Westinghouse Savannah River Company
Savannah River Site

WSRC-TR-91-380

Keywords:
Analytical
Waste Characterization
Waste Samples

Retention Period:
Permanent

May 22, 1991

*To: **J.L. Steele, Technical Program Manager***

W.A. Spencer

*From: **W.A. Spencer, WSRC's FAST Representative***

COMMENTS ON FAST SURVEY (U)

The following messages were taken from Inter-office Electronic Mail and provide perspective on the DOE FAST site survey. The key issue is that WSRC analytical groups have been unable to state when processes will be operated and what the exact requirements will be for characterizing materials from those processes when they do start. What results is a uncertainty at the site in the actual analytical work load. Although Donnan refers to the original survey data, one update was submitted to the needs requirements in the fall of 90. However that update was not as complete as the one given below. I have identified some of the people using brackets.

Authorized Derivative Classifier: [signature]
unclassified

May 16, 1991

To: William A. Spencer

From: Jessie G. Donnan, Manager,
Analytical Laboratoratories - Waste Analyses Group

Subject: FAST Survey (U)

As a follow-up to the discussion yesterday on the DOE WM/ER analytical needs/capability survey during the FAST/DOE-HQ conference call, I have gone back and reviewed the last copy I received of the survey (from your 5/31/90 memo) and the SRS on-site assessment report.

One area, in which the SRS-supplied data is deficient, is in the area of analytical needs. The only analytical needs data included was that provided by EMS for the environmental monitoring program. No analytical needs data were provided to the survey for support of any of the Waste Management or Environmental Restoration programs. Other areas not included were hazardous and mixed waste identification/characterization coordinated by the various site waste generators. **I estimate that the analytical needs data in the survey are low by at least a factor of 2 to 3.** Partial information about some of these other programs is provided in the following paragraphs.

In late 1989 Mike Hughes [*manager AL Special Laboratories*] provided Jim Bush [*the manager of WSRC QA and AnalyticalLaboratories, Jack Burgess has position now*] with an estimate of analytical support being provided at that time (and near-term planned support for ITP [*In-tank Precipitation*]) to Waste Management by Analytical Laboratories. The estimated analytical work load was approximately 30,000 samples and 120,000 analysis requests per year. The majority of these samples are radioactive. A copy of that memo is attached. In addition, Paul Cloessner [*manager, SRL Analytical Development Services*] estimates that ADS performs approximately 75,000 analyses per year in support of waste management and environmental programs.

Environmental Restoration has recently been looking closely at analytical needs for site assessments. Wayne Johnson of that organization told me yesterday that 30 work plans of the 57 on his list have been submitted to SCDHEC for review. He expects that analytical support will be needed for those 30 assessments in 1992 and 1993. His current estimate for analytical cost per unit is about $100,000. Of the 30 units, 8 are radioactive. I have reviewed only one work plan for a small nonradioactive unit (the G-Area Oil Seepage Basin). In this case 78 field samples (soil, groundwater, sediment, surface water, blanks, splits, and duplicates) corresponding to 477 analysis requests are included in the plan. The estimated cost for these analyses based on 1989 subcontracts is $63,000. This does not include sampling, shipping, well drilling or data management/review costs. [*The WSRC Environmental Restoration department was formed this year and is just beginning to establish contacts with the laboratories.*]

Analytical costs in more recent contracts are not available because these contracts are in the process of being placed. However, discussions with personnel from other DOE sites suggest that their recent analytical subcontracts in some cases have run 2 to 4 times higher than ones placed several years ago. If this is correct for the SRS contracts, analytical assessment costs for the small G-Area Oil Seepage Basin could run as high as $240,000. **Extrapolating these numbers to the 30 sites (assuming the same number of analysis requests per unit evenly divided over 1992 and 1993) gives about 10,000 analytical requests per year at a potential cost of $3,600,000 per year.**

After the assessments are complete, additional analytical support will be required to support closure of the sites. DWPF is expected to be running in the time frame covered by the survey. Gene Graf [*Manager, DWPF Process Laboratory*] has indicated that the sample schedule for DWPF has not yet been finalized. He did indicate that after routine operations are achieved (in about 1994 or 1995) they expect in the vicinity of 9,000 samples per year for about 65,000 determinations.

In the site waste stream survey that was conducted last year, 840 waste streams were identified (additional waste streams have been added to the list since then). In April, 1990 the WAG surveyed site Environmental Coordinators to determine sampling team needs. The survey indicated that approximately 1500 samples of waste, corresponding to about 6,000 analysis requests, had been collected in the previous year. Approximately 30% of the samples were radioactive. I estimate that the sample load for hazardous waste identification has probably doubled since the survey because of TCLP and increased emphasis on testing waste instead of using process knowledge. Also, additional analytical requirements for these waste streams are likely to be included in the Waste Acceptance Criteria which are currently being developed.

Sample schedules and in some cases analytical requirements have not been established for a number of Waste Management Projects which are expected to come on line in the next few years. These include CIF [*Consolidated Incinerator Facility*], TWF [*TRU Waste Faciltiy*], HW/MW Disposal Facility and Y-Area. Because they will be permitted facilities, analytical support needs are expected to be significant. As a worst case, if 4 times DWPF analysis needs were assumed, these facilities could generate 260,000 analysis requests per year. Most of the materials to be analyzed for these facilities will be radioactive. Many of the samples from TWF will be TRU waste.

Approximately 4000 items containing nuclear material were identified in a survey by Monte Hawkins [*Environmental Protection Section*] regarding the scrap versus waste gray issue. If DOE-HQ determines that this material should be classified as waste instead of scrap, characterization of this material will be required. If you assume 4 analysis requests per item with the analyses spread out over 5 years, this could generate about 3000 analysis requests per year. Many of these samples would be TRU material.

The identified analytical needs which were not included in the survey are summarized in the following table.

Source	Estimated Analysis Requests per year
WM samples currently analyzed by AL	120,000
SRL and plant samples analyzed by ADS	75,000
ER Assessments	10,000
Hazardous Waste Identification	6,000
DWPF	65,000
CIF, HW/MW, TWF, Y-Area	260,000
Scrap	3,000
Total	539,000

I estimate that approximately 75% of these samples are radioactive vs the 25% for the EMS [*Environmental Monitoring Section*] samples.

The fact that so many of these samples are radioactive coupled with the current lack of capability to analyze many of them on site will cause serious problems in the near future. Current plans include sending many of the samples off site to commercial laboratories. However, the limits being considered by DOE-HQ for sending samples to commercial laboratories which were discussed in the conference call yesterday (<0.5 mR/hr and <0.01 microCi of total alpha activity per sample) would eliminate that possibility. Our only options would be to try to place subcontracts with other DOE laboratories with excess capacity or to establish the needed capability on site. **With the 772-H laboratory on hold there are no active SRS projects aimed at providing this analytical capability.** Your support in expediting decisions versus the proposed DOE regional laboratory concept and other laboratory construction issues would be greatly appreciated. Also, it might be useful for the groups which will be affected by the lack of analytical capability to meet, discuss the various options and develop a united path forward.

Distribution:

TO: Bill Spencer (SPENCER-WA-T5578 @A1@SLSRP1)

CC: L. W. Reynolds, Jr., 704-8F (REYNOLDS-LW-O4850 AT A1 AT SLSEP1)
CC: Greta C. Fanning (FANNING-GC-Y5903 @A1@SRXSS2)
CC: Rue Ann Thomas (THOMAS-RA-Y6757 @A1@SLSRP1)
CC: Jay L. Pittman, 74361 (PITTMAN-JL-O5697 AT A1 AT SLSEP1)
CC: Ed Norris (NORRIS-WE-O6524 AT A1 AT SLSEP1)
CC: Sheldon T. Nichols (NICHOLS-ST-L0795 @A1@SRXSS2)
CC: Jonathan D. Kuhns (KUHNS-JD-O8537 @A1@SRXSS2)
CC: J B PICKETT (PICKETT-JB-O4797 @A1@SLSRP1)
CC: Peter D. Hanley (HANLEY-PD-Y6434 @A1@SRXSS2)
CC: Sherman C. Powell (POWELL-SC-L0265 @A1@SASEP1)
CC: John E. Young, ADS (YOUNG-JE-T6035 @A1@SLSRP1)
CC: W.M. WIERZBICKI (WIERZBICKI-WM-O5933 @A1@SASEP1)
CC: Paul T. Deason (DEASON-PT-O5211 AT A1 AT SLSEP1)
CC: Kim S. Wierzbicki (WIERZBICKI-KS-O6535 @A1@SASEP1)

CC: MONTE HAWKINS (HAWKINS-M-O6779 @A1@SLSRP1)
CC: Mike B. Hughes,Analytical Labs (HUGHES-MB-O5204 @A1@SASEP1)
CC: Eugene L Graf (GRAF-EL-O0349 @A1@SZDWP1)
CC: Wayne F. Johnson (JOHNSON-WF-O5883 @A1@SLSRP1)
CC: Paul Cloessner (CLOESSNER-PF-T7195 @A1@SLSRP1)
CC: J. D. Heffner (HEFFNER-JD-O4661 @A1@SLSRP1)
CC: W. Dean Hoffman (HOFFMAN-WD-Y5524 @A1@SLSRP1)
CC: Bill Jacobsen (JACOBSEN-WR-O2849 AT A1 AT SLSEP1)

INTER-OFFICE MEMORANDUM
Savannah River Site

Date: 22-Dec-1989 08:51am EDT
From: Michael B. Hughes
HUGHES-MB-O5204 AT A1 AT SSWMT1
Dept: Laboratories Department
Tel No: x7-8807

TO: See Below

Subject: BRIEFING NOTES FOR WASTE MANAGEMENT SUPPORT

As backup for your briefing on Analytical Support for Waste Management, Bill asked us to prepare the following notes that provide summarized detail on the topics addressed on your slide.

SUPPORT ACTIVITY	SAMPLES PER MONTH	ANALYSES PER MONTH	EXAMPLES
ETF	1600	6400	pH, conductivity, oil & grease, metals.
ITP(cold feed)	15	450	Organic impurities, anions, weight%
ITP(process)*	600	2000	gamma spectroscopy, organics
Burial Ground	130	200	radioisotopics
Groundwater**	75	350	dichloroethylene, triclene, organics
F-Waste Tanks#	22	132	density,pH,nitrates
H-Waste Tanks#	56	336	density,pH,nitrates

* Predicted numbers based on Waste Mgmt sample schedule. Ops begin 4/90.
** Non M-Area volatile organics
# Yearly totals

Distribution:

TO: BUSH-JR-H0015 @A1@SLSRP1

CC: JACOBSEN-WR-O2849 @A1@SLSEP1
CC: DEASON-PT-O5211 @A1@SLSEP1
CC: LEE-RS-O7208 @A1@SLSEP1
CC: PADEZANIN-PC-O5711 @A1@SLSEP1
CC: DONNAN-JG-O4961 @A1@SLSEP1
CC: CHANDLER-LM-O6554 @A1@SLSRP1

---

cc:

SRL RECORDS (4)

W.R. Jacobsen, 772-3F
J.G. Donnan, 772-3F
M.B. Hughes, 772-D
J.L. Steele, 773A
M.G. O'Rear, 703A
C.E. Coffey, 773A
J.D. Heffner, 735A
D. Hiland, 773-41A
J.D. Woodard, 735-15A
D. Lillian, DOE-EM-53