

**APPENDIX E**

**2019 FWGWMP IDW Documentation**

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**G.1 Fall/Winter 2018-2019 IDW Documentation**

Site Address : 8451 State Route 5  
Ravenna, OH 44266

SC PPW 2/14/2019

WORK ORDER ~~051901192129~~  
~~091901192129~~

1116372

DOCUMENT NO. STRAIGHT BILL OF LADING

TRANSPORTER 1 Clean Harbors Environmental Services, Inc. VEHICLE ID # 5701

EPA ID # MAD039322250 TRANS. 1 PHONE (781) 792-5000

TRANSPORTER 2 \_\_\_\_\_ VEHICLE ID # \_\_\_\_\_

EPA ID # \_\_\_\_\_ TRANS. 2 PHONE \_\_\_\_\_

ATTN:Katie Tait

DESIGNATED FACILITY <b>Spring Grove Resource Recovery Inc.</b>			SHIPPER <b>Former Ravenna Army Ammunition Plant</b>		
FACILITY EPA ID # <b>OH D000816629</b>			SHIPPER EPA ID # <b>OH 5210020736</b>		
ADDRESS <b>4879 Spring Grove Avenue</b>			ADDRESS <b>1438 State Route 534 SW</b>		
CITY <b>Cincinnati</b>	STATE <b>OH</b>	ZIP <b>45232</b>	CITY <b>Newton Falls</b>	STATE <b>OH</b>	ZIP <b>44444</b>
CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
<b>11X55</b>	<b>DM</b>		<b>A. NON DOT REGULATED MATERIAL, LIQUID IDW</b>	<b>4730</b>	<b>P</b>
<b>5X55</b>	<b>DM</b>		<b>B. NON DOT REGULATED MATERIAL, SOLIDS IDW</b>	<b>3000</b>	<b>P</b>
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		
SPECIAL HANDLING INSTRUCTIONS <b>A. CH1784679 B. CH1784736</b>			EMERGENCY PHONE #: (800) 483-3718 GENERATOR: Former Ravenna Army Ammunition Plant		

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER	PRINT <b>Kathryn S Tait</b>	SIGN <b>Kathryn S Tait</b>	DATE <b>12 March 2019</b>
TRANSPORTER 1	PRINT <b>ALEX NASU</b>	SIGN <b>NASU</b>	DATE <b>03/12/19</b>
TRANSPORTER 2	PRINT	SIGN	DATE
RECEIVED BY	PRINT <b>Brandy Kroffitt</b>	SIGN <b>BKP</b>	DATE <b>03/19/19</b>

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# WASTE MATERIAL PROFILE SHEET

## Clean Harbors Profile No. CH1784679

**A. GENERAL INFORMATION**

GENERATOR EPA ID #/REGISTRATION #	<b>OH5210020736</b>	GENERATOR NAME:	<b>Former Ravenna Army Ammunition Plant</b>
GENERATOR CODE (Assigned by Clean Harbors)	<b>FO23255</b>	CITY	<b>Ravenna</b>
ADDRESS	<b>8451 State Route 5</b>	STATE/PROVINCE	<b>OH</b>
		ZIP/POSTAL CODE	<b>44266</b>
CUSTOMER CODE (Assigned by Clean Harbors)	<b>LE18366</b>	CUSTOMER NAME:	<b>Leidos</b>
ADDRESS	<b>8866 Commons Boulevard</b>	CITY	<b>Twinsburg</b>
		STATE/PROVINCE	<b>OH</b>
		ZIP/POSTAL CODE	<b>44087</b>

**B. WASTE DESCRIPTION**WASTE DESCRIPTION: **Groundwater Sampling - Liquid IDW**PROCESS GENERATING WASTE: **Environmental Sampling**IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No****C. PHYSICAL PROPERTIES (at 25C or 77F)**

<b>PHYSICAL STATE</b> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> <input checked="" type="checkbox"/> 1    2    3    TOP <b>0.00</b> % BY VOLUME (Approx.)    MIDDLE <b>0.00</b> BOTTOM <b>0.00</b>			<b>VISCOSITY (If liquid present)</b> <input checked="" type="checkbox"/> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000	<b>COLOR</b>  <u>Cloudy/Brown</u>
	<b>ODOR</b> <input checked="" type="checkbox"/> NONE MILD STRONG Describe:	<b>BOILING POINT °F (°C)</b> <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) <input checked="" type="checkbox"/> >= 130 (>54)		<b>MELTING POINT °F (°C)</b> < 140 (<60) 140-200 (60-93) > 200 (>93)	<b>TOTAL ORGANIC CARBON</b> <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%
<b>FLASH POINT °F (°C)</b> < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)	<b>pH</b> <= 2 2.1 - 6.9 7 (Neutral) <input checked="" type="checkbox"/> 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> < 0.1    > 20 0.1 - 1.0 <input checked="" type="checkbox"/> Unknown 1.1 - 5.0 5.1 - 20.0	<b>BTU/LB (MJ/kg)</b> <input checked="" type="checkbox"/> < 2,000 (<4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2)  Actual:	

**D. COMPOSITION** (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
CYANIDE TOTAL	0.2700000	0.6300000	PPM
DEIONIZED WATER	0.2500000	0.5000000	%
GROUNDWATER	99.0000000	100.0000000	%
ISOPROPYL ALCOHOL	0.2500000	0.5000000	%
NITRIC ACID	0.2500000	0.5000000	%
SOAP	0.2500000	0.5000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES  NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES  NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G09**

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W113**

**E. CONSTITUENTS**

Are these values based on testing or knowledge? Knowledge  Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE		
D004	ARSENIC	5.0	0.0000			<input checked="" type="checkbox"/>		
D005	BARIUM	100.0	0.0150			<input checked="" type="checkbox"/>		
D006	CADMIUM	1.0	0.0000			<input checked="" type="checkbox"/>		
D007	CHROMIUM	5.0	0.0000			<input checked="" type="checkbox"/>		
D008	LEAD	5.0	0.0000			<input checked="" type="checkbox"/>		
D009	MERCURY	0.2	0.0000			<input checked="" type="checkbox"/>		
D010	SELENIUM	1.0	0.0000			<input checked="" type="checkbox"/>		
D011	SILVER	5.0	0.0000			<input checked="" type="checkbox"/>		
<b>VOLATILE COMPOUNDS</b>				<b>OTHER CONSTITUENTS</b>		<b>MAX</b>	<b>UOM</b>	<b>NOT APPLICABLE</b>
D018	BENZENE	0.5	0	BROMINE				<input checked="" type="checkbox"/>
D019	CARBON TETRACHLORIDE	0.5	0	CHLORINE				<input checked="" type="checkbox"/>
D021	CHLOROBENZENE	100.0	0	FLUORINE				<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0	0	IODINE				<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5	0	SULFUR				<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7	0	POTASSIUM				<input checked="" type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0	0	SODIUM				<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7	0	AMMONIA				<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5	0	CYANIDE AMENABLE				<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2	0	CYANIDE REACTIVE				<input checked="" type="checkbox"/>
<b>SEMI-VOLATILE COMPOUNDS</b>				CYANIDE TOTAL	0.6300	PPM		<input checked="" type="checkbox"/>
D023	o-CRESOL	200.0	0	SULFIDE REACTIVE				<input checked="" type="checkbox"/>
D024	m-CRESOL	200.0	0					
D025	p-CRESOL	200.0	0					
D026	CRESOL (TOTAL)	200.0	0					
D027	1,4-DICHLOROENZENE	7.5	0					
D030	2,4-DINITROTOLUENE	0.13	0					
D032	HEXACHLOROENZENE	0.13	0					
D033	HEXACHLOROBUTADIENE	0.5	0					
D034	HEXACHLOROETHANE	3.0	0					
D036	NITROBENZENE	2.0	0					
D037	PENTACHLOROPHENOL	100.0	0					
D038	PYRIDINE	5.0	0					
D041	2,4,5-TRICHLOROPHENOL	400.0	0					
D042	2,4,6-TRICHLOROPHENOL	2.0	0					
<b>PESTICIDES AND HERBICIDES</b>				<b>HOCs</b>		<b>PCBs</b>		
D012	ENDRIN	0.02	0	<input checked="" type="checkbox"/> NONE	<input checked="" type="checkbox"/> NONE	IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?		
D013	LINDANE	0.4	0	< 1000 PPM	< 50 PPM	YES	<input checked="" type="checkbox"/>	NO
D014	METHOXYCHLOR	10.0	0	>= 1000 PPM	>=50 PPM			
D015	TOXAPHENE	0.5	0					
D016	2,4-D	10.0	0					
D017	2,4,5-TP (SILVEX)	1.0	0					
D020	CHLORDANE	0.03	0					
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008	0					

**ADDITIONAL HAZARDS**

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES  NO (If yes, explain)

**CHOOSE ALL THAT APPLY**

- |                          |             |                   |   |
|--------------------------|-------------|-------------------|---|
| DEA REGULATED SUBSTANCES | EXPLOSIVE   | FUMING            | OSHA REGULATED CARCINOGENS                            |
| POLYMERIZABLE            | RADIOACTIVE | REACTIVE MATERIAL | <input checked="" type="checkbox"/> NONE OF THE ABOVE |

**F. REGULATORY STATUS**

YES  NO USEPA HAZARDOUS WASTE?

YES  NO DO ANY STATE WASTE CODES APPLY?  
Texas Waste Code **outs1131**

YES  NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES  NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY: **Not subject to LDR**  
VARIANCE INFO:

YES  NO IS THIS A UNIVERSAL WASTE?

YES  NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES  NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES  NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES  NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?

YES  NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G)      Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
What is the TAB quantity for your facility?  Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data      Knowledge      Testing  
Describe the knowledge :

**G. DOT/TDG INFORMATION**

DOT/TDG PROPER SHIPPING NAME:

**NON DOT REGULATED MATERIAL, LIQUID IDW**

**H. TRANSPORTATION REQUIREMENTS**

ESTIMATED SHIPMENT FREQUENCY  ONE TIME    WEEKLY    MONTHLY    QUARTERLY    YEARLY    OTHER

<input checked="" type="checkbox"/> <b>CONTAINERIZED</b> <b>11-11</b> CONTAINERS/SHIPMENT STORAGE CAPACITY: CONTAINER TYPE: PORTABLE TOTE TANK      BOX CARTON CASE CUBIC YARD BOX <input checked="" type="checkbox"/> DRUM OTHER: DRUM SIZE: <b>55</b>	<b>BULK LIQUID</b> GALLONS/SHIPMENT: <b>0 Min - 0 Max</b> GAL. <b>BULK SOLID</b> SHIPMENT UOM:      TON      YARD TONS/YARDS/SHIPMENT: <b>0 Min - 0 Max</b>
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**I. SPECIAL REQUEST**

COMMENTS OR REQUESTS:

**GENERATOR'S CERTIFICATION**

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
<u>kathryn.s.tait.nfg@mail.mil</u>	<u></u>	<u></u>	<u></u>

This waste profile has been submitted using Clean Harbors' electronic signature system.

\*40 CFR Sec. 264.12 required notice:

As required by Federal Resource Conservation and Recovery Act regulations found in 40 CFR Part 264.12(b) and all equivalent State hazardous waste regulations, notice is hereby provided that all Clean Harbors facilities that may be used to treat, store, and /or dispose of the hazardous waste described on this waste profile have the appropriate permits and the capacity to manage these wastes.

Please note this profile must be submitted for re-evaluation if there has been a change in the waste generating process or when there have been changes in the chemical composition or physical characteristics of the material.



# WASTE MATERIAL PROFILE SHEET

## Clean Harbors Profile No. CH1784736

**A. GENERAL INFORMATION**

GENERATOR EPA ID #/REGISTRATION # **OH5210020736** GENERATOR NAME: **Former Ravenna Army Ammunition Plant**  
 GENERATOR CODE (Assigned by Clean Harbors) **FO23255** CITY **Ravenna** STATE/PROVINCE **OH** ZIP/POSTAL CODE **44266**  
 ADDRESS **8451 State Route 5** PHONE: **(614) 336-6136**  
 CUSTOMER CODE (Assigned by Clean Harbors) **LE18366** CUSTOMER NAME: **Leidos**  
 ADDRESS **8866 Commons Boulevard** CITY **Twinsburg** STATE/PROVINCE **OH** ZIP/POSTAL CODE **44087**

**B. WASTE DESCRIPTION**WASTE DESCRIPTION: **Groundwater Well Installation - Solid IDW**PROCESS GENERATING WASTE: **Environmental Sampling and Well Installation**IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No****C. PHYSICAL PROPERTIES (at 25C or 77F)**

<b>PHYSICAL STATE</b> <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> 1 2 3 TOP <b>0.00</b> % BY VOLUME (Approx.) MIDDLE <b>0.00</b> BOTTOM <b>0.00</b>		<b>VISCOSITY (If liquid present)</b> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000	<b>COLOR</b>  <b><u>Brown</u></b>
	<b>ODOR</b> <input checked="" type="checkbox"/> NONE MILD STRONG Describe:	<b>BOILING POINT °F (°C)</b> <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)	<b>MELTING POINT °F (°C)</b> < 140 (<60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)	<b>TOTAL ORGANIC CARBON</b> <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%
<b>FLASH POINT °F (°C)</b> < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) > 200 (>93)	<b>pH</b> <= 2 2.1 - 6.9 7 (Neutral) <input checked="" type="checkbox"/> 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) <input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> < 0.1 0.1 - 1.0 <input checked="" type="checkbox"/> Unknown 1.1 - 5.0 5.1 - 20.0	<b>BTU/LB (MJ/kg)</b> <input checked="" type="checkbox"/> < 2,000 (<4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2) Actual:

**D. COMPOSITION** (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
CYANIDE TOTAL	37.0000000	37.0000000	PPM
NITRILE GLOVES	0.5000000	0.5000000	%
SOIL	99.5000000	99.5000000	%
SULFIDE	17.0000000	17.0000000	PPM

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES  NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES  NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES  NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G19** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W301**



**E. CONSTITUENTS**

Are these values based on testing or knowledge? Knowledge  Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE		
D004	ARSENIC	5.0	0.0000			<input checked="" type="checkbox"/>		
D005	BARIUM	100.0	0.6500			<input checked="" type="checkbox"/>		
D006	CADMIUM	1.0	0.0000			<input checked="" type="checkbox"/>		
D007	CHROMIUM	5.0	0.0000			<input checked="" type="checkbox"/>		
D008	LEAD	5.0	0.0000			<input checked="" type="checkbox"/>		
D009	MERCURY	0.2	0.0000			<input checked="" type="checkbox"/>		
D010	SELENIUM	1.0	0.0000			<input checked="" type="checkbox"/>		
D011	SILVER	5.0	0.0000			<input checked="" type="checkbox"/>		
<b>VOLATILE COMPOUNDS</b>				<b>OTHER CONSTITUENTS</b>		<b>MAX</b>	<b>UOM</b>	<b>NOT APPLICABLE</b>
D018	BENZENE	0.5	0	BROMINE				<input checked="" type="checkbox"/>
D019	CARBON TETRACHLORIDE	0.5	0	CHLORINE				<input checked="" type="checkbox"/>
D021	CHLOROBENZENE	100.0	0	FLUORINE				<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0	0	IODINE				<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5	0	SULFUR				<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7	0	POTASSIUM				<input checked="" type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0	0	SODIUM				<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7	0	AMMONIA				<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5	0	CYANIDE AMENABLE				<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2	0	CYANIDE REACTIVE				<input checked="" type="checkbox"/>
<b>SEMI-VOLATILE COMPOUNDS</b>				CYANIDE TOTAL		37.0000	PPM	
D023	o-CRESOL	200.0	0	SULFIDE REACTIVE		17.0000	PPM	
D024	m-CRESOL	200.0	0					
D025	p-CRESOL	200.0	0					
D026	CRESOL (TOTAL)	200.0	0					
D027	1,4-DICHLOROENZENE	7.5	0					
D030	2,4-DINITROTOLUENE	0.13	0					
D032	HEXACHLOROENZENE	0.13	0					
D033	HEXACHLOROBUTADIENE	0.5	0					
D034	HEXACHLOROETHANE	3.0	0					
D036	NITROBENZENE	2.0	0					
D037	PENTACHLOROPHENOL	100.0	0					
D038	PYRIDINE	5.0	0					
D041	2,4,5-TRICHLOROPHENOL	400.0	0					
D042	2,4,6-TRICHLOROPHENOL	2.0	0					
<b>PESTICIDES AND HERBICIDES</b>								
D012	ENDRIN	0.02	0					
D013	LINDANE	0.4	0					
D014	METHOXYCHLOR	10.0	0					
D015	TOXAPHENE	0.5	0					
D016	2,4-D	10.0	0					
D017	2,4,5-TP (SILVEX)	1.0	0					
D020	CHLORDANE	0.03	0					
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008	0					

<b>HOCs</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> < 1000 PPM <input type="checkbox"/> >= 1000 PPM	<b>PCBs</b> <input checked="" type="checkbox"/> NONE <input type="checkbox"/> < 50 PPM <input type="checkbox"/> >=50 PPM  IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
--	---

**ADDITIONAL HAZARDS**  
 DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?  
 YES  NO (If yes, explain)

**CHOOSE ALL THAT APPLY**

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	<input checked="" type="checkbox"/> NONE OF THE ABOVE

**F. REGULATORY STATUS**

YES  NO USEPA HAZARDOUS WASTE?

YES  NO DO ANY STATE WASTE CODES APPLY?  
Texas Waste Code **outs3011**

YES  NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES  NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY: **Not subject to LDR**  
VARIANCE INFO:

YES  NO IS THIS A UNIVERSAL WASTE?

YES  NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES  NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES  NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES  NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?

YES  NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G)      Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
What is the TAB quantity for your facility?  Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data      Knowledge      Testing  
Describe the knowledge :

**G. DOT/TDG INFORMATION**

DOT/TDG PROPER SHIPPING NAME:

**NON DOT REGULATED MATERIAL, SOLID IDW**

**H. TRANSPORTATION REQUIREMENTS**

ESTIMATED SHIPMENT FREQUENCY  ONE TIME    WEEKLY    MONTHLY    QUARTERLY    YEARLY    OTHER

CONTAINERIZED

BULK LIQUID

BULK SOLID

**5-5** CONTAINERS/SHIPMENT

GALLONS/SHIPMENT: **0 Min - 0 Max**

GAL.

SHIPMENT UOM:

TON

YARD

STORAGE CAPACITY: **5**

CONTAINER TYPE:

TONS/YARDS/SHIPMENT: **0 Min - 0 Max**

PORTABLE TOTE TANK      BOX|CARTON|CASE

CUBIC YARD BOX       DRUM

OTHER:      DRUM SIZE: **55**

**I. SPECIAL REQUEST**

COMMENTS OR REQUESTS:

**GENERATOR'S CERTIFICATION**

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

kathryn.s.tait.nfg@mail.mil

This waste profile has been submitted using Clean Harbors' electronic signature system.

\*40 CFR Sec. 264.12 required notice:

As required by Federal Resource Conservation and Recovery Act regulations found in 40 CFR Part 264.12(b) and all equivalent State hazardous waste regulations, notice is hereby provided that all Clean Harbors facilities that may be used to treat, store, and /or dispose of the hazardous waste described on this waste profile have the appropriate permits and the capacity to manage these wastes.

Please note this profile must be submitted for re-evaluation if there has been a change in the waste generating process or when there have been changes in the chemical composition or physical characteristics of the material.



January 29, 2019

Ms. Katie Tait, OHARNG  
Camp James A. Garfield - Environmental Office  
1438 State Route 534 SW  
Newton Falls, OH 44444

**Subject: October 2018 Facility-wide Groundwater Monitoring Program Sampling - Investigation-Derived Waste (IDW) Characterization and Disposal Plan**  
**Reference: Contract No. W912QR-16-D-0003, Delivery Order No. W912QR-18-F-0337, Groundwater Investigation and Reporting Services, RVAAP Restoration Program**

Dear Ms. Tait:

Investigative activities in accordance with the *Facility-wide Groundwater Monitoring Addendum for 2018* were performed from October 18, 2018 through November 06, 2018 and January 28, 2019. These activities have resulted in the generation of solid IDW (consisting of soil cuttings) and liquid IDW (consisting of purge water and equipment decontamination fluids). The purpose of this letter is to characterize and classify IDW for disposal and to propose methods for disposing of the IDW.

This letter report includes a summary of IDW generated, the origin of the IDW and proposed classification and recommendations for disposal of the IDW (Table 1), a summary of the analytical results (Attachment A), and the laboratory data package (Attachment B). In addition to the specified plans, this letter report follows guidance established by the *Facility-Wide Sampling and Analysis Plan* (USACE 2011) (herein referred to as the Facility-wide SAP).

Two distinct IDW streams were generated as part of the field activities. Each waste stream was composited and sampled per requirements outlined in Section 8.0 of the Facility-wide SAP.

IDW streams generated are:

- Eleven (11), 55 gallon drums containing approximately 437 gallons of groundwater well purge water and equipment decontamination fluids (liquinox wash water, 10% nitric acid, isopropanol, and DI water); and
- Five (5), 55-gallon drum containing soil cuttings.

### **Liquid IDW Discussion**

Per Section 8.4 of the Facility-wide SAP, one composite waste sample was collected for laboratory analysis of 1) metals, herbicides, pesticides, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) using the Toxicity Characteristic Leaching Procedure (TCLP) and 2) total PCBs, total sulfide, total cyanide, nitrate/nitrite, corrosivity (pH), and flashpoint to characterize the waste for disposal. Samples FWGIDW-181001-WW and FWGIDW-181002-WW (cyanide only) were collected to characterize the liquid drums containing groundwater well purge water and equipment decontamination fluids [liquinox wash water, 10% nitric acid, isopropanol, and deionized (DI) water]. Upon receipt from the laboratory, the analytical results were reviewed to determine if the waste was potentially hazardous. This review consisted of a comparison of the analytical results against the TCLP criteria presented in Table 8-1: Maximum Concentration of Contaminants for the Toxicity Characteristic (40 *CFR* 261.24) and Table 8-2: Maximum Concentration of Hazardous Waste Characterization Analytes (40 *CFR* 261.21-23) presented in the Facility-wide SAP (USACE 2011), as well as other applicable Resource Conservation Recovery Act (RCRA) Hazardous Waste regulations 40 *CFR* 261 – 265.

Attachment A, Table A.1 presents the analytical laboratory data for the liquid IDW sample. The results are summarized below:

- 1) All analytical results were below the Maximum Concentration for Toxicity Characteristic per 40 *CFR* 261.24;
- 2) The sample had nondetectable concentrations for all PCBs analyzed;
- 3) The pH for the IDW is considered neutral (2 S.U. < pH < 12.5 S.U.);
- 4) The flash point is >60°C (140°F);
- 5) A detection of cyanide at 0.27 mg/L was identified in sample FWGIDW-181002-WW. Table 8-2 of the FWSAP lists the cyanide criteria as 0.01 mg/L. However, this is not consistent with 40 *CFR* 261.23 and 261.24, as numerical standards are not specified. Rather, the US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per 40 *CFR* 261.23(a)(5) for cyanide-bearing wastes. Based on generator knowledge of the site and a visual assessment of the current condition of the waste, the waste does not qualify as reactive waste.

Given the observed analytical results, it is recommended that the liquid IDW be classified as non-hazardous, non-contaminated.

### **Solid IDW Discussion**

Per Section 8.4 of the Facility-wide SAP, a composite waste sample (FWGIDW-181001-WS) was collected for laboratory analysis 1) metals, herbicides, pesticides, SVOCs, and VOCs using the TCLP and 2) total PCBs, total sulfide, total cyanide, nitrate/nitrite, corrosivity (pH), and flashpoint to characterize the soil IDW for disposal. Upon receipt from the laboratory, the analytical results were reviewed to determine if the waste was potentially hazardous. This review consisted of a comparison of the analytical results against the TCLP criteria presented in Table 8-1: Maximum Concentration of Contaminants for the Toxicity Characteristic (40 *CFR* 261.24) and Table 8-2: Maximum Concentration of Hazardous Waste Characterization Analytes (40 *CFR* 261.21-23), presented in the Facility-wide SAP (USACE 2011) and RCRA Hazardous Waste regulations 40 *CFR* 261 – 265.

Attachment A, Table A.2 presents the analytical laboratory data for solid IDW generated during ongoing field activities. The results are summarized below:

- 1) All analytical results were below the Maximum Concentration for Toxicity Characteristic per 40 *CFR* 261.24;
- 2) The sample had nondetectable concentrations for all PCBs analyzed;
- 3) The pH for the IDW is considered neutral (2 S.U. < pH < 12.5 S.U.);
- 4) The flash point is >60°C (140°F); and
- 5) A detection of cyanide at 37B mg/kg was identified in the sample. Table 8-2 of the FWSAP lists the cyanide criteria as 0.66 mg/kg. However, this is not consistent with 40 *CFR* 261.23 and 261.24, as numerical standards are not specified. Rather, the US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per 40 *CFR* 261.23(a)(5) for cyanide-bearing wastes. Based on generator knowledge of the site and a visual assessment of the current condition of the waste, the waste does not qualify as reactive waste.

Given the observed analytical results, it is recommended that the solid IDW waste stream be classified as non-hazardous, non-contaminated.

#### **Recommended Disposal Pathways for IDW**

Table 1s present the disposal pathway identified as a result of IDW characterization data. This IDW has been characterized under provisions of the Facility-Wide SAP using TCLP analyses and process knowledge. Leidos recommends that all IDW be disposed as non-hazardous, non-contaminated waste to be removed offsite by a permitted water treatment or waste facility unless the ARNG/OHARNG has additional information that would result in the IDW meeting the definition of a listed hazardous waste as defined in 40 *CFR* Part 261 Subpart D.

Since the former RVAAP, under RCRA, is the generator of this material, Leidos requests concurrence or direction on the waste classification. Following your concurrence, we will proceed with generating a waste profile, waste manifest, and coordinating waste disposal.

If you have any questions, or require additional information, please do not hesitate to contact me at (330) 405-5802.

Leidos



Jed Thomas, P.E.  
Deputy Project Manager

cc: David Connolly, ARNG  
Kevin Sedlak, ARNG, Camp James A. Garfield  
Jay Trumble, USACE Louisville  
Vasu Peterson, Leidos  
Heather Adams, Leidos

**Table 1. Summary of Sampled Investigation-Derived Wastes and Disposal Recommendation**

<b>Container Number</b>	<b>Container Type and Size</b>	<b>Contents</b>	<b>Generation Date</b>	<b>Sample ID</b>	<b>Date(s) Sampled</b>	<b>Disposal Recommendation</b>
Leidos-FWGW-001-S	55 Gallon, Steel, Open Top Drum	Soil Cuttings and Sediment	10/23/18	FWGIDW-181001-WS	10/31/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-002-S	55 Gallon, Steel, Open Top Drum	Soil Cuttings and Sediment	10/23/18	FWGIDW-181001-WS	10/31/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-003-S	55 Gallon, Steel, Open Top Drum	Soil Cuttings and Sediment	10/24/18	FWGIDW-181001-WS	10/31/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-004-S	55 Gallon, Steel, Open Top Drum	Soil Cuttings and Sediment	10/23/18	FWGIDW-181001-WS	10/31/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-005-S	55 Gallon, Steel, Open Top Drum	Soil Cuttings and Sediment	10/26/18	FWGIDW-181001-WS	10/31/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-001-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 40 gal	10/15/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-002-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 40 gal	10/22/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-003-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 39 gal	10/24/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-004-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 41.5 gal	10/25/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-005-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 42 gal	10/26/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-006-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 43.5 gal	10/29/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-007-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 39.5 gal	10/30/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-008-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 39.5 gal	10/30/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-009-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 30 gal	10/20/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-010-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 39 gal	11/01/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility
Leidos-FWGW-011-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 43 gal	10/29/18	FWGIDW-181001-WW	11/2/2018	Permitted Treatment or Waste Facility

Note 1: Sample FWGIDW-181002-WW was collected on 11/14/18 for cyanide analysis of the liquid drums due to an incorrectly preserved sample bottle on 11/2/18.

Note 2: A total of 9 gallons of liquid IDW were generated during the 1/28/19 sampling event. This liquid IDW was placed in drum Leidos-FWGW-010-L.

**ATTACHMENT A  
ANALYTICAL RESULTS**

**Table A.1. Liquid IDW Sample Results (FWGIDW-181001-WW)**

Analyte	CAS Number	Units	Specific Method	Basis	Regulatory Level Citation	Regulatory Level	Sample Result
Arsenic	7440-38-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Barium	7440-39-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	100	0.015 J
Cadmium	7440-43-9	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Chromium	7440-47-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Lead	7439-92-1	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Mercury	7439-97-6	mg/L	Mercury (CVAA)	TCLP	40 CFR 261.24	0.2	<0.002 U
Selenium	7782-49-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Silver	7440-22-4	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
2,4-D	94-75-7	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	10	<0.04 U
Silvex (2,4,5-TP)	93-72-1	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	1	<0.01 U
Chlordane (technical)	57-74-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.03	<0.005 U
Endrin	72-20-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.02	<0.005 U
Heptachlor	76-44-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.005 U
Heptachlor epoxide	1024-57-3	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.005 U
Methoxychlor	72-43-5	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	10	<0.02 U
Toxaphene	8001-35-2	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.5	<0.001 U
gamma-BHC (Lindane)	58-89-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.4	<0.0005 U
1,4-Dichlorobenzene	106-46-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	7.5	<0.02 U
2,4,5-Trichlorophenol	95-95-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	400	<0.05 U
2,4,6-Trichlorophenol	88-06-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.025 U
2,4-Dinitrotoluene	121-14-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
2-Methylphenol (o-cresol)	95-48-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
3 & 4 Methylphenol (m,p-cresol)	15831-10-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
Hexachlorobenzene	118-74-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
Hexachlorobutadiene	87-68-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.05 U
Hexachloroethane	67-72-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	3	<0.05 U
Nitrobenzene	98-95-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.05 U
Pentachlorophenol	87-86-5	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.25 U
Pyridine	110-86-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	5	<0.1 U
1,1-Dichloroethene	75-35-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U
1,2-Dichloroethane	107-06-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
2-Butanone (MEK)	78-93-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.1 U
Benzene	71-43-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Carbon tetrachloride	56-23-5	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Chlorobenzene	108-90-7	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.01 U
Chloroform	67-66-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	6	<0.01 U
Tetrachloroethene	127-18-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U
Trichloroethene	79-01-6	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U



**Table A.1. Liquid IDW Sample Results (FWGIDW-181001-WW)**

Analyte	CAS Number	Units	Specific Method	Basis	Regulatory Level Citation	Regulatory Level	Sample Result
Vinyl chloride	75-01-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.2	<0.01 U
PCB-1016	12674-11-2	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1221	11104-28-2	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1232	11141-16-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1242	53469-21-9	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1248	12672-29-6	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1254	11097-69-1	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1260	11096-82-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1262	37324-23-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1268	11100-14-4	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
Flashpoint	N/A	Deg C	Ignitability, Pensky-Martens Closed-Cup Method	Total	40 CFR 261.21	>60°C (140°F)	>60°C (140°F)
Cyanide, Total	57-12-5	mg/L	Cyanide, Total and/or Amenable	Total	40 CFR 261.23	See Note 1	0.27
Sulfide, Total	18496-25-8	mg/L	Sulfide, Acid Soluble and Insoluble (Titrimetric)	Total	40 CFR 261.23	See Note 1	<4 U
pH adj. to 25 deg C	N/A	SU	pH	Total	40 CFR 261.22	2 ≤ pH ≤ 12.5	7.8 HF
Nitrate as N	14797-55-8	mg/L	Anions, Ion Chromatography	Total	NA	---	14 D
Nitrite as N	14797-65-0	mg/L	Anions, Ion Chromatography	Total	NA	---	0.52 B
Temperature	N/A	Deg C	pH	Total	NA	---	7.8 HF (S.U)

The liquid IDW sample for analysis of cyanide was collected on 11/14/18 under sample ID FWGIDW-181002-WW due to an incorrectly preserved sample bottle on 11/2/18. All other analyses were from sample collected on 11/2/18 under sample ID FWGIDW-181001-WW.

Waste with PCB concentrations greater than 50 ppm (mg/L) [or 50,000 ppb (ug/L)] are regulated and to be disposed in accordance with the Toxic Substances Control Act (TSCA).

Note 1: The US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per CFR 261.23(a)(5) for cyanide or sulfide-bearing wastes.

--- = No regulatory standards for determination of hazardous waste exist.

B = Compound was found in the blank and in the sample.

D = The reported value is from a dilution.

HF = Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

J = Estimated concentration, less than the reporting limit - Lab Qualifier

Q = One or more laboratory quality control criteria failed.

U = Non-detect, concentration reported is reporting limit - Lab Qualifier

Table A.2. Solid IDW Sample Results (FWGIDW-181001-WS)

Analyte	CAS Number	Units	Specific Method	Basis	Regulatory Level Citation	Regulatory Level	Sample Result
Arsenic	7440-38-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Barium	7440-39-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	100	0.65 JB
Cadmium	7440-43-9	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Chromium	7440-47-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Lead	7439-92-1	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Mercury	7439-97-6	mg/L	Mercury (CVAA)	TCLP	40 CFR 261.24	0.2	<0.002 U
Selenium	7782-49-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Silver	7440-22-4	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
2,4-D	94-75-7	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	10	<0.04 U
Silvex (2,4,5-TP)	93-72-1	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	1	<0.01 U
Chlordane (technical)	57-74-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.03	<0.005 U
Endrin	72-20-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.02	<0.0005 U
Heptachlor	76-44-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.0005 U
Heptachlor epoxide	1024-57-3	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.0005 U
Methoxychlor	72-43-5	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	10	<0.001 U
Toxaphene	8001-35-2	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.5	<0.02 U
gamma-BHC (Lindane)	58-89-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.4	<0.0005 U
1,4-Dichlorobenzene	106-46-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	7.5	<0.02 U
2,4,5-Trichlorophenol	95-95-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	400	<0.05 U
2,4,6-Trichlorophenol	88-06-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.025 U
2,4-Dinitrotoluene	121-14-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
2-Methylphenol (o-cresol)	95-48-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
3 & 4 Methylphenol (m,p-cresol)	15831-10-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
Hexachlorobenzene	118-74-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
Hexachlorobutadiene	87-68-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.05 U
Hexachloroethane	67-72-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	3	<0.05 U
Nitrobenzene	98-95-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.05 U
Pentachlorophenol	87-86-5	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.25 U
Pyridine	110-86-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	5	<0.1 UF2
1,1-Dichloroethene	75-35-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U
1,2-Dichloroethane	107-06-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
2-Butanone (MEK)	78-93-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.1 U
Benzene	71-43-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Carbon tetrachloride	56-23-5	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Chlorobenzene	108-90-7	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.01 U
Chloroform	67-66-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	6	<0.01 U
Tetrachloroethene	127-18-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U

**Table A.2. Solid IDW Sample Results (FWGIDW-181001-WS)**

Analyte	CAS Number	Units	Specific Method	Basis	Regulatory Level Citation	Regulatory Level	Sample Result
Trichloroethene	79-01-6	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Vinyl chloride	75-01-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.2	<0.01 U
PCB-1016	12674-11-2	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 UF1
PCB-1221	11104-28-2	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<1.1 U
PCB-1232	11141-16-5	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1242	53469-21-9	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1248	12672-29-6	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1254	11097-69-1	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1260	11096-82-5	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1262	37324-23-5	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
PCB-1268	11100-14-4	ug/Kg	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.8 U
Flashpoint	N/A	Deg C	Ignitability, Pensky-Martens Closed-Cup Method	Total	40 CFR 261.21	>60°C (140°F)	>60°C (140°F)
Cyanide, Total	57-12-5	mg/Kg	Cyanide, Total and/or Amenable	Total	40 CFR 261.23	See Note 1	37 B
Sulfide, Total	18496-25-8	mg/Kg	Sulfide, Acid Soluble and Insoluble (Titrimetric)	Total	40 CFR 261.23	See Note 1	17 J
pH adj. to 25 deg C	N/A	SU	pH	Soluble	40 CFR 261.22	2 ≤ pH ≤ 12.5	8.4 HF
Nitrate as N	14797-55-8	mg/Kg	Anions, Ion Chromatography	Soluble	NA	---	0.41 J
Nitrite as N	14797-65-0	mg/Kg	Anions, Ion Chromatography	Soluble	NA	---	<5.8 U
Temperature	N/A	Deg C	pH	Soluble	NA	---	22.8 HF
Percent Moisture	N/A	%	Percent Moisture	Total	NA	---	18.9%
Percent Solids	N/A	%	Percent Moisture	Total	NA	---	81.1%

The solid IDW sample for analysis was collected on 10/31/18.

Waste with PCB concentrations greater than 50 ppm (mg/L) [or 50,000 ppb (ug/L)] are regulated and to be disposed in accordance with the Toxic Substances Control Act (TSCA).

Note 1: The US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per CFR 261.23(a)(5) for cyanide or sulfide-bearing wastes.

--- = No regulatory standards for determination of hazardous waste exist.

B = Compound was found in the blank and sample

F1 = MS and/or MSD Recovery is outside acceptance limits.

F2 = MS/MSD RPD exceeds control limits

HF = Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

J = Estimated concentration, less than the reporting limit - Lab Qualifier

Q = One or more laboratory quality control criteria failed.

U = Non-detect, concentration reported is reporting limit - Lab Qualifier

**ATTACHMENT B**  
**LABORATORY ANALYTICAL REPORTS**

Job Number: 280-116404-1: Containing Sample FWGIDW-181001-WS

## ANALYTICAL REPORT

Job Number: 280-116404-1

Job Description: Leidos RFP# 001088 - Ravenna AAP-66

For:

Leidos, Inc.

Picatinny Arsenal

356 Ninth Avenue

Suite 106

Dover, NJ 07801

Attention: Rita Schmon-Stasik



Approved for release.  
Donna R Rydberg  
Senior Project Manager  
12/13/2018 7:31 PM

---

Donna R Rydberg, Senior Project Manager  
4955 Yarrow Street, Arvada, CO, 80002  
(303)736-0192  
donna.rydberg@testamericainc.com  
12/13/2018

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002

Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)

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# Definitions/Glossary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
B	Compound was found in the blank and sample.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## CASE NARRATIVE

Client: Leidos, Inc.

Project: Leidos RFP# 001088 - Ravenna AAP-66

Report Number: 280-116404-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### RECEIPT

The samples were received on 11/1/2018 at 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.0° C, 1.0° C and 1.1° C.

### TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for TCLP volatile organic compounds (GC-MS) in accordance with 1311. The samples were leached on 11/05/2018 and analyzed on 11/09/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with 8270D. The samples were leached on 11/05/2018, prepared on 11/06/2018 and analyzed on 11/14/2018.

Pyridine exceeded the RPD limit for the MS/MSD of sample FWGIDW-181001-WS (280-116404-1) in batch 280-437601. The individual spike recoveries were in control. The associated LCS was in control and provides evidence that operating procedures were in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### ORGANOCHLORINE PESTICIDES (GC)

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for Organochlorine Pesticides (GC) in accordance with EPA SW-846 Method 1311/8081B. The samples were leached on 11/05/2018, prepared on 11/08/2018 and analyzed on 12/03/2018.

DCB Decachlorobiphenyl failed the surrogate recovery criteria low for sample LB 280-436399/1-F. The surrogate Tetrachloro-m-xylene is in control. The associated samples surrogates were in control and the LCS surrogates were in control. The sample was not reanalyzed as hold times had expired. The data was reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### POLYCHLORINATED BIPHENYLS (PCBS)

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were prepared on 11/06/2018 and analyzed on 11/27/2018.

PCB-1016 failed the recovery criteria low for the MS/MSD of sample FWGIDW-181001-WS (280-116404-1) in batch 280-438897. The associated LCS was in control and provides evidence that operating procedures were in control.

Sample FWGIDW-181001-WS (280-116404-1)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: FWGIDW-181001-WS (280-116404-1), (LCS 280-436527/2-A), (MB 280-436527/1-A), (280-116404-C-1-D MS) and (280-116404-C-1-E MSD). Acid Lot: 161554.

The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: FWGIDW-181001-WS (280-116404-1), (LCS 280-436527/2-A), (MB 280-436527/1-A), (280-116404-C-1-D MS) and (280-116404-C-1-E

MSD). The reagent lot number used was: T31E034.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP CHLORINATED HERBICIDES**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/8151A. The samples were leached on 11/05/2018, prepared on 11/07/2018 and analyzed on 11/09/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP METALS**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for TCLP metals in accordance with EPA SW846 Methods 1311/6010C. The samples were leached on 11/05/2018, prepared on 11/07/2018 and analyzed on 11/08/2018.

Barium was detected in method blank LB 280-436399/1-D at a level that was less than one half the RL; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged "J".

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP MERCURY**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for TCLP mercury in accordance with SW-846 1311/7470. The samples were leached on 11/05/2018, and prepared and analyzed on 11/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **IGNITABILITY**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for Ignitability in accordance with 1010A. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TOTAL CYANIDE**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for Total Cyanide in accordance with 9012B. The samples were prepared and analyzed on 11/14/2018.

Cyanide, Total was detected in method blank MB 280-437593/4-A at a level that was less than the RL; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged "J".

Sample FWGIDW-181001-WS (280-116404-1)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TOTAL SULFIDE**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for total sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 11/07/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **CORROSIVITY (PH)**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for Corrosivity (pH) in accordance with EPA SW-846 Method 9045D. The samples were leached on 11/08/2018 and analyzed on 11/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **ANIONS**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for anions in accordance with SW 846 9056A. The samples were leached on 11/13/2018 and analyzed on 11/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **PERCENT SOLIDS**

Sample FWGIDW-181001-WS (280-116404-1) was analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

**Client Sample ID: FWGIDW-181001-WS**

**Lab Sample ID: 280-116404-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.65	J B	1.0	0.0040	mg/L	1		6010C	TCLP
Flashpoint	>60		1.00	1.00	Degrees C	1		1010A	Total/NA
Cyanide, Total	37	B	1.2	0.25	mg/Kg	2	☼	9012B	Total/NA
Sulfide	17	J	21	5.0	mg/Kg	1	☼	9034	Total/NA
pH adj. to 25 deg C	8.4	HF	0.1	0.1	SU	1		9045D	Soluble
Temperature	22.8	HF	1.0	1.0	Degrees C	1		9045D	Soluble
Nitrate as N	0.41	J	5.8	0.36	mg/Kg	1	☼	9056A	Soluble

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

**Client Sample ID: FWGIDW-181001-WS**

**Lab Sample ID: 280-116404-1**

**Date Collected: 10/31/18 13:00**

**Matrix: Solid**

**Date Received: 11/01/18 09:30**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Benzene	ND		0.010	0.0016	mg/L		11/09/18 21:21	1
2-Butanone (MEK)	ND		0.10	0.020	mg/L		11/09/18 21:21	1
Carbon tetrachloride	ND		0.010	0.0019	mg/L		11/09/18 21:21	1
Chlorobenzene	ND		0.010	0.0017	mg/L		11/09/18 21:21	1
Chloroform	ND		0.010	0.0016	mg/L		11/09/18 21:21	1
1,2-Dichloroethane	ND		0.010	0.0013	mg/L		11/09/18 21:21	1
1,1-Dichloroethene	ND		0.010	0.0023	mg/L		11/09/18 21:21	1
Tetrachloroethene	ND		0.010	0.0020	mg/L		11/09/18 21:21	1
Trichloroethene	ND		0.010	0.0016	mg/L		11/09/18 21:21	1
Vinyl chloride	ND		0.010	0.0010	mg/L		11/09/18 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		78 - 120		11/09/18 21:21	1
1,2-Dichloroethane-d4 (Surr)	111		64 - 129		11/09/18 21:21	1
4-Bromofluorobenzene (Surr)	112		78 - 121		11/09/18 21:21	1
Dibromofluoromethane (Surr)	101		79 - 119		11/09/18 21:21	1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

**Client Sample ID: FWGIDW-181001-WS**

**Lab Sample ID: 280-116404-1**

**Date Collected: 10/31/18 13:00**

**Matrix: Solid**

**Date Received: 11/01/18 09:30**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
2-Methylphenol	ND		0.050	0.0049	mg/L		11/14/18 19:46	1
3 & 4 Methylphenol	ND		0.050	0.0013	mg/L		11/14/18 19:46	1
1,4-Dichlorobenzene	ND		0.020	0.0016	mg/L		11/14/18 19:46	1
2,4-Dinitrotoluene	ND		0.050	0.0083	mg/L		11/14/18 19:46	1
Hexachlorobenzene	ND		0.050	0.0033	mg/L		11/14/18 19:46	1
Hexachlorobutadiene	ND		0.050	0.017	mg/L		11/14/18 19:46	1
Hexachloroethane	ND		0.050	0.011	mg/L		11/14/18 19:46	1
Nitrobenzene	ND		0.050	0.0041	mg/L		11/14/18 19:46	1
Pentachlorophenol	ND		0.25	0.10	mg/L		11/14/18 19:46	1
Pyridine	ND	F2	0.10	0.0057	mg/L		11/14/18 19:46	1
2,4,5-Trichlorophenol	ND		0.050	0.0022	mg/L		11/14/18 19:46	1
2,4,6-Trichlorophenol	ND		0.025	0.0014	mg/L		11/14/18 19:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	75		49 - 120	11/06/18 18:15	11/14/18 19:46	1
2-Fluorophenol (Surr)	76		50 - 120	11/06/18 18:15	11/14/18 19:46	1
2,4,6-Tribromophenol (Surr)	99		51 - 120	11/06/18 18:15	11/14/18 19:46	1
Nitrobenzene-d5 (Surr)	80		51 - 120	11/06/18 18:15	11/14/18 19:46	1
Phenol-d5 (Surr)	70		47 - 120	11/06/18 18:15	11/14/18 19:46	1
Terphenyl-d14 (Surr)	105		56 - 120	11/06/18 18:15	11/14/18 19:46	1

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8081B - Organochlorine Pesticides (GC) - TCLP

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Endrin	ND		0.00050	0.000079	mg/L		12/03/18 17:52	1
Heptachlor	ND		0.00050	0.000077	mg/L		12/03/18 17:52	1
Heptachlor epoxide	ND		0.00050	0.000075	mg/L		12/03/18 17:52	1
gamma-BHC (Lindane)	ND		0.00050	0.000069	mg/L		12/03/18 17:52	1
Methoxychlor	ND		0.0010	0.00013	mg/L		12/03/18 17:52	1
Toxaphene	ND		0.020	0.0037	mg/L		12/03/18 17:52	1
Chlordane (technical)	ND		0.0050	0.0014	mg/L		12/03/18 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	83		28 - 115	11/08/18 13:15	12/03/18 17:52	1
DCB Decachlorobiphenyl	104		34 - 122	11/08/18 13:15	12/03/18 17:52	1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**  
**Percent Solids: 81.1**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
PCB-1016	ND	F1	800	120	ug/Kg	☼	11/27/18 16:17	10
PCB-1221	ND		1100	380	ug/Kg	☼	11/27/18 16:17	10
PCB-1232	ND		800	120	ug/Kg	☼	11/27/18 16:17	10
PCB-1242	ND		800	220	ug/Kg	☼	11/27/18 16:17	10
PCB-1248	ND		800	140	ug/Kg	☼	11/27/18 16:17	10
PCB-1254	ND		800	130	ug/Kg	☼	11/27/18 16:17	10
PCB-1260	ND		800	64	ug/Kg	☼	11/27/18 16:17	10
PCB-1262	ND		800	280	ug/Kg	☼	11/27/18 16:17	10
PCB-1268	ND		800	95	ug/Kg	☼	11/27/18 16:17	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	77		44 - 130	11/06/18 15:55	11/27/18 16:17	10
DCB Decachlorobiphenyl	88		59 - 130	11/06/18 15:55	11/27/18 16:17	10

## Method: 8151A DOD - Herbicides (GC) - TCLP

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
2,4-D	ND		0.040	0.0021	mg/L		11/09/18 17:30	1
Silvex (2,4,5-TP)	ND		0.010	0.0017	mg/L		11/09/18 17:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	37		10 - 131	11/07/18 08:15	11/09/18 17:30	1

## Method: 6010C - Metals (ICP) - TCLP

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Arsenic	ND		0.50	0.022	mg/L		11/08/18 01:20	1

TestAmerica Denver



# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 6010C - Metals (ICP) - TCLP (Continued)

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Barium	0.65	J B	1.0	0.0040	mg/L		11/08/18 01:20	1
Cadmium	ND		0.10	0.0020	mg/L		11/08/18 01:20	1
Chromium	ND		0.50	0.0030	mg/L		11/08/18 01:20	1
Lead	ND		0.50	0.014	mg/L		11/08/18 01:20	1
Selenium	ND		0.10	0.032	mg/L		11/08/18 01:20	1
Silver	ND		0.50	0.0040	mg/L		11/08/18 01:20	1

## Method: 7470A - Mercury (CVAA) - TCLP

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000030	mg/L		11/08/18 20:08	1

## General Chemistry

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C		11/16/18 01:16	1
Cyanide, Total	37	B	1.2	0.25	mg/Kg	☼	11/14/18 20:40	2
Sulfide	17	J	21	5.0	mg/Kg	☼	11/07/18 20:06	1

## General Chemistry - Soluble

**Client Sample ID: FWGIDW-181001-WS**  
**Date Collected: 10/31/18 13:00**  
**Date Received: 11/01/18 09:30**

**Lab Sample ID: 280-116404-1**  
**Matrix: Solid**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
pH adj. to 25 deg C	8.4	HF	0.1	0.1	SU		11/08/18 19:04	1
Temperature	22.8	HF	1.0	1.0	Degrees C		11/08/18 19:04	1
Nitrate as N	0.41	J	5.8	0.36	mg/Kg	☼	11/14/18 01:34	1
Nitrite as N	ND		5.8	0.39	mg/Kg	☼	11/14/18 01:34	1

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Leach: 1311

Analyte	RL	MDL	Units	Method
1,1-Dichloroethene	0.010	0.0023	mg/L	8260B
1,2-Dichloroethane	0.010	0.0013	mg/L	8260B
2-Butanone (MEK)	0.10	0.020	mg/L	8260B
Benzene	0.010	0.0016	mg/L	8260B
Carbon tetrachloride	0.010	0.0019	mg/L	8260B
Chlorobenzene	0.010	0.0017	mg/L	8260B
Chloroform	0.010	0.0016	mg/L	8260B
Tetrachloroethene	0.010	0.0020	mg/L	8260B
Trichloroethene	0.010	0.0016	mg/L	8260B
Vinyl chloride	0.010	0.0010	mg/L	8260B

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Prep: 3510C

Leach: 1311

Analyte	RL	MDL	Units	Method
1,4-Dichlorobenzene	0.020	0.0016	mg/L	8270D
2,4,5-Trichlorophenol	0.050	0.0022	mg/L	8270D
2,4,6-Trichlorophenol	0.025	0.0014	mg/L	8270D
2,4-Dinitrotoluene	0.050	0.0083	mg/L	8270D
2-Methylphenol	0.050	0.0049	mg/L	8270D
3 & 4 Methylphenol	0.050	0.0013	mg/L	8270D
Hexachlorobenzene	0.050	0.0033	mg/L	8270D
Hexachlorobutadiene	0.050	0.017	mg/L	8270D
Hexachloroethane	0.050	0.011	mg/L	8270D
Nitrobenzene	0.050	0.0041	mg/L	8270D
Pentachlorophenol	0.25	0.10	mg/L	8270D
Pyridine	0.10	0.0057	mg/L	8270D

## Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Prep: 3510C

Leach: 1311

Analyte	RL	MDL	Units	Method
Chlordane (technical)	0.0050	0.0014	mg/L	8081B
Endrin	0.00050	0.000079	mg/L	8081B
gamma-BHC (Lindane)	0.00050	0.000069	mg/L	8081B
Heptachlor	0.00050	0.000077	mg/L	8081B
Heptachlor epoxide	0.00050	0.000075	mg/L	8081B
Methoxychlor	0.0010	0.00013	mg/L	8081B
Toxaphene	0.020	0.0037	mg/L	8081B

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Prep: 3546

Analyte	RL	MDL	Units	Method
PCB-1016	66	10	ug/Kg	8082A
PCB-1221	94	31	ug/Kg	8082A
PCB-1232	66	10	ug/Kg	8082A
PCB-1242	66	18	ug/Kg	8082A
PCB-1248	66	11	ug/Kg	8082A
PCB-1254	66	11	ug/Kg	8082A

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Prep: 3546

Analyte	RL	MDL	Units	Method
PCB-1260	66	5.3	ug/Kg	8082A
PCB-1262	66	23	ug/Kg	8082A
PCB-1268	66	7.9	ug/Kg	8082A

## Method: 8151A DOD - Herbicides (GC) - TCLP

Prep: 8151A

Leach: 1311

Analyte	RL	MDL	Units	Method
2,4-D	0.040	0.0021	mg/L	8151A DOD
Silvex (2,4,5-TP)	0.010	0.0017	mg/L	8151A DOD

## Method: 6010C - Metals (ICP) - TCLP

Prep: 3010A

Leach: 1311

Analyte	RL	MDL	Units	Method
Arsenic	0.50	0.022	mg/L	6010C
Barium	1.0	0.0040	mg/L	6010C
Cadmium	0.10	0.0020	mg/L	6010C
Chromium	0.50	0.0030	mg/L	6010C
Lead	0.50	0.014	mg/L	6010C
Selenium	0.10	0.032	mg/L	6010C
Silver	0.50	0.0040	mg/L	6010C

## Method: 7470A - Mercury (CVAA) - TCLP

Prep: 7470A

Leach: 1311

Analyte	RL	MDL	Units	Method
Mercury	0.0020	0.000030	mg/L	7470A

## General Chemistry

Analyte	RL	MDL	Units	Method
Flashpoint	1.00	1.00	Degrees C	1010A

## General Chemistry

Prep: 9012B

Analyte	RL	MDL	Units	Method
Cyanide, Total	0.50	0.10	mg/Kg	9012B

## General Chemistry

Prep: 9030B

Analyte	RL	MDL	Units	Method
Sulfide	10	2.4	mg/Kg	9034

## General Chemistry - Soluble

Leach: DI Leach

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## General Chemistry - Soluble Leach: DI Leach

Analyte	RL	MDL	Units	Method
pH adj. to 25 deg C	0.1	0.1	SU	9045D
Temperature	1.0	1.0	Degrees C	9045D
Nitrate as N	5.0	0.31	mg/Kg	9056A
Nitrite as N	5.0	0.34	mg/Kg	9056A

# Surrogate Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-120)	DCA (64-129)	BFB (78-121)	DBFM (79-119)
280-116404-1	FWGIDW-181001-WS	102	111	112	101
LB 280-436398/1-A	Method Blank	95	104	110	100
LCS 280-436398/2-A	Lab Control Sample	96	107	108	98

### Surrogate Legend

TOL = Toluene-d8 (Surr)  
DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (49-120)	2FP (50-120)	TBP (51-120)	NBZ (51-120)	PHL (47-120)	TPHL (56-120)
280-116404-1	FWGIDW-181001-WS	75	76	99	80	70	105
280-116404-1 MS	FWGIDW-181001-WS	85	86	96	93	80	101
280-116404-1 MSD	FWGIDW-181001-WS	81	81	93	86	76	99
LB 280-436399/1-C	Method Blank	67	66	85	70	61	94
LCS 280-436399/2-C	Lab Control Sample	74	74	90	79	68	96

### Surrogate Legend

FBP = 2-Fluorobiphenyl  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPHL = Terphenyl-d14 (Surr)

## Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (28-115)	DCBP2 (34-122)
280-116404-1	FWGIDW-181001-WS	83	104
280-116404-1 MS	FWGIDW-181001-WS	86	103
280-116404-1 MS	FWGIDW-181001-WS	81	108
280-116404-1 MSD	FWGIDW-181001-WS	89	107
280-116404-1 MSD	FWGIDW-181001-WS	84	107
LB 280-436399/1-F	Method Blank	83	18 X
LCS 280-436399/2-E	Lab Control Sample	84	56
LCS 280-436399/3-C	Lab Control Sample	79	44

### Surrogate Legend

TCX = Tetrachloro-m-xylene  
DCBP = DCB Decachlorobiphenyl

# Surrogate Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (44-130)	DCBP2 (59-130)
280-116404-1	FWGIDW-181001-WS	77	88
280-116404-1 MS	FWGIDW-181001-WS	70	81
280-116404-1 MSD	FWGIDW-181001-WS	72	82
LCS 280-436527/2-A	Lab Control Sample	83	89
MB 280-436527/1-A	Method Blank	82	88

### Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

## Method: 8151A DOD - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1 (10-131)
280-116404-1	FWGIDW-181001-WS	37
280-116404-1 MS	FWGIDW-181001-WS	44
280-116404-1 MSD	FWGIDW-181001-WS	39
LB 280-436399/1-E	Method Blank	38
LCS 280-436399/3-B	Lab Control Sample	44

### Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: LB 280-436398/1-A**  
**Matrix: Solid**  
**Analysis Batch: 437024**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**

Analyte	LB LB		RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
Benzene	ND		0.010	0.0016	mg/L		11/09/18 15:11	1
2-Butanone (MEK)	ND		0.10	0.020	mg/L		11/09/18 15:11	1
Carbon tetrachloride	ND		0.010	0.0019	mg/L		11/09/18 15:11	1
Chlorobenzene	ND		0.010	0.0017	mg/L		11/09/18 15:11	1
Chloroform	ND		0.010	0.0016	mg/L		11/09/18 15:11	1
1,2-Dichloroethane	ND		0.010	0.0013	mg/L		11/09/18 15:11	1
1,1-Dichloroethene	ND		0.010	0.0023	mg/L		11/09/18 15:11	1
Tetrachloroethene	ND		0.010	0.0020	mg/L		11/09/18 15:11	1
Trichloroethene	ND		0.010	0.0016	mg/L		11/09/18 15:11	1
Vinyl chloride	ND		0.010	0.0010	mg/L		11/09/18 15:11	1

Surrogate	LB LB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	95		78 - 120		11/09/18 15:11	1
1,2-Dichloroethane-d4 (Surr)	104		64 - 129		11/09/18 15:11	1
4-Bromofluorobenzene (Surr)	110		78 - 121		11/09/18 15:11	1
Dibromofluoromethane (Surr)	100		79 - 119		11/09/18 15:11	1

**Lab Sample ID: LCS 280-436398/2-A**  
**Matrix: Solid**  
**Analysis Batch: 437024**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	0.200	0.158		mg/L		79	44 - 150
Carbon tetrachloride	0.0500	0.0481		mg/L		96	67 - 135
Chlorobenzene	0.0500	0.0467		mg/L		93	76 - 135
Chloroform	0.0500	0.0495		mg/L		99	76 - 120
1,2-Dichloroethane	0.0500	0.0522		mg/L		104	70 - 135
1,1-Dichloroethene	0.0500	0.0439		mg/L		88	71 - 136
Tetrachloroethene	0.0500	0.0438		mg/L		88	70 - 135
Trichloroethene	0.0500	0.0464		mg/L		93	73 - 135
Vinyl chloride	0.0500	0.0420		mg/L		84	40 - 144

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	96		78 - 120
1,2-Dichloroethane-d4 (Surr)	107		64 - 129
4-Bromofluorobenzene (Surr)	108		78 - 121
Dibromofluoromethane (Surr)	98		79 - 119

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: LB 280-436399/1-C**  
**Matrix: Solid**  
**Analysis Batch: 437601**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436573**

Analyte	LB LB		RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
2-Methylphenol	ND		0.050	0.0049	mg/L		11/14/18 16:23	1

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LB 280-436399/1-C**  
**Matrix: Solid**  
**Analysis Batch: 437601**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436573**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
3 & 4 Methylphenol	ND		0.050	0.0013	mg/L		11/14/18 16:23	1
1,4-Dichlorobenzene	ND		0.020	0.0016	mg/L		11/14/18 16:23	1
2,4-Dinitrotoluene	ND		0.050	0.0083	mg/L		11/14/18 16:23	1
Hexachlorobenzene	ND		0.050	0.0033	mg/L		11/14/18 16:23	1
Hexachlorobutadiene	ND		0.050	0.017	mg/L		11/14/18 16:23	1
Hexachloroethane	ND		0.050	0.011	mg/L		11/14/18 16:23	1
Nitrobenzene	ND		0.050	0.0041	mg/L		11/14/18 16:23	1
Pentachlorophenol	ND		0.25	0.10	mg/L		11/14/18 16:23	1
Pyridine	ND		0.10	0.0057	mg/L		11/14/18 16:23	1
2,4,5-Trichlorophenol	ND		0.050	0.0022	mg/L		11/14/18 16:23	1
2,4,6-Trichlorophenol	ND		0.025	0.0014	mg/L		11/14/18 16:23	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	67		49 - 120	11/06/18 18:15	11/14/18 16:23	1
2-Fluorophenol (Surr)	66		50 - 120	11/06/18 18:15	11/14/18 16:23	1
2,4,6-Tribromophenol (Surr)	85		51 - 120	11/06/18 18:15	11/14/18 16:23	1
Nitrobenzene-d5 (Surr)	70		51 - 120	11/06/18 18:15	11/14/18 16:23	1
Phenol-d5 (Surr)	61		47 - 120	11/06/18 18:15	11/14/18 16:23	1
Terphenyl-d14 (Surr)	94		56 - 120	11/06/18 18:15	11/14/18 16:23	1

**Lab Sample ID: LCS 280-436399/2-C**  
**Matrix: Solid**  
**Analysis Batch: 437601**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436573**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylphenol	0.250	0.190		mg/L		76	45 - 120
3 & 4 Methylphenol	0.500	0.429		mg/L		86	44 - 120
1,4-Dichlorobenzene	0.250	0.161		mg/L		64	36 - 120
2,4-Dinitrotoluene	0.100	0.0526		mg/L		53	36 - 120
Hexachlorobenzene	0.100	0.0860		mg/L		86	52 - 120
Hexachlorobutadiene	0.250	0.160		mg/L		64	35 - 120
Hexachloroethane	0.250	0.155		mg/L		62	35 - 120
Nitrobenzene	0.250	0.192		mg/L		77	50 - 120
Pentachlorophenol	0.500	0.430		mg/L		86	39 - 120
Pyridine	0.250	0.127		mg/L		51	10 - 121
2,4,5-Trichlorophenol	0.250	0.200		mg/L		80	46 - 120
2,4,6-Trichlorophenol	0.250	0.201		mg/L		81	43 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	74		49 - 120
2-Fluorophenol (Surr)	74		50 - 120
2,4,6-Tribromophenol (Surr)	90		51 - 120
Nitrobenzene-d5 (Surr)	79		51 - 120
Phenol-d5 (Surr)	68		47 - 120
Terphenyl-d14 (Surr)	96		56 - 120





# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8081B - Organochlorine Pesticides (GC)

**Lab Sample ID: LB 280-436399/1-F**  
**Matrix: Solid**  
**Analysis Batch: 439676**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436783**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Endrin	ND		0.00050	0.000079	mg/L		12/03/18 16:59	1
Heptachlor	ND		0.00050	0.000077	mg/L		12/03/18 16:59	1
Heptachlor epoxide	ND		0.00050	0.000075	mg/L		12/03/18 16:59	1
gamma-BHC (Lindane)	ND		0.00050	0.000069	mg/L		12/03/18 16:59	1
Methoxychlor	ND		0.0010	0.00013	mg/L		12/03/18 16:59	1
Toxaphene	ND		0.020	0.0037	mg/L		12/03/18 16:59	1
Chlordane (technical)	ND		0.0050	0.0014	mg/L		12/03/18 16:59	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	83		28 - 115	11/08/18 13:15	12/03/18 16:59	1
DCB Decachlorobiphenyl	18	X	34 - 122	11/08/18 13:15	12/03/18 16:59	1

**Lab Sample ID: LCS 280-436399/2-E**  
**Matrix: Solid**  
**Analysis Batch: 439676**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436783**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	0.00500	0.00557		mg/L		111	66 - 143
Heptachlor	0.00500	0.00522		mg/L		104	59 - 143
Heptachlor epoxide	0.00500	0.00509		mg/L		102	37 - 142
gamma-BHC (Lindane)	0.00500	0.00495		mg/L		99	68 - 142
Methoxychlor	0.00500	0.00580		mg/L		116	30 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	84		28 - 115
DCB Decachlorobiphenyl	56		34 - 122

**Lab Sample ID: LCS 280-436399/3-C**  
**Matrix: Solid**  
**Analysis Batch: 439676**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436783**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toxaphene	0.200	0.244		mg/L		122	63 - 142

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	79		28 - 115
DCB Decachlorobiphenyl	44		34 - 122

**Lab Sample ID: 280-116404-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 439676**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: TCLP**  
**Prep Batch: 436783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	ND		0.00500	0.00530		mg/L		106	66 - 143
Heptachlor	ND		0.00500	0.00499		mg/L		100	59 - 143
Heptachlor epoxide	ND		0.00500	0.00491		mg/L		98	37 - 142
gamma-BHC (Lindane)	ND		0.00500	0.00479		mg/L		96	68 - 142

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8081B - Organochlorine Pesticides (GC) (Continued)

**Lab Sample ID: 280-116404-1 MS**

**Matrix: Solid**

**Analysis Batch: 439676**

**Client Sample ID: FWGIDW-181001-WS**

**Prep Type: TCLP**

**Prep Batch: 436783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methoxychlor	ND		0.00500	0.00561		mg/L		112	30 - 150
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
<i>Tetrachloro-m-xylene</i>	86		28 - 115						
<i>DCB Decachlorobiphenyl</i>	103		34 - 122						

**Lab Sample ID: 280-116404-1 MS**

**Matrix: Solid**

**Analysis Batch: 439676**

**Client Sample ID: FWGIDW-181001-WS**

**Prep Type: TCLP**

**Prep Batch: 436783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toxaphene	ND		0.200	0.223		mg/L		111	63 - 142
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
<i>Tetrachloro-m-xylene</i>	81		28 - 115						
<i>DCB Decachlorobiphenyl</i>	108		34 - 122						

**Lab Sample ID: 280-116404-1 MSD**

**Matrix: Solid**

**Analysis Batch: 439676**

**Client Sample ID: FWGIDW-181001-WS**

**Prep Type: TCLP**

**Prep Batch: 436783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endrin	ND		0.00500	0.00583		mg/L		117	66 - 143	9	30
Heptachlor	ND		0.00500	0.00554		mg/L		111	59 - 143	10	30
Heptachlor epoxide	ND		0.00500	0.00540		mg/L		108	37 - 142	9	30
gamma-BHC (Lindane)	ND		0.00500	0.00525		mg/L		105	68 - 142	9	30
Methoxychlor	ND		0.00500	0.00591		mg/L		118	30 - 150	5	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
<i>Tetrachloro-m-xylene</i>	89		28 - 115								
<i>DCB Decachlorobiphenyl</i>	107		34 - 122								

**Lab Sample ID: 280-116404-1 MSD**

**Matrix: Solid**

**Analysis Batch: 439676**

**Client Sample ID: FWGIDW-181001-WS**

**Prep Type: TCLP**

**Prep Batch: 436783**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toxaphene	ND		0.200	0.232		mg/L		116	63 - 142	4	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
<i>Tetrachloro-m-xylene</i>	84		28 - 115								
<i>DCB Decachlorobiphenyl</i>	107		34 - 122								

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Lab Sample ID: MB 280-436527/1-A**  
**Matrix: Solid**  
**Analysis Batch: 438897**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 436527**

Analyte	MB MB		RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
PCB-1016	ND		59	9.1	ug/Kg		11/27/18 15:35	1
PCB-1221	ND		83	28	ug/Kg		11/27/18 15:35	1
PCB-1232	ND		59	9.1	ug/Kg		11/27/18 15:35	1
PCB-1242	ND		59	16	ug/Kg		11/27/18 15:35	1
PCB-1248	ND		59	9.9	ug/Kg		11/27/18 15:35	1
PCB-1254	ND		59	9.8	ug/Kg		11/27/18 15:35	1
PCB-1260	ND		59	4.7	ug/Kg		11/27/18 15:35	1
PCB-1262	ND		59	21	ug/Kg		11/27/18 15:35	1
PCB-1268	ND		59	7.0	ug/Kg		11/27/18 15:35	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	82		44 - 130	11/06/18 15:55	11/27/18 15:35	1
DCB Decachlorobiphenyl	88		59 - 130	11/06/18 15:55	11/27/18 15:35	1

**Lab Sample ID: LCS 280-436527/2-A**  
**Matrix: Solid**  
**Analysis Batch: 438897**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 436527**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
PCB-1016	123	105		ug/Kg		85	47 - 134
PCB-1260	123	106		ug/Kg		86	53 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	83		44 - 130
DCB Decachlorobiphenyl	89		59 - 130

**Lab Sample ID: 280-116404-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 438897**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: Total/NA**  
**Prep Batch: 436527**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	Limits
				Result	Qualifier				
PCB-1016	ND	F1	160	ND	F1	ug/Kg	☼	0	47 - 134
PCB-1260	ND		160	87.5	J	ug/Kg	☼	55	53 - 140

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	70		44 - 130
DCB Decachlorobiphenyl	81		59 - 130

**Lab Sample ID: 280-116404-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 438897**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: Total/NA**  
**Prep Batch: 436527**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
				Result	Qualifier						
PCB-1016	ND	F1	160	ND	F1	ug/Kg	☼	0	47 - 134	NC	30
PCB-1260	ND		160	93.3	J	ug/Kg	☼	58	53 - 140	6	30

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

**Lab Sample ID: 280-116404-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 438897**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: Total/NA**  
**Prep Batch: 436527**

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	72		44 - 130
DCB Decachlorobiphenyl	82		59 - 130

## Method: 8151A DOD - Herbicides (GC)

**Lab Sample ID: LB 280-436399/1-E**  
**Matrix: Solid**  
**Analysis Batch: 437038**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436606**

Analyte	LB LB		RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
2,4-D	ND		0.040	0.0021	mg/L		11/09/18 16:57	1
Silvex (2,4,5-TP)	ND		0.010	0.0017	mg/L		11/09/18 16:57	1

Surrogate	LB LB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid	38		10 - 131	11/07/18 08:15	11/09/18 16:57	1

**Lab Sample ID: LCS 280-436399/3-B**  
**Matrix: Solid**  
**Analysis Batch: 437038**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436606**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
2,4-D	0.0500	0.0327	J	mg/L		65		13 - 115
Silvex (2,4,5-TP)	0.0500	0.0319		mg/L		64		10 - 158

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid	44		10 - 131

**Lab Sample ID: 280-116404-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 437038**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: TCLP**  
**Prep Batch: 436606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec.	Limits
				Result	Qualifier					
2,4-D	ND		0.0500	0.0318	J	mg/L		64		13 - 115
Silvex (2,4,5-TP)	ND		0.0500	0.0383		mg/L		77		10 - 158

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid	44		10 - 131

**Lab Sample ID: 280-116404-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 437038**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: TCLP**  
**Prep Batch: 436606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec.	Limits	RPD	
				Result	Qualifier						RPD	Limit
2,4-D	ND		0.0500	0.0322	J	mg/L		64		13 - 115	1	30
Silvex (2,4,5-TP)	ND		0.0500	0.0373		mg/L		75		10 - 158	3	30

# QC Sample Results

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 8151A DOD - Herbicides (GC) (Continued)

**Lab Sample ID: 280-116404-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 437038**

**Client Sample ID: FWGIDW-181001-WS**  
**Prep Type: TCLP**  
**Prep Batch: 436606**

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
2,4-Dichlorophenylacetic acid	39		10 - 131

## Method: 6010C - Metals (ICP)

**Lab Sample ID: LB 280-436399/1-D**  
**Matrix: Solid**  
**Analysis Batch: 436794**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436590**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Arsenic	ND		0.50	0.022	mg/L		11/08/18 00:33	1
Barium	0.00459	J	1.0	0.0040	mg/L		11/08/18 00:33	1
Cadmium	ND		0.10	0.0020	mg/L		11/08/18 00:33	1
Chromium	ND		0.50	0.0030	mg/L		11/08/18 00:33	1
Lead	ND		0.50	0.014	mg/L		11/08/18 00:33	1
Selenium	ND		0.10	0.032	mg/L		11/08/18 00:33	1
Silver	ND		0.50	0.0040	mg/L		11/08/18 00:33	1

**Lab Sample ID: LCS 280-436399/2-D**  
**Matrix: Solid**  
**Analysis Batch: 436794**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436590**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	3.84		mg/L		96	80 - 120
Barium	12.0	11.6		mg/L		97	80 - 120
Cadmium	1.10	1.06		mg/L		96	80 - 120
Chromium	5.20	5.03		mg/L		97	80 - 120
Lead	5.50	5.39		mg/L		98	80 - 120
Selenium	3.00	2.85		mg/L		95	80 - 120
Silver	1.05	1.05		mg/L		100	80 - 120

**Lab Sample ID: LCSD 280-436399/13-B**  
**Matrix: Solid**  
**Analysis Batch: 436794**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: TCLP**  
**Prep Batch: 436590**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	3.99		mg/L		100	80 - 120	4	20
Barium	12.0	11.9		mg/L		99	80 - 120	3	20
Cadmium	1.10	1.09		mg/L		99	80 - 120	3	20
Chromium	5.20	5.20		mg/L		100	80 - 120	3	20
Lead	5.50	5.59		mg/L		102	80 - 120	4	20
Selenium	3.00	2.97		mg/L		99	80 - 120	4	20
Silver	1.05	1.08		mg/L		103	80 - 120	3	20

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: LB 280-436399/1-H**  
**Matrix: Solid**  
**Analysis Batch: 436972**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436799**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000030	mg/L		11/08/18 20:01	1

**Lab Sample ID: LCS 280-436399/2-G**  
**Matrix: Solid**  
**Analysis Batch: 436972**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436799**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00539		mg/L		108	90 - 116

**Lab Sample ID: LCSD 280-436399/13-C**  
**Matrix: Solid**  
**Analysis Batch: 436972**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: TCLP**  
**Prep Batch: 436799**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00500	0.00543		mg/L		109	90 - 116	1	10

## Method: 1010A - Ignitability, Pensky-Martens Closed-Cup Method

**Lab Sample ID: MB 160-401121/1**  
**Matrix: Solid**  
**Analysis Batch: 401121**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C		11/15/18 23:43	1

**Lab Sample ID: LCS 160-401121/2**  
**Matrix: Solid**  
**Analysis Batch: 401121**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	25.0	27.00		Degrees C		108	90 - 110

## Method: 9012B - Cyanide, Total and/or Amenable

**Lab Sample ID: MB 280-437593/4-A**  
**Matrix: Solid**  
**Analysis Batch: 437647**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 437593**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.268	J	0.50	0.10	mg/Kg		11/14/18 19:22	1

**Lab Sample ID: HLCS 280-437593/1-A**  
**Matrix: Solid**  
**Analysis Batch: 437647**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437593**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	17.5	18.5		mg/Kg		106	90 - 110

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 9012B - Cyanide, Total and/or Amenable (Continued)

**Lab Sample ID: LCS 280-437593/3-A**  
**Matrix: Solid**  
**Analysis Batch: 437647**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437593**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	5.00	5.50		mg/Kg		110	76 - 120

**Lab Sample ID: LLCS 280-437593/2-A**  
**Matrix: Solid**  
**Analysis Batch: 437647**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437593**  
**%Rec.**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	5.00	5.35		mg/Kg		107	51 - 150

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-436723/1-A**  
**Matrix: Solid**  
**Analysis Batch: 436735**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 436723**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Sulfide	ND		2.0	0.48	mg/Kg		11/07/18 20:06	1

**Lab Sample ID: LCS 280-436723/3-A**  
**Matrix: Solid**  
**Analysis Batch: 436735**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 436723**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Sulfide	22.3	16.0		mg/Kg		72	38 - 104

## Method: 9045D - pH

**Lab Sample ID: LCS 280-436854/1-A**  
**Matrix: Solid**  
**Analysis Batch: 436907**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Soluble**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	97 - 103

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MRL 280-437376/3**  
**Matrix: Solid**  
**Analysis Batch: 437376**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.200	0.212	J	mg/L		106	50 - 150
Nitrite as N	0.200	0.221	J	mg/L		110	50 - 150



# QC Sample Results

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 280-437455/3-A**  
**Matrix: Solid**  
**Analysis Batch: 437376**

**Client Sample ID: Method Blank**  
**Prep Type: Soluble**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Nitrate as N	ND		5.0	0.31	mg/Kg		11/14/18 00:42	1
Nitrite as N	ND		5.0	0.34	mg/Kg		11/14/18 00:42	1

**Lab Sample ID: LCS 280-437455/1-A**  
**Matrix: Solid**  
**Analysis Batch: 437376**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Soluble**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	50.0	50.5		mg/Kg		101	87 - 111
Nitrite as N	50.0	50.2		mg/Kg		100	86 - 115

**Lab Sample ID: LCSD 280-437455/2-A**  
**Matrix: Solid**  
**Analysis Batch: 437376**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Soluble**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	49.9	50.1		mg/Kg		100	87 - 111	1	10
Nitrite as N	49.9	49.9		mg/Kg		100	86 - 115	1	10

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## GC/MS VOA

### Leach Batch: 436398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	1311	
LB 280-436398/1-A	Method Blank	TCLP	Solid	1311	
LCS 280-436398/2-A	Lab Control Sample	TCLP	Solid	1311	

### Analysis Batch: 437024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	8260B	436398
LB 280-436398/1-A	Method Blank	TCLP	Solid	8260B	436398
LCS 280-436398/2-A	Lab Control Sample	TCLP	Solid	8260B	436398

## GC/MS Semi VOA

### Leach Batch: 436399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	1311	
LB 280-436399/1-C	Method Blank	TCLP	Solid	1311	
LCS 280-436399/2-C	Lab Control Sample	TCLP	Solid	1311	
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	1311	
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	1311	

### Prep Batch: 436573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
LB 280-436399/1-C	Method Blank	TCLP	Solid	3510C	436399
LCS 280-436399/2-C	Lab Control Sample	TCLP	Solid	3510C	436399
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	3510C	436399

### Analysis Batch: 437601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	8270D	436573
LB 280-436399/1-C	Method Blank	TCLP	Solid	8270D	436573
LCS 280-436399/2-C	Lab Control Sample	TCLP	Solid	8270D	436573
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	8270D	436573
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	8270D	436573

## GC Semi VOA

### Leach Batch: 436399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	1311	
LB 280-436399/1-E	Method Blank	TCLP	Solid	1311	
LB 280-436399/1-F	Method Blank	TCLP	Solid	1311	
LCS 280-436399/2-E	Lab Control Sample	TCLP	Solid	1311	
LCS 280-436399/3-B	Lab Control Sample	TCLP	Solid	1311	
LCS 280-436399/3-C	Lab Control Sample	TCLP	Solid	1311	
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	1311	
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	1311	

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## GC Semi VOA (Continued)

### Prep Batch: 436527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	3546	
MB 280-436527/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436527/2-A	Lab Control Sample	Total/NA	Solid	3546	
280-116404-1 MS	FWGIDW-181001-WS	Total/NA	Solid	3546	
280-116404-1 MSD	FWGIDW-181001-WS	Total/NA	Solid	3546	

### Prep Batch: 436606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	8151A	436399
LB 280-436399/1-E	Method Blank	TCLP	Solid	8151A	436399
LCS 280-436399/3-B	Lab Control Sample	TCLP	Solid	8151A	436399
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	8151A	436399
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	8151A	436399

### Prep Batch: 436783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
LB 280-436399/1-F	Method Blank	TCLP	Solid	3510C	436399
LCS 280-436399/2-E	Lab Control Sample	TCLP	Solid	3510C	436399
LCS 280-436399/3-C	Lab Control Sample	TCLP	Solid	3510C	436399
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	3510C	436399
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	3510C	436399

### Analysis Batch: 437038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	8151A DOD	436606
LB 280-436399/1-E	Method Blank	TCLP	Solid	8151A DOD	436606
LCS 280-436399/3-B	Lab Control Sample	TCLP	Solid	8151A DOD	436606
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	8151A DOD	436606
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	8151A DOD	436606

### Analysis Batch: 438897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	8082A	436527
MB 280-436527/1-A	Method Blank	Total/NA	Solid	8082A	436527
LCS 280-436527/2-A	Lab Control Sample	Total/NA	Solid	8082A	436527
280-116404-1 MS	FWGIDW-181001-WS	Total/NA	Solid	8082A	436527
280-116404-1 MSD	FWGIDW-181001-WS	Total/NA	Solid	8082A	436527

### Analysis Batch: 439676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	8081B	436783
LB 280-436399/1-F	Method Blank	TCLP	Solid	8081B	436783
LCS 280-436399/2-E	Lab Control Sample	TCLP	Solid	8081B	436783
LCS 280-436399/3-C	Lab Control Sample	TCLP	Solid	8081B	436783
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	8081B	436783
280-116404-1 MS	FWGIDW-181001-WS	TCLP	Solid	8081B	436783
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	8081B	436783
280-116404-1 MSD	FWGIDW-181001-WS	TCLP	Solid	8081B	436783

TestAmerica Denver

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Metals

### Leach Batch: 436399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	1311	
LB 280-436399/1-D	Method Blank	TCLP	Solid	1311	
LB 280-436399/1-H	Method Blank	TCLP	Solid	1311	
LCS 280-436399/2-D	Lab Control Sample	TCLP	Solid	1311	
LCS 280-436399/2-G	Lab Control Sample	TCLP	Solid	1311	
LCSD 280-436399/13-B	Lab Control Sample Dup	TCLP	Solid	1311	
LCSD 280-436399/13-C	Lab Control Sample Dup	TCLP	Solid	1311	

### Prep Batch: 436590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	3010A	436399
LB 280-436399/1-D	Method Blank	TCLP	Solid	3010A	436399
LCS 280-436399/2-D	Lab Control Sample	TCLP	Solid	3010A	436399
LCSD 280-436399/13-B	Lab Control Sample Dup	TCLP	Solid	3010A	436399

### Analysis Batch: 436794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	6010C	436590
LB 280-436399/1-D	Method Blank	TCLP	Solid	6010C	436590
LCS 280-436399/2-D	Lab Control Sample	TCLP	Solid	6010C	436590
LCSD 280-436399/13-B	Lab Control Sample Dup	TCLP	Solid	6010C	436590

### Prep Batch: 436799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	7470A	436399
LB 280-436399/1-H	Method Blank	TCLP	Solid	7470A	436399
LCS 280-436399/2-G	Lab Control Sample	TCLP	Solid	7470A	436399
LCSD 280-436399/13-C	Lab Control Sample Dup	TCLP	Solid	7470A	436399

### Analysis Batch: 436792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	TCLP	Solid	7470A	436799
LB 280-436399/1-H	Method Blank	TCLP	Solid	7470A	436799
LCS 280-436399/2-G	Lab Control Sample	TCLP	Solid	7470A	436799
LCSD 280-436399/13-C	Lab Control Sample Dup	TCLP	Solid	7470A	436799

## General Chemistry

### Analysis Batch: 401121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	1010A	
MB 160-401121/1	Method Blank	Total/NA	Solid	1010A	
LCS 160-401121/2	Lab Control Sample	Total/NA	Solid	1010A	

### Analysis Batch: 436543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	Moisture	

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## General Chemistry (Continued)

### Prep Batch: 436723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	9030B	
MB 280-436723/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 280-436723/3-A	Lab Control Sample	Total/NA	Solid	9030B	

### Analysis Batch: 436735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	9034	436723
MB 280-436723/1-A	Method Blank	Total/NA	Solid	9034	436723
LCS 280-436723/3-A	Lab Control Sample	Total/NA	Solid	9034	436723

### Leach Batch: 436854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Soluble	Solid	DI Leach	
LCS 280-436854/1-A	Lab Control Sample	Soluble	Solid	DI Leach	

### Analysis Batch: 436907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Soluble	Solid	9045D	436854
LCS 280-436854/1-A	Lab Control Sample	Soluble	Solid	9045D	436854

### Analysis Batch: 437376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Soluble	Solid	9056A	437455
MB 280-437455/3-A	Method Blank	Soluble	Solid	9056A	437455
LCS 280-437455/1-A	Lab Control Sample	Soluble	Solid	9056A	437455
LCSD 280-437455/2-A	Lab Control Sample Dup	Soluble	Solid	9056A	437455
MRL 280-437376/3	Lab Control Sample	Total/NA	Solid	9056A	

### Leach Batch: 437455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Soluble	Solid	DI Leach	
MB 280-437455/3-A	Method Blank	Soluble	Solid	DI Leach	
LCS 280-437455/1-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-437455/2-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

### Prep Batch: 437593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	9012B	
MB 280-437593/4-A	Method Blank	Total/NA	Solid	9012B	
HLCS 280-437593/1-A	Lab Control Sample	Total/NA	Solid	9012B	
LCS 280-437593/3-A	Lab Control Sample	Total/NA	Solid	9012B	
LLCS 280-437593/2-A	Lab Control Sample	Total/NA	Solid	9012B	

### Analysis Batch: 437647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116404-1	FWGIDW-181001-WS	Total/NA	Solid	9012B	437593
MB 280-437593/4-A	Method Blank	Total/NA	Solid	9012B	437593
HLCS 280-437593/1-A	Lab Control Sample	Total/NA	Solid	9012B	437593
LCS 280-437593/3-A	Lab Control Sample	Total/NA	Solid	9012B	437593
LLCS 280-437593/2-A	Lab Control Sample	Total/NA	Solid	9012B	437593

# Lab Chronicle

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

**Client Sample ID: FWGIDW-181001-WS**

**Lab Sample ID: 280-116404-1**

**Date Collected: 10/31/18 13:00**

**Matrix: Solid**

**Date Received: 11/01/18 09:30**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	436398	11/05/18 17:37	DFB1	TAL DEN
TCLP	Analysis	8260B		1	2 mL	20 mL	437024	11/09/18 21:21	GPM	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436399	11/05/18 17:37	DFB1	TAL DEN
TCLP	Prep	3510C			200 mL	1 mL	436573	11/06/18 18:15	MAM	TAL DEN
TCLP	Analysis	8270D		1			437601	11/14/18 19:46	DCK	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436399	11/05/18 17:37	DFB1	TAL DEN
TCLP	Prep	3510C			100 mL	10 mL	436783	11/08/18 13:15	AAG	TAL DEN
TCLP	Analysis	8081B		1			439676	12/03/18 17:52	TEB	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436399	11/05/18 17:37	DFB1	TAL DEN
TCLP	Prep	8151A			100 mL	10 mL	436606	11/07/18 08:15	JZ	TAL DEN
TCLP	Analysis	8151A DOD		1			437038	11/09/18 17:30	AMB1	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436399	11/05/18 17:37	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	436590	11/07/18 16:00	DAL	TAL DEN
TCLP	Analysis	6010C		1			436794	11/08/18 01:20	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436399	11/05/18 17:37	DFB1	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	436799	11/08/18 12:48	MRJ	TAL DEN
TCLP	Analysis	7470A		1			436972	11/08/18 20:08	MRJ	TAL DEN
Total/NA	Analysis	1010A		1	70 mL	70 mL	401121	11/16/18 01:16	JCB	TAL SL
Soluble	Leach	DI Leach			41.82 g	40 mL	436854	11/08/18 12:20	SGB	TAL DEN
Soluble	Analysis	9045D		1			436907	11/08/18 19:04	JDR	TAL DEN
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

**Client Sample ID: FWGIDW-181001-WS**

**Lab Sample ID: 280-116404-1**

**Date Collected: 10/31/18 13:00**

**Matrix: Solid**

**Date Received: 11/01/18 09:30**

**Percent Solids: 81.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.3 g	10 mL	436527	11/06/18 15:55	DWC	TAL DEN
Total/NA	Analysis	8082A		10			438897	11/27/18 16:17	BJP	TAL DEN
Total/NA	Prep	9012B			1.0179 g	50 mL	437593	11/14/18 12:51	RK	TAL DEN
Total/NA	Analysis	9012B		2	50 mL	50 mL	437647	11/14/18 20:40	RK	TAL DEN
Total/NA	Prep	9030B			5.88 g	50 mL	436723	11/07/18 17:19	EC	TAL DEN
Total/NA	Analysis	9034		1			436735	11/07/18 20:06	EC	TAL DEN
Soluble	Leach	DI Leach			10.64 g	100 mL	437455	11/13/18 17:44	TLP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	437376	11/14/18 01:34	A1D	TAL DEN

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100  
 TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury
9045D		Solid	Temperature
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Leidos, Inc.

TestAmerica Job ID: 280-116404-1

Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8081B	Organochlorine Pesticides (GC)	SW846	TAL DEN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL DEN
8151A DOD	Herbicides (GC)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
1010A	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL SL
9012B	Cyanide, Total and/or Amenable	EPA	TAL DEN
9034	Sulfide, Acid Soluble and Insoluble (Titrimetric)	SW846	TAL DEN
9045D	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
1311	TCLP Extraction	SW846	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8151A	Extraction (Herbicides)	SW846	TAL DEN
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL DEN
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL DEN
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL DEN

#### Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Sample Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116404-1

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
280-116404-1	FWGIDW-181001-WS	Solid	10/31/18 13:00	11/01/18 09:30

# Shipping and Receiving Documents

# Chain of Custody Record



COC No: **RVAAP-083**

Page 1 of 1 Date: **10/31/2010**

Name Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426

Sampler (Signature) \_\_\_\_\_ (Printed Name)

Laboratory Name: **Test America - Canton**  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax: \_\_\_\_\_  
 Contact: \_\_\_\_\_

**PLUS ONE EXTRA DUMME BOTTLE**

Laboratory No.	Sample ID	Date	Time	Matrix	Requested Parameters													Total Number of Containers:	Notes:	Shipment Method:
					TCLP VOCs (1)(A)	TCLP Pesticides (3)(A), TCLP Herbicides (5)(A), TCLP Metals (7)(A)	Total PCBs (12)(A) / (4)(A)	Ignitability (1)(A)	pH (13)(A) / (6)(A)	Total Sulfide (9)(A), Total Cyanide (5)(A), Nitrate, Nitrite (10)(A)	Total Cyanide (8)(D)	Total Sulfide (9)(E)	Nitrate and Nitrite (10)(A)	Temperature Blank	CONTAINERS					
	FWGIDW-181001-WS	10/31/10	1300	S	1	2	1	1	1	1	1	1	1	1	1	1	1	13		
	FWGIDW-181001-WW			W	3	2	2	2	2	2	2	2	2	2	2	2	2	13		

Relinquished by: *[Signature]* Test America  
 Signature: *[Signature]*  
 Printed Name: **HEATHER ADAMS**  
 Leidos  
 Company: **RE FORSON**  
 Relinquished by: *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: **JOSEPH BHADEY**  
 Company: **RE FORSON**  
 Relinquished by: *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: **TA DENVER**  
 Company: **RE FORSON**

Date: **10/31/2010**  
 Time: **1004**  
 Date: **11/1/10**  
 Time: **0930**  
 Notes:  
 A. Cool, 4C  
 B. HCl, pH<2, Cool, 4C  
 C. HNO3, pH<2, Cool, 4C  
 D. NaOH, pH>12, Cool, 4C  
 1. SW 1311, 8260  
 2. SW 1311, 8270  
 3. SW 1311, 8081  
 4. SW 3510C/8082A (W)  
 5. SW 1311, 8151  
 6. SW 9040 (W)  
 7. SW 1311, 9010, 7470  
 8. SW 9012A  
 9. SW 9034  
 10. SW 9056  
 11. SW 1010  
 12. SW 3540C/8082A (S)  
 13. SW 9045 (S)  
 S=Soil / W=Water  
 Temperature Blank  
 Lab:  
**Leidos**  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802



The information in this document is proprietary to Leidos. It may not be used, reproduced, disclosed, or exported without the written approval of Leidos.

# Chain of Custody Record



COC No.: **RVAAP-083**

Page 1 of 1

Date: **10/31/18**

Name Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426

Sampler (Signature) \_\_\_\_\_ (Printed Name)

Laboratory Name: **Test America - Canton**  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax: \_\_\_\_\_  
 Contact: \_\_\_\_\_

**PLUS ONE EXTRA VOLUME BOTTLE**

Laboratory No.	Sample ID	Date	Time	Matrix	Requested Parameters													Total Number of Containers:	Shipment Method:	
					TCLP VOCs (1)(A)	TCLP SVOCs (2)(A), TCLP Pesticides (3)(A), TCLP Herbicides (5)(A), TCLP Metals (7)(A)	Total PCBs (12)(A) / (4)(A)	Ignitability (11)(A)	pH (13)(A) / (5)(A)	Total Sulfide (9)(A), Total Cyanide (9)(A), Nitrate, Nitrite (10)(A)	Total Cyanide (8)(D)	Total Sulfide (9)(E)	Nitrate and Nitrite (10)(A)	Temperature Blank	NO	OF	CONTAINER S			
	FWGIDW-181001-WS	10/31/18	1300	S	1	2	1	1	1	1	1	1	1	1	1	1	1	1	8	Courier
	FWGIDW-181001-WWW			W	3	2	2	2	2	2	2	2	2	2	2	2	2	2	13	
Relinquished by	<i>[Signature]</i>	Date	Time	Matrix														Total Number of Containers:	Shipment Method:	
	Test America	10/31/2018																8	Courier	
Signature	<i>[Signature]</i>	Date	Time	Matrix														Notes:		
	Rick Robison	11/1/18	1004															A. Cool, 4C B. HCl, pH<2, Cool, 4C C. HNO3, pH<2, Cool, 4C D. NaOH, pH>12, Cool, 4C 1. SW 1311, 8260 2. SW 1311, 8270 3. SW 1311, 8081 4. SW 3510C18082A (W) 5. SW 1311, 8151 6. SW 9040 (W) 7. SW 1311, 8010, 7470 8. SW 9012A 9. SW 9034 10. SW 9056 11. SW 1010 12. SW 3540C18082A (S) 13. SW 9045 (S)		
Relinquished by	<i>[Signature]</i>	Date	Time	Matrix														Notes:		
	Jed Thomas	11/1/18	0930															0.3, 0.4 0.3 to 0.7 129 XFERED BY KO 18-01-18		
Signature	<i>[Signature]</i>	Date	Time	Matrix														Notes:		
	Joseph Bhardwaj																	Temperature Blank		
Printed Name	Robison	Date	Time	Matrix														Lab:		
	Rick Robison																	Leidos		
Company	Leidos																	8866 Commons Drive Twinsburg, OH 44087 (330) 405-5802		





# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116404-1

**Login Number: 116404**  
**List Number: 1**  
**Creator: Dunlap, Krista M**

**List Source: TestAmerica Denver**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116404-1

**Login Number: 116404**  
**List Number: 2**  
**Creator: Hellm, Michael**

**List Source: TestAmerica St. Louis**  
**List Creation: 11/03/18 12:18 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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## **G.2 Spring 2019 IDW Documentation**

Site Address : 8451 State Route 5  
Ravenna, OH 44266

SC PPW 3/12/2019

WORK ORDER NO. 091902838047

DOCUMENT NO. 682328

STRAIGHT BILL OF LADING

TRANSPORTER 1 Clean Harbors Environmental Services, Inc. VEHICLE ID # 5701  
 EPA ID # MAD039322250 TRANS. 1 PHONE (781) 792-5000  
 TRANSPORTER 2 \_\_\_\_\_ VEHICLE ID # \_\_\_\_\_  
 EPA ID # \_\_\_\_\_ TRANS. 2 PHONE \_\_\_\_\_

DESIGNATED FACILITY <b>Spring Grove Resource Recovery Inc.</b>			SHIPPER <b>ATTN:Katie Tait Former Ravenna Army Ammunition Plant</b>		
FACILITY EPA ID # <b>OHD000816629</b>			SHIPPER EPA ID # <b>OH5210020736</b>		
ADDRESS <b>4879 Spring Grove Avenue</b>			ADDRESS <b>1438 State Route 534 SW</b>		
CITY <b>Cincinnati</b>		STATE <b>OH</b>	ZIP <b>45232</b>	CITY <b>Newton Falls</b>	
STATE <b>OH</b>		ZIP <b>44444</b>			
CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
4X55	DM		A NON DOT REGULATED MATERIAL, LIQUID IDW	1765	P
			B.		
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		
SPECIAL HANDLING INSTRUCTIONS <b>A.CH1784679</b> EMERGENCY PHONE #: (800) 483-3718 GENERATOR: Former Ravenna Army Ammunition Plant					

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER	PRINT <i>Kathryn S Tait</i>	SIGN <i>Kathryn S Tait</i>	DATE <i>6/13/2019</i>
TRANSPORTER 1	PRINT <i>ALEX VASU</i>	SIGN <i>VASU</i>	DATE <i>06/13/19</i>
TRANSPORTER 2	PRINT	SIGN	DATE
RECEIVED BY	PRINT <i>Brandy ProAtt</i>	SIGN <i>BJS</i>	DATE <i>06/20/19</i>

1



# WASTE MATERIAL PROFILE SHEET

## Clean Harbors Profile No. CH1784679

**A. GENERAL INFORMATION**

GENERATOR EPA ID #/REGISTRATION #	<b>OH5210020736</b>	GENERATOR NAME:	<b>Former Ravenna Army Ammunition Plant</b>
GENERATOR CODE (Assigned by Clean Harbors)	<b>FO23255</b>	CITY	<b>Ravenna</b>
ADDRESS	<b>8451 State Route 5</b>	STATE/PROVINCE	<b>OH</b>
		ZIP/POSTAL CODE	<b>44266</b>
CUSTOMER CODE (Assigned by Clean Harbors)	<b>LE18366</b>	CUSTOMER NAME:	<b>Leidos</b>
ADDRESS	<b>8866 Commons Boulevard</b>	CITY	<b>Twinsburg</b>
		STATE/PROVINCE	<b>OH</b>
		ZIP/POSTAL CODE	<b>44087</b>

**B. WASTE DESCRIPTION**WASTE DESCRIPTION: **Groundwater Sampling - Liquid IDW**PROCESS GENERATING WASTE: **Environmental Sampling**IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No****C. PHYSICAL PROPERTIES (at 25C or 77F)**

<b>PHYSICAL STATE</b> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> <input checked="" type="checkbox"/> 1    2    3    TOP <b>0.00</b> % BY VOLUME (Approx.)    MIDDLE <b>0.00</b> BOTTOM <b>0.00</b>		<b>VISCOSITY (If liquid present)</b> <input checked="" type="checkbox"/> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000		<b>COLOR</b>  <b>Cloudy/Brown</b>
	<b>ODOR</b> <input checked="" type="checkbox"/> NONE MILD STRONG Describe:	<b>BOILING POINT °F (°C)</b> <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) <input checked="" type="checkbox"/> >= 130 (>54)	<b>MELTING POINT °F (°C)</b> < 140 (<60) 140-200 (60-93) > 200 (>93)	<b>TOTAL ORGANIC CARBON</b> <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%	
<b>FLASH POINT °F (°C)</b> < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) > 200 (>93)	<b>pH</b> <= 2 2.1 - 6.9 7 (Neutral) <input checked="" type="checkbox"/> 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> < 0.1    > 20 0.1 - 1.0 <input checked="" type="checkbox"/> Unknown 1.1 - 5.0 5.1 - 20.0	<b>BTU/LB (MJ/kg)</b> <input checked="" type="checkbox"/> < 2,000 (<4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2)  Actual:	

**D. COMPOSITION** (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
DEIONIZED WATER	0.2500000	--	0.5000000	%
GROUNDWATER	99.0000000	--	100.0000000	%
ISOPROPYL ALCOHOL	0.2500000	--	0.5000000	%
NITRIC ACID	0.2500000	--	0.5000000	%
SOAP	0.2500000	--	0.5000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")?    YES    NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM?    YES     NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL?    YES     NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material.    YES    NO

Chemical disinfection or some other form of sterilization has been applied to the waste.    YES    NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS.    YES    NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED.    YES    NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE.    **G09**    SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE.    **W113**



E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge  Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0	0.0000			
D005	BARIUM	100.0	0.0150			
D006	CADMIUM	1.0	0.0000			
D007	CHROMIUM	5.0	0.0000			
D008	LEAD	5.0	0.0000			
D009	MERCURY	0.2	0.0000			
D010	SELENIUM	1.0	0.0000			
D011	SILVER	5.0	0.0000			
<b>VOLATILE COMPOUNDS</b>				<b>OTHER CONSTITUENTS</b>		
D018	BENZENE	0.5	0		MAX	UOM
D019	CARBON TETRACHLORIDE	0.5	0	BROMINE		NOT APPLICABLE
D021	CHLOROGENZENE	100.0	0	CHLORINE		<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0	0	FLUORINE		<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5	0	IODINE		<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7	0	SULFUR		<input checked="" type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0	0	POTASSIUM		<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7	0	SODIUM		<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5	0	AMMONIA		<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2	0	CYANIDE AMENABLE		<input checked="" type="checkbox"/>
<b>SEMI-VOLATILE COMPOUNDS</b>				CYANIDE REACTIVE		<input checked="" type="checkbox"/>
D023	o-CRESOL	200.0	0	CYANIDE TOTAL	0.2700	PPM
D024	m-CRESOL	200.0	0	SULFIDE REACTIVE		<input checked="" type="checkbox"/>
D025	p-CRESOL	200.0	0			
D026	CRESOL (TOTAL)	200.0	0			
D027	1,4-DICHLOROBENZENE	7.5	0			
D030	2,4-DINITROTOLUENE	0.13	0			
D032	HEXACHLOROBENZENE	0.13	0			
D033	HEXACHLOROBUTADIENE	0.5	0			
D034	HEXACHLOROETHANE	3.0	0			
D036	NITROBENZENE	2.0	0			
D037	PENTACHLOROPHENOL	100.0	0			
D038	PYRIDINE	5.0	0			
D041	2,4,5-TRICHLOROPHENOL	400.0	0			
D042	2,4,6-TRICHLOROPHENOL	2.0	0			
<b>PESTICIDES AND HERBICIDES</b>						
D012	ENDRIN	0.02	0			
D013	LINDANE	0.4	0			
D014	METHOXYCHLOR	10.0	0			
D015	TOXAPHENE	0.5	0			
D016	2,4-D	10.0	0			
D017	2,4,5-TP (SILVEX)	1.0	0			
D020	CHLORDANE	0.03	0			
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008	0			

**HOCs**

NONE  
 < 1000 PPM  
 >= 1000 PPM

**PCBs**

NONE  
 < 50 PPM  
 >= 50 PPM

IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES  NO

ADDITIONAL HAZARDS  
DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES  NO (If yes, explain)

CHOOSE ALL THAT APPLY

- DEA REGULATED SUBSTANCES
- EXPLOSIVE
- FUMING
- OSHA REGULATED CARCINOGENS
- POLYMERIZABLE
- RADIOACTIVE
- REACTIVE MATERIAL
- NONE OF THE ABOVE



F. REGULATORY STATUS

YES  NO USEPA HAZARDOUS WASTE?

YES  NO DO ANY STATE WASTE CODES APPLY?  
Texas Waste Code

YES  NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES  NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY: **Not subject to LDR**  
VARIANCE INFO:

YES  NO IS THIS A UNIVERSAL WASTE?

YES  NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES  NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES  NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES  NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?

YES  NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G)      Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
What is the TAB quantity for your facility?      Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data      Knowledge      Testing  
Describe the knowledge :     

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON DOT REGULATED MATERIAL, LIQUID IDW

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY  ONE TIME   WEEKLY   MONTHLY   QUARTERLY   YEARLY   OTHER

<input checked="" type="checkbox"/> CONTAINERIZED <b>11-15</b> CONTAINERS/SHIPMENT STORAGE CAPACITY: CONTAINER TYPE: PORTABLE TOTE TANK      BOX CARTON CASE CUBIC YARD BOX <input checked="" type="checkbox"/> DRUM OTHER:      DRUM SIZE:	BULK LIQUID GALLONS/SHIPMENT: <b>0 Min - 0 Max</b> GAL.	BULK SOLID SHIPMENT UOM:      TON      YARD TONS/YARDS/SHIPMENT: <b>0 Min - 0 Max</b>
---	--	---

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE <u>Kathryn S. Tait</u>	NAME (PRINT) <u>Kathryn S. Tait</u>	TITLE <u>Envmtl Specialist 2</u>	DATE <u>28 January 2019</u>
--	--	-------------------------------------	--------------------------------



June 11, 2019

Ms. Katie Tait, OHARNG  
Camp James A. Garfield - Environmental Office  
1438 State Route 534 SW  
Newton Falls, OH 44444

**Subject: May 2019 Facility-wide Groundwater Monitoring Program Sampling - Investigation-Derived Waste (IDW) Characterization and Disposal Plan**  
**Reference: Contract No. W912QR-16-D-0003, Delivery Order No. W912QR-18-F-0337, Groundwater Investigation and Reporting Services, RVAAP Restoration Program**

Dear Ms. Tait:

Investigative activities in accordance with the *Facility-wide Groundwater Monitoring Addendum for 2019* were performed from April 29, 2019 through May 13, 2019. These activities resulted in the generation of liquid IDW (consisting of purge water and equipment decontamination fluids). The purpose of this letter is to characterize and classify the IDW and to propose methods for disposal. This letter report includes a summary of IDW generated, the origin of the IDW, and proposed classification and recommendations for disposal of the IDW.

The May 2019 IDW stream was generated during the collection of groundwater from wells within the former RVAAP. These were the same activities conducted in October 2018 which generated the same liquid IDW stream. The October 2018 IDW stream was characterized under provisions established by the *Facility-Wide Sampling and Analysis Plan* (USACE 2011) (herein referred to as the Facility-wide SAP). Please reference Attachment 1 for the October 2018 Facility-wide Groundwater Monitoring Program Sampling - Investigation-Derived Waste (IDW) Characterization and Disposal Plan. That IDW stream was classified as non-hazardous, non-contaminated under Clean Harbors Profile No. CH1784679. Please reference Attachment 2 for the Waste Material Profile Sheet, Clean Harbors Profile No. CH1784679.

As the October 2018 and May 2019 liquid IDW streams are generated from the same sampling activities and have the same characteristics, Leidos recommends that the four (4), 55 gallon drums containing approximately 163.5 gallons of groundwater be classified as non-hazardous, noncontaminated utilizing generator knowledge and prior characterization results. Leidos also recommends that the liquid IDW and be removed offsite and disposed of at a permitted water treatment or waste facility unless the ARNG/OHARNG has additional information that would result in the IDW meeting the definition of a listed hazardous waste as defined in 40 CFR Part 261 Subpart D. Table 1 presents the disposal pathway identified as a result of IDW characterization data.

**Table 1. Summary of Investigation-Derived Wastes and Disposal Recommendation**

<b>Container Number</b>	<b>Container Type and Size</b>	<b>Contents</b>	<b>Generation Date</b>	<b>Disposal Recommendation</b>
Leidos-FWGW-012-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 45 gal	4/23/19-5/2/19	Permitted Treatment or Waste Facility
Leidos-FWGW-013-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 45 gal	5/3/19-5/8/19	Permitted Treatment or Waste Facility
Leidos-FWGW-014-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 38 gal	5/7/19-5/8/19	Permitted Treatment or Waste Facility
Leidos-FWGW-015-L	55 Gallon, Steel, Closed Top Drum	Purge Water, Equipment Decon Fluids – 35.5 gal	5/9/19-5/13/19	Permitted Treatment or Waste Facility

Since the former RVAAP, under RCRA, is the generator of this material, Leidos requests concurrence or direction on the waste classification. Following your concurrence, we will proceed with generating waste manifest and coordinating waste disposal under previous Clean Harbors Profile No. CH1784679.

If you have any questions, or require additional information, please do not hesitate to contact me at (330) 405-5802.

Leidos



Jed Thomas, P.E.  
Deputy Project Manager

cc: David Connolly, ARNG  
Kevin Sedlak, ARNG, Camp James A. Garfield  
Jay Trumble, USACE Louisville  
Vasu Peterson, Leidos  
Heather Adams, Leidos

**Table A.1. Liquid IDW Sample Results (FWGIDW-181001-WW)**

<b>Analyte</b>	<b>CAS Number</b>	<b>Units</b>	<b>Specific Method</b>	<b>Basis</b>	<b>Regulatory Level Citation</b>	<b>Regulatory Level</b>	<b>Sample Result</b>
Arsenic	7440-38-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Barium	7440-39-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	100	0.015 J
Cadmium	7440-43-9	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Chromium	7440-47-3	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Lead	7439-92-1	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
Mercury	7439-97-6	mg/L	Mercury (CVAA)	TCLP	40 CFR 261.24	0.2	<0.002 U
Selenium	7782-49-2	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	1	<0.1 U
Silver	7440-22-4	mg/L	Metals (ICP)	TCLP	40 CFR 261.24	5	<0.5 U
2,4-D	94-75-7	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	10	<0.04 U
Silvex (2,4,5-TP)	93-72-1	mg/L	Herbicides (GC)	TCLP	40 CFR 261.24	1	<0.01 U
Chlordane (technical)	57-74-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.03	<0.005 U
Endrin	72-20-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.02	<0.005 U
Heptachlor	76-44-8	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.005 U
Heptachlor epoxide	1024-57-3	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.008	<0.005 U
Methoxychlor	72-43-5	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	10	<0.02 U
Toxaphene	8001-35-2	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.5	<0.001 U
gamma-BHC (Lindane)	58-89-9	mg/L	Organochlorine Pesticides (GC)	TCLP	40 CFR 261.24	0.4	<0.0005 U
1,4-Dichlorobenzene	106-46-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	7.5	<0.02 U
2,4,5-Trichlorophenol	95-95-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	400	<0.05 U
2,4,6-Trichlorophenol	88-06-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.025 U
2,4-Dinitrotoluene	121-14-2	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
2-Methylphenol (o-cresol)	95-48-7	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
3 & 4 Methylphenol (m,p-cresol)	15831-10-4	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.05 U
Hexachlorobenzene	118-74-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.13	<0.05 U
Hexachlorobutadiene	87-68-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.05 U
Hexachloroethane	67-72-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	3	<0.05 U
Nitrobenzene	98-95-3	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	2	<0.05 U
Pentachlorophenol	87-86-5	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.25 U
Pyridine	110-86-1	mg/L	Semivolatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	5	<0.1 U
1,1-Dichloroethene	75-35-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U
1,2-Dichloroethane	107-06-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
2-Butanone (MEK)	78-93-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	200	<0.1 U
Benzene	71-43-2	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Carbon tetrachloride	56-23-5	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U
Chlorobenzene	108-90-7	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	100	<0.01 U
Chloroform	67-66-3	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	6	<0.01 U
Tetrachloroethene	127-18-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.7	<0.01 U
Trichloroethene	79-01-6	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.5	<0.01 U



**Table A.1. Liquid IDW Sample Results (FWGIDW-181001-WW)**

Analyte	CAS Number	Units	Specific Method	Basis	Regulatory Level Citation	Regulatory Level	Sample Result
Vinyl chloride	75-01-4	mg/L	Volatile Organic Compounds (GC/MS)	TCLP	40 CFR 261.24	0.2	<0.01 U
PCB-1016	12674-11-2	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1221	11104-28-2	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1232	11141-16-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1242	53469-21-9	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1248	12672-29-6	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1254	11097-69-1	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1260	11096-82-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1262	37324-23-5	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
PCB-1268	11100-14-4	ug/L	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	Total	40 CFR 761.60	50,000	<0.0011 U
Flashpoint	N/A	Deg C	Ignitability, Pensky-Martens Closed-Cup Method	Total	40 CFR 261.21	>60°C (140°F)	>60°C (140°F)
Cyanide, Total	57-12-5	mg/L	Cyanide, Total and/or Amenable	Total	40 CFR 261.23	See Note 1	0.27
Sulfide, Total	18496-25-8	mg/L	Sulfide, Acid Soluble and Insoluble (Titrimetric)	Total	40 CFR 261.23	See Note 1	<4 U
pH adj. to 25 deg C	N/A	SU	pH	Total	40 CFR 261.22	2 ≤ pH ≤ 12.5	7.8 HF
Nitrate as N	14797-55-8	mg/L	Anions, Ion Chromatography	Total	NA	---	14 D
Nitrite as N	14797-65-0	mg/L	Anions, Ion Chromatography	Total	NA	---	0.52 B
Temperature	N/A	Deg C	pH	Total	NA	---	7.8 HF (S.U)

The liquid IDW sample for analysis of cyanide was collected on 11/14/18 under sample ID FWGIDW-181002-WW due to an incorrectly preserved sample bottle on 11/2/18. All other analyses were from sample collected on 11/2/18 under sample ID FWGIDW-181001-WW.

Waste with PCB concentrations greater than 50 ppm (mg/L) [or 50,000 ppb (ug/L)] are regulated and to be disposed in accordance with the Toxic Substances Control Act (TSCA).

Note 1: The US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per CFR 261.23(a)(5) for cyanide or sulfide-bearing wastes.

--- = No regulatory standards for determination of hazardous waste exist.

B = Compound was found in the blank and in the sample.

D = The reported value is from a dilution.

HF = Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

J = Estimated concentration, less than the reporting limit - Lab Qualifier

Q = One or more laboratory quality control criteria failed.

U = Non-detect, concentration reported is reporting limit - Lab Qualifier

**ATTACHMENT B**  
**LABORATORY ANALYTICAL REPORTS**

Job Number: 280-116538-2: Containing Samples FWGIDW-181001-WW, FWGIDW-181002-WW

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## ANALYTICAL REPORT

Job Number: 280-116538-2

Job Description: Leidos RFP# 001088 - Ravenna AAP-66

For:

Leidos, Inc.

Picatinny Arsenal

356 Ninth Avenue

Suite 106

Dover, NJ 07801

Attention: Rita Schmon-Stasik



Approved for release.  
Donna R Rydberg  
Senior Project Manager  
12/12/2018 6:48 PM

---

Donna R Rydberg, Senior Project Manager  
4955 Yarrow Street, Arvada, CO, 80002  
(303)736-0192  
donna.rydberg@testamericainc.com  
12/12/2018  
Revision: 1

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002

Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)

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# Definitions/Glossary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

---

## Qualifiers

---

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Undetected at the Limit of Detection.

---

## Glossary

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Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## CASE NARRATIVE

Client: Leidos, Inc.

Project: Leidos RFP# 001088 - Ravenna AAP-66

Report Number: 280-116538-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### REVISED REPORT

The attached report was revised as the cyanide result for IDW sample (FWGIDW-181002-WW) was included in job 280-116538-1 and should have been included in this job 280-116538-2. No other changes were made.

### RECEIPT

The samples were received on 11/3/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.5° C, 2.1° C, 2.6° C, 2.6° C, 3.6° C and 4.8° C.

Received one bottle for sample ID FWGIDW-181001-WW labeled for cyanide analysis. Container is labeled with Zinc Acetate and NaOH preservative label; analysis requires NaOH preservative only.

### TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples FWGIDW-181001-WW (280-116538-4) and FWGqc-015-TB (280-116538-5) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with 1311. The samples were leached on 11/09/2018 and analyzed on 11/23/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with 8270D. The samples were leached on 11/07/2018, prepared on 11/12/2018 and analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### ORGANOCHLORINE PESTICIDES (GC)

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for Organochlorine Pesticides (GC) in accordance with EPA SW-846 Method 1311/8081B. The samples were leached on 11/07/2018, prepared on 11/12/2018 and analyzed on 11/21/2018.

The following sample required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: FWGIDW-181001-WW (280-116538-4). The reagent lot number used was: T31E034.

The continuing calibration verification (CCV) associated with batch 280-438443 recovered above the upper control limit for DCB Decachlorobiphenyl and Methoxychlor on the front column. The compounds were in control on the back column. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported from the back, in control, column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### POLYCHLORINATED BIPHENYLS (PCBS)

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for polychlorinated biphenyls (PCBs) in accordance with SW-846 8082A. The samples were prepared on 11/13/2018 and analyzed on 11/28/2018.

The continuing calibration verification (CCV) associated to the following samples recovered below the lower limit for Tetrachloro-m-xylene on the confirmation column: (CCVIS 280-439075/4). The primary column was in control. The surrogate recoveries are in control; therefore, the data is being reported from the in control column.

The initial calibration verification (ICV) result for batch 280-439075 was above the upper control limit for surrogate DCB Decachlorobiphenyl, PCB-1248 and PCB-1262. This surrogate in the associated samples was in control. Sample results were non-detects, and have been reported as qualified data.

The following sample required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: FWGIDW-181001-WW (280-116538-4). Acid Lot: 161554.

The following sample required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: FWGIDW-181001-WW (280-116538-4). The reagent lot number used was: T31E034

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP CHLORINATED HERBICIDES**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/8151A. The samples were leached on 11/07/2018, prepared on 11/08/2018 and analyzed on 11/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP METALS**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for TCLP metals in accordance with EPA SW846 Methods 1311/6010C. The samples were leached on 11/07/2018, and prepared and analyzed on 11/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **TCLP MERCURY**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for TCLP mercury in accordance with SW-846 1311/7470. The samples were leached on 11/07/2018, prepared on 11/14/2018 and analyzed on 11/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **IGNITABILITY**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for ignitability in accordance with EPA SW-846 Method 1010. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **CYANIDE, TOTAL**

Samples FWGIDW-181001-WW (280-116538-4) and FWIDW0181002-WW were analyzed for Cyanide, Total in accordance with 9012B.

Sample FWGIDW-181001-WW (280-116538-4) required a 5X dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **SULFIDE**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 11/07/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **CORROSIVITY (PH)**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for Corrosivity (pH) in accordance with EPA SW-846 9040C. The samples were analyzed on 11/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **ANIONS (48 HOURS)**

Sample FWGIDW-181001-WW (280-116538-4) was analyzed for anions (48 hours) in accordance with 9056A. The samples were analyzed on 11/03/2018.

Nitrite as N was detected in method blank MB 280-436181/6 at a level that was less than one half the Reporting limits; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged "J".

Sample FWGIDW-181001-WW (280-116538-4) required a 5X dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Client Sample ID: FWGIDW-181001-WW

## Lab Sample ID: 280-116538-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.015	J	1.0	0.0040	mg/L	1		6010C	TCLP
Flashpoint	>60		1.00	1.00	Degrees C	1		1010A	Total/NA
Cyanide, Total	0.63		0.050	0.010	mg/L	5		9012B	Total/NA
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040C	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040C	Total/NA
Nitrate as N	14		2.5	0.21	mg/L	5		9056A	Total/NA
Nitrite as N	0.52	B	0.50	0.049	mg/L	1		9056A	Total/NA

## Client Sample ID: FWGqc-015-TB

## Lab Sample ID: 280-116538-5

No Detections.

## Client Sample ID: FWIDW-181002-WW

## Lab Sample ID: 280-116538-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.27		0.010	0.0050	0.0020	mg/L	1	9012B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

**Client Sample ID: FWGIDW-181001-WW**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Benzene	ND		0.010	0.0016	mg/L		11/23/18 13:45	1
2-Butanone (MEK)	ND		0.10	0.020	mg/L		11/23/18 13:45	1
Carbon tetrachloride	ND		0.010	0.0019	mg/L		11/23/18 13:45	1
Chlorobenzene	ND		0.010	0.0017	mg/L		11/23/18 13:45	1
Chloroform	ND		0.010	0.0016	mg/L		11/23/18 13:45	1
1,2-Dichloroethane	ND		0.010	0.0013	mg/L		11/23/18 13:45	1
1,1-Dichloroethene	ND		0.010	0.0023	mg/L		11/23/18 13:45	1
Tetrachloroethene	ND		0.010	0.0020	mg/L		11/23/18 13:45	1
Trichloroethene	ND		0.010	0.0016	mg/L		11/23/18 13:45	1
Vinyl chloride	ND		0.010	0.0010	mg/L		11/23/18 13:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	99		78 - 120		11/23/18 13:45	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	90		64 - 129		11/23/18 13:45	1
<i>4-Bromofluorobenzene (Surr)</i>	92		78 - 121		11/23/18 13:45	1
<i>Dibromofluoromethane (Surr)</i>	87		79 - 119		11/23/18 13:45	1

**Client Sample ID: FWGqc-015-TB**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-5**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Benzene	ND		0.010	0.0016	mg/L		11/23/18 14:05	1
2-Butanone (MEK)	ND		0.10	0.020	mg/L		11/23/18 14:05	1
Carbon tetrachloride	ND		0.010	0.0019	mg/L		11/23/18 14:05	1
Chlorobenzene	ND		0.010	0.0017	mg/L		11/23/18 14:05	1
Chloroform	ND		0.010	0.0016	mg/L		11/23/18 14:05	1
1,2-Dichloroethane	ND		0.010	0.0013	mg/L		11/23/18 14:05	1
1,1-Dichloroethene	ND		0.010	0.0023	mg/L		11/23/18 14:05	1
Tetrachloroethene	ND		0.010	0.0020	mg/L		11/23/18 14:05	1
Trichloroethene	ND		0.010	0.0016	mg/L		11/23/18 14:05	1
Vinyl chloride	ND		0.010	0.0010	mg/L		11/23/18 14:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	99		78 - 120		11/23/18 14:05	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	89		64 - 129		11/23/18 14:05	1
<i>4-Bromofluorobenzene (Surr)</i>	98		78 - 121		11/23/18 14:05	1
<i>Dibromofluoromethane (Surr)</i>	89		79 - 119		11/23/18 14:05	1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

**Client Sample ID: FWGIDW-181001-WW**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
2-Methylphenol	ND		0.050	0.0049	mg/L		11/16/18 01:29	1
3 & 4 Methylphenol	ND		0.050	0.0013	mg/L		11/16/18 01:29	1
1,4-Dichlorobenzene	ND		0.020	0.0016	mg/L		11/16/18 01:29	1
2,4-Dinitrotoluene	ND		0.050	0.0083	mg/L		11/16/18 01:29	1
Hexachlorobenzene	ND		0.050	0.0033	mg/L		11/16/18 01:29	1
Hexachlorobutadiene	ND		0.050	0.017	mg/L		11/16/18 01:29	1

TestAmerica Denver

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

**Client Sample ID: FWGIDW-181001-WW**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Hexachloroethane	ND		0.050	0.011	mg/L		11/16/18 01:29	1
Nitrobenzene	ND		0.050	0.0041	mg/L		11/16/18 01:29	1
Pentachlorophenol	ND		0.25	0.10	mg/L		11/16/18 01:29	1
Pyridine	ND		0.10	0.0057	mg/L		11/16/18 01:29	1
2,4,5-Trichlorophenol	ND		0.050	0.0022	mg/L		11/16/18 01:29	1
2,4,6-Trichlorophenol	ND		0.025	0.0014	mg/L		11/16/18 01:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	73		49 - 120	11/12/18 13:36	11/16/18 01:29	1
2-Fluorophenol (Surr)	60		50 - 120	11/12/18 13:36	11/16/18 01:29	1
2,4,6-Tribromophenol (Surr)	77		51 - 120	11/12/18 13:36	11/16/18 01:29	1
Nitrobenzene-d5 (Surr)	71		51 - 120	11/12/18 13:36	11/16/18 01:29	1
Phenol-d5 (Surr)	51		47 - 120	11/12/18 13:36	11/16/18 01:29	1
Terphenyl-d14 (Surr)	70		56 - 120	11/12/18 13:36	11/16/18 01:29	1

## Method: 8081B - Organochlorine Pesticides (GC) - TCLP

**Client Sample ID: FWGIDW-181001-WW**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Endrin	ND		0.00050	0.000079	mg/L		11/21/18 17:07	1
Heptachlor	ND		0.00050	0.000077	mg/L		11/21/18 17:07	1
Heptachlor epoxide	ND		0.00050	0.000075	mg/L		11/21/18 17:07	1
gamma-BHC (Lindane)	ND		0.00050	0.000069	mg/L		11/21/18 17:07	1
Methoxychlor	ND		0.0010	0.00013	mg/L		11/21/18 17:07	1
Toxaphene	ND		0.020	0.0037	mg/L		11/21/18 17:07	1
Chlordane (technical)	ND		0.0050	0.0014	mg/L		11/21/18 17:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	87		28 - 115	11/12/18 19:56	11/21/18 17:07	1
DCB Decachlorobiphenyl	87		34 - 122	11/12/18 19:56	11/21/18 17:07	1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Client Sample ID: FWGIDW-181001-WW**

**Date Collected: 11/02/18 15:30**

**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
PCB-1016	ND		1.1	0.14	ug/L		11/28/18 20:29	1
PCB-1221	ND		1.1	0.24	ug/L		11/28/18 20:29	1
PCB-1232	ND		1.1	0.18	ug/L		11/28/18 20:29	1
PCB-1242	ND		1.1	0.12	ug/L		11/28/18 20:29	1
PCB-1248	ND		1.1	0.10	ug/L		11/28/18 20:29	1
PCB-1254	ND		1.1	0.13	ug/L		11/28/18 20:29	1
PCB-1260	ND		1.1	0.18	ug/L		11/28/18 20:29	1
PCB-1262	ND		1.1	0.094	ug/L		11/28/18 20:29	1
PCB-1268	ND		1.1	0.40	ug/L		11/28/18 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	78		25 - 120	11/13/18 18:28	11/28/18 20:29	1

TestAmerica Denver

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

**Client Sample ID: FWGIDW-181001-WW**  
**Date Collected: 11/02/18 15:30**  
**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**  
**Matrix: Water**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	70		30 - 136	11/13/18 18:28	11/28/18 20:29	1

## Method: 8151A DOD - Herbicides (GC) - TCLP

**Client Sample ID: FWGIDW-181001-WW**  
**Date Collected: 11/02/18 15:30**  
**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
2,4-D	ND		0.040	0.0021	mg/L		11/13/18 18:57	1
Silvex (2,4,5-TP)	ND		0.010	0.0017	mg/L		11/13/18 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	79		10 - 131	11/08/18 07:48	11/13/18 18:57	1

## Method: 6010C - Metals (ICP) - TCLP

**Client Sample ID: FWGIDW-181001-WW**  
**Date Collected: 11/02/18 15:30**  
**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Arsenic	ND		0.50	0.022	mg/L		11/13/18 14:56	1
Barium	0.015	J	1.0	0.0040	mg/L		11/13/18 14:56	1
Cadmium	ND		0.10	0.0020	mg/L		11/13/18 14:56	1
Chromium	ND		0.50	0.0030	mg/L		11/13/18 14:56	1
Lead	ND		0.50	0.014	mg/L		11/13/18 14:56	1
Selenium	ND		0.10	0.032	mg/L		11/13/18 14:56	1
Silver	ND		0.50	0.0040	mg/L		11/13/18 14:56	1

## Method: 7470A - Mercury (CVAA) - TCLP

**Client Sample ID: FWGIDW-181001-WW**  
**Date Collected: 11/02/18 15:30**  
**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000030	mg/L		11/15/18 15:55	1

## General Chemistry

**Client Sample ID: FWGIDW-181001-WW**  
**Date Collected: 11/02/18 15:30**  
**Date Received: 11/03/18 09:00**

**Lab Sample ID: 280-116538-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C		11/16/18 01:31	1
Cyanide, Total	0.63		0.050	0.010	mg/L		11/15/18 19:28	5
Sulfide	ND		4.0	0.79	mg/L		11/07/18 20:06	1
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU		11/19/18 13:46	1
Temperature	20.3	HF	1.0	1.0	Degrees C		11/19/18 13:46	1
Nitrate as N	14		2.5	0.21	mg/L		11/03/18 16:36	5
Nitrite as N	0.52	B	0.50	0.049	mg/L		11/03/18 14:16	1



# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## General Chemistry

Client Sample ID: FWIDW-181002-WW

Date Collected: 11/14/18 15:55

Date Received: 11/03/18 09:00

Lab Sample ID: 280-116538-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.27		0.010	0.0050	0.0020	mg/L	11/21/18 11:07	1

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Leach: 1311

Analyte	RL	MDL	Units	Method
1,1-Dichloroethene	0.010	0.0023	mg/L	8260B
1,2-Dichloroethane	0.010	0.0013	mg/L	8260B
2-Butanone (MEK)	0.10	0.020	mg/L	8260B
Benzene	0.010	0.0016	mg/L	8260B
Carbon tetrachloride	0.010	0.0019	mg/L	8260B
Chlorobenzene	0.010	0.0017	mg/L	8260B
Chloroform	0.010	0.0016	mg/L	8260B
Tetrachloroethene	0.010	0.0020	mg/L	8260B
Trichloroethene	0.010	0.0016	mg/L	8260B
Vinyl chloride	0.010	0.0010	mg/L	8260B

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Prep: 3510C

Leach: 1311

Analyte	RL	MDL	Units	Method
1,4-Dichlorobenzene	0.020	0.0016	mg/L	8270D
2,4,5-Trichlorophenol	0.050	0.0022	mg/L	8270D
2,4,6-Trichlorophenol	0.025	0.0014	mg/L	8270D
2,4-Dinitrotoluene	0.050	0.0083	mg/L	8270D
2-Methylphenol	0.050	0.0049	mg/L	8270D
3 & 4 Methylphenol	0.050	0.0013	mg/L	8270D
Hexachlorobenzene	0.050	0.0033	mg/L	8270D
Hexachlorobutadiene	0.050	0.017	mg/L	8270D
Hexachloroethane	0.050	0.011	mg/L	8270D
Nitrobenzene	0.050	0.0041	mg/L	8270D
Pentachlorophenol	0.25	0.10	mg/L	8270D
Pyridine	0.10	0.0057	mg/L	8270D

## Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Prep: 3510C

Leach: 1311

Analyte	RL	MDL	Units	Method
Chlordane (technical)	0.0050	0.0014	mg/L	8081B
Endrin	0.00050	0.000079	mg/L	8081B
gamma-BHC (Lindane)	0.00050	0.000069	mg/L	8081B
Heptachlor	0.00050	0.000077	mg/L	8081B
Heptachlor epoxide	0.00050	0.000075	mg/L	8081B
Methoxychlor	0.0010	0.00013	mg/L	8081B
Toxaphene	0.020	0.0037	mg/L	8081B

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Prep: 3510C

Analyte	RL	MDL	Units	Method
PCB-1016	1.0	0.12	ug/L	8082A
PCB-1221	1.0	0.21	ug/L	8082A
PCB-1232	1.0	0.17	ug/L	8082A
PCB-1242	1.0	0.10	ug/L	8082A
PCB-1248	1.0	0.092	ug/L	8082A
PCB-1254	1.0	0.11	ug/L	8082A

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Prep: 3510C

Analyte	RL	MDL	Units	Method
PCB-1260	1.0	0.16	ug/L	8082A
PCB-1262	1.0	0.085	ug/L	8082A
PCB-1268	1.0	0.36	ug/L	8082A

## Method: 8151A DOD - Herbicides (GC) - TCLP

Prep: 8151A

Leach: 1311

Analyte	RL	MDL	Units	Method
2,4-D	0.040	0.0021	mg/L	8151A DOD
Silvex (2,4,5-TP)	0.010	0.0017	mg/L	8151A DOD

## Method: 6010C - Metals (ICP) - TCLP

Prep: 3010A

Leach: 1311

Analyte	RL	MDL	Units	Method
Arsenic	0.50	0.022	mg/L	6010C
Barium	1.0	0.0040	mg/L	6010C
Cadmium	0.10	0.0020	mg/L	6010C
Chromium	0.50	0.0030	mg/L	6010C
Lead	0.50	0.014	mg/L	6010C
Selenium	0.10	0.032	mg/L	6010C
Silver	0.50	0.0040	mg/L	6010C

## Method: 7470A - Mercury (CVAA) - TCLP

Prep: 7470A

Leach: 1311

Analyte	RL	MDL	Units	Method
Mercury	0.0020	0.000030	mg/L	7470A

## General Chemistry

Analyte	RL	MDL	Units	Method
Flashpoint	1.00	1.00	Degrees C	1010A
pH adj. to 25 deg C	0.1	0.1	SU	9040C
Temperature	1.0	1.0	Degrees C	9040C
Nitrate as N	0.50	0.042	mg/L	9056A
Nitrite as N	0.50	0.049	mg/L	9056A

## General Chemistry

Prep: 9012B

Analyte	RL	MDL	Units	Method
Cyanide, Total	0.010	0.0020	mg/L	9012B

## General Chemistry

Prep: 9030B

Analyte	RL	MDL	Units	Method
Sulfide	4.0	0.79	mg/L	9034

TestAmerica Denver

# Surrogate Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-120)	DCA (64-129)	BFB (78-121)	DBFM (79-119)
280-116538-4	FWGIDW-181001-WW	99	90	92	87
280-116538-5	FWGqc-015-TB	99	89	98	89
LB3 280-437096/1-A	Method Blank	93	89	98	90
LCS 280-437096/2-A	Lab Control Sample	99	90	91	88

### Surrogate Legend

TOL = Toluene-d8 (Surr)  
DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (49-120)	2FP (50-120)	TBP (51-120)	NBZ (51-120)	PHL (47-120)	TPHL (56-120)
280-116538-4	FWGIDW-181001-WW	73	60	77	71	51	70
280-116538-4 MS	FWGIDW-181001-WW	78	64	81	75	53	67
280-116538-4 MSD	FWGIDW-181001-WW	89	70	89	83	61	70
LB3 280-436732/1-G	Method Blank	84	69	78	77	57	88
LCS 280-436732/3-B	Lab Control Sample	86	73	83	80	59	88

### Surrogate Legend

FBP = 2-Fluorobiphenyl  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPHL = Terphenyl-d14 (Surr)

## Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (28-115)	DCBP2 (34-122)
280-116538-4	FWGIDW-181001-WW	87	87
280-116538-4 MS	FWGIDW-181001-WW	89	92
280-116538-4 MS	FWGIDW-181001-WW	88	106
280-116538-4 MSD	FWGIDW-181001-WW	88	94
280-116538-4 MSD	FWGIDW-181001-WW	82	100
LB3 280-436732/1-I	Method Blank	88	101
LCS 280-436732/3-E	Lab Control Sample	90	103
LCS 280-436732/3-F	Lab Control Sample	89	115

### Surrogate Legend

TCX = Tetrachloro-m-xylene  
DCBP = DCB Decachlorobiphenyl

# Surrogate Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (25-120)	DCBP2 (30-136)
280-116538-4	FWGIDW-181001-WW	78	70
LCS 280-437451/4-A	Lab Control Sample	86	93
LCSD 280-437451/5-A	Lab Control Sample Dup	87	97
MB 280-437451/1-A	Method Blank	85	94

### Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

## Method: 8151A DOD - Herbicides (GC)

Matrix: Water

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1 (10-131)
280-116538-4	FWGIDW-181001-WW	79
280-116538-4 MS	FWGIDW-181001-WW	83
280-116538-4 MSD	FWGIDW-181001-WW	78
LB3 280-436732/1-B	Method Blank	76
LCS 280-436732/2-B	Lab Control Sample	78

### Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: LB3 280-437096/1-A**  
**Matrix: Water**  
**Analysis Batch: 438589**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**

Analyte	LB3	LB3	RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
Benzene	ND		0.010	0.0016	mg/L		11/23/18 13:07	1
2-Butanone (MEK)	ND		0.10	0.020	mg/L		11/23/18 13:07	1
Carbon tetrachloride	ND		0.010	0.0019	mg/L		11/23/18 13:07	1
Chlorobenzene	ND		0.010	0.0017	mg/L		11/23/18 13:07	1
Chloroform	ND		0.010	0.0016	mg/L		11/23/18 13:07	1
1,2-Dichloroethane	ND		0.010	0.0013	mg/L		11/23/18 13:07	1
1,1-Dichloroethene	ND		0.010	0.0023	mg/L		11/23/18 13:07	1
Tetrachloroethene	ND		0.010	0.0020	mg/L		11/23/18 13:07	1
Trichloroethene	ND		0.010	0.0016	mg/L		11/23/18 13:07	1
Vinyl chloride	ND		0.010	0.0010	mg/L		11/23/18 13:07	1

Surrogate	LB3	LB3	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	93		78 - 120		11/23/18 13:07	1
1,2-Dichloroethane-d4 (Surr)	89		64 - 129		11/23/18 13:07	1
4-Bromofluorobenzene (Surr)	98		78 - 121		11/23/18 13:07	1
Dibromofluoromethane (Surr)	90		79 - 119		11/23/18 13:07	1

**Lab Sample ID: LCS 280-437096/2-A**  
**Matrix: Water**  
**Analysis Batch: 438589**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzene	0.0500	0.0496		mg/L		99	74 - 135
2-Butanone (MEK)	0.200	0.170		mg/L		85	44 - 150
Carbon tetrachloride	0.0500	0.0504		mg/L		101	67 - 135
Chlorobenzene	0.0500	0.0488		mg/L		98	76 - 135
Chloroform	0.0500	0.0503		mg/L		101	76 - 120
1,2-Dichloroethane	0.0500	0.0469		mg/L		94	70 - 135
1,1-Dichloroethene	0.0500	0.0498		mg/L		100	71 - 136
Tetrachloroethene	0.0500	0.0520		mg/L		104	70 - 135
Trichloroethene	0.0500	0.0498		mg/L		100	73 - 135
Vinyl chloride	0.0500	0.0481		mg/L		96	40 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	99		78 - 120
1,2-Dichloroethane-d4 (Surr)	90		64 - 129
4-Bromofluorobenzene (Surr)	91		78 - 121
Dibromofluoromethane (Surr)	88		79 - 119

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: LB3 280-436732/1-G**  
**Matrix: Water**  
**Analysis Batch: 437797**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 437243**

Analyte	LB3	LB3	RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
2-Methylphenol	ND		0.050	0.0049	mg/L		11/15/18 19:52	1

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LB3 280-436732/1-G**  
**Matrix: Water**  
**Analysis Batch: 437797**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 437243**

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
3 & 4 Methylphenol	ND		0.050	0.0013	mg/L		11/15/18 19:52	1
1,4-Dichlorobenzene	ND		0.020	0.0016	mg/L		11/15/18 19:52	1
2,4-Dinitrotoluene	ND		0.050	0.0083	mg/L		11/15/18 19:52	1
Hexachlorobenzene	ND		0.050	0.0033	mg/L		11/15/18 19:52	1
Hexachlorobutadiene	ND		0.050	0.017	mg/L		11/15/18 19:52	1
Hexachloroethane	ND		0.050	0.011	mg/L		11/15/18 19:52	1
Nitrobenzene	ND		0.050	0.0041	mg/L		11/15/18 19:52	1
Pentachlorophenol	ND		0.25	0.10	mg/L		11/15/18 19:52	1
Pyridine	ND		0.10	0.0057	mg/L		11/15/18 19:52	1
2,4,5-Trichlorophenol	ND		0.050	0.0022	mg/L		11/15/18 19:52	1
2,4,6-Trichlorophenol	ND		0.025	0.0014	mg/L		11/15/18 19:52	1

Surrogate	LB3 %Recovery	LB3 Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	84		49 - 120	11/12/18 13:36	11/15/18 19:52	1
2-Fluorophenol (Surr)	69		50 - 120	11/12/18 13:36	11/15/18 19:52	1
2,4,6-Tribromophenol (Surr)	78		51 - 120	11/12/18 13:36	11/15/18 19:52	1
Nitrobenzene-d5 (Surr)	77		51 - 120	11/12/18 13:36	11/15/18 19:52	1
Phenol-d5 (Surr)	57		47 - 120	11/12/18 13:36	11/15/18 19:52	1
Terphenyl-d14 (Surr)	88		56 - 120	11/12/18 13:36	11/15/18 19:52	1

**Lab Sample ID: LCS 280-436732/3-B**  
**Matrix: Water**  
**Analysis Batch: 437797**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 437243**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylphenol	0.250	0.176		mg/L		70	45 - 120
3 & 4 Methylphenol	0.500	0.350		mg/L		70	44 - 120
1,4-Dichlorobenzene	0.250	0.174		mg/L		69	36 - 120
2,4-Dinitrotoluene	0.100	0.0694		mg/L		69	36 - 120
Hexachlorobenzene	0.100	0.0778		mg/L		78	52 - 120
Hexachlorobutadiene	0.250	0.168		mg/L		67	35 - 120
Hexachloroethane	0.250	0.169		mg/L		68	35 - 120
Nitrobenzene	0.250	0.189		mg/L		75	50 - 120
Pentachlorophenol	0.500	0.256		mg/L		51	39 - 120
Pyridine	0.250	0.102		mg/L		41	10 - 121
2,4,5-Trichlorophenol	0.250	0.191		mg/L		76	46 - 120
2,4,6-Trichlorophenol	0.250	0.194		mg/L		77	43 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	86		49 - 120
2-Fluorophenol (Surr)	73		50 - 120
2,4,6-Tribromophenol (Surr)	83		51 - 120
Nitrobenzene-d5 (Surr)	80		51 - 120
Phenol-d5 (Surr)	59		47 - 120
Terphenyl-d14 (Surr)	88		56 - 120

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 280-116538-4 MS**

**Matrix: Water**

**Analysis Batch: 437797**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437243**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2-Methylphenol	ND		0.250	0.160		mg/L		64	45 - 120
3 & 4 Methylphenol	ND		0.500	0.328		mg/L		66	44 - 120
1,4-Dichlorobenzene	ND		0.250	0.161		mg/L		64	36 - 120
2,4-Dinitrotoluene	ND		0.100	0.0693		mg/L		69	36 - 120
Hexachlorobenzene	ND		0.100	0.0676		mg/L		68	52 - 120
Hexachlorobutadiene	ND		0.250	0.152		mg/L		61	35 - 120
Hexachloroethane	ND		0.250	0.156		mg/L		62	35 - 120
Nitrobenzene	ND		0.250	0.177		mg/L		71	50 - 120
Pentachlorophenol	ND		0.500	0.299		mg/L		60	39 - 120
Pyridine	ND		0.250	0.127		mg/L		51	10 - 121
2,4,5-Trichlorophenol	ND		0.250	0.184		mg/L		74	46 - 120
2,4,6-Trichlorophenol	ND		0.250	0.179		mg/L		72	43 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl	78		49 - 120
2-Fluorophenol (Surr)	64		50 - 120
2,4,6-Tribromophenol (Surr)	81		51 - 120
Nitrobenzene-d5 (Surr)	75		51 - 120
Phenol-d5 (Surr)	53		47 - 120
Terphenyl-d14 (Surr)	67		56 - 120

**Lab Sample ID: 280-116538-4 MSD**

**Matrix: Water**

**Analysis Batch: 437797**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437243**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-Methylphenol	ND		0.250	0.185		mg/L		74	45 - 120	15	30
3 & 4 Methylphenol	ND		0.500	0.374		mg/L		75	44 - 120	13	30
1,4-Dichlorobenzene	ND		0.250	0.174		mg/L		70	36 - 120	8	30
2,4-Dinitrotoluene	ND		0.100	0.0751		mg/L		75	36 - 120	8	30
Hexachlorobenzene	ND		0.100	0.0736		mg/L		74	52 - 120	9	30
Hexachlorobutadiene	ND		0.250	0.168		mg/L		67	35 - 120	10	30
Hexachloroethane	ND		0.250	0.167		mg/L		67	35 - 120	7	30
Nitrobenzene	ND		0.250	0.199		mg/L		80	50 - 120	11	30
Pentachlorophenol	ND		0.500	0.330		mg/L		66	39 - 120	10	30
Pyridine	ND		0.250	0.136		mg/L		54	10 - 121	7	30
2,4,5-Trichlorophenol	ND		0.250	0.204		mg/L		82	46 - 120	10	30
2,4,6-Trichlorophenol	ND		0.250	0.207		mg/L		83	43 - 120	15	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	89		49 - 120
2-Fluorophenol (Surr)	70		50 - 120
2,4,6-Tribromophenol (Surr)	89		51 - 120
Nitrobenzene-d5 (Surr)	83		51 - 120
Phenol-d5 (Surr)	61		47 - 120
Terphenyl-d14 (Surr)	70		56 - 120

TestAmerica Denver



# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8081B - Organochlorine Pesticides (GC)

**Lab Sample ID: LB3 280-436732/1-I**  
**Matrix: Water**  
**Analysis Batch: 438443**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 437290**

Analyte	LB3	LB3	RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
Endrin	ND		0.00050	0.000079	mg/L		11/21/18 15:57	1
Heptachlor	ND		0.00050	0.000077	mg/L		11/21/18 15:57	1
Heptachlor epoxide	ND		0.00050	0.000075	mg/L		11/21/18 15:57	1
gamma-BHC (Lindane)	ND		0.00050	0.000069	mg/L		11/21/18 15:57	1
Methoxychlor	ND		0.0010	0.00013	mg/L		11/21/18 15:57	1
Toxaphene	ND		0.020	0.0037	mg/L		11/21/18 15:57	1
Chlordane (technical)	ND		0.0050	0.0014	mg/L		11/21/18 15:57	1

Surrogate	LB3	LB3	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	88		28 - 115	11/12/18 19:56	11/21/18 15:57	1
DCB Decachlorobiphenyl	101		34 - 122	11/12/18 19:56	11/21/18 15:57	1

**Lab Sample ID: LCS 280-436732/3-E**  
**Matrix: Water**  
**Analysis Batch: 438443**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 437290**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Endrin	0.00500	0.00514		mg/L		103		66 - 143
Heptachlor	0.00500	0.00484		mg/L		97		59 - 143
Heptachlor epoxide	0.00500	0.00481		mg/L		96		37 - 142
gamma-BHC (Lindane)	0.00500	0.00474		mg/L		95		68 - 142
Methoxychlor	0.00500	0.00560		mg/L		112		30 - 150

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	90		28 - 115
DCB Decachlorobiphenyl	103		34 - 122

**Lab Sample ID: LCS 280-436732/3-F**  
**Matrix: Water**  
**Analysis Batch: 438443**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 437290**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Toxaphene	0.200	0.219		mg/L		109		63 - 142

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	89		28 - 115
DCB Decachlorobiphenyl	115		34 - 122

**Lab Sample ID: 280-116538-4 MS**  
**Matrix: Water**  
**Analysis Batch: 438443**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 437290**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Endrin	ND		0.00500	0.00505		mg/L		101		66 - 143
Heptachlor	ND		0.00500	0.00494		mg/L		99		59 - 143
Heptachlor epoxide	ND		0.00500	0.00481		mg/L		96		37 - 142
gamma-BHC (Lindane)	ND		0.00500	0.00484		mg/L		97		68 - 142

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8081B - Organochlorine Pesticides (GC) (Continued)

**Lab Sample ID: 280-116538-4 MS**

**Matrix: Water**

**Analysis Batch: 438443**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437290**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	MS %Rec.	Limits
Methoxychlor	ND		0.00500	0.00532		mg/L		106		30 - 150
<b>MS MS</b>										
<b>Surrogate</b>	<b>%Recovery</b>		<b>Qualifier</b>	<b>Limits</b>						
<i>Tetrachloro-m-xylene</i>	89			28 - 115						
<i>DCB Decachlorobiphenyl</i>	92			34 - 122						

**Lab Sample ID: 280-116538-4 MS**

**Matrix: Water**

**Analysis Batch: 438443**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437290**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	MS %Rec.	Limits
Toxaphene	ND		0.200	0.205		mg/L		102		63 - 142
<b>MS MS</b>										
<b>Surrogate</b>	<b>%Recovery</b>		<b>Qualifier</b>	<b>Limits</b>						
<i>Tetrachloro-m-xylene</i>	88			28 - 115						
<i>DCB Decachlorobiphenyl</i>	106			34 - 122						

**Lab Sample ID: 280-116538-4 MSD**

**Matrix: Water**

**Analysis Batch: 438443**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437290**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	MSD %Rec.	RPD	Limit
Endrin	ND		0.00500	0.00490		mg/L		98		3	30
Heptachlor	ND		0.00500	0.00489		mg/L		98		1	30
Heptachlor epoxide	ND		0.00500	0.00468		mg/L		94		3	30
gamma-BHC (Lindane)	ND		0.00500	0.00474		mg/L		95		2	30
Methoxychlor	ND		0.00500	0.00535		mg/L		107		1	30
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>		<b>Qualifier</b>	<b>Limits</b>							
<i>Tetrachloro-m-xylene</i>	88			28 - 115							
<i>DCB Decachlorobiphenyl</i>	94			34 - 122							

**Lab Sample ID: 280-116538-4 MSD**

**Matrix: Water**

**Analysis Batch: 438443**

**Client Sample ID: FWGIDW-181001-WW**

**Prep Type: TCLP**

**Prep Batch: 437290**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	MSD %Rec.	RPD	Limit
Toxaphene	ND		0.200	0.200		mg/L		100		2	30
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>		<b>Qualifier</b>	<b>Limits</b>							
<i>Tetrachloro-m-xylene</i>	82			28 - 115							
<i>DCB Decachlorobiphenyl</i>	100			34 - 122							

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Lab Sample ID: MB 280-437451/1-A**  
**Matrix: Water**  
**Analysis Batch: 439075**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 437451**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.12	ug/L		11/28/18 18:43	1
PCB-1221	ND		1.0	0.21	ug/L		11/28/18 18:43	1
PCB-1232	ND		1.0	0.17	ug/L		11/28/18 18:43	1
PCB-1242	ND		1.0	0.10	ug/L		11/28/18 18:43	1
PCB-1248	ND		1.0	0.092	ug/L		11/28/18 18:43	1
PCB-1254	ND		1.0	0.11	ug/L		11/28/18 18:43	1
PCB-1260	ND		1.0	0.16	ug/L		11/28/18 18:43	1
PCB-1262	ND		1.0	0.085	ug/L		11/28/18 18:43	1
PCB-1268	ND		1.0	0.36	ug/L		11/28/18 18:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	85		25 - 120	11/13/18 18:28	11/28/18 18:43	1
DCB Decachlorobiphenyl	94		30 - 136	11/13/18 18:28	11/28/18 18:43	1

**Lab Sample ID: LCS 280-437451/4-A**  
**Matrix: Water**  
**Analysis Batch: 439075**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437451**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	2.00	2.12		ug/L		106	46 - 129
PCB-1260	2.00	2.16		ug/L		108	45 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	86		25 - 120
DCB Decachlorobiphenyl	93		30 - 136

**Lab Sample ID: LCSD 280-437451/5-A**  
**Matrix: Water**  
**Analysis Batch: 439075**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 437451**  
**%Rec.**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	2.00	2.10		ug/L		105	46 - 129	1	30
PCB-1260	2.00	2.34		ug/L		117	45 - 134	8	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	87		25 - 120
DCB Decachlorobiphenyl	97		30 - 136

## Method: 8151A DOD - Herbicides (GC)

**Lab Sample ID: LB3 280-436732/1-B**  
**Matrix: Water**  
**Analysis Batch: 437382**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 436773**

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
2,4-D	ND		0.040	0.0021	mg/L		11/13/18 18:24	1
Silvex (2,4,5-TP)	ND		0.010	0.0017	mg/L		11/13/18 18:24	1

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

Surrogate	LB3 LB3		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid	76		10 - 131	11/08/18 07:48	11/13/18 18:24	1

**Lab Sample ID: LCS 280-436732/2-B**  
**Matrix: Water**  
**Analysis Batch: 437382**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 436773**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
2,4-D	0.0500	0.0376	J	mg/L		75	13 - 115
Silvex (2,4,5-TP)	0.0500	0.0403		mg/L		81	10 - 158

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid	78		10 - 131

**Lab Sample ID: 280-116538-4 MS**  
**Matrix: Water**  
**Analysis Batch: 437382**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 436773**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
2,4-D	ND		0.0500	0.0389	J	mg/L		78	13 - 115
Silvex (2,4,5-TP)	ND		0.0500	0.0392		mg/L		78	10 - 158

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid	83		10 - 131

**Lab Sample ID: 280-116538-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 437382**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 436773**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	
				Result	Qualifier					RPD	Limit
2,4-D	ND		0.0500	0.0372	J	mg/L		74	13 - 115	5	30
Silvex (2,4,5-TP)	ND		0.0500	0.0374		mg/L		75	10 - 158	5	30

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid	78		10 - 131

## Method: 6010C - Metals (ICP)

**Lab Sample ID: LB3 280-436732/1-F**  
**Matrix: Water**  
**Analysis Batch: 437502**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 437152**

Analyte	LB3 LB3		RL	MDL	Unit	D	Analyzed	Dil Fac
	Result	Qualifier						
Arsenic	ND		0.50	0.022	mg/L		11/13/18 14:46	1
Barium	ND		1.0	0.0040	mg/L		11/13/18 14:46	1
Cadmium	ND		0.10	0.0020	mg/L		11/13/18 14:46	1
Chromium	ND		0.50	0.0030	mg/L		11/13/18 14:46	1
Lead	ND		0.50	0.014	mg/L		11/13/18 14:46	1
Selenium	ND		0.10	0.032	mg/L		11/13/18 14:46	1
Silver	ND		0.50	0.0040	mg/L		11/13/18 14:46	1

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: LCS 280-436732/2-F**  
**Matrix: Water**  
**Analysis Batch: 437502**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 437152**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							Lower	Upper
Arsenic	4.00	3.57		mg/L		89	80 - 120	
Barium	12.0	11.0		mg/L		92	80 - 120	
Cadmium	1.10	1.01		mg/L		92	80 - 120	
Chromium	5.20	4.80		mg/L		92	80 - 120	
Lead	5.50	5.12		mg/L		93	80 - 120	
Selenium	3.00	2.61		mg/L		87	80 - 120	
Silver	1.05	0.940		mg/L		90	80 - 120	

**Lab Sample ID: LCSD 280-436732/13-B**  
**Matrix: Water**  
**Analysis Batch: 437502**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: TCLP**  
**Prep Batch: 437152**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
							Lower	Upper	RPD	Limit
Arsenic	4.00	3.86		mg/L		97	80 - 120	8	20	
Barium	12.0	11.9		mg/L		99	80 - 120	8	20	
Cadmium	1.10	1.09		mg/L		99	80 - 120	7	20	
Chromium	5.20	5.21		mg/L		100	80 - 120	8	20	
Lead	5.50	5.53		mg/L		100	80 - 120	8	20	
Selenium	3.00	2.82		mg/L		94	80 - 120	8	20	
Silver	1.05	1.01		mg/L		96	80 - 120	7	20	

**Lab Sample ID: 280-116538-4 MS**  
**Matrix: Water**  
**Analysis Batch: 437502**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 437152**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
									Lower	Upper
Arsenic	ND		4.00	3.98		mg/L		99	80 - 120	
Barium	0.015	J	12.0	12.2		mg/L		102	80 - 120	
Cadmium	ND		1.10	1.09		mg/L		99	80 - 120	
Chromium	ND		5.20	5.27		mg/L		101	80 - 120	
Lead	ND		5.50	5.61		mg/L		102	80 - 120	
Selenium	ND		3.00	2.88		mg/L		96	80 - 120	
Silver	ND		1.05	1.06		mg/L		101	80 - 120	

**Lab Sample ID: 280-116538-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 437502**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 437152**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
									Lower	Upper	RPD	Limit
Arsenic	ND		4.00	3.99		mg/L		100	80 - 120	0	20	
Barium	0.015	J	12.0	12.1		mg/L		101	80 - 120	1	20	
Cadmium	ND		1.10	1.11		mg/L		100	80 - 120	1	20	
Chromium	ND		5.20	5.29		mg/L		102	80 - 120	0	20	
Lead	ND		5.50	5.63		mg/L		102	80 - 120	0	20	
Selenium	ND		3.00	2.90		mg/L		97	80 - 120	1	20	
Silver	ND		1.05	1.04		mg/L		99	80 - 120	1	20	

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: LB3 280-436732/1-J**  
**Matrix: Water**  
**Analysis Batch: 437814**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**  
**Prep Batch: 437496**

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000030	mg/L		11/15/18 14:15	1

**Lab Sample ID: LCS 280-436732/2-G**  
**Matrix: Water**  
**Analysis Batch: 437814**

**Client Sample ID: Lab Control Sample**  
**Prep Type: TCLP**  
**Prep Batch: 437496**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00495		mg/L		99	90 - 116

**Lab Sample ID: LCSD 280-436732/13-D**  
**Matrix: Water**  
**Analysis Batch: 437814**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: TCLP**  
**Prep Batch: 437496**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	0.00500	0.00482		mg/L		96	90 - 116	3	10

**Lab Sample ID: 280-116538-4 MS**  
**Matrix: Water**  
**Analysis Batch: 437814**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 437496**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00500	0.00497		mg/L		99	90 - 116

**Lab Sample ID: 280-116538-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 437814**

**Client Sample ID: FWGIDW-181001-WW**  
**Prep Type: TCLP**  
**Prep Batch: 437496**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	ND		0.00500	0.00514		mg/L		103	90 - 116	3	10

## Method: 1010A - Ignitability, Pensky-Martens Closed-Cup Method

**Lab Sample ID: MB 160-401121/1**  
**Matrix: Water**  
**Analysis Batch: 401121**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C		11/15/18 23:43	1

**Lab Sample ID: LCS 160-401121/2**  
**Matrix: Water**  
**Analysis Batch: 401121**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	25.0	27.00		Degrees C		108	90 - 110

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Method: 9012B - Cyanide, Total and/or Amenable

**Lab Sample ID: MB 280-437763/5-A**  
**Matrix: Water**  
**Analysis Batch: 437833**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 437763**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		11/15/18 18:00	1

**Lab Sample ID: HLCS 280-437763/1-A**  
**Matrix: Water**  
**Analysis Batch: 437833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437763**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.350	0.342		mg/L		98	90 - 110

**Lab Sample ID: LCS 280-437763/3-A**  
**Matrix: Water**  
**Analysis Batch: 437833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437763**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.100	0.102		mg/L		102	83 - 116

**Lab Sample ID: LCSD 280-437763/4-A**  
**Matrix: Water**  
**Analysis Batch: 437833**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 437763**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	0.100	0.0973		mg/L		97	83 - 116	4	20

**Lab Sample ID: LLCS 280-437763/2-A**  
**Matrix: Water**  
**Analysis Batch: 437833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 437763**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.100	0.0970		mg/L		97	44 - 167

**Lab Sample ID: MB 280-438264/5-A**  
**Matrix: Water**  
**Analysis Batch: 438452**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 438264**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	mg/L		11/21/18 10:41	1

**Lab Sample ID: HLCS 280-438264/1-A**  
**Matrix: Water**  
**Analysis Batch: 438452**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 438264**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.350	0.358		mg/L		102	90 - 110

**Lab Sample ID: LCS 280-438264/3-A**  
**Matrix: Water**  
**Analysis Batch: 438452**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 438264**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.100	0.110		mg/L		110	83 - 116

TestAmerica Denver

# QC Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

**Lab Sample ID: LCSD 280-438264/4-A**  
**Matrix: Water**  
**Analysis Batch: 438452**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 438264**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.100	0.105		mg/L		105	83 - 116	5	20

**Lab Sample ID: LLCS 280-438264/2-A**  
**Matrix: Water**  
**Analysis Batch: 438452**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 438264**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0979		mg/L		98	44 - 167

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-436723/1-A**  
**Matrix: Water**  
**Analysis Batch: 436735**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 436723**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Sulfide	ND		4.0	0.79	mg/L		11/07/18 20:06	1

**Lab Sample ID: LCS 280-436723/3-A**  
**Matrix: Water**  
**Analysis Batch: 436735**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 436723**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	22.3	16.0		mg/L		72	50 - 106

## Method: 9040C - pH

**Lab Sample ID: LCS 280-438182/4**  
**Matrix: Water**  
**Analysis Batch: 438182**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 280-436181/6**  
**Matrix: Water**  
**Analysis Batch: 436181**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.042	mg/L		11/03/18 12:07	1
Nitrite as N	0.0961	J	0.50	0.049	mg/L		11/03/18 12:07	1

**Lab Sample ID: LCS 280-436181/4**  
**Matrix: Water**  
**Analysis Batch: 436181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	4.96		mg/L		99	88 - 111
Nitrite as N	5.00	5.06		mg/L		101	87 - 111

TestAmerica Denver



# QC Sample Results

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

**Lab Sample ID: LCSD 280-436181/5**  
**Matrix: Water**  
**Analysis Batch: 436181**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	4.97		mg/L		99	88 - 111	0	10
Nitrite as N	5.00	5.13		mg/L		103	87 - 111	1	10

**Lab Sample ID: MRL 280-436181/3**  
**Matrix: Water**  
**Analysis Batch: 436181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.200	0.241	J	mg/L		120	50 - 150
Nitrite as N	0.200	0.234	J	mg/L		117	50 - 150

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## GC/MS VOA

### Leach Batch: 437096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	1311	
280-116538-5	FWGqc-015-TB	TCLP	Water	1311	
LB3 280-437096/1-A	Method Blank	TCLP	Water	1311	
LCS 280-437096/2-A	Lab Control Sample	TCLP	Water	1311	

### Analysis Batch: 438589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	8260B	437096
280-116538-5	FWGqc-015-TB	TCLP	Water	8260B	437096
LB3 280-437096/1-A	Method Blank	TCLP	Water	8260B	437096
LCS 280-437096/2-A	Lab Control Sample	TCLP	Water	8260B	437096

## GC/MS Semi VOA

### Leach Batch: 436732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	1311	
LB3 280-436732/1-G	Method Blank	TCLP	Water	1311	
LCS 280-436732/3-B	Lab Control Sample	TCLP	Water	1311	
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	1311	
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	1311	

### Prep Batch: 437243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	3510C	436732
LB3 280-436732/1-G	Method Blank	TCLP	Water	3510C	436732
LCS 280-436732/3-B	Lab Control Sample	TCLP	Water	3510C	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	3510C	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	3510C	436732

### Analysis Batch: 437797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	8270D	437243
LB3 280-436732/1-G	Method Blank	TCLP	Water	8270D	437243
LCS 280-436732/3-B	Lab Control Sample	TCLP	Water	8270D	437243
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	8270D	437243
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	8270D	437243

## GC Semi VOA

### Leach Batch: 436732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	1311	
LB3 280-436732/1-B	Method Blank	TCLP	Water	1311	
LB3 280-436732/1-I	Method Blank	TCLP	Water	1311	
LCS 280-436732/2-B	Lab Control Sample	TCLP	Water	1311	
LCS 280-436732/3-E	Lab Control Sample	TCLP	Water	1311	
LCS 280-436732/3-F	Lab Control Sample	TCLP	Water	1311	
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	1311	
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	1311	

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## GC Semi VOA (Continued)

### Prep Batch: 436773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	8151A	436732
LB3 280-436732/1-B	Method Blank	TCLP	Water	8151A	436732
LCS 280-436732/2-B	Lab Control Sample	TCLP	Water	8151A	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	8151A	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	8151A	436732

### Prep Batch: 437290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	3510C	436732
LB3 280-436732/1-I	Method Blank	TCLP	Water	3510C	436732
LCS 280-436732/3-E	Lab Control Sample	TCLP	Water	3510C	436732
LCS 280-436732/3-F	Lab Control Sample	TCLP	Water	3510C	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	3510C	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	3510C	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	3510C	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	3510C	436732

### Analysis Batch: 437382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	8151A DOD	436773
LB3 280-436732/1-B	Method Blank	TCLP	Water	8151A DOD	436773
LCS 280-436732/2-B	Lab Control Sample	TCLP	Water	8151A DOD	436773
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	8151A DOD	436773
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	8151A DOD	436773

### Prep Batch: 437451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	3510C	
MB 280-437451/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-437451/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-437451/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 438443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	8081B	437290
LB3 280-436732/1-I	Method Blank	TCLP	Water	8081B	437290
LCS 280-436732/3-E	Lab Control Sample	TCLP	Water	8081B	437290
LCS 280-436732/3-F	Lab Control Sample	TCLP	Water	8081B	437290
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	8081B	437290
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	8081B	437290
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	8081B	437290
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	8081B	437290

### Analysis Batch: 439075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	8082A	437451
MB 280-437451/1-A	Method Blank	Total/NA	Water	8082A	437451
LCS 280-437451/4-A	Lab Control Sample	Total/NA	Water	8082A	437451
LCSD 280-437451/5-A	Lab Control Sample Dup	Total/NA	Water	8082A	437451

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Metals

### Leach Batch: 436732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	1311	
LB3 280-436732/1-F	Method Blank	TCLP	Water	1311	
LB3 280-436732/1-J	Method Blank	TCLP	Water	1311	
LCS 280-436732/2-F	Lab Control Sample	TCLP	Water	1311	
LCS 280-436732/2-G	Lab Control Sample	TCLP	Water	1311	
LCSD 280-436732/13-B	Lab Control Sample Dup	TCLP	Water	1311	
LCSD 280-436732/13-D	Lab Control Sample Dup	TCLP	Water	1311	
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	1311	
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	1311	

### Prep Batch: 437152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	3010A	436732
LB3 280-436732/1-F	Method Blank	TCLP	Water	3010A	436732
LCS 280-436732/2-F	Lab Control Sample	TCLP	Water	3010A	436732
LCSD 280-436732/13-B	Lab Control Sample Dup	TCLP	Water	3010A	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	3010A	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	3010A	436732

### Prep Batch: 437496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	7470A	436732
LB3 280-436732/1-J	Method Blank	TCLP	Water	7470A	436732
LCS 280-436732/2-G	Lab Control Sample	TCLP	Water	7470A	436732
LCSD 280-436732/13-D	Lab Control Sample Dup	TCLP	Water	7470A	436732
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	7470A	436732
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	7470A	436732

### Analysis Batch: 437502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	6010C	437152
LB3 280-436732/1-F	Method Blank	TCLP	Water	6010C	437152
LCS 280-436732/2-F	Lab Control Sample	TCLP	Water	6010C	437152
LCSD 280-436732/13-B	Lab Control Sample Dup	TCLP	Water	6010C	437152
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	6010C	437152
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	6010C	437152

### Analysis Batch: 437814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	TCLP	Water	7470A	437496
LB3 280-436732/1-J	Method Blank	TCLP	Water	7470A	437496
LCS 280-436732/2-G	Lab Control Sample	TCLP	Water	7470A	437496
LCSD 280-436732/13-D	Lab Control Sample Dup	TCLP	Water	7470A	437496
280-116538-4 MS	FWGIDW-181001-WW	TCLP	Water	7470A	437496
280-116538-4 MSD	FWGIDW-181001-WW	TCLP	Water	7470A	437496

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## General Chemistry

### Analysis Batch: 401121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	1010A	
MB 160-401121/1	Method Blank	Total/NA	Water	1010A	
LCS 160-401121/2	Lab Control Sample	Total/NA	Water	1010A	

### Analysis Batch: 436181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9056A	
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9056A	
MB 280-436181/6	Method Blank	Total/NA	Water	9056A	
LCS 280-436181/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-436181/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-436181/3	Lab Control Sample	Total/NA	Water	9056A	

### Prep Batch: 436723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9030B	
MB 280-436723/1-A	Method Blank	Total/NA	Water	9030B	
LCS 280-436723/3-A	Lab Control Sample	Total/NA	Water	9030B	

### Analysis Batch: 436735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9034	436723
MB 280-436723/1-A	Method Blank	Total/NA	Water	9034	436723
LCS 280-436723/3-A	Lab Control Sample	Total/NA	Water	9034	436723

### Prep Batch: 437763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9012B	
MB 280-437763/5-A	Method Blank	Total/NA	Water	9012B	
HLCS 280-437763/1-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 280-437763/3-A	Lab Control Sample	Total/NA	Water	9012B	
LCSD 280-437763/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	
LLCS 280-437763/2-A	Lab Control Sample	Total/NA	Water	9012B	

### Analysis Batch: 437833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9012B	437763
MB 280-437763/5-A	Method Blank	Total/NA	Water	9012B	437763
HLCS 280-437763/1-A	Lab Control Sample	Total/NA	Water	9012B	437763
LCS 280-437763/3-A	Lab Control Sample	Total/NA	Water	9012B	437763
LCSD 280-437763/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	437763
LLCS 280-437763/2-A	Lab Control Sample	Total/NA	Water	9012B	437763

### Analysis Batch: 438182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-4	FWGIDW-181001-WW	Total/NA	Water	9040C	
LCS 280-438182/4	Lab Control Sample	Total/NA	Water	9040C	

### Prep Batch: 438264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-7	FWIDW-181002-WW	Total/NA	Water	9012B	

TestAmerica Denver

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## General Chemistry (Continued)

### Prep Batch: 438264 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-438264/5-A	Method Blank	Total/NA	Water	9012B	
HLCS 280-438264/1-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 280-438264/3-A	Lab Control Sample	Total/NA	Water	9012B	
LCSD 280-438264/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	
LLCS 280-438264/2-A	Lab Control Sample	Total/NA	Water	9012B	

### Analysis Batch: 438452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116538-7	FWIDW-181002-WW	Total/NA	Water	9012B	438264
MB 280-438264/5-A	Method Blank	Total/NA	Water	9012B	438264
HLCS 280-438264/1-A	Lab Control Sample	Total/NA	Water	9012B	438264
LCS 280-438264/3-A	Lab Control Sample	Total/NA	Water	9012B	438264
LCSD 280-438264/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	438264
LLCS 280-438264/2-A	Lab Control Sample	Total/NA	Water	9012B	438264

# Lab Chronicle

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

**Client Sample ID: FWGIDW-181001-WW**

**Lab Sample ID: 280-116538-4**

**Date Collected: 11/02/18 15:30**

**Matrix: Water**

**Date Received: 11/03/18 09:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	437096	11/09/18 15:44	DFB1	TAL DEN
TCLP	Analysis	8260B		1	2 mL	20 mL	438589	11/23/18 13:45	GPM	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436732	11/07/18 09:48	DFB1	TAL DEN
TCLP	Prep	3510C			200 mL	1 mL	437243	11/12/18 13:36	KJS	TAL DEN
TCLP	Analysis	8270D		1			437797	11/16/18 01:29	AFH	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436732	11/07/18 09:48	DFB1	TAL DEN
TCLP	Prep	3510C			100 mL	10 mL	437290	11/12/18 19:56	AJE	TAL DEN
TCLP	Analysis	8081B		1			438443	11/21/18 17:07	TEM	TAL DEN
Total/NA	Prep	3510C			897.7 mL	10 mL	437451	11/13/18 18:28	AJE	TAL DEN
Total/NA	Analysis	8082A		1			439075	11/28/18 20:29	BJP	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436732	11/07/18 09:48	DFB1	TAL DEN
TCLP	Prep	8151A			100 mL	10 mL	436773	11/08/18 07:48	JZ	TAL DEN
TCLP	Analysis	8151A DOD		1			437382	11/13/18 18:57	AMB1	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436732	11/07/18 09:48	DFB1	TAL DEN
TCLP	Prep	3010A			10 mL	50 mL	437152	11/13/18 07:00	LLB	TAL DEN
TCLP	Analysis	6010C		1			437502	11/13/18 14:56	CML	TAL DEN
TCLP	Leach	1311			1.0 g	1.0 mL	436732	11/07/18 09:48	DFB1	TAL DEN
TCLP	Prep	7470A			30 mL	50 mL	437496	11/14/18 12:30	THP	TAL DEN
TCLP	Analysis	7470A		1			437814	11/15/18 15:55	THP	TAL DEN
Total/NA	Analysis	1010A		1	70 mL	70 mL	401121	11/16/18 01:31	JCB	TAL SL
Total/NA	Prep	9012B			50 mL	50 mL	437763	11/15/18 11:37	RK	TAL DEN
Total/NA	Analysis	9012B		5	50 mL	50 mL	437833	11/15/18 19:28	RK	TAL DEN
Total/NA	Prep	9030B			50 mL	50 mL	436723	11/07/18 17:19	EC	TAL DEN
Total/NA	Analysis	9034		1			436735	11/07/18 20:06	EC	TAL DEN
Total/NA	Analysis	9040C		1			438182	11/19/18 13:46	SGB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	436181	11/03/18 14:16	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	436181	11/03/18 16:36	A1D	TAL DEN

**Client Sample ID: FWGqc-015-TB**

**Lab Sample ID: 280-116538-5**

**Date Collected: 11/02/18 15:30**

**Matrix: Water**

**Date Received: 11/03/18 09:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	437096	11/09/18 15:44	DFB1	TAL DEN
TCLP	Analysis	8260B		1	2 mL	20 mL	438589	11/23/18 14:05	GPM	TAL DEN

**Client Sample ID: FWIDW-181002-WW**

**Lab Sample ID: 280-116538-7**

**Date Collected: 11/14/18 15:55**

**Matrix: Water**

**Date Received: 11/03/18 09:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			50 mL	50 mL	438264	11/20/18 10:20	AML	TAL DEN
Total/NA	Analysis	9012B		1	50 mL	50 mL	438452	11/21/18 11:07	AJA	TAL DEN

# Lab Chronicle

Client: Leidos, Inc.

Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Accreditation/Certification Summary

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

## Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9040C		Water	Temperature

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8081B	Organochlorine Pesticides (GC)	SW846	TAL DEN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL DEN
8151A DOD	Herbicides (GC)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
1010A	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL SL
9012B	Cyanide, Total and/or Amenable	EPA	TAL DEN
9034	Sulfide, Acid Soluble and Insoluble (Titrimetric)	SW846	TAL DEN
9040C	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
1311	TCLP Extraction	SW846	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8151A	Extraction (Herbicides)	SW846	TAL DEN
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL DEN
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL DEN

#### Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116538-2

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
280-116538-4	FWGIDW-181001-WW	Water	11/02/18 15:30	11/03/18 09:00
280-116538-5	FWGqc-015-TB	Water	11/02/18 15:30	11/03/18 09:00
280-116538-7	FWIDW-181002-WW	Water	11/14/18 15:55	11/03/18 09:00

# Shipping and Receiving Documents

# Chain of Custody Record

COC No.: **RVAAP-083**  
 Date: **11/2/2010**

Page 1 of 1



**Name:** Leidos  
**Address:** 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
**Phone Number:** (330) 465-5802  
**Project Manager:** Jed Thomas  
**Project:** RVAAP/FWGM Sampling Event  
**JOB#:** P.O. No.: PO19216426

Sampler (Signature) \_\_\_\_\_ (Printed Name)

Laboratory Name: <b>Test America-Canton</b> Address: <b>4101 Stouffel St NW</b> <b>North Canton, OH 44720</b> Phone: (330) 487-8396 FAX: Contact:		Laboratory Name: <b>Test America-Canton</b> Address: <b>4101 Stouffel St NW</b> <b>North Canton, OH 44720</b> Phone: (330) 487-8396 FAX: Contact:		
Laboratory Name: <b>Test America-Canton</b> Address: <b>4101 Stouffel St NW</b> <b>North Canton, OH 44720</b> Phone: (330) 487-8396 FAX: Contact:	Laboratory Name: <b>Test America-Canton</b> Address: <b>4101 Stouffel St NW</b> <b>North Canton, OH 44720</b> Phone: (330) 487-8396 FAX: Contact:			

Laboratory No.	Sampler ID	Date	Time	Blank	Required Parameters				Total Number of Containers	Shipment Method: <b>Courier</b>
					TCR Swabs (QA), TCR Penstabs (QA), TCR Penstabs (QI)	Total PCBs (TQA) / (QM)	potency (TQA)	Total Swabs (QA), Total Swabs (QA), Total Swabs (QI)		
	EMUCI0146-10004-AWG	11/2/10	1530	1	1	1	1	1	1	1
	FWGIDW-181001-VW	11/2/10	1530	1	1	1	1	1	1	1
	FWGIDW-01S-TB	11/2/10	1530	1	1	1	1	1	1	1
	<b>TRIP BLANK</b>									

Refiniquished by: <b>[Signature]</b> Print Name: <b>TEST AMERICA</b>	Date: <b>11-2-2010</b>	Material: <b>[List of materials]</b> 1. SW 1311, 8078 2. SW 1311, 8078 3. SW 1311, 8081 4. SW 330C/8082A (0) 5. SW 1311, 8151 6. SW 304 HW 7. SW 1311, 8010, T470 8. SW 304 HW 9. SW 304 HW 10. SW 304 HW 11. SW 1010 12. SW 330C/8082A (9) 13. SW 304 HW	Total Number of Containers: <b>13</b> Shipment Method: <b>Courier</b>
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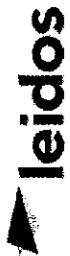
  

Refiniquished by: <b>[Signature]</b> Print Name: <b>TEST AMERICA</b>	Date: <b>11-03-10</b>	Material: <b>[List of materials]</b> 1. SW 1311, 8078 2. SW 1311, 8078 3. SW 1311, 8081 4. SW 330C/8082A (0) 5. SW 1311, 8151 6. SW 304 HW 7. SW 1311, 8010, T470 8. SW 304 HW 9. SW 304 HW 10. SW 304 HW 11. SW 1010 12. SW 330C/8082A (9) 13. SW 304 HW	Total Number of Containers: <b>13</b> Shipment Method: <b>Courier</b>
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Refiniquished by: <b>[Signature]</b> Print Name: <b>TEST AMERICA</b>	Date: <b>11-03-10</b>	Material: <b>[List of materials]</b> 1. SW 1311, 8078 2. SW 1311, 8078 3. SW 1311, 8081 4. SW 330C/8082A (0) 5. SW 1311, 8151 6. SW 304 HW 7. SW 1311, 8010, T470 8. SW 304 HW 9. SW 304 HW 10. SW 304 HW 11. SW 1010 12. SW 330C/8082A (9) 13. SW 304 HW	Total Number of Containers: <b>13</b> Shipment Method: <b>Courier</b>
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# Chain of Custody Record



COC No.: **RVAAP-084**

Date: **11/14/18**

Page 1 of 1

Name Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FWGW Sampling Event  
Job/P.O. No.: P010216426

Sampler (Signature) *Jed Thomas* (Printed Name) **Jed Thomas**

Laboratory No. **FWGIDW-181002-WW** Date **11/14/18** Time **1555** Matrix **W**

Requested Parameters	Notes	Total Number of Containers:	Shipment Method:
TCLP VOCs (1)(A)		1	Courier
TCLP SVOCs (2)(A), TCLP Pesticides (3)(A), TCLP Herbicides (5)(A), TCLP Metals (7)(A)			
Total PCBs (12)(A) / (4)(A)			
Ignitability (1)(A)			
pH (13)(A) / (6)(A)			
Total Sulfide (9)(A), Total Cyanide (9)(A), Nitrate, Nitrite (10)(A)			
Total Cyanide (9)(D)			
Total Sulfide (9)(E)			
Temperature Blank			

Barcode: 280-118538 Chain of Custody

Notes:  
A. Cool, 4C  
B. HCl, pH<2, Cool, 4C  
C. HNO3, pH<2, Cool, 4C  
D. NaOH, pH>12, Cool 4C  
E. NaOH/Zn Acetate, pH<8, Cool 4C

Notes:  
1. SW 1311, 8280  
2. SW 1311, 8270  
3. SW 1311, 8081  
4. SW 3510C/6082A (W)  
5. SW 1311, 8151  
6. SW 8040 (W)  
7. SW 1311, 8010, 7470  
8. SW 9012A  
9. SW 9034  
10. SW 8058  
11. SW 1010  
12. SW 3540C/6082A (S)  
13. SW 9045 (S)

Relinquished by *Jed Thomas* to UPS Shipping  
Signature *Jed Thomas*  
Printed Name **Jed Thomas**

Relinquished by  
Signature  
Printed Name  
Company

Temperature Blank Lab:  
**Leidos**  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802

White: Laboratory Pink: Project Manager Yellow: Project QAO Goldenrod: Field Project Manager

am re TA DEN 11/16/18 0920  
1.6 5 +1.0 by DP 11/16/18

The information in this document is proprietary to Leidos. It may not be used, reproduced, disclosed, or exported without the written approval of Leidos.

TestAmerica Denver

4955 Yarrow Street  
Arvada, CO 80002  
Phone (303) 736-0100 Fax (303) 431-7171

### Chain of Custody Record



TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

#### Client Information (Sub Contract Lab)

Client Contact: Rydberg, Donna R  
Shipping/Receiving Phone: Donna R. Rydberg (303) 431-7171  
Company: TestAmerica Laboratories, Inc. E-Mail: donna.rydberg@testamericainc.com

Address: 13715 Rider Trail North, Lab PM: Rydberg, Donna R  
City: TAT Requested (days): 11/21/2018 Carrier Tracking No(s):  
Earth City: State of Origin: Ohio  
State Zip: MO, 63045  
Phone: 314-298-8566(Tel) 314-298-8757(Fax) PO #: Project #: 28018729  
Email: W/O #: SSO#:

Project Name: Leidos RFP# 001088 - Ravenna AAP-66  
Slide: FWS/GIDW-181001-WW (280-116538-4)

Date Date Requested: 11/21/2018

#### Analysis Requested

Field Filtered Sample (Yes or No)

Perform MS/MSD (Yes or No)

1010A

Accreditations Required (See note): DOD ELAP - AZLA

COG No: 280-461228-1  
Page: Page 1 of 1  
Job #: 280-116538-2

#### Preservation Codes:

A - HCL  
B - NaOH  
C - Zn Acetate  
D - Nitric Acid  
E - NaHSO4  
F - MeOH  
G - Amchlor  
H - Ascorbic Acid  
I - Ice  
J - DI Water  
K - EDTA  
L - EDA  
M - Hexane  
N - None  
O - AsNaO2  
P - Na2O4S  
Q - Na2SO3  
R - Na2S2O3  
S - H2SO4  
T - TSP Dodecanehydrate  
U - Acetone  
V - MCAA  
W - pH 4.5  
Z - other (specify)

#### Sample Identification - Client ID (Lab ID)

FWS/GIDW-181001-WW (280-116538-4)

Sample Date: 11/21/18

Sample Time: 15:30 Eastern

Sample Type (C=comp, G=grab): Water

Matrix (Water, Seawater, Overwater, Br-Tissue, A-Alp): Water

Field Filtered Sample (Yes or No): X

Perform MS/MSD (Yes or No): 1010A

Accreditations Required (See note): DOD ELAP - AZLA

COG No: 280-461228-1

Special Instructions/Note:

CGS:0

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/less/matrix, being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

#### Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client  Disposal By Lab  Archive For Months

Relinquished by: *Donna Rydberg* Date/Time: *11-5-18 15:55* Company: *HALDER*

Date: Time: Received by: *Michael Powell* Date/Time: *11/5/18 09:00* Company: *TH-52*

Method of Shipment:

Relinquished by: *Donna Rydberg* Date/Time: *11-5-18 15:55* Company: *HALDER*

Received by: *Michael Powell* Date/Time: *11/5/18 09:00* Company: *TH-52*

Relinquished by:

Date/Time:

Company:

Received by:

Date/Time:

Company:

Custody Seats Intact: A Yes A No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116538-2

**Login Number: 116538**  
**List Number: 1**  
**Creator: Dunlap, Krista M**

**List Source: TestAmerica Denver**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116538-2

**Login Number: 116538**  
**List Number: 4**  
**Creator: Paul, Amanda E**

**List Source: TestAmerica Denver**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116538-2

**Login Number: 116538**  
**List Number: 2**  
**Creator: Hellm, Michael**

**List Source: TestAmerica St. Louis**  
**List Creation: 11/06/18 03:12 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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