e. OVA's USED WHEN SAMPLING UNKNOWNS FOR VOLATILES, EYE WASHES IN TRUCKS, PROPER PROTECTIVE CLOTHING, RADIATION SCREENING) ARE ENFORCED. DRILLING WITH LARGE RIGS SHOULD BE PERFORMED BY A QUALIFIED CONTRACTOR. DECONTAMINATION SHOULD BE COMPLETED WITH A SOLVENT RINSE. A LIST OF SPECIFIC COMMENTS HAS BEEN FORWARDED WITH THIS CHECKLIST.

2. Indicate sample preparation performance in the following area observed during the on-site audit. (NOTE: Identify poor work practices and violations of protocol under comments.)

Work Practice	Good	Fair	Poor
Preparation technique	[X]	[ ]	[ ]
Safety procedures	[X]	[ ]	[ ]
Forbidden personal practices (e.g., smoking; eating in forbidden areas)	[X]	[ ]	[ ]
Equipment use/maintenance/calibration	[X]	[ ]	[ ]

Comments: SAMPLE PREPARATION PRACTICES ALL RECEIVED OVERALL GOOD RATINGS.

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No response to this field audit was prepared.

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ORNL Results of Inorganic and Organic Performance Evaluation Studies

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PERFORMANCE EVALUATION SCORES FOR ORNL

Code	Score
QB1FY89 Inorganic	86.7 (CAR)
QB4FY88 Inorganic	89.5 (CAR)
QB3FY88 Inorganic	96.3
QB2FY88 Inorganic	94.1
QB1FY89 Organic	60.6 (CAR)
QB4FY88 Organic	73.0 (CAR)
QB3FY88 Organic	78.7 (CAR)
QB2FY88 Organic	62.3 (CAR)

CAR = Corrective Action Required

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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)

FEB 01 1989

Mr. William R. Laing
Oak Ridge National Laboratory
P. O. Box 2008, 45005 MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) first quarter Inorganic Performance Evaluation Study (QB1, FY89 Inorganic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses to Vincent Fayne at DOE Headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

FEB 13 1989

Distribution:
Reply needed from CAPA by Feb 22.

Che
Quality

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

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C-85

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR Q8 1 FY 89

LABORATORY NAME: Oak Ridge National (TN) (H2)
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
LABORATORY RANK: Above = 26 ' Same = 0 Below = 14

% Score: 86.7
REPORT DATE: 12/15/19
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TOT #
ALUMINUM	433	617	553		0	3	0	0	0	4
ANTIMONY	60.0	67	50	U	12	4	0	1	0	4
ARSENIC	66	95	78.5		0	1	1	5	0	
BARIUM	340	425	386		0	1	0	0	0	
BERYLLIUM	135	162	153		0	2	0	1	0	4
CADMIUM	151	184	168		0	5	0	1	0	
CALCIUM	d	d	1050	B	0	0	0	0	0	
CHROMIUM	62	79	72		0	1	0	0	1	4
COBALT	172	225	196		0	0	0	0	0	4
COPPER	171	208	192		0	3	0	0	0	
IRON	100.0	158	107		0	3	0	1	0	
LEAD	46	74	56.2		0	0	0	4	0	4
MAGNESIUM	d	d	1260	B	0	0	0	0	0	
MANGANESE	149	185	163		0	2	0	1	0	
MERCURY	12	23	16		0	6	0	1	0	41
NICKEL	100	141	118	E	0	0	0	0	0	41
POTASSIUM	16200	20400	9700	X	1	5	0	0	0	
SELENIUM	26	40	36.4		0	2	0	3	1	
SILVER	c	c	6	U	0	0	0	5	1	41
SODIUM	11700	14200	12550		1	3	0	0	0	
THALLIUM	51	77	61.2		0	4	1	2	1	
VANADIUM	101	127	113		0	2	0	0	0	41
ZINC	56	93	71.6		0	2	0	1	0	41

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 :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY NAME: Oak Ridge National (TN) [H2]
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
LABORATORY RANK: Above = 26 Same = 0 Below = 14

% Score: 86.7
REPORT DATE: 12/15/19
MATRIX: SOIL

ELEMENT NAME	LAB RESULTS 95 % CI LOWER	95 % CI UPPER	REPORTED VALUE	QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	T #L
ALUMINUM	6290	19500	13600		0	1	0	0	1	
ANTIMONY	c	c	7.8	U	0	0	0	27	1	
ARSENIC	3.8	10	6.6		0	5	0	9	2	
BARIUM	164	209	177		0	1	0	0	0	
BERYLLIUM	1.0	1.4	1.6	E X	8	2	0	0	0	
CADMIUM	c	c	1.2		0	0	0	0	3	
CALCIUM	42100	49700	47600		0	2	0	0	0	
CHROMIUM	10	22	15.4	E	0	2	0	1	1	
COBALT	10.0	14	10.8		1	1	0	0	0	
COPPER	16	30	24.1		0	2	0	1	3	
IRON	14600	20300	18800		0	0	0	0	0	
LEAD	85	220	126		0	0	0	6	16	
MAGNESIUM	2870	4570	4160		0	0	0	0	0	
MANGANESE	567	698	741	E X	0	4	0	0	0	
MERCURY	c	c	0.04	B	0	0	0	3	3	
NICKEL	13	27	21.2	E	0	1	0	0	0	
POTASSIUM	1080	3500	2572		1	2	0	0	0	
SELENIUM	c	c	0.15	B	0	0	0	21	0	
SILVER	c	c	0.9	U	0	0	0	7	0	
SODIUM	d	d	229	B	0	0	0	0	0	
THALLIUM	c	c	0.22	U	0	0	0	3	0	
VANADIUM	15	39	29.9		0	1	0	1	0	
ZINC	109	147	122		0	0	0	0	1	

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 2
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 1
SOIL : Sb

OF DUPLICATES OUT: 0
SOIL :

FEB 28 1989

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

February 22, 1989

Vincent Payne
USDOE
Forrestal Bldg, EH-24
Independence Ave., SW
Washington, DC 20585

Dear Mr. Payne:

In response to ORNL's score of 86.7 for the QB-1 FY 89 Inorganic Performance Evaluation Study, the changes/corrective action are described below.

The result for potassium on the water sample was well below the 95% CI. It has been surmised that a dilution error was made, as all QC for this analysis was good. Greater care will be made in the future when dilutions are made. The soil sample results indicated that Be and Mn were slightly above the limits. An investigation is currently in progress to re-evaluate the interelement correction factors for these elements.

Sincerely,

Julia Thompson
ICP Spectroscopist

W. R. Laing
Program Manager

JKT:WRL:lp

cc: Harold Vincent

Bcc: Pam Howell
D. Bostick
Bob Fitts

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)

OCT 24 1988

Mr. William R. Laing
Oak Ridge National Laboratory
P. O. Box 2008, 45005 MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The results of the participation of your laboratory in the EMSL-LV fourth quarter inorganic performance evaluation study (QB4, FY88, INORGANIC) are enclosed. This includes copies of the analysis reports for inorganics in soil and water samples. The reports also present statistical information on the numbers of laboratories that had difficulties with specific analytes.

The score for your laboratory was 89.5. The DOE environmental survey requires a formal response from each laboratory, describing any changes or actions taken to identify and correct any deficiencies and to improve laboratory performance. That response will become part of the quality assurance record for analytical work done by your laboratory for sites in the DOE environmental survey. In order to meet schedule times for data document publication, corrective action responses should be sent within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc:
Vincent Fayne, DOE HQ
Alan Crockett, INEL

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QR 4 FY 88

LABORATORY NAME: Oak Ridge National (TN) [N2]
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
LABORATORY RANK: Above = 20 Same = 0 Below = 17

Z Score: 89.5
REPORT DATE: 9/26/1988
MATRIX: WATER

ELEMENT NAME	95 Z CI LOWER	95 Z CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TOTAL #LABS
ALUMINUM	725	930	839		0	6	0	0	0	36
ANTIMONY	60.0	90	76		0	3	0	4	0	38
ARSENIC	26	39	31.1		0	1	0	2	1	38
BARIUM	2790	3260	3070		0	2	0	0	0	38
BERYLLIUM	30	40	36		0	0	0	0	0	38
CADMIUM	6.9	13	9.8		0	4	0	1	0	38
CALCIUM	5190	6270	5790		0	2	0	0	0	38
CHROMIUM	31	49	45		0	4	0	0	0	38
COBALT	72	96	82		0	1	0	0	0	38
COPPER	60	100	83		0	2	0	0	0	38
IRON	1600	1890	1690		0	2	0	2	0	38
LEAD	54	77	48.8	X	0	0	0	2	2	38
MAGNESIUM	7840	9040	8400		0	1	0	0	0	38
MANGANESE	46	57	54		0	2	0	0	0	38
MERCURY	6.3	10	8.7		0	5	0	0	0	38
NICKEL	113	163	137		0	3	0	0	1	38
POTASSIUM	8380	10790	9150		0	2	0	0	0	38
SELENIUM	11	19	15.5		0	0	0	5	1	38
SILVER	10.0	15	8.3	B	15	1	0	2	1	38
SODIUM	17100	22100	20300		0	3	0	0	0	38
THALLIUM	29	50	35.6		1	4	0	5	3	38
VANADIUM	54	69	72	X	0	6	0	0	0	38
ZINC	30	59	70	X	0	6	0	0	1	38

OF ELEMENTS NOT-IDENTIFIED: 0
OF ELEMENTS MIS-QUANTIFIED: 3
OF FALSE POSITIVES: 0

OF MATRIX SPIKES OUT: 0
WATER :

OF DUPLICATES OUT: 0
WATER :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY NAME: Oak Ridge National (TN) [H2]
PERFORMANCE LEVEL: ACCEPTABLE - Corrective Actions Necessary
LABORATORY RANK: Above = 20 Same = 0 Below = 17

% Score: 89.5
REPORT DATE: 9/26/1988
MATRIX: SOIL

ELEMENT NAME	LAB RESULTS 95 % CI LOWER	95 % CI UPPER	REPORTED VALUE	QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TOTAL #LABS
ALUMINUM	4630	17500	12000		0	1	0	0	1	38
ANTIMONY	12.0	58	21		3	2	0	27	0	38
ARSENIC	242	378	318		0	6	0	2	2	38
BARIUM	94	146	119		0	3	0	1	0	38
BERYLLIUM	4.4	7.7	7.1	E	1	2	0	2	0	38
CADMIUM	13	28	15	E	0	7	0	2	0	38
CALCIUM	49000	61300	56800		0	4	0	0	0	38
CHROMIUM	42	63	49	E	0	2	0	1	0	38
COBALT	35	58	47		0	4	0	1	0	38
COPPER	1710	2100	1800		0	4	0	0	0	38
IRON	13500	26400	20500		0	4	0	0	0	38
LEAD	382	412	336		0	5	0	2	1	38
MAGNESIUM	29900	37900	35100		0	3	0	0	0	38
MANGANESE	4310	5660	5240		0	4	0	1	0	38
MERCURY	1.9	4.4	3.9		0	2	0	0	1	38
NICKEL	28	50	36		0	2	0	1	0	38
POTASSIUM	1000.0	1440	1826		0	5	0	0	0	38
SELENIUM	4.8	16	11.5		1	3	0	4	2	38
SILVER	3.8	10	8.2		0	4	0	5	2	38
SODIUM	d	d	290	B	0	0	1	0	0	38
THALLIUM	6.5	14	10		1	3	0	6	0	38
VANADIUM	24	58	41	E	0	2	0	1	0	38
ZINC	286	338	268		0	3	0	5	0	38

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

OF MATRIX SPIKES OUT: 2
SOIL : Sb, Ag

OF DUPLICATES OUT: 0
SOIL :

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

November 2, 1988

Vincent Fayne
USDOE
Forrestal Bldg, EH-24
Independence Ave., SW
Washington, DC 20585

Harold Vincent
EMSL-LV
P. O. Box 93478
Las Vegas, NV 89193-3478

Gentlemen:

Oak Ridge National Laboratory participated in the EMSL-LV fourth quarter inorganic performance evaluation study (QB4, FY88, INORGANIC) receiving a score of 89.5. It is assumed, no detailed score sheet was received, that points were deducted for mis-quantification of lead (GFAAS), vanadium (ICP), and zinc (ICP) in the WATER sample. Additional points were deducted for matrix spike noncompliance results for antimony (ICP) and silver (ICP) in the SOIL sample.

Poor spike recovery for antimony in soil digestions continues to be a problem. As mentioned in previous response letters, the digestion technique is being evaluated. No progress has been made in correcting the problem as of this date. Recoveries for silver in soil digestions have never been a problem in the past, and no clear reason for the QB4 noncompliance has been found. Silver analyses will be monitored carefully during future DOE Site Survey work.

Vanadium on the JY48 suffers from adjacent channel interference from the strong emitter magnesium which cannot be accommodated using software driven interelement correction. Manual correction is required. A service call is expected shortly and this situation will be evaluated again.

It is believed that the poor zinc performance is a result of contamination during digestion, as the calibration verification and 2XCRDL standard results were in compliance. Greater effort will be made to ensure that digestion vessels and glass pipets are contamination free before use and that handling during digestion does not result in contamination.

All quality control parameters for lead analysis in the WATER sample were in compliance throughout the run. The sample was diluted to bring the observed result within the calibration range of the instrument and it is felt that the error stems from improper pipeting. Greater care will be taken in the future to ensure that pipets are calibrated and functioning properly.

Please call if you have any questions.

Sincerely,

Katherine Whaley

Katherine Whaley
ICP Spectroscopist

William Laing

William Laing
Program Manager

cc: R. B. Fitts

Bcc: Whaley
Ferguson
Halladay
Harwell
Babrowski

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 15 1988

Mr. William R. Laing
Oak Ridge National Laboratory
P. O. Box 2008, 45005 MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The results of the participation of your laboratory in the EMSL-LV third quarter inorganic performance evaluation study (QB3, FY88, Case Number 9302) are enclosed. This includes copies of the analysis reports for inorganics in soil and water samples. the reports also present statistical information on the numbers of laboratories having difficulties with specific analytes.

The score for your laboratory is higher than 90 so that no formal response is required describing any changes or corrective actions taken to improve the performance evaluation score. However, it is still prudent for your laboratory to examine all factors affecting the scoring and take any actions which would improve those scores.

This office will be glad to furnish any council and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent,
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/enclosure)
D. K. Knight, DOE HQ

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY NAME: Oak Ridge National (TN) [C3]
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 6 Same = 1 Below = 30

% Score: 96.3
REPORT DATE: 6/15/1988
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TO #L
ALUMINUM	1790	2190	1960		0	3	0	0	0	
ANTIMONY	86	156	115		2	3	0	3	0	
ARSENIC	40	58	48.6		0	1	0	5	3	
BARIUM	265	331	314		0	3	0	1	0	
BERYLLIUM	5.0	6.7	5.9		2	1	0	0	0	
CADMIUM	65	82	79		0	2	0	1	0	
CALCIUM	8970	11000	10400		0	3	0	0	0	
CHROMIUM	90	117	111		0	2	0	0	0	
COBALT	61	87	78		0	1	0	0	0	
COPPER	126	170	154		0	3	0	1	0	
IRON	492	621	568		0	1	0	0	1	
LEAD	5.0	7.5	5.2		3	8	0	4	2	
MAGNESIUM	5740	6770	6940	X	0	4	0	0	0	
MANGANESE	35	50	46		0	2	0	0	0	
MERCURY	2.8	5.2	4.3		0	0	0	4	1	
NICKEL	48	85	70		0	4	0	1	0	
POTASSIUM	6700	8220	7800		0	4	0	0	0	
SELENIUM	39	62	54.6		0	1	0	0	2	
SILVER	10.0	15	11		13	2	0	4	3	
SODIUM	8970	10900	10700		0	4	0	0	0	
THALLIUM	17	31	21.4		1	4	0	7	0	
VANADIUM	64	93	87		0	1	0	0	0	
ZINC	124	178	166		0	2	0	0	0	

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 :

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY NAME: Oak Ridge National (TN) [C3]
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 6 Same = 1 Below = 30

% Score: 96.3
REPORT DATE: 6/15/1
MATRIX: SOIL

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS NOT-ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT
ALUMINUM	8310	16200	13000		0	3	0	0	0
ANTIMONY	c	c	10	U	0	0	0	27	1
ARSENIC	2.0	2.3	1.4	B	7	7	0	4	2
BARIUM	40.0	57	50		0	0	0	3	0
BERYLLIUM	c	c	0.48	B	0	0	1	1	0
CADMIUM	c	c	0.98		0	0	1	0	1
CALCIUM	1000.0	4150	2570		0	0	0	0	0
CHROMIUM	13	34	23		0	1	0	2	0
COBALT	d	d	6.4		0	0	0	0	0
COPPER	8.9	22	15		0	1	0	1	0
IRON	8720	19000	14300		0	1	0	0	0
LEAD	3.2	7.1	4.8		1	3	0	0	5
MAGNESIUM	3340	5550	4520		0	3	0	0	0
MANGANESE	171	282	237		0	3	0	3	1
MERCURY	c	c	0.04	B	0	0	2	2	2
NICKEL	24	45	35		0	2	0	1	0
POTASSIUM	d	d	355	B	0	0	1	0	0
SELENIUM	c	c	0.25	U	0	0	0	12	0
SILVER	c	c	1	U	0	0	1	9	1
SODIUM	d	d	163	B	0	0	0	0	0
THALLIUM	c	c	0.14	U	0	0	1	3	1
VANADIUM	17	53	38	E	0	3	0	0	0
ZINC	31	59	49		0	0	0	1	3

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

OF MATRIX SPIKES OUT: 1
SOIL : Sb

OF DUPLICATES OUT: 0
SOIL :

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

September 21, 1988

Randal Scott
Sampling & Analysis Program Manager
Office of Environmental Audit and Compliance
US Dept. of Energy
Forrestal Bldg.
1000 Independence Ave.
Washington, DC 20585

Dear Randal:

The score received by Oak Ridge National Laboratory, X-10, for the QB3-FY88 inorganic performance evaluation study was 96.3 percent. Points were deducted for mis-quantification of magnesium in the water sample and for nonconformance antimony spike results in the soil sample.

Associated calibration verification data for both elements were in control throughout analysis. Analysis results for re-digested QB2-FY88 water sample were within the control limits for magnesium. Assuming no instrument glitch at time of analysis, the problem would seem to be contamination at either/or both the preparation and/or analysis stages. We will more carefully clean our glassware and work spaces in the future.

In the case of antimony, the spike recovery for the water sample was in control. Historically we have had problems with loss of antimony during soil digestions involving the CLP procedure. Efforts are ongoing to ascertain at what point in the digestion the loss occurs.

Sincerely,

Katherine Whaley
ICP Spectroscopist

W. R. Laing
DOE Site Survey Program Manager
Analytical Chemistry Division

KSW:WRL:lp

cc: Harold Vincent

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)

APR 12 1988

Mr. W. R. Laing
Oak Ridge National Laboratory
Building 4500 S. MS-131
Oak Ridge, TN 37831-6107

Dear Mr. Laing:

The results of the participation of your laboratory in the EMSL-LV ~~first~~ second quarter inorganic performance evaluation study (QB2, FY88, Case Number 8782) are enclosed. This includes copies of the analysis reports for inorganics in soil and water samples and a comparison table showing the distribution of scores of all laboratories participating. The number of misses for each element is also listed.

This office will be glad to furnish any council and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent,
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

APR 20 1988

cc:
Pamela Howell

cc:(w/o encl
D. K. Knight,

Price
Babrowski
Whaley
Hackney
Ferguson
Herndon
Muscle
Shults

Another good PE score!
Rerun this PE with the new QB3 which has just been received. You will be able to compare results with those reported here.

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 88

LABORATORY NAME: ORNL
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 11 Same = 1 Below = 18

% Score: 94.1
REPORT DATE: 3/23/1988
MATRIX: WATER

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	QUALIFIER CODE	PROGRAM DATA #LABS MIS ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TOT #LAB
ALUMINUM	2540	3300	2990		0	1	0	0	0	31
ANTIMONY	0	111	82.9		3	0	0	1	3	31
ARSENIC	68	106	89.6		0	1	0	0	0	31
BARIUM	372	458	691	X	0	4	0	0	1	31
BERYLLIUM	38	51	44.7		0	1	0	0	0	31
CADMIUM	19	32	27.4	E	0	0	0	0	1	31
CALCIUM	12300	15500	14600		0	2	0	0	0	31
CHROMIUM	14	40	33		0	0	0	0	1	31
COBALT	66	113	91.7	E	0	0	0	0	0	31
COPPER	180	244	213		0	2	0	1	2	31
IRON	355	442	430	E	0	4	0	0	0	31
LEAD	12	25	17.7		0	0	0	3	2	31
MAGNESIUM	7830	9600	8970		0	2	0	0	0	31
MANGANESE	62	81	73.1	E	0	1	0	0	0	31
MERCURY	10	20	15.6		0	2	0	1	1	31
NICKEL	86	126	107		0	1	0	0	1	31
POTASSIUM	8810	12400	10600		0	2	0	0	0	31
SELENIUM	18	28	26		0	2	0	1	0	31
SILVER	c	c	9.5	B	0	0	0	5	0	31
SODIUM	6180	8320	7150		0	5	0	0	0	31
THALLIUM	51	88	58.8		0	1	0	7	1	31
VANADIUM	118	154	148		0	1	0	1	0	31
ZINC	47	66	57		0	5	0	1	2	31

OF ELEMENTS NOT IDENTIFIED: 0
OF ELEMENTS MISQUANTIFIED: 1
OF FALSE POSITIVES: 0

OF DUPLICATES OUT: 2
WATER : Sb, Ba
SOIL :

OF MATRIX SPIKES OUT: 1
WATER :
SOIL : Sb

INORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 88

Our score

LABORATORY NAME: ORNL
PERFORMANCE LEVEL: ACCEPTABLE
LABORATORY RANK: Above = 11 Same = 1 Below = 18

% Score: 94.1
REPORT DATE: 3/23/1988
MATRIX: SOIL

ELEMENT NAME	95 % CI LOWER	95 % CI UPPER	LAB RESULTS REPORTED VALUE	LAB RESULTS QUALIFIER CODE	PROGRAM DATA #LABS MIS ID	#LABS MIS-QUANT	#LABS FALSE POS	#LABS MSPK OUT	#LABS DUP OUT	TO #
ALUMINUM	4790	11900	9690		0	2	0	0	0	
ANTIMONY	0	53	33		3	3	0	20	0	
ARSENIC	17	28	21.8		0	4	0	7	1	
BARIUM	156	189	169		0	3	0	1	0	
BERYLLIUM	16	21	18		0	0	0	1	0	3
CADMIUM	9.7	17	13.1		0	0	0	1	0	
CALCIUM	75301	104001	90700		0	2	0	0	0	
CHROMIUM	16	51	30.8		0	2	0	8	0	
COBALT	71	92	75.3	E	0	1	0	0	0	3
COPPER	88	112	94.5		0	3	0	1	0	
IRON	12600	17400	15300	E	0	3	0	0	0	
LEAD	164	226	188		0	4	0	2	0	3
MAGNESIUM	40801	57101	48400		0	2	0	0	0	
MANGANESE	2810	3530	3220	E	0	7	0	1	0	
MERCURY	12	24	17.6		0	3	0	2	1	
NICKEL	26	54	37.9		0	2	0	3	0	31
POTASSIUM	0	1970	1690		0	4	0	0	0	
SELENIUM	6.5	20	16		0	3	0	4	4	
SILVER	33	52	45.6		0	3	0	5	1	31
SODIUM	d	d	361	B	0	0	0	0	0	31
THALLIUM	19	43	29.8		0	0	0	6	2	
VANADIUM	41	70	58.3	E	0	1	0	0	0	
ZINC	162	209	189		0	2	0	2	0	31

OF ELEMENTS NOT IDENTIFIED: 0
OF ELEMENTS MISQUANTIFIED: 0
OF FALSE POSITIVES: 0

OF DUPLICATES OUT: 2
WATER : Sb, Ba
SOIL :

OF MATRIX SPIKES OUT: 1
WATER :
SOIL : Sb

SUMMARY OF LABORATORY SCORES
QB 2 FY 88

CODE	SCORE	NOT ID	MISQUANT	FALSE POS	MSPK OUT	DUP OUT
A1	72.8	0	6	0	5	5
A2	91.8	0	2	0	3	0
A3	-	-	-	-	-	-
B1	99.5	0	0	0	1	0
B2	72.3	0	7	0	4	3
B3	79.1	0	6	0	1	1
C1	96.1	0	1	0	1	0
C2	-	-	-	-	-	-
C3	-	-	-	-	-	-
D1	-	-	-	-	-	-
D2	94.1	0	1	0	1	2
D3	83	0	5	0	1	0
E1	95.6	0	1	0	2	0
E2	91.8	0	2	0	1	1
E3	-	-	-	-	-	-
F1	-	-	-	-	-	-
F2	-	-	-	-	-	-
F3	-	-	-	-	-	-
G1	86.5	0	4	0	1	0
G2	83.5	0	5	0	0	0
G3	98.5	0	0	0	3	0
H1	-	-	-	-	-	-
H2	-	-	-	-	-	-
I1	-	-	-	-	-	-
I2	-	-	-	-	-	-
J1	75.5	0	6	0	9	1
J2	98	0	0	0	4	0
K1	95.1	0	1	0	3	0
K2	-	-	-	-	-	-
L1	96.6	0	1	0	0	0
L2	-	-	-	-	-	-
M1	93.1	0	1	0	3	2
M2	89.8	0	2	0	7	0
N1	76.8	0	6	0	5	1
N2	87.5	0	3	0	3	1
O1	-	-	-	-	-	-
O2	99	0	0	0	2	0
P1	94.1	0	1	0	3	1
P2	96.6	0	1	0	0	0
Q1	-	-	-	-	-	-
Q2	-	-	-	-	-	-
R1	-	-	-	-	-	-
R2	-	-	-	-	-	-
S1	69.3	0	10	0	0	0
S2	-	-	-	-	-	-
T1	78	0	5	0	7	2
T2	-	-	-	-	-	-
U1	71.9	0	8	0	5	1
U2	-	-	-	-	-	-
V1	97.5	0	0	0	3	1
V2	94.6	0	1	0	2	1
W1	-	-	-	-	-	-
W2	-	-	-	-	-	-
X1	-	-	-	-	-	-
X2	-	-	-	-	-	-
Y1	90.8	0	2	0	3	1
Y2	-	-	-	-	-	-
Z1	-	-	-	-	-	-
Z2	89	0	3	0	2	0

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831

April 29, 1988

Harold Vincent
US EPA, EMSL-LV, QAD
P. O. Box 15027
Las Vegas, NV 89114

Dear Mr. Vincent:

According to instructions received with the QB-2-88 performance evaluation score sheet package, any quantified value falling outside the acceptance window should be explained in writing. Our score for this set was 94.1. The result for Ba on the water sample fell outside the upper range unit. The high value is believed to be caused by contamination during preparation as the duplicate result was also out for Ba. The soil sample, prepared in Erlenmeyer flasks, was not contaminated. The beakers used in the preparation of water samples will be cleaned more carefully in the future.

If a letter is not required for scores greater than 90, please let me know.

Sincerely,

Katherine Whaley

Katherine Whaley
ICP Spectroscopist

W. R. Laing

W. R. Laing
DOE Site Survey Program Manager

cc: Karen Knight

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)

FEB 13 1989

FEB 07 1989

Mr. William R. Laing
Oak Ridge National Laboratory
P. O. Box 2008, 45005 MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) first quarter Organic Performance Evaluation Study (QB1, FY89 Organic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses to Vincent Fayne at DOE Headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Distribution: FEB 13 1989
Reply needed for Organic group by Feb. 22.
WRLaing

Ch
Qualit

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

Distribution:
Shults
Green
Caton (reply)
Maskarinec
Fleming
Harman
M. Edwards
R. Edwards
L. Wachter
Holladay
Howell
Fitts

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: UNACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 51 Same = 2 Below = 10

% SCORE: 60.6
REPORT DATE: 12/22/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q		#LABS MIS-ONT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
TCL VOLATILE											
VINYL CHLORIDE	74	140	64	150	130			1	0	9	9
ACETONE	NU	NU	NU	NU	98			0	1	8	9
1,1-DICHLOROETHENE	23	36	21	37	29			2	0	9	9
1,2-DICHLOROETHENE (TOTAL)	75	110	69	120	82			1	0	9	9
1,1,1-TRICHLOROETHANE	60	87	56	91	62			0	0	9	9
TRICHLOROETHENE	39	52	38	54	40			0	1	8	9
DIBROMOCHLOROMETHANE	15	23	14	24	18			2	0	9	9
2-PENTANONE,4-METHYL-	20	37	17	40	30			1	0	9	9
TETRACHLOROETHENE	40	55	38	57	43			1	0	9	9
ETHYL BENZENE	40	53	39	55	40			1	0	9	9
TCL SEMIVOLATILE											
2-CHLOROPHENOL	21	35	19	42	28			0	2	7	9
1,3-DICHLOROBENZENE	NU	NU	NU	NU	10	U		0	9	0	9
1,4-DICHLOROBENZENE	37	68	33	73	28		X	5	0	9	9
BENZYL ALCOHOL	47	91	41	110	10	U	&	2	5	4	9
1,2-DICHLOROBENZENE	20	36	18	44	16		X	5	0	9	9
4-METHYLPHENOL	24	39	22	47	31			1	1	8	9
HEXACHLOROETHANE	27	59	22	76	17		X	5	0	9	9
2,4-DIMETHYLPHENOL	33	83	25	110	68			1	0	9	9
BIS(2-CHLOROETHOXY)METHANE	30	49	28	51	43			2	0	9	9
2,4-DICHLOROPHENOL	58	88	54	100	79			2	0	9	9
1,2,4-TRICHLOROBENZENE	20	35	18	43	16		X	5	0	9	9
HEXACHLOROBUTADIENE	27	56	23	71	14		X	7	0	9	9
HEXACHLOROCYCLOPENTADIENE	NU	NU	NU	NU	10	U		0	5	4	9
2,4,6-TRICHLOROPHENOL	23	37	21	45	31			2	0	9	9
2-CHLORONAPHTHALENE	27	45	24	55	32			1	0	9	9
2,6-DINITROTOLUENE	50	82	45	87	69			1	0	9	9
ACENAPHTHENE	30	47	27	56	38			0	0	9	9
FLUORENE	64	96	59	100	83			1	0	9	9
N-NITROSODIPHENYLAMINE	41	73	36	90	62			1	0	9	9
HEXACHLOROBENZENE	44	96	36	100	54			2	0	9	9
PENTACHLOROPHENOL	NU	NU	NU	NU	59			0	0	9	9
ANTHRACENE	30	49	27	52	42			1	0	9	9
3,3'-DICHLOROBENZIDINE	NU	NU	NU	NU	20	U		0	9	0	9
BENZO(B)FLUORANTHENE	34	70	29	88	49			2	0	9	9
BENZO(A)PYRENE	44	92	37	120	65			2	0	9	9
INDENO(1,2,3-CD)PYRENE	41	93	34	100	65			3	0	9	9
DIBENZ(A,H)ANTHRACENE	40	97	31	100	65			3	0	9	9
TCL PESTICIDES											
ALPHA-BHC	NU	NU	NU	NU	0.05	U		0	7	2	9
BETA-BHC	NU	NU	NU	NU	0.05	U		0	9	0	9
DELTA-BHC	NU	NU	NU	NU	0.05	U		0	8	1	9
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.05	U		0	8	1	9
HEPTACHLOR	0.080	0.19	0.064	0.24	0.06		s	0	1	8	9
ALDRIN	0.15	0.39	0.11	0.42	0.14			1	1	8	9
HEPTACHLOR EPOXIDE	0.13	0.28	0.100	0.30	0.2			1	0	9	9
ENDOSULFAN I	NU	NU	NU	NU	0.05	U		0	1	8	9
4,4'-DDE	0.31	0.63	0.26	0.67	0.24		s	2	0	9	9
ENDOSULFAN II	NU	NU	NU	NU	0.1	U		0	2	7	9
ENDRIN KETONE	0.26	0.62	0.21	0.67	0.33			0	1	8	9
NON-TCL VOLATILE											
METHANE,IODO-					130				0	9	9

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Oak Ridge National (TN) % SCORE: 60.6
PERFORMANCE: UNACCEPTABLE - Response Explaining Deficiency(ies) Required REPORT DATE: 12/22/88
RANK: Above = 51 Same = 2 Below = 10 MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
METHANE,DIBROMO-					0			1	8	9
BENZENE,T-BUTYL-					0			1	8	9
ETHER,2-CHLORO-ETHYL-VINYL					61			1	8	9
METHANE,TRICHLORO-FLUORO-					120			0	9	9
NON-TCL SEMIVOLATILE										
BENZOPHENONE					0			2	7	9
CARBAZOLE					110			4	5	9
TCL VOLATILE (Contaminants)										
METHYLENE CHLORIDE					2			3	6	9
NON-TCL VOLATILE (Contaminants)										
UNKNOWN,HALOGENATED					150	C		8	1	9
UNKNOWN BENZENE DERIVATIVE					180	C		8	1	9
NON-TCL SEMIVOLATILE (Contaminants)										
UNKNOWN					30	C		3	6	9
UNKNOWN					8			4	5	9

OF TCL COMPOUNDS NOT-IDENTIFIED: 1
OF TCL COMPOUNDS MIS-QUANTIFIED: 5
OF TCL CONTAMINANTS: 0

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 3
OF NON-TCL CONTAMINANTS: 3

FEB 28 1989

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

February 24, 1989

Harold Vincent
EMSL
P. O. Box 15027
Las Vegas, NV 89114-5027

Dear Harold:

Attached is our response to the report on the QB1 FY89 Organic PE sample. If you have any questions please call me or send an E-mail message.

Sincerely,

W. R. Laing
Section Head
Analytical Chemistry Division

attachment

cc: Vince Fayne
R. B. Fitts
P. L. Howell
S. K. Holladay
W. D. Shults

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

February 24, 1989

W. R. Laing, 4500S, MS-6127

RESPONSE TO SCORE ON FIRST QUARTER PE SAMPLE ORGANIC ANALYSIS SECTION

The score on the first quarter Performance Evaluation Sample for the organics was 60.6 - unacceptable, response required. We have reviewed the individual elements of the score, and the original package, in an attempt to identify the problems which might have contributed to the score and to prevent similar occurrences in the future.

Of the four primary elements of the scoring: volatiles, semivolatiles, PCB/Pesticides, and Tentatively Identified Compounds (TIC's), the points lost were in the semivolatile analysis and in the identification of the TIC's. No points were lost for either volatiles or pesticides, although two warnings were incurred in the pesticide analysis. We believe that these warnings were the result of a misunderstanding on our part as to the appropriate concentration to report on this fraction. We have been reporting the lowest value of concentration found, regardless of the column on which this value was determined. We have corrected this problem, and will now report the value determined on the column for which peak symmetry is best (i.e. peak purity is optimum). Had we done this for the previous sample, the results would have been in the acceptable range.

With respect to the TIC's, all three of the compounds for which points were lost were identified in the sample. In all three cases, the correct compound was identified and quantified; however, we reported the compounds generically, rather than specifically. We therefore lost points for not identifying the specific compound and then lost additional points because the compound identified generically was scored as a laboratory-introduced contaminant. In the future, we will adopt a less conservative approach and will report the compound as identified based on the best fit obtained from the library matched spectrum. In the case of benzophenone we intended to report specifically but failed to indicate this on the Form I of the sample data summary package. This was an error of review which we can only correct by more careful review of the package. We anticipate that these errors will not occur again.

The other area in which points were lost is in the quantitation/identification of the semivolatile organics. Because most of the values for which points were lost were biased low, we have thoroughly examined our sample preparation laboratory in an effort to determine if any of the prescribed protocols were not being followed. Scott Fleming has determined that in at least two areas, improvement can be made. We are not currently using boiling chips in the final volume reduction, and we are not currently performing the final volume reduction using micro-KD evaporators. We are in the process or have now corrected these possible problems, and expect to improve recovery of the semivolatile organics immediately.

In reviewing the data packages from the previous PE sample, we looked for possible errors in the individual areas of calibration, standard preparation, etc. While we cannot rule out error in these areas, it is clear that this was not the primary reason for the loss of points. The only common problem with the semivolatile organic compounds for which points were lost appears to be in the primary dilution of the standard. All misquantified compounds originated from a single ampule of primary standard, which could have been in

error originally or could have been diluted improperly. The only way that such an error could have been detected would have been by comparison with an independent standard. We have now begun to validate our calibration standards against EPA reference standards. We would have done this earlier if we had had the appropriate mixtures.

M. P. Maskarinec

M. P. Maskarinec, 4500S, MS-6120 (6-6690)

MPM/llc

cc: J. E. Caton
G. S. Fleming
M. R. Guerin
L. J. Watcher

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)

OCT 2 3 1988

Mr. William R. Laing
Oak Ridge National Laboratory
P. O. Box 2008, 45005 MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The results of the participation of your laboratory in the EMSL-LV fourth quarter organic performance evaluation study (QB4, FY88, ORGANIC) are enclosed. Includes are copies of the analysis reports for organics in water samples as well as statistical information on the numbers of laboratories that had difficulties with specific analytes.

The score for your laboratory was 73%. The DOE environmental survey requires a formal response from each laboratory, describing any changes or actions taken to identify and correct any deficiencies and to improve laboratory performance. That response will become part of the quality assurance record for analytical work done by your laboratory for sites in the DOE environmental survey. In order to meet schedule times for data document publication, corrective action responses should be sent within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc:
Vincent Fayne, DOE HQ
Alan Crockett, INEL

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 58 Same = 0 Below = 11

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q		#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CRD	TNT #
TCL VOLATILE											
METHYLENE CHLORIDE	NU	NU	NU	NU	168			0	0	90	
ACETONE	NU	NU	NU	NU	46			0	13	77	
CARBON DISULFIDE	93	160	83	170	161		S	11	10	90	
1,1-DICHLOROETHENE	110	170	99	180	173		S	9	0	90	90
1,1-DICHLOROETHANE	120	170	120	180	169			5	0	90	90
1,2-DICHLOROETHENE (TOTAL)	110	160	99	160	153			8	0	90	
CHLOROFORM	120	160	110	170	149			8	0	90	
1,2-DICHLOROETHANE	130	170	120	180	136			4	0	90	
2-BUTANONE	16	120	10	170	10	U	S	3	25	65	90
1,1,1-TRICHLOROETHANE	110	170	100	180	148			9	0	90	90
CARBON TETRACHLORIDE	57	110	49	140	86			2	0	90	
VINYL ACETATE	NU	NU	NU	NU	10	U		1	82	8	
BROMODICHLOROMETHANE	130	170	120	180	144			3	0	90	
1,2-DICHLOROPROPANE	140	190	130	190	170			5	0	90	90
CIS-1,3-DICHLOROPROPENE	23	45	20	57	79		X	8	7	83	90
TRICHLOROETHENE	120	170	110	180	153			4	0	90	
DIBROMOCHLOROMETHANE	130	180	120	190	134			4	0	90	
1,1,2-TRICHLOROETHANE	130	170	120	180	129		S	7	0	90	90
BENZENE	120	160	110	170	150			1	0	90	90
BROMOFORM	120	180	110	190	131			3	0	90	90
2-PENTANONE,4-METHYL-	61	150	48	160	76			10	1	89	
2-HEXANONE	20	100	10	140	41			1	8	82	
TETRACHLOROETHENE	92	130	87	150	124			5	1	89	90
TOLUENE	120	150	110	160	144			4	0	90	90
1,1,2,2-TETRACHLOROETHANE	110	160	100	170	107		S	7	1	89	
CHLOROBENZENE	120	160	120	170	144			7	0	90	
ETHYL BENZENE	84	140	75	150	106			4	0	90	
STYRENE	77	130	69	160	90			3	0	90	90
XYLENES (TOTAL)	110	150	100	160	124			8	0	90	90
TCL SEMIVOLATILE											
PHENOL	15	72	10	100	31			0	1	89	90
BIS(2-CHLOROETHYL)ETHER	23	38	21	45	33			4	2	88	90
1,4-DICHLOROBENZENE	22	37	20	45	29			5	1	89	
1,2-DICHLOROBENZENE	23	38	21	45	30			5	1	89	
2-METHYLPHENOL	32	87	25	120	10	U	&	2	4	86	
BIS(2-CHLOROISOPROPYL)ETHER	42	72	38	88	60			3	0	90	90
N-NITROSO-DI-N-PROPYLAMINE	28	45	26	54	43			4	0	90	90
HEXACHLOROETHANE	17	32	15	40	20			4	2	88	
NITROBENZENE	13	22	12	23	17			12	2	88	
ISOPHORONE	11	18	10	22	14			2	2	88	90
2-NITROPHENOL	85	140	77	160	110			7	0	90	90
BENZOIC ACID	NU	NU	NU	NU	50	U		0	50	40	
BIS(2-CHLOROETHOXY)METHANE	37	57	34	60	62		X	11	0	90	
1,2,4-TRICHLOROBENZENE	10	16	10	19	11			7	2	88	
NAPHTHALENE	11	19	10	23	13			3	1	89	90
4-CHLOROANILINE	97	230	78	250	140			14	2	88	90
2-METHYLNAPHTHALENE	49	87	44	110	66			4	0	90	
2,4,6-TRICHLOROPHENOL	44	72	39	76	53			5	1	89	
2-NITROANILINE	130	210	120	230	50	U	&	8	1	89	
DIMETHYL PHTHALATE	NU	NU	NU	NU	51			0	13	77	90
3-NITROANILINE	110	260	91	280	160			10	0	90	90
2,4-DINITROPHENOL	100	250	82	270	170			8	3	87	
4-NITROPHENOL	50	190	50	210	87			1	4	96	
DIBENZOFURAN	120	180	110	220	140			6	0	90	90
2,4-DINITROTOLUENE	17	64	10	89	26			3	11	79	90

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Oak Ridge National (TN) % SCORE: 73.
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required REPORT DATE: 10/
RANK: Above = 58 Same = 0 Below = 11 MATRIX: WAT

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TO #L
DIETHYLPHTHALATE	15	83	10	120	71		0	11	79	
4-CHLOROPHENYL PHENYL ETHER	65	99	60	100	80		7	3	90	
FLUORENE	68	96	64	110	77		8	0	90	
4-NITROANILINE	62	140	51	140	120		13	1	89	
4,6-DINITRO-2-METHYLPHENOL	54	110	50	120	96		3	1	89	
4-BROMOPHENYL PHENYL ETHER	31	46	29	54	39		9	0	90	
HEXACHLOROBENZENE	25	46	22	56	39		8	1	89	
DI-N-BUTYLPHTHALATE	12	80	10	120	61		0	4	86	
FLUORANTHENE	31	51	28	54	41		7	0	90	
PYRENE	28	48	25	51	43		10	0	90	
BUTYL BENZYL PHTHALATE	NU	NU	NU	NU	36		0	22	68	
BENZO(A)ANTHRACENE	52	110	44	120	91		3	0	90	
CHRYSENE	14	33	11	35	25		13	0	90	
BIS(2-ETHYLHEXYL)PHTHALATE	18	91	10	100	77		4	1	89	
DI-N-OCTYL PHTHALATE	22	92	12	100	80		7	1	89	
BENZO(K)FLUORANTHENE	37	100	27	110	100		5	5	85	
DIBENZ(A,H)ANTHRACENE	36	120	24	130	86		2	0	90	
BENZO(G,H,I)PERYLENE	38	120	26	130	94		6	0	90	
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.05	U	0	63	27	
BETA-BHC	NU	NU	NU	NU	0.14		1	54	36	
DELTA-BHC	NU	NU	NU	NU	0.14		0	50	40	
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.1		0	37	53	
HEPTACHLOR	0.068	0.25	0.05	0.35	0.12		4	12	78	
ALDRIN	0.16	0.51	0.11	0.57	0.31		13	1	89	
HEPTACHLOR EPOXIDE	0.12	0.37	0.087	0.40	0.22		6	4	86	
ENDOSULFAN I	NU	NU	NU	NU	0.05	U	0	78	12	
DIELDRIN	0.30	0.70	0.24	0.76	0.49		6	0	90	
ENDRIN	0.21	0.45	0.17	0.49	0.33		7	4	86	
4,4'-DDD	2.8	5.5	2.5	5.9	4.8		12	2	88	
ENDOSULFAN SULFATE	NU	NU	NU	NU	12		0	42	48	
4,4'-DDT	1.2	3.4	0.85	3.8	2.3		11	3	97	
METHOXYCHLOR	NU	NU	NU	NU	2.8		0	19	71	
GAMMA-CHLORDANE	0.88	2.1	0.62	2.2	4.8	X	5	5	85	
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					0	&		20	70	
METHANE,TRICHLORO-FLUORO-					0	&		10	80	
NON-TCL SEMIVOLATILE										
MALATHION					0			90	0	
BENZOPHENONE					76			19	71	
BENZIDINE					0			50	40	
TCL VOLATILE (Contaminants)										
TRANS-1,3-DICHLOROPROPENE					37	C		77	13	
TCL SEMIVOLATILE (Contaminants)										
BENZYL ALCOHOL					10	CB		24	66	
TCL PESTICIDES (Contaminants)										
ENDOSULFAN II					0.1			88	2	

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 58 Same = 0 Below = 11

% SCORE: 73.0
REPORT DATE: 10/15
MATRIX: WAT

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #L
ENDRIN KETONE					10	C		89	1	
NON-TCL VOLATILE (Contaminants)										
UNKNOWN					16	C0		70	20	
UNKNOWN					6	C		81	9	90
UNKNOWN					2			88	2	90
NON-TCL SEMIVOLATILE (Contaminants)										
UNKNOWN HYDROCARBON					3			83	7	90
UNKNOWN					29	C0		65	25	90
UNKNOWN					3			76	14	
UNKNOWN					6			82	8	
UNKNOWN					5			85	5	
UNKNOWN					30	C		85	5	90
UNKNOWN					2			86	4	90
UNKNOWN					6			88	2	
UNKNOWN					10			88	2	
BENZENAMINE,DIMETHYL- ISOMER					10			89	1	90

OF TCL COMPOUNDS NOT-IDENTIFIED: 2
OF TCL COMPOUNDS MIS-QUANTIFIED: 3
OF TCL CONTAMINANTS: 2

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 2
OF NON-TCL CONTAMINANTS: 2

BCC: Holladay
Howell
Caton

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

November 22, 1988

Vincent Fayne
USDOE
Forrestal Bldg, EH-24
Independence Ave., SW
Washington, DC 20585

Harold Vincent
EMSL-LV
P. O. Box 93478
Las Vegas, NV 89193-3478

Gentlemen:

Attached is our reply to the last organic performance evaluation samples, QB4FY88. We have completed the QB1FY89 samples and they were mailed to EPA this week.

Sincerely,

W. R. Laing
Section Head
Analytical Chemistry

cc: R. B. Fitts
W. D. Shults

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

November 15, 1988

W. R. Laing, 4500S, MS-6127

Response to Score for Organic Analyses for 4th Quarter (FY 1988) PE Samples

Our score for the 4th quarter organic performance evaluation study, (QB4, FY88), was 73%. Although the overall score was disappointing, I believe these results showed a marked improvement in our pesticide analysis. For the previous PE Sample (QB3, FY88) we misquantitated two of the three pesticides included in the scoring. For this sample eight pesticides were included in the scoring and our laboratory identified all eight and misquantitated only one (alpha-chlordane). We believe that this misquantitation was caused by a chromatographic interferance which caused the evaluated area to be quite large. However, such an error should not be repeated because of increased staff training, (see below) and the use of data from different columns. To this end we now have four different columns available to resolve ambiguities which may result from pesticide chromatograms. Previously all work was carried out utilizing one packed column, (SP-2250/2401) and one capilliary column, (DB-5). Now two packed columns, (SP-2100 and the SP-2250/2401) are available as well as two capilliary columns, (the DB-5 plus a DB-608 megabore). Thus with complex pesticide samples one or more of these columns are likely to move a target pesticide away from most interferences.

The second mistake made on the pesticide analysis for QB4 was the identification of endrin ketone which was not present. This error was made because of new and inexperienced personnel who had assigned the wrong retention time window to endrin ketone. This error was recognized by the laboratory, (too late, of course), and it should not be repeated.

The components of the score for this sample were somewhat different from previous PE results because an unusually high number of points, (10.6), was lost on volatiles. The reason for this may have been due to the incorporation of new personnel into the GC/MS Laboratory. Only two of the points were lost for misquantitation with the remainder being lost for not identifying two non-TCLs and for identifying 1 TCL contaminant and 1 non-TCL contaminant. More experinece and the training listed below should do much to minimize such mistakes.

The semivolatiles lost 12.3 points with most of this loss (8.1) caused by not identifying two TICs, (2-methylphenol and 2-nitroaniline). Because surrogate and spike recoveries were good and 39 other semivolatile compounds were correctly identified, we must assume that these two compounds were

selectively lost in preparation. Steps have been taken to instruct the preparation technicians to be more careful with samples as they approach dryness and to protect samples from light if they are to be on the bench for extended periods of time.

Our staff has both grown and changed over the last few months. Therefore, it is relatively inexperienced and there is an increased emphasis on training. During the fourth quarter of FY1988 the following training was provided:

1. One Pesticide/PCB chemist was sent to a one-week course dealing with gas chromatography (Harold McNair, ACS, Blacksburg, VA).

2. Two persons from the GC/MS Laboratory were sent to a three-day course dealing with mass spectral interpretation (Michael Gross, [U. Nebraska], at Tennessee Eastman).

3. Two persons (one from GC/MS and one from GC) attended a one-day seminar on gas chromatographic instrumentation presented by a vendor (Hewlett-Packard).

This emphasis on training represents a continuation of the training reported in our response to QB3, FY88; it should serve as an ongoing upgrade of our staff capabilities.

John Caton

John Caton, 4500S, MS-6120 (4-4861)

JEC:llc

cc: M. R. Guerin
M. P. Maskarinec

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)

AUG 0 8 1988

Mr. William Laing
Oak Ridge National Laboratory
P.O. Box 2008, 4500s, MS-127
Oak Ridge, TN 37831

Dear Mr. Laing:

The Individual Laboratory Summary Report (ILSR) summarizing the results of the participation of your laboratory in the EMSL-LV third quarter organic performance evaluation study (QB3, FY88) is enclosed. In addition, general information concerning the scoring procedure used for QB3 is included.

The score for your laboratory at 78.7 is in the CLP category of acceptable but with a response required regarding any explanations of deficiencies and the changes or actions taken to correct those deficiencies. (Score is less than 90 but 70 or above).

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist
Quality Assurance Research Branch, QAD

Enclosures

cc:
D. Karen Knight, DOE HQ

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 42 Same = 0 Below = 24

% SCORE: 78.7
REPORT DATE: 07/07
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC.	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTA #LAB
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	180		0	0	0	66
ACETONE	78	190	62	200	130		1	9	0	66
CARBON DISULFIDE	110	200	100	210	160		0	13	0	66
1,1-DICHLOROETHENE	110	180	100	180	160		0	7	0	66
1,1-DICHLOROETHANE	130	170	120	180	150		1	6	0	66
1,2-DICHLOROETHENE (TOTAL)	110	170	100	180	160		1	3	0	66
CHLOROFORM	120	160	120	170	150		0	7	0	66
1,2-DICHLOROETHANE	130	170	120	170	140		0	4	0	66
2-BUTANONE	85	190	70	200	160		4	5	0	66
1,1,1-TRICHLOROETHANE	120	170	120	180	150		0	7	0	66
CARBON TETRACHLORIDE	110	170	98	180	160		0	5	0	66
VINYL ACETATE	NU	NU	NU	NU	10	U	0	0	0	66
BROMODICHLOROMETHANE	130	170	120	180	150		0	2	0	66
1,2-DICHLOROPROPANE	140	180	140	180	170		0	9	0	66
CIS-1,3-DICHLOROPROPENE	76	140	67	170	190	X	12	5	0	66
TRICHLOROETHENE	120	170	120	170	170		0	8	0	66
DIBROMOCHLOROMETHANE	140	180	130	190	160		0	9	0	66
1,1,2-TRICHLOROETHANE	130	170	120	170	150		0	5	0	66
BENZENE	120	160	120	160	150		0	8	0	66
TRANS-1,3-DICHLOROPROPENE	NU	NU	NU	NU	98		0	0	1	66
BROMOFORM	130	190	120	200	160		0	5	0	66
2-PENTANONE,4-METHYL-	92	160	82	170	140		1	7	0	66
2-HEXANONE	63	140	52	150	130		1	6	0	66
TETRACHLOROETHENE	100	140	94	160	140		1	5	0	66
TOLUENE	120	160	120	160	160		0	7	0	66
1,1,2,2-TETRACHLOROETHANE	110	160	110	170	140		1	5	0	66
CHLOROBENZENE	130	160	120	170	160		0	3	0	66
ETHYL BENZENE	100	140	97	160	150	$	0	3	0	66
STYRENE	86	150	77	150	150		0	4	0	66
XYLENES (TOTAL)	120	160	110	170	170	$	1	0	0	66
TCL SEMIVOLATILE										
PHENOL	10	42	10	61	7		1	0	0	66
2-CHLOROPHENOL	24	45	21	56	36		0	6	0	66
BENZYL ALCOHOL	NU	NU	NU	NU	20	U	0	0	0	66
2-METHYLPHENOL	22	40	19	50	32		1	6	0	66
4-METHYLPHENOL	20	42	17	53	31		3	4	0	66
2-NITROPHENOL	22	45	19	58	34		0	6	0	66
2,4-DIMETHYLPHENOL	16	38	13	50	26		0	3	0	66
2,4-DICHLOROPHENOL	26	48	23	51	44		1	5	0	66
4-CHLORO-3-METHYL PHENOL	27	48	24	52	38		1	6	0	66
2,4,5-TRICHLOROPHENOL	100	200	89	210	180		1	5	0	66
2-CHLORONAPHTHALENE	25	45	22	55	25		0	4	0	66
3-NITROANILINE	50	120	50	130	100	U	0	4	0	66
4-NITROPHENOL	NU	NU	NU	NU	14		0	0	0	66
4,6-DINITRO-2-METHYLPHENOL	81	160	69	180	170	$	3	7	0	66
N-NITROSODIPHENYLAMINE	52	120	42	140	94		0	5	0	66
HEXACHLOROBENZENE	22	48	18	52	83	X	2	9	0	66
PENTACHLOROPHENOL	NU	NU	NU	NU	51		0	0	0	66
DI-N-BUTYLPHTHALATE	NU	NU	NU	NU	20	U	0	0	0	66
FLUORANTHENE	NU	NU	NU	NU	11		0	0	0	66
BENZO(A)ANTHRACENE	NU	NU	NU	NU	8		0	0	0	66
BENZO(B)FLUORANTHENE	34	110	24	150	110		0	2	0	66
BENZO(K)FLUORANTHENE	40	110	30	120	99		2	3	0	66
BENZO(A)PYRENE	40	110	30	150	99		0	1	0	66
INDENO(1,2,3-CD)PYRENE	28	100	18	140	110	$	1	0	0	66

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 42 Same = 0 Below = 24

% SCORE: 78.7
REPORT DATE: 07/07/8
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LABS
DIBENZ(A,H)ANTHRACENE	NU	NU	NU	NU	19		0	0	0	6
BENZO(G,H,I)PERYLENE	NU	NU	NU	NU	21		0	0	0	6
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.05	U	0	0	1	6
DELTA-BHC	NU	NU	NU	NU	0.05	U	0	0	1	66
HEPTACHLOR EPOXIDE	0.160	0.29	0.071	0.32	0.17		10	4	6	66
4,4'-DDE	NU	NU	NU	NU	0.1	U	0	0	2	66
ENDOSULFAN II	NU	NU	NU	NU	0.1	U	0	0	6	66
METHOXYCHLOR	NU	NU	NU	NU	0.52		0	0	0	6
ALPHA-CHLORDANE	0.82	2.8	0.54	3.1	19	X	7	2	0	66
GAMMA-CHLORDANE	0.53	1.5	0.5	1.7	9.4	X	1	6	0	66
AROCLOR-1016	NU	NU	NU	NU	0.5	U	0	0	0	66
AROCLOR-1260	NU	NU	NU	NU	3		0	0	1	66
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					55		15	0	0	66
METHANE,TRICHLORO-FLUORO-					0	&	13	0	0	66
NON-TCL SEMIVOLATILE										
BENZOPHENONE					130		9	0	0	66
META-PICOLINE					19		0	0	0	66
TCL SEMIVOLATILE (Contaminants)										
BIS(2-ETHYLHEXYL)PHTHALATE					2	CB	0	0	1	66
NON-TCL SEMIVOLATILE (Contaminants)										
PHENOL,DICHLORO-METHOXY-					3		0	0	0	66
HEXANONE,METHYL-					64	C	0	0	0	66
PESTICIDE					14	C	0	0	0	66
NON-TCL SEMIVOLATILE (Contaminants)										
UNKNOWN					3		0	0	12	66
UNKNOWN					5		0	0	11	66
UNKNOWN					4		0	0	7	66
UNKNOWN					19	C	0	0	3	66

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

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 1
OF NON-TCL CONTAMINANTS: 3

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

November 4, 1988

Vincent Fayne
USDOE
Forrestal Bldg, EH-24
Independence Ave., SW
Washington, DC 20585

Harold Vincent
EMSL-LV
P. O. Box 93478
Las Vegas, NV 89193-3478

Gentlemen:

Attached is the ORNL response to the QB3 organic performance evaluation report. Please contact John Caton (615/574-4861) if you have any questions.

Sincerely,

W. R. Laing
ACD Task Leader

WRL:lp

attachment

cc: R. B. Fitts
W. D. Shults

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

November 2, 1988

W. R. Laing, 4500S, MS-6127

Response to Score for Organic Analyses for 3rd Quarter (FY 1988) PE Samples

Our score for the 3rd quarter organic performance evaluation study (QB3, FY88), was 78.7. Points were deducted because 4 TCL compounds (2 pesticides, 1 volatile, and 1 semivolatile) were mis-quantified (12.5 points); one non-TCL compound was not identified (2.2 points); and 3 non-TCL contaminants were found in the prepared sample (6.6 points). Corrective actions will include the following:

1. Purchase and installation of a high temperature oven to remove all traces of chromatographable organics from preparation glassware. The three contaminants coupled with the fact that all mis-quantified compounds were high indicates "too much" has been recovered. Some parts of the preparation glassware such as continuous extractors, snider columns, etc., contain parts which can be washed only by soaking and rinsing. Therefore, trace residuals might remain especially if the equipment had previously been used for highly contaminated samples; (and we had just completed preparation of a series of samples containing high levels of chlorocarbons immediately preceding receipt of the third quarter PE).

2. Personnel will receive more training. This training will include continuing emphasis on the care, handling, and preparation of both samples and standards. In addition, two staff members were sent to training courses concerning the use and operation of gas chromatograph/mass spectrometers.

3. Special emphasis will be placed on upgrading the capabilities of the pesticide analysis effort. There have been some significant personnel changes in this area. Emphasis will be on careful training; and for the near future, some of the automatic data handling capabilities will be abandoned so that the newer personnel in this effort will gain a better understanding of data interpretation and calculations.

John E. Caton

John E. Caton, 4500S, MS-6120 (4-4861)

JEC:llc

cc: M. R. Guerin
M. P. Maskarinec

MAY 16 1988

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)

Mr. John E. Caton
Oak Ridge Nat. Lab
Bldg 4500-S, MS-120
Bethel Valley Rd.
Oak Ridge, TN 37831-6120

Dear Mr. Caton:

For your information and review the results for your participation in the EMSL-LV Second Quarter Organic Performance Evaluation Study (QB2, FY 88) are included here. Enclosed is general information about the Superfund Performance Evaluation Program. The PE portion of the Laboratory Profile Package, called the "Individual Laboratory Summary Report" (ILSR) was described in your letter reports last quarter. Other general information about the PE program is explained on the following pages.

The samples consisted of aqueous materials spiked with Target Compound List (TCL) and non-TCL pollutants at environmentally representative levels. Samples for all laboratories were from the same homogeneous batch. Each sample set was to be prepared and analyzed by current contractually required procedures.

The EMSL-LV thanks you for your participation in this study and wishes to congratulate the laboratories for an overall fine performance. We trust that this information is vital to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,

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

Enclosure

cc: (w/enclosure)
Carla Dempsey, OERR
Joan Fisk, OERR
Emile Boulos, OERR
Angelo Carasea, OERR
Howard Fribush, OERR

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR 9B 2 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: UNACCEPTABLE - Corrective Actions Mandatory
RANK: Above = 44 Same = 0 Below = 7

% SCORE: 62.3
REPORT DATE: 4/5/19
MATRIX: WATER

COMPOUND	90 % CI LOWER	90 % CI UPPER	LABORATORY DATA CONC	Q		#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LABS
TCL VOLATILE									
BROMOMETHANE	64	240	195			0	2	0	51
METHYLENE CHLORIDE	c	c	79			0	0	0	51
1,1-DICHLOROETHANE	34	55	38			0	3	0	51
2-BUTANONE	38	170	67			3	7	0	51
BROMODICHLOROMETHANE	59	80	63			0	3	0	51
1,1,2-TRICHLOROETHANE	54	76	60			0	8	0	51
BENZENE	12	17	14			1	5	0	51
2-HEXANONE	48	200	84			1	3	0	51
TOLUENE	18	30	20			0	2	0	51
CHLOROBENZENE	85	110	91			0	3	0	51
STYRENE	80	110	90			0	6	0	51
XYLENES (TOTAL)	120	180	131			0	5	0	51
TCL SEMIVOLATILE									
2-CHLOROPHENOL	23	52	30			0	5	0	51
N-NITROSO-DI-N-PROPYLAMINE	45	84	55			0	6	0	51
ISOPHORONE	65	140	66	X		0	5	0	51
2,4-DIMETHYLPHENOL	10	53	21	J		0	2	0	51
BENZOIC ACID	50	200	166			0	7	0	51
HEXACHLOROBUTADIENE	61	160	62	X		0	2	0	51
2-METHYLNAPHTHALENE	20	55	24			0	3	0	51
2,4,6-TRICHLOROPHENOL	55	100	70			0	8	0	51
2-NITROANILINE	50	100	53			0	2	0	51
ACENAPHTHYLENE	59	100	62	X		0	8	0	51
ACENAPHTHENE	61	100	59	X		0	4	0	51
2,4-DINITROPHENOL	81	260	170			3	7	0	51
DIBENZOFURAN	96	160	92	X		0	6	0	51
4-NITROPHENOL	50	200	160			0	1	0	51
FLUORENE	64	100	58	X		0	4	0	51
DIETHYLPHTHALATE	c	c	22	U		0	0	0	51
PENTACHLOROPHENOL	74	230	150			0	6	0	51
PHENANTHRENE	62	100	58	X		0	5	0	51
ANTHRACENE	57	100	55	X		0	4	0	51
PYRENE	42	110	39	X		0	6	0	51
BUTYL BENZYL PHTHALATE	c	c	22	U		0	0	0	51
BENZO(A)ANTHRACENE	31	100	27	X		0	2	0	51
DI-N-OCTYL PHTHALATE	10	100	6	J	*	0	2	0	51
DIBENZ(A,H)ANTHRACENE	17	140	17	J	*	0	2	0	51
TCL PESTICIDES									
HEPTACHLOR	0.05	0.43	0.47	X		0	8	0	51
ALDRIN	0.14	0.53	0.15	X		18	5	0	51
ENDRIN	0.16	0.48	0.32			2	11	0	51
TOXAPHENE	c	c	1	U		0	0	1	51
NON-TCL SEMIVOLATILE									
BENZOPHENONE			56			0	0	0	51
DISULFOTON			20	J		0	0	0	51
CHLORPYRIFOS			10	J		0	0	0	51
2-NITRO-P-CRESOL			36			0	0	0	51
TCL SEMIVOLATILE (Contaminants)									
BENZYL ALCOHOL			8	J		0	0	0	51

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 88

LABORATORY: Oak Ridge National (TN)
PERFORMANCE: UNACCEPTABLE - Corrective Actions Mandatory
RANK: Above = 44 Same = 0 Below = 7

% SCORE: 62.3
REPORT DATE: 4/5/198
MATRIX: WATER

COMPOUND	90 % CI LOWER	90 % CI UPPER	LABORATORY DATA CONC	Q	PROGRAM %LABS NOT-ID	PROGRAM %LABS MIS-QUANT	DATA %LABS CONTAM	TOTAL %LABS
BIS(2-ETHYLHEXYL)PHTHALATE			12	JB	0	0	1	51
NON-TCL SEMIVOLATILE (Contaminants)								
2-HEXANONE,5-METHYL-			42	B	0	0	0	51
UNKNOWN			12	JF	0	0	19	51
UNKNOWN			32	F	0	0	10	51

OF TCL COMPOUNDS NOT-IDENTIFIED: 0
OF TCL COMPOUNDS MIS-QUANTIFIED: 8
OF TCL CONTAMINANTS: 0

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0
OF NON-TCL CONTAMINANTS: 2

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831

May 18, 1988

Harold Vincent
EMSL-LV
P. O. Box 93478
Las Vegas, NV 89193-3478

Dear Harold:

Attached is the letter from Mike Guerin on corrective actions resulting from the QBII performance evaluation sample report. The QBIII sample is almost completed and will be sent to you soon.

Sincerely,

W. R. Laing
ACD Task Leader

WRL:lp

cc: Karen Knight
R. B. Fitts

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

May 17, 1988

W. R. Laing

Organic

Corrective Action Re OB2 FY88 Performance Evaluation Sample

We are taking the following steps as corrective actions.

1. No DOE Site Survey Samples are currently being analyzed for PCB-pesticides, VOA, or SVO. Samples for these analyses will not be accepted without approval of the ORNL Program Office.

2. The current quarterly Performance Evaluation Sample is being analyzed.

3. Weekly internal quality control samples are being analyzed for PCB-pesticides, VOA, and SVO analytes.

The results will be documented and will be used to design remedial action experiments if the results are found suspect.

M. R. Guerin, 4500-S, MS 120 (4-4862)

MRG:pmt

cc: J. E. Caton
R. M. Edwards
G. S. Fleming
S. H. Harmon
J. A. Hayden
G. M. Henderson
C. A. Treese

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BCD Results of Organic Performance Evaluation Studies

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PERFORMANCE EVALUATION SCORES FOR BCD

Code	Score
QB1FY89 Organic	*
QB4FY88 Organic	93.8
QB3FY88 Organic	95.6
QB2FY88 Organic	47.3

*BCD did not submit samples for this quarterly blind.

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Battelle-Columbus Division did not participate in the QB1, FY89, Organic Performance Evaluation Study

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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)

JAN 0 6 1989

Dennis W. Raichart
Battelle-Columbus Division
505 King Avenue
Columbus, Ohio 43201-2693

Dear Dr. Raichart:

The results of the participation of your laboratory in the EMSL-LV fourth quarter organic performance evaluation study (QB4 FY88 ORGANIC) are enclosed. This includes copies of the analysis reports for organics in soil and water samples. The reports also present statistical information on the numbers of laboratories having difficulties with specific analytes.

The DOE environmental survey requires a formal response from each laboratory working on survey site samples when a score of less than 100 is obtained on performance evaluation samples. That response will become part of the quality assurance record for analytical work completed by your laboratory on samples from sites in the survey. If these qualifications apply to your laboratory, please forward your corrective action responses within 15 days of receipt of this letter in order that we may meet data document schedules.

This office will be glad to furnish any council and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 10 Same = 1 Below = 59

% SCORE: 93.8
REPORT DATE: 12/28/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	130		0	0	14	14
ACETONE	NU	NU	NU	NU	53		0	1	13	14
CARBON DISULFIDE	93	160	83	170	170	*	0	0	14	14
1,1-DICHLOROETHENE	110	170	99	180	180	*	1	0	14	14
1,1-DICHLOROETHANE	120	170	120	180	160		2	0	14	14
1,2-DICHLOROETHENE (TOTAL)	110	160	99	160	160		1	0	14	14
CHLOROFORM	120	160	110	170	160		1	0	14	14
1,2-DICHLOROETHANE	130	170	120	180	170		1	0	14	14
2-BUTANONE	16	120	10	170	11		0	3	11	14
1,1,1-TRICHLOROETHANE	110	170	100	180	160		0	0	14	14
CARBON TETRACHLORIDE	57	110	49	140	98		0	0	14	14
VINYL ACETATE	NU	NU	NU	NU	10	U	0	11	3	14
BROMODICHLOROMETHANE	130	170	120	180	180	*	0	0	14	14
1,2-DICHLOROPROPANE	140	190	130	190	200	X	1	0	14	14
CIS-1,3-DICHLOROPROPENE	23	45	20	57	45		2	1	13	14
TRICHLOROETHENE	120	170	110	180	190	X	1	0	14	14
DIBROMOCHLOROMETHANE	130	180	120	190	190	*	0	0	14	14
1,1,2-TRICHLOROETHANE	130	170	120	180	180	*	1	0	14	14
BENZENE	120	160	110	170	170	*	0	0	14	14
BROMOFORM	120	180	110	190	180		0	0	14	14
2-PENTANONE,4-METHYL-	61	150	48	160	78		1	0	14	14
2-HEXANONE	20	100	10	140	33		0	2	12	14
TETRACHLOROETHENE	92	130	87	150	130		0	0	14	14
TOLUENE	120	150	110	160	140		0	0	14	14
1,1,2,2-TETRACHLOROETHANE	110	160	100	170	160		1	0	14	14
CHLOROBENZENE	120	160	120	170	170	*	0	0	14	14
ETHYL BENZENE	84	140	75	150	120		0	0	14	14
STYRENE	77	130	69	160	100		1	0	14	14
XYLENES (TOTAL)	110	150	100	160	150		0	0	14	14
TCL SEMIVOLATILE										
PHENOL	15	72	10	100	80	*	0	1	13	14
BIS(2-CHLOROETHYL)ETHER	23	38	21	45	36		2	0	14	14
1,4-DICHLOROBENZENE	22	37	20	45	35		1	0	14	14
1,2-DICHLOROBENZENE	23	38	21	45	36		1	0	14	14
2-METHYLPHENOL	32	87	25	120	100	*	0	1	13	14
BIS(2-CHLOROISOPROPYL)ETHER	42	72	38	88	67		1	0	14	14
N-NITROSO-DI-N-PROPYLAMINE	28	45	26	54	44		0	0	14	14
HEXACHLOROETHANE	17	32	15	40	31		1	0	14	14
NITROBENZENE	13	22	12	23	19		2	0	14	14
ISOPHORONE	11	18	10	22	19	*	0	0	14	14
2-NITROPHENOL	85	140	77	160	130		1	0	14	14
BENZOIC ACID	NU	NU	NU	NU	26		0	10	4	14
BIS(2-CHLOROETHOXY)METHANE	37	57	34	60	59	*	2	0	14	14
1,2,4-TRICHLOROBENZENE	10	16	10	19	17	*	1	0	14	14
NAPHTHALENE	11	19	10	23	19		0	0	14	14
4-CHLOROANILINE	97	230	78	250	230		2	0	14	14
2-METHYLNAPHTHALENE	49	87	44	110	87		0	0	14	14
2,4,6-TRICHLOROPHENOL	44	72	39	76	72		1	0	14	14
2-NITROANILINE	130	210	120	230	170		1	1	13	14
DIMETHYL PHTHALATE	NU	NU	NU	NU	4		0	1	13	14
3-NITROANILINE	110	460	91	280	220		1	0	14	14
2,4-DINITROPHENOL	100	250	92	270	180		1	0	14	14
4-NITROPHENOL	50	190	50	210	160		1	1	13	14
DIBENZOFURAN	120	180	110	220	170		0	0	14	14
2,4-DINITROTOLUENE	17	64	10	89	50		0	5	9	14

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 10 Same = 1 Below = 59

% SCORE: 93.8
REPORT DATE: 12/28/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
DIETHYLPHTHALATE	15	83	10	120	11	S	0	0	14	14
4-CHLOROPHENYL PHENYL ETHER	65	99	60	100	89		0	0	14	14
FLUORENE	68	96	64	110	89		1	0	14	14
4-NITROANILINE	62	140	51	140	47	X	2	0	14	14
4,6-DINITRO-2-METHYLPHENOL	54	110	50	120	98		0	0	14	14
4-BROMOPHENYL PHENYL ETHER	31	46	29	54	46		1	0	14	14
HEXACHLOROBENZENE	25	46	22	56	43		1	0	14	14
DI-N-BUTYLPHTHALATE	12	80	10	120	19		0	2	12	14
FLUORANTHENE	31	51	28	54	45		1	0	14	14
PYRENE	28	48	25	51	50	S	0	0	14	14
BUTYL BENZYL PHTHALATE	NU	NU	NU	NU	15		0	6	8	14
BENZO(A)ANTHRACENE	52	110	44	120	79		0	0	14	14
CHRYSENE	14	33	11	35	23		1	0	14	14
BIS(2-ETHYLHEXYL)PHTHALATE	18	91	10	100	62		1	0	14	14
DI-N-OCTYL PHTHALATE	22	92	12	100	45		1	0	14	14
BENZO(K)FLUORANTHENE	37	100	27	110	67		1	2	12	14
DIBENZ(A,H)ANTHRACENE	36	120	24	130	65		0	0	14	14
BENZO(G,H,I)PERYLENE	38	120	26	130	71		1	0	14	14
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.16		0	6	8	14
BETA-BHC	NU	NU	NU	NU	0.18		0	3	11	14
DELTA-BHC	NU	NU	NU	NU	0.14		0	4	10	14
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.18		0	1	13	14
HEPTACHLOR	0.068	0.25	0.05	0.35	0.2		1	0	14	14
ALDRIN	0.16	0.51	0.11	0.57	0.42		1	0	14	14
HEPTACHLOR EPOXIDE	0.12	0.37	0.087	0.48	0.26		1	0	14	14
ENDOSULFAN I	NU	NU	NU	NU	0.05 U		0	10	4	14
DIELDRIN	0.30	0.78	0.24	0.76	0.62		1	0	14	14
ENDRIN	0.21	0.45	0.17	0.49	0.35		1	1	13	14
4,4'-DDD	2.8	5.5	2.5	5.9	2.7	S	1	0	14	14
ENDOSULFAN SULFATE	NU	NU	NU	NU	0.43		0	3	11	14
4,4'-DDT	1.2	3.4	0.85	3.8	1.7		2	0	14	14
METHOXYCHLOR	NU	NU	NU	NU	0.91		0	2	12	14
GAMMA-CHLORDANE	0.80	2.1	0.62	2.2	1.2		1	0	14	14
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					26			5	9	14
METHANE,TRICHLORO-FLUORO-					48			4	10	14
NON-TCL SEMIVOLATILE										
MALATHION					0			14	0	14
BENZOPHENONE					66			4	10	14
BENZIDINE					0			6	8	14
TCL VOLATILE (Contaminants)										
TRANS-1,3-DICHLOROPROPENE					2			12	2	14
TCL SEMIVOLATILE (Contaminants)										
BENZYL ALCOHOL					25			3	11	14
2,4-DIMETHYLPHENOL					8			12	2	14

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

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

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 52 Same = 2 Below = 15

% SCORE: 61.2
REPORT DATE: 12/28/8
MATRIX: SOIL

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
TCL VOLATILE										
ETHYL BENZENE	NU	NU	NU	NU	2		0	4	7	11
TCL SEMIVOLATILE										
1,2-DICHLOROBENZENE	NU	NU	NU	NU	660	U	0	10	1	11
2,4-DICHLOROPHENOL	870	2000	700	2600	2100		0	0	11	11
2,4,6-TRICHLOROPHENOL	1300	2700	1100	3400	3200		0	0	11	11
2-CHLORONAPHTHALENE	1000	2000	740	3800	3100		0	0	11	11
ACENAPHTHYLENE	350	780	330	1800	780		0	0	11	11
ACENAPHTHENE	1200	2600	960	3300	2800		0	0	11	11
FLUORENE	2000	4100	1700	5200	4200		0	0	11	11
4-BROMOPHENYL PHENYL ETHER	2300	4400	2000	5400	4800		0	0	11	11
3,3'-DICHLOROBENZIDINE	NU	NU	NU	NU	1300	U	0	8	3	11
BENZO(B)FLUORANTHENE	930	1700	810	2200	1600		0	0	11	11
TCL VOLATILE (Contaminants)										
METHYLENE CHLORIDE					11			3	8	11
1,1,1-TRICHLOROETHANE					8	C		9	2	11
TOLUENE					2			9	2	11
TCL PESTICIDES (Contaminants)										
ALPHA-BHC					1.8			10	1	11
GAMMA-BHC (LINDANE)					6.6			6	5	11
ENDOSULFAN I					2.1			9	2	11
NON-TCL VOLATILE (Contaminants)										
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFL					5			10	1	11

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

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

For Review and Approval

	Name	Initials	Date
Originator	BJ Hidy	BJH	1/18/89
Concurrence	DW Raichart	DWR	1/23/89
	RK Mitchum	RKM	1/23/89
Approved	VA Fishman	VAF	1/24/89

Internal Distribution

VA Fishman
BH Hidy
RK Mitchum
DW Raichart

January 24, ~~1988~~ 1989

Dr. Harold Vincent
U.S. EPA Environmental Monitoring
Systems Laboratory (EMSL-LV)
944 E. Harmon
Las Vegas, NV 89109

Dear Dr. Vincent:

Please find enclosed for your review, a listing of the corrective actions taken in response to our participation in the EMSL-LV Fourth Quarter FY 88 Organics Performance Evaluation Study (084-FY-88) [Case No. 10015].

The information provided by the Superfund Performance Evaluation Program has been of great use to Battelle by indicating areas in which we can improve the performance of our analytical and quality assurance programs.

If you have any questions or comments concerning the corrective actions we have taken, please contact me at (614-424-3342) or Bruce Hidy at (614-424-4591).

Sincerely,

Dennis W. Raichart, Ph. D.
Associate Section Manager
Chemistry Section

DWR:gp

Enclosure

cc: Mr. Vincent Fayne, DOE Headquarters
Dr. J. Leland Daniel, PNL

CORRECTIVE ACTIONS FOR QB4, FY 88

WATER - TCL VOLATILE

Performance Problems

Two (2) TCL compounds, 1,2-Dichloropropane and Trichloroethene, were reported at levels just above the upper action confidence interval established for these compounds during the fourth quarter performance evaluation study.

Corrective Actions

Examination of the data for these two compounds did not reveal any problems with their quantification or with the quantification of their associated internal standard. Examination of the daily continuing calibration check (CCC) sample showed that the percent difference (%D) between response factor for each of the compounds relative to the average from the initial calibration was 2.5% for 1,2-Dichloropropane and 5.4% for Trichloroethene. No obvious explanation for these two high values was evident. However, there were seven other compounds which were reported that were above the upper warning confidence interval. Therefore, it is possible that there was a bias introduced into to the initial calibration standards during their preparation. In the future, in addition to a comparison of the newly prepared standards with previously prepared standards and additional comparison with a standard from some other source will be made.

WATER - TCL SEMIVOLATILE

Performance Problems

One (1) TCL compound, 4-Nitroaniline, was reported at a level just below the lower action confidence interval established for this compound during the fourth quarter performance evaluation study.

Corrective Actions

Examination of the data for this compound revealed a problem with its quantification. Because of the high polarity of this compound, its extraction efficiency is lower than non-polar compounds and its chromatographic peak shape is broader than non-polar compounds. 4-Nitroaniline also has a low average response factor. These characteristics can make this compound difficult to quantify using automated routines. It appears that during the automated quantification of this compound, a significant portion of the peak tail was omitted from the total peak area. This caused a lower value to be reported. In the future, when compounds known to be difficult to quantify due to their high polarity are detected, a manual evaluation will be made to ensure proper quantification of the peak has been made.

WATER - TCL PESTICIDES

Performance Problems

None indicated.

Corrective Actions

None required.

WATER - NON-TCL VOLATILES

Performance Problems

None indicated.

Corrective Actions

None required.

WATER - NON-TCL SEMIVOLATILE

Performance Problems

None indicated.

Corrective Actions

None required.

WATER - TCL VOLATILE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

WATER - TCL SEMIVOLATILE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

WATER - TCL PESTICIDE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - TCL VOLATILE

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - TCL SEMIVOLATILE

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - TCL PESTICIDES

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - NON-TCL VOLATILES

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL- NON-TCL SEMIVOLATILE

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - TCL VOLATILE (Contaminants)

Performance Problems

One (1) TCL compound, 1,1,1-Trichloroethane, reported at a level just above the contract required quantification limit (CRQL) was considered a contaminant (a TCL compound not included in the performance evaluation material used for the fourth quarter performance evaluation study).

Corrective Actions

Examination of the data for this compound confirmed that all of the criteria required for compound identification as stated in the SOW had been met. Therefore, this compound cannot be considered a false positive identification. Examination of the daily method/system blank run with this sample did not provide any evidence that detection of this compound was the result of method/system contamination. Contamination of the soil matrix with this compound may have occurred during the shipping or storage of the sample but cannot be establish based on a single occurrence.

SOIL - TCL SEMIVOLATILE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

SOIL - TCL PESTICIDE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

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)

xc RL Jenne
Dennis Reichart
Bruce Hedy *
Sue Hetzel
Ramona Mayer
Greg Dunsmuir

AUG 0 8 1988

Dr. Judith Gebhart
Battelle-Columbus Division
505 King Avenue
Columbus, Ohio 43201-2693

* with attachment

Dear Dr. Gebhart:

The Individual Laboratory Summary Report (ILSR) summarizing the results of the participation of your laboratory in the EMSL-LV third quarter organic performance evaluation study (QB3, FY88) is enclosed. In addition, general information concerning the scoring procedure used for QB3 is included.

The score for your laboratory at 95.6 is in the CLP category of acceptable (score--90 or above), with no response required regarding any changes or corrective actions. Even with the good score, it would be wise to examine the report for information which would be helpful to your laboratory in this kind of analysis.

Congratulations on the good score! This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist
Quality Assurance Research Branch, QAD

Enclosures

cc:
D. Karen Knight, DOE HQ

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 8 Same = 0 Below = 58

% SCORE: 95.6
REPORT DATE: 07/07/
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LABS
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	190		0	0	0	66
ACETONE	78	190	62	200	100		1	9	0	66
CARBON DISULFIDE	110	200	100	210	160		0	13	0	66
1,1-DICHLOROETHENE	110	180	100	180	140		0	7	0	66
1,1-DICHLOROETHANE	130	170	120	180	140		1	6	0	66
1,2-DICHLOROETHENE (TOTAL)	110	170	100	180	130		1	3	0	66
CHLOROFORM	120	160	120	170	130		0	7	0	66
1,2-DICHLOROETHANE	130	170	120	170	140		0	4	0	66
2-BUTANONE	85	190	70	200	200	#	4	5	0	66
1,1,1-TRICHLOROETHANE	120	170	120	180	120		0	7	0	66
CARBON TETRACHLORIDE	110	176	90	180	110		0	5	0	66
VINYL ACETATE	NU	NU	NU	NU	10	U	0	0	0	66
BROMODICHLOROMETHANE	130	170	120	180	140		0	2	0	66
1,2-DICHLOROPROPANE	140	180	140	180	180		0	9	0	66
CIS-1,3-DICHLOROPROPENE	76	140	67	170	120		12	5	0	66
TRICHLOROETHENE	120	170	120	170	150		0	8	0	66
DIBROMOCHLOROMETHANE	140	180	130	190	160		0	9	0	66
1,1,2-TRICHLOROETHANE	130	170	120	170	140		0	5	0	66
BENZENE	120	160	120	160	150		0	8	0	66
TRANS-1,3-DICHLOROPROPENE	NU	NU	NU	NU	5		0	0	1	66
BROMOFORM	130	190	120	200	150		0	5	0	66
2-PENTANONE,4-METHYL-	92	160	82	170	110		1	7	0	66
2-HEXANONE	63	140	52	150	130		1	6	0	66
TETRACHLOROETHENE	100	140	94	160	120		1	5	0	66
TOLUENE	120	160	120	160	130		0	7	0	66
1,1,2,2-TETRACHLOROETHANE	110	160	110	170	150		1	5	0	66
CHLOROBENZENE	130	160	120	170	150		0	3	0	66
ETHYL BENZENE	100	140	97	160	120		0	3	0	66
STYRENE	86	150	77	150	110		0	4	0	66
XYLENES (TOTAL)	120	160	110	170	130		1	8	0	66
TCL SEMIVOLATILE										
PHENOL	10	42	10	61	23		0	0	0	66
2-CHLOROPHENOL	24	45	21	56	32		0	6	0	66
BENZYL ALCOHOL	NU	NU	NU	NU	55		0	0	0	66
2-METHYLPHENOL	22	40	19	50	34		1	6	0	66
4-METHYLPHENOL	20	42	17	53	29		3	4	0	66
2-NITROPHENOL	22	45	19	58	32		0	6	0	66
2,4-DIMETHYLPHENOL	16	38	13	50	28		0	3	0	66
2,4-DICHLOROPHENOL	26	48	23	51	44		1	5	0	66
4-CHLORO-3-METHYL PHENOL	27	48	24	52	34		1	6	0	66
2,4,5-TRICHLOROPHENOL	100	200	89	210	160		1	5	0	66
2-CHLORONAPHTHALENE	25	45	22	55	31		0	4	0	66
3-NITROANILINE	50	120	50	130	50	U	0	4	0	66
4-NITROPHENOL	NU	NU	NU	NU	50	U	0	0	0	66
4,6-DINITRO-2-METHYLPHENOL	81	160	69	180	110		3	7	0	66
N-NITROSODIPHENYLAMINE	52	120	42	140	110		0	5	0	66
HEXACHLOROBENZENE	22	48	18	52	35		2	9	0	66
PENTACHLOROPHENOL	NU	NU	NU	NU	42		0	0	0	66
DI-N-BUTYLPHTHALATE	NU	NU	NU	NU	3		0	0	0	66
FLUORANTHENE	NU	NU	NU	NU	8		0	0	0	66
BENZO(A)ANTHRACENE	NU	NU	NU	NU	9		0	0	0	66
BENZO(B)FLUORANTHENE	34	110	24	150	69		0	2	0	66
BENZO(K)FLUORANTHENE	40	110	30	120	71		2	3	0	66
BENZO(A)PYRENE	40	110	30	150	69		0	1	0	66
INDENO(1,2,3-CD)PYRENE	20	100	10	140	66		1	0	0	66

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 8 Same = 0 Below = 58

% SCORE: 95.6
REPORT DATE: 07/07/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LAB
DIBENZ(A,H)ANTHRACENE	NU	NU	NU	NU	20		0	0	0	66
BENZO(G,H,I)PERYLENE	NU	NU	NU	NU	12		0	0	0	66
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.09		0	0	1	66
DELTA-BHC	NU	NU	NU	NU	0.05	U	0	0	1	66
HEPTACHLOR EPOXIDE	0.100	0.29	0.071	0.32	0.17		10	4	0	66
4,4'-DDE	NU	NU	NU	NU	0.16		0	0	2	66
ENDOSULFAN II	NU	NU	NU	NU	0.1	U	0	6	0	66
METHOXYCHLOR	NU	NU	NU	NU	0.32		0	0	0	66
ALPHA-CHLORDANE	0.82	2.8	0.54	3.1	1.3		7	2	0	66
GAMMA-CHLORDANE	0.53	1.5	0.5	1.7	0.86		1	6	0	66
AROCLOR-1016	NU	NU	NU	NU	0.5	U	0	0	0	66
AROCLOR-1260	NU	NU	NU	NU	1	U	0	0	1	66
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					0	&	15	0	0	66
METHANE,TRICHLORO-FLUORO-					35		13	0	0	66
NON-TCL SEMIVOLATILE										
BENZOPHENONE					79		9	0	0	66
BENZENE,PENTA-CHLORO-NITRO-					130		0	0	0	66
TCL SEMIVOLATILE (Contaminants)										
BENZOIC ACID					52		0	0	0	66
2,6-DINITROTOLUENE					5		0	0	0	66
BUTYL BENZYL PHTHALATE					10	C0	0	0	0	66
BIS(2-ETHYLHEXYL)PHTHALATE					60	C0	0	0	1	66
TCL PESTICIDES (Contaminants)										
HEPTACHLOR					0.005		0	0	2	66
4,4'-DDD					0.025		0	0	0	66
NON-TCL VOLATILE (Contaminants)										
ETHER,ETHYL-					10	C	0	0	2	66

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

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 1
OF NON-TCL CONTAMINANTS: 1

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)

Rec'd 4/29/91 by

Copied: J.E. Gebhart 4/
D.W. Rohlhart

Mr. Gregory A. DusSault
Battelle Columbus Division
Anal & Struct. Chem. Center
505 King Avenue
Columbus, OH 43201-2693

Dear Mr. DusSault:

For your information and review the results for your participation in the EMSL-LV Second Quarter Organic Performance Evaluation Study (QB2-WP088) are included here. Enclosed is general information about the Superfund Performance Evaluation Program. The PE portion of the Laboratory Profile Package, called the "Individual Laboratory Summary Report" (ILSR) was described in your letter reports last quarter. Other general information about the PE program is explained on the following pages.

The samples consisted of aqueous materials spiked with Target Compound List (TCL) and non-TCL pollutants at environmentally representative levels. Samples for all laboratories were from the same homogeneous batch. Each sample set was to be prepared and analyzed by current contractually required procedures.

The EMSL-LV thanks you for your participation in this study and wishes to congratulate the laboratories for an overall fine performance. We trust that this information is vital to you as a member of the community of laboratories analyzing hazardous waste samples for Superfund.

Sincerely,

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

Enclosure

cc: (w/enclosure)
Carla Dempsey, OERR
Joan Fisk, OERR
Emile Boulos, OERR
Angelo Carasea, OERR
Howard Fribush, OERR

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: UNACCEPTABLE - Corrective Actions Mandatory
RANK: Above = 47 Same = 0 Below = 5

% SCORE: 47.3
REPORT DATE: 4/13/
MATRIX: WATER

COMPOUND	90 % CI LOWER	90 % CI UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LABS
TCL VOLATILE								
BROMOMETHANE	64	240	120		0	3	0	52
~~METHYLENE CHLORIDE~~	c	c	84		0	0	0	52
1,1-DICHLOROETHANE	34	55	44		0	3	0	52
2-BUTANONE	38	170	10	U (E)	4	7	0	52
BROMODICHLOROMETHANE	59	80	73		0	4	0	52
1,1,2-TRICHLOROETHANE	54	76	62		0	8	0	52
BENZENE	12	17	15		1	5	0	52
2-HEXANONE	48	200	99		1	4	0	52
TOLUENE	18	30	23	B	0	2	0	52
CHLOROBENZENE	85	110	100		0	3	0	52
STYRENE	80	110	100		0	6	0	52
XYLENES (TOTAL)	120	180	150		0	6	0	52
TCL SEMIVOLATILE								
2-CHLOROPHENOL	23	52 46	44		0	6	0	52
~~N-NITROSO-DI-N-PROPYLAMINE~~	45	84 82	88	X ✓	0	7	0	52
ISOPHORONE	65	140 122	130		0	6	0	52
2,4-DIMETHYLPHENOL	10	53 57	59	X X	0	2	0	52
BENZOIC ACID	50	200 190	220	X	0	7	0	52
HEXACHLOROBUTADIENE	61	160 150	150	(4) ✓	0	3	0	52
2-METHYLNAPHTHALENE	20	55 45	52	(4)	1	3	0	52
2,4,6-TRICHLOROPHENOL	55	100 94	92	$	0	9	0	52
2-NITROANILINE	50	100 67	77		0	2	0	52
ACENAPHTHYLENE	59	100 120	120	X X	0	9	0	52
ACENAPHTHENE	61	100 100	110	X ✓	0	5	0	52
2,4-DINITROPHENOL	81	260 190	210		3	7	0	52
DIBENZOFURAN	96	160 140	150		0	7	0	52
4-NITROPHENOL	50	200 140	170		0	1	0	52
FLUORENE	64	100 110	120	X X	0	5	0	52
~~DIETHYLPHTHALATE~~	c	c	9	J	0	0	0	52
PENTACHLOROPHENOL	74	230 180	140		0	6	0	52
PHENANTHRENE	62	100 100	100	(4) ✓	1	5	0	52
ANTHRACENE	57	100 100	96	✓	0	5	0	52
PYRENE	42	110 110	100	✓	0	6	0	52
~~BUTYL BENZYL PHTHALATE~~	c	c	9	BJ	0	0	0	52
BENZO(A)ANTHRACENE	31	100	86 92		0	2	0	52
DI-N-OCTYL PHTHALATE	10	100	45 45		0	2	0	52
DIBENZ(A,H)ANTHRACENE	17	140	60 61		1	2	0	52
TCL PESTICIDES								
HEPTACHLOR	0.05	0.43	0.29		0	8	0	52
ALDRIN	0.14	0.53	0.38		18	5	0	52
ENDRIN	0.16	0.48	0.86	X	2	11	0	52
~~TOXAPHENE~~	c	c	1	U	0	0	1	52
NON-TCL SEMIVOLATILE								
BENZOPHENONE ~~ft 995 pur 870~~			97	J	0	0	0	52
DISULFOTON			0	(ND)	0	0	0	52
CHLORPYRIFOS ~~ft 963 pur 546~~			19	J	0	0	0	52
2-NITRO-P-CRESOL ~~ft 999 pur 827~~			77	J	0	0	0	52
TCL SEMIVOLATILE (Contaminants)								
BENZYL ALCOHOL			MS MSD 14 13 11		0	0	0	52

36

46

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 2 FY 88

LABORATORY: Battelle Columbus (OH)
PERFORMANCE: UNACCEPTABLE - Corrective Actions Mandatory
RANK: Above = 47 Same = 0 Below = 5

% SCORE: 47.3
REPORT DATE: 4/13/198
MATRIX: WATER

COMPOUND	90 % CI LOWER	90 % CI UPPER	LABORATORY DATA CONC		#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM	TOTAL #LABS
BIS(2-ETHYLHEXYL)PHTHALATE			6,5,6J		0	0	1	52
TCL PESTICIDES (Contaminants)								
DIELDRIN			0.051 0.51	JP	0	0	1	52
HEPTACHLOR EPOXIDE			0.012	J	0	0	0	52
ALPHA-CHLORDANE			0.04	J	0	0	0	52
NON-TCL SEMIVOLATILE (Contaminants)								
2H-INDOL-2-ONE,1,3-DIHYDRO-	fit 967	pur 600	21	JP	0	0	2	52
BORANE,DIMETHOXY-	fit 954	pur 529	15	JP	0	0	0	52
BENZENE, POSS C2 NITRO-	fit 906	pur 452	48	JP	0	0	0	52
FURANONE,BENZO-3(2H)-	fit 931	pur 277	12	JP	0	0	0	52

A # OF TCL COMPOUNDS NOT-IDENTIFIED: 1
B # OF TCL COMPOUNDS MIS-QUANTIFIED: 7
C # OF TCL CONTAMINANTS: 1

D # OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 1
E # OF NON-TCL CONTAMINANTS: 4

X = 36 # of Total TCLs spiked

$$\text{Score} = 100 - \left[\frac{150}{X} * (2A+B+C) + 2.2 * (D+E)\right]$$

$$\text{Score} = 100 - \left[\frac{150}{36} * (2+7+1) + 2.2 * (1+4)\right]$$

$$= 4.17$$

For Review and Approval

	Name	Initials	Date
Originator	BJ Hidy	BJH	6/2/88
Concurrence			
	JE Gebhart	JEG	6/2/88
	RA Mayer	RAM	6/2/88
Approved			

No G1271-2260 (826)

Internal Distribution

RL Joiner/JE Gebhart
DW Raichart
LH Kenny
SS Hetzel
RA Mayer
RMO
File

June 2, 1988

Dr. Harold Vincent
U.S. EPA Environmental Monitoring
Systems Laboratory (EMSL-LV)
944 E. Harmon
Las Vegas, NV 89109

Dear Dr. Vincent:

Please find enclosed for your review and approval, a listing of the corrective actions taken in response to our participation in the EMSL-LV Second Quarter FY 88 Organic Performance Evaluation Study (QB2 - FY 88) [Case No. 8783].

The information provided by the Superfund Performance Evaluation Program has been of great use to Battelle by indicating areas in which we can improve the performance of our analytical and quality assurance programs.

If you have any questions or comments concerning the corrective actions we have taken, please contact me at (614-424-4605) or Bruce Hidy at (614-424-4591).

Sincerely,

J E Gebhart

J. E. Gebhart, Ph. D.
Section Manager
Analytical Chemistry Section

JEG:gp

cc: Karen Knight (DOE)

Enclosure

CORRECTIVE ACTIONS FOR QB2, FY 88

TCL VOLATILE

Performance Problems

One TCL volatile compound, 2-Butanone, was not detected. This compound is difficult to detect due to its poor purging efficiency, poor chromatography (broad peak shape), and poor response (low response factor). Careful inspection of the sample file showed this compound to be present at the expected retention time.

Corrective Actions

We are currently trying to improve the purging efficiency of this compound by increasing the purge flow from 30 mL/min to 40 mL/min. We have also increased the sensitivity of the automated search procedure and will continue to manually search all samples for this compound until we are certain that the automated procedure is reliable.

TCL SEMIVOLATILE

Performance Problems

Six TCL semivolatile compounds were detected and reported at levels which exceeded the 90% confidence interval (CI) for each compound. Additionally, three TCL semivolatile compounds were flagged as exceeding their upper warning limit. Further investigation of this fraction showed that the majority of the compounds detected and reported were near the upper limit of their 90% CI.

Corrective Actions

The two most likely causes for this consistent high bias in our reported values were investigated. First, the volume calibration for the sample extract vials was checked. If the samples extracts had been concentrated to a volume less than 1.0 mL then the analyte concentrations would appear to be higher than expected. Each sample vial was clearly and accurately marked for 1.0 mL. The second likely cause was that the concentration of our internal standard solution had changed such that the concentration of the internal standard analytes was less than the 40 ng/µL specified by the SOW. A fresh internal standard solution was prepared from a new ampule of the same Lot number used for the QB analyses. A comparison of the response of the two solution showed very good agreement for all of the compounds. At this point a third, less likely, cause was investigated. A fresh calibration curve was prepared from materials obtained from the EPA QAMB. The 50 µg/L standard used for the daily CCC used during the analysis of the QB samples was compared to the 50 µg/L standard from QAMB materials. Again, all analytes were found to be in good agreement between the two standards. None of the above items would appear to be the source of the consistent high bias in our data. At this point we have been unable to identify any additional possibilities likely or unlikely which we can evaluate. The only other possibility we have considered is based on the fact that we prepared these samples using continuous liquid-

liquid extraction and normally achieve high extraction efficiency and high recoveries of the analytes. If the majority of the reporting laboratories used separatory funnel extractions, which may have yielded lower recoveries, then the 90% CI may be bias toward the lower recovery values.

TCL PESTICIDES

Performance Problems

One TCL pesticide compound, Endrin, was reported above the 90% CI established for that compound. This compound was confirmed using the secondary column. However, confirmation of the quantification was not investigated prior to the submission of this QB. Further investigation showed that the endrin standard used for calibration for this data had degraded significantly resulting in a lower than expected response for that standard. This caused the reported value for the sample to be higher than it should have been. No other standards were found to have degraded.

Corrective Actions

We will carefully evaluate the performance of all of our standards for each of the compounds based on their historical performance prior to the analysis of all samples. Any significant change (as specified by the SOW) in the response of any analyte will be addressed by preparation of a new standard for that analyte.

NON-TCL VOLATILES

Performance Problems

None indicated.

Corrective Actions

None required.

NON-TCL SEMIVOLATILE

Performance Problems

One Non-TCL semivolatile compound, Disulfoton, was not detected. This compound was found to be totally unresolved chromatographically from phenanthrene-d10, an internal standard present at a relatively high level in the sample.

Corrective Actions

Additional attention will be paid to the symmetry of the TCL compound peaks. internal standard and surrogate compound peaks for indications of partial coelution of Non-TCL compounds. Also, additional attention will be paid to the mass spectra of the TCL compounds detected and the mass spectra of all

internal standard and surrogate standard peaks to determine the presents of "extra" ions which would indicate complete coelution of a Non-TCL compound with these other standard peaks.

TCL VOLATILE (Contaminants)

Performance Problems

None indicated.

Corrective Actions

None required.

TCL SEMIVOLATILE (Contaminants)

Performance Problems

One TCL semivolatile compound, Benzyl alcohol, was reported as detected at 14 µg/L, just above the CRQL of 10 µg/L. Confirmation of the mass spectra for benzyl alcohol was made against that days CCC standard. This compound was also detected and report in the matrix spike and matrix spike duplicate analyses at 13 µg/L and 11 µg/L respectively. Benzyl alcohol was not detected or reported in the sample blank analysis.

Corrective Actions

Based on the above data we believe that the detection and reporting of this compound was valid and no corrective actions are justified.

TCL PESTICIDE (Contaminants)

Performance Problems

One TCL pesticide, Dieldrin, was detected and reported as 0.051 µg/L (Form I PEST, page 0270) which is below the CRQL of 0.10 µg/L. The value was incorrectly entered as 0.51 µg/L on the EPA Individual Laboratory Summary Report Form.

Corrective Actions

Because the value was incorrectly entered by EPA no corrective actions are justified.

NON-TCL SEMIVOLATILE (Contaminants)

Performance Problems

Four Non-TCL semivolatile compounds (TICs) detected and reported were scored as contaminants. In the judgement of the experienced analysts who generated

and reviewed the data, all of the criteria required to report these compounds as TICs were met. Additional review of the matrix spike and matrix spike duplicate analyses showed the presence of these compounds in both samples. None of these compounds were detected in the sample blank or the standards analyzed for this Q8. The results of the forward library search gave FIT values of >900 and PURITY values of >300 for each compound. However, the three correctly identified TICs all had FIT values >950 and PURITY values >500.

Corrective Actions

In the future, the analysts who generate and review the TIC data will use as an additional guideline that the expected FIT values should be >950 and the expected PURITY values should be >500. However, we will continue to report all TIC compounds which in the judgement of an experienced analyst meet the criteria required for reporting the compound.

ANL Results of Organic Performance Evaluation Studies

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PERFORMANCE EVALUATION SCORES FOR ANL

Code	Score
QB1FY89 Organic	71.6 (CAR)
QB4FY88 Organic	91.7 (CAR)
QB3FY88 Organic	93.8 (CAR)
QB2FY88 Organic	*

* ANL did not submit a score for this quarterly blind.

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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)

FEB 07 1989

Mr. Lindahl
Analytical Chemistry Division, Bldg. 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the Environmental Monitoring Systems Laboratory-Las Vegas (EMSL-LV) first quarter Organic Performance Evaluation Study (QB1, FY89 Organic) are enclosed. This includes copies of the statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

For scores of less than 100 for each quarterly blind performance evaluation sample, the Department of Energy (DOE) Environmental Survey requires that the laboratory provide a formal response which would describe any changes or corrective actions that have been taken to improve analytical performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by the laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses to Vincent Fayne at DOE Headquarters with copies sent to me at the EMSL-LV within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent,
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc: (w/Enclosures)
Vincent Fayne, DOE HQ
Alan Crockett, INEL

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Argonne National (IL) % SCORE: 71.6
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required REPORT DATE: 12/22/88
RANK: Above = 42 Same = 1 Below = 20 MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q		#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
TCL VOLATILE											
VINYL CHLORIDE	74	140	66	150	95			1	0	9	9
ACETONE	NU	NU	NU	NU	99			0	1	8	9
1,1-DICHLOROETHENE	23	36	21	37	31			2	0	9	9
1,2-DICHLOROETHENE (TOTAL)	75	110	69	120	95			1	0	9	9
1,1,1-TRICHLOROETHANE	60	87	56	91	74			0	0	9	9
TRICHLOROETHENE	39	52	38	54	45			0	1	8	9
DIBROMOCHLOROMETHANE	15	23	14	24	19			2	0	9	9
2-PENTANONE,4-METHYL-	20	37	17	40	29			1	0	9	9
TETRACHLOROETHENE	40	55	38	57	49			1	0	9	9
ETHYL BENZENE	40	53	39	55	47			1	0	9	9
TCL SEMIVOLATILE											
2-CHLOROPHENOL	21	35	19	42	29			0	2	7	9
1,3-DICHLOROBENZENE	NU	NU	NU	NU	10	U		0	9	0	9
1,4-DICHLOROBENZENE	37	68	33	73	23		X	5	0	9	9
BENZYL ALCOHOL	47	91	41	110	58			2	5	4	9
1,2-DICHLOROBENZENE	20	36	18	44	13		X	5	0	9	9
4-METHYLPHENOL	24	39	22	47	22		S	1	1	8	9
HEXACHLOROETHANE	27	59	22	76	12		X	5	0	9	9
2,4-DIMETHYLPHENOL	33	83	25	110	77			1	0	9	9
BIS(2-CHLOROETHOXY)METHANE	30	49	28	51	36			2	0	9	9
2,4-DICHLOROPHENOL	58	88	54	100	70			2	0	9	9
1,2,4-TRICHLOROBENZENE	20	35	18	43	14		X	5	0	9	9
HEXACHLOROBUTADIENE	27	56	23	71	10		X	7	0	9	9
HEXACHLOROCYCLOPENTADIENE	NU	NU	NU	NU	10	U		0	5	4	9
2,4,6-TRICHLOROPHENOL	23	37	21	45	29			2	0	9	9
2-CHLORONAPHTHALENE	27	45	24	55	26		S	1	0	9	9
2,6-DINITROTOLUENE	50	82	45	87	52			1	0	9	9
ACENAPHTHENE	30	47	27	56	31			0	0	9	9
FLUORENE	64	96	59	100	63		S	1	0	9	9
N-NITROSODIPHENYLAMINE	41	73	36	90	120		X	1	0	9	9
HEXACHLOROBENZENE	44	96	36	100	65			2	0	9	9
PENTACHLOROPHENOL	NU	NU	NU	NU	29			0	0	9	9
ANTHRACENE	30	49	27	52	36			1	0	9	9
3,3'-DICHLOROBENZIDINE	NU	NU	NU	NU	50	U		0	9	0	9
BENZO(B)FLUORANTHENE	34	70	29	88	28		X	2	0	9	9
BENZO(A)PYRENE	44	92	37	120	42		S	2	0	9	9
INDENO(1,2,3-CD)PYRENE	41	93	34	100	42			3	0	9	9
DIBENZ(A,H)ANTHRACENE	40	97	31	100	41			3	0	9	9
TCL PESTICIDES											
ALPHA-BHC	NU	NU	NU	NU	0.05	U		0	7	2	9
BETA-BHC	NU	NU	NU	NU	0.05	U		0	9	0	9
DELTA-BHC	NU	NU	NU	NU	0.24			0	8	1	9
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.05	U		0	8	1	9
HEPTACHLOR	0.080	0.19	0.064	0.24	0.17			0	1	8	9
ALDRIN	0.15	0.39	0.11	0.42	0.35			1	1	8	9
HEPTACHLOR EPOXIDE	0.13	0.28	0.100	0.30	0.19			1	0	9	9
ENDOSULFAN I	NU	NU	NU	NU	0.2			0	1	8	9
4,4'-DDE	0.31	0.63	0.26	0.67	0.51			2	0	9	9
ENDOSULFAN II	NU	NU	NU	NU	0.26			0	2	7	9
ENDRIN KETONE	0.26	0.62	0.21	0.67	0.43			0	1	8	9
NON-TCL VOLATILE											
METHANE,IODO-					710				0	9	9

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 1 FY 89

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - Response Explaining Deficiency(ies) Required
RANK: Above = 42 Same = 1 Below = 20

% SCORE: 71.6
REPORT DATE: 12/22/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QNT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
METHANE,DIBROMO-					260			1	8	9
BENZENE,T-BUTYL-					190			1	8	9
ETHER,2-CHLORO-ETHYL-VINYL					23			1	8	9
METHANE,TRICHLORO-FLUORO-					470			0	9	9
NON-TCL SEMIVOLATILE										
BENZOPHENONE					60			2	7	9
CARBAZOLE					0			4	5	9
NON-TCL SEMIVOLATILE (Contaminants)										
9H-CARBAZOLE,9-NITROSO-					95			7	2	9

OF TCL COMPOUNDS NOT-IDENTIFIED: 0
OF TCL COMPOUNDS MIS-QUANTIFIED: 7
OF TCL CONTAMINANTS: 0

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

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

March 9, 1989

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Vince,

As Harold Vincent (U.S. EPA EMSL-LV) has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the water matrix sample of the EMSL-LV's Organic Performance Evaluation (PE) Study (QB1FY89, Case No. 10582) was 71.6% and in the acceptable performance category. In accordance with DOE Environmental Survey policy on addressing PE sample results, we have identified the problem(s) and enumerated the corrective action(s) below.

A. Volatiles

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective actions(s) required.

B. Semivolatiles

Identification of Problem(s): No compounds were misidentified. The quantitation of seven compounds was outside the confidence intervals and was classified as "misquantified" in the EPA scoring. These seven misquantifications represented all of the points deducted. Of the misquantified compounds, only one was above the upper limit of the confidence intervals. Thus, two separate problems appear to have caused the compounds to be mis-quantitated.

1. N-Nitrosodiphenylamine (NNDPA). Our NNDPA concentration was well above the action confidence intervals. The problem with the NNDPA quantitation has been identified as a bad calibration standard. The standard used for these samples is the EPA standard (Neutral Extractables "A," Lot No. C-094-02, dated 8/87; note that despite the old dates on these standards, they are the most recently received from the EPA). The area counts for the NNDPA in this standard were inordinately low and we should have noted this as a potential problem. NNDPA is an unstable compound. Problems with EPA's standard have been previously noted ever since they began mixing the NNDPA in with other compounds as part of the "Neutral Extractables A" standard. Apparently, other laboratories are not using this mixed EPA standard.

2. Other Compounds. The other compounds missed in the QB1 sample were all below the confidence intervals. We have reviewed the EPA's report of our QB score, searched our records, conducted some experiments in the laboratory, and discussed the QB results with EMSL-LV staff as well as with the other DOE laboratories. Based on the information obtained, we believe that the problem is poor extraction efficiency. It is interesting to note that several other laboratories missed a similar suite of compounds also on the low side. All of the DOE laboratories that missed these compounds used separatory funnel extractions.

Corrective Action(s):

1. N-Nitrosodiphenylamine (NNDPA). We will not utilize the mixed EPA standard in future determinations of NNDPA. A separate standard will be prepared for the quantitation.

2. Other Compounds

In order to improve extraction efficiency, we will monitor the extraction personnel to ensure that all extractions are done for at least the full required two minutes. We are also considering implementing continuous liquid-liquid extractors if sufficient space can be identified to set them up.

C. Pesticides/PCBs

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective action(s) required.

I trust you will find that our Organic Performance Evaluation Study score and our corrective action response are in accord with the DOE Environmental Survey's Action Plan for quality assurance audits. Should you have questions or comments regarding these results or our response to them, please call me at FTS 972-3490, or the ACL Organic Analysis Group Leader, Mitch Erickson, at FTS 972-7772.

Sincerely,

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL/vaa

cc: M. Steindler (2)
P. Nelson
D. Green
M. Erickson
A. Boparai
J. Demirgian
F. Martino
E. Palys
R. Scott - DOE
A. Crockett - INEL
H. Vincent - EMSL-LV
DES File

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)

OCT 2 8 1988

Mr. Peter C. Lindahl
Analytical Chemistry Division, BLD 205
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The results of the participation of your laboratory in the EMSL-LV fourth quarter Organic Performance Evaluation study (QB4,ORGANIC, FY88)' are enclosed. This includes copies of the analysis reports for organics in water samples as well as statistical information on the numbers of laboratories in the program that had difficulties with specific analytes.

Although the score for the effort by the ANL laboratory was good at 91.7% the DOE environmental survey requires a formal response describing any changes or corrective actions taken to improve the performance and eliminate deficiencies. That response will become a part of the quality assurance record for analytical work completed by your laboratory for sites in the DOE environmental survey. In order to meet delivery times for data document publication, please send your corrective action responses within 15 days of receipt of this letter.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist, Quality Assurance Research Branch
Quality Assurance and Methods Development Division

Enclosures

cc:
Vincent Fayne, DOE HQ
Alan Crockett, INEL

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM #LABS NOT-ID	DATA #LABS ID-CPD	TOTAL #LABS
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	140		0	0	90	90
ACETONE	NU	NU	NU	NU	140		0	13	77	90
CARBON DISULFIDE	93	160	83	170	130		11	0	90	90
1,1-DICHLOROETHENE	110	170	99	180	110		9	0	90	90
1,1-DICHLOROETHANE	120	170	120	180	130		5	0	90	90
1,2-DICHLOROETHENE (TOTAL)	110	160	99	160	120		8	0	90	90
CHLOROFORM	120	160	110	170	130		8	0	90	90
1,2-DICHLOROETHANE	130	170	120	180	140		4	0	90	90
2-BUTANONE	16	120	10	170	48		3	25	65	90
1,1,1-TRICHLOROETHANE	110	170	100	180	150		9	0	90	90
CARBON TETRACHLORIDE	57	110	49	140	87		2	0	90	90
VINYL ACETATE	NU	NU	NU	NU	10	U	1	82	8	90
BROMODICHLOROMETHANE	130	170	120	180	160		3	0	90	90
1,2-DICHLOROPROPANE	140	190	130	190	160		5	0	90	90
CIS-1,3-DICHLOROPROPENE	23	45	20	57	36		8	7	83	90
TRICHLOROETHENE	120	170	110	180	150		4	0	90	90
DIBROMOCHLOROMETHANE	130	180	120	190	180		4	0	90	90
1,1,2-TRICHLOROETHANE	130	170	120	180	160		7	0	90	90
BENZENE	120	160	110	170	130		1	0	90	90
BROMOFORM	120	180	110	190	170		3	0	90	90
2-PENTANONE,4-METHYL-	61	150	48	160	150		10	1	89	90
2-HEXANONE	20	100	10	140	100		1	8	82	90
TETRACHLOROETHENE	92	130	87	150	120		5	1	89	90
TOLUENE	120	150	110	160	130		4	0	90	90
1,1,2,2-TETRACHLOROETHANE	110	160	100	170	150		7	1	89	90
CHLOROBENZENE	120	160	120	170	150		7	0	90	90
ETHYL BENZENE	84	140	75	150	130		4	0	90	90
STYRENE	77	130	69	160	130		3	0	90	90
XYLENES (TOTAL)	110	150	100	160	140		8	0	90	90
TCL SEMIVOLATILE										
PHENOL	15	72	10	100	31		0	1	89	90
BIS(2-CHLOROETHYL)ETHER	23	38	21	45	36		4	2	88	90
1,4-DICHLOROBENZENE	22	37	20	45	33		5	1	89	90
1,2-DICHLOROBENZENE	23	38	21	45	35		5	1	89	90
2-METHYLPHENOL	32	87	25	120	33		2	4	86	90
BIS(2-CHLOROISOPROPYL)ETHER	42	72	38	88	70		3	0	90	90
N-NITROSO-DI-N-PROPYLAMINE	28	45	26	54	43		4	0	90	90
HEXACHLOROETHANE	17	32	15	40	27		4	2	88	90
NITROBENZENE	13	22	12	23	20		12	2	86	90
ISOPHORONE	11	18	10	22	18		2	2	88	90
2-NITROPHENOL	85	140	77	160	150	$	7	0	90	90
BENZOIC ACID	NU	NU	NU	NU	50	U	0	50	40	90
BIS(2-CHLOROETHOXY)METHANE	37	57	34	60	55		11	0	90	90
1,2,4-TRICHLOROBENZENE	10	16	10	19	14		7	2	88	90
NAPHTHALENE	11	19	10	23	17		3	1	89	90
4-CHLOROANILINE	97	230	78	250	580	X	14	2	88	90
2-METHYLNAPHTHALENE	49	87	44	110	80		4	0	90	90
2,4,6-TRICHLOROPHENOL	44	72	39	76	65		5	1	89	90
2-NITROANILINE	130	210	120	230	200		0	1	89	90
DIMETHYL PHTHALATE	NU	NU	NU	NU	50		0	13	77	90
3-NITROANILINE	110	260	91	280	200		10	0	90	90
2,4-DINITROPHENOL	100	250	82	270	220		3	3	87	90
4-NITROPHENOL	50	190	50	210	98		1	4	86	90
DIBENZOFURAN	120	180	110	220	180		6	0	90	90
2,4-DINITROTOLUENE	17	64	10	89	35		3	11	79	90

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CPD	TOTAL #LABS
DIETHYLPHTHALATE	15	83	10	120	82		0	11	79	90
4-CHLOROPHENYL PHENYL ETHER	65	99	60	100	96		7	0	90	90
FLUORENE	68	96	64	110	88		8	0	90	90
4-NITROANILINE	62	140	51	140	98		13	1	89	90
4,6-DINITRO-2-METHYLPHENOL	54	110	50	120	100		3	1	89	90
4-BROMOPHENYL PHENYL ETHER	31	46	29	54	45		9	0	90	90
HEXACHLOROBENZENE	25	46	22	56	44		8	1	89	90
DI-N-BUTYLPHTHALATE	12	80	10	120	64		0	4	86	90
FLUORANTHENE	31	51	28	54	45		7	0	90	90
PYRENE	28	48	25	51	44		10	0	90	90
BUTYL BENZYL PHTHALATE	NU	NU	NU	NU	34		0	22	68	90
BENZO(A)ANTHRACENE	52	110	44	120	110		3	0	90	90
CHRYSENE	14	33	11	35	28		13	0	90	90
BIS(2-ETHYLHEXYL)PHTHALATE	18	91	10	100	110	X	4	1	89	90
DI-N-OCTYL PHTHALATE	22	92	12	100	75		7	1	89	90
BENZO(K)FLUORANTHENE	37	100	27	110	76		5	5	85	90
DIBENZ(A,H)ANTHRACENE	36	120	24	130	95		2	0	90	90
BENZO(G,H,I)PERYLENE	38	120	26	130	94		6	0	90	90
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.05	U	0	63	27	90
BETA-BHC	NU	NU	NU	NU	0.05	U	1	54	36	90
DELTA-BHC	NU	NU	NU	NU	0.05	U	0	50	40	90
GAMMA-BHC (LINDANE)	NU	NU	NU	NU	0.05	U	0	37	53	90
HEPTACHLOR	0.068	0.25	0.05	0.35	0.081		4	12	78	90
ALDRIN	0.16	0.51	0.11	0.57	0.41		13	1	89	90
HEPTACHLOR EPOXIDE	0.12	0.37	0.087	0.40	0.32		6	4	86	90
ENDOSULFAN I	NU	NU	NU	NU	0.05	U	0	78	12	90
DIELDRIN	0.30	0.70	0.24	0.76	0.37		6	0	90	90
ENDRIN	0.21	0.45	0.17	0.49	0.47	S	7	4	86	90
4,4'-DDD	2.8	5.5	2.5	5.9	4.98		12	2	88	90
ENDOSULFAN SULFATE	NU	NU	NU	NU	0.1	U	0	42	48	90
4,4'-DDT	1.2	3.4	0.85	3.8	0.87	X	11	3	87	90
METHOXYCHLOR	NU	NU	NU	NU	0.8	U	0	19	71	90
GAMMA-CHLORDANE	0.80	2.1	0.62	2.2	1.41		5	5	85	90
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					19			20	70	90
METHANE,TRICHLORO-FLUORO-					230			10	80	90
NON-TCL SEMIVOLATILE										
MALATHION					0			90	0	90
BENZOPHENONE					40			19	71	90
BENZIDINE					21			50	40	90
TCL SEMIVOLATILE (Contaminants)										
BENZYL ALCOHOL					16	C0		24	66	90
NON-TCL VOLATILE (Contaminants)										
ETHANE,1,1'-OXYBIS-					16	C0		87	3	90
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFL					14	C0		89	1	90
NON-TCL SEMIVOLATILE (Contaminants)										
DDT,p,p'-					2.5			89	1	90

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 4 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 4 Below = 54

% SCORE: 91.7
REPORT DATE: 10/15/8
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS MIS-QUANT	PROGRAM DATA #LABS NOT-ID	#LABS ID-CRD	TOTAL #LABS
PHENOL,4-METHYL-2-NITRO-					18	C		77	13	96

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

OF NON-TCL COMPOUNDS NOT-IDENTIFIED: 0
OF NON-TCL CONTAMINANTS: 1

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

November 23, 1988

Mr. Vincent Fayne
U.S. Department of Energy
Office of Environmental Audit
Forrestal Building, EH-24
1000 Independence Avenue, SW
Washington, DC 20585

Dear Vince,

As Harold Vincent, U.S. EPA EMSL-LV, has reported, the Argonne National Laboratory/Analytical Chemistry Laboratory's score on the water matrix sample of the EMSL-LV's Organic Performance Evaluation (PE) Study (QB4 FY88, Case No. 10015) was 91.7% and in the acceptable performance category. In accordance with DOE Environmental Survey policy on addressing PE sample results, we have identified the problem(s) and enumerated the corrective action(s) below.

A. Volatiles

Identification of Problem(s): No problems identified. All compounds were within the quantitation confidence intervals.

Corrective Action(s): No corrective action(s) required.

B. Semivolatiles

Identification of Problem(s): The concentrations of two TCL compounds were misquantified with our reported values above the upper limit of the action confidence interval.

	Reported	Upper Limit
4-Chloroaniline	580 µg/L	250 µg/L
bis(2-ethylhexyl)phthalate	110 µg/L	100 µg/L

In addition, the compound 4-methyl-2-nitrophenol was reported as a TIC with concentration at 18 µg/L. We received a deduction because according to EMSL-LV it was not present in the sample.

Corrective Action(s): Our reported value for 4-chloroaniline was above the calibration range, requiring sample dilution and reanalysis. Review of our QB4 data confirmed the value. The area counts for this compound in the daily standard used to quantitate QB4 have been compared to those from other daily standards run around the time QB4 was analyzed, and with standards run with QB1 FY89. The RRF values from the standard used to quantitate QB4 has similarly been compared with those from other standards. They all compare reasonably well, indicating that our system is producing data relatively consistent from day to day. We have also ordered a new standard to check our daily calibration standard to determine if the daily calibration standard was the source of the problem.

While we feel that these corrective actions will resolve the misquantification of 4-chloroaniline in the future, it should be noted that a considerable number (14) of laboratories misquantified this compound and also that the confidence interval is large (78-250 µg/L). This leads us to believe there may also be a problem such as inhomogeneity of this compound in the PE sample vials distributed.

We have reevaluated the bis(2-ethylhexyl)phthalate data and find no errors in the analysis which could have led to the high value relative to the confidence intervals. Although this compound was not detected in the blank, the reason it is high is most likely due to contamination of the sample during workup by this ubiquitous compound. We have been consistently attempting to minimize this type of intermittent contamination. Efforts will continue to reduce contamination.

We have also reviewed our data regarding the TIC, 4-methyl-2-nitrophenol. It was definitely in the sample. Since it is not a TIC added by EMSL, it is then a contaminant. Review of current data packages showed that 4-methyl-2-nitrophenol has not been identified. Hence, we believe that what we reported was the result of spurious contamination of unknown origin and no additional corrective actions are planned.

C. PCB/Pesticides

Identification of Problem(s): Quantitation of 4,4'-DDT was high relative to the confidence interval. DDT is subject to degradation. In this case, the standard solutions used had degraded, giving low areas for the standard chromatograms and high values for the quantitation of the peaks in the QB sample. Although the ages of the solutions were within the CLP-allowable one year time, clearly they were too old for quantitative accuracy.

Corrective Action(s): Procedures have been implemented to prevent use of old standards, especially for compounds susceptible to degradation such as DDT. Specifically, new stock standard vials will be opened each time dilute working standards are prepared, and the residual stock will not be saved for further use.

I trust you will find that our Organic Performance Evaluation Study score and our corrective action response are in accord with the DOE Environmental Survey's Action Plan for quality assurance audits. Should you have questions or comments regarding these results or our response to them, please call me at FTS 972-3490 or the ACL Organic Analysis Coordinator, Mitch Erickson at FTS 972-7772.

Sincerely,

Peter C. Lindahl
Analytical Chemistry Laboratory
Chemical Technology Division

PCL:amb

cc: D. Green
M. Erickson
A. Boparai
J. Demirgian
J. Schneider
R. Wingender
F. Martino'
C-167
E. Palys
M. Steindler (2)
P. Nelson
R. Scott (DOE-OEA)
A. Crockett (INEL)
H. Vincent (EMSL-LV)
DES File

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)

AUG 0 8 1988

Peter C. Lindahl
Argonne National Lab., Bldg. 205
9700 South Cass Avenue
Argonne, IL 60439

Dear Mr. Lindahl:

The Individual Laboratory Summary Report (ILSR) summarizing the results of the participation of your laboratory in the EMSL-LV Third Quarter Organic Performance Evaluation study (QB3, FY88) is enclosed. In addition, general information concerning the scoring procedure used for QB3 is included.

The score for your laboratory at 93.8 is in the CLP category of acceptable (score--90 or above), with no response required regarding any changes or corrective actions. Even with the good score, it would be wise to examine the report for information which would be helpful to your laboratory in this kind of analysis.

This office will be glad to furnish any counsel and further information regarding this work.

Sincerely,

Harold A. Vincent

Harold A. Vincent
Chemist
Quality Assurance Research Branch, QAD

Enclosures

cc:
D. Karen Knight, DOE HQ

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR OB 3 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 8 Below = 55

% SCORE: 93.8
REPORT DATE: 07/07/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	PROGRAM DATA #LABS MIS-QUANT	#LABS CONTAM.	TOTAL #LABS
TCL VOLATILE										
METHYLENE CHLORIDE	NU	NU	NU	NU	140		0	0	0	66
ACETONE	78	190	62	200	120		1	9	0	66
CARBON DISULFIDE	110	200	100	210	140		0	13	0	66
1,1-DICHLOROETHENE	110	180	100	180	150		0	7	0	66
1,1-DICHLOROETHANE	130	170	120	180	150		1	6	0	66
1,2-DICHLOROETHENE (TOTAL)	110	170	100	180	130		1	3	0	66
CHLOROFORM	120	160	120	170	140		0	7	0	66
1,2-DICHLOROETHANE	130	170	120	170	140		0	4	0	66
2-BUTANONE	85	190	70	200	180		4	5	0	66
1,1,1-TRICHLOROETHANE	120	170	120	180	130		0	7	0	66
CARBON TETRACHLORIDE	110	170	90	180	120		0	5	0	66
VINYL ACETATE	NU	NU	NU	NU	10	U	0	0	0	66
BROMODICHLOROMETHANE	130	170	120	180	150		0	2	0	66
1,2-DICHLOROPROPANE	140	180	140	180	170		0	9	0	66
CIS-1,3-DICHLOROPROPENE	76	140	67	170	120		12	5	0	66
TRICHLOROETHENE	120	170	120	170	140		0	8	0	66
DIBROMOCHLOROMETHANE	140	180	130	190	150		0	9	0	66
1,1,2-TRICHLOROETHANE	130	170	120	170	150		0	5	0	66
BENZENE	120	160	120	160	140		0	8	0	66
TRANS-1,3-DICHLOROPROPENE	NU	NU	NU	NU	5	U	0	0	1	66
BROMOFORM	130	190	120	200	160		0	5	0	66
2-PENTANONE,4-METHYL-	92	160	82	170	170	#	1	7	0	66
2-HEXANONE	63	140	52	150	110		1	6	0	66
TETRACHLOROETHENE	100	140	94	160	130		1	5	0	66
TOLUENE	120	160	120	160	140		0	7	0	66
1,1,2,2-TETRACHLOROETHANE	110	160	110	170	160		1	5	0	66
CHLOROBENZENE	130	160	120	170	150		0	3	0	66
ETHYL BENZENE	100	140	97	160	130		0	3	0	66
STYRENE	86	150	77	150	130		0	4	0	66
XYLENES (TOTAL)	120	160	110	170	140		1	8	0	66
TCL SEMIVOLATILE										
PHENOL	10	42	10	61	10		0	0	0	66
2-CHLOROPHENOL	24	45	21	56	37		0	6	0	66
BENZYL ALCOHOL	NU	NU	NU	NU	10	U	0	0	0	66
2-METHYLPHENOL	22	40	19	50	27		1	6	0	66
4-METHYLPHENOL	20	42	17	53	21		3	4	0	66
2-NITROPHENOL	22	45	19	58	39		0	6	0	66
2,4-DIMETHYLPHENOL	16	38	13	50	11	X	0	3	0	66
2,4-DICHLOROPHENOL	26	48	23	51	34		1	5	0	66
4-CHLORO-3-METHYL PHENOL	27	48	24	52	32		1	6	0	66
2,4,5-TRICHLOROPHENOL	100	200	89	210	170		1	5	0	66
2-CHLORONAPHTHALENE	25	45	22	55	38		0	4	0	66
3-NITROANILINE	50	120	50	130	69		0	4	0	66
4-NITROPHENOL	NU	NU	NU	NU	50	U	0	0	0	66
4,6-DINITRO-2-METHYLPHENOL	81	160	69	180	130		1	7	0	66
N-NITROSODIPHENYLAMINE	52	120	42	140	140	#	0	5	0	66
HEXACHLOROBENZENE	22	48	18	52	44		2	9	0	66
PENTACHLOROPHENOL	NU	NU	NU	NU	34		0	0	0	66
DI-N-BUTYLPHTHALATE	NU	NU	NU	NU	2	CB	0	0	1	66
FLUORANTHENE	NU	NU	NU	NU	8		0	0	0	66
BENZO(A)ANTHRACENE	NU	NU	NU	NU	10		0	0	0	66
BENZO(B)FLUORANTHENE	34	110	24	150	85		0	2	0	66
BENZO(K)FLUORANTHENE	40	110	30	120	91		2	3	0	66
BENZO(A)PYRENE	40	110	30	150	93		0	1	0	66
INDENO(1,2,3-CD)PYRENE	28	100	18	140	93		1	0	0	66

4pgs
7/26/88

Rec'd from H. Vincent (EM at ORNL 7/26/88 4p

ORGANIC PERFORMANCE EVALUATION SAMPLE
INDIVIDUAL LABORATORY SUMMARY REPORT
FOR QB 3 FY 88

LABORATORY: Argonne National (IL)
PERFORMANCE: ACCEPTABLE - No Response Required
RANK: Above = 11 Same = 0 Below = 55

% SCORE: 93.8
REPORT DATE: 07/07/88
MATRIX: WATER

COMPOUND	CONFIDENCE INTERVALS WARNING LOWER	WARNING UPPER	ACTION LOWER	ACTION UPPER	LABORATORY DATA CONC	Q	#LABS NOT-ID	#LABS MIS-QUANT	PROGRAM DATA #LABS CONTAM	TOTAL #LABS
DIBENZ(A,H)ANTHRACENE	NU	NU	NU	NU	11		0	0	0	66
BENZO(G,H,I)PERYLENE	NU	NU	NU	NU	11		0	0	0	66
TCL PESTICIDES										
ALPHA-BHC	NU	NU	NU	NU	0.05	U	0	0	1	66
DELTA-BHC	NU	NU	NU	NU	0.05	U	0	0	1	66
HEPTACHLOR EPOXIDE	0.188	0.29	0.271	0.32	0.05	X	18	4	0	66
4,4'-DDE	NU	NU	NU	NU	0.1	U	0	0	2	66
ENDOSULFAN II	NU	NU	NU	NU	0.1	U	0	0	0	66
METHOXYCHLOR	NU	NU	NU	NU	0.04		0	0	0	66
ALPHA-CHLORDANE	0.82	2.8	0.54	3.1	0.64	#	7	2	0	66
GAMMA-CHLORDANE	0.53	1.5	0.5	1.7	0.4	# (x) ?	1	6	0	66
AROCLOR-1016	NU	NU	NU	NU	0.5	U	0	0	0	66
AROCLOR-1260	NU	NU	NU	NU	1		0	0	1	66
NON-TCL VOLATILE										
ETHER,2-CHLORO-ETHYL-VINYL					33		15	0	0	66
METHANE,TRICHLORO-FLUORO-					200		13	0	0	66
NON-TCL SEMIVOLATILE										
BENZOPHENONE					77		9	0	0	66
AZINPHOSMETHYL					46		1	0	0	66
BENZENE,PENTA-CHLORO-NITRO-					99		0	0	0	66
TCL SEMIVOLATILE (Contaminants)										
DIMETHYL PHTHALATE					2		0	0	0	66
NON-TCL VOLATILE (Contaminants)										
ETHANE,1,1-OXYBIS-					73	CQ	0	0	0	66
NON-TCL SEMIVOLATILE (Contaminants)										
ANILINE					67		9	0	0	66
AZINPHOS METHYL OXYGEN ANALOG					18		0	0	0	66

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

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

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue, Argonne, Illinois 60439

August 26, 1988

Mr. Harold Vincent
Quality Assurance Division
U.S. Environmental Protection Agency
EMSL-LV
P.O. Box 15027
Las Vegas, NV 89114-5027

Dear Harold,

We have received your letter with the results from our participation in the EPA EMSL-LV Third Quarter Organic Performance Evaluation Study (QB3FY88) on August 12, 1988. Our score of 93.8% was in the acceptable performance category but, according to DOE Environmental Survey policy, a letter documenting corrective action(s) is necessary. This letter is our response to the results and an explanation of our corrective actions.

A. VOAs

Identification of Problem(s)

None identified.

Corrective Action(s)

None required.

B. Semivolatiles

Identification of Problem(s)

One compound, 2,4-dimethylphenol, was mis-quantitated with our reported value of 11 µg/L being just outside the lower action limit of 13 µg/L. Our results for the other methylphenols (2-methyl and 4-methyl) were biased low, but within their QB confidence intervals. In reviewing the raw data for these compounds, the chromatograms showed considerable tailing for these three methylphenols. The tailing, while a normal occurrence with phenols, was nevertheless, greater than normally expected. These unquantitated tails are most likely the reason for the low methylphenol values.

In short, the mis-quantitation was caused by the need for minor, routine instrument maintenance, i.e., replacement of a GC column.

Corrective Action(s)

The GC column was replaced shortly after the QB3FY88 samples were run. After the column replacement, the chromatographic data show only the normal tailing. No further corrective action is required.

Operated by The University of Chicago for the United States Department of Energy

C. PCB/Pesticides

Identification of Problem(s)

Only three of the ten PCB/pesticides present in the sample were scored on EPA QB3FY88. We identified all three, but missed the quantitation (low) on one.

We concurrently ran an internal QC sample with QB3FY88. Our results on this sample were all within the advisory limits for the sample. This indicates that we had no problem with our extraction and cleanup recoveries. It also indicates that our standards were prepared correctly. The most likely source of error was the integration of the analyte peaks. This QB contained Aroclor 1016 and 1260. The interfering peaks from the Aroclors caused us to be "conservative" with our integrations and biased low. Our staff has been alerted to this problem.

Corrective Action(s)

In the future, samples in which Aroclors coelute with pesticides will be quantitated on more than one column.

I believe that these corrective actions will put us on the track we want to be on--that of achieving a perfect score in all of the organic analysis areas. Again, I thank you and your staff, especially Dave Bottrell, for your assistance and support in this program.

Sincerely,

Mitch

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MDE/vaa

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DES File

DOE LOG-IN TABLE
SECOND QUARTER FY 88 ORGANIC BLIND STUDY
(QB 2 FY 88, CASE NO. 8783)

Sample Sent: January 21, 1988
Data Due: March 2, 1988
CI Set: March 3, 1988

LABORATORY	SAMPLE RECEIVED AT LABORATORY	DATA PACKAGE DUE	DAYS LATE
Argonne National (VOA)	January 22, 1988	March 3, 1988	+1
Argonne National (BNA)	January 22, 1988	March 3, 1988	+1
Argonne National (PES)	January 22, 1988	March 23, 1988	+21
Battelle Columbus	January 22, 1988	April 8, 1988	+37
Idaho National Engineering	January 25, 1988	March 17, 1988	+15
Martin Marietta ORGDP	January 22, 1988	March 3, 1988	+1
Oak Ridge National	January 22, 1988	April 4, 1988	+33

* No data package submitted as of April 15, 1988.