CDM Federal Programs Corporation

May 31, 1989

Rose Harvell
Project Officer
U.S. Environmental Protection Agency
401 M Street, Room 2834
Washington, D.C. 20460

PROJECT: EPA CONTRACT NO.: 68-01-7331

DOCUMENT NO.: T993-C01-EP-DFLU-1

SUBJECT: Data Validation Letter Report for
Work Assignment C01011
Mottolo, Raymond, New Hampshire
Document No.: T993-C01-LR-DECU-3

Dear Ms. Harvell:

Please find enclosed the Data Validation Letter Report for Organics SAS Case #4372A for the Mottolo site, Raymond, New Hampshire as partial fulfillment of the reporting requirements for this work assignment.

If you have any comments regarding this submittal, please contact James Hewitt of Geoscience Consultants, Ltd. (GCL) at (301) 587-2088 within two weeks of receipt of this letter.

Sincerely,

CDM Federal Programs Corporation

Karen Stone

Karen Stone
TES III Regional Manager

AR:rf

Enclosure

cc: Roger Duwart, EPA Primary Contact, CERCLA Region I
Richard Leighton, EPA Regional Project Officer, CERCLA Region I
Jack Shad, EPA HQ Coordinator, CERCLA Region I
Harry Butler, CDM Federal Programs Corporation Program Manager
Michael P. Riley, EPA Contracting Officer (letter only)
Deborah Szaro, Deputy Project Officer, EPA Region I
James Hewitt, GCL Program Manager, (letter only)

LETTER REPORT
ORGANIC SAS CASE #4372A
MOTTOLO, RAYMOND, NEW HAMPSHIRE
DATA VALIDATION

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	C01011
EPA Region	:	I
Facility I.D. No.	:	
Contract No.	:	68-01-7331
CDM Federal Programs Corporation Document No.	:	T993-C01-LR-DECU-3
Prepared By	:	GCL
Work Assignment Project Manager	:	James Hewitt
Telephone No.	:	(301) 587-2088
Primary Contact	:	Roger Duwart
Telephone Number	:	(617) 573-9628
Date Prepared	:	May 31, 1989

Region I

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. SAS 4372 A — SITE Mottolo

LABORATORY EC Jordan Co. — NO. OF SAMPLES/ MATRIX 9/Soil

SDG # AM690 — REVIEWER (IF NOT ESD) GCL/COM FPC

SOW# — REVIEWER'S NAME J. Hewitt / A. Rigassio

DPO: ACTION ____ FYI X — COMPLETION DATE 5-5-89 / 5-8-89

DATA ASSESSMENT SUMMARY

		VOA	BNA	PEST	OTHER
1.	HOLDING TIMES	~~X~~ O[1]	X[2]	X[2]	
2.	GC/MS TUNE/INSTR. PERFORM.	O	O	X[4]	
3.	CALIBRATIONS	O[3]	O[3]	O[3]	
4.	BLANKS	X[4]	X[4]	X[4]	
5.	SURROGATES	O	O	O	
6.	MATRIX SPIKE/DUP	O	O	M[5]	
7.	OTHER QC	M[6]	O	O	
8.	INTERNAL STANDARDS				
9.	COMPOUND IDENTIFICATION	O	O	O	
10.	SYSTEM PERFORMANCE	O	O	M[3]	
11.	OVERALL ASSESSMENT				

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

~~CONCERN~~ ~~ACTION~~ ITEMS: O[1] - Estimate aromatic Compound results in Sample AM694. X[2] - HTs exceeded but no action for BNA + Pest/PCB frac. of AM690, AM691, AM692+AM693. O[3] - Analytes estimate in all samples due to ~~CC~~ calib. violations. X[4] - Me Cl$_2$, di-n-butyl phthalate, bis(2-ch)phtha

~~AREAS OF CONCERN~~: butyl benzyl phthal. + endrin found in blanks. Det. limits raised for all analytes except endrin. M[5] - Several pesticide cpds esimated due to imprecisin X[6] - DBC%D > 2 for some samples, but no action. M[6] - field dup action on TECE

NOTABLE PERFORMANCE: _____

~~FIGURE 6~~

DQO SUMMARY FORM

1. SITE

NAME Mottola
LOCATION Raymond, NH
NUMBER 01011

EPA REGION I

PHASE
RI 1 RI 2 RI 3 ERA FS RD RA
(CIRCLE ONE)

2. MEDIA (CIRCLE ONE)	(SOIL)	GW	SW/SED	AIR	BIO	OTHER

3. USE (CIRCLE ALL THAT APPLY)	SITE CHARAC. (H&S)	RISK ASSESS.	EVAL. ALTS.	ENGG DESIGN	PRP DETER.	MONITORING REMEDIAL ACTION	OTHER, (oversight)

4. OBJECTIVE To verify PRPs & soil analysis results

5. SITE INFORMATION

AREA 1 acre DEPTH TO GROUND WATER 7-8'
GROUND WATER USE Potable Bedrock Wells
SOIL TYPES Glacial Till / Outwash
SENSITIVE RECEPTORS Brook A, Spade River, Potable H_2O Source

6. DATA TYPES (CIRCLE APPROPRIATE DATA TYPES)

A. ANALYTICAL DATA

pH	(PESTICIDES)	TOX
CONDUCTIVITY	PCB	TOC
(VOA)	METALS	BTX
(ABN)	CYANIDE	COD
TCLP	methyl-t-butyl ether	
tetrahydrofuran		

B. PHYSICAL DATA

PERMEABILITY	HYDRAULIC HEAD
POROSITY	PENETRATION TEST
GRAIN SIZE	HARDNESS
BULK DENSITY	

7. SAMPLING METHOD (CIRCLE METHOD(S) TO BE USED)

ENVIRONMENTAL	BIASED	(GRAB)	NON-INTRUSIVE	PHASED
SOURCE	GRID	COMPOSITE	INTRUSIVE	

8. ANALYTICAL LEVELS (INDICATE LEVEL(S) AND EQUIPMENT & METHODS)

LEVEL 1 FIELD SCREENING - EQUIPMENT
LEVEL 2 FIELD ANALYSIS - EQUIPMENT
LEVEL 3 NON-CLP LABORATORY - METHODS
(LEVEL 4) CLP/RAS - METHODS ABN & pest/PCB
(LEVEL 5) NON STANDARD VOA + tetrahydrofuran + methyl-t-butyl ether

9. SAMPLING PROCEDURES

BACKGROUND - 2 PER EVENT OR
CRITICAL (LIST)
PROCEDURES

10. QUALITY CONTROL SAMPLES (CONFIRM OR SET STANDARD)

A. FIELD
COLLOCATED - 5% OR
REPLICATE - 5% OR ~~Two~~ dup pairs
FIELD BLANK - 5% OR
TRIP BLANK - 1 PER DAY OR

B. LABORATORY
REAGENT BLANK - 1 PER ANALYSIS BATCH OR
REPLICATE - 1 PER ANALYSIS BATCH OR
MATRIX SPIKE - 1 PER ANALYSIS BATCH OR
OTHER RAS CLP Requirements

11. BUDGET REQUIREMENTS

BUDGET SCHEDULE Week of December 26th, 1988
STAFF Mike Kulberth / Joe Newton

CONTRACTOR PRIME CONTRACTOR CDM FPC
SITE MANAGER Michael Kulberth DATE

FOR DETAILS SEE SAMPLING & ANALYSIS PLAN

CDM SF DQO 1.002

May 17, 1989

Mr. Dennis Gagne
U.S. Environmental Protection Agency
JFK Federal Building
Boston, Massachusetts 02203

Re: Case SAS4372
E.C. Jordan Co. Laboratory
Mottolo Superfund Site; Raymond, NH
Volatiles: Five/Soil/AM690, AM691, AM694, AM695, AM959
Semi-volatiles: Five/Soil/AM690, AM692, AM693, AM694, AM695
Pesticide/PCB: Five/Soil/AM690, AM692, AM693, AM694, AM695

Dear Mr. Gagne:

A validation was performed on the organic analytical data from Case SAS4372 low level soil samples collected at the Mottolo site. The samples were collected by CDM Federal Programs Corporation. The samples were analyzed as a Special Analytical Service because analyses of two additional compounds, methyl-t-butyl ether and tetrahydrofuran was requested. The data was evaluated based on the following parameters:

*	o	Data completeness
	o	Holding times
*	o	GC/MS tuning
	o	Calibration
	o	Blanks
*	o	Surrogate recoveries
	o	Matrix spike/matrix spike duplicate
	o	Field duplicates
	o	Instrument Performance
*	o	Internal Standard Performance
*	o	Compound identification
*	o	Compound quantitation

* All criteria were met for this parameter.

Table I summarizes the validation recommendations which were based on the following information:

Holding Times
Sample AM694 was analyzed for volatile organic compounds nine days after collection, two days in excess of the required holding time. Samples AM690, AM691 and AM693 were extracted for semi-volatile compounds eight days after collection, a day in excess of the required holding time. Samples AM690, AM692 and AM693 were extracted for pesticide/PCB compounds eight days after collection, a day in excess of holding time.

Because of the high sensitivity of the volatile fraction, it is recommended to qualify positive and non-detected results for the aromatic compounds as estimated "J" and "UJ", respectively, in the volatile fraction of sample AM694. No action is required to qualify the semivolatile or PCB fractions because exceeding the holding time by one day for these fractions is unlikely to affect the results substantially.

Calibrations

Initial and continuing calibration results are summarized as follows:

Volatile

Compound	IC 1/3/89	CC 1/9/89	CC 1/13/89
Tetrahydrofuran	x	x	x
Chloromethane		x	x
2-Butanone		x	
Methyl-t-butyl ether		x	x
Acetone	x	x	x
Bromoform			x
Associated samples	ALL	AM695	AM694

Semivolatile

Compound	IC-A 1/3/89	CC 1/9/89	CC 1/12/89
Isophorone	x	x	x
3,3-Dichloro-benzidine		x	
Indenopyrene		x	
Benzoic Acid			xx
Associated samples	ALL	AM690,AM692,AM693	NONE

Semivolatile cont.

Compound	IC-B 1/12/89	CC 1/16/89	CC 1/18/89
Isophorone			x
Hexachlorocyclo-pentadine			x
Benzoic Acid		x	xx
3,3-Dichlorobenzidine		x	x
Associated Samples		AM694,AM695	NONE

x %RSD/%D criteria exceeded
xx %RSD/%D criteria exceeded and RF criteria exceeded

Pesticide/PCB Calibration Results

Compound	% D	Samples Affected
Aldrin	16.3	All

Blanks

Results of the Laboratory blank analysis are summarized in the following table:

Compound	Maximum Concentration (ug/Kg)	Action Level (ug/Kg)
Methylene Chloride	16	160
Di-n-butylphthalate	680	6800
Bis(2-ethylhexyl)phthalate	52	520
Butylbenzylphthalate	36	360
Endrin	4.3	21.5

Blank Actions:

- value < CRQL; report CRQL followed by a U
- value > CRQL and < action level; report value followed by U
- value > CRQL and > action level; report value unqualified

The action level values were compared to sample values after application of sample dilution factors. From this comparison, it is recommended to

qualify positive results for di-n-butylphthalate in samples AM694 and AM695 as undetected "U", positive results for methylene chloride in all samples as undetected "U", and accept without qualification the positive result for endrin in sample AM695.

Matrix Spike/Matrix Spike Duplicate Recoveries

The Matrix Spike/Matrix Spike Duplicate recoveries are summarized below:

Percent Recoveries

TR#	Compound	%Recovery
AM690 MS	Gamma-BHC	42
AM690 MS	Heptachlor	153
AM694 MS	Heptachlor	205
AM694 MSD	Heptachlor	203

Relative Percent Differences

TR#	Compound	RPD
AM690 MS	Gamma-BHC	53
AM690 MSD	Heptachlor	47
AM690 MS	Aldrin	53
AM690 MSD	Dieldrin	42

Based on the matrix spike/matrix spike duplicate results, it is recommended to qualify any positive results for the compounds gamma-BHC, heptachlor, aldrin or dieldrin as estimated "J" in the unspiked sample AM690 (nondetected results are acceptable).

Field Duplicates

Sample AM959 is the duplicate of sample AM691, and sample AM692 is the duplicate of sample AM693. Field duplicate results are summarized below:

Compound	AM959 conc.	AM691 conc.	RPD
Tetrachloroethene	U	8	---

U - Undetected

In instances where one of the duplicates exhibits a positive result while the other does not it is recommended to qualify the positive result as estimated "J" and the non-detected result as estimated "UJ".

Pesticide/PCB Instrument Performance

Results of the DBC retention time check are summarized below:

Sample	DBC % Difference
AM694	3.2
AM695	2.6
AM694 MS	2.9

Although the results are above the two percent difference limit for packed columns, they do not warrant rejection of the data; therefore, no action is required to qualify the case.

Should you have any questions concerning this matter, do not hesitate to contact this office at (301) 587-2088.

Very truly yours,
GEOSCIENCE CONSULTANTS, LTD.

James L. Hewitt, Jr., P.E.
Program Manager

JLH\kt\tes3\CRON\WA99303.ltr

Attachment

Concurrence:

CDM Federal Programs ~~Corporation~~

Anita Rigassio
Environmental Scientist

MOTTOLO SITE
CASE SAS4372
TABLE I - RECOMMENDATIONS SUMMARY

TR#	VOLATILE	SEMI-VOLATILE	PESTICIDE/PCB
AM690	$A^{5,8}$	$A^{5,7}$	$A^{3,5}$
AM691	$A^{2,5,8}$		
AM692		$A^{5,7}$	A^{5}
AM693		$A^{5,7}$	A^{5}
AM694	$A^{1,5,6,8}$	$A^{4,5,6}$	A^{5}
AM695	$A^{5,6,8}$	$A^{4,5,6}$	A^{5}
AM959	$A^{2,5,6,8}$		

A - Accept all data.

A^1 - Accept all data with the exception of the aromatic compounds which are qualified as estimated "UJ" due to exceedance of the holding time.

A^2 - Accept all data with the exception of the compound tetrachloroethene which is qualified as estimated "UJ", if undetected, and "J",if detected, due to poor field precision results.

A^3 - Accept all data with the exception of the compound gamma-BHC which is qualified as estimated "J" due to poor matrix spike results.

A^4 - Accept all data with the exception of the compound di-n-butylphthalate which is qualified as undetected "U" due to blank contamination.

A^5 - Accept all data with the exception of the following compounds, due to poor calibration results: acetone, tetrahydrofuran, isophorone, 3,3-dichlorobenzidene and aldrin. Qualify positive results "J" and undetected results "UJ".

A^6 - Accept all data with the exception of the following compounds, due to poor calibration results: chloromethane, methyl-t-butyl ether, benzoic acid, 2-butanone(sample AM695 only) and bromoform(sample AM694 only). Qualify positive results "J" and non-detects "UJ".

A^7 - Accept all data except for indenopyrene which is qualified as estimated "UJ", if undetected, and "J", if detected, due to poor calibration results.

A^8 - Accept all data except for methylene chloride which is qualified as estimated "U" due to blank contamination.

MOTTOLO SITE
CASE SAS4372

TABLE II - TENTATIVE IDENTIFIED COMPOUNDS (TICS) SUMMARY

TR#	AM959	AM690	AM691	AM692	AM693	AM694	AM695
COMPOUND							
3-penten-2-one,4-methyl		x		x			
phenol 2,6-bis(1,1-dimethyl)		x		x			
1,2-benzenedicarboxylic acid		x					
2-hexene 2,5-dimethyl		x					
2-penten-3,4-dimethyl		x					
3-pentanone 2,2,4,4-tetrame						x	x

wa993.tic

DATA SUMMARY KEY

A - Acceptable data.

J - The associated numerical value is an estimated quantity.

R - Reject data due to quality control criteria. The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

U - The compound was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ- The compound was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

-- The compound was analyzed for, but was not detected. The sample quantitation limit is the same as the CRQL presented.

Volatile

SITE: MOTTOLO
CASE: 4372

SAMPLE LOCATION:						
SAMPLE NUMBER:		AM690	AM691	AM694	AM695	AM959
COMPOUND	CRQL					
Chloromethane	10	11U	13U	11UJ	11UJ	12U
Bromomethane	10	11U	13U	11U	11U	12U
Vinyl Chloride	10	11U	13U	11U	11U	12U
Chloroethane	10	11U	13U	11U	11U	12U
Methylene Chloride	5	15U	15U	18U	14U	15U
Acetone	10	11UJ	5UJ	11UJ	49J	12UJ
Carbon Disulfide	5	5U	6U	6U	6U	6U
1,1-Dichloroethene	5	5U	6U	6U	6U	6U
1,1-Dichloroethane	5	5U	6U	6U	6U	6U
1,2-Dichloroethene(total)	5	5U	6U	6U	6U	6U
Chloroform	5	5U	6U	6U	6U	6U
1,2-Dichloroethane	5	5U	6U	6U	6U	6U
2-Butanone	10	11U	13U	11U	74J	5U
1,1,1-Trichloroethane	5	5U	6U	6U	6U	6U
Carbon Tetrachloride	5	5U	6U	6U	6U	6U
Vinyl Acetate	10	11U	13U	11U	11U	12U
Bromodichloromethane	5	5U	6U	6U	6U	6U
1,2-Dichloropropane	5	5U	6U	6U	6U	6U
cis-1,3-Dichloropropene	5	5U	6U	6U	6U	6U
Trichloroethene	5	5U	6U	6U	6U	6U
Dibromochloromethane	5	5U	6U	6U	6U	6U
1,1,2-Trichloroethane	5	5U	6U	6U	6U	6U
Benzene	5	5U	6U	6UJ	6U	6U
trans-1,3-Dichloropropene	5	5U	6U	6U	6U	6U
Bromoform	5	5U	6U	6UJ	6U	6U
4-Methyl-2-pentanone	10	11U	13U	11U	28	12U
2-Hexanone	10	11U	13U	11U	11U	12U
Tetrachloroethene	5	5U	8J	6U	6U	6UJ
1,1,2,2-Tetrachloroethane	5	5U	6U	6U	6U	6U
Toluene	5	5U	16	6UJ	160	10
Chlorobenzene	5	5U	6U	5UJ	6U	6U
Ethylbenzene	5	5U	6U	5UJ	330E	6U
Styrene	5	5U	6U	5UJ	6U	6U
Total Xylenes	5	5U	6U	5UJ	810E	6U
Tetrahydrofuran	5	5UJ	6UJ	5UJ	6UJ	6UJ
Methyl-t-butyl ether	5	5U	6U	5UJ	6UJ	6U
DILUTION FACTOR:		1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:		12/28/88	12/28/88	1/4/89	1/4/89	12/28/88
DATE ANALYZED:		1/3/89	1/3/89	1/13/89	1/9/89	1/3/89
% SOLIDS FACTOR:		0.91	0.78	0.87	0.87	0.84

Semivolatile Soil Analysis

SITE:MOTTOLO

ug/kg

CASE:4372

SAMPLE NUMBER:		AM690	AM692	AM693	AM694	AM695
SAMPLE LOCATION:						
LABORATORY NUMBER:						
COMPOUND	CRQL					
Phenol	330	360U	380U	380U	380U	380U
bis(2-Chloroethyl) ether	330	360U	380U	380U	380U	380U
2-Chlorophenol	330	360U	380U	380U	380U	380U
1,3-Dichlorobenzene	330	360U	380U	380U	380U	380U
1,4-Dichlorobenzene	330	360U	380U	380U	380U	380U
Benzyl Alcohol	330	360U	380U	380U	380U	380U
1,2-Dichlorobenzene	330	360U	380U	380U	380U	380U
2-Methylphenol	330	360U	380U	380U	380U	380U
bis(2-Chloroisopropyl) ether	330	360U	380U	380U	380U	380U
4-Methylphenol	330	360U	380U	380U	380U	380U
N-Nitroso-di-n-propylamine	330	360U	380U	380U	380U	380U
Hexachloroethane	330	360U	380U	380U	380U	380U
Nitrobenzene	330	360U	380U	380U	380U	380U
Isophorone	330	360UJ	380UJ	380UJ	380U	380U
2-Nitrophenol	330	360U	380U	380U	380U	380U
2,4-Dimethylphenol	330	360U	380U	380U	380U	380U
Benzoic Acid	1600	1800	1900	1900	1900J	1900J
bis(2-Chloroethoxy)methane	330	360U	380U	380U	380U	380U
2,4-Dichlorophenol	330	360U	380U	380U	380U	380U
1,2,4-Trichlorobenzene	330	360U	380U	380U	380U	380U
Naphthalene	330	360U	380U	380U	380U	380U
4-Chloroaniline	330	360U	380U	380U	380U	380U
Hexachlorobutadiene	330	360U	380U	380U	380U	380U
4-Chloro-3-Methylphenol	330	360U	380U	380U	380U	380U
2-Methylnaphthalene	330	360U	380U	380U	380U	380U
Hexachlorocyclopentadiene	330	360U	380U	380U	380U	380U
2,4,6-Trichlorophenol	330	360U	380U	380U	380U	380U
2,4,5-Trichlorophenol	1600	1800U	1900U	1900U	1900U	1900U
2-Chloronaphthalene	330	360U	380U	380U	380U	380U
2-Nitroaniline	1600	1800U	1900U	1900U	1900U	1900U
Dimethylphthalate	330	360U	380U	380U	380U	380U
Acenaphthylene	330	360U	380U	380U	380U	380U
2,6-Dinitrotoluene	330	360U	380U	380U	380U	380U
3-Nitroaniline	1600	1800U	1900U	1900U	1900U	1900U
Acenaphthene	330	360U	380U	380U	380U	380U
2,4-Dinitrophenol	1600	1800U	1900U	1900U	1900U	1900U
4-Nitrophenol	1600	1800U	1900U	1900U	1900U	1900U
Dibenzofuran	330	360U	380U	380U	380U	380U
2,4-Dinitrotoluene	330	360U	380U	380U	380U	380U
Diethylphthalate	330	360U	380U	380U	380U	380U
4-Chlorophenyl-Phenylether	330	360U	380U	380U	380U	380U
Fluorene	330	360U	380U	380U	380U	380U
4-Nitroaniline	1600	1800U	1900U	1900U	1900U	1900U
4,6-Dinitro-2-Methylphenol	1600	1800U	1900U	1900U	1900U	1900U
N-nitrosodiphenylamine(1)	330	360U	380U	380U	380U	380U
4-Bromophenyl-Phenylether	330	360U	380U	380U	380U	380U

Semivolatile Results Cont.
SITE:MOTTOLO
CASE: 4372

SAMPLE NUMBER:		AM690	AM692	AM693	AM694	AM695
SAMPLE LOCATION:						
LABORATORY NUMBER:						
COMPOUND	CRQL					
Hexachlorobenzene	330	360U	380U	380U	380U	380U
Pentachlorophenol	1600	1800U	1900U	1900U	1900U	1900U
Phenanthrene	330	360U	380U	380U	380U	380U
Anthracene	330	360U	380U	380U	380U	380U
Di-n-butylphthalate	330	360U	430U	430U	1200U	1200U
Fluoranthene	330	360U	380U	380U	380U	380U
Pyrene	330	360U	380U	380U	380U	380U
Butylbenzylphthalate	330	360U	380U	380U	380U	380U
3,3'-Dichlorobenzidine	660	730UJ	770UJ	770UJ	760UJ	760UJ
Benzo(a)anthracene	330	360U	380U	380U	380U	380U
Chrysene	330	360U	380U	380U	380U	380U
Bis(2-ethylhexyl)phthalate	330	360U	380U	380U	380U	380U
Di-n-octylphthalate	330	360U	380U	380U	380U	380U
Benzo(b)fluoranthene	330	360U	380U	380U	380U	380U
Benzo(k)fluoranthene	330	360U	380U	380U	380U	380U
Benzo(a)pyrene	330	360U	380U	380U	380U	380U
Indeno(1,2,3-cd)pyrene	330	360UJ	380UJ	380UJ	380U	380U
Dibenz(a,h)anthracene	330	360U	380U	380U	380U	380U
Benzo(g,h,i)perylene	330	360U	380U	380U	380U	380U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/28/88	12/28/88	12/28/88	01/04/89	01/04/89
DATE EXTRACTED:		01/05/89	01/05/89	01/05/89	01/11/89	01/11/89
DATE ANALYZED:		01/09/89	01/09/89	01/09/89	01/16/89	01/16/89
% SOLIDS FACTOR:		0.81	0.86	0.88	0.87	0.87

Pesticide/PCB Soil Analysis

SITE: MOTTOLO

ug/kg

CASE: 4372

SAMPLE NUMBER:		AM690	AM692	AM693	AM694	AM695
SAMPLE LOCATION:						
COMPOUND	CRQL					
alpha-BHC	8.0	8.8U	9.3U	9.1U	9.2U	9.2U
beta-BHC	8.0	8.8U	9.3U	9.1U	9.2U	9.2U
delta-BHC	8.0	8.8U	9.3U	9.1U	9.2U	9.2U
gamma-BHC(Lindane)	8.0	.036J	7.7U	9.1U	9.2U	9.2U
Heptachlor	8.0	8.8U	9.3U	.13J	9.2U	9.2U
Aldrin	8.0	8.8UJ	9.3UJ	9.1UJ	9.2UJ	9.2UJ
Heptachlor Epoxide	8.0	8.8U	9.3U	9.1U	9.2U	9.2U
Endosulfan I	8.0	8.8U	9.3U	9.1U	9.2U	9.2U
Dieldrin	16.0	18U	19U	18U	18U	18U
4,4'-DDE	16.0	18U	19U	18U	18U	18U
Endrin	16.0	18U	19U	18U	18U	31
Endosulfan II	16.0	18U	19U	18U	18U	18U
4,4'-DDD	16.0	18U	19U	18U	18U	18U
Endosulfan Sulfate	16.0	18U	19U	18U	18U	18U
4,4'-DDT	16.0	18U	19U	18U	18U	18U
Methoxychlor	80.0	88U	93U	91U	92U	92U
Endrin Ketone	16.0	18U	19U	18U	18U	18U
alpha-Chlordane	80.0	88U	93U	91U	92U	92U
gamma-Chlordane	80.0	88U	93U	91U	92U	92U
Toxaphene	160.0	180U	190U	180U	180U	180U
Aroclor-1016	80.0	88U	93U	91U	92U	92U
Aroclor-1221	80.0	88U	93U	91U	92U	92U
Aroclor-1232	80.0	88U	93U	91U	92U	92U
Aroclor-1242	80.0	88U	93U	91U	92U	92U
Aroclor-1248	80.0	88U	93U	91U	92U	92U
Aroclor-1254	160.0	180U	190U	180U	180U	180U
Aroclor-1260	160.0	180U	190U	180U	180U	180U
DILUTION FACTOR:		1.00	1.00	1.00	1.00	1.00
DATE SAMPLED:		12/28/88	12/28/88	12/28/88	1/4/89	1/4/89
DATE EXTRACTED:		1/5/89	1/5/89	1/5/89	1/11/89	1/11/89
DATE ANALYZED:		2/2/89	2/2/89	2/2/89	2/2/89	2/2/89
% SOLIDS FACTOR:		0.89	0.86	0.88	0.87	0.87

REGION I
Data Review Worksheets

Site Name MOTTOLO
Reference Number

REGION I REVIEW OF ORGANIC CONTRACT LABORATORY DATA PACKAGE

The hardcopied (laboratory name) E. C. JORDAN CO. data package received at Region I has been reviewed and the quality assurance and performance data summarized. The data review included:

Case No. _____ SAS No. 4372 Sampling Date(s) 12/28/88 and 1/4/89
SDG No. AM690 Matrix SOIL Shipping Date(s) 12/29/88 · 1/5/89
No. of Samples 7 Date Rec'd by Lab 12/31/88 1/6/89

Traffic Report Nos: AM690 AM959 AM691 AM692 AM693 AM694 AM695
Trip Blank No.: NONE
Equipment Blank No.: NONE
Field Dup Nos: AM959/AM691 AM692/AM693

SOW No. _____ requires that specific analytical work be done and that associated reports be provided by the laboratory to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- -Data Completeness
- -Holding Times
- -GC/MS Tuning
- -Calibrations
- -Blanks
- -Surrogate Recoveries
- -Matrix Spike/Matrix Spike Dup
- -Field Duplicates
- -Internal Standard Performance
- -Pesticide Inst. Performance
- -Compound Identification
- -Compound Quantitation

Overall comments The samples were received by the lab in good condition.

Definitions and Qualifiers:

A - Acceptable data.
J - Approximate data due to quality control criteria.
R - Reject data due to quality control criteria.
U - Compound not detected.

Reviewer: Keith Trehy Date: 3/27/89

REGION I
Data Review Worksheets

I. DATA COMPLETENESS

All necessary data was provided

MISSING INFORMATION	DATE LAB CONTACTED	DATE REC'D

REGION I
Data Review Worksheets

II. HOLDING TIMES — Complete table for all samples and circle the fractions which are not within criteria.

SAMPLE ID	DATE SAMPLED	VOA DATE ANAL	BNA DATE EXTR	BNA DATE ANAL	PEST DATE EXTR	PEST DATE ANAL
AM690	12/28/88	1/3/89	(1/5/89)	1/9/89	(1/5/89)	2/2/89
AM691	12/28/88	1/3/89	(1/5/89)	1/9/89		
AM694	1/4/89	(1/13/89)	1/11/89	1/16/89	1/11/89	2/2/89
AM695	1/4/89	1/9/89	1/11/89	1/16/89	1/11/89	2/2/89
AM959	12/28/88	1/3/89				
AM693	12/28/88		(1/5/89)	1/9/89	(1/5/89)	2/2/89
AM692	12/28/88				(1/5/89)	2/2/89
A...						

VOA - Unpreserved: Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Preserved : Both within 14 days of sample collection.
Soils : Both within 14 days of sample collection.

BNA & PEST - Extracted within 7 days, analyzed within 40 days, soils and water.

ACTION:
1. If holding times are exceeded all positive results are estimate (J) and non-detects are estimated (UJ).
2. If holding times are grossly exceeded, the reviewer may determine that non-detects are unusable(*).

REGION I
Data Review Worksheets

III. GC/MS TUNING

✓ The DFTPP performance results were reviewed and found to be within the specified criteria.

If no,
Samples affected: _____

✓ The BFB performance results were reviewed and found to be within the specified criteria.

If no,
Samples affected: _____

If mass calibration is in error refer to the Region guidelines for expanded criteria. If necessary, all associated data as unusable (R).

REGION I
Data Review Worksheets

IV A. VOLATILE CALIBRATION VERIFICATION

Date of Initial Calibration : 1/3/89
Dates of Continuing Calibrations: 1/9, 13/89
Instrument ID : 960202
Matrix/Level : SOIL/LOW

DATE	CRITERIA OUT RF, %RSD, RF, %D	COMPOUND (VALUE)
1/3/89	%RSD	Acetone (82), Tetrahydrofuran (74.3)
	Samples Affected:	ALL
1/9/89	% D	Chloromethane (51.7), 2-Butanone (30.5), Methyl-t-butyl ether (44.6), Tetrahydrofuran (55.2)
	Samples Affected:	AM695
1/13/89	% D	Chloromethane (48.9), Acetone (37.9), Bromoform (30.5)
	Samples Affected:	AM694
1/13/89	% D	Tetrahydrofuran (75.7), methyl-t-butyl ether (36.4)
	Samples Affected:	AM694
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	

1. All $\overline{RF}$'s, and RF's must be >0.05
2. All %RSD's must be<30%
3. All %D's must be <25%

ACTION:
1. If any compound has an initial $\overline{RF}$ or a continuing RF of <0.05:
   a. Flag positive results for that compound as estimated (J).
   b. Flag non-detects for that compound as unusable (R).

2. If any compound has a %RSD >30% or a %D >25%:
   a. Flag positive results for that compound as estimated (J).
   b. Flag non-detects for that compound as estimated (UJ) if the %RSD or %D is >50%.

A separate worksheet should be filled out for each initial curve.

REGION I
Data Review Worksheets

IV B. SEMIVOLATILE CALIBRATION VERIFICATION

Date of Initial Calibration : 1/3/89
Dates of Continuing Calibrations: 1/9, 12/89
Instrument ID : 870101

DATE	CRITERIA OUT RF, %RSD, RF, %D	COMPOUND
1/3/89	% RSD	Isophorone (33.6)
	Samples Affected:	ALL
1/12/89	% D	Isophorone (36.0) Benzoic Acid (74.8)
	Samples Affected:	NONE
1/12/89	RF	Benzoic Acid (0.033)
	Samples Affected:	NONE
1/9/89	% D	3,3-Dichlorobenzidine (54.8), Indenopyrene(34
	Samples Affected:	AM690, AM692, AM693
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	

See worksheet IV-A for criteria and actions.

A new worksheet should be filled out for each initial curve.

REGION I
Data Review Worksheets

IV B. SEMIVOLATILE CALIBRATION VERIFICATION

Date of Initial Calibration : 1/12/89
Dates of Continuing Calibrations: 1/16,18/89
Instrument ID : 870101

DATE	CRITERIA OUT RF, %RSD, RF, %D	COMPOUND
1/16/89	%D	Benzoic acid (60.2), 3,3-Dichlorobenzidene (30.
	Samples Affected: AM694, AM695	
1/18/89	%D	Isophorone (35.4), Hexachlorocyclopentadiene (25.4
	Samples Affected: NONE	
1/18/89	RF	Benzoic acid (.038)
	Samples Affected: NONE	
1/18/89	%D	3,3-Dichlorobenzidine (38.5)
	Samples Affected: NONE	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	
	Samples Affected:	

See worksheet IV-A for criteria and actions.

A new worksheet should be filled out for each initial curve.

REGION I
Data Review Worksheet

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

List the contamination in the blanks below.

1. Laboratory Blanks

Level: LOW

DATE	LAB ID	FRACTION/ MATRIX	COMPOUND	CONCENTRATION/ UNITS
1/3/89	VBLK01	VOA/SOIL	Methylene Chloride	11 ug/kg
1/9/89	VBLK02	VOA/SOIL	Methylene Chloride	13 ug/kg
1/13/89	VBLK03	VOA/SOIL	Methylene Chloride	16 ug/kg
1/9/89	SBLK01	SVOA/SOIL	Di-n-Butylphthalate	450 ug/kg
1/9/89	SBLK01	SVOA/SOIL	bis(2-Ethylhexyl) Phthalate	52 ug/kg
1/16/89	SBLK02	SVOA/SOIL	Di-n-Butylphthalate	680 ug/kg
1/16/89	SBLK02	SVOA/SOIL	Butylbenzylphthalate	36 ug/kg
2/2/89	PBLKAA	PCB/SOIL	Endrin	4.3 ug/kg

2. Equipment and Trip Blanks NONE

DATE	TR #	FRACTION/ MATRIX	COMPOUND	CONCENTRATION/ UNITS

A separate worksheet should be used for low and medium level blanks.

REGION I
Data Review Worksheets

V B. BLANK ANALYSIS RESULTS (Section 3)

3. Blank Actions

Action levels should be based upon the highest concentration of contaminant determined in any blank. The action level for samples which have been concentrated or diluted should be multiplied by the concentration/dilution factor. No positive sample result should be reported unless the concentration of the compound in the sample exceeds the action level of 10 x's the amount in the blank for the common contaminants, or 5 x's the amount for any other compound. Specific actions are as follows:

1. The concentration is less than the CRQL, report the CRQL.

2. The concentration is greater than the CRQL, but less than the action level, report the concentration found U.

3. The concentration is greater than the action level, report the concentration unqualified.

For examples refer to the Regional Guidelines.

Common contaminants = methylene chloride, acetone, 2-butanone, toluene, and phthalates.

LEVEL: Low

COMPOUND	MAX. CONC./ UNITS	ACTION LEVEL/ UNITS	CRQL
Methylene Chloride	16 ug/kg	160 ug/kg	10
Di-n-butylphthalate	680 ug/kg	6800 ug/kg	330
Bis(2-ethylhexyl)phthalate	52 ug/kg	520 ug/kg	330
Butylbenzylphthalate	36 ug/kg	360 ug/kg	330
Endrin	4.3 ug/kg	21.5 ug/kg	16

A separate worksheet should be used for low and medium level blanks.

REGION I
Data Review Worksheets

VI. SURROGATE SPIKE RECOVERIES

List the percent recoveries which do not meet the criteria for surrogate recovery.
All surrogate recovery results were within criteria

Matrix: Soil

	VOA (okay)			B/N (okay)			A (okay)			PEST* (okay)
TR #'S	TOL	BFB	DCF	NBZ	FBP	TPH	PHL	2FP	TBP	DBC
QC Limits										
	to	to	to	to	to	to	to	to	to	to

Surrogate Actions: *-Advisory only

	PERCENT RECOVERY		
	<10%	10%-CRR	>CRR
Positive sample results	J	J	J
Non-detected results	R	UJ	A

CRR = Contract Required Recovery Range.
Surrogate action should be applied:

1. If at least two surrogates in a B/N or A fraction or one surrogate in the VOA fraction are out of specification, but have recoveries of >10%.
2. If any one surrogate in a fraction shows <10% recovery.

REGION I
Data Review Worksheets

VII A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

1. Matrix Spike/Matrix Spike Duplicate Recoveries and Precision

TR Nos. AM690 , _____ Level: Low Matrix: soil

List the percent recoveries and RPD's of compounds which do not meet the criteria stated on Form 3.

FRACTION/ MS OR MSD	COMPOUND	%REC/ RPD	QC LIMITS
Pest/MS	Gamma-BHC	42/53	46-127/50
Pest/MSD	Heptachlor	153/47	35-130/31
↓	Aldrin	53	43
↓	Dieldrin	42	38

QUALIFICATION IS LIMITED TO THE UNSPIKED SAMPLE ONLY.

1. If any compound does not meet the Contract Required Recovery range (CRR) follow the actions stated below:

	PERCENT RECOVERY		
	<10%	10% - CRR	>CRR
Positive Sample Results	J	J	J
Non-detected Results	R	A	A

2. If any compound does not meet the RPD criteria, flag positive results for that compound as estimated (J).

A separate worksheet should be used for each MS/MSD pair.

REGION I
Data Review Worksheets

VII A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

1. Matrix Spike/Matrix Spike Duplicate Recoveries and Precision

TR Nos. AM694 , _____ Level: LOW Matrix: SOIL

List the percent recoveries and RPD's of compounds which do not meet the criteria stated on Form 3.

FRACTION/ MS OR MSD	COMPOUND	%REC/ RPD	QC LIMITS
Pest/MS	Heptachlor	205	35-130
Pest/MSD	Heptachlor	203	35-130

QUALIFICATION IS LIMITED TO THE UNSPIKED SAMPLE ONLY.

1. If any compound does not meet the Contract Required Recovery range (CRR) follow the actions stated below:

	PERCENT RECOVERY		
	<10%	10% - CRR	>CRR
Positive Sample Results	J	J	J
Non-detected Results	R	A	A

2. If any compound does not meet the RPD criteria, flag positive results for that compound as estimated (J).

A separate worksheet should be used for each MS/MSD pair.

REGION I
Data Review Worksheets

VII B. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (Section 2)

3. Matrix Spike Duplicate - Unspiked Compounds

TR Nos. AM690 , AM694

List the concentrations of the unspiked compounds and determine the percent RSD's of the unspiked sample, matrix spike, and matrix spike duplicate. No limits have been developed for the RSD values of the unspiked compounds. .

FRACTION	COMPOUND	SAMPLE, MS, MSD CONC	%RSD
AM690 VOA	Methylene chloride	15 , 16 , 15	3.7
AM694 SVOA	Di-n-butyl phthalate	1200 , 290 , 300	87.5
AM690 Pest	Endrin	160 , 230 , 12	83
No action is required based on these results			

The reviewer must use professional judgement to determine if there is a need to qualify any of the unspiked compounds in the sample.

REGION I
Data Review Worksheets

VIII. FIELD DUPLICATE PRECISION

TR No: AM959 , AM691 Matrix: SOIL

List the concentrations of the compounds which do not meet the following RPD criteria:

1. An RPD of <30% for water duplicates.
2. An RPD of <50% for soil duplicates.

FRACTION	COMPOUND	SAMPLE CONC	DUP SAMPLE CONC	RPD
VOA	tetrachloroethene	U	6	-

ACTIONS: Flag AM959 compound (UJ), AM691 compound (J)

1. If the results for any componds do not meet the RPD criteria, flag the positive results for that compound as estimated.
2. If one value is non-detected, and one is above the CRQL:
   a. Flag the positive result as estimated (J).
   b. Flag the non-detected result as estimated (UJ).

NOTE: Professional judgement may be utilized to apply duplicate action to all samples of a similar matrix.

A separate worksheet should be filled out for each field duplicate pair.

REGION I
Data Review Worksheets

IX. INTERNAL STANDARD PERFORMANCE

All samples are within Internal Standard criteria.

List the internal standard areas of samples which do not meet the criteria of +100% or -50% of the internal standard area in the associated continuing calibration standard.

SAMPLE ID	DATE	IS OUT	IS AREA/ RT	ACCEPTABLE RANGE	ACTION

ACTION:

1. If an IS area count is outside the criteria -50% or +100% of the associated standard:

   a. Positive results for compounds quantitated using that IS are flagged as estimated (J) for that sample fraction.
   b. Non-detects for compounds quantitated using that IS are flagged as estimated (UJ) for that sample fraction.
   c. If extremely low area counts are reported, or if performance exhibits a major drop-off, then a severe loss of sensitivity is indicated. Non-detects should then be flagged as unusable (R).

2. If an IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction.

REGION I
Data Review Worksheets

X A. PESTICIDE INSTRUMENT PERFORMANCE (Section 1)
pesticide results met criteria

1. DDT Retention Time okay

List the DDT standards which have a retention time (RT) of less than 12 minutes on the packed column (except OV-1 or OV-101).

STANDARD ID	DATE/ TIME	RT	SAMPLES AFFECTED	ACTIONS

ACTION:

If the RT is less than 12 minutes, examine the chromatography to evaluate the separation. If adequate separation is not achieved, flag all affected compound data as unusable (R).

REGION 1
Data Review Worksheets

X B. PESTICIDE INSTRUMENT PERFORMANCE (Section 2)

2. Retention Time Windows will in windows
Retention times were all within criteria

List the compounds which are not within the established windows.

COMPOUND	DATE (TIME)	RT	RT WINDOW	SAMPLES AFFECTED

Check the sample chromatograms of the samples analyzed after the last in control standard for peaks within an expanded window. If no peaks are present, there is usually no effect on the data. Refer to Regional guidelines for information on qualifying data if peaks are present. If peaks are present, discuss actions below:

REGION I
Data Review Worksheets

X C. PESTICIDE INSTRUMENT PERFORMANCE (Section 3)

Results are within criteria

3. DDT and Endrin Degradation okey

List the standards which have a DDT or Endrin breakdown of greater than 20%.

STANDARD ID	DDT OR ENDRIN	PERCENT BREAKDOWN	SAMPLES AFFECTED	DDD, DDE OR ENDRIN KETONE PRESENT

If the percent breakdown for DDT is greater than 20%:

1. Flag all positive results for DDT as estimated (J) for all samples following the last in control standard. If no DDT was present, but DDD and/or DDE are positive, then flag the quantitation limit for DDT as unusable (R).

2. Flag all positive results for DDD +/or DDE as estimated (J).

If the percent breakdown for Endrin is greater than 20%:

1. Flag all positive results for endrin as estimated (J) for all samples following the last in-control standard. If no endrin was detected, but endrin aldehyde and/or endrin ketone are positive, flag the quantitation limit for endrin as unusable (R)

2. Flag all positive results for endrin ketone as estimated (J).

REGION I
Data Review Worksheets

X D. PESTICIDE INSTRUMENT PERFORMANCE (Section 4)

4. DBC Retention Time Check

List the percent difference for the DBC shift greater than 2% for packed columns, greater than 1.5% for wide-bore capillary columns, or greater than 0.3% for narrow-bore capillary columns.

TR #'S	DBC %DIFFERENCE	ACTIONS
AM694	3.2	
AM695	2.6	
AM694MS	2.9	

If the DBC does not meet the retention time criteria, the analysis may be flagged as unusable (R) for the affected samples, but qualification of the data is left up to the professional judgement of the reviewer. Discuss any qualification of the data below:

These few results slightly above the criteria do not justify rejection of the data.

REGION I
Data Review worksheets

XI A. PESTICIDE CALIBRATION (Sections 1 and 2)

1. Initial Calibration

Initial calibration results are within criteria.

List the compounds which did not meet the Relative Standard Deviation (RSD) criteria of less than 10% for the initial calibration on the quantitation column.

DATE	COMPOUND	%RSD	COLUMN	SAMPLES AFFECTED

Flag all associated positive results as estimated (J) for samples which did not meet the %RSD criteria.

2. Analytical Sequence

Did the laboratory follow the correct 72 hour sequence described in the SOW? Yes or No Yes

If no,

The data may be affected. The data reviewer must use professional judgement to determine the severity of the effect and qualify the data accordingly. Discuss any actions below:

REGION I
Data Review Worksheets

XI B. PESTICIDE CALIBRATION (Section 3)

3. Continuing Calibration

List the compounds which did not meet the percent difference (%D) criteria of <15% on the quantitation column or <20% on the confirmation for the continuing calibration.

DATE	COMPOUND	%D	COLUMN	SAMPLES AFFECTED
2/2/89	Aldrin	16.3		NONE

If the %D criteria is not met, flag all associated positive results as estimated (J).

REGION I
Data Review Worksheets

XII. SAMPLE QUANTITATION

In the space below, please show a minimum of one sample calculation fraction:

VOA:

AM691 Toluene soil

$$\frac{4267 \quad 50}{20596 \ (.78)(0.829)} = 16.0$$

BNA: AM692 bis(2-ethylhexyl phthalate)

$$\frac{6826 \quad 40}{44105 \ (1.599)(0.025)(0.86)} = 180$$

PEST/PCB:

AM695 Endrin

$$\frac{47274 \times 1 \text{ ng} \times 20{,}000 \text{ ml}}{233654 \times 5 \text{ ml} \times 30 \text{ g} \times 0.87} = 31 \ \frac{\text{ug}}{\text{kg}}$$