3.3.2 Spent HEPA/HEAF Sampling

Spent HEPA and HEAF filters are expected to be slightly radioactive and contain trace levels of VOCs after use in the TDU system. Under the RCRA derived-from rule 6 CCR 1007-3, 261.3(c)(2)(i), the spent filters will be considered hazardous remediation waste. Though hazardous, these filters are expected to meet the RCRA land disposal restriction (LDR) requirements, therefore, they should not require treatment prior to disposal. The filters are expected to be disposed as LDR-compliant low level-mixed waste at the Envirocare of Utah, Inc., facility in Clive, Utah. The filters will have to meet the WAC contained in the facilities Customer Information Manual (Envirocare, 1996). The WAC requires that all chemical analysis be conducted at a Utah Department of Health, Division of Laboratory Services, certified laboratory (Note: this is not required for geotechnical or radiochemical analyses). Table 3-5 lists the analytical parameters necessary to evaluate the filters with respect to the WAC. Samples from HEAF/HEPAs are expected to be collected by cutting "coupons" from the filters using conventional scissor type cutters or a sawzall tool. These coupons will be placed directly in the appropriate sample containers described in the following table.

To meet the timely disposition requirements of this project, worst-case samples will be collected of the HEAF/HEPA filters prior to completion of the treatment phase of the project. Because of different filtration characteristics, one sample will be collected from the "worst case" HEAF material and one sample will be collected from the "worst case" HEPA filter(s). A number of factors should insure the collection of worst case samples. These are:

1) The most contaminated soil (soil from near the surface of the Mound Site excavation) will be treated first (filters in place during this treatment will be sampled),
2) The samples will be collected from the HEPA filter media in place during the treatment of more soil volume than other subsequent filter material. Therefore, if the samples are collected early in the project, e.g., filters in place during the first 300 yd^3 of soil, all subsequent filters will require change out before an additional 300 yd^3 is processed, or additional sampling will be required.
3) If the same type of filters are used in series, the sample will come from the first inline filter of that type
4) Unlike the HEPA filters which are expected to remain in place during the treatment of several hundred cubic yards of soil, the HEAFs may require change out several times per day. As such, the sample will be collected by sampling a composite of the changed out HEAF material generated up to the point of first HEPA filter change out. This method will provide a relatively representative sample while still being biased toward "worst case" HEAF contaminant concentrations (e.g., for VOCs), and will be sufficient to meet the Envirocare WAC.
5) It is anticipated that downstream HEPA filters will not be changed out until removed at the conclusion of the project. These filters will have negligible particulate contamination because of the upstream HEPA filters. However, to verify that VOC levels are not above LDR treatment standards one sample will be taken for VOC analysis from the downstream HEPAs.

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TABLE 3-5 SAMPLE TYPES AND ANALYTICAL METHODS TO MEET ENVIROCARE'S MIXED WASTE WAC

Analytical Method	Analytes	# of Samples	Utah cert. required	Container	Preservative	Holding Time
Gamma Spectrometry	gamma emitting radioisotopes	2	Yes	TBD-enough for 1000 g of sample	None	6 months
Isotopic analysis	Uranium, thorium, americium, and plutonium isotopes	2	Yes	250-ml wide mouth glass jar	None	6 months
SW-846, Chapter 7	Reactive Sulfide Reactive Cyanide	2	Yes	combine with TCLP jar	Cool, 4° C	7 days 14 days
SW-846 Method 9045	Soil pH or corrosivity	2	Yes	combine with TCLP jar	Cool, 4° C	ASAP (up to 14 days)
SW-846 Method 8240B/8260A	Volatiles	3	Yes	250-ml wide mouth glass jar with Teflon lined lid	Cool, 4° C	14 days
SW-846 Method 8240B/8260A	Volatiles	1 trip blank per cooler	Yes	2 x 40 ml VOA vials - Teflon lined septa lids	Cool, 4° C, HCl to pH<2	14 days
TCLP SW-846 1311 (extraction)	8 TCLP metals + Cu, Zn, Sb, Be, Ni, Tl, V (Method 6010A, except Hg, Method 7470) all analysis with detection levels < RCRA UTS. Note use Method 7841 for thallium if can't meet UTS levels with Method 6010A TCLP Semivolatiles (Method 8270/8270A) TCLP Chlorinated Herbicides (Method 8150) TCLP Organochlorine Pesticides (Method 8080) TCLP Volatiles (Method 8240A/8260)	2	Yes	1-L wide mouth glass jar with Teflon lined lid, as appropriate, so that the TCLP can be combined with other samples listed in this table. Note: will need at least 200 grams of sample for the TCLP alone. Therefore more/larger containers may be necessary considering the low density of the filters.	Cool, 4° C	180 days from extraction, 180 days from extraction to analysis, except Hg: 28 days to extraction, 28 days from extraction to analysis 14 days to TCLP extraction, 7 days to preparative extraction, 40 days from preparative extraction to analysis 14 days to TCLP extraction, 7 days to preparative extraction, 40 days from preparative extraction to analysis 14 days to TCLP extraction, 7 days to preparative extraction, 40 days from preparative extraction to analysis 14 days to extraction, 14 days from extraction to analysis
SW-846 Method 8270B	Semivolatiles	2	Yes	500-ml wide mouth glass jar with Teflon lined lid	Cool, 4° C	14 days to extraction, 40 days from extraction to analysis
Determined by Envirocare	Envirocare evaluation (finger print) samples	≥5	N.A.	2 pound, as required	None	None