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248 - 248 - ENVIRONMENTAL SAMPLE DIRECTOR

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SAMPLE ANALYSIS INFORMATION

1.0 REQUIRED ANALYSES

- 1.1 The routine analyses that are performed for normal REMP samples are presented on page 2 of this tab. These will be the analyses that will be requested by the sample collection personnel when emergency REMP samples are sent to a cooperating analysis laboratory, unless directed otherwise.
- 1.2 It is the responsibility of the Environmental Sampling Director to communicate to the SSES Environmental Laboratory Administrative Coordinator any analysis requirements which differ from those in the table on page 2 of this tab. Requirements for additional analyses might be established by the Dose Assessment Supervisor.

2.0 REQUIRED ANALYSIS SENSITIVITIES

- 2.1 The analysis sensitivities presented in the table on page 2 of this tab are currently specified as contractual requirements to be met for the analysis of emergency REMP samples that would be sent to Teledyne Brown Engineering's analysis laboratory in Knoxville, Tennessee, and/or the Framatome Laboratory in Westboro, Massachusetts.
- 2.2 The analysis sensitivities presented in the table on page 3 of this tab are NRC required analysis sensitivities for media and analyses not presented in the table on page 2. These are the sensitivities that must be met or exceeded when routine REMP samples are analyzed. Normally, the actual sensitivities for the analyses of REMP samples are well below these levels. For the analyses of emergency samples for which required sensitivities are not stated in the table on page 2, an attempt should be made to have the radioanalytical laboratory attain sensitivities below those in the table on page 3.
- 2.3 If another analysis laboratory (not Framatome or Teledyne) is used, it is the responsibility of the Field Team Director to inform the analysis laboratory of the required analysis sensitivities. Similarly, if any other analysis sensitivities are desired, the Field Team Director is responsible for ensuring that such information is communicated to the appropriate laboratory.

CAUTION: Requirements for more sensitivity in the performance of sample analyses may impact the expected turnaround time for providing analysis results. Check with the analysis laboratory to determine if this would be a concern. If the laboratory indicates that greater analysis sensitivities might pose a problem because of the time constraints for reporting results, inquire as to whether providing larger quantities of sample for analysis might obviate the need for longer counting times.

CAUTION: Under contract with PPL, Framatome and Teledyne Brown Engineering are required to provide analysis results (with the exception of results for strontium analyses or any analyses that might require extended periods of time to allow for daughter ingrowth, etc.) for emergency environmental samples within 24 hours after the samples are received by the laboratory.

ROUTINE ANALYSES PERFORMED ON NORMAL REMP SAMPLES

Environmental Medium	Analysis Type					
	Gross Alpha	Gross Beta	Gamma Spectroscopic	Tritium	I-131 Radiochemical	SR-89/90
Surface Water		X	X	X	X	X+
Drinking Water	X	X	X	X	X	
Ground Water			X	X		
Milk			X		X	
Particulate Filters	X*	X	X			
Charcoal Cartridges			X**			
Sediment			X			
Fish			X			
Soil			X			

- * This analysis is only performed on quarterly composites on these filters.
- ** Iodine-131 results are the only gamma-emitting data normally reported.
- + SR-89-90 analyses are normally only performed if high gross beta results are obtained.

REQUIRED SENSITIVITIES FOR EMERGENCY ANALYSES*

Environmental Medium	Specified Radionuclides				
	Iodine-131	Cesium-134	Cesium-137	Strontium-90	Strontium-89
Initial Activity Area Deposition ($\mu\text{Ci}/\text{m}^2$)	6E-3	1E-1	1.5E-1	2.5E-2	4E-1
Forage Concentration ($\mu\text{Ci}/\text{kg}$)	3E-4	5E-3	8E-3	1E-3	2E-2
Peak Milk Activity ($\mu\text{Ci}/\text{l}$)	1E-4	1.5E-3	1.5E-3	6E-5	9E-4

- * These analysis sensitivities are approximately 5% of the FDA's Preventative Protection Action Guides.

NRC REQUIRED DETECTION SENSITIVITIES (LLDs) FOR ROUTINE RADIOLOGICAL ENVIRONMENTAL MONITORING*

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m ³)	Fish (pCi/kg, wet)	Food Products (pCi/kg, wet)	Sediments (pCi/kg, dry)
Gross Beta	4	0.01			
Tritium	2000				
Mn-54	15		130		
Fe-59	30		260		
Co-58					
Co-60	15		130		
Zn-65	30		260		
Zr-95	30				
Nb-95	15				
I-131	1	0.07		60	
Cs-134	15	0.05	130	60	150
Cs-137	18	0.06	150	80	180
Ba-140	60			60	
La-140	15			15	

* Milk is not included in the Table above because it has been provided with a special sensitivity requirement for emergency analyses. Refer to the table on the previous page for the required emergency analysis sensitivity for milk.

Wherever blanks appear in the Table above, the NRC has provided no required analysis sensitivities for the media and analysis indicated.

The analysis sensitivities in the Table above should be met as a minimum, if possible. If time permits analyses to be performed to lower sensitivities, then lower sensitivities should be attempted. Consult with the radioanalytical laboratory and the DASU to confirm that it is both possible and desirable, considering the urgency for obtaining analysis results, to analyze for longer periods of time and achieve better sensitivities.

For media and analyses not provided in the Table above, when Framatome or Teledyne Brown Engineering is the radioanalytical laboratory, consult with the lab to determine if PPL has contractually required sensitivities for the routine radiological environmental monitoring program that include those media and analyses, and to find out if those sensitivities can be met with the desired turnaround time for analysis results.