APPENDIX H

DATA QUALITY ASSESSMENT

DATA QUALITY ASSESSMENT

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, MA

Data collected in support of the RI program at the NMI site were completed during the Phase 1A, 1B, and 1C investigations. The periods in which these investigations were completed are as follows:

- Phase 1A: Fall 2004 and Spring 2005
- Phase 1B: Fall 2005
- Phase 1C: Fall 2007 to present

In addition, a groundwater monitoring program consisting of semi-annual groundwater sample collection and analysis has been on-going during the RI program. At least two rounds of groundwater samples have been collected from each of the groundwater monitoring wells.

The data presented and selected for use in the RI are a product of sample collection and handling, laboratory analyses, and data Quality Assurance/Quality Control (QA/QC) procedures performed in accordance with USEPA Region 1 methods, and as described in the Quality Assurance Project Plan (QAPP) for the NMI Site (MACTEC, 2004).

SAMPLING AND ANALYTICAL PROGRAM

Approximately 1,700 samples from a variety of environmental media were collected during the Phase 1A, 1B, and 1C investigations. The RI investigation included sampling and analysis of surface soil, subsurface soil, groundwater, surface water, sediment, peat, and other miscellaneous media (sludge, wastewater). Samples were analyzed by GEL Laboratories, LLC (formerly known as General Engineering Laboratories, LLC) in Sample Delivery Groups (SDGs). For the NMI RI, a total of 300 SDGs were generated.

Up to 20 samples were batched into a laboratory SDG. SDGs contained one or more of the following analytical methods:

- TCL VOCs: Method 8260B
- TCL SVOCs: Method 8270C
- TCL polynuclear aromatic hydrocarbon (PAHs): Method 8310
- PCBs: Method 8082
- Extractable Petroleum Hydrocarbons (EPH): Method 8015 (MassDEP)
- TAL Metals: Method 6020/7471A
- Specialty TAL Metals (molybdenum, thorium, titanium, tungsten, uranium, zirconium): Method 6020
- Nitrate, Nitrite, Fluoride: Method SW-846 9056
- 1,4-Dioxane: Method SW-846 8270C
- Alpha Spectroscopy: DOE EML HASL-300
- Gamma Spectroscopy: EPA 905.0

Tables H-1 through H-6 summarize the sampling and analytical program for the NMI RI by media.

In addition to discrete media and as part of the QA program for the RI, quality control samples were also collected and analyzed. These included field quality control blanks (trip blanks, temperature blanks, equipment rinse blanks, and field blanks), field duplicates, matrix spike/matrix spike duplicate (MS/MSD), and laboratory-specific QC samples.

DATA VALIDATION

Results for chemical analysis were validated by qualified MACTEC personnel using USEPA Region I EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (USEPA, 1996b), Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (USEPA, 1988), Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses (USEPA, 1989), and project measurement performance criteria (MPC) presented in the NMI QAPP (MACTEC,2004).
Data validation of RI SDGs included Tier II (74 percent) and Tier III (26 percent) validation for the analytical parameters listed above:

- Tier II validation included a data completeness check and a review of all quality control (QC) results.
- Tier III validation consisted of a Tier II validation and incorporated a detailed review of all raw data including calculation checks, compound identification, and transcription errors.

Both levels of validation included a senior peer review of validation flagging and actions, and input of validation results into the project database (160,607 analytical records). Validation reports for each SDG are available upon request.

The laboratory analytical data are assigned data validation qualifier codes during the validation process. The validation codes used are:

- U - Indicates the parameter was not detected. The associated value represents the sample quantitation limit (SQL) (chemical testing) or minimum detectable activity (MDA) (radiochemical testing).
- UJ – Indicates an estimated SQL or MDA.
- J – Indicates an estimated concentration. The associated value was either reported by the laboratory below the lowest calibrated standard but above the instrument detection limit (metals) or method detection limit (organics) OR qualified as estimated due to a slight QC non-conformance).
- R – Indicates the result is unusable for the purposes of the RI. The compound may or may not be present.

In accordance with USEPA data validation guidelines, values reported as positively detected were evaluated to determine if the detections could be associated with carry over contamination through the collection and analysis of blanks. Results for constituents that are common laboratory contaminants (e.g., acetone, methyl ethyl ketone, methylene chloride) were qualified as non-detect (“U” qualified) if detections were within ten-times the concentrations reported in the blanks. For all other constituents, results were qualified as non-detect (“U” qualified) if detections were within five-times the concentrations reported in the blanks.

Data validation findings indicate the laboratory provided high quality results that were deemed usable and met the project quality objectives (PQOs) stated in the RI Work Plan and QAPP. Results qualified as unusable during the validation process (flagged with an "R") were not used in data evaluation, contamination assessment, or risk assessment. Results qualified as estimated during the validation process

(flagged with a "J") were used for all stated purposes of definitive data. Data completeness for the RI (98 percent) exceeded the project goal of 90 percent identified in the QAPP (MACTEC, 2004).

The percentage of rejected data records was very small:

- 0.06% for groundwater,
- 0.10% for soil,
- 0.09% for surface water,
- 1.7% for sediment and peat, and
- 0.002% for tissue

The higher percentage of sediment and peat data records that were rejected is primarily the result of high percent moisture/low solids content in the peat samples for VOC data. Some VOC and SVOC data were also rejected in Sphagnum Bog sediment for the same reasons. To help address the data gap that would have been created by rejection of data due to high moisture content in samples, with the exception of VOC analysis, a freeze-drying sample preservation method was used in subsequent rounds of sampling.

SPECIAL CONSIDERATIONS

PAHs: As noted above, two analytical methods were used to quantify PAHs. USEPA Method 8310 is designed specifically for detection of trace levels of PAHs, while Method 8270C is more suitable for low to high levels of SVOCs, including PAHs. Method 8310 utilizes an ultraviolet (UV) detector for primary identification and a fluorescence detector for confirmation of PAHs. These detectors are fairly ambiguous and do not provide nearly the degree of certainty that is afforded by the 8270C GC/MS method. Combined with the lower quantitation limits, Method 8310 can result in more false positive results than 8270C. However, Method 8310 was used for analysis to meet the Project Action Levels (PALs), which are based on risk-based screening levels (RBSLs), for sediment, surface water, and to a lesser degree soil (i.e., 8310 was selected primarily because it provides lower quantitation limits for PAHs than does Method 8270C). Method 8270C is the preferred method for quantifying PAH concentrations in samples for which sample quantitation limits by Method 8270C meet PALs. For sample results by Method 8270C that do not meet PALs, Method 8310 (which generally has lower detection limits), is the preferred method for quantifying PAHs.

The "Statistical Evaluation of Background and Site-Specific Data Fall 2004 and Spring 2005 Remedial Investigation Data" (MACTEC, 2005) included a comprehensive review of PAH results by Method 8310 and Method 8270 for the background data sets, as it was essential to select the PAH data that would then be used to establish background values and RI Screening Levels.

A review of the background soil data by Method 8270C and Method 8310 indicated that for PAHs that were detected by both methods, the detection limits for Method 8270 met PALs. Therefore, the background data for PAHs in soil was based on results by Method 8270C. Even though Method 8310 was used for sediment samples to meet the PALs, this method is subject to interferences and is not considered as quantitative as Method 8270C at the PAH concentrations detected in sediment samples (generally 0.5 milligrams per kilogram (mg/kg) to 5 mg/kg). In addition, with respect to detection limits meeting PALs, there were essentially no differences between Method 8270C and Method 8310 results in the sediment background data sets (i.e., for a given PAH, detection limits by both methods either met PALs or did not meet PALs). Therefore, background data for PAHs in sediment were also based on results by Method 8270C.

The PAH results by Method 8270C and Method 8310 in the validated fall 2004 Site data sets were also reviewed for comparability. Similar trends to those noted in the background data sets were observed;

generally a greater number of PAHs were positively detected in the Method 8270C analyses than in the Method 8310 analyses, and detection limits associated with the Method 8270C analyses met PALs. Therefore, PAH results presented in the RI for the Site and background soil/sediment data sets are represented by the Method 8270C analyses.

Uranium and Thorium: Because uranium and thorium are constituents that were used and disposed of at the Site, the RI program has included sampling for uranium and thorium in nearly every sample collected from the various media. Uranium and thorium data were collected using three different analytical methods, each specified for a different data quality objective.

- ICP-MS methodology (Method 6020) was used to analyze uranium and thorium in all samples. The ICP-MS method was used as the principal analytical method for uranium and thorium because it has greater sensitivity and resolution as compared to alpha spectroscopy, and the metals can be determined within the same analytical run as other metals (cost savings). ICP-MS provides mass concentrations for the uranium isotopes U-238 and U-235, as well as a mass concentration for total uranium (total of U-234, U-235, and U-238). Thorium measurements by ICP/MS only provide mass concentrations of Th-232 present.
- Alpha Spectroscopy methodology was used to analyze uranium and thorium in a subset of samples collected during the Phase 1A investigation (5 percent). The principal objective of the alpha spectroscopy analysis was a second line of evidence to verify the isotopic ratios for uranium and thorium believed present at the site.
- Gamma Spectroscopy was used on a subset of samples collected during the Phase 1A investigation to evaluate the presence of other radionuclides within the hard-to-detect radionuclides (HTDRs) subset. HTDRs include radioisotopes of americium, curium, neptunium, plutonium, strontium, and technetium, which may have been introduced into DU at low concentrations if DU was produced through the reprocessing of spent nuclear fuel. In general, if these radionuclides are present, they exist at such low activities in relation to the activity of uranium that they do not appreciably affect the risk estimates. The gamma spectroscopy analysis performed in support of the HTDR analysis also includes the identification and quantification of naturally-occurring radioisotopes in soil (e.g., potassium-40, lead-210, and bismuth-212).

For all intensive purposes, the ICP-MS data for uranium and thorium was used in data evaluation, contamination assessment, or risk assessment.

DATA USABILITY

As specified in the QAPP, a data usability assessment was performed on each validated SDG to determine whether the PQOs were met. This assessment was performed by evaluating the measurement objectives stated in the QAPP for the PARCC parameters (precision, accuracy, representativeness, completeness, and comparability). Emphasis of this assessment was placed on the laboratory's ability to accurately and precisely identify and quantify Site-related contaminants of concern (COCs) listed in Table 6.1.1 of the QAPP. The data quality assessment and evaluation of the PARCC parameters are discussed below.

Precision and Accuracy: Overall, analytical precision and accuracy were observed to be very good, with only a small portion (2 percent) of results qualified and flagged as rejected (R). Rejected results (R) are deemed unusable data points. Of the total 160,607 analytical records in the RI database, only 3069 were qualified as rejected (108 metals, 375 SVOCs, 9 PAHs, 2545 VOCs, 2 PCBs, 1 hardness, 4 nitrate, and 25 radiochemical records). This very small percentage of rejected results indicates data reported by the laboratory were within the precision and accuracy of the analytical methods and demonstrates excellent laboratory performance. As noted above, the higher number of rejected VOC results reflect the sediment/peat samples with high moisture content (discussed above).

Precision is the degree of mutual agreement among individual measurements of the same parameter, using prescribed conditions and a single test procedure. Overall precision includes variability associated with field and laboratory operations. Results from field duplicate and matrix spike/matrix spike duplicate (MS/MSD) analyses were used to assess field variability, which includes sample collection/handling as well as matrix homogeneity. Laboratory precision was assessed through the use of laboratory duplicate sample analysis and continuing calibration or as specified in the method.

- Field duplicates - The Relative Percent Difference (RPD) for field duplicate pairs were calculated during validation. The majority of field duplicate samples were within the MPCs indicating good analytical precision and reproducible field sampling procedures. Results reported outside the field duplicate precision MPCs were qualified and flagged as estimated (J). In general, the majority of field duplicate RPDs that exceeded the QAPP MPCs were observed in soil/sediment samples suggesting sample homogeneity may be a factor in measuring precision. These findings do not affect the usability of reported results.

- Laboratory duplicates – During validation the RPDs for laboratory duplicate samples were evaluated. Results reported outside the MPCs were qualified and flagged as estimated (J) using EPA Region I validation guidelines. All results are deemed usable as qualified.

- MS/MSDs - The RPD between the MS and MSD analyses were evaluated during validation. Results reported outside the MPCs were qualified and flagged as estimated (J) using EPA Region I validation guidelines. All results are deemed usable as qualified.

- Continuing calibration - Calibration precision was measured by evaluating the percent difference (%D) between the initial calibration relative response factor (RRF) and the continuing calibration RRF and the response for each compound in the calibration curve. Results obtained from calibration curves which did not meet the MPCs were qualified as estimated (J) or rejected (R) using EPA Region I validation guidelines. Results that were qualified as rejected (R) were considered unusable due to extremely low response factors for these compounds (not uncommon among testing laboratories).

Accuracy is the difference between individual analytical measurements and the true or expected value of a measured parameter. Sources of error may include the sampling process, field or laboratory contamination, sample preservation and handling, sample matrix interference, sample preparation methods, and calibration and analysis procedures. Accuracy was assessed by evaluating blank contamination and percent recoveries for calibration verification samples, laboratory control samples (LCS), MS/MSDs, and surrogate standards.

- Blank Contamination - Compounds detected in laboratory and/or field blanks may indicate false positives and/or potential high bias of reported results. Blank contamination action levels were established using EPA Region I validation guidelines. In accordance with these guidelines, results for the batches of samples associated with the blanks at concentrations below the action levels were qualified as non-detect (U). All results are deemed usable as qualified.

- Calibration - Initial and continuing calibration results were evaluated against MPCs for percent relative standard deviation (%RSD) and percent recoveries. Results for compounds in the initial calibrations with %RSDs above the MPCs were qualified as estimated (J) according to EPA Region I validation guidelines. All results are deemed usable as qualified.

- MS/MSD and LCSs - Low MS/MSD/LCS recoveries may indicate a potential low bias while high MS/MSD/LCS recoveries may indicate a potential high bias. Sample results (detected and not detected) associated with low MS/MSD/LCS recoveries were qualified as estimated (J) while only positive detections associated with high MS/MSD/LCS recoveries were qualified as estimated (J). In some rare instances, sample results associated with extremely low MS/MSD/LCS recoveries were qualified as rejected (R) and deemed unusable.

- Surrogates Standards (organics) - Samples with low surrogate standard recoveries may indicate a low bias while high surrogate standard recoveries may indicate a high bias. All data associated with low surrogate recoveries were qualified as estimated (J) while only positive detections associated with high surrogate recoveries were qualified as estimated (J). In a few instances, surrogate recoveries for some ana1ytes were extremely low (below 10 %), causing data to be flagged as rejected (R) and deemed unusable.

Representativeness: Representativeness is defined as the degree to which the data accurately and precisely represent the true environmental condition existing at each AOI. Representativeness of samples was achieved to the greatest degree possible by adhering to the scopes of the investigation work plans, the sampling procedures described in Section 9.0 of the QAPP, and the analytical procedures and laboratory Standard Operating Procedures (SOPs) for the project (Section 12.0 0f the QAPP).

- An evaluation of laboratory method blanks and field QC blanks provides a good measurement for assessing the potential for laboratory or sampling related contamination. Compounds at concentrations below blank contamination action levels were identified as laboratory or sampling contaminants and were not considered representative of the sample media.

- Representativeness was also evaluated by comparing compounds detected within each media at a given AOI to Site-related COCs for that AOI.

Completeness: Completeness is defined as a measure of the amount (percentage) of valid data obtained from a measurement system, field or laboratory, compared to the amount expected from the system. Completeness of the field sampling activities was assessed in terms of the actual number and type of sample results received from the field and laboratory, as compared with the planned number and type of sample results. A target of 90 percent completeness for all field and laboratory data was projected for this project (MACTEC, 2004). Actual completeness was measured at 98 percent.

Comparability: Comparability addresses the confidence with which one data set can be compared to another. Use of appropriate sampling methods, chain-of-custody procedures, and USEPA-approved analytical methods, as well as adherence to QA/QC procedures, provided the basis for uniformity in sample collection and analysis activities.

TABLE H-1
SAMPLING AND ANALYSIS PROGRAM - SOIL

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	Location ID																										
Holding Basin	SB-RI-01001	1		1		1		1	1	12		2	2	12	4	4	4	12	12	2	2	1	1	1	1	1	1
Holding Basin	SB-RI-01002	2		1		2		2	2	12		3	3	12				12	12	3	3	1	1	1	1	1	1
Holding Basin	SB-RI-01003	1		1		1		1	1	10		2	2	10	4	4	4	10	10	2	2	1	1	1	1	1	1
Holding Basin	SB-RI-01004	1		1		1		1	1	10		2	2	10				10	10	2	2	1	1	1	1	1	1
Holding Basin	SB-RI-01005	1		1		1		1	1	12		2	2	12	4	4	4	12	12	2	2	1	1	1	1	1	1
Holding Basin	SB-RI-01006	1		1		1		1	1	10		2	2	9				9	9	2	2	1	1	1	1	1	1
Holding Basin	SB-RI-01007	1		1		1		1	1	7		2	2	7	2	2	2	7	7	2	2						
Holding Basin	SB-RI-01008	1		1		1		1	1	9		2	2	9	4	4	4	9	9	2	2						
Holding Basin	SB-RI-01009	1		1		1		1	1	9		2	2	9	3	3	3	9	9	2	2						
Holding Basin	SB-RI-01010	1		1		1		1	1	12		2	2	10				10	10	2	2						
Holding Basin	SB-RI-01011	1		1		1		1	1	11		2	2	11	4	4	4	11	11	2	2						
Holding Basin	SB-RI-01012	1		1		1		1	1	9		2	2	9	4	4	4	9	9	2	2						
Holding Basin	SB-RI-01013	1		1		1		1	1	11		2	2	11	3	3	3	11	11	2	2						
Holding Basin	SB-RI-01014	1		1		1		1	1	9		2	2	9				9	9	2	2						
Holding Basin	SB-RI-01015	3		1		1		1	3	4		1	1	4				4	4	1	1						
Holding Basin	SB-RI-01016	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	SB-RI-01017	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	SB-RI-01018	1		1		1		1	1	2				2				2	2								
Holding Basin	SB-RI-01019	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	SB-RI-01020	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	SB-RI-01021	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	SB-RI-01022	1		1		1		1	1	3		1	1	3				3	3	1	1						
Holding Basin	TP-RI-01001	1		1				1		1								1	1								
Drain Line Area	SB-MW-S16									3									3								
Drain Line Area	SB-RI-11001	3		3				3	3	3		1	1					3	3	1	1						
Drain Line Area	SB-RI-11002	3		3				3	3	3								3	3								
Drain Line Area	SB-RI-11003	2		2				2	2	2		1	1					2	2	1	1						
Drain Line Area	SB-RI-11004	4		4		2		2	2	4								2	2								
Drain Line Area	SB-RI-11005	5		5		2		3	3	5		1	1					3	3	1	1						
Drain Line Area	SB-RI-11006	2		2				2	2	2								2	2								
Drain Line Area	SB-RI-11007	4		4		1		2	2	4								2	2								
Drain Line Area	SB-RI-11008	5		5		2		2	2	5								2	2								
Drain Line Area	SB-RI-11009	2		2				2	2	2								2	2								
Drain Line Area	SB-RI-11010	2		2				2	2	2								2	2								
Drain Line Area	SB-RI-11011	2		2				2	2	2		1	1					2	2	1	1						
Drain Line Area	SB-RI-11012	2		2				2	2	2		1	1					2	2	1	1						
Drain Line Area	SB-RI-11013	1		1				1	1	1								1	1								
Drain Line Area	SB-RI-11014	1		1				1	1	1								1	1								
Drain Line Area	SB-RI-11015	1		1				1	1	1								1	1								
Drain Line Area	SB-RI-11016									5									5								
Drain Line Area	SB-RI-11017	3		3		2				3																	
Drain Line Area	SB-RI-11018	3		3		2				3																	
Drain Line Area	SB-RI-11019	4		4		2				4																	
Drain Line Area	SB-RI-11020	4		4		2				4																	
Drain Line Area	SB-RI-11021	3		3		2				3																	
Drain Line Area	SB-RI-11022	3		3		2				3																	
Drain Line Area	SB-RI-11023	2		2		2				2																	
Drain Line Area	SB-RI-11024	3		3		2				3																	
Drain Line Area	SB-RI-11025	3		3		2				3																	
Drain Line Area	SB-RI-11026	3		3		3				3																	
Drain Line Area	SB-RI-11027	3		4		4				4																	
Drain Line Area	SB-RI-11028	4		3		3				3																	
Drain Line Area	SB-RI-11029	3		3		3				3																	
UST Area	SB-RI-12002							2	2									2									
Onsite Surface Soils	SS-RI-14001									1								1	1								
Onsite Surface Soils	SS-RI-14002									1								1	1								
Onsite Surface Soils	SS-RI-14003									1								1	1								
Onsite Surface Soils	SS-RI-14004					1				1								1	1								
Onsite Surface Soils	SS-RI-14005					1				1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14006					1				1								1	1								
Onsite Surface Soils	SS-RI-14007					1				1								1	1								

TABLE H-1
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RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	Location ID																										
Onsite Surface Soils	SS-RI-14008									1								1	1								
Onsite Surface Soils	SS-RI-14009									2		2	2					2	2	2	2						
Onsite Surface Soils	SS-RI-14010									1								1	1								
Onsite Surface Soils	SS-RI-14011									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14012					1				1								1	1								
Onsite Surface Soils	SS-RI-14013									2								2	2								
Onsite Surface Soils	SS-RI-14014					2				1								1	1								
Onsite Surface Soils	SS-RI-14015					1				1								1	1								
Onsite Surface Soils	SS-RI-14016									1								1	1								
Onsite Surface Soils	SS-RI-14017									1								1	1								
Onsite Surface Soils	SS-RI-14018									1								1	1								
Onsite Surface Soils	SS-RI-14019									1								1	1								
Onsite Surface Soils	SS-RI-14020									1								1	1								
Onsite Surface Soils	SS-RI-14021									1								1	1								
Onsite Surface Soils	SS-RI-14022									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14023									1								1	1								
Onsite Surface Soils	SS-RI-14024									1								1	1								
Onsite Surface Soils	SS-RI-14025									1								1	1								
Onsite Surface Soils	SS-RI-14026									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14027									1								1	1								
Onsite Surface Soils	SS-RI-14028									1								1	1								
Onsite Surface Soils	SS-RI-14029									1								1	1								
Onsite Surface Soils	SS-RI-14030									2		1	1					2	2	1	1						
Onsite Surface Soils	SS-RI-14031									1								1	1								
Onsite Surface Soils	SS-RI-14032									1								1	1								
Onsite Surface Soils	SS-RI-14033									1								1	1								
Onsite Surface Soils	SS-RI-14034									1								1	1								
Onsite Surface Soils	SS-RI-14035									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14036									2		2	2					2	2	2	2						
Onsite Surface Soils	SS-RI-14037									1								1	1								
Onsite Surface Soils	SS-RI-14038									1								1	1								
Onsite Surface Soils	SS-RI-14039									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14040									1								1	1								
Onsite Surface Soils	SS-RI-14041									1								1	1								
Onsite Surface Soils	SS-RI-14042									1								1	1								
Onsite Surface Soils	SS-RI-14043									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14044									1								1	1								
Onsite Surface Soils	SS-RI-14045									1								1	1								
Onsite Surface Soils	SS-RI-14046									1								1	1								
Onsite Surface Soils	SS-RI-14047									1								1	1								
Onsite Surface Soils	SS-RI-14048									1								1	1								
Onsite Surface Soils	SS-RI-14049									1								1	1								
Onsite Surface Soils	SS-RI-14050									1								1	1								
Onsite Surface Soils	SS-RI-14051									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14052									1								1	1								
Onsite Surface Soils	SS-RI-14053									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14054									1								1	1								
Onsite Surface Soils	SS-RI-14055									1								1	1								
Onsite Surface Soils	SS-RI-14056									1								1	1								
Onsite Surface Soils	SS-RI-14057									1								1	1								
Onsite Surface Soils	SS-RI-14058									1								1	1								
Onsite Surface Soils	SS-RI-14059									1								1	1								
Onsite Surface Soils	SS-RI-14060									1								1	1								
Onsite Surface Soils	SS-RI-14061									1								1	1								
Onsite Surface Soils	SS-RI-14062									1								1	1								
Onsite Surface Soils	SS-RI-14063									1								1	1								
Onsite Surface Soils	SS-RI-14064									1								1	1								
Onsite Surface Soils	SS-RI-14065									1								1	1								
Onsite Surface Soils	SS-RI-14066									1		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14067									1								1	1								
Onsite Surface Soils	SS-RI-14068									1								1	1								

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RI REPORT
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	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																										
Onsite Surface Soils	SS-RI-14069									1								1	1								
Onsite Surface Soils	SS-RI-14070									1								1	1								
Onsite Surface Soils	SS-RI-14071									1								1	1								
Onsite Surface Soils	SS-RI-14072									1								1	1								
Onsite Surface Soils	SS-RI-14073									1								1	1								
Onsite Surface Soils	SS-RI-14074									3		1	1					1	1	1	1						
Onsite Surface Soils	SS-RI-14075									1								1	1								
Onsite Surface Soils	SS-RI-14076									2								1	1								
Onsite Surface Soils	SS-RI-14077									1								1	1								
Onsite Surface Soils	SS-RI-14078									1																	
Onsite Surface Soils	SS-RI-14079									1																	
Onsite Surface Soils	SS-RI-14080									1																	
Onsite Surface Soils	SS-RI-14081									1																	
Onsite Surface Soils	SS-RI-14082									1																	
Onsite Surface Soils	SS-RI-14083									1																	
Onsite Surface Soils	SS-RI-14084									1																	
Onsite Surface Soils	SS-RI-14085									1																	
Onsite Surface Soils	SS-RI-14086									1																	
Onsite Surface Soils	SS-RI-14087									1																	
Onsite Surface Soils	SS-RI-14088									1																	
Onsite Surface Soils	SS-RI-14089			2		2				2																	
Onsite Surface Soils	SS-RI-14090					1																					
Onsite Surface Soils	SS-RI-14091					1																					
Onsite Surface Soils	SS-RI-14092					1																					
Onsite Surface Soils	SS-RI-14093					1																					
Onsite Surface Soils	SS-RI-14094					2				1																	
Onsite Surface Soils	SS-RI-14095					1				1																	
Onsite Surface Soils	SS-RI-14096					1				1																	
Onsite Surface Soils	SS-RI-14097					1				1																	
Onsite Surface Soils	SS-RI-14098					1				1																	
Onsite Surface Soils	SS-RI-14099									1																	
Onsite Surface Soils	SS-RI-14100									1																	
Onsite Surface Soils	SS-RI-14101									1																	
Onsite Surface Soils	SS-RI-14102									1																	
Onsite Surface Soils	SS-RI-14103									1																	
Transformer Pads	SS-RI-15001					1			1									1									
Transformer Pads	SS-RI-15002					1			1									1									
Transformer Pads	SS-RI-15003					1			1									1									
Transformer Pads	SS-RI-15004					1			1									1									
Transformer Pads	SS-RI-15005					1			1									1									
Transformer Pads	SS-RI-15006					1			1									1									
Transformer Pads	SS-RI-15007					1			1									1									
Transformer Pads	SS-RI-15008					1			1									1									
Transformer Pads	SS-RI-15009					1			1									1									
Transformer Pads	SS-RI-15010					1			1									1									
Transformer Pads	SS-RI-15011					2			2									2									
Transformer Pads	SS-RI-15012					1			1									1									
Transformer Pads	SS-RI-15013					1			1									1									
Transformer Pads	SS-RI-15014					1			1									1									
Transformer Pads	SS-RI-15015					1			1									1									
Transformer Pads	SS-RI-15016					1			1									1									
Transformer Pads	SS-RI-15017					1			1									1									
Transformer Pads	SS-RI-15018					1			1									1									
Transformer Pads	SS-RI-15019					2			2									2									
Transformer Pads	SS-RI-15020					1			1									1									
Transformer Pads	SS-RI-15021					2			2									2									
Transformer Pads	SS-RI-15022					3			3									3									
Transformer Pads	SS-RI-15023					1			1									1									
Transformer Pads	SS-RI-15024					1			1									1									
Transformer Pads	SS-RI-15025					1			1									1									
Transformer Pads	SS-RI-15026					1			1									1									

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RI REPORT
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	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																										
Transformer Pads	SS-RI-15027					1			1									1									
Transformer Pads	SS-RI-15028					1			1	1								1	1								
Transformer Pads	SS-RI-15029					1			1									1									
Transformer Pads	SS-RI-15030					1			1									1									
Transformer Pads	SS-RI-15031					1			1									1									
Drum Pit 1	CS-RI-02001		1		1	1	1			1	1					1		1									
Drum Pit 1	CS-RI-02002		1		1	1	1			1	1					1		1									
Drum Pit 1	CS-RI-02003		1		1	1	1			1	1					1		1									
Drum Pit 1	EX-RI-02001					1				1								1	1								
Drum Pit 1	SB-RI-02001	1		1		1				1																	
Drum Pit 1	SB-RI-02002	1		1		1				1																	
Drum Pit 1	SB-RI-02003	2		2		2				2																	
Drum Pit 1	SB-RI-02004	2		2		3				2																	
Drum Pit 1	SB-RI-02005	2		2		2				2																	
Drum Pit 1	SB-RI-02006	2		2		2				2																	
Drum Pit 1	SB-RI-02007	3		3		3				3																	
Drum Pit 1	SB-RI-02008	4		4		4				4																	
Drum Pit 1	SB-RI-02009					2																					
Drum Pit 1	TS-RI-02B01	1		1		1		1	1	1		1	1					1	1	1	1	1	1	1	1	1	1
Drum Pit 1	TS-RI-02S01	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S02	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S03	2		2		2		2	2	2								2	2								
Drum Pit 1	TS-RI-02S04	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S05	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S06	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S07	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-02S08	1		1		1		1	1	1								1	1								
Drum Pit 1	TS-RI-B02	1		1		1		1	1	1		2	2					1	1	2	2						
Drum Pit 1	TS-RI-B03	1		1		1		1	1	1								1	1								
Old Landfill	SB-RI-03003	2		2		2		2		2								2									
Old Landfill	SB-RI-03004	3		3		3		3		3		2	2					3		2	2						
Old Landfill	SB-RI-03005	3		3		3		3		3		1	1					3		1	1						
Old Landfill	SB-RI-03006	3		3		3		3		3		1	1					3		1	1						
Old Landfill	SB-RI-03007	3		3		3		3		3								3									
Old Landfill	SB-RI-03008	3		3		3		3		3		1	1					3		1	1						
Old Landfill	SB-RI-03009	3		3		3		3		3								3									
Old Landfill	SB-RI-03010	3		3		3		2		3								2									
Old Landfill	SB-RI-03011	2		2		2		2		2								2									
Old Landfill	SB-RI-03012	3		3		3		3		3		1	1					3		1	1						
Old Landfill	SB-RI-03013	2		2		2		2		2		1	1					2		1	1						
Old Landfill	SB-RI-03014	2		2		2		2		2								2									
Old Landfill	SB-RI-03015	2		2		2		2		2		1	1					2		1	1						
Old Landfill	SB-RI-03016	3		3		3		3		3								3									
Old Landfill	SB-RI-03017	2		2		2				2																	
Old Landfill	SB-RI-03018	2		2		2				2																	
Old Landfill	SB-RI-03019	1		1		1				1																	
Old Landfill	SB-RI-03020	2		2		2				2																	
Old Landfill	SB-RI-03021	3		2		2				2																	
Old Landfill	SB-RI-03022	3		3		3				3																	
Old Landfill	SB-RI-03023	2		3		3				3																	
Old Landfill	SB-RI-03024	2		2		2				2																	
Old Landfill	TP-RI-03010	3		3		3		3		3		3	3					3	3	3	3						
Old Landfill	TP-RI-03011	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03012	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03013	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03014	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03015	2		2		2		2		2		2	2					2	2	2	2						
Old Landfill	TP-RI-03016	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03017	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03018	2		2		2		2		2								2	2								
Old Landfill	TP-RI-03019	2		2		2		2		2								2	2								

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Nuclear Metals, Inc. Superfund Site
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	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																										
Old Landfill	TP-RI-03020	2		2		2		2		2								2	2								
Cooling Water Recharge Pond	SB-RI-04001			2		2				2																	
Cooling Water Recharge Pond	SB-RI-04002			2		2				2																	
Cooling Water Recharge Pond	SB-RI-04003			2		2				2																	
Cooling Water Recharge Pond	SS-RI-04001	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04002	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04003	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04004	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04005	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04006	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04007	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04008	2		2		1		2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04009	2		2				2	2	2		1	1					2	2	1	1						
Cooling Water Recharge Pond	SS-RI-04010	2		2		1		2	2	2		1	1					2	2	1	1						
Cooling Water Recharge Pond	SS-RI-04011	2		2		1		2	2	2		1	1					2	2	1	1						
Cooling Water Recharge Pond	SS-RI-04012	3		3		1		3	3	3								3	3								
Cooling Water Recharge Pond	SS-RI-04013	2		2		1		2	2	2		1	1					2	2	1	1						
Cooling Water Recharge Pond	SS-RI-04014	2		2		1		2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04015	2		2		1		2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04016	2		2				2	2	2		1	1					2	2	1	1						
Cooling Water Recharge Pond	SS-RI-04017	1		1				1	1	1		1	1					1	1	1	1						
Cooling Water Recharge Pond	SS-RI-04018	2		2				2	2	2								2	2								
Cooling Water Recharge Pond	SS-RI-04019	1		2		1		2	2	2								3	2								
Cooling Water Recharge Pond	SS-RI-04020	1		1		1		1	1	1								1	1								
Cooling Water Recharge Pond	SS-RI-04021	1		1				1	1	1		1	1					1	1	1	1						
Cooling Water Recharge Pond	SS-RI-04022					2																					
Cooling Water Recharge Pond	SS-RI-04023					1																					
Cooling Water Recharge Pond	SS-RI-04024					1																					
Cooling Water Recharge Pond	SS-RI-04025					1																					
Cooling Water Recharge Pond	SS-RI-04026					2																					
Cooling Water Recharge Pond	SS-RI-04027					1																					
Cooling Water Recharge Pond	SS-RI-04028					1																					
Cooling Water Recharge Pond	SS-RI-04029					1																					
Cooling Water Recharge Pond	SS-RI-04030					1																					
Cooling Water Recharge Pond	SS-RI-04031					1																					
Cooling Water Recharge Pond	SS-RI-04032					2																					
Cooling Water Recharge Pond	SS-RI-04033					1																					
Cooling Water Recharge Pond	SS-RI-04034					1																					
Septic Fields	SB-RI-05001	3		3				3		3								3	3								
Septic Fields	SB-RI-05002	3		4				4		4		2	2					4	4	2	2						
Septic Fields	SB-RI-05003	3		3				3		3								3	3								
Septic Fields	SB-RI-05004	3		3				3		3								3	3								
Septic Fields	SB-RI-05005	3		3				3		3		1	1					3	3	1	1						
Septic Fields	SB-RI-05006	3		3				3		3								3	3								
Septic Fields	SB-RI-05007	2		2				2		2								2	2								
Septic Fields	SB-RI-05008	3		3				3		3								3	3								
Septic Fields	SB-RI-05009	3		3				3		3		1	1					3	3	1	1						
Septic Fields	SB-RI-05010	4		4				4		4		1	1					4	4	1	1						
Septic Fields	SB-RI-05011	2		2				2		2								2	2								
Septic Fields	SB-RI-05012	2		2				2		2		2	2					2	2	2	2						
Septic Fields	SB-RI-05013	2		2				2		2								2	2								
Septic Fields	SB-RI-05014	2		2				2		2								2	2								
Septic Fields	SB-RI-05015	2		2				2		2		1	1					2	2	1	1						
Septic Fields	SB-RI-05016	2		2				2		2								2	2								
Septic Fields	SB-RI-05017	3		3				3		3		1	1					3	3	1	1						
Septic Fields	SB-RI-05018	4		4				4		4								4	4								
Septic Fields	SB-RI-05019	3		5				3		5								3	3								
Septic Fields	SB-RI-05020			2						2																	
Septic Fields	SB-RI-05021			2						2																	
Septic Fields	SB-RI-05022			2						2																	
Septic Fields	SB-RI-05023			2						2																	

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RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																										
Former Waste Storage Area	SB-RI-07001	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07002	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07003	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07004	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07005	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07006	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07007	2		2				2	2	2								4	2								
Former Waste Storage Area	SB-RI-07008	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07009	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07010	2		2				2	2	2								2	2								
Former Waste Storage Area	SB-RI-07011									3																	
Former Waste Storage Area	SB-RI-07012									3																	
Former Waste Storage Area	SB-RI-07013									2																	
Former Waste Storage Area	SB-RI-07014									3																	
Former Waste Storage Area	SS-RI-07001	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07002	2		2				2	2	2		2	2					2	2	2	2						
Former Waste Storage Area	SS-RI-07003	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07004	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07005	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07006	2		2				2	2	2		2	2					4	2	2	2						
Former Waste Storage Area	SS-RI-07007	2		2				2	2	2								4	2								
Former Waste Storage Area	SS-RI-07008	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07009	2		2				2	2	2								4	2								
Former Waste Storage Area	SS-RI-07010	2		2				2	2	2								4	2								
Former Waste Storage Area	SS-RI-07011	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07012	2		2				2	2	2		2	2					4	2	2	2						
Former Waste Storage Area	SS-RI-07013	2		2				2	2	2								3	2								
Former Waste Storage Area	SS-RI-07014	3		3				3	3	3		3	3					4	3	3	3						
Former Waste Storage Area	SS-RI-07015	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07016	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07017	2		2				2	2	2								2	2								
Former Waste Storage Area	SS-RI-07018	2		2				2	2	2								2	2								
Sweepings Area	SB-RI-08001					1				1																	
Sweepings Area	SB-RI-08002					2				2																	
Sweepings Area	SB-RI-08003					2				2																	
Sweepings Area	SB-RI-08004					2				2																	
Sweepings Area	SB-RI-08005					3				4																	
Sweepings Area	SS-RI-08001	1		1		1		1	1	1								1									
Sweepings Area	SS-RI-08002	1		1		1		1	1	1		1	1					1		1	1						
Sweepings Area	SS-RI-08003	1		1		1		1	1	1								1									
Sweepings Area	SS-RI-08004	2		2		2		2	2	2								2									
Sweepings Area	SS-RI-08005	1		1		1		1	1	1								1									
Sweepings Area	SS-RI-08006					2				2																	
Sweepings Area	SS-RI-08007					2				2																	
Sweepings Area	SS-RI-08008					3				3																	
Sweepings Area	TP-RI-08001	4		4		4		4	4	4								4	4								
Sweepings Area	TP-RI-08002	3		3		3		3	3	3								3	3								
Sweepings Area	TP-RI-08003	3		3		3		3	3	3								3	3								
Sweepings Area	TP-RI-08004	3		3		3		3	3	3		1	1					3	3	1	1						
Sweepings Area	TP-RI-08005	3		3		3		3	3	3		1	1					3	3	1	1						
Sweepings Area	TP-RI-08006	3		3		3		3	3	3		1	1					3	3	1	1						
Sweepings Area	TP-RI-08007	3		3		3		3	3	3		1	1					3	3	1	1						
Sweepings Area	TP-RI-08008	3		3		3		3	3	3		1	1					3	3	1	1						
Sweepings Area	TP-RI-08009	3		3		3		3	3	3		1	1					3	3	1	1						
Parking Outfall Areas	SB-RI-09001			2		3				2																	
Parking Outfall Areas	SB-RI-09002			2		3				2																	
Parking Outfall Areas	SB-RI-09003			2		3				2																	
Parking Outfall Areas	SB-RI-09004			3		3				3																	
Parking Outfall Areas	SB-RI-09005			2		2				2																	
Parking Outfall Areas	SB-RI-09006			3		3				3																	
Parking Outfall Areas	SB-RI-09007			3		3				3																	

TABLE H-1
SAMPLING AND ANALYSIS PROGRAM - SOIL

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Nitrate	TOC	Corrosivity and or pH	Neutralization Potential	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	C	T	C	T	C	T	T	T	C	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																										
Parking Outfall Areas	SB-RI-09008			3		3				3																	
Parking Outfall Areas	SB-RI-09009			2		2				2																	
Parking Outfall Areas	SB-RI-09010			2		2				2																	
Parking Outfall Areas	SB-RI-09013			2		2				2																	
Parking Outfall Areas	SB-RI-09014			2		2				2																	
Parking Outfall Areas	SB-RI-09015			2		2				2																	
Parking Outfall Areas	SB-RI-09016			3		3				3																	
Parking Outfall Areas	SS-RI-09001			2				2		2		1	1					2	2	1	1						
Parking Outfall Areas	SS-RI-09002			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09003			2		1		2		2								2	2								
Parking Outfall Areas	SS-RI-09004			2				2		2		2	2					2	2	2	2						
Parking Outfall Areas	SS-RI-09005			2		1		2		2								2	2								
Parking Outfall Areas	SS-RI-09006			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09007			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09008			1				1		1		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09009			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09010			1				1		2		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09011			2				2		4								2	2								
Parking Outfall Areas	SS-RI-09012			1				1		2								1	1								
Parking Outfall Areas	SS-RI-09013			1				1		1		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09014			2				2		4								2	2								
Parking Outfall Areas	SS-RI-09015			1				1		2								1	1								
Parking Outfall Areas	SS-RI-09016			2				2		5								2	2								
Parking Outfall Areas	SS-RI-09017			1				1		2		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09018			1				1		2								1	1								
Parking Outfall Areas	SS-RI-09019			1		1		1		1		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09020			2		1		2		2								2	2								
Parking Outfall Areas	SS-RI-09021			1		1		1		1		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09022			1		1		1		1								1	1								
Parking Outfall Areas	SS-RI-09023			2		1		2		2								2	2								
Parking Outfall Areas	SS-RI-09024			1		1		1		1		1	1					1	1	1	1						
Parking Outfall Areas	SS-RI-09025			2				2		2								2	2								
Parking Outfall Areas	SS-RI-09026			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09027			1				1		1								1	1								
Parking Outfall Areas	SS-RI-09028			1		1				1																	
Parking Outfall Areas	SS-RI-09029			2		2				2																	
Parking Outfall Areas	SS-RI-09030			1		1				1																	
Parking Outfall Areas	SS-RI-09031					1																					
Parking Outfall Areas	SS-RI-09032					1																					
Parking Outfall Areas	SS-RI-09033					1																					
AOI 16 Groundwater	MW-S05	3		3				3	3	3								3	3								
AOI 16 Groundwater	MW-S07	3		3				3	3	3								3	3								
AOI 16 Groundwater	MW-S09	3		3				3	3	3		1	1					3	3	1	1						
AOI 16 Groundwater	MW-S16	3		3				3	3	3								3	3								
AOI 16 Groundwater	MW-T24	3		3				3	3	3		2	2					3	3	2	2						
Background (Off-Site)	SS-RI-17001			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17002			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17003			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17004			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17005			2				2		2		2	2					2	2	2	2						
Background (Off-Site)	SS-RI-17006			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17007			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17008			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17009			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17010			2				2		2		2	2					2	2	2	2						
Background (Off-Site)	SS-RI-17011			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17012			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17013			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17014			1				1		1		1	1					1	1	1	1						
Background (Off-Site)	SS-RI-17015			1				1		1		1	1					1	1	1	1						

TABLE H-2
SAMPLING AND ANALYSIS PROGRAM - SEDIMENT/PEAT

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Uranium	Thorium	AVS/SEM	TOC	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																				
Northeast Wetland	SD-RI-10001	1	1		1	1	1					1	1								
Northeast Wetland	SD-RI-10002	1	1		1	1	1					1	1								
Northeast Wetland	SD-RI-10003	1	1		1	1	1	1	1			1	1	1	1						
Northeast Wetland	SD-RI-10004	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10005	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10006	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10007	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10008	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10009	1	1	1	1	1	1				1	1									
Northeast Wetland	SD-RI-10010	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10011	1	1	1		1	1				1	1									
Northeast Wetland	SD-RI-10012	1	1	1		1	1	1	1		1	1		1	1						
Cooling Water Recharge Pond	SC-RI-04001		2	2			2				2										
Cooling Water Recharge Pond	SC-RI-04002		3	3			2				2										
Cooling Water Recharge Pond	SC-RI-04003		2	2			2				2										
Cooling Water Recharge Pond	SC-RI-04004		2	2			2				2										
Cooling Water Recharge Pond	SC-RI-04005		3	3			3				3										
Cooling Water Recharge Pond	SC-RI-04006		2	2			2				2										
Cooling Water Recharge Pond	SD-RI-04001	2	2		2	2	2					2									
Cooling Water Recharge Pond	SD-RI-04002	1	1	1	1	1	1	1	1	1		1		1	1						
Cooling Water Recharge Pond	SD-RI-04003	1	1		1	1	1			1		1									
Cooling Water Recharge Pond	SD-RI-04004	1	1		1	1	1			1		1									
Cooling Water Recharge Pond	SD-RI-04005	1	1		1	1	1					1									
Cooling Water Recharge Pond	SD-RI-04006	1	1		1	1	1	1	1			1		1	1						
Cooling Water Recharge Pond	SD-RI-04007	1	1	1	1	1	1					1									
Cooling Water Recharge Pond	SD-RI-04008	1	1	1	1	1	1					1									
Cooling Water Recharge Pond	SD-RI-04009	1	1		1	1	1			1		1									
Cooling Water Recharge Pond	SD-RI-04010	1	1	1	1	1	1	1	1	1		1		1	1						
Cooling Water Recharge Pond	SD-RI-04011	1	1		1	1	1					1									
Cooling Water Recharge Pond	SD-RI-04012	2	2	2	2	2	2					2									
Sphagnum Bog	SD-RI-06001	2	3	2	2	2	4	3	3	1	1	3	3	3	3						
Sphagnum Bog	SD-RI-06002	2	2	2		2	2				2	2									
Sphagnum Bog	SD-RI-06003	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06004	2	2	2		2	2				1	2									
Sphagnum Bog	SD-RI-06005	2	3	2	2	2	6			1	1	3	3			1	1	1	1	1	1
Sphagnum Bog	SD-RI-06006	2	2	2		2	2	1	1		2	2		1	1						
Sphagnum Bog	SD-RI-06007	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06008	1	1	1		1	1	1	1		1	1		1	1						
Sphagnum Bog	SD-RI-06009	3	4	3	3	3	6			1	1	4	4			1	1	1	1	1	1
Sphagnum Bog	SD-RI-06010	2	2	2	2	2	2	1	1		2	2		1	1						
Sphagnum Bog	SD-RI-06011	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06012	1	1	1		1	1	1	1		1	1		1	1						
Sphagnum Bog	SD-RI-06013	2	2	2		2	3				2	2									
Sphagnum Bog	SD-RI-06014	2	2	1			2				1	2									
Sphagnum Bog	SD-RI-06015	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06016	1	1	1			1				1	1									
Sphagnum Bog	SD-RI-06017	3	3	3	1	2	4	1	1	1	4	3		1	1						
Sphagnum Bog	SD-RI-06018	2	2	2		2	2				2	2									
Sphagnum Bog	SD-RI-06019	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06020	1	1	1		1	1	1	1		1	1		1	1						
Sphagnum Bog	SD-RI-06021	2	5	2		2	5				4	2									
Sphagnum Bog	SD-RI-06022	2	2	2		2	2	1	1		2	2		1	1						
Sphagnum Bog	SD-RI-06023	1	1	1		1	1				1	1									

TABLE H-2
SAMPLING AND ANALYSIS PROGRAM - SEDIMENT/PEAT

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Uranium	Thorium	AVS/SEM	TOC	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																				
Sphagnum Bog	SD-RI-06024	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06025	2	3	2	1	2	4	1	1	1	4	3		1	1						
Sphagnum Bog	SD-RI-06026	2	2	2		2	2				1	2									
Sphagnum Bog	SD-RI-06027	2	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06028	1	1	1		1	1					1									
Sphagnum Bog	SD-RI-06029	2	3	2		2	3				3	2									
Sphagnum Bog	SD-RI-06030	2	2	2		2	2	1	1		2	2		1	1						
Sphagnum Bog	SD-RI-06031	2	3	3		3	3	2	2		2	4		2	2						
Sphagnum Bog	SD-RI-06032	2	2	2		2	2	1	1		1	2		1	1						
Sphagnum Bog	SD-RI-06033	3	2	2		2	2					3									
Sphagnum Bog	SD-RI-06034	2	2	2		2	2	1	1		2	2		1	1						
Sphagnum Bog	SD-RI-06035	2	2	2		2	2				2	2									
Sphagnum Bog	SD-RI-06036	1	2	1		1	2	1	1		2	1		1	1						
Sphagnum Bog	SD-RI-06037	1	1	1		1	1				1	1									
Sphagnum Bog	SD-RI-06038	1	2	1		1	2				2	1									
Sphagnum Bog	SD-RI-06039	1	1	1	1	1	1	1	1		1	1		1	1						
Sphagnum Bog	SD-RI-06040	1	1	1		1	1	1	1		1	1		1	1						
Sphagnum Bog	SD-RI-06041	1			1		1				1	1									
Sphagnum Bog	SD-RI-06042	1	1				1				1	1									
Sphagnum Bog	SD-RI-06043	1	1				1				1	1									
Sphagnum Bog	SD-RI-06044	2	1	1		1	1					2									
Sphagnum Bog	SD-RI-06045			1			1				1										
Sphagnum Bog	SD-RI-06046			1			1				1										
Sphagnum Bog	SD-RI-06047			2			2				2										
Sphagnum Bog	SD-RI-06048			1			1				1										
Sphagnum Bog	SD-RI-06049			1			1				1										
Sphagnum Bog	SD-RI-06050		2	2			2				2										
Sphagnum Bog	SD-RI-06051		1	1			1				1										
Sphagnum Bog	SD-RI-06052		1	1			1				1										
Sphagnum Bog	SD-RI-06053		1	1			1				1										
Parking Outfall Areas	SD-RI-09001		1		1		1	1	1			1	1	1	1						
Parking Outfall Areas	SD-RI-09002		2		2		2	2	2			2	2	2	2						
Parking Outfall Areas	SD-RI-09003		1		1		1	1	1			1	1	1	1						
Parking Outfall Areas	SD-RI-09004		1		1		1	1	1			1	1	1	1						
Parking Outfall Areas	SD-RI-09010			1																	
Background (Off-Site)	SD-RI-17001	1					1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17002	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17003	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17004	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17005	1					1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17006	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17007	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17008	1					1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17009	2					2	2	2		2	2	2	2	2						
Background (Off-Site)	SD-RI-17010	1					1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17011		1		1		1	1	1	1	1	1		1	1						
Background (Off-Site)	SD-RI-17012		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17013		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17014		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17015		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17016		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17017		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17018		1				1	1	1	1	1	1		1	1						

TABLE H-2
SAMPLING AND ANALYSIS PROGRAM - SEDIMENT/PEAT

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Uranium	Thorium	AVS/SEM	TOC	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																				
Background (Off-Site)	SD-RI-17019		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17020		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17021		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17022		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17023		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17024		1				1	1	1	1	1	1		1	1						
Background (Off-Site)	SD-RI-17025		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17026		1		1		1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17027		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17028		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17029		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17030		1		1		1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17031		2		2		2	2	2		2	2	2	2	2						
Background (Off-Site)	SD-RI-17032		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17033		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17034		1		1		1	1	1		1	1	1	1	1						
Background (Off-Site)	SD-RI-17035		1		1		1	1	1	1	1	1	1	1	1						
Background (Off-Site)	SD-RI-17036		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17037		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17038		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17039		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17040		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17041		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17042		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17043		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17044		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17045		1		1		1	1	1			1	1	1	1						
Background (Off-Site)	SD-RI-17046		1		1		1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17047		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17048		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17049		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-17050		1				1	1	1		1	1		1	1						
Background (Off-Site)	SD-RI-1753		1	1			1				1										
Background (Off-Site)	SD-RI-1754		1	1			1				1										
Background (Off-Site)	SD-RI-1755		1	1			1				1										
Background (Off-Site)	SD-RI-1756		1	1			1				1										
Background (Off-Site)	SD-RI-1757		1	1			1				1										
Assabet River	SD-RI-18001	1					1					1	1								
Assabet River	SD-RI-18002	1					1					1	1								
Assabet River	SD-RI-18003	1					1	1	1			1	1	1	1						
Assabet River	SD-RI-18004	2					2					2	2								
Assabet River	SD-RI-18005	1					1					1	1								
Assabet River	SD-RI-18006	1					1	1	1			1	1	1	1						
Assabet River	SD-RI-18007	1					1					1	1								
Assabet River	SD-RI-18008	1					1			1	1	1	1								
Assabet River	SD-RI-18009	1					1				1	1	1								
Assabet River	SD-RI-18010	1					1			1	1	1	1								
Assabet River	SD-RI-18011	1					1	1	1		1	1	1	1	1						
Assabet River	SD-RI-18012	1					1			1	1	1	1								
Assabet River	SD-RI-18013	1					1				1	1	1								
Assabet River	SD-RI-18014	1					1			1	1	1	1								
Assabet River	SD-RI-18015	1					1	1	1		1	1	1	1	1						
Assabet River	SD-RI-18016	1					1			1	1	1	1								

Created by: BJS 9/6/10
Checked by: JPC 9/17/10

TABLE H-2
SAMPLING AND ANALYSIS PROGRAM - SEDIMENT/PEAT

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Uranium	Thorium	AVS/SEM	TOC	Moisture	Metals	Uranium	Thorium	Americium/Curium	Neptunium-237	Plutonium	Strontium 90	Technetium	HTDM
	Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
AOI	**Location ID**																				
Assabet River	SD-RI-18017	1					1				1	1	1								
Assabet River	SD-RI-18018	1					1				1	1	1								
Assabet River	SD-RI-18019	1					1				1	1	1								
Assabet River	SD-RI-18020	2					2	2	2		2	2	2	2	2						
Assabet River	SD-RI-18021	1					1				1	1	1								
Assabet River	SD-RI-18022	1					1				1	1	1								
Assabet River	SD-RI-18023						1				1										
Assabet River	SD-RI-18024						1				1										
Assabet River	SD-RI-18025						1				1										
Assabet River	SD-RI-18026						1				1										
Assabet River	SD-RI-18027						1				1										
Assabet River	SD-RI-18028						2				2										
Assabet River	SD-RI-18029						1				1										
Assabet River	SD-RI-18030						1				1										
Assabet River	SD-RI-18031						1				1										
Assabet River	SD-RI-18032						1				1										
Assabet River	SD-RI-18033						1				1										
Assabet River	SD-RI-18034						1				1										
Assabet River	SD-RI-18035						1				1										
Assabet River	SD-RI-18036						1				1										
Assabet River	SD-RI-18037						1				1										
Assabet River	SD-RI-18038						1														
Assabet River	SD-RI-18039						1														
Assabet River	SD-RI-18040						1														
Assabet River	SD-RI-18041						1														
Assabet River	SD-RI-18042						1														
Assabet River	SD-RI-18043						1														
Assabet River	SD-RI-18044						1														
Assabet River	SD-RI-18045						1														
Assabet River	SD-RI-18046						1														
Assabet River	SD-RI-18047						2														

TABLE H-3
SAMPLING AND ANALYSIS PROGRAM - SURFACE WATER

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Hardness	Hardness	TSS	Metals	Metals	Uranium	Thorium
	Fraction	T	T	T	T	T	D	T	T	T	D	T	T	D	T	T	T
AOC	**Location**																
Northeast Wetland	SW-RI-10001		1				2	2	2	2		2				2	2
Northeast Wetland	SW-RI-10002						1	1									
Northeast Wetland	SW-RI-10003						1	1									
Northeast Wetland	SW-RI-10004						1	1									
Cooling Water Recharge Pond	SW-RI-04001	1	1		1	1	1	1	1	1		1	1			1	1
Cooling Water Recharge Pond	SW-RI-04002	1	1		1	1	1	1				1	1				
Cooling Water Recharge Pond	SW-RI-04003	1	1		1	1	1	1				1	1				
Cooling Water Recharge Pond	SW-RI-04004	1	1		1	1	1	1				1	1				
Cooling Water Recharge Pond	SW-RI-04005	1	1		1	1	1	1				1	1				
Cooling Water Recharge Pond	SW-RI-04006	1	1		1	1	1	1				1	1				
Cooling Water Recharge Pond	SW-RI-04007	2	2		2	2	2	2	1	1		2	2			1	1
Sphagnum Bog	SW-RI-06001	1	1	1	1	1	3	3			1	3	1	1	1		
Sphagnum Bog	SW-RI-06002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sphagnum Bog	SW-RI-06003	2	2	2	2	2	3	3	2	2	2	3	2	2	2	2	2
Sphagnum Bog	SW-RI-06004	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06005	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06006	1	1	1	1	1	2	2				2	1				
Sphagnum Bog	SW-RI-06007	1	1	1	1	1	2	2				2	1				
Sphagnum Bog	SW-RI-06008	1	1	1	1	1	1	1	1	1		1	1			1	1
Sphagnum Bog	SW-RI-06009	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06010	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06011	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06012	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06013	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06014	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06015	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06016	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06017	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06018	2	2	2	2	2	2	2				2	1				
Sphagnum Bog	SW-RI-06019	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06020	1	1	1	1	1	1	1				1	1				
Sphagnum Bog	SW-RI-06050						1	1				1					
Background (Off-Site)	SW-RI-17001	1					1	1	1		1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17002	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17003	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17004	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17005	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17006	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17007	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17008	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17009	2					2	2	2	2	2	2	2	2	2	2	2
Background (Off-Site)	SW-RI-17010	1					1	1	1	1	1	1	1	1	1	1	1
Background (Off-Site)	SW-RI-17011						1	1				1					
Background (Off-Site)	SW-RI-17012						1	1				1					
Background (Off-Site)	SW-RI-17013						1	1				1					
Background (Off-Site)	SW-RI-17015						1	1				1					
Background (Off-Site)	SW-RI-17017						1	1				1					
Background (Off-Site)	SW-RI-17019						1	1				1					
Background (Off-Site)	SW-RI-17021						1	1				1					
Background (Off-Site)	SW-RI-17023						1	1				1					
Background (Off-Site)	SW-RI-17024						1	1				1					
Background (Off-Site)	SW-RI-17025						1	1				1					
Background (Off-Site)	SW-RI-17026						1	1	1	1	1	1		1	1	1	1

TABLE H-3
SAMPLING AND ANALYSIS PROGRAM - SURFACE WATER

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PCBs	PAHs	MA EPH	Metals	Metals	Uranium	Thorium	Hardness	Hardness	TSS	Metals	Metals	Uranium	Thorium
	Fraction	T	T	T	T	T	D	T	T	T	D	T	T	D	T	T	T
AOC	**Location**																
Background (Off-Site)	SW-RI-17027						1	1	1	1	1	1		1	1	1	1
Background (Off-Site)	SW-RI-17028						1	1	1	1	1	1		1	1	1	1
Background (Off-Site)	SW-RI-17029						1	1	1	1	1	1		1	1	1	1
Background (Off-Site)	SW-RI-17030						1	1	1	1	1	1		1	1	1	1
Background (Off-Site)	SW-RI-17046						1	1				1					
Background (Off-Site)	SW-RI-17049						1	1				1					
Background (Off-Site)	SW-RI-17050						1	1				1					
Background (Off-Site)	SW-RI-1753						1	1				1					
Background (Off-Site)	SW-RI-1754						1	1				1					
Background (Off-Site)	SW-RI-1755						1	1				1					
Background (Off-Site)	SW-RI-1756						1	1				1					
Background (Off-Site)	SW-RI-1757						1	1				1					
Assabet River	SW-RI-18002	1					1	1	1	1				1	1	1	1
Assabet River	SW-RI-18003	1					1	1	1	1				1	1	1	1
Assabet River	SW-RI-18008	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18009	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18010	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18011	1					1	1	1	1	1	1	1	1	1	1	1
Assabet River	SW-RI-18012	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18013	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18014	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18015	2					2	2	2	2	2	2	2	2	2	2	2
Assabet River	SW-RI-18016	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18017	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18018	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18019	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18020	1					1	1	1	1	1	1	1	1	1	1	1
Assabet River	SW-RI-18021	1					1	1			1	1	1	1	1		
Assabet River	SW-RI-18022	1					1	1			1	1	1	1	1		
Unassigned	SW-RI-18500		1														
Unassigned	SW-RI-18501		2														

TABLE H-4
SAMPLING AND ANALYSIS PROGRAM - GROUNDWATER

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PAHs	Metals	Metals	Uranium	Thorium	Ferrous and or Ferric Iron	Hardness	Anions **	Phosphorous	Sulfide	Alkalinity	Alkalinity	TOC	Metals	Uranium	Thorium
	Fraction	T	T	T	T	D	T	T	T	T	T	T	T	T	D	T	T	T	T
AOI	**Location ID**																		
Holding Basin	HB-07	2	2	2	2						2								
Holding Basin	HB-12	1	1	1	6	1			2		3	1		4		2	1		
Drain Line Area	GZW-7				1														
Drain Line Area	HB-620	2	2	2	2						2								
Old Landfill	TW-2	1	1	1	1						1								
AOI 16 Groundwater	GW-RI-16001					5			5		5			5					
AOI 16 Groundwater	GW-RI-16002					5			5		5			5					
AOI 16 Groundwater	GW-RI-16003					6			6		6			6					
AOI 16 Groundwater	GW-RI-16004					8			8		8			8					
AOI 16 Groundwater	GW-RI-16005					5			5		5			5					
AOI 16 Groundwater	GW-RI-16006					6			6		6			6					
AOI 16 Groundwater	GW-RI-16007					3			3		3			3					
AOI 16 Groundwater	GW-RI-16008					3			3		3			3					
AOI 16 Groundwater	GW-RI-16009					3			3		3			3					
AOI 16 Groundwater	GW-RI-16016					3			3		3			3					
AOI 16 Groundwater	GW-RI-SW2A				4						2			2					
AOI 16 Groundwater	GZW-10-2	1	1	1	3		1	1	1		2			2		1		1	1
AOI 16 Groundwater	GZW-11-2	1	1	1	1				1		1			1		1			
AOI 16 Groundwater	GZW-5	1	1	1	1						1								
AOI 16 Groundwater	GZW-6-1	1	1	1	1						1								
AOI 16 Groundwater	GZW-7-1	1	1	1	3	1					2	1		1					
AOI 16 Groundwater	GZW-7-2	1	1	1	4	3	1	1	1		3			2		1		1	1
AOI 16 Groundwater	GZW-7S	1	1	1	2		1	1	1	1	1		1	2		1		1	1
AOI 16 Groundwater	GZW-8-1	1	1	1	1						1								
AOI 16 Groundwater	GZW-8-2	1	1	1	2	1			1		1			1		1			
AOI 16 Groundwater	GZW-9-1	1	1	1	1						1								
AOI 16 Groundwater	GZW-9-2	1	1	1	1						1								
AOI 16 Groundwater	HA-09	1	1	1	1						1								
AOI 16 Groundwater	HA-10A	2	2	2	2						2								
AOI 16 Groundwater	HA-11	1	1	1	1						1								
AOI 16 Groundwater	HB-10	1	1	1	1		1	1	1	1	1		1	1		1		1	1
AOI 16 Groundwater	HB-10S	1	1	1	1				1	1	1		1	1		1			
AOI 16 Groundwater	HB-11	1	1	1	1		1	1	1	1	1		1	1		1		1	1
AOI 16 Groundwater	HBPZ-2R	2	2	2	5	1	1	1	2		4	1		3		2		1	1
AOI 16 Groundwater	ML-1-1	1	1	1	1						1								
AOI 16 Groundwater	ML-1-3	1	1	1	2	1			1		1			1		1			
AOI 16 Groundwater	ML-2-1	1	1	1	1						1								
AOI 16 Groundwater	ML-3-1	2	2	2	2						2								
AOI 16 Groundwater	ML-3-3	1	1	1	2	2			1		1			1		1			
AOI 16 Groundwater	MW-1	3	2	1	2						1								
AOI 16 Groundwater	MW-11	2	2	2	2						2								
AOI 16 Groundwater	MW-2	1	1	1	1						1								
AOI 16 Groundwater	MW-8A	1	1	1	6	2	1	1	2	1	4	2	1	5		2	1	1	1
AOI 16 Groundwater	MW-BM03	1	1	1	2	1			1		1			1		1			
AOI 16 Groundwater	MW-BM15	2	2	2	2				2		2			2		2			
AOI 16 Groundwater	MW-BS01	1	1	1	3	1			3		3			2		3			
AOI 16 Groundwater	MW-BS02	1	1	1	3	1	1	1	1		2			3		1		1	1
AOI 16 Groundwater	MW-BS03	2	2	2	4	2	1	1	2		2			2		2		1	1
AOI 16 Groundwater	MW-BS04	1	2	1	2	1			1		1			1		1			
AOI 16 Groundwater	MW-BS10	1	1	1	3	1	1	1	1		2			3		1		1	1
AOI 16 Groundwater	MW-BS12	2	1	1	2		1	1	1	1	1		1	2		1		1	1
AOI 16 Groundwater	MW-BS13	1	1	1	3	1	1	1	1		2			3		1		1	1

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Checked by: JPC 9/17/10

TABLE H-4
SAMPLING AND ANALYSIS PROGRAM - GROUNDWATER

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PAHs	Metals	Metals	Uranium	Thorium	Ferrous and or Ferric Iron	Hardness	Anions **	Phosphorous	Sulfide	Alkalinity	Alkalinity	TOC	Metals	Uranium	Thorium
	Fraction	T	T	T	T	D	T	T	T	T	T	T	T	T	D	T	T	T	T
AOI	**Location ID**																		
AOI 16 Groundwater	MW-BS14	3	4	4	4	1			2		3			3		2			
AOI 16 Groundwater	MW-BS15	3	3	3	3	2			3		3			3		3			
AOI 16 Groundwater	MW-BS17	1	2	1	2	1	1	1	1		1			1		1		1	1
AOI 16 Groundwater	MW-BS21	3	1	1	2	1	1	1	1	1	1		1	2		1		1	1
AOI 16 Groundwater	MW-BS22	1	1	1	1		1	1	1		1			1		1		1	1
AOI 16 Groundwater	MW-BS25	2	1	1	2	1			1		1			1		1			
AOI 16 Groundwater	MW-BS26	2	2	1	2				1		1			1		1			
AOI 16 Groundwater	MW-BS28	4	4	3	5	1	1	1	4		4			4		4		1	1
AOI 16 Groundwater	MW-BS31	3	2	2	2	1			2		2			2		2			
AOI 16 Groundwater	MW-S01	2	1	1	2	1					2	1		1					
AOI 16 Groundwater	MW-S02	2	1	1	2	1	1	1	1	1	2	1	1	2		1		1	1
AOI 16 Groundwater	MW-S03	1	1	1	1		1	1	1	1	2		1	1		1		1	1
AOI 16 Groundwater	MW-S04	1	2	1	1						1								
AOI 16 Groundwater	MW-S05	1	1	1	3		1	1	2	1	2		1	2		2		1	1
AOI 16 Groundwater	MW-S06	2	2	2	3	1	1	1	2		3	1		3		2		1	1
AOI 16 Groundwater	MW-S07	1	1	1	1		1	1	1	1	1		1	1		1		1	1
AOI 16 Groundwater	MW-S08	1	1	1	1						2								
AOI 16 Groundwater	MW-S09	1	1	1	1		1	1	1	1	1		1	1		1		1	1
AOI 16 Groundwater	MW-S11	1	1	1	1		1	1			1							1	1
AOI 16 Groundwater	MW-S12	2	2	2	2		2	2	2	2	2		2	1		2		2	2
AOI 16 Groundwater	MW-S14	1	1	1	1						1								
AOI 16 Groundwater	MW-S15	1	1	1	1						1								
AOI 16 Groundwater	MW-S16	1	1	1	3	2	1	1	2	1	3	1	1	3		2		1	1
AOI 16 Groundwater	MW-S17	1	2	1	1		1	1			1							1	1
AOI 16 Groundwater	MW-S18	1	1	1	2						1			1					
AOI 16 Groundwater	MW-S19	1	1	1	1		1	1			1							1	1
AOI 16 Groundwater	MW-S20	1	1	1	1						1								
AOI 16 Groundwater	MW-S21	1	1	1	1		2	2	1	1	1		1	1		1		2	2
AOI 16 Groundwater	MW-S22	1	1	1	1						1								
AOI 16 Groundwater	MW-S23	1	1	1	1						1								
AOI 16 Groundwater	MW-S24	1	1	1	3	1	1	1	2	1	3	1	1	3		2		1	1
AOI 16 Groundwater	MW-S27	2	2	2	3	1			2		3	1		3		2			
AOI 16 Groundwater	MW-S28	2	2	2	2						2								
AOI 16 Groundwater	MW-S29	2	2	2	2				2		2			2		2			
AOI 16 Groundwater	MW-S30	2	2	2	3	1			2		3	1		3		2			
AOI 16 Groundwater	MW-SD01	1	1	1	2	1	1	1	1	1	2	1	1	2	1	1		1	1
AOI 16 Groundwater	MW-SD02	1	1	1	1		1	1	1	1	1		1	1		1		1	1
AOI 16 Groundwater	MW-SD06	1	1	1	2		1	1			1							1	1
AOI 16 Groundwater	MW-SD10	1	1	1	1						1								
AOI 16 Groundwater	MW-SD13	2	2	2	2						2								
AOI 16 Groundwater	MW-SD17	1	1	1	1						1								
AOI 16 Groundwater	MW-SD27	3	3	3	3				1		3			1		1			
AOI 16 Groundwater	MW-SD29	2	2	2	2						2								
AOI 16 Groundwater	MW-SD30	2	2	2	2				1		2			1		1			
AOI 16 Groundwater	MW-SM13	1	1	1	1						2								
AOI 16 Groundwater	MW-T10	1	1	1	3	2					1								
AOI 16 Groundwater	MW-T24	1	1	1	2	1	1	1	1	1	2		1	1		1		1	1
AOI 16 Groundwater	OW-1	3	2	2	2						2								
AOI 16 Groundwater	OW-2	1	1	1	2	1					1								
AOI 16 Groundwater	OW-3	2	1	1	1						1								
AOI 16 Groundwater	P-1	1	1	1	1						1								
AOI 16 Groundwater	P-1A	2	2	2	2						2								

Created by: BJS 9/6/10
Checked by: JPC 9/17/10

TABLE H-4
SAMPLING AND ANALYSIS PROGRAM - GROUNDWATER

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad
	Analysis	VOCs	SVOCs	PAHs	Metals	Metals	Uranium	Thorium	Ferrous and or Ferric Iron	Hardness	Anions **	Phosphorous	Sulfide	Alkalinity	Alkalinity	TOC	Metals	Uranium	Thorium
	Fraction	T	T	T	T	D	T	T	T	T	T	T	T	T	D	T	T	T	T
AOI	**Location ID**																		
AOI 16 Groundwater	P-2	1	1	1	1						1								
AOI 16 Groundwater	P-2A	1	1	1	1						1								
AOI 16 Groundwater	P-3	2	2	2	2						2								
AOI 16 Groundwater	P-3A	1	1	1	1						1								
AOI 16 Groundwater	P-4	1	1	1	1						1								
AOI 16 Groundwater	PW-4	1	1	1	1						1								
AOI 16 Groundwater	PW-5	1	1	1	1						1								
AOI 16 Groundwater	PW-6	1	1	1	1						1								
AOI 16 Groundwater	PZ-RI-S03	1	1	1	2		1	1			1			1				1	1
AOI 16 Groundwater	SW-1	2	3	2	3	1					1								
AOI 16 Groundwater	TW-4	1	1	1	1						1								
Unassigned	J2	1	1																
Unassigned	J2-B1	1	1																
Unassigned	J2-B2	1	1																
Unassigned	J3-B1	1	1																
Unassigned	J3-B2	1	1																
Unassigned	PT-01AB1	1	1																
Unassigned	PT-03B1	1	1																
Unassigned	PT-03B2	1	1																
Unassigned	PT-03P	1	1																
Unassigned	PT-09	2	2																
Unassigned	PT-10	1	1																
Unassigned	PT-11B1	2	2																
Unassigned	PT-11B2	2	2																
Unassigned	PT-11B3	1	1																
Unassigned	PT-11P	1	2																
** = Anions may include analysis for 1 or more of the following: bromide, chloride, fluoride, nitrate, nitrite, orthophosphate, and sulfate.																			

TABLE H-5
SAMPLING AND ANALYSIS PROGRAM - TISSUE

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem
	Analysis	SVOCs	PCBs	Metals	Lipids
	Fraction	T	T	T	T
AOC	**Location**				
Sphagnum Bog	SD-RI-06001	1	1	1	1
Sphagnum Bog	SD-RI-06005	2	2	2	2
Sphagnum Bog	SD-RI-06009	2	2	2	2
Sphagnum Bog	SD-RI-06017	1	1	1	1
Sphagnum Bog	SD-RI-06021	1	1	1	1
Sphagnum Bog	SD-RI-06025	2	2	2	2
Sphagnum Bog	SD-RI-06029			1	
Sphagnum Bog	SD-RI-06036	1	1	2	1
Sphagnum Bog	SD-RI-06050	2	2	2	2
Sphagnum Bog	SD-RI-06051	1	1	1	1
Sphagnum Bog	SD-RI-06053	1	1	1	1
Background (Off-Site)	SD-RI-1753	1	1	1	1
Background (Off-Site)	SD-RI-1754			1	1
Background (Off-Site)	SD-RI-1755			1	1
Background (Off-Site)	SD-RI-1756			1	1
Background (Off-Site)	SD-RI-1757	2	2	2	2

Created by: BJS 9/6/10
Checked by: JPC 9/17/10

TABLE H-6
SAMPLING AND ANALYSIS PROGRAM - WASTE CHARACTERIZATION SAMPLES

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

	Type	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Rad	Rad	Rad
	Analysis	VOCs	VOCs	SVOCs	SVOCs	PCBs	PAHs	Metals	Metals	Uranium	Thorium	Anions	Corrosivity and or pH	Corrosivity and or pH	Ignitability	Ignitability	Metals	Uranium	Thorium
	Fraction	C	T	C	T	C	T	C	T	T	T	T	C	T	C	T	T	T	T
AOC	**Location**																		
Unknown	Wastewater Tankhouse		1		1				1	1	1						1	1	1
Drum Pit 1	DS-RI-02001	1		1		1		1	1				1	1	1	1			
Drum Pit 1	DS-RI-02002	1		1		1		1	1				1		1				
Drum Pit 1	DS-RI-02003	1		1		1		1	1				1		1				
Drum Pit 1	DS-RI-02004	1		1		1		1	1				1		1				
Septic Fields	ST1		1						1			1							
Septic Fields	ST2		1						1			1							
Unassigned	Frac Tank		1		1		1		1										
Unassigned	TRT IDW H20		1						2			1							

APPENDIX H
NOTES TO APPENDIX TABLES

RI REPORT
Nuclear Metals, Inc. Superfund Site
Concord, Mass

Abbreviation	Description
AOI	Area of Interest
Type	Analytical Class (Chem = Chemical; Rad = Radiochemical)
Analysis Codes	(see list and method description to the right)
VOCs	Volatile Organic Compounds
SVOCs	Semivolatile Organic Compounds
MA EPH	Massachusetts Extractable Petroleum Hydrocarbons
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
Metals	TAL Metals and/or Specialty Metals
AVS/SEM	Acid Volatile Sulfide/Simultaneously Extractable Metals
TOC	Total Organic Carbon
TSS	Total Suspended Solids
HTDM	Hard to Detect Methods
Fraction Codes	
T	Total
D	Dissolved
C	TCLP (Toxicity Characteristic Leaching Procedure)

Number of discrete field samples collected per Location ID are shown by numerical values provided.