REFERENCE 9

Letter, L.C. Witbeck to C.E. Clark
"ANL-W Environmental Sampling and Analysis Information," 2/1/88

U.S. DEPARTMENT of ENERGY

ARGONNE NATIONAL LABORATORY

ARGONNE - WEST PO. Box 2528, Idaho Falls, Idaho 83403-2528 Telephone 208/526-

February 1, 1988

C. E. Clark
Environmental Protection Office
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, ID 83402

Subject: ANL-W Environmental Sampling and Analysis Information

Reference: Letter, J. H. Barry to Addressees, "Environmental Sampling and Analysis Information," dated 1/6/88.

Dear Mr. Clark:

Attached is the requested information for ANL-W. It is understood that DOE-ID will transmit the information on to the DOE-HQ Survey Team.

If you have any questions please contact M. J. Holzemer (526-7625) or myself (526-7537).

Very truly yours,

L. C. Witbeck
Assistant to Manager, Safety Security & Safeguards

LCW/MJH:jh

cc: w/Attach.
C. S. Abrams, w/o attach
B. R. Fritz, DOE-CH
G. C. Marshall, DOE-CH
J. H. Talboy, ANL-E
R. J. Teunis, w/o attach

bcc: w/attach

J. P. Bacca
D. W. Cissel, w/o
L. J. Harrison
C. E. Holson
M. J. Holzemer
R. E. Kaiser
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W.H. Olson
R. A. Peralta, w/o
W. E. Stephens
R. Villarreal

LEGEND

β-SC	- Beta Scintillation
DF	- Silicon Diffused Junction
NaI	- Sodium Iodide
ZNS	- Zinc Sulfide
C	- Continuous
M	- Monthly
ZPPR	- Zero Power Physics Reactor
TREAT	- Transient Reactor Test
FASB	- Fuel Assembly and Storage Building
L&O	- Lab and Office Building
SCMS	- Sodium Component Maintenance Shop
HFEF/N	- Hot Fuel Examination Facility-North
HFEF/S	- Hot Fuel Examination Facility-South
EBR-II	- Experimental Breeder Reactor-II
FMF	- Fuel Manufacturing Facility
NDA	- Non Destructive Analysis
RLWTF	- Radioactive Liquid Waste Treatment Facility
ANL-W	- Argonne National Laboratory-West
ANL-E	- Argonne National Laboratory-East
DOE-CH	- Department of Energy - Chicago Operations
DOE-ID	- Department of Energy - Idaho Operations

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedure For Sampling and/or Analysis
Sanitary Lagoon	ANL-W Waste and Environmental Engineering	Liquid	Alpha and Beta Activity, Tritium and Gamma-Emitting Nuclides	Monthly (April-October)	ANL-W Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - ANL-W Analytical Laboratory Analytical Methods Manual
Sanitary Lagoon	ANL-W Waste and Environmental Engineering	Liquid	Low-Level Plutonium and Gamma-Emitting Nuclides	April and October	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses- Plutonium - Standard Operating Procedure ACL-037 Gamma - Standard Operating Procedure ACL-072
Sanitary Lagoon	ANL-W Waste and Environmental Engineering	Liquid	Biological Oxygen Demand (BOD), Dissolved Oxygen (DO) and pH	Monthly (April-October)	Westinghouse Idaho Nuclear Company (WINCO) Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory. Monthly INEL Industrial Waste Management Information System (IWMIS) Report.	Sampling - No. Analyses - Part 900 of Standard Methods for Examination of Water and Wastewater - 16th Edition

* Sampling Procedures to be written and implemented by March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
Industrial Waste Pond	ANL-W Waste and Environmental Engineering	Liquid	Alpha and Beta Activity, Tritium and Gamma-Emitting Nuclides, Hexavalent Chromium, Total Chromium, pH, Sulfate Ion, Phosphate Ion, Chloride Ion, Sodium Ion, Zinc, and Silver	Monthly (April-October)	ANL-W Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - ANL-W Analytical Laboratory Analytical Methods Manual
Industrial Waste Pond	ANL-W Waste and Environmental Engineering	Liquid	Low-Level Plutonium and Gamma-Emitting Nuclides	April and October	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - Plutonium - Standa Operating Procedur ACL-031 Gamma - Standard Operating Proce ACL-072
Production Wells (#1,#2) (through 1986)	Plant Services	Liquid	Arsenic, Barium Cadium, Chromium, Cyanide, Fluoride Lead, Mercury, Nitrate (N), Selenium and Silver	Annually	Westinghouse Idaho Nuclear Company (WINCO) Laboratory	Annual Environmental Montoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No Analyses: WINCO Procedures Anion - 4-0022 (Anion-EPA-1) Metals-3-0019 (toxic metals-EPA-1

* Sampling Procedures to be written and implemented by March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
Production Wells (#1,#2)	EG&G Industrial Hygiene (1987) ANL-W Waste and Environmental Engineering (Beginning in 1988)	Liquid	Arsenic, Barium Cadmium, Chromium, Cyanide, Flouride, Lead, Mercury Nitrate, Seleium, Silver, Sodium, Endrin, Lindane, Methoxychlor, Toxaphane; 2, 4-D; 2, 4, 5-TP Silvex, Trihalomethanes	Annually	Analytical Laboratories Inc., Boise, ID (1987) DATA CHEM, Salt Lake, Utah (Beginning in 1988)	To DOE-ID for submission to State of Idaho	EG&G Sampling - QA-026 ANL-W Sampling - No. * Analyses - Analyti Laboratories, Inc. State of Idaho certified laborato for drinking water Data Chem. - State Idaho approved laboratory for drinking water
ANL-W Drinking Water Distribution System	ANL-W Waste and Environmental Engineering	Liquid	Coliform	Monthly (alternating drinking fountains)	EG&G Industrial Hygiene Laboratory	DOE-ID for submission to the State of Idaho	Sampling - ANL-W Health and Safety Manual, Section IX, Chapte 22, Part 900 of Standard Met s for the Examination of Water and Waste water - 16th Editio Analyses - Part 900 of Standard Methods for the Examination of Water and Waste water - 16th Editio

*Sampling Procedure to be written and implemented March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
ANL-W EBR-II Area (in the corners of the site-security perimeter; six samples total)	ANL-W Waste and Environmental Engineering	Soil	Plutonium and Gamma-Emitting Nuclides	Annually	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with a copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - Plutonium - Standa Operating Proce ACL-031 Gamma - Standard Operating Procedur ACL-072
ANL-W Radioactive Scrap and Waste Facility	ANL-W Waste and Environmental Engineering	Soil	Plutonium and Gamma-Emitting Nuclides	Annually	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - Plutonium - Standa Operating Procedur ACL-031 Gamma -Standard Operating Procedur ACL-072
Outfall of the Hot Fuel Examination Facility-North Industrial Pipe	ANL-W Waste and Environmental Engineering	Sediment	Plutonium and Gamma-Emitting Nuclides	Annually	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses - Plutonium - Standar Operating Procedur ACL-031 Gamma - Standard Operating Procedur ACL-072

* Sampling Procedure to be written and implemented by March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
Interceptor Canal inlet to the Industrial Waste Pond	ANL-W Waste and Environmental Engineering	Sediment	Plutonium and Gamma-Emitting Nuclides	Annually	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses: Plutonium - Sta Operating Procedur ACL-031 Gamma - Standard Operating Procedur ACL-071
Industrial Waste Pond (4-samples) and one sample from each corner of site perimeter	ANL-W Waste and Environmental Engineering	Vegetation	Plutonium and Gamma-Emitting Nuclides	Annually	ANL-E Analytical Laboratory	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling - No. * Analyses: Plutonium - Standar Operating Procedure ACL-031 Gamma - Standard Operating Proce ACL-072
ANL-W Site	N/A	Errosion Control	Errosion	Annually or following severe weather conditions	Plant Services	ANL-W Waste and Environmental Engineering	Analysis - No

*Sampling Procedures to be written and implemented by March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
Radioactive Scrap and Waste Facility	Radiation, Fire, and Safety Engineering	Direct Reading and smear survey	Gamma - Direct Reading; Alpha and Beta-Gamma Smears	April and October	Radiation, Fire, and Safety Engineering	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling/Analyses Direct reading - ANL-W Radiation Safety Manual, Section IV, Chapter 1 Smear - ANL-W Radi tion Safety Manual Section III, Chapter 4
Industrial Waste Ditches	Radition, Fire, and Safety Engineering	Direct Reading	Low-level Beta-Gamma	October	Radiation, Fire, and Safety Engineering	Annual Environmental Monitoring Report to DOE-CH with copy to DOE-ID Radiological and Environmental Sciences Laboratory	Sampling/Analyses Direct Reading - ANL-W Radiation Safety Manual, Section IV, Chapter 1
Suspect Radioactive Retention Tanks	Plant Services	Liquid	Alpha (plutonium), Beta, gamma, Uranium, pH, total solids and tritium	Prior to processing radioactive retention tank liquids	ANL-W Analytical Laboratory	ANL-W Waste Management Engineer	Sampling - ANL-W Radioactive Liquid Wastes Operating and Maintenance Procedures Analyses - ANL-W Analytical Laboratory Analytical Methods Manual

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedures For Sampling and/or Analysis
Sanitary and Industrial Waste Lift Station	ANL-W Waste and Environmental Engineering	Liquid	Alpha, Beta and Gamma-Emitting Nuclides	Upon receipt of an alarm from in-line monitors	ANL-W Analytical Laboratory	ANL-W Waste Management Engineer	Sampling - No. * Analyses - ANL W Analytical Laboratory Analytical Meth Manual
EBR-II Turbine Condensate	EBR-II Chemistry	Liquid	Tritium	Bimonthly	ANL-W Analytical Laboratory	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No. * Analyses - ANL-W Analytical Laboratory Analytical Methods Manual
HFEF/N Stack	Eberline continuous air monitor	Gaseous	See Table I	Continuous	N/A	N/A	HFEF-OMM 2640 Stack Effluent Monitoring System ANL-W Radiation Safety Manual - Operational and Source Check - Section 1, Chapter 8 STM-MC-50, Calibration

* Sampling Procedure to be written and implemented by March 1, 1988.

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedure For Sampling and/or Analysis
RLWTF Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Eberline Factory Manual-Calibration ANL-W Radiation Safety Manual - Operational and Source Check - Section I, Chapter 8
ZPPR Stack	Victoreen Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Victoreen Factory Manual-Calibration ANL-W Radiation Safety Manual - Operational and Source Check - Section I, Chapter 8
TREAT Stack	Radiation, Fire and Safety Engineering	Fixed Filter (particulate)	See Table I	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual Section I, Chapter 4
FASB Stack	Radiation, Fire, and Safety Engineering	Fixed Filter (particulate)	See Table I	Monthly	ANL-W Waste and Enviromental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual Section I, Chapter 4

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedure For Sampling and/or Analysis
L&O Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Eberline Factory Manual-Calibration ANL-W Radiation Safety Manual-Operational and Source Check - Section I, Chapter 8
MDA Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Eberline Factory Manual-Calibration ANL-W Radiation Safety Manual-Operational and Source Check - Section I, Chapter 8
SCMS Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Eberline Factory Manual-Calibrat ANL-W Radiation Safety Manual-Operational and Source Check - Section I, Chapter 8

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
FMF Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	Eberline Factory Manual-Calibration ANL-W Radiation Safety Manual-Operational and Source Check Section I, Chapter 8
EBR-II/ III EF/S Stack	Eberline Continuous Air Monitor	Gaseous	See Table I	Continuous	N/A	N/A	ANL-W STM-MC-50 (Calibration) ANL-W Radiation Safety Manual, Section I, Chapter 8
EBR-II Reactor Cover Gas	Germanium - Lithium Argon Sampling System (GLASS)	Gaseous	Kr-85m, Kr-85 Kr-88, Xe-133, Xe-135, Xe-135m, Xe-138, Br-83, H-3, and Ar-41	Hourly	Germanium Lithium Argon Sampling System (GLASS)	Monthly INEL Radioactive Waste Management Information System Report	GLASS Operating Instruction, Division IV - Section K Tritium and Agron-41 are calculated values from measured values
TREAT Stack	Calculated from correlations with reactor power and air flow	N/A	Ar-41, Kr-88 Xe-133, and Xe-135	N/A	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Reactor Power and air flow correlations determined in 1977 from grab samples

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
HFEF/S Stack	HFEF/S Personnel	Gaseous Grab Sample	Xe-133, Xe-135, and alpha	Change of Operations	ANL-W Analytical Laboratory	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Analytical Labora- tory Analytical Methods
HFEF/N Stack	Radiation Fire, and Safety Engineering	Fixed Filter (particu- late)	Alpha and beta-gamma	Monthly	ANL-W Waste and Environ- mental Engi- neering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual, Section I Section I, Chapter
L&O Stack	EBR-II Chemistry	Gaseous (Xenon tag sample)	Xe-133 and Xe-135	As necessary for experiment	ANL-W Analytical Laboratory	Monthly INEL Radioactive Waste Management Information System Report	Sampling - Standar Operating Instruct Division IV, Section M Analysis - ANL-W Analytical Lab. Analytical Meth Manual
L&O Stack	Radiation, Fire, and Safety Engineering	Fixed Filter (particu- late)	Alpha and Beta-Gamma	Monthly	ANL-W Waste and Environ- mental Engi- neering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual, Section I, Chapter

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedure For Sampling and/or Analysis
ZPPR Stack	Calculated based on grab sample use to correlate watt-hours and air flow	N/A	Xe-133 and Xe-135	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - N/A Analyses - Calculat
ZPPR Stack	Radiation, Fire, and Safety Engineering	Fixed Filter (particulate)	Alpha and Beta-Gamma	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sample - No Analyses - ANL-W Radiation Safety Manual, Section I, Chapter 4
SCMS Stack	Radiation, Fire, and Safety Engineering	Fixed Filter (particulate)	Alpha and Beta-Gamma	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual, Section I, Chapter
RLWTF Stack	Radiation, Fire, and Safety Engineering	Fixed Filter (particulate)	Alpha and Beta-Gamma	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual, Section I, Chapter 4

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedur For Sampling and/ Analysis
RLWTF Stack	Plant Services samples radioactive retention tank in RLWTF	Liquid Sample	Tritium	Per batch	ANL-W Analytical Laboratory	Monthly INEL Radioactive Waste Management Information System Report as a gaseous release from evaporators	Sampling - ANL-W Radioactive Liqui Wastes Operating and Maintenance Procedures Analyses: - ANL-W Analytical Labora- tory Analytical Methods Manual
Fuel Oil used (type 2)	Contractor	Fuel Oil	% sulphur, ash	Fuel oil purchased	Contractor	Monthly INEL Industrial Waste Management Information System Report	Contractor Specifi cations for the identified paramet
EBR-II, Plant Services and Photo Laboratory. Chemical usage and disposal to Indus- trial Waste Pond	N/A	Monthly usage records	Betz neutrmeen, sodium ion, sulfate ion, monoethyline, Nalco 7270, Eliminox, Chlorine gas, Betz 2020, Betz 20K, Slimicide J-12, Photo Lab Chemicals (established quantity)	Monthly usage records	EG&G has breakdown of chemicals and computes indi- vidual chemical constituents based on pro- vided water disposal to Industrial Waste Pond	Monthly INEL Industrial Waste Management Information System Report	N/A

ENVIRONMENTAL SAMPLING ANALYSIS INFORMATION
ENVIRONMENTAL MONITORING OR EFFLUENT/EMISSION POINT (contd)

Specific Sample Location	Sampled By	Type of Sample	Parameters Analyzed For	Sampling Frequency	Analyzed By	Where Reports Are Reported	Written Procedures For Sampling and/or Analysis
FMF Stack	Radiation, Fire, and Safety Engineering	Fixed Filter	Alpha and Beta-Gamma	Monthly	ANL-W Waste and Environmental Engineering	Monthly INEL Radioactive Waste Management Information System Report	Sampling - No Analyses - ANL-W Radiation Safety Manual, Section I, Chapter 4

TABLE I

RADIONUCLIDES MONITORED AND TYPE OF DETECTORS

Facility	Radionuclides	Detector	Frequency
EBR-II/HFEF/S	α	ZNS	C
	Cs-137	NaI	C
	Gross Particulate	NaI	C
	I-131	NaI	C
	Xe-133	NaI	C
	Gross Gas	NaI	C
HFEF/N	Kr-85	NaI	C
	Xe-133	NaI	C
	I-131	NaI	C
	β-Particulate	β-Sc	C
	Gross β-Gas	β-Sc	C
	Cs-137	NaI	C
	α	DF	C
RLWTF	I-131	NaI	C
	β-Particulate	β-Sc	C
	α	DF	C
ZPPR	β-γ	β-Sc	C
	α	ZNS	C
TREAT	Gross β-γ	Filter	M
	Gross α	Filter	M
FASB	Gross β-γ	Filter	M
	Gross α	Filter	M
L&O	Gross β Gas	β-Sc	C
	Beta-Particulate	β-Sc	C
	α	DF	C
	I-131	NaI	C
NDA	α	DF	C
	β-Particulate	β-Sc	C
SCMS	α-Particulate	NaI	C
	α	DF	C
FMF	β-Particulate	β-Sc	C
	α	DF	C