

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Mercury in Water (Manual Cold-Vapor Technique)	
Mercury (UG/L)	0.20 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Modified SW8015 for the Determination of Diesel Range Organics in Soil and Water, GC/FID	
C10-C20 Diesel Range Organics (UG/L)	500 U
C20-C34 Motor Oil Range Organics (UG/L)	500 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Nitroaromatics and Nitramines by HPLC	
1,3,5-Trinitrobenzene (UG/L)	0.11 U
1,3-Dinitrobenzene (UG/L)	0.11 U
2,4,6-Trinitrotoluene (UG/L)	0.11 U
2,4-Dinitrotoluene (UG/L)	0.11 U
2,6-Dinitrotoluene (UG/L)	0.11 U
2-Amino-4,6-dinitrotoluene (UG/L)	0.22 U
2-Nitrotoluene (UG/L)	0.56 U
3-Nitrotoluene (UG/L)	0.56 U
4-Amino-2,6-Dinitrotoluene (UG/L)	0.11 U
4-Nitrotoluene (UG/L)	0.56 U
Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX) (UG/L)	0.11 U
Nitrobenzene (UG/L)	0.11 U
Nitroglycerin (UG/L)	0.72 U
NITROGUANIDINE (UG/L)	20.0 U
Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX) (UG/L)	0.11 U
Pentaerythritol Tetranitrate (UG/L)	0.72 U
Tetryl (UG/L)	0.11 U

Equipment Blank Results

Chemistry Results

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Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Cadmium Reduction)	
Nitrocellulose (MG/L)	2.0 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Organochlorine Pesticides and PCBs by Capillary GC	
Aldrin (UG/L)	0.050 U
alpha-BHC (alpha-Hexachlorocyclohexane) (UG/L)	0.050 U
alpha-Chlordane (UG/L)	0.050 U
alpha-Endosulfan (UG/L)	0.050 U
beta-BHC (beta-Hexachlorocyclohexane) (UG/L)	0.050 U
beta-Endosulfan (UG/L)	0.050 U
delta-BHC (delta-Hexachlorocyclohexane) (UG/L)	0.050 U
Dieldrin (UG/L)	0.050 U
Endosulfan Sulfate (UG/L)	0.050 U
Endrin (UG/L)	0.050 U
Endrin Aldehyde (UG/L)	0.050 U
Endrin Ketone (UG/L)	0.050 U
gamma-BHC (Lindane) (UG/L)	0.050 U
gamma-Chlordane (UG/L)	0.050 U
Heptachlor (UG/L)	0.050 U
Heptachlor Epoxide (UG/L)	0.050 U
Methoxychlor (UG/L)	0.10 UJ
p,p'-DDD (UG/L)	0.050 U
p,p'-DDE (UG/L)	0.050 U
p,p'-DDT (UG/L)	0.050 U
Toxaphene (UG/L)	2.0 UJ

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Polychlorinated Biphenyls (PCB)	
PCB-1016 (Arochlor 1016) (UG/L)	0.50 U
PCB-1221 (Arochlor 1221) (UG/L)	0.50 U
PCB-1232 (Arochlor 1232) (UG/L)	0.50 U
PCB-1242 (Arochlor 1242) (UG/L)	0.50 U
PCB-1248 (Arochlor 1248) (UG/L)	0.50 U
PCB-1254 (Arochlor 1254) (UG/L)	0.50 U
PCB-1260 (Arochlor 1260) (UG/L)	0.50 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Semivolatile Organic Compounds by Capillary GC/MS	
1,2,4-Trichlorobenzene (UG/L)	1.1 U
1,2-Dichlorobenzene (UG/L)	1.1 U
1,3-Dichlorobenzene (UG/L)	1.1 U
1,4-Dichlorobenzene (UG/L)	1.1 U
2,4,5-Trichlorophenol (UG/L)	5.3 U
2,4,6-Trichlorophenol (UG/L)	5.3 U
2,4-Dichlorophenol (UG/L)	2.1 U
2,4-Dimethylphenol (UG/L)	2.1 U
2,4-Dinitrophenol (UG/L)	5.3 U
2,4-Dinitrotoluene (UG/L)	5.3 U
2,6-Dinitrotoluene (UG/L)	5.3 U
2-Chloronaphthalene (UG/L)	1.1 U
2-Chlorophenol (UG/L)	1.1 U
2-Methylnaphthalene (UG/L)	0.21 U
2-Methylphenol (o-Cresol) (UG/L)	1.1 U
2-Nitroaniline (UG/L)	2.1 U
2-Nitrophenol (UG/L)	2.1 U
3,3'-Dichlorobenzidine (UG/L)	5.3 U
3-Nitroaniline (UG/L)	2.1 U
4,6-Dinitro-2-Methylphenol (UG/L)	5.3 U
4-Bromophenyl phenyl ether (UG/L)	2.1 U
4-Chloro-3-Methylphenol (UG/L)	2.1 U
4-Chloroaniline (UG/L)	2.1 U
4-Chlorophenyl Phenyl Ether (UG/L)	2.1 U
4-Nitroaniline (UG/L)	2.1 U
4-Nitrophenol (UG/L)	5.3 U
Acenaphthene (UG/L)	0.21 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Semivolatile Organic Compounds by Capillary GC/MS	
Acenaphthylene (UG/L)	0.21 U
Anthracene (UG/L)	0.21 U
Benzo(a)anthracene (UG/L)	0.21 U
Benzo(a)pyrene (UG/L)	0.21 U
Benzo(b)fluoranthene (UG/L)	0.21 U
Benzo(g,h,i)perylene (UG/L)	0.21 U
Benzo(k)fluoranthene (UG/L)	0.21 U
Benzoic acid (UG/L)	26.0 R
Benzyl alcohol (UG/L)	5.3 UJ
Benzyl butyl phthalate (UG/L)	2.1 U
bis(2-Chloroethoxy) Methane (UG/L)	1.1 U
bis(2-Chloroethyl) Ether (2-Chloroethyl Ether) (UG/L)	1.1 U
bis(2-Chloroisopropyl) Ether (UG/L)	1.1 U
bis(2-Ethylhexyl) Phthalate (UG/L)	2.1 U
Carbazole (UG/L)	1.1 U
Chrysene (UG/L)	0.21 U
Cresols, m & p (UG/L)	2.1 U
Dibenz(a,h)anthracene (UG/L)	0.21 U
Dibenzofuran (UG/L)	1.1 U
Diethyl Phthalate (UG/L)	2.1 U
Dimethyl Phthalate (UG/L)	2.1 U
Di-n-Butyl Phthalate (UG/L)	2.1 U
Di-n-Octylphthalate (UG/L)	2.1 U
Fluoranthene (UG/L)	0.21 U
Fluorene (UG/L)	0.21 U
Hexachlorobenzene (UG/L)	0.21 U
Hexachlorobutadiene (UG/L)	1.1 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Semivolatile Organic Compounds by Capillary GC/MS	
Hexachlorocyclopentadiene (UG/L)	11.0 U
Hexachloroethane (UG/L)	1.1 UJ
Indeno(1,2,3-c,d)pyrene (UG/L)	0.21 U
Isophorone (UG/L)	1.1 U
Naphthalene (UG/L)	0.21 U
Nitrobenzene (UG/L)	1.1 U
n-Nitrosodi-n-propylamine (UG/L)	1.1 U
n-Nitrosodiphenylamine (UG/L)	1.1 U
Pentachlorophenol (UG/L)	5.3 U
Phenanthrene (UG/L)	0.21 U
Phenol (UG/L)	1.1 U
Pyrene (UG/L)	0.21 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Trace Metals by Inductively Coupled Plasma/Mass Spectrometry	
Aluminum (UG/L)	30.0 U
Antimony (UG/L)	2.0 U
Arsenic (UG/L)	1.0 U
Barium (UG/L)	10.0 U
Beryllium (UG/L)	1.0 U
Cadmium (UG/L)	1.0 U
Calcium (UG/L)	100 U
Chromium (UG/L)	3.2
Cobalt (UG/L)	0.50 U
Copper (UG/L)	0.41 J
Iron (UG/L)	50.0 U
Lead (UG/L)	1.0 U
Magnesium (UG/L)	100 U
Manganese (UG/L)	5.0 U
Nickel (UG/L)	5.9
Potassium (UG/L)	100 U
Selenium (UG/L)	5.0 U
Silver (UG/L)	1.0 U
Sodium (UG/L)	65.0 J
Thallium (UG/L)	1.0 U
Vanadium (UG/L)	1.0 U
Zinc (UG/L)	3.2 J

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Volatile Organic Compounds by Capillary GC/MS	
1,1,1-Trichloroethane (UG/L)	1.0 U
1,1,2,2-Tetrachloroethane (UG/L)	1.0 U
1,1,2-Trichloroethane (UG/L)	1.0 U
1,1-Dichloroethane (UG/L)	1.0 U
1,1-Dichloroethene (UG/L)	1.0 U
1,2-Dibromoethane (EDB) (UG/L)	1.0 U
1,2-Dichloroethane (UG/L)	1.0 U
1,2-Dichloroethene (UG/L)	2.0 U
1,2-Dichloropropane (UG/L)	1.0 U
2-Butanone (MEK) (UG/L)	10.0 U
2-Hexanone (UG/L)	10.0 U
4-Methyl-2-pentanone (MIBK) (UG/L)	10.0 U
Acetone (UG/L)	10.0 UJ
Benzene (UG/L)	1.0 U
Bromochloromethane (UG/L)	1.0 U
Bromodichloromethane (UG/L)	1.0 U
Bromoform (UG/L)	1.0 U
Bromomethane (UG/L)	1.0 U
Carbon Disulfide (UG/L)	1.0 U
Carbon Tetrachloride (UG/L)	1.0 U
Chlorobenzene (UG/L)	1.0 U
Chloroethane (UG/L)	1.0 U
Chloroform (UG/L)	0.34 J
Chloromethane (UG/L)	1.0 U
cis-1,3-Dichloropropene (UG/L)	1.0 U
Dibromochloromethane (UG/L)	1.0 U
Ethylbenzene (UG/L)	1.0 U
Methylene Chloride (UG/L)	1.0 U

Equipment Blank Results

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	ER-3
Field Sample ID:	079RN-0317-0001-RN
Sample Begin Depth:	0
Sample End Depth:	0
Sample Date:	04/03/2013
Volatile Organic Compounds by Capillary GC/MS	
Styrene (UG/L)	1.0 U
tert-Butyl Methyl Ether (MTBE) (UG/L)	1.0 U
Tetrachloroethene (PCE) (UG/L)	1.0 U
Toluene (UG/L)	1.0 U
trans-1,3-Dichloropropene (UG/L)	1.0 U
Trichloroethene (TCE) (UG/L)	1.0 U
Vinyl Chloride (UG/L)	1.0 U
Xylenes, Total (UG/L)	2.0 U

CC78 QPSD**Chemistry Results**

Ravenna Army Ammunition Plant, Quality Assurance

Project Plan. Oct. 3. 2012

Locations:	TB-2	TB-3	TB-1
Field Sample ID:	078SB-0057-001-TB	078SB-0058-001-TB	073SB-0034-0001-TB
Sample Begin Depth:	0	0	0
Sample End Depth:	0	0	0
Sample Date:	03/27/2013	03/27/2013	03/28/2013
Volatile Organic Compounds by Capillary GC/MS			
1,1,1-Trichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (EDB) (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (UG/L)	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane (UG/L)	1.0 U	1.0 U	1.0 U
2-Butanone (MEK) (UG/L)	10.0 U	10.0 U	10.0 U
2-Hexanone (UG/L)	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone (MIBK) (UG/L)	10.0 U	10.0 U	10.0 U
Acetone (UG/L)	8.6 J	7.6 J	8.0 J
Benzene (UG/L)	1.0 U	1.0 U	1.0 U
Bromochloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Bromodichloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Bromoform (UG/L)	1.0 U	1.0 U	1.0 U
Bromomethane (UG/L)	1.0 U	1.0 U	1.0 U
Carbon Disulfide (UG/L)	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride (UG/L)	1.0 U	1.0 U	1.0 U
Chlorobenzene (UG/L)	1.0 U	1.0 U	1.0 U
Chloroethane (UG/L)	1.0 U	1.0 U	1.0 U
Chloroform (UG/L)	1.0 U	1.0 U	1.0 U
Chloromethane (UG/L)	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene (UG/L)	1.0 U	1.0 U	1.0 U
Dibromochloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Ethylbenzene (UG/L)	1.0 U	1.0 U	1.0 U
Methylene Chloride (UG/L)	1.1	0.48 J	1.1
Styrene (UG/L)	1.0 U	1.0 U	1.0 U
tert-Butyl Methyl Ether (MTBE) (UG/L)	1.0 U	1.0 U	1.0 U

CC78 QPSD**Chemistry Results**

Ravenna Army Ammunition Plant, Quality Assurance

Project Plan. Oct. 3. 2012

Locations:	TB-2	TB-3	TB-1
Field Sample ID:	078SB-0057-001-TB	078SB-0058-001-TB	073SB-0034-0001-TB
Sample Begin Depth:	0	0	0
Sample End Depth:	0	0	0
Sample Date:	03/27/2013	03/27/2013	03/28/2013
Volatile Organic Compounds by Capillary GC/MS			
Tetrachloroethene (PCE) (UG/L)	1.0 U	1.0 U	1.0 U
Toluene (UG/L)	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene (UG/L)	1.0 U	1.0 U	1.0 U
Trichloroethene (TCE) (UG/L)	1.0 U	1.0 U	1.0 U
Vinyl Chloride (UG/L)	1.0 U	1.0 U	1.0 U
Xylenes, Total (UG/L)	2.0 U	2.0 U	2.0 U

Trip Blank

Chemistry Results

Ravenna Army Ammunition Plant, Quality Assurance Project

Plan. Oct. 3. 2012

Locations:	QC- TB5	QC TB-10	QC TB-1
Field Sample ID:	079-0008-0001-TB TRIP BLANK	079-0318-0001-TB	070-0060-0001-TB
Sample Begin Depth:	0	0	0
Sample End Depth:	0	0	0
Sample Date:	03/14/2013	04/03/2013	12/12/2012
Volatile Organic Compounds by Capillary GC/MS			
1,1,1-Trichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (EDB) (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane (UG/L)	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (UG/L)	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane (UG/L)	1.0 U	1.0 U	1.0 U
2-Butanone (MEK) (UG/L)	10.0 U	10.0 U	10.0 U
2-Hexanone (UG/L)	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone (MIBK) (UG/L)	10.0 U	10.0 U	10.0 U
Acetone (UG/L)	10.0 U	5.1 J	10.0 U
Benzene (UG/L)	1.0 U	1.0 U	1.0 U
Bromochloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Bromodichloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Bromoform (UG/L)	1.0 U	1.0 U	1.0 U
Bromomethane (UG/L)	1.0 U	1.0 U	1.0 U
Carbon Disulfide (UG/L)	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride (UG/L)	1.0 UJ	1.0 U	1.0 U
Chlorobenzene (UG/L)	1.0 U	1.0 U	1.0 U
Chloroethane (UG/L)	1.0 U	1.0 U	1.0 U
Chloroform (UG/L)	0.31 J	1.0 U	0.32 J
Chloromethane (UG/L)	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene (UG/L)	1.0 U	1.0 U	1.0 U
Dibromochloromethane (UG/L)	1.0 U	1.0 U	1.0 U
Ethylbenzene (UG/L)	1.0 U	1.0 U	1.0 U
Methylene Chloride (UG/L)	1.0 U	1.1	1.0 U
Styrene (UG/L)	1.0 U	1.0 U	1.0 U

Trip Blank**Chemistry Results**

Ravenna Army Ammunition Plant, Quality Assurance Project

Plan. Oct. 3. 2012

Locations:	QC- TB5	QC TB-10	QC TB-1
Field Sample ID:	079-0008-0001-TB TRIP BLANK	079-0318-0001-TB	070-0060-0001-TB
Sample Begin Depth:	0	0	0
Sample End Depth:	0	0	0
Sample Date:	03/14/2013	04/03/2013	12/12/2012
Volatile Organic Compounds by Capillary GC/MS			
tert-Butyl Methyl Ether (MTBE) (UG/L)	1.0 U	1.0 U	1.0 U
Tetrachloroethene (PCE) (UG/L)	1.0 U	1.0 U	1.0 U
Toluene (UG/L)	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene (UG/L)	1.0 U	1.0 U	1.0 U
Trichloroethene (TCE) (UG/L)	1.0 U	1.0 U	1.0 U
Vinyl Chloride (UG/L)	1.0 U	1.0 U	1.0 U
Xylenes, Total (UG/L)	2.0 U	2.0 U	2.0 U

Trip Blank

Chemistry Results

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

Ravenna Army Ammunition Plant

Locations:	QC TB-2	QC TB-6
Field Sample ID:	070SB-0005-001-TB	079-0009-0001-TB
Sample Begin Depth:	0	0
Sample End Depth:	0	0
Sample Date:	12/12/2012	03/14/2013
Modified SW8015 for the Determination of Gasoline Range Organics in Soil and Water, GC/FID		
Petroleum Hydrocarbons C6-C12 (UG/L)	37.0 J	100 U

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