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Title: Otowi Well No. 4 Analytical Results

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Environmental Regulatory Document

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memorandum

Environmental Protection and Compliance
Waste Management Programs

To:	Philo Shelton, Los Alamos County Karen Armijo, DOE NA-LA
Thru:	Jennifer E. Payne, EPC-DO *Jennifer E. Payne*
From:	Jim Stanton, EPC-WMP, MS K404
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Symbol:	EPC-DO: 20-153
LA-UR:	20-23535
Date:	May 15, 2020

Subject: Otowi Well No. 4 Analytical Results

Los Alamos National Laboratory (LANL or the Laboratory) collected soil samples near Otowi Well No. 4 on behalf of Los Alamos County (LAC) to address health and safety concerns related to potential radioactive contamination in Los Alamos canyon. Oil had spilled from Otowi Well No. 4 and sampling was to determine if radiological contamination in the soils to be excavated in response to that spill presented a health or safety risk to LAC personnel who would be involved in the cleanup.

Results of the sampling event are attached to this memo.

Attachment: Waste Data Summary 103765

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EPC Correspondence File

WPF Toxicity Characteristics

Parameter Name	Parameter Code	TCLP	Total	Detected	Min Result (ppm)	Max Result (ppm)	Regulatory Limit (ppm)
Toxicity Characteristics Metals							
Arsenic	As	N	Y	Y	0.0236 ppm	0.0945 ppm	5 ppm
Barium	Ba	N	Y	Y	0.68 ppm	2.055 ppm	100 ppm
Cadmium	Cd	N	Y	N	N/A	N/A	1 ppm
Chromium	Cr	N	Y	Y	0.0945 ppm	0.545 ppm	5 ppm
Lead	Pb	N	Y	Y	0.1625 ppm	0.675 ppm	5 ppm
Mercury	Hg	N	Y	Y	0.000605 ppm	0.003795 ppm	0.2 ppm
Selenium	Se	N	Y	Y	0.0214 ppm	0.0318 ppm	1 ppm
Silver	Ag	N	Y	N	N/A	N/A	5 ppm
Toxicity Characteristics Organics							
Benzene	71-43-2	N	Y	N	N/A	N/A	0.5 ppm
Carbon tetrachloride	56-23-5	N	Y	N/A	N/A	N/A	0.5 ppm
Chlorobenzene	108-90-7	N	Y	N/A	N/A	N/A	100 ppm
Chloroform	67-66-3	N	Y	N/A	N/A	N/A	6 ppm
o-Cresol	95-48-7	N	Y	N/A	N/A	N/A	200 ppm
m,p-cresol	65794-96-9	N	Y	N/A	N/A	N/A	200 ppm
1,4-Dichlorobenzene	106-46-7	N	Y	N/A	N/A	N/A	7.5 ppm
1,2-Dichloroethane	107-06-2	N	Y	N/A	N/A	N/A	0.5 ppm
1,1-Dichloroethylene	75-35-4	N	Y	N/A	N/A	N/A	0.7 ppm
2,4-Dinitrotoluene	121-14-2	N	Y	N/A	N/A	N/A	0.13 ppm
Hexachlorobenzene	118-74-1	N	Y	N/A	N/A	N/A	0.13 ppm
Hexachlorobutadiene	87-68-3	N	Y	N/A	N/A	N/A	0.5 ppm
Hexachloroethane	67-72-1	N	Y	N/A	N/A	N/A	3 ppm
Methyl ethyl ketone	78-93-3	N	Y	N/A	N/A	N/A	200 ppm
Nitrobenzene	98-95-3	N	Y	N/A	N/A	N/A	2 ppm
Pentachlorophenol	87-86-5	N	Y	N/A	N/A	N/A	100 ppm
Pyridine	110-86-1	N	Y	N/A	N/A	N/A	5 ppm
Tetrachloroethylene	127-18-4	N	Y	N/A	N/A	N/A	0.7 ppm
Trichloroethylene	79-01-6	N	Y	N/A	N/A	N/A	0.5 ppm
2,4,5-Trichlorophenol	95-95-4	N	Y	N/A	N/A	N/A	400 ppm
2,4,6-Trichlorophenol	88-06-2	N	Y	N/A	N/A	N/A	2 ppm
Vinyl chloride	75-01-4	N	Y	N/A	N/A	N/A	0.2 ppm

WPF Toxicity Characteristics

Parameter Name	Parameter Code	TCLP	Total	Detected	Min Result (ppm)	Max Result (ppm)	Regulatory Limit (ppm)
Herbicides and Pesticides							
Chlordane	57-74-9	N	Y	N/A	N/A	N/A	0.03 ppm
Chlordane[alpha]	5103-71-9	N	Y	N/A	N/A	N/A	N/A
Chlordane[gamma]	5103-74-2	N	Y	N/A	N/A	N/A	N/A
2,4-D	94-75-7	N	Y	N/A	N/A	N/A	10 ppm
Endrin	72-20-8	N	Y	N/A	N/A	N/A	0.02 ppm
Heptachlor (& its epoxide)	76-44-8	N	Y	N/A	N/A	N/A	0.008 ppm
Lindane (gamma-BHC)	58-89-9	N	Y	N/A	N/A	N/A	0.4 ppm
Methoxychlor	72-43-5	N	Y	N/A	N/A	N/A	10 ppm
Toxaphene	8001-35-2	N	Y	N/A	N/A	N/A	0.5 ppm
2,4,5-TP (Silvex)	93-72-1	N	Y	N/A	N/A	N/A	0.5 ppm
Other							
Acidity or Alkalinity of a solution	pH	N	Y	N/A	N/A	N/A	N/A
Cyanide (Amenable)	CN(Amenable)	N	Y	N/A	N/A	N/A	N/A
Cyanide (Total)	CN(TOTAL)	N	Y	N/A	N/A	N/A	N/A
Cyanide, Reactive	CN(Reactive)	N	Y	N/A	N/A	N/A	N/A
Cyanide, weak acid dissociable	CN(WAD)	N	Y	N/A	N/A	N/A	N/A
Sulfide	S(-2)	N	Y	N/A	N/A	N/A	N/A
sulfide, Extractable	S(-2)Ext	N	Y	N/A	N/A	N/A	N/A
Sulfide, Reactive	S(-2)R	N	Y	N/A	N/A	N/A	N/A
Total Aroclors for sum of all aroclors	Tot Aroclor	N	Y	N/A	N/A	N/A	N/A

NOTE 1: The highest detected result is listed as maximum. If there are no detected results, the highest undetected result is chosen.

NOTE 2: The lowest detected result is listed as minimum. If there are no detected results, the lowest undetected result is chosen. If only one measurement exists, the minimum is listed as 0.

NOTE 3: Total Chlordane result may have been calculated, see RCRA Characteristics Report for more information.

NOTE 4: Cresol-mixed result may have been calculated, see RCRA Characteristics Report for more information.

NOTE 5: m-Cresol and p-Cresol results may have been calculated, see RCRA Characteristics Report for more information.

Selected Samples Summary

There are 0 rejected results

RCRA

9	analytes pass			
3	analytes pass as undetected			
0	analytes fail			

Detects

0	aroclors were detected			
--	Total aroclor (ppm)			
5	analytes with potential F-code			
2	analytes with potential U-code			
0	analytes with potential P-code			
	Non-wastewater LDR	11 pass	0 fail	
	Hazardous soil LDR	11 pass	0 fail	
	Residential Soil (mg/kg)	16 pass	0 fail	
	Industrial/Occupational Soil (mg/kg)	16 pass	0 fail	
	Construction Worker Soil (mg/kg)	16 pass	0 fail	
	Recreational Soil (mg/kg)	16 pass	0 fail	
	Soil background	18 pass	1 fail	
	Canyon Sediment background	14 pass	5 fail	
	Qbt 2,3,4 background	13 pass	6 fail	
	Qbt 1v background	10 pass	9 fail	
	Qbt1g, Qct, Qbo background	9 pass	10 fail	

RAD

Total dose: 0.0689862203524 mRem/year

1.08 pCi/g	Highest TRU per sample			
3 out of 9	TRU isotopes analyzed			
	Not analyzed for H3			
	Analyzed for Pu239			
6	isotopes were analyzed			
6	were detected			
0	undetected			
	Residential SAL	6 below 15 mRem/y	0 between 15 and 25 mRem/y	0 over 25 mRem/y
	Industrial SAL	6 below 15 mRem/y	0 between 15 and 25 mRem/y	0 over 25 mRem/y
	Construction worker SAL	6 below 15 mRem/y	0 between 15 and 25 mRem/y	0 over 25 mRem/y
	Recreational SAL	6 below 15 mRem/y	0 between 15 and 25 mRem/y	0 over 25 mRem/y
	Soil	3 pass	3 fail	
	Canyon sediment	3 pass	3 fail	
	Qbt 2,3,4	3 pass	0 fail	
	Qbt 1v	3 pass	0 fail	
	Qbt 1g, Qct, Qbo	3 pass	0 fail	

Selected Samples

Sample List	Associated Blanks	Associated Duplicates
WST21-20-197627		
WST21-20-197628		
WST21-20-197629		
WST21-20-197630		
WST21-20-197631		
WST21-20-197632		
WST21-20-197633		
WST21-20-197634		

Radioisotopes

Parameter Name	Parameter Code	Leached	Report Result	Report Units	Residential SAL	Industrial SAL	Construction Worker SAL	Recreational SAL	Soil Background	Canyon Sediment Background	Qbt_2_3_4 Background	Qbt_1v Background	Qbt_1g_Qct_Qbo Background	Validation Qualifier	Background Comparison Class Code	Detected	Record Comments	Field Sample Result Record #	Field Sample ID	Chain of Custody #	Location ID	Analytical Method	Lab Qualifier	Validation Reason Codes
Americium-241	Am-241	N	0.0403	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	FAIL	FAIL	N/A	N/A	N/A	NQ	N/A	Y		14307957	WST21-20-197628	2020-625	WST-RCRA	HASL-300:AM-241	N/A	NQ
Plutonium-238	Pu-238	N	0.031	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	FAIL	FAIL	N/A	N/A	N/A	NQ	N/A	Y		14308172	WST21-20-197633	2020-625	WST-RCRA	HASL-300:ISOPU	N/A	NQ
Plutonium-239/240	Pu-239/240	N	1.02	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	FAIL	FAIL	N/A	N/A	N/A	NQ	N/A	Y		14308173	WST21-20-197633	2020-625	WST-RCRA	HASL-300:ISOPU	N/A	NQ
Uranium-234	U-234	N	1.69	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	PASS	PASS	PASS	PASS	PASS	NQ	N/A	Y		14308174	WST21-20-197633	2020-625	WST-RCRA	HASL-300:ISOU	N/A	NQ
Uranium-235/236	U-235/236	N	0.0844	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	PASS	PASS	PASS	PASS	PASS	NQ	N/A	Y		14307955	WST21-20-197627	2020-625	WST-RCRA	HASL-300:ISOU	N/A	NQ
Uranium-238	U-238	N	1.21	pCi/g	<15 mRem/y	<15 mRem/y	<15 mRem/y	<15 mRem/y	PASS	PASS	PASS	PASS	PASS	NQ	N/A	Y		14308176	WST21-20-197633	2020-625	WST-RCRA	HASL-300:ISOU	N/A	NQ

TOTAL DOSE EQUIVALENT: 0.0689862203524 mRem/year

Total List of All Data

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WDS Record #	parameter_category	analytical_method_category	analytical_method	parameter_name	sampling_plan_id	field_sample_id	detect_flag	report_result	report_units	validation_qualifier	validation_reason_codes	analytical_group_name
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197629	Y	1780	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197630	Y	947	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197631	Y	1140	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197632	Y	1190	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197633	Y	2210	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197634	Y	1850	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197627	Y	2770	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Aluminum	13037	WST21-20-197628	Y	1780	mg/kg	NQ	NQ	Tal Metals
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197633	Y	0.0325	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197627	Y	0.0354	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197628	Y	0.0403	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197629	Y	0.0402	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197632	Y	0.0254	pCi/g	NQ	NQ	AM-241+ISOPU
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197627	Y	1.89	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197629	Y	1.22	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197633	Y	1.09	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197627	Y	41.1	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197628	Y	30.8	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197629	Y	35.7	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197630	Y	13.6	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197631	Y	17.9	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197632	Y	18.6	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197633	Y	24.4	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Barium	13037	WST21-20-197634	Y	26.7	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197633	Y	0.36	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197634	Y	0.565	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197627	Y	0.825	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197628	Y	0.295	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197629	Y	0.465	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197630	Y	0.147	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197631	Y	0.341	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Beryllium	13037	WST21-20-197632	Y	0.284	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197631	Y	575	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197632	Y	612	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197633	Y	980	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197634	Y	1060	mg/kg	NQ	NQ	Tal Metals

Total List of All Data

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WDS Record #	parameter_category	analytical_method_category	analytical_method	parameter_name	sampling_plan_id	field_sample_id	detect_flag	report_result	report_units	validation_qualifier	validation_reason_codes	analytical_group_name
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197627	Y	1560	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197628	Y	1000	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197629	Y	1010	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Calcium	13037	WST21-20-197630	Y	349	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197631	Y	2.8	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197632	Y	2.79	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197633	Y	7.48	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197634	Y	4.83	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197627	Y	10.9	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197628	Y	4.2	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197629	Y	5.19	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Chromium	13037	WST21-20-197630	Y	1.89	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197627	Y	2.28	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197628	Y	2.21	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197629	Y	2.17	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197630	Y	1.43	mg/kg	NQ	NQ	Tal Metals

Total List of All Data

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103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197631	Y	1.34	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197632	Y	1.99	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197633	Y	2.21	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cobalt	13037	WST21-20-197634	Y	1.8	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197627	Y	7.03	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197628	Y	2.87	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197629	Y	6.36	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197630	Y	2.6	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197631	Y	5.85	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197632	Y	2.75	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197633	Y	12.3	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Copper	13037	WST21-20-197634	Y	5.48	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197627	Y	9150	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197628	Y	9830	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197629	Y	7440	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197630	Y	4900	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197631	Y	6660	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197632	Y	8710	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197633	Y	1.1300 E04	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Iron	13037	WST21-20-197634	Y	6180	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197631	Y	5.24	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197632	Y	4.95	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197633	Y	10.2	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197634	Y	7.76	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197627	Y	13.5	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197628	Y	8.63	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197629	Y	13.4	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Lead	13037	WST21-20-197630	Y	3.25	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197633	Y	514	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197634	Y	449	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197627	Y	692	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197628	Y	480	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197629	Y	458	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197630	Y	441	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197631	Y	364	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Magnesium	13037	WST21-20-197632	Y	396	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197627	Y	328	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197628	Y	323	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197629	Y	346	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197630	Y	147	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197631	Y	249	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197632	Y	230	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197633	Y	241	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Manganese	13037	WST21-20-197634	Y	256	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197627	Y	0.0296	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197634	Y	0.0759	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197627	Y	11	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197628	Y	2.54	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197629	Y	3.47	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197630	Y	1.84	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197631	Y	8.18	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197632	Y	1.91	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197633	Y	3.34	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Nickel	13037	WST21-20-197634	Y	2.63	mg/kg	NQ	NQ	Tal Metals
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197633	Y	0.0310	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197631	Y	0.490	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197632	Y	0.277	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197627	Y	0.535	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197628	Y	0.458	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197629	Y	0.616	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197633	Y	1.02	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197634	Y	0.628	pCi/g	NQ	NQ	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-239/240	13037	WST21-20-197630	Y	0.158	pCi/g	NQ	NQ	AM-241+ISOPU
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197627	Y	447	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197628	Y	312	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197629	Y	311	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197630	Y	150	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197631	Y	205	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197632	Y	177	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197633	Y	385	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Potassium	13037	WST21-20-197634	Y	275	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197629	Y	60.6	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197630	Y	37	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197631	Y	44.3	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197632	Y	49.5	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197633	Y	55.4	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197634	Y	52	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197627	Y	83.7	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Sodium	13037	WST21-20-197628	Y	70.2	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197627	Y	1	deg C	NQ	NQ	

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103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197628	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197629	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197630	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197631	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197632	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197633	Y	1	deg C	NQ	NQ	
103765	INORGANIC	VOC	EPA:170.0	Temperature	13037	WST21-20-197634	Y	1	deg C	NQ	NQ	
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197629	Y	0.00399	mg/kg	NQ	NQ	BTEX + TPH-GRO
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197629	Y	0.189	mg/kg	NQ	NQ	BTEX + TPH-GRO
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197627	Y	1.19	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197628	Y	0.901	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197629	Y	1.31	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197630	Y	0.532	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197631	Y	0.964	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197632	Y	0.770	pCi/g	NQ	NQ	ISOU

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103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197633	Y	1.69	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-234	13037	WST21-20-197634	Y	1.39	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197627	Y	0.0844	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197633	Y	0.0688	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197627	Y	1.02	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197628	Y	0.848	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197629	Y	1.09	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197630	Y	0.570	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197631	Y	0.934	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197632	Y	0.748	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197633	Y	1.21	pCi/g	NQ	NQ	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-238	13037	WST21-20-197634	Y	1.12	pCi/g	NQ	NQ	ISOU
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197627	Y	11.1	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197628	Y	9.62	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197629	Y	9.81	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197630	Y	5.33	mg/kg	NQ	NQ	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197631	Y	5.93	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197632	Y	8.4	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197633	Y	12.7	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Vanadium	13037	WST21-20-197634	Y	7.76	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197633	Y	58.6	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197632	Y	64.4	mg/kg	NQ	NQ	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197627	Y	48.1	mg/kg	J+	I4a	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197628	Y	47.6	mg/kg	J+	I4a	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197629	Y	40.4	mg/kg	J+	I4a	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197634	Y	36.2	mg/kg	J+	I4a	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197630	Y	22.6	mg/kg	J+	I4a	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Zinc	13037	WST21-20-197631	Y	29.4	mg/kg	J+	I4a	Tal Metals
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197627	Y	70.2	mg/kg	J-	DR9	TPH-DRO

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103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197629	Y	174	mg/kg	J-	DR9	TPH-DRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197630	Y	81.5	mg/kg	J-	DR9	TPH-DRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197631	Y	31.9	mg/kg	J-	DR9	TPH-DRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197633	Y	33.2	mg/kg	J-	DR9	TPH-DRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197634	Y	94.5	mg/kg	J-	DR9	TPH-DRO
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197628	Y	0.728	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197630	Y	0.472	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197631	Y	0.892	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197632	Y	0.652	mg/kg	J	J_LAB	Tal Metals

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WDS Record #	parameter_category	analytical_method_category	analytical_method	parameter_name	sampling_plan_id	field_sample_id	detect_flag	report_result	report_units	validation_qualifier	validation_reason_codes	analytical_group_name
103765	INORGANIC	INORGANIC	SW-846:6020A	Arsenic	13037	WST21-20-197634	Y	0.702	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197628	Y	0.0142	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197629	Y	0.0169	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197633	Y	0.0121	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197627	Y	0.443	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197628	Y	0.536	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197629	Y	0.636	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197631	Y	0.463	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197632	Y	0.548	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197633	Y	0.613	mg/kg	J	J_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197634	Y	0.428	mg/kg	J	J_LAB	Tal Metals
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197627	Y	0.111	mg/kg	J	J_LAB	BTEX + TPH-GRO
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197628	Y	0.0273	mg/kg	J	J_LAB	BTEX + TPH-GRO

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103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197633	Y	0.0459	mg/kg	J	J_LAB	BTEX + TPH-GRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197628	N	24.2	mg/kg	UJ	DR9	TPH-DRO
103765	ORGANIC	DRO	SW-846:8015M_EXTRACTABLE	Total Petroleum Hydrocarbons Diesel Range Organics	13037	WST21-20-197632	N	22.6	mg/kg	UJ	DR9	TPH-DRO
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197634	N	0.0300	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197630	N	0.0111	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:AM-241	Americium-241	13037	WST21-20-197631	N	0.00822	pCi/g	U	R5	AM-241+ISOPU
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197627	N	0.389	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197628	N	0.34	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197629	N	0.382	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197630	N	0.334	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197631	N	0.347	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197632	N	0.333	mg/kg	U	U_LAB	Tal Metals

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WDS Record #	parameter_category	analytical_method_category	analytical_method	parameter_name	sampling_plan_id	field_sample_id	detect_flag	report_result	report_units	validation_qualifier	validation_reason_codes	analytical_group_name
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197633	N	0.363	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Antimony	13037	WST21-20-197634	N	0.36	mg/kg	U	U_LAB	Tal Metals
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197633	N	0.000384	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197634	N	0.000376	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197627	N	0.000409	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197628	N	0.000374	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197629	N	0.000392	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197630	N	0.000355	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197631	N	0.000362	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Benzene	13037	WST21-20-197632	N	0.000353	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197627	N	0.118	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197628	N	0.103	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197629	N	0.116	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197630	N	0.101	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197631	N	0.105	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197632	N	0.101	mg/kg	U	U_LAB	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197633	N	0.11	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Cadmium	13037	WST21-20-197634	N	0.109	mg/kg	U	U_LAB	Tal Metals
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197627	N	0.000409	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197628	N	0.000374	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197629	N	0.000392	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197630	N	0.000355	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197631	N	0.000362	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197632	N	0.000353	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197633	N	0.000384	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Ethylbenzene	13037	WST21-20-197634	N	0.000376	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197630	N	0.00757	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197631	N	0.00804	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:7471A	Mercury	13037	WST21-20-197632	N	0.0074	mg/kg	U	U_LAB	Tal Metals
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197627	N	0.0135	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197628	N	0.0307	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197629	N	0.0221	pCi/g	U	R5	AM-241+ISOPU

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103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197630	N	-0.00305	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197631	N	0.0133	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197632	N	0.0131	pCi/g	U	R5	AM-241+ISOPU
103765	RAD	RAD	HASL-300:ISOPU	Plutonium-238	13037	WST21-20-197634	N	0.0237	pCi/g	U	R5	AM-241+ISOPU
103765	INORGANIC	INORGANIC	SW-846:6020A	Selenium	13037	WST21-20-197630	N	0.38	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197627	N	0.118	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197628	N	0.103	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197629	N	0.116	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197630	N	0.101	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197631	N	0.105	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197632	N	0.101	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197633	N	0.11	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6010C	Silver	13037	WST21-20-197634	N	0.109	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197627	N	0.166	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197628	N	0.141	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197629	N	0.15	mg/kg	U	U_LAB	Tal Metals

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103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197630	N	0.148	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197631	N	0.152	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197632	N	0.142	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197633	N	0.15	mg/kg	U	U_LAB	Tal Metals
103765	INORGANIC	INORGANIC	SW-846:6020A	Thallium	13037	WST21-20-197634	N	0.158	mg/kg	U	U_LAB	Tal Metals
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197627	N	0.000409	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197628	N	0.000374	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197630	N	0.000355	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197631	N	0.000362	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197632	N	0.000353	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197633	N	0.000384	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Toluene	13037	WST21-20-197634	N	0.000376	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197630	N	0.0178	mg/kg	U	U_LAB	BTEX + TPH-GRO

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103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197631	N	0.0181	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197632	N	0.0177	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	GRO	SW-846:8015M_PURGEABLE	Total Petroleum Hydrocarbons Gasoline Range Org.	13037	WST21-20-197634	N	0.0188	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197628	N	0.0641	pCi/g	U	R5	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197629	N	0.0898	pCi/g	U	R5	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197630	N	0.0265	pCi/g	U	R5	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197631	N	0.0497	pCi/g	U	R5	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197632	N	0.0337	pCi/g	U	R5	ISOU
103765	RAD	RAD	HASL-300:ISOU	Uranium-235/236	13037	WST21-20-197634	N	0.0694	pCi/g	U	R5	ISOU
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197627	N	0.00123	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197628	N	0.00112	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197629	N	0.00118	mg/kg	U	U_LAB	BTEX + TPH-GRO

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103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197630	N	0.00107	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197631	N	0.00109	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197632	N	0.00106	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197633	N	0.00115	mg/kg	U	U_LAB	BTEX + TPH-GRO
103765	ORGANIC	VOC	SW-846:8260B	Xylene (Total)	13037	WST21-20-197634	N	0.00113	mg/kg	U	U_LAB	BTEX + TPH-GRO

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197627

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	ok	03/26/2020	FIELD MATRIX:	S	ok
TIME COLLECTED (HH:MM):	↓	12:39	MEDIA:		↓
PRS ID:	↓	ok	SAMPLE TECH CODE:	DC	↓
LOCATION ID:	WST-RCRA	↓	FIELD PREP:	NA	↓
LOCATION TYPE:	SS(0-1ft)	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:	↓	↓	SAMPLE USAGE:	WST	↓
BOTTOM DEPTH:	↓	↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA County - Otowi well confluence #4 / 0-6" depth w/ scoop

LOCATION COMMENTS: Sample #1 Location

FIELD PARAMETERS:

Sample Time _____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient Reading ---------- = _____ ppm

Charles Booth
Z# 335034

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197627

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) Terrence Garcia (Signature)	**Date/Time** 3/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197628

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		12:46	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA County - Otowi well confluence #4 / 0-6" depth w/ scoop

LOCATION COMMENTS: Sample #(2) Location

FIELD PARAMETERS:

Sample Time _____ HH:MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha N/A dpm

Beta/Gamma 700-500 dpm

PID Ambient ---------- Reading = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197628

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) Terrence Garcia (Signature)	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) Melissa Mu (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197629

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		12:53	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA 3/26/2

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA County Otowi well confluence #4 / 0-6" depth w/ scoop

LOCATION COMMENTS: Sample #3 Location

FIELD PARAMETERS:

Sample Time _____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient Reading = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197629

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) Terrence Garcia (Signature)	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197630

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		1:00	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA County - Otowi well confluence #4 / 0-6" depth w/ Scoop

LOCATION COMMENTS: Sample #4 Location

FIELD PARAMETERS:

Sample Time _____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient Reading = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197630

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) Terrence Garcia (Signature)	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197631

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		1:09	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA - County - Otowi well confluence #4 / 0-6" depth w/ scoop

LOCATION COMMENTS: Sample # 5 Location

FIELD PARAMETERS:

Sample Time _____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient Reading ---------- = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197631

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrenca Garcia

RELINQUISHED BY (Printed Name) (Signature) Terrenca Garcia	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature) Melissa Mottz	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197632

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		1:16	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA-County - Otowi Well Confluence #4/ 0-6" depth w/ Scoop

LOCATION COMMENTS: Sample # (6) Location

FIELD PARAMETERS:

Sample Time _____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient ---------- Reading = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197632

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) (Signature) Terrence Garcia	**Date/Time** 03/26/20 3:12	**RECEIVED BY (Printed Name) (Signature)** M. Gis-M	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197633

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		1:23	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE	Y	
	BTEX + TPH-GRO	125 ML Amber GLASS	2	ICE	Y	
	ISOU	250 ML POLY	1	ICE	Y	
	Tal Metals	125 ML POLY	1	ICE	Y	
	TPH-DRO	250 ML GLASS	1	ICE	Y	

SAMPLE COMMENTS: LA County - Otowi well confluence #4 / 0-6" depth w/ Scoop

LOCATION COMMENTS: Sample #7 Location

FIELD PARAMETERS:

Sample Time _____ HH:MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha NDA dpm

Beta/Gamma 200-500 dpm

PID Ambient ---------- Reading = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197633

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) (Signature) Terrence Garcia	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197634

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
Date Collected (MM/DD/YYY):	OK	03/26/2020	FIELD MATRIX:	S	OK
TIME COLLECTED (HH:MM):		1:32	MEDIA:		
PRS ID:		OK	SAMPLE TECH CODE:	DC	
LOCATION ID:	WST-RCRA		FIELD PREP:	NA	
LOCATION TYPE:	SS(0-1ft)		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	WST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	AM-241+ISOPU	1 LITER POLY	1	NONE		
	BTEX + TPH-GRO	Amber 125 ML GLASS	2	ICE		
	ISOU	250 ML POLY	1	ICE		
	Tal Metals	125 ML POLY	1	ICE		
	TPH-DRO	250 ML GLASS	1	ICE		

SAMPLE COMMENTS: LA County - Otowi well confluene # 4 / 0-6" depth w/ Scoop

LOCATION COMMENTS: Sample Location #8

FIELD PARAMETERS:

Sample Time ____ HH MM

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha N/DA dpm

Beta/Gamma 200-500 dpm

PID Ambient Reading ---------- = _____ ppm

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 13037

EVENT NAME: RFA 4786 - Lopez - TA-21

SAMPLE ID: WST21-20-197634

WORK ORDER:

COLLECTED BY (PRINT): Bryan Vigil / Fred Lopez / Terrence Garcia

RELINQUISHED BY (Printed Name) (Signature) Terrence Garcia	**Date/Time** 03/26/20 3:12	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 3/26/2020 3:12
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Sample Management Office Shipping Classification Determination Checklist

Sampling Plan ID/Name: 13037

TEST – Chemical Preservation	YES	NO	NA
If the samples were chemically preserved, do the chemical preservations exceed limits given in 40 CFR 136, Table II – Required Containers, Preservation Techniques and Holding Times (footnote 3)? **Note: sample preservation guidance listed on the SCL complies with CFR requirements.**	○	○	●

TEST – DOT Hazardous Material	YES	NO	Unknown
Is the sample a detonable or reactive explosive (DOT Division 1.1 through 1.6)?	○	●	○
Is the sample a compressed gas (DOT Division 2.1, 2.2, or 2.3)?	○	●	○
Is the sample a flammable or combustible liquid (DOT Hazard Class 3)?	○	●	○
Is the sample a flammable solid (DOT Division 4.1)?	○	●	○
Is the sample a spontaneously combustible material (DOT Division 4.2)?	○	●	○
Is the sample a dangerous when wet material (DOT Division 4.3)?	○	●	○
Is the sample an oxidizer or organic peroxide (DOT Division 5.1 or 5.2)?	○	●	○
Is the sample a poisonous material or infectious substance (DOT Division 6.1 or 6.2)?	○	●	○
Is the sample a corrosive material (DOT Hazard Class 8)?	○	●	○
Does the sample contain MORE than 1 lb of a hazardous material (DOT Hazard Class 9)?	○	●	○

TEST – Field Screen

If the samples have field screening measurements of alpha and/or beta activity, then compare the results to the sample and shipment activities limits listed below. Mark the items YES if they equal or exceed the listed activities.

Sample Activity (dpm/100cm²)		Shipment Activity (dpm*g/100cm²)	Sampled Location	YES	NO	NA
Alpha detectable	AND	Alpha ≥ 160,000	AT TA-1 and adjacent hillsides, TA-21, Acid Canyon, MDA C, TA-54 Area G, TA-48 or TA-49	○	●	○
Alpha ≥ 125	AND	Alpha ≥ 1,250,000	AT Other Locations	○	●	○
Beta ≥ 1,500	AND	Beta ≥ 15,000,000	AT Any Location	○	●	○
Alpha ≥ 16,000,000 dpm*g/100cm²?				○	●	○
Beta ≥ 160,000,000 dpm*g/100cm²?				○	●	○
On the external surface of the sample container, is Alpha ≥ 24 dpm/100cm²?				○	●	○
On the external surface of the sample container, is Beta ≥ 240 dpm/100cm²?				○	●	○
On the external surface of the sample container, is surface activity ≥ 0.5 mR/hr?				○	●	○

TEST – Previous Analytical Results

If previous analytical measurements of radioactive isotopes are available for this sampling location, then compare those results to the sample and shipment activity limits listed below. Mark the items YES if they equal or exceed the listed activities.

Sample Activity (pCi/g)		Shipment Activity (pCi)	YES	NO	NA
Am-241 ≥ 27 pCi/g	AND	Am-241 ≥ 270,000 pCi Total	○	○	●
Cs-137 ≥ 270 pCi/g	AND	Cs-137 ≥ 270,000 pCi Total	○	○	●
Pu-238 ≥ 27 pCi/g	AND	Pu-238 ≥ 270,000 pCi Total	○	○	●
Pu-239/240 ≥ 27 pCi/g	AND	Pu-239/240 ≥ 270,000 pCi Total	○	○	●
Th-228 ≥ 27 pCi/g	AND	Th-228 ≥ 270,000 pCi Total	○	○	●
U-234 ≥ 270 pCi/g	AND	U-234 ≥ 1,600,000,000 pCi Total	○	○	●
U-238 ≥ 270 pCi/g	AND	U-238 unlimited	○	○	●
H-3 ≥ 27,000,000 pCi/g	AND	H-3 ≥ 27,000,000,000 pCi Total	○	○	●
Am-241, Pu-238, Pu-239/240, or Th228 ≥ 27,000,000 pCi			○	○	●
Cs-137 ≥ 270,000,000,000 pCi			○	○	●
U-234 ≥ 160,000,000 pCi			○	○	●
H-3 ≥ 1 Ci			○	○	●

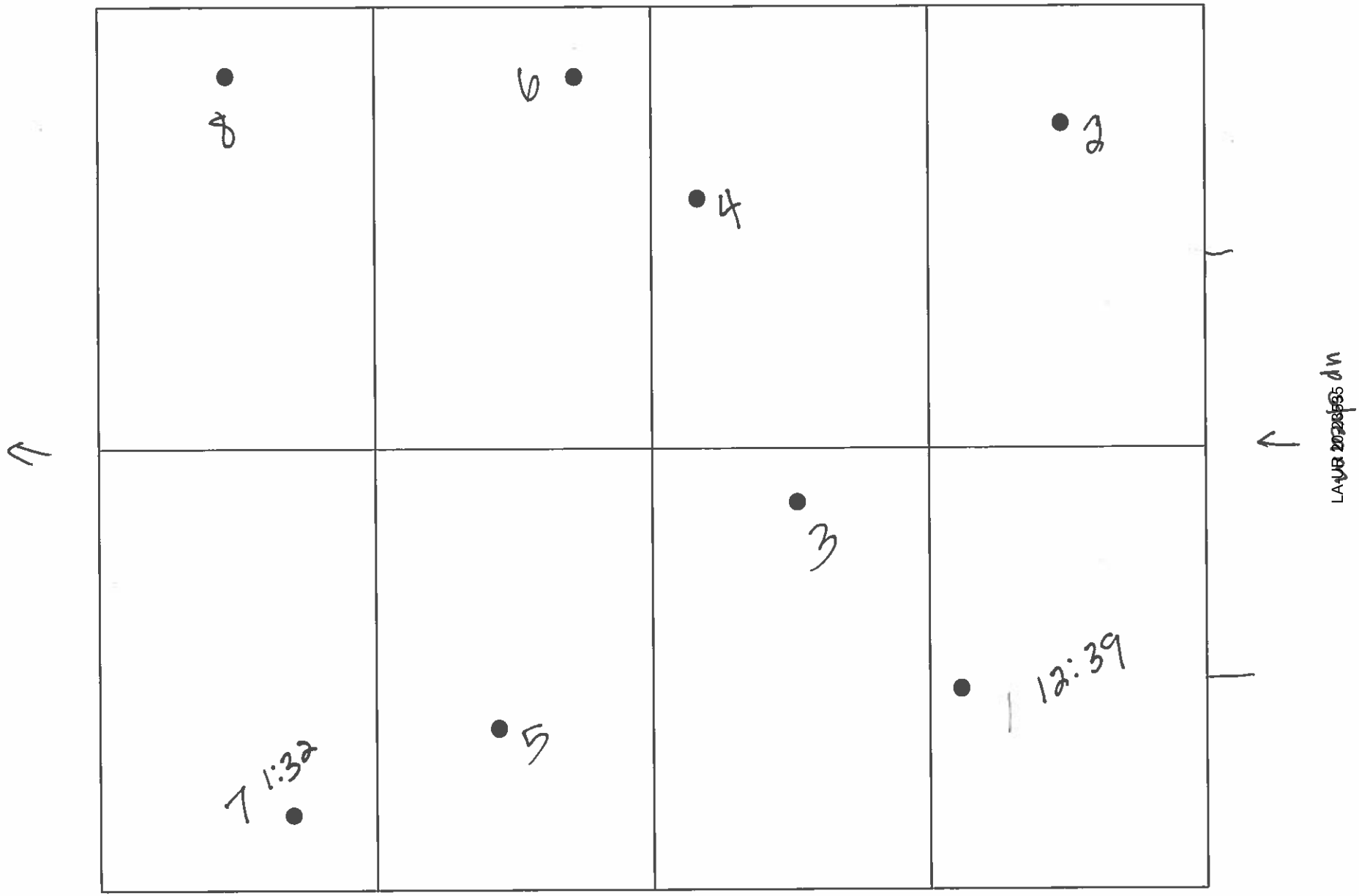
If ANY items on this form are marked YES, SMO will not transport the samples. Contact OS-PT for guidance.

Documented Field Team Member Statement

If no items on this form are marked YES, then these samples do not meet the criteria for classification in any hazard class according to 49 CFR Part 173 and may be shipped by the ALDESHQSS SMO.

Hazard Assessment Completed By: (Printed Name) Terrence Garcia (Signature)	**Date:** 03/26/2020	**Time:** 3:12
Hazard Assessment Reviewed By: (Printed Name) Melissa Murphy (Signature)	**Date:** 3/24/2020	**Time:** 3:12

Otowi Well Confluence



LA-UR 22-28565

Deciphering WDS Information

Tables 1 & 2 are the most common descriptors needed for reviewing data in the Waste Data Summaries (WDS) reports. When reviewing data refer to Validation Qualifier & Reason code, these have been reviewed and validated on site by the data administrator. If other qualifiers or reason codes are present call either Stas Marcazk or Susan Thomas for clarification if necessary.

Table 1

Validation Qualifier	Descriptions
NQ	No validation qualifer flag is associated with this result is classified as detected
J	The analyte is classified as detected but the report concentration value is expected to be more uncertain than usual
J+	
J-	The analyte is classified as detected but the report concentration value is expected to be more uncertain than usual with a potential negative bias
U	The analyte is classified as not detected
UJ	The analyte is classified as not detected with an expectation that the reported result is more uncertain than usual
R	The reported sample result is classified as rejected due to serious noncompliance regarding quality control acceptance criteria. The presence or absence of the analyte cannot be verified based on routine validation alone.

Table 2

Validation Reason Code	Descriptions
NQ	No validation qualifer flag is associated with this result is classified as detected
J_LAB	Accepted LAB results
U_LAB	Accepted LAB results
R5	Analyte is not detected because the amount reported is less than the MDC.
R33	Naturally Occurring Radionuclide

Additional Helpful Comments

If the Total List of All Data is needed and is included in the WDS it has hidden columns and has been sorted to show detects first. To review all data go to: https://www.locusfocus.com/eim/eim.cfm and run the reports for WDS that you are reviewing.

pH shows ppm for units. The pH is unit-less value and when the report is updated/revised will show SU instead of ppm.

Reviewing the Toxicity Report

In the Arsenic example below TCLP (N) was not run but Total Metals(Y) was. The Y in detected column shows it was detected and then the results in ppm
In the Cadmium example TCLP (N) was not run but Total Metals (Y) was. The N in detected column shows it was not detected so N/A is both results columns.
In the Chlordane example neither TCLP (N) nor Total Metals (Y) was run. If N/A is in the detect column there are no results because the parameter was not checked for.

Parameter Name	Parameter Code	TCLP	Total	Detected	Min Result (ppm)	Max Result (ppm)	Regulatory Limit (ppm)
Arsenic	As	N	Y	Y	0 ppm	0.00255 ppm	5 ppm
Cadmium	Cd	N	Y	N	N/A	N/A	1 ppm
Chlordane	57-74-9	N	Y	N/A	N/A	N/A	0.03 ppm
Chromium	Cr	Y	N	N	N/A	N/A	5 ppm

In the Chromium example above TCLP (Y) has been run and Total Metals was not (N). The N in detected column shows it was not detected so N/A is both results columns.

To review start with the Detected column and work left to verify TCPL or Total Metals, then review results. If only one sample was run in the WDS, the Min Result defaults to 0 ppm.

Note: When Total Metals (Solids)are sampled for, the results on the Toxicity Characteristics Report has already been divided by 20 and the Max and Min Results on the report is the information entered on the Waste Stream Profile.