Facility:	Ravenna Army Ammunition Plant
Event:	Spring 2013 RI/SI Sampling Event
Guidance Document:	Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012
Contract Laboratory:	TestAmerica, Inc., North Canton, OH
Field Contractor:	Environmental Chemical Corporation, Otis Ang Base, MA
Data Review Contractor:	ECC
SDG:	240-22559-2_NTG, Certified - 6/10/2013 by frederickroche
QC Level:	ADR
Project Manager:	Al Easterday
Data Reviewer:	
Data Reviewer Title:	Sr. QA Chemist
Date of Review Report:	June 21, 2013

Analytical Method/ Leach Method	Normal Soil Samples	Field QC Soil Samples
SW8330B/NONE	24	

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012 to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as 'J/UJ', the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Environmental Chemical Corporation, Otis Ang Base, MA; analyses were performed by TestAmerica, Inc., North Canton, OH and were reported under sample delivery group (SDG) 240-22559-2_NTG. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative.

The following quality control elements were supported by the electronic deliverable and were evaluated during this review effort:

Blank
Blank - Negative
LCS Recovery
MS Recovery
MS RPD
Prep Hold Time
Surrogate
Test Hold Time

The following quality control elements were either not applicable to the deliverable, or were not supported by the electronic deliverable, and were therefore not included in the automated data review. Those elements required for the project were reviewed manually, as narrated in the Comment section below.

Ambient Blank
Calibration Blank
Calibration Blank - Negative
Continuing Calibration Verification
Equipment Blank
Field Blank
Field Duplicate RPD
Initial Calibration Verification
Lab Replicate RPD
LCS RPD
Material Blank
Trip Blank

A representative sampling or ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following summaries were generated during the evaluation of this data set and are included in this report as applicable.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outliers.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Field Duplicates – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative below.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the narrative below.

A total of 24 results (100.00%) out of the 24 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. Trace values are not counted as qualified results in the above count. The qualified results are detailed in the following tables and discussed in the narrative below, where appropriate.

Narrative Comments

Site 78

Analytical Method	Comment
SW8330B	Nitroglycerin

June 21, 2013

Reviewed by , Sr. QA Chemist

Reason Code Definitions

Code	Definition
H	Holding time exceeded by more than 2X.
I	Surrogate recovery outside project limits.
M	MS Recovery
P1	Column RPD
Y1	False Positive

Flag Code and Definitions

Flag	Definition
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.

Automated Data Review Detail Report for 240-22559-2_NTG
Ravenna Army Ammunition Plant
Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012

Batch Report

Test Method: SW8330B Analysis Batch: 17382

Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extraction Date/Time	Analysis Date/Time	Prep/Leach Batch	Sample Type
LABQC	SQ	LABQC	MB 320-17034/1-A		1/1	5/24/2013 09:19	5/24/2013 09:19	5/30/2013 16:36	17034/	LB
LABQC	SQ	LABQC	LCS 320-17034/2-A		1/1	5/24/2013 09:19	5/24/2013 09:19	5/30/2013 17:19	17034/	BS
78-QPSD-DU1-SS	SO	078SS-0210M-0001-SO	240-22559-1		1/1	3/26/2013 09:40	5/24/2013 09:19	5/30/2013 18:03	17034/	N
78-QPSD-DU2-SS	SO	078SS-0002M-0001-SO	240-22559-2		1/1	3/26/2013 12:51	5/24/2013 09:19	5/30/2013 18:47	17034/	N
78-QPSD-DU3-SS	SO	078SS-0003M-0001-SO	240-22559-3		1/1	3/26/2013 13:35	5/24/2013 09:19	5/30/2013 19:31	17034/	N
78-QPSD-DU1-SB	SO	078SB-0004M-0001-SO	240-22559-4		1/1	3/26/2013 11:56	5/24/2013 09:19	5/30/2013 20:14	17034/	N
78-QPSD-DU1-SB	SO	078SB-0005M-0001-SO	240-22559-5		1/1	3/26/2013 11:59	5/24/2013 09:19	5/30/2013 20:58	17034/	N
78-QPSD-DU1-SB1	SO	078SB-0006M-0001-SO	240-22559-6		1/1	3/26/2013 11:05	5/24/2013 09:19	5/30/2013 21:42	17034/	N
78-QPSD-DU1-SB1	SO	078SB-0006M-0002-SO	240-22559-6		1/1	3/26/2013 11:05	5/24/2013 09:19	5/30/2013 22:25	17034/	MS
78-QPSD-DU1-SB1	SO	078SB-0006M-0002-SO	240-22559-6		1/1	3/26/2013 11:05	5/24/2013 09:19	5/30/2013 23:53	17034/	SD
78-QPSD-DU1-SB3	SO	078SB-0008M-0001-SO	240-22559-8		1/1	3/26/2013 10:06	5/24/2013 09:19	5/31/2013 00:37	17034/	N
78-QPSD-DU1-SB3	SO	078SB-0009M-0001-SO	240-22559-10		1/1	3/26/2013 10:07	5/24/2013 09:19	5/31/2013 01:20	17034/	N
78-QPSD-DU1-SB4	SO	078SB-0011M-0001-SO	240-22559-11		1/1	3/26/2013 12:01	5/24/2013 09:19	5/31/2013 02:04	17034/	N
78-QPSD-DU1-SB5	SO	078SB-0012M-0001-SO	240-22559-12		1/1	3/26/2013 11:47	5/24/2013 09:19	5/31/2013 02:48	17034/	N
LABQC	SQ	LABQC	MB 320-17047/1-A		1/1	5/24/2013 12:53	5/24/2013 12:53	5/31/2013 03:31	17047/	LB
LABQC	SQ	LABQC	LCS 320-17047/2-A		1/1	5/24/2013 12:53	5/24/2013 12:53	5/31/2013 04:15	17047/	BS
78-QPSD-DU2-SB1	SO	078SB-0015M-0001-SO	240-22559-13		1/1	3/26/2013 16:13	5/24/2013 12:53	5/31/2013 04:59	17047/	N
78-QPSD-DU2-SB1	SO	078SB-0015M-0002-SO	240-22559-13		1/1	3/26/2013 16:13	5/24/2013 12:53	5/31/2013 05:43	17047/	MS
78-QPSD-DU2-SB1	SO	078SB-0015M-0002-SO	240-22559-13		1/1	3/26/2013 16:13	5/24/2013 12:53	5/31/2013 06:26	17047/	SD
78-QPSD-DU2-SB3	SO	078SB-0017M-0001-SO	240-22559-15		1/1	3/26/2013 16:56	5/24/2013 12:53	5/31/2013 07:54	17047/	N
78-QPSD-DU2-SB3	SO	078SB-0018M-0001-SO	240-22559-16		1/1	3/26/2013 16:57	5/24/2013 12:53	5/31/2013 08:37	17047/	N
78-QPSD-DU2-SB4	SO	078SB-0020M-0001-SO	240-22559-17		1/1	3/26/2013 17:53	5/24/2013 12:53	5/31/2013 09:21	17047/	N
78-QPSD-DU2-SB5	SO	078SB-0021M-0001-SO	240-22559-18		1/1	3/26/2013 15:52	5/24/2013 12:53	5/31/2013 10:05	17047/	N
78-QPSD-DU2-SB	SO	078SB-0013M-0001-SO	240-22559-19		1/1	3/26/2013 17:02	5/24/2013 12:53	5/31/2013 10:49	17047/	N
78-QPSD-DU3-SB1	SO	078SB-0025M-0001-SO	240-22559-23		1/1	3/26/2013 12:38	5/24/2013 12:53	5/31/2013 12:16	17047/	N
78-QPSD-DU3-SB1	SO	078SB-0026M-0001-SO	240-22559-24		1/1	3/26/2013 12:42	5/24/2013 12:53	5/31/2013 13:00	17047/	N
78-QPSD-DU3-SB1	SO	078SB-0033M-0001-SO	240-22559-25		1/1	3/26/2013 12:42	5/24/2013 12:53	5/31/2013 13:44	17047/	N

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Ravenna Army Ammunition Plant
Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012

Batch Report

Test Method: SW8330B Analysis Batch: 17382

Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extraction Date/Time	Analysis Date/Time	Prep/Leach Batch	Sample Type
78-QPSD-DU3-SB3	SO	078SB-0030M-0001-SO	240-22559-27		1/1	3/26/2013 14:40	5/24/2013 12:53	5/31/2013 14:28	17047/	N
78-QPSD-DU3-SB4	SO	078SB-0031M-0001-SO	240-22559-28		1/1	3/26/2013 15:05	5/24/2013 12:53	5/31/2013 15:55	17047/	N
78-QPSD-DU3-SB5	SO	078SB-0032M-0001-SO	240-22559-29		1/1	3/26/2013 15:38	5/24/2013 12:53	5/31/2013 16:39	17047/	N
78-QPSD-DU3-SB	SO	078SB-0024M-0001-SO	240-22559-31		1/1	3/26/2013 15:35	5/24/2013 12:53	5/31/2013 17:22	17047/	N
78-QPSD-DU3-SB	SO	078SB-0023M-0001-SO	240-22559-22		1/1	3/26/2013 15:37	5/24/2013 12:53	5/31/2013 18:06	17047/	N

Test Method: SW8330B Analysis Batch: 17433

Location	Matrix	Field Sample ID	Lab Sample ID	Calibration Ref	Run#/ Dil'n	Collection Date/Time	Extraction Date/Time	Analysis Date/Time	Prep/Leach Batch	Sample Type
78-QPSD-DU3-SS	SO	078SS-0003M-0001-SO	240-22559-3		2/1	3/26/2013 13:35	5/24/2013 09:19	6/1/2013 02:53	17034/	N
78-QPSD-DU1-SB4	SO	078SB-0011M-0001-SO	240-22559-11		2/1	3/26/2013 12:01	5/24/2013 09:19	6/1/2013 04:00	17034/	N
78-QPSD-DU1-SB5	SO	078SB-0012M-0001-SO	240-22559-12		2/1	3/26/2013 11:47	5/24/2013 09:19	6/1/2013 05:06	17034/	N
78-QPSD-DU3-SB1	SO	078SB-0026M-0001-SO	240-22559-24		2/1	3/26/2013 12:42	5/24/2013 12:53	6/1/2013 08:26	17047/	N
78-QPSD-DU3-SB3	SO	078SB-0030M-0001-SO	240-22559-27		2/1	3/26/2013 14:40	5/24/2013 12:53	6/1/2013 11:46	17047/	N

Field Batch Report

--No Records Found--

Automated Data Review Detail Report for 240-22559-2_NTG
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QC Outlier Report

Test Method: SW8330B Extraction Method: METHOD Leach Method: NONE

QC Element	Sample ID/ Lab Sample ID	Run#/ Dil'n	Analyte	Result (Units)	Qualifier	Warning Limits	Control Limits	Reason	Comment	Rule	Action Level
MS Recovery	078SB-0015M-0002-SO (SD) / 240-22559-13	1 / 1.00	Nitroglycerin	123 (PERCENT)	J/None	76 - 116	20 - 116	M			
Surrogate	078SS-0002M-0001-SO (N) / 240-22559-2	1 / 1.00	3,4-Dinitrotoluene	191 (PERCENT)	J/None	78 - 118	10 - 118	I			

Rule is the multiplier used when blank contamination occurs to determine action level.

Automated Data Review Detail Report for 240-22559-2_NTG
Ravenna Army Ammunition Plant
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Qualified Results

Test Method: SW8330B Extraction Method: METHOD Leach Method: NONE

FieldSample ID	LabSample ID	Matrix	Type	Analyte	RL	Lab Result	Qualified Result	Bias	Units	Reason
078SB-0004M-0001-SO	240-22559-4	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0005M-0001-SO	240-22559-5	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0006M-0001-SO	240-22559-6	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0008M-0001-SO	240-22559-8	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0009M-0001-SO	240-22559-10	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0011M-0001-SO	240-22559-11	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0012M-0001-SO	240-22559-12	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0013M-0001-SO	240-22559-19	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0015M-0001-SO	240-22559-13	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0017M-0001-SO	240-22559-15	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0018M-0001-SO	240-22559-16	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0020M-0001-SO	240-22559-17	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0021M-0001-SO	240-22559-18	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0023M-0001-SO	240-22559-22	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0024M-0001-SO	240-22559-31	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0025M-0001-SO	240-22559-23	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0026M-0001-SO	240-22559-24	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0030M-0001-SO	240-22559-27	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0031M-0001-SO	240-22559-28	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0032M-0001-SO	240-22559-29	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SB-0033M-0001-SO	240-22559-25	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SS-0002M-0001-SO	240-22559-2	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SS-0003M-0001-SO	240-22559-3	SO	N	Nitroglycerin	0.50	0.50	0.50 UJ		MG/KG	H
078SS-0210M-0001-SO	240-22559-1	SO	N	Nitroglycerin	0.50	0.025	0.50 UJ		MG/KG	H/Y1/P1

Detected Results

--No Records Found--

Rejected Results

--No Records Found--

Anomalies Count

--No Records Found--

Automated Data Review Detail Report for 240-22559-2_NTG
Ravenna Army Ammunition Plant
Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012

Review Questions

Method: SW8330B

Review Questions	Yes	No	NA	Comment
Did Chain-of-Custody information agree with laboratory report?	•			
Were samples preserved properly and received in good condition?	•			
Were sample reciept temperatures met?	•			
Were holding times for prep and analysis met?		•		All samples were extracted outside the method recommended holding time (14 days) per the client's request.
Does the initial calibration curve consist of 5 concentration levels, with the low standard near but > MDL?	•			
Is the ICAL %RSD within acceptance limits (%D =20%) on both columns?	•			
Was a second source verification analyzed after the ICAL and all analytes within criteria (%D =20%)?	•			
Was a CCV run at the beginning of the analytical sequence and every 12 hours?	•			
Was the CCV a mid-level standard from the initial calibration curve?	•			
Was the CCV %D within criteria (%D =20%)?	•			
Was a method blank prepared and analyzed with each batch?	•			
Were target analytes detected in the method blank above the MDL?		•		
Was a field blank (equipment or trip) collected and analyzed?			•	
Were target analytes reported in the field blank analyses above the MDL?			•	
Were surrogate recoveries within QAPP acceptance limits?		•		Sample 240-22559-2: 3,4-Dintrotoluene surrogate recovered above the control limits. No qualifications were required due to Nitroglycerin was not detected.
Was an LCS/LCSD pair prepared and analyzed with each batch? (if applicable)	•			LCS was extracted with each preparation batch.
Were the LCS recoveries within QAPP acceptance limits?	•			
Were the LCS/LCSD RPDs within QAPP acceptance limits? (if applicable)			•	
If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits (RPD = 30%) ?			•	
Is the MS/MSD parent sample the one designated by the sampling team?	•			
Were MS/MSD recoveries and RPD within QAPP acceptance limits?		•		Sample 240-22559-13: MSD recovered above the control limits, Also the RPD between MS and MSD was outside the control limit. No qualifications were required due to the Nitroglycerin was not detected.
Were all QAPP-specified target analytes reported?	•			
Were reported sample concentrations within calibration range?	•			
Were RPDs between primary and confirmation columns < 40%?		•		Sample 240-22559-1: Nitroglycerin RPD: 128% . Therefore, Nitroglycerin was a false positive.

Automated Data Review Detail Report for 240-22559-2_NTG
Ravenna Army Ammunition Plant
Ravenna Army Ammunition Plant, Quality Assurance Project Plan, Oct. 3, 2012

Review Questions

Method: SW8330B

Review Questions	Yes	No	NA	Comment
Did PDA spectra for reported compounds match associated standard spectra?			•	
Are all samples associated with QC non-compliances flagged appropriately?	•			
Are the Qualified, Detected, and Rejected tables of the ADR report in agreement?	•			
Have all Laboratory Case Narrative comments/findings been addressed in the data review process?	•			
Were sample prepration sheets present and filled out appropriately?	•			
Were instrument run logs present and filled out appropriately?	•			