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**ANALYTICAL RESULTS OF DWPF GLASS SAMPLE  
TAKEN DURING FILLING OF CANISTER S01913:  
SUMMARY REPORT**

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C. J. Bannochie

October 2005

Immobilization Technology Section  
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**REVISIONS**

Revision Number:	Page Number:	Date:	Revision:
0	All	9/10/04	Original Issue
1	1	10/3/05	Removed text regarding estimation of radionuclide composition that was not measured.
	1	10/3/05	Simplified table titles.
	1	10/3/05	Corrected significant figures for Fe <sub>2</sub> O <sub>3</sub> , Na <sub>2</sub> O, and SiO <sub>2</sub> in table "Concentration of Major Components of Pour Stream Glass Sample S01913."
	1	10/3/05	In table "PCT Results for Pour Stream Glass Sample S01913" corrected measured normalized release of Li for the EA glass to 7.0.
	2	10/3/05	Removed C-14, Nb-93m, Ni-59, Ni-63, Se-79, Sn-121m, Sn-126, Cm-244, Cm-245, Cm-246, Cf-251 from table "Reportable Radionuclide Content of the Glass Pour Stream Sample Taken During the Filling of Canister S01913". These isotopes were not measured in the glass. Revised table title to: "Reportable Radionuclide Content Measured for Pour Stream Glass Sample S01913."
	2	10/3/05	Removed I-129 from the table. Isotope is not reportable per the radionuclide inventory for the sludge.
	2	10/3/05	Updated reported values for Zr-93, Tc-99, Sm-151, U-233, U-234, U-235, U-236, Np-237, U-238, Pu-239 and Pu-240 to reflect current calculations and/or for consistency with DWPF specific activities.

**SUMMARY**

In order to comply with the Waste Acceptance Product Specifications in Sludge Batch 2, Savannah River National Laboratory personnel performed characterization analysis of the Defense Waste Processing Facility (DWPF) radioactive glass pour stream sample taken during filling of Canister S01913. This report summarizes results of the characterization that indicate that the DWPF produced glass is significantly more durable than the Environmental Assessment glass. Results and further details are documented in the report, "Analytical Results of DWPF Glass Sample Taken during Pouring of Canister S01913," WSRC-TR-2004-00316, Rev. 2, (2005).

**Concentration of Major (>0.5 Wt. % Elemental Basis)  
Components (As Oxides) of Pour Stream Glass Sample S01913**

Oxide	Wt%
Al <sub>2</sub> O <sub>3</sub>	4.34
B <sub>2</sub> O <sub>3</sub>	4.44
CaO	1.31
Fe <sub>2</sub> O <sub>3</sub>	12.2
Li <sub>2</sub> O	5.27
MgO	1.16
MnO	1.47
Na <sub>2</sub> O	11.3
SiO <sub>2</sub>	49.3
U <sub>3</sub> O <sub>8</sub>	3.36

**PCT Results for Pour Stream Glass Sample S01913**

Element	Measured (g/L, Std. Dev., %RSD)	Measured EA (g/L., Std. Dev.)	Published EA (g/L., Std. Dev.)
B	1.18, 0.03, 2.4	10.5, 1.2	16.7, 1.2
Na	1.11, 0.03, 2.3	8.5, 0.9	13.3, 0.9
Li	1.10, 0.03, 2.4	7.0, 0.7	9.6, 0.7

**Reportable Radionuclide Content Measured  
For Pour Stream Glass Sample S01913**

Radionuclides	Ci/Kg Glass
Sr-90	1.47E+00
Zr-93	1.51E-04
Tc-99	4.63E-05
Cs-137	8.64E-02
Sm-151	6.95E-02
U-233	5.12E-06
U-234	1.64E-05
U-235	2.96E-07
U-236	4.53E-07
Np-237	5.74E-06
U-238	9.65E-06
Pu-238	1.24E-02
Pu-239	4.02E-03
Pu-240	1.27E-03
Pu-241	8.48E-03
Am-241	1.03E-02
Pu-242	3.01E-06
Am-243	1.92E-04

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