

LABORATORY DATA CONSULTANTS, INC.

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GSI Pacific, Inc.
181 S. Kukui Street
Honolulu, HI 96813
ATTN: Ms. Sonia Shjegstad

July 11, 2014

SUBJECT: Makua Military Reservation, Oahu, HI, Data Validation

Dear Ms. Shjegstad

Enclosed is the final validation report for the fraction listed below. This SDG was received on June 16, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

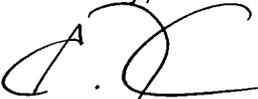
LDC Project #32006:

<u>SDG #</u>	<u>Fraction</u>
3121902	2,4-Dinitrotoluene

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Supplemental Marine Resources Study Sampling and Analysis Plan at Makua Military Reservation, Oahu, Hawaii, August 2013
- Final Draft Version of the U.S. Department of Defense, and Department of Energy, Consolidated Quality Systems Manual, for Environmental Laboratories, Version 5.0, March 2013
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,


Andrew Kong
Project Manager/Senior Chemist

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Makua Military Reservation
Collection Date: September 16 through October 15, 2013
LDC Report Date: July 11, 2014
Matrix: Tissue
Parameters: 2,4-Dinitrotoluene
Validation Level: EPA Level III
Laboratory: USACE ERDC-EP-C
Sample Delivery Group (SDG): 3121902

Sample Identification

MAK001L/2L/26L	MAK044L
MAK007L	MAK045L
MAK009L	MAK046L
MAK010L(comp)	MAK049L
MAK011L	MAK047LMS
MAK013L	MAK047LMSD
MAK016L/21L/27L	MAK049LMS
MAK022L	MAK049LMSD
MAK023L	
MAK024L/25L	
MAK025L	
MAK047L	
MAK029L	
MAK030L	
MAK033L	
MAK034L	
MAK038L	
MAK041L	
MAK042L	
MAK043L	

Introduction

This data review covers 28 tissue samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330 for 2,4-Dinitrotoluene.

This review follows the Final Supplemental Marine Resources Study Sampling and Analysis Plan at Makua Military Reservation, Oahu, Hawaii (August 2013), the Final Draft Version of the U.S. Department of Defense (DoD) and Department of Energy (DoE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (March 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 15.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,4-dinitrotoluene was found in the method blanks.

No field blanks were identified in this SDG.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
MAK001L/2L/26L	Not specified	1,2-Dinitrobenzene	206 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK007L	Not specified	1,2-Dinitrobenzene	197 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK009L	Not specified	1,2-Dinitrobenzene	209 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK010L(comp)	Not specified	1,2-Dinitrobenzene	199 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK011L	Not specified	1,2-Dinitrobenzene	206 (60-120)	2,4-Dinitrotoluene	J (all detects)	P

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
MAK013L	Not specified	1,2-Dinitrobenzene	199 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK016L/21L/27L	Not specified	1,2-Dinitrobenzene	212 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK022L	Not specified	1,2-Dinitrobenzene	205 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK023L	Not specified	1,2-Dinitrobenzene	209 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK024L/25L	Not specified	1,2-Dinitrobenzene	204 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK025L	Not specified	1,2-Dinitrobenzene	211 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK047L	Not specified	1,2-Dinitrobenzene	193 (60-120)	2,4-Dinitrotoluene	J (all detects)	A
MAK029L	Not specified	1,2-Dinitrobenzene	203 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK030L	Not specified	1,2-Dinitrobenzene	187 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK033L	Not specified	1,2-Dinitrobenzene	196 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK034L	Not specified	1,2-Dinitrobenzene	201 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK038L	Not specified	1,2-Dinitrobenzene	189 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK041L	Not specified	1,2-Dinitrobenzene	187 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK042L	Not specified	1,2-Dinitrobenzene	198 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK043L	Not specified	1,2-Dinitrobenzene	188 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK044L	Not specified	1,2-Dinitrobenzene	193 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK045L	Not specified	1,2-Dinitrobenzene	190 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK046L	Not specified	1,2-Dinitrobenzene	192 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
MAK049L	Not specified	1,2-Dinitrobenzene	183 (60-120)	2,4-Dinitrotoluene	J (all detects)	A
B401033-Blk1	Not specified	1,2-Dinitrobenzene	232 (60-120)	2,4-Dinitrotoluene	J (all detects)	P
B401033-Blk2	Not specified	1,2-Dinitrobenzene	223 (60-120)	2,4-Dinitrotoluene	J (all detects)	P

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

IX. Compound Quantitation

Raw data were not reviewed for this SDG.

X. System Performance

Raw data were not reviewed for this SDG.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

**Makua Military Reservation
2,4-Dinitrotoluene - Data Qualification Summary - SDG 3121902**

SDG	Sample	Compound	Flag	A or P	Reason
3121902	MAK001L/2L/26L MAK007L MAK009L MAK010L(comp) MAK011L MAK013L MAK016L/21L/27L MAK022L MAK023L MAK024L/25L MAK025L MAK029L MAK030L MAK033L MAK034L MAK038L MAK041L MAK042L MAK043L MAK044L MAK045L MAK046L	2,4-Dinitrotoluene	J (all detects)	P	Surrogate recovery (%R)
3121902	MAK047L MAK049L	2,4-Dinitrotoluene	J (all detects)	A	Surrogate recovery (%R)

**Makua Military Reservation
2,4-Dinitrotoluene - Laboratory Blank Data Qualification Summary - SDG 3121902**

No Sample Data Qualified in this SDG

**Makua Military Reservation
2,4-Dinitrotoluene - Field Blank Data Qualification Summary - SDG 3121902**

No Sample Data Qualified in this SDG

METHOD: HPLC 2,4-Dinitrotoluene (EPA SW 846 Method 8330)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/16 - 10/15/13
II.	Initial calibration	A	rv
III.	Calibration verification/ICV	A	CV/AV ≤ 15%
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: Tissue

1	MAK001L/2L/26L	11	MAK025L	21	MAK044L	31	B401033-BLK1
2	MAK007L	12	MAK047L	22	MAK045L	32	-BLK2
3	MAK009L	13	MAK029L	23	MAK046L	33	
4	MAK010L(comp)	14	MAK030L	24	MAK049L	34	
5	MAK011L	15	MAK033L	25	MAK047LMS	35	
6	MAK013L	16	MAK034L	26	MAK047LMSD	36	
7	MAK016L/21L/27L	17	MAK038L	27	MAK049LMS	37	
8	MAK022L	18	MAK041L	28	MAK049LMSD	38	
9	MAK023L	19	MAK042L	29		39	
10	MAK024L/25L	20	MAK043L	30		40	

Notes: _____

VALIDATION FINDINGS WORKSHEET Surrogate Recovery

METHOD: GC HPLC

Are surrogates required by the method? Yes or No

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N/A Were surrogates spiked into all samples and blanks?

N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	1	Not specified	CC	206 (60-120)	J dets / P
	2			197 ()	
	3			209 ()	
	4			199 ()	
	5			206 ()	
	6			199 ()	
	7			212 ()	
	8			205 ()	
	9			209 ()	
	10			204 ()	
	11			211 ()	
	12			193 ()	J dets / A
	13			203 ()	J dets / P
	14			187 ()	
	15			196 ()	
	16			201 ()	
	17			189 ()	
	18			187 ()	
	19			198 ()	
	20			188 ()	
	21			193 ()	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene	Z	2-Bromonaphthalene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Triphenyltin	AA	1-Chlorooctadecane
D	Bromochlorobenzene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin	BB	2,4-DCPA
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate	CC	1,2-Dinitrobenzene
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

