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**Comprehensive Data Base of
High-Level Nuclear Waste
Glasses - September 1987
Status Report**

**Volume 1 - Discussion and Glass
Durability Data**

**C. H. Kindle
M. R. Kreiter**

December 1987

**Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830**

**Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute**

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PACIFIC NORTHWEST LABORATORY
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COMPREHENSIVE DATA BASE OF HIGH-LEVEL NUCLEAR
WASTE GLASSES--SEPTEMBER 1987 STATUS REPORT
VOLUME 1 - DISCUSSION AND GLASS DURABILITY DATA

C. H. Kindle
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Pacific Northwest Laboratory
Richland, Washington 99352

SUMMARY

The Materials Characterization Center (MCC) at Pacific Northwest Laboratory is assembling a comprehensive data base (CDB) of experimental data collected for high-level nuclear waste package components. Data collected throughout the world are included in the data base; current emphasis is on waste glasses and their properties. The goal of the CDB Task is to provide a data base of properties and compositions and an analysis of dominant property trends as a function of composition. This data base is expected to be a resource that nuclear waste producers, disposers, and regulators could use to compare properties of a particular high-level nuclear waste glass product with the properties of other glasses of similar compositions. Researchers may use the data base to guide experimental tests to fill gaps in the available knowledge or to refine empirical models. The data are incorporated into a computerized data base that will allow the data to be extracted based on, for example, glass composition or test duration.

Deliverables provided by the MCC to its clients under this CDB Task have included 1) an outline describing the contents of the CDB, 2) a letter report dealing with the fit of the Free Energy of Hydration Glass Durability Model to the Data Base (June 1986), and 3) a topical report on the comparative fit of four models to the Glass Durability Data Base. This Status Report, in two volumes, is the first to be written to encompass the full scope of the CDB. Potential users should reflect on the CDB structure and current content and provide recommendations to the MCC to enhance the utility of the CDB.

ACKNOWLEDGMENTS

Several staff members at Pacific Northwest Laboratory have worked on this task: R. W. Geldart, K. M. Olson, R. L. Bickford, B. R. Day, D. B. Mackey, F. O. McBarron, P. H. Swift, K. M. Krupka, along with temporary appointee R. A. Hagan. J. E. Mendel and J. L. Daniel provided valuable discussions and counseling, especially in the early stages. D. K. Hilliard provided editorial assistance. S. O. Bates provided data for inclusion in the data base. C. M. Jantzen of Savannah River Laboratory provided data as well as an in-depth review of Appendix C, which was most helpful.

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(a) Contained in Volume II.

1.0 INTRODUCTION

The accumulation of nuclear waste testing data into one accessible location will make the data more available for users in confirming the behavior of glasses in various environments. This is why the Comprehensive Data Base (CDB) is being assembled by the Materials Characterization Center at Pacific Northwest Laboratory.^(a) The CDB is presently organized to address 1) waste glasses and their natural analogs and 2) waste canister materials.

The overwhelming interest in waste material data to date has been in the nuclear waste glass area. A large amount of work has been conducted in this field, dating from the 1960s. The primary factors affecting glass durability appear to be 1) the glass composition, 2) the pH of the leachant, and 3) the temperature. Additional factors that may affect the durability include characteristics of the incorporated waste and test specifics (such as the surface area-to-volume ratio, radiation, the leachant composition, and flow rate). The CDB is arranged so that these parameters and others are (or will be in the case of flow rate) incorporated into the data base. Using these data, dominant trends in durability or processing properties could be confirmed as a function of composition for the glass composition range of the inventory in a repository or a plant.

Having a broad data base to identify such trends, or lack of trends, would be useful for confirming acceptable performance. The CDB will provide this capability by incorporating the data into a computerized data base that will allow data to be extracted based on, for example, glass composition, test type, or property desired (e.g., leaching or viscosity). Sorting in this manner will assist in identifying dominant trends, establishing the availability of data for compositions near a target composition, and extracting data for desired compositions. At this time, the CDB is emphasizing the collection of data for borosilicate waste glasses and canister corrosion data.

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Once the collection and compilation is completed, the data within the data base will be analyzed to identify dominant trends as a function of composition. Those glass components that have significant effects will be identified, and an assessment of the effects will be made.

This Status Report describes the CDB as of September 1987. Neither the text nor the data presented in this status report are in their final form. The report is organized according to the outline of the CDB to illustrate its scope and provide the context for the portions that are already in existence. The CDB is organized as follows:

- 1.0 INTRODUCTION
- 2.0 SCOPE
- 3.0 GLASS WASTE FORM PROPERTIES
 - 3.1 LEACHING AND DISSOLUTION PERFORMANCE
 - 3.2 THERMAL AND PROCESSING PROPERTIES
 - 3.3 THERMAL STABILITY UNDER PROJECTED TEMPERATURES
 - 3.4 REACTIVITY AND CHEMICAL COMPATIBILITY WITH THE CANISTER AND FILLER
 - 3.5 BULK PHYSICAL PROPERTIES
- 4.0 MODEL AVAILABILITY FOR WASTE SYSTEM
- 5.0 CANISTER MATERIAL CORROSION
- 6.0 CONVERSION CONSTANTS, SYMBOLS, ETC.

This report is presented in two volumes. Volume I contains the main text and Appendix A, a printout of the glass durability data collected to date. Volume II contains Appendices B, C, and D. Appendix B is a printout of the current data base on glass thermal and processing properties. A report on the application of four durability models to the data base is presented in Appendix C, and accumulated data on canister corrosion are presented in Appendix D.

2.0 SCOPE

This section presents an overview of the materials that have properties included in the data base at this stage. Data have been collected in four sections of the CDB. These sections are described below:

- Glass Leaching and Durability. As of September 1987, the computerized spreadsheet lists 343 glasses for which durability data are included for a variety of leachants (deionized water to brine to buffered solutions), test durations out to two years, and temperatures between 25°C and 150°C.
- Glass Thermal and Processing Properties. This section contains data from 606 glasses. Of these, 325 have data on the viscosity at the pour point; 242 have viscosity data at the annealing temperature; 229 have data on electrical conductivity; and 22 have data on thermal expansion. Of these 606 glasses, 341 are borosilicate glasses.
- Model Availability. Four models were used to assess their ability to predict glass durability behavior. The assessment was based on experimental data collected at an early stage of the data base development. These glass durability models include
 - a hydration energy durability model first formulated by A. Paul
 - a pH-adjusted hydration energy model formulated by C. M. Janzten and J. Plodinec
 - a nonbridging oxygen glass structural relationship that is empirically fitted to the data
 - a valence-oxygen model that is an empirical fit derived during the initial evaluation of the data base.

The calculational approach used for the first two models listed differs in detail from that used by the originators.

- Canister Material Corrosion. Data have been collected on iron, steels, and steels with chromium and molybdenum, in both low- and high-salinity waters with variation in the oxygen and radiation fields. Work on this section has stopped.

3.0 GLASS WASTE FORM PROPERTIES

Data have been collected in two of the five sections under glass waste form properties: 1) Leaching and Dissolution Performance and 2) Thermal and Processing Properties. The status of work related to these sections is reported here.

3.1 LEACHING AND DISSOLUTION PERFORMANCE

- Section Status: Active
- Measure of Data Entries: 1314 lines with up to 76 descriptors per line
- Computerization Status: Lotus 1-2-3® Spreadsheet
- Graph of Composition Scope Included: Yes, as Figure 1
- Data Tabulation Included: Yes, in Appendix A
- Discussion: This data file is currently oriented toward static glass durability test results correlated to composition and test conditions for borosilicate waste glasses and natural glass analogs. It is organized as a spreadsheet for personal computers if they have a large 1.2 Mbyte Lotus 1-2-3 type WK1 file. Current data are from static leaching tests; results of flowing tests are expected to be included during the next year. The spreadsheet file, NOQUOTE, is organized into five basic areas: 1) an index, 2) glass composition in detail, 3) test conditions, 4) test results, and 5) other comments. A copy of the format (template) for the spreadsheet follows as Figure 2. The personal computer organization is convenient for formulating the spreadsheet; however, it may have to be up-loaded to a larger computer or divided into subsets for final use. The data file is not yet finished. Some data have yet to be included, and a small portion is duplicated because it was published in two different references. Some of the entered data are in the proofing stage. For

• ® Lotus is a trademark of Lotus Development Corporation, Cambridge, MA.

FIGURE 1. Ternary Plot of Glass Compositions in Durability Data Base; Shown in Weight Percent

MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2
\\--INDEX	\\--	\\--	GLASS COMPOSITION	WEIGHT	PERCENT			GLASS COMPOSITION	WEIGHT	PERCENT			GLASS COMPOSITION	WEIGHT	PERCENT		
Reference	Glass	Al2O3	B2O3	BaO	CaO	Cr2O3	Cs2O	CuO	Fe2O3	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O
Code	Type																
BATES-86	SRL 165	4.08	6.76	0.06	1.62		0.07		11.35			4.18	0.70	2.27		10.85	0.85
BIBLER-86	Radioactive SRP	9.80	8.40		0.24				6.00			4.90	1.00	1.90		11.00	0.90
DANIEL-86	ARM-1	5.39	11.30	0.66	2.23	1.51	1.16					5.08			1.67	9.67	5.96
JANTZEN-86.	PYREX 7740	2.00	13.00													4.00	0.63
PEGG-86	MVM48	8.60	9.60						16.10								0.60
KONNECKE-85.	UK209	5.22	10.88	0.37	0.00	0.36	0.50		11.71		0.00	4.09	3.69			8.25	1.72
REES-85	Battelle 80-207	3.65	9.74	0.14	10.44			2.17	10.12		1.97	1.89	3.18			7.27	0.33
STRACHAN-85.	SRL 131	3.05	9.84	0.01	1.04	0.24	0.19	0.02	14.28		0.12	0.33	3.89	1.24	4.17		2.00
LEVINS-84	PNL7668		9.10	0.50	2.50											14.80	0.10
RANKIN-83	SRP (DS/131,25X	2.40	11.00		0.90				11.70			0.40	4.30	1.50	3.40		1.54
																12.80	1.40
																14.10	

NOQUOTE	Sept. 87	Status	Report	MCC		GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	
COMPOSITION	WEIGHT	PERCENT	GLASS		COMPOSITION	WEIGHT	PERCENT	LEACH TEST		LEACH TEST		LEACH TEST		LEACH TEST		LEACH TEST		LEACH TEST		LEACH TEST	
RuO2	SiO2	SrO	TeO2	TiO2	UO2	ZnO	CoO2	General Rare Earth Oxides	General Fission Product Oxides	Listed Other	TOTAL	Radioactive Glass (Y/N)	Test Type	Comment	SA/V (1/M)	Leachant Water Type	Biologic Media	Canister Material	REDOX (EN)	Temperature Degrees C	
	52.86	0.11		0.14		0.04	0.66		0.03	0.96	97.59	Y	MCC-1	two runs, gamma	30	EJ 13	Tuff			90	
	55.40										99.54	Y	STATIC	HOT SRP Glass w	100	J-13/Tuff		316SS Test Vessel		90	
	46.50	0.45		3.21		1.46	1.80				98.90	N	MCC-3	Tests: 4g -40+80 pdr/40mL	10	Silicate				90	
	81.00										100.00		MCC-1		10	DIW				90	
	41.00										75.90	N	MCC-3.1	modified MCC-3?	2680	DIW				90	
	53.02	0.31					1.28				103.73	N	MCC-1	European Round	10	DIW				90	
	39.81	0.07		4.75		0.29	1.09				98.62	Y	MCC-1		10	Basalt				90	
	38.60	0.14		0.75	1.62		0.31				97.02	N	MCC-1	triplicate; fill	10	Brine				90	
	38.30	0.50		3.00			1.90	19.90			89.70	N	SEMI-STAT	Rare Earths mix	22	ACID MIX		Teflon-lined autoc		150	
	44.50			0.80			0.40			3.50	100.30	N	MCC-1	Zeolite=2.5, Coal=0.6, Na29		BUFFER				90	

GLASS DURABILITY SPREAD SHEET VERSION 2				NOQUOTE Sept. 87 Status Report				MCC GLASS DURABILITY SPREAD SHEET VERSION 2								MCC GLASS DURABILITY SPREAD SHEET VERSION 2								
TEST				PRETEST LEACHANT COMPOSITION				FINAL LEACHATE COMPOSITION				NORMALIZED LEACH VALUES				VERSION 2								
Ph (Start)	Leachant/ate Pretreatment	SiO2 (ppm)	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)	Na (g/m2)	Li (g/m2)	K (g/m2)
		73.6	46.5					56	6.72												1.90	1.45	2.35	2.30
7.40	Dose rate to	57.8	42.0					91	7.40															
8.39	Filter: 18A	56.7	50.0					182	10.00	38.30	14.5	23.10	15.80		1.11	0.022		4.10						
								28	3.70															
								7	10.19	44.70	15.8	46.40		8.80					Al 9.80		0.73			
								28	9.40															
								180													12.60			
								364	7.20										F 55.00, Ca 7.2		3.51		18.30	
2m	filter	120.0	280.0			0.1	55.0	364	7.20												2.00	14.00		
1.50	Fresh leachant added after day 1							4	2.60												93.00		112.80	
7.00	Buffer - HCl & tris(hydroxymethyl) aminomethane							14	6.99												3.08	13.58	16.38	

MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Comments
Ca	Sr	U	Mo	Other	
(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	
2.70	0.40	1.66			Argonne Nat'l Lab. Al, Ca SRL; Normalized Mass Loss PNL; Blank & Volume-Corr Savannah River; Duplicat Catholic Univ.; partial European round robin
					USGS; Pretest leachant (
					Pacific Northwest Labora
102.60	95.40				Total mass 170. Australia, Lucas Heights
9.80	18.76				Fe=0.14, Mg=16.5 SRL Laboratory, Waste loc

administrative control in assembling the spreadsheet, the state of the entries (such as who entered the data and whether it has been proofed) is contained in a separate location and is not included here. This notice, the file name itself, and statements on the print-out, all clearly label "NOQUOTE" as an unofficial and intermediate data file.

3.2 THERMAL AND PROCESSING PROPERTIES

- Section Status: Active
- Measure of Data Entries: 606 glasses (341 borosilicate)
- Computerization Status: RS/1
- Graph of Composition Scope Included: Yes, in Figure 3
- Data Tabulation Included: Yes, in Appendix B
- Discussion: The emphasis has been on the properties believed most important to glass producers--viscosity and electrical conductivity. Measured viscosities are listed for 495 glasses at either the pouring temperature ($<1000^{\circ}\text{C}$) or the annealing temperature ($>1000^{\circ}\text{C}$) or both. Electrical conductivities are listed for 229 glass compositions. Thermal expansion data are included for 22 glass compositions to date.

FIGURE 3. Ternary Plot of Glass Compositions in Thermal and Processing Properties Data Base; Shown in Mole Percent

4.0 MODEL AVAILABILITY

- Title: Model Availability
- Section Status: Active
- Subject and Quantity: Four glass durability models--hydration energy, pH-adjusted hydration energy, nonbridging oxygen relationship, empirical valence-oxygen--were evaluated using the earliest computerized version of the data base.
- Computerization Status: RS/1
- Data Tabulation Included: The data that were used for the evaluation are a portion of the now expanded (and expanding) data file. This complete file is in Appendix A; see discussion in Section 3.1 Leaching and Dissolution Performance.
- Discussion: Appendix C in Volume II is a model evaluation that shows the usefulness of an independent data base in comparing models and their fit to data beyond that available to the originator. The four models evaluated all fit limited data subsets better than they fit the expanded data base (which has been expanded further since the comparison was performed) for reasons that are not yet established. Appendix C will be published separately as a topical report.

5.0 CANISTER MATERIAL CORROSION

- Section Status: Active, but "on-hold"
- Measure of Data Entries: 135 Lines
- Computerization Status: Not Computerized
- Graph of Composition Scope Included: No
- Data Tabulation Included: Yes, in Appendix D
- Computer File on Disk Included: Not applicable
- Discussion: This section compiles results from corrosion tests on ferrous materials in both brines and low-salinity waters. Work on this portion has stopped. The data presented in this section represent the status at the time the work was suspended.

6.0 CONVERSION CONSTANTS AND SYMBOLS

- Section Status: Inactive; this descriptive section will be written after the actual data accumulation.
- Discussion: When the CDB is completed, this section will include a listing and description of conversions and symbols that are used in the CDB itself or are likely to be required by a user to convert to other common units.

APPENDIX A

PRINTOUT OF GLASS DURABILITY DATA

APPENDIX A

PRINTOUT OF GLASS DURABILITY DATA

Appendix A is a 252-page-long print-out of computer spreadsheet file NOQUOTE, which is not intended for reference at this time. It is intended to convey the status of the database as of September 1987. The spreadsheet is 76 columns wide by 1314 rows long (9 pages wide by 28 pages long). Each page is numbered in the lower left as A-B, where A is the page number (1 to 28) as it traverses vertically the rows of the spreadsheet, and B is the page number (1 to 9) as it traverses horizontally the columns of the spreadsheet. The pages are numbered using this sequence:

- Page 1-1 is the upper left corner of the spreadsheet; page 1-2 is immediately to the right of page 1-1; and page 1-9 is the upper right corner.
- Page 2-1 is immediately below page 1.1.
- Page 28-1 is the lower left corner, and page 28-9 is the lower right hand corner.

Each cell in the spreadsheet can contain up to 240 characters. In this version, the cell contents are printed short to keep the size manageable; this will be most noticeable in one of the two "comment" columns.

The following template, with ten examples, illustrates the column headings and how data are presented.

INDEX		GLASS COMPOSITION WEIGHT PERCENT								
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CaO2	Cr2O3	Cs2O	CuO	Fe2O3

File:	Information-only spreadsheet; NOT a reference data base						
"NOQUOTE"	Some entries are being proofed - intermediate stage.						
STONE-82	CompositeSRL131	2.70	10.60		1.00		13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	Hi Aluminum/131	14.70	10.70		0.30	0.21	4.30
STONE-82	Hi Iron /SRL131	0.40	10.70		1.10	0.21	16.00
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	Hi Aluminum/131	14.70	10.70		0.30	0.21	4.30
STONE-82	Hi Iron /SRL131	0.40	10.70		1.10	0.21	16.00
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	Hi Aluminum/131	14.70	10.70		0.30	0.21	4.30
STONE-82	Hi Aluminum/131	14.70	10.70		0.30	0.21	4.30
STONE-82	Hi Iron /SRL131	0.40	10.70		1.10	0.21	16.00
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	Hi Aluminum/131	14.70	10.70		0.30	0.21	4.30
STONE-82	Hi Iron /SRL131	0.40	10.70		1.10	0.21	16.00
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
STONE-82	CompositeSRL131	2.70	10.60		1.00	0.21	13.80
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211**	3.40	7.73	0.11	4.76	0.86	11.44
BATES-82	SRL 211***	3.59	7.73	0.33	5.04	0.86	14.15

GLASS	PERCENT			GLASS	COMPOSITION	WEIGHT	PERCENT			
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	VO2

File:

"NOQUOTE"

CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
Hi Aluminum/131	0.60					42.70	0.14		0.70	
Hi Iron /SRL131	2.70					42.10	0.14		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
Hi Aluminum/131	0.60					42.70	0.14		0.70	
Hi Iron /SRL131	2.70					42.10	0.14		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
Hi Aluminum/131	0.60					42.70	0.14		0.70	
Hi Aluminum/131	0.60					42.70	0.14		0.70	
Hi Iron /SRL131	2.70					42.10	0.14		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
Hi Aluminum/131	0.60					42.70	0.14		0.70	
Hi Iron /SRL131	2.70					42.10	0.14		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
CompositeSRL131	1.70					42.10	0.15		0.70	
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211**	1.65				0.07	41.72	0.04			
SRL 211***	1.65				0.53	41.93	0.25			

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

//	GLASS	COMPOSITION	WEIGHT	PERCENT	//			
Glass	ZnO	ZrO2	General Rare	General Fission	Listed	Other	TOTAL	Radioactive
Type			Earth Oxides	Product Oxides				Glass (Y/N)
=====								
=====								
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
Hi Aluminum/131		0.40			1.39	100.13	N	MCC-1
Hi Iron /SRL131		0.40			4.08	100.11	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
Hi Aluminum/131		0.40			1.39	100.13	N	MCC-1
Hi Iron /SRL131		0.40			4.08	100.11	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
Hi Aluminum/131		0.40			1.39	100.13	N	MCC-1
Hi Aluminum/131		0.40			1.39	100.13	N	MCC-1
Hi Iron /SRL131		0.40			4.08	100.11	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-1
Hi Aluminum/131		0.40			1.39	100.13	N	MCC-1
Hi Iron /SRL131		0.40			4.08	100.11	N	MCC-1
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
CompositeSRL131		0.40			1.69	99.94	N	MCC-2
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	N	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.01	93.66	Y	MCC-1
SRL 211**					0.0			

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment ---	(1/M)	Water Type	Media	Material	(Eh)	Degrees C (Start)	Pretreatment (ppm)

File:
"NOQUOTE"

CompositeSRL131Composite Sludg	10	DIW	40	
CompositeSRL131Composite Sludg	10	DIW	40	
Hi Aluminum/131High Aluminum.	10	DIW	40	
Hi Iron /SRL131High Iron.	10	DIW	40	
CompositeSRL131Composite Sludg	10	SILICATE WATER	40	
CompositeSRL131Composite Sludg	10	BRINE	40	
CompositeSRL131Composite Sludg	10	DIW	90	
CompositeSRL131Composite Sludg	10	DIW	90	
CompositeSRL131Composite Sludg	10	DIW	90	
Hi Aluminum/131High Aluminum.	10	DIW	90	
Hi Iron /SRL131High Iron.	10	DIW	90	
CompositeSRL131Composite Sludg	10	SILICATE WATER	90	
CompositeSRL131Composite Sludg	10	SILICATE WATER	90	
CompositeSRL131Composite Sludg	10	SILICATE WATER	90	
Hi Aluminum/131High Aluminum.	10	SILICATE WATER	90	
Hi Aluminum/131High Aluminum.	10	SILICATE WATER	90	
Hi Iron /SRL131High Iron.	10	SILICATE WATER	90	
CompositeSRL131Composite Sludg	10	BRINE	90	
CompositeSRL131Composite Sludg	10	BRINE	90	
CompositeSRL131Composite Sludg	10	BRINE	90	
Hi Aluminum/131High Aluminum.	10	BRINE	90	
Hi Iron /SRL131High Iron.	10	BRINE	90	
CompositeSRL131Composite Sludg	10	DIW	150	
CompositeSRL131Composite Sludg	10	DIW	150	
CompositeSRL131Composite Sludg	10	SILICATE WATER	150	
CompositeSRL131Composite Sludg	10	SILICATE WATER	150	
CompositeSRL131Composite Sludg	10	BRINE	150	
CompositeSRL131Composite Sludg	10	BRINE	150	
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.40
SRL 211** Other: Eu203; p	10	DIW	90	6.30
SRL 211** Other: Eu203; p	9	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211** Other: Eu203; p	10	DIW	90	6.00
SRL 211*** Other: Eu203; p	9	DIW	90	6.30

GLASS SHEET VERSION 2 NOQUOTE Sept. 87 Status Report MOD GLASS

 -----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS----->-----
 Glass Na Cl SO4 Mg F Duration pH Si B Na
 Type (ppm) (ppm) (ppm) (ppm) (ppm) (Days) (End) (ppm) (ppm) (ppm)
 =====

File:
 "NOQUOTE"

CompositeSRL131	28	
CompositeSRL131	28	
Hi Aluminum/131	28	
Hi Iron /SRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
Hi Aluminum/131	28	
Hi Iron /SRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
Hi Aluminum/131	28	
Hi Aluminum/131	28	
Hi Iron /SRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
Hi Aluminum/131	28	
Hi Iron /SRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
CompositeSRL131	28	
SRL 211**	3	9.15
SRL 211**	5	9.70
SRL 211**	7	9.70
SRL 211**	14	9.67
SRL 211**	28	9.60
SRL 211**	42	9.50
SRL 211**	28	9.70
SRL 211**	3	9.50
SRL 211**	7	9.50
SRL 211**	14	9.40
SRL 211**	28	9.40
SRL 211**	42	9.53
SRL 211**	3	9.50
SRL 211**	7	9.70
SRL 211**	14	9.40
SRL 211**	28	9.30
SRL 211**	42	9.63
SRL 211***	3	9.70

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY		SPREAD

-----//-----FINAL LEADERSHIP COMPOSITION-----/-----\-----NORMALIZED											
Glass	Li	K	Ca	Sr	U	Mo	Other	Si	B		
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)		
=====											

File:
"NOQUOTE"

* CompositeSRL131										
CompositeSRL131										
Hi Aluminum/131										
* Hi Iron /SRL131										
CompositeSRL131										
CompositeSRL131										
CompositeSRL131										
CompositeSRL131								46.48		
CompositeSRL131								26.89		
Hi Aluminum/131										
Hi Iron /SRL131										
CompositeSRL131										
CompositeSRL131								21.56		
CompositeSRL131								15.58		
Hi Aluminum/131										
Hi Aluminum/131										
Hi Iron /SRL131										
CompositeSRL131										
CompositeSRL131								2.32		
CompositeSRL131								8.96		
Hi Aluminum/131										
Hi Iron /SRL131										
CompositeSRL131								125.44		
CompositeSRL131								119.84		
CompositeSRL131								89.04		
CompositeSRL131								82.88		
CompositeSRL131								18.20		
CompositeSRL131								39.48		
SRL 211**								10.30	10.70	
SRL 211**								9.50	11.90	
SRL 211**								10.20	14.20	
SRL 211**								10.80	16.00	
SRL 211**								11.40	17.90	
SRL 211**								13.00	19.00	
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**								15.40		
SRL 211**										
SRL 211**										
SRL 211**										
SRL 211**								14.90		
SRL 211***								8.50	11.40	

GLASS	SHEET	VERSION 2	ADC	GLASS	DURABILITY	SPREAD SHEET		
*****			*****					
-----//	LEACH	VALUES	-----			NORMALIZED LEACH VALUES		
Glass	Na	Li	K	Ca	Sr	U	Pb	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

CompositeSRL131	1.09			1.54		0.31		Ca 0.023, Al 3.
CompositeSRL131	1.96			3.92	0.03	0.50		Ca 10.08
Hi Aluminum/131	0.34			0.17		0.03		Al 0.375, Fe 0.
Hi Iron /SRL131	15.12			14.03		0.48		Ca 0.616, Fe 0.
CompositeSRL131				2.24	0.03	1.01		
CompositeSRL131				1.12	0.03	19.88		
CompositeSRL131	45.92			43.12		1.54		Ca 0.112, Al 7.
CompositeSRL131	107.24			34.44	0.18			Ca 1.540, Al 6.
CompositeSRL131	37.52			16.24	0.03	3.64		Ca 10.08
Hi Aluminum/131	15.12			15.12		1.12		Ca 15.68, Al 9.
Hi Iron /SRL131	163.52			90.72		2.35		Ca 1.149, Al 27
CompositeSRL131	30.52			21.28		6.61		Ca 0.084, Al 6.
CompositeSRL131	57.12			26.32	0.18	5.94		Ca 1.400, Al 5.
CompositeSRL131	36.96			15.72	0.03	12.32		Ca 10.08
Hi Aluminum/131	11.20			7.56		7.67		Ca 0.560, Al 13
Hi Aluminum/131								Al 5.964
Hi Iron /SRL131	120.96			30.24		4.73		Ca 0.756, Fe 0.
CompositeSRL131				12.32		0.53		Ca 0.812, Fe 0.
CompositeSRL131				36.40	9.24	0.31		Ca 75.60, Mn 5.
CompositeSRL131				9.80	0.03	19.88		Ca 10.08
Hi Aluminum/131				3.64		0.31		Ca 7.08, Fe 0.
Hi Iron /SRL131				29.40		0.17		Ca 4.312, Fe 4.
CompositeSRL131	201.04			91.84	0.28	30.52		Al 31.64, Fe 0.
CompositeSRL131	229.32			36.40	0.06	6.72		
CompositeSRL131	136.64			90.08	0.17	30.80		Al 30.52, Fe 0.
CompositeSRL131	133.56			47.88	0.17	10.64		
CompositeSRL131				53.20	0.17	7.84		Al 47.60, Mn 41
CompositeSRL131				74.20	73.08	19.88		
SRL 211**	11.10	11.20		11.40				Mn 0.20, Ca 7.0
SRL 211**	12.80	13.10		11.50				Mn 0.20, Ca 7.5
SRL 211**	15.30	15.70		13.70				Mn 0.20, Ca 7.3
SRL 211**	17.10	17.60		16.10				Mn 0.20, Ca 7.8
SRL 211**	19.10	21.00		17.60				Mn 0.30, Ca 7.5
SRL 211**	21.50	22.30		19.00				Mn 0.20, Ca 7.4
SRL 211**				20.10				134Cs 20.10
SRL 211**				14.30				133Ba 0.90 and
SRL 211**				18.10				133Ba 0.50 and
SRL 211**				21.70				133Ba 0.50, 137
SRL 211**				22.10				133Ba 0.30 and
SRL 211**				24.22				133Ba 0.30, 137
SRL 211**				24.60				124Sb 7.30, 133
SRL 211**				34.70				SiCr 4.40, 124S
SRL 211**				40.80				SiCr 3.90, 124S
SRL 211**				45.20				SiCr 3.50, 124S
SRL 211**				45.60				SiCr 7.00, 124S
SRL 211***	11.40	12.80						Mn 0.30, Ca 7.6

-----//

Glass (---- Comments -----)

Type

- * CompositeSRL131Results obtained from SRL Comparative Leach Test Program on Borosilicate Glass
- CompositeSRL131Results obtained from Plodinec, M.J., G.G. Wicks and N.E. Bibler; "An Assessment of Savannah River
- Aluminum/131Results obtained from SRL Comparative Leach Test Program on Borosilicate Glass
- * HI Iron /SRL131Results obtained from SRL Comparative Leach Test Program on Borosilicate Glass
- CompositeSRL131Results obtained from Plodinec, M.J., G.G. Wicks and N.E. Bibler; "An Assessment of Savannah River
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- CompositeSRL131Results obtained from SRL Comparative Leach Test Program on Borosilicate Glass
- CompositeSRL131Results obtained from Strachan, D.M. and J.W. Shade; "Leachability and Thermal Stability of Defen
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- CompositeSRL131Results obtained from Plodinec, M.J., G.G. Wicks and N.E. Bibler; "An Assessment of Savannah River
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Activated leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked/Activated leach tests using most of MCC-1 testing criteria
- * SRL 211** Results are for Spiked/Activated leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked/Activated leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Spiked/Activated leach tests using most of MCC-1 testing criteria
- * SRL 211** Results are for Spiked/Activated leach tests using most of MCC-1 testing criteria
- SRL 211** Results are for Cold leach tests using most of MCC-1 testing criteria

[illegible]

GLASS DURABILITY SPREAD SHEET VERSION 2						MCC GLASS DURABILITY				

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT---										
Glass	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
Type										
=====										
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.30		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.30		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 211***		0.06		3.01		3.80		14.96	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
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SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
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SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
SRL 131*			0.35	3.88	1.49	3.48		13.08	0.93	1.65
S										

// PERCENT-----				GLASS	COMPOSITION	WEIGHT	PERCENT-----				
Glass	NaO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2	
Type											
SRL 211***	1.65				0.53	41.93	0.25				
* SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
* SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 211***	1.65				0.53	41.93	0.25				
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
SRL 131*	1.65				0.53	41.50	0.25			0.67	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	
PNL7668						38.30	0.50			3.00	

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \								
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
SRL 211***					0.12	98.94	N	MCC-1
SRL 211***					0.12	98.94	N	MCC-1
SRL 211***					0.12	98.94	N	MCC-1
SRL 211***					0.12	98.94	N	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 211***					0.12	98.94	Y	MCC-1
SRL 131*		0.41			0.12	97.88	N	MCC-1
SRL 131*		0.41			0.12	97.88	N	MCC-1
SRL 131*		0.41			0.12	97.88	N	MCC-1
SRL 131*		0.41			0.12	97.88	N	MCC-1
SRL 131*		0.41			0.12	97.88	N	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
SRL 131*		0.41			0.12	97.88	Y	MCC-1
PNL7668		1.90	19.90			89.70	N	MCC-1
PNL7668		1.90	19.90			89.70	N	MCC-1
PNL7668		1.90	19.90			89.70	N	MCC-1
PNL7668		1.90	19.90			89.70	N	MCC-1
PNL7668		1.90	19.90			89.70	N	MCC-1
PNL7668		1.90	19.90			89.70	N	STATIC
PNL7668		1.90	19.90			89.70	N	STATIC
PNL7668		1.90	19.90			89.70	N	SEMI-STAT
PNL7668		1.90	19.90			89.70	N	SEMI-STAT

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
//-----LEACH TEST-----					-----LEACH TEST-----				
Glass		SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(1/M)	Water Type	Media Material	(Eh)	Degrees C	(Start)	Pretreatment	(ppm)
=====									
SRL 211***	Other: Eu2O3; p	10	DIW			90	6.30		
SRL 211***	Other: Eu2O3; p	10	DIW			90	6.30		
SRL 211***	Other: Eu2O3; p	9	DIW			90	6.30		
SRL 211***	Other: Eu2O3; p	9	DIW			90	6.30		
SRL 211***	Other: Eu2O3; p	9	DIW			90	5.60		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.60		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.60		
SRL 211***	Other: Eu2O3; p	9	DIW			90	5.60		
SRL 211***	Other: Eu2O3; p	9	DIW			90	5.60		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.90		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.90		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.90		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.90		
SRL 211***	Other: Eu2O3; p	10	DIW			90	5.90		
SRL 131*	Other: Eu2O3; p	10	DIW			90	6.30		
SRL 131*	Other: Eu2O3; p	9	DIW			90	6.10		
SRL 131*	Other: Eu2O3; p	9	DIW			90	6.00		
SRL 131*	Other: Eu2O3; p	9	DIW			90	6.00		
SRL 131*	Other: Eu2O3; p	9	DIW			90	6.00		
SRL 131*	Other: Eu2O3; p	11	DIW			90	6.20		
SRL 131*	Other: Eu2O3; p	10	DIW			90	6.20		
SRL 131*	Other: Eu2O3; p	10	DIW			90	6.20		
SRL 131*	Other: Eu2O3; p	11	DIW			90	6.20		
SRL 131*	Other: Eu2O3; p	11	DIW			90	5.80		
SRL 131*	Other: Eu2O3; p	10	DIW			90	5.80		
SRL 131*	Other: Eu2O3; p	11	DIW			90	5.80		
SRL 131*	Other: Eu2O3; p	11	DIW			90	5.80		
SRL 131*	Other: Eu2O3; p	11	DIW			90	5.80		
PNL7668	Rare Earths also includes		BUFFER			90	1.80		
PNL7668	Rare Earths also includes		BUFFER			90	4.20		
PNL7668	Rare Earths also includes		BUFFER			90	7.00		
PNL7668	Rare Earths also includes		BUFFER			90	9.00		
PNL7668	Rare Earths also includes		DIW			90			
PNL7668	Rare Earths als	22.0	ACID MIX	Teflon-lined autoc		150	1.50		
PNL7668	Rare Earths als	22.0	ACID MIX	Teflon-lined autoc		150	1.50		
PNL7668	Rare Earths als	22.0	ACID MIX	Teflon-lined autoc		150	1.50	Fresh leachant added	
PNL7668	Rare Earths als	22.0	ACID MIX	Teflon-lined autoc		150	1.50	Fresh leachant added	

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS-->-----										
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
SRL 211***						7	9.70			
SRL 211***						14	9.70			
SRL 211***						28	9.87			
SRL 211***						42	9.50			
SRL 211***						3	9.40			
SRL 211***						7	9.40			
SRL 211***						14	9.60			
SRL 211***						28	9.60			
SRL 211***						42	7.20			
SRL 211***						3	9.60			
SRL 211***						7	9.30			
SRL 211***						14	9.50			
SRL 211***						28	9.30			
SRL 211***						42	9.50			
SRL 131*						3	9.70			
SRL 131*						7	9.70			
SRL 131*						14	9.70			
SRL 131*						28	9.80			
SRL 131*						37	9.60			
SRL 131*						2	9.40			
SRL 131*						7	9.50			
SRL 131*						14	9.60			
SRL 131*						28	9.75			
SRL 131*						3	9.50			
SRL 131*						7	9.30			
SRL 131*						14	9.40			
SRL 131*						28	9.17			
SRL 131*						42	9.20			
PNL766B						7	1.89			
PNL766B						7	4.35			
PNL766B						7	7.20			
PNL766B						7	9.41			
PNL766B						7	9.40			
PNL766B						1	2.50			
PNL766B						1	2.50			
PNL766B	after day 1					6	2.60			
PNL766B	after day 1					6	2.60			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// ---FINAL LEACHATE COMPOSITION---/ \----- NORMALIZED										
Glass	Li	K	Cs	Sr	U	Mo	Other	Si	B	
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)	
=====										
SRL 211***								10.20	14.10	
SRL 211***								11.20	16.00	
SRL 211***								12.60	18.90	
SRL 211***								14.60	20.80	
SRL 211***										
SRL 211***										
SRL 211***										
SRL 211***								13.60		
SRL 211***										
SRL 211***										
SRL 211***										
SRL 211***								13.30		
SRL 211***										
SRL 131*								8.50	11.80	
SRL 131*								14.20	19.20	
SRL 131*								16.00	23.30	
SRL 131*								19.50	30.50	
SRL 131*								22.30	30.30	
SRL 131*										
SRL 131*										
SRL 131*										
SRL 131*								17.70		
SRL 131*										
SRL 131*										
SRL 131*										
SRL 131*										
SRL 131*								17.30		
PNL766B								67.90	70.0	
PNL766B								6.51	5.88	
PNL766B								3.78	4.76	
PNL766B								12.60	2.8	
PNL766B								13.30	16.80	
PNL766B								74.00		
PNL766B								35.60		
PNL766B								157.00		
PNL766B										

GLASS	SHEET	VERSION 2			MCC	GLASS	DURABILITY	SPREAD SHEET	

//	LEACH	VALUES			NORMALIZED			LEACH	VALUES
Glass	Na	Li	K	Ca	Br	U	Mo	Other	
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====									
SRL 211***	15.00	16.10						Mn 0.30, Ca 7.1	
SRL 211***	16.40	17.60						Mn 0.30, Ca 7.8	
SRL 211***	18.90	21.40						Mn 0.30, Ca 7.8	
SRL 211***	20.80	23.60						Mn 0.30, Ca 8.2	
SRL 211***					1.90			SiCr 1.30, 59Fe	
SRL 211***					1.80			SiCr 1.60, 59Fe	
SRL 211***					1.80			SiCr 2.90, 59Fe	
SRL 211***					1.30			SiCr 6.60, 59Fe	
SRL 211***					0.90			59Fe 0.18, 85Sr	
SRL 211***				13.50				103Ru 0.008, 13	
SRL 211***				17.70				103Ru 0.006, 13	
SRL 211***				16.40				103Ru 0.002, 13	
SRL 211***				20.10				103Ru 0.02, 137	
SRL 211***				22.10				103Ru 0.02, 137	
SRL 131*								Mn 0.20, Ca 3.8	
SRL 131*								Mn 0.30, Ca 1.4	
SRL 131*								Mn 0.30, Ca 0.7	
SRL 131*	28.90	29.50						Mn 0.30, Ca 0.5	
SRL 131*	31.00	32.00						Mn 0.40, Ca 0.5	
SRL 131*					1.60			SiCr 1.50, 59Fe	
SRL 131*				8.20	0.40			SiCr 1.10, 85Sr	
SRL 131*				7.90	0.50			SiCr 3.20, 85Sr	
SRL 131*				22.70				SiCr 3.40, 59Fe	
SRL 131*				9.00	4.00			85Sr 4.00, 133B	
SRL 131*				15.50	1.70			85Sr 1.70, 133B	
SRL 131*				21.60	1.60			85Sr 1.60, 133B	
SRL 131*				20.00	1.30			85Sr 1.30, 133B	
SRL 131*				22.50	1.10			85Sr 1.10, 133B	
PNL766B				61.6	46.90			Ca 30.80	
PNL766B				5.39	4.41			Ca 2.73	
PNL766B				3.99	2.73			Ca 1.75	
PNL766B				13.30	2.10			Ca 1.12	
PNL766B				12.60	2.94			Ca 1.12	
PNL766B				72.90	64.70			Ca> 20; Na> 54	
PNL766B	54.40			43.20	45.00			Total mass 80.5	
PNL766B				163.00	136.80			Ca> 48.6; Na> 11	
PNL766B	112.80			102.60	95.40			Total mass 170.	

```

-----//
Glass  /----- Comments ----->
Type
-----

```

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SRL 211*** Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 211*** Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Cold leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Activated leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Spiked leach tests using most of MCC-1 testing criteria
SRL 131*  Results are for Spiked leach tests using most of MCC-1 testing criteria
PNL766B  Australia, Lucas Heights
PNL766B  Australia, Lucas Heights
PNL766B  Australia, Lucas Heights
PNL766B  Australia, Lucas Heights
PNL766B  Australia, Lucas Heights
PNL766B  Australia, Lucas Heights; data includes sediment from autoclave
PNL766B  Australia, Lucas Heights; data excludes sediment from autoclave
PNL766B  Australia, Lucas Heights; data includes sediment from autoclave
PNL766B  Australia, Lucas Heights; data excludes sediment from autoclave

```


\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----
 Reference Glass Al2O3 B2O3 BaO CaO CeO2 Cr2O3 Ca2O CuO Fe2O3
 Code Type

MCGRAIL-B4	NO. 1	10.00								
MCGRAIL-B4	NO. 1	10.00								
MCGRAIL-B4	NO. 2	10.00			3.00					
MCGRAIL-B4	NO. 2	10.00			3.00					
MCGRAIL-B4	NO. 3	10.00			3.00					
MCGRAIL-B4	NO. 3	10.00			3.00					
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	NO. 5	10.00			3.00					9.00
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	PNL3008	11.20			2.90		0.50			12.10
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 6	10.00			3.00					9.00
MCGRAIL-B4	NO. 7	10.00			3.00					9.00
MCGRAIL-B4	NO. 7	10.00			3.00					9.00
MCGRAIL-B4	NO. 8	10.00			3.00					9.00
MCGRAIL-B4	NO. 8	10.00			3.00					9.00
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
MCGRAIL-B4	PNL7668	8.98			2.20		0.43			9.16
ADIGA-B6	WV205	3.30	10.00							11.80
ADIGA-B6	WVCM5	2.10	7.00							12.90
ADIGA-B6	WVCM28	3.30	14.00							11.80
ADIGA-B6	WVCM30	2.90	10.20							12.40
ADIGA-B6	WVCM32	2.70	14.70							11.10
ADIGA-B6	WVCM34	4.80	9.80							11.10
ADIGA-B6	LIEF	0.70	8.60							16.40

GLASS DURABILITY SPREAD SHEET VERSION 2				MCC GLASS DURABILITY			
*****				*****			
// ---GLASS COMPOSITION WEIGHT PERCENT---				---GLASS COMPOSITION WEIGHT PERCENT---			
Glass Type	Gd2O3	K2O	La2O3 Li2O	MgO	MnO2	MoO3	Na2O Nd2O3 NiO
=====							

NO. 1							14.00
NO. 1							14.00
NO. 2							14.00
NO. 2							14.00
NO. 3							14.00
NO. 3							14.00
NO. 5							14.00
NO. 5							14.00
NO. 5							14.00
NO. 5							14.00
NO. 5							14.00
NO. 5							14.00
PNL3008							15.40 2.40
PNL3008							15.40 2.40
PNL3008							15.40 2.40
PNL3008							15.40 2.40
PNL3008							15.40 2.40
PNL3008							15.40 2.40
NO. 6							14.00
NO. 6							14.00
NO. 6							14.00
NO. 6							14.00
NO. 6							14.00
NO. 6							14.00
NO. 6							14.00
NO. 7							14.00
NO. 7							14.00
NO. 8					2.00		14.00
NO. 8					2.00		14.00
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
PNL7668	4.11			1.85		14.20 1.40 0.19	
WV205						19.70	
WVCM5						20.80	
WVCM28						19.70	
WVCM30						19.90	
WVCM32						20.60	
WVCM34						19.50	
LIEF						22.80	

GLASS DURABILITY SPREAD SHEET VERSION 2 NOQUOTE Sept. 87 Status Report MCC

 -----// PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----
 Glass NiO P2O5 PbO PuO2 RuO2 SiO2 SrO TeO2 TiO2 UO2
 Type
 =====

NO. 1						76.00				
NO. 1						76.00				
NO. 2						73.00				
NO. 2						73.00				
NO. 3						68.00				
NO. 3						68.00				
NO. 5						59.00				
NO. 5						59.00				
NO. 5						59.00				
NO. 5						59.00				
NO. 5						59.00				
NO. 5						59.00				
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
PNL3008	2.40					43.50				4.80
NO. 6						57.00				
NO. 6						57.00				
NO. 6						57.00				
NO. 6						57.00				
NO. 6						57.00				
NO. 6						57.00				
NO. 6						57.00				
NO. 7						54.00				3.00
NO. 7						54.00				3.00
NO. 8						52.00				3.00
NO. 8						52.00				3.00
PNL7668	0.19					42.30				2.96
PNL7668	0.19					42.30				2.96
PNL7668	0.19					42.30				2.96
PNL7668	0.19					42.30				2.96
PNL7668	0.19					42.30				2.96
PNL7668	0.19					42.30				2.96
WV205						45.20				
WVCM5						50.40				
WVCM28						41.30				
WVCM30						45.80				
WVCM32						43.20				
WVCM34						43.00				
LIEF						44.70				

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	
*****								*****	
// ---GLASS		COMPOSITION	WEIGHT	PERCENT				// \\\	
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type	
=====									

NO. 1						100.00	N	MCC-1
NO. 1						100.00	N	MCC-1
NO. 2						100.00	N	MCC-1
NO. 2						100.00	N	MCC-1
NO. 3	5.00					100.00	N	MCC-1
NO. 3	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
NO. 5	5.00					100.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
PNL3008	5.20					98.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 6	5.00	2.00				100.00	N	MCC-1
NO. 7	5.00	2.00				100.00	N	MCC-1
NO. 7	5.00	2.00				100.00	N	MCC-1
NO. 8	5.00	2.00				100.00	N	MCC-1
NO. 8	5.00	2.00				100.00	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
PNL7668	3.27	1.76			6.96	99.77	N	MCC-1
WV205		3.10				93.10	N	MCC-1
WVCM5		2.90				96.10	N	MCC-1
WVCM28		3.10				93.20	N	MCC-1
WVCM30		2.70				93.90	N	MCC-1
WVCM32		3.60				95.90	N	MCC-1
WVCM34		2.20				89.40	N	MCC-1
LIEF		0.50				93.70	N	MCC-1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment --->	(1/M)	Water Type	Media	Material	(Eh)	Degrees C (Start)	Pretreatment (ppm)
=====								

NO. 1		10.0	DIW			90	5.50	
NO. 1		10.0	HCl			90	1.50	
NO. 2		10.0	DIW			90	5.50	
NO. 2		10.0	HCl			90	1.50	
NO. 3		10.0	DIW			90	5.50	
NO. 3		10.0	HCl			90	1.50	
NO. 5		10.0	DIW			90	5.50	
NO. 5		10.0	DIW			90	5.50	
NO. 5		10.0	DIW			90	5.50	
NO. 5		10.0	DIW			90	5.50	
NO. 5		10.0	DIW			90	5.50	
NO. 5		10.0	HCl			90	1.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	DIW			90	5.50	
PNL3008		10.0	HCl			90	1.50	
NO. 6		10.0	DIW			90	5.50	
NO. 6		10.0	DIW			90	5.50	
NO. 6		10.0	DIW			90	5.50	
NO. 6		10.0	DIW			90	5.50	
NO. 6		10.0	DIW			90	5.50	
NO. 6		10.0	HCl			90	1.50	
NO. 7		10.0	DIW			90	5.50	
NO. 7		10.0	HCl			90	1.50	
NO. 8		10.0	DIW			90	5.50	
NO. 8		10.0	HCl			90	1.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	DIW			90	5.50	
PNL7668	Listed other -	10.0	HCl			90	1.50	
WV205	Na2O = K2O + Li	10.0						
WVCM5	Na2O = K2O + Li	10.0						
WVCM28	Na2O = K2O + Li	10.0						
WVCM30	Na2O = K2O + Li	10.0						
WVCM32	Na2O = K2O + Li	10.0						
WVCM34	Na2O = K2O + Li	10.0						
LIEF	Na2O = K2O + Li	10.0						

-----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS-->-----

Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
---------------	-------------	-------------	--------------	-------------	------------	--------------------	-------------	-------------	------------	-------------

NO. 1						28	9.50			7.00
NO. 1						28				3.40
NO. 2						28	9.50			18.20
NO. 2						28				1.30
NO. 3						28	9.50			35.00
NO. 3						28				1.70
NO. 5						1	9.50			6.20
NO. 5						3	9.50			11.60
NO. 5						7	9.50			18.90
NO. 5						14	9.50			28.40
NO. 5						21	9.50			37.30
NO. 5						28	9.50			43.50
NO. 5						28				44.20
PNL3008						1	9.50			13.30
PNL3008						3	9.50			28.80
PNL3008						7	9.50			40.00
PNL3008						14	9.50			55.00
PNL3008						21	9.50			68.00
PNL3008						28	9.50			77.00
PNL3008						28				560.00
NO. 6						1	9.50			3.40
NO. 6						3	9.50			8.30
NO. 6						7	9.50			11.30
NO. 6						14	9.50			19.00
NO. 6						21	9.50			25.70
NO. 6						28	9.50			28.00
NO. 6						28				34.50
NO. 7						28	9.50			29.00
NO. 7						28				28.70
NO. 8						28	9.50			34.50
NO. 8						28				55.50
PNL7668						1	9.50			4.30
PNL7668						3	9.50			11.40
PNL7668						7	9.50			15.30
PNL7668						14	9.50			22.00
PNL7668						21	9.50			28.00
PNL7668						28	9.50			35.00
PNL7668						28				270.00
WV205						28		25.30	4.70	
WVCM5						28		44.50	5.20	
WVCM28						28		43.00	16.80	
WVCM30						28		40.60	6.60	
WVCM32						28		54.20	19.20	
WVCM34						28		34.80	6.70	
LIEF						28		55.90	10.20	

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MOD	GLASS	DURABILITY	SPREAD

-----FINAL LEADHATE COMPOSITION-----							
GLASS	1	2	3	4	5	6	7
1000	1000	1000	1000	1000	1000	1000	1000

NO. 1

NO. 1

NO. 2

NO. 2

NO. 3

NO. 3

NO. 5

NO. 5

NO. 5

NO. 5

NO. 5

NO. 5

NO. 5

PNL3008

PNL3008

PNL3008

PNL3008

PNL3008

PNL3008

PNL3008

NO. 6

NO. 6

NO. 6

NO. 6

NO. 6

NO. 6

NO. 6

NO. 7

NO. 7

NO. 8

NO. 8

PNL7668

PNL7668

PNL7668

PNL7668

PNL7668

PNL7668

PNL7668

WVDM5

WVDM5

WVDM28

WVDM30

WVDM32

WVDM34

LIEP

7-1 17-Sep-87 VEHICLE.WVA

4 - 1 16-Sep-87 NOQUOTE.WK1

MCC GLASS DURABILITY

4 - 2 16-Sep-87 NOQUOTE.WK1

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4 - 3 16-Sep-87 NORQUITE, WK1

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	
*****							*****	
// ---GLASS		COMPOSITION	WEIGHT	PERCENT			// \\\	
Glass	InO	InO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
WV193		3.20				93.30	N	MCC-1
DNRC		1.00				91.70	N	MCC-1
SRL-TDS-131		0.80				91.50	N	MCC-1
WVCM42						0.00	N	MCC-3.1
WVCM42						0.00	N	MCC-3.1
WVCM47						77.70	N	MCC-3.1
WVCM47						77.70	N	MCC-3.1
WVCM48						75.90	N	MCC-3.1
WVUTH12						78.00	N	MCC-3.1
WVUTH13						78.00	N	MCC-3.1
WVUTH14						78.00	N	MCC-3.1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99	N	MCC-1
PNL 7668	4.76	1.66				100.99		

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****	*****	*****	*****	*****	*****	*****	*****	*****
-----LEACH TEST-----					-----LEACH TEST-----			
Class	SA/V	Leachant	Biologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment --	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								(ppm)
AV-33	Na2O = K2O + Li	10.0						
SWR6	Na2O = K2O + Li	10.0						
SRL-TDS-131	Na2O = K2O + Li	10.0						
WVCM42	modified MCC-3?	2680.0	DIW			90		
WVCM42	modified MCC-3?	2680.0	J-13			90	equilibrated	104.8
WVCM47	modified MCC-3?	2680.0	DIW			90		
WVCM47	modified MCC-3?	2680.0	J-13			90	equilibrated	104.8
WVCM48	modified MCC-3?	2680.0	DIW			90		
WVUTH12	modified MCC-3?	2680.0	DIW			90		
WVUTH13	modified MCC-3?	2680.0	DIW			90		
WVUTH14	modified MCC-3?	2680.0	DIW			90		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			40		
PNL 7668		10.0	DIW			70		
PNL 7668		10.0	DIW			70		
PNL 7668		10.0	DIW			70		
PNL 7668		10.0	DIW			70		
PNL 7668		10.0	DIW			70		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668		10.0	DIW			90		
PNL 7668	Leachant makeup	10.0	SILICATE			70		
PNL 7668	Leachant makeup	10.0	SILICATE			90		
PNL 7668	Leachant makeup	10.0	SILICATE			90		
PNL 7668	Leachant makeup	10.0	SILICATE			90		
PNL 7668	Leachant makeup	10.0	SILICATE			90		
PNL 7668	Leachant makeup	10.0	SILICATE			90		
PNL 7668	Leachant makeup	10.0	BRINE			70		
PNL 7668	Leachant makeup	10.0	BRINE			90		
PNL 7668	Leachant makeup	10.0	BRINE			90		
PNL 7668	Leachant makeup	10.0	BRINE			90		
PNL 7668	Leachant makeup	10.0	BRINE			90		
PNL 7668	Leachant makeup	10.0	BRINE			90		
SRP(TDS/131,0%			DIW			90	4.46	
SRP(TDS/131,10%Zeolite=1.0,Coal=0.2,Na2S			DIW			90	4.46	
SRP(TDS/131,20%Zeolite=2.0,Coal=0.5,Na2S			DIW			90	4.46	
SRP(TDS/131,25%Zeolite=2.5,Coal=0.6,Na2S			DIW			90	4.46	
SRP(TDS/131,30%Zeolite=3.0,Coal=0.7,Na2S			DIW			90	4.46	

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 27	Status	Report	MID	FLAG		
*****								*****		
-----//-----PRETEST LEADANT COMPOSITION-----//-----TEST RESULTS-----//-----										
Glass	Na	Cl	SO4	Mg	F	Duration	pd	St	S	Cl
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(mm)	(ppm)	(ppm)	(ppm)
=====										
W187						28		71.81	9.11	
W188						28		20.50	2.70	
SAL-708-131						28		21.40	4.50	
WVCM42						7	10.15	59.90	73.90	152.10
WVCM42	47.0	6.4	19.0			7	10.50	42.50	29.30	60.50
WVCM47						7	9.50	48.00	12.50	23.00
WVCM47	47.0	6.4	19.0			7	9.40	10.90	6.70	11.50
WVCM48						7	10.19	44.70	15.80	46.40
WVUTH12						7	9.75	37.60	15.50	33.90
WVUTH13						7	9.79	34.10	17.00	35.00
WVUTH14						7	9.72	41.00	18.11	37.50
PML 7668						7	6.50			
PML 7668						7	6.70			
PML 7668						10	7.00			
PML 7668						13	7.10			
PML 7668						36	7.10			
PML 7668						121	7.40			
PML 7668						121	9.00			
PML 7668						364	8.90			
PML 7668						3	7.20			
PML 7668						7	7.40			
PML 7668						14	7.60			
PML 7668						28	9.50			
PML 7668						3	9.00			
PML 7668						7	9.30			
PML 7668						14	9.90			
PML 7668						28	9.70			
PML 7668						36	9.50			
PML 7668						91	9.70			
PML 7668						162	9.60			
PML 7668						365	9.50			
PML 7668						28	9.30			
PML 7668						28	9.50			
PML 7668						56	9.60			
PML 7668						91	9.70			
PML 7668						162	9.70			
PML 7668						365	9.50			
PML 7668						16	7.10			
PML 7668						28	6.60			
PML 7668						36	6.20			
PML 7668						91	6.10			
PML 7668						162	6.10			
PML 7668						365	6.30			
SRP(T08/131.0%						28	11.01			
SRP(T08/131.10%						28	10.72			
SRP(T08/131.20%						28	10.04			
SRP(T08/131.25%						28	9.75			
SRP(T08/131.30%						28	9.65			

SLABS	DURABILITY	SPREAD SHEET	VERSION 2	ACC	SLABS	DURABILITY	SPREAD

/ / --- FINAL LEACHATE COMPOSITION --- /							
Slabs	Li	K	Ca	Br	U	Na	Other
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)

WV137							
CHRS							
SP1-TGS-137							
WVCM42	25.00					Al 2.7	
WVCM42	11.14					Al 1.24	
WVCM47	3.40					Al 7.30	
WVCM47	1.40					Al 2.21	
WVCM49	8.80					Al 9.30	
WVUTH12	7.35					Al 11.40	
WVUTH13	8.00					Al 13.50	
WVUTH14	7.30					Al 11.10	
PNL 766B							1.52
PNL 766B							1.55
PNL 766B							1.26
PNL 766B							1.76
PNL 766B							1.97
PNL 766B							2.21
PNL 766B							3.43
PNL 766B							4.21
PNL 766B							11.00
PNL 766B							1.84
PNL 766B							3.33
PNL 766B							5.74
PNL 766B							9.69
PNL 766B							5.50
PNL 766B							10.70
PNL 766B							15.10
PNL 766B							26.00
PNL 766B							33.00
PNL 766B							44.00
PNL 766B							47.50
PNL 766B							51.00
PNL 766B							8.00
PNL 766B							22.00
PNL 766B							33.00
PNL 766B							29.50
PNL 766B							35.50
PNL 766B							40.00
PNL 766B							7.30
PNL 766B							10.00
PNL 766B							13.00
PNL 766B							17.60
PNL 766B							17.20
PNL 766B							10.20
GRP/TDS/131,0%							512.76
GRP/TDS/131,10%							137.76
GRP/TDS/131,20%							40.50
GRP/TDS/131,25%							13.55
GRP/TDS/131,30%							17.09

GLASS	SHEET	VERSION 2	MOI	GLASS	DURABILITY	SPREAD SHEET

LEACH	VALUES			WORMOLIZED	LEACH	VALUES
Glass	Na	Li	F	Ca	Br	U
Time	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

XV153						
LW58						
BPL-TGS-101						
WVDM42						
WVDM42						
WVDM47						
WVDM47						
WVDM48						
WVUTH12						
WVUTH13						
WVUTH14						
PML 7668	0.52			0.51	0.78	0.37 Ba=0.07,Ca=0.75
PML 7668	1.04			1.31	0.36	1.14 Ba=0.90,Ca=0.99
PML 7668	1.55			1.32	1.24	1.37 Ba=1.09,Ca=1.04
PML 7668	2.02			1.01	1.74	1.29 Ba=1.52,Ca=1.32
PML 7668	2.45			7.98	2.31	2.42 Ba=2.14,Ca=2.17
PML 7668	4.24			4.56	3.13	4.13 Ba=3.53,Ca=3.24
PML 7668	1.59			7.32	1.36	3.10 Ba=7.33,Ca=4.14
PML 7668	3.00			12.30	3.25	17.00 Ba=0.60,Ca=4.31
PML 7668	1.30			2.37	1.49	1.92 Ba=1.52,Ca=1.47
PML 7668	4.11			4.69	3.14	7.82 Ba=2.37,Ca=4.74
PML 7668	7.13				4.21	5.61 Ba=1.35,Ca=7.36
PML 7668	11.00			12.80	3.61	12.70 Ba=0.71,Ca=7.46
PML 7668	6.17			7.71	4.18	6.24 Ba=2.16,Ca=7.10
PML 7668	13.60			14.70	7.84	12.60 Ba=1.38,Ca=3.01
PML 7668	19.80			23.50	2.52	21.70 Ba=0.54,Ca=2.11
PML 7668	36.00			51.50	0.50	40.00 Ba=0.025,Ca=0.4
PML 7668	49.00			65.00	0.35	35.00 Ba=0.01,Ca=0.22
PML 7668	74.00			79.00	0.15	94.00 Ca=0.19,Fe=0.04
PML 7668	101.00			88.00	0.17	117.00 Ca=0.27,Fe=0.04
PML 7668	102.00			76.00	0.23	115.00 Ca=0.78,Fe=0.05
PML 7668	14.30			14.90	1.16	17.60 Ba=0.13,Ca=1.25
PML 7668	40.00			32.00	0.36	40.00 Ca=0.19,Fe=0.11
PML 7668	55.00			54.00	0.29	60.00 Ba=0.26,Fe=0.34
PML 7668	33.00			37.00	0.22	63.95 Ca=0.11,Fe=0.32
PML 7668	32.00			31.00	0.15	104.00 Ca=0.047,Fe=0.12
PML 7668	60.00			67.00	0.26	58.00 Ca=0.15,Fe=0.40
PML 7668				18.00	11.00	1.40 Ba=11 Ca=5.5,Fe
PML 7668				29.00	21.00	20.00 Ba=92,Ca=17,Zn=
PML 7668				32.00	32.00	30.00 Ba=40,Ca=45,Zn=
PML 7668				61.00	57.00	65.00 Ba=80,Ca=35 Fe=
PML 7668				77.00	99.60	97.00 Ba=100,Ca=37,Fe=
PML 7668				100.00	135.00	128.00 Ba=159,Ca=114,Fe
BSP(TGS/101.00%	1378.58			19.04		Fe=11.75,Ng=1.0
BSP(TGS/101.10%	187.88			71.52		Fe=0.55,Ng=0.56
BSP(TGS/101.20%	69.72			20.16		Fe=0.31,Ng=0.55
BSP(TGS/101.25%	45.84			21.58		Fe=0.23,Ng=0.36
BSP(TGS/101.30%	24.02			17.76		Fe=0.26,Ng=0.20

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[illegible]

AVL 701: Catholic Univ.; partial composition

041 7442

SECRET

5 - 1 16-Sep-97 NQDUOTE.WK1

[illegible]

GLASS	COMPOSITION	WEIGHT	PERCENT	GLASS	COMPOSITION	WEIGHT	PERCENT
Glass	Gd2O3	820	1.203	1.100	Na2O	1000	1.100

GNP (198/101,35%)	0.30	3.70	1.30	4.70	12.60	2.60
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SRP (TES/131,50%)	9.36	2.90	1.00	6.70	10.40	2.90
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SRP(TDS/131.30%)	0.40	4.00	1.40	4.00	13.30	1.30
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SRP/TDS/131.65%	0.30	3.70	1.30	4.30	12.80	2.00
SRP/TDS/131.75%	0.40	4.30	1.50	3.40	11.40	0.40

GRF/105/131, 30%	0.40	4.00	1.40	4.00	13.30	1.70
GRF/105/131, 75%	0.75	7.50	1.75	7.50		

SRP(TDS/131,25%)	0.40	4.30	1.50	3.40	14.10	1.40
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SRP (TDS/131,35%)	0.30	3.70	1.40	4.70	12.60	7.00
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38L 131	0.12	0.33	3.99	1.74	4.17	14.50	0.45	1.34
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JML 131	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.54
FBI 131	0.12	0.33	3.33	1.31	4.17	11.50	0.45	1.54

SRL 131	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.34
SRL 171	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.34

SRL 131	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.34
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SRL 131	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.54
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ENE 101	0.12	0.08	0.07	1.24	4.17	14.60	0.45	1.54
SEI 131	0.12	0.33	3.89	1.24	4.17	14.60	0.45	1.54

SRL 151	0.12	0.33	3.89	1.24	4.17	14.80	0.45	1.51
RAFFELLE 00 767	1.33		1.85	3.18		2.55		

BATTILLE 80-207	1.97	1.89	3.18	7.27
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BATTELLE 80-207	1.97	1.89	3.18	7.27
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BATTELLE 30-207	1.97	1.99	3.18	7.27
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BATTELLE 80-197	1.77	1.87	3.18	7.27
BATTELLE 80-207	1.87	1.88	3.18	7.27

BATTELLE 20-207	1.97	1.89	3.18	7.27
BATTELLE 20-207	1.27	1.15	2.15	5.27

BATTELLE 80-207	1.97	1.89	3.18	7.27
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BATTELLE 80-207	1.97	1.99	3.18	7.27
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BATTELLE 80-207	1.97	1.89	3.18	7.27
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BATTELLE 80-207	1.77	1.87	3.18	7.27
BATTELLE 80-207	1.87	1.88	3.18	3.32

BATTELLE 80-207	1.97	1.89	3.18	7.27
BATTELLE 80-207	1.57	1.57	3.15	7.27

BAITELLE 80-207	1.97	1.89	3.18	7.27
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BATTELLE 80-207	1.97	1.89	3.18	7.27
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BATTILLE 50-207	1.57	1.59	3.19	7.37
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GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCD	GLASS	DURABILITY	SPREAD
*****LEACH TEST*****								
Glass	SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(1/K)	Water Type Media Material	(Eh)	Degrees C	(Start)	Pre-treatment	(ppm)

SRP(TDS/131,35%Zeolite=3.5,Coal=0.8,Na2S		DIW			90	4.46		
SRP(TDS/131,40%Zeolite=4.0,Coal=0.9,Na2S		DIW			90	4.46		
SRP(TDS/131,50%Zeolite=5.1,Coal=1.2,Na2S		DIW			90	4.46		
SRP(TDS/131,25%Zeolite=2.5,Coal=0.6,Na2S		BUFFER			90	3.00	BUFFER - glycine & H	
SRP(TDS/131,30%Zeolite=3.0,Coal=0.7,Na2S		BUFFER			90	3.00	BUFFER - glycine & H	
SRP(TDS/131,35%Zeolite=3.5,Coal=0.8,Na2S		BUFFER			90	3.00	BUFFER - glycine & H	
SRP(TDS/131,25%Zeolite=2.5,Coal=0.6,Na2S		BUFFER			90	7.00	BUFFER - HCl & tris(	
SRP(TDS/131,30%Zeolite=3.0,Coal=0.7,Na2S		BUFFER			90	7.00	BUFFER - HCl & tris(	
SRP(TDS/131,35%Zeolite=3.5,Coal=0.8,Na2S		BUFFER			90	7.00	BUFFER - HCl & tris(	
SRP(TDS/131,25%Zeolite=2.5,Coal=0.6,Na2S		BUFFER			90	11.00	BUFFER - LiOH & H2O	
SRP(TDS/131,30%Zeolite=3.0,Coal=0.7,Na2S		BUFFER			90	11.00	BUFFER - LiOH & H2O	
SRP(TDS/131,35%Zeolite=3.5,Coal=0.8,Na2S		BUFFER			90	11.00	BUFFER - LiOH & H2O	
SRL 131	triplicate; fil	10.0	DIW		40		2nm filter	
SRL 131	triplicate; fil	10.0	DIW		40		2nm filter	
SRL 131	triplicate; fil	10.0	DIW		90		2nm filter	
SRL 131	triplicate; fil	10.0	DIW		90		2nm filter	
SRL 131	triplicate; fil	10.0	Silicate		40		2nm filter	61.8
SRL 131	triplicate; fil	10.0	Silicate		90		2nm filter	61.8
SRL 131	triplicate; fil	10.0	Brine		40		2nm filter	
SRL 131	triplicate; fil	10.0	Brine		40		2nm filter	
SRL 131	triplicate; fil	10.0	Brine		90		2nm filter	
SRL 131	triplicate; lea	10.0	Basalt water		40		2nm filter	65.0
SRL 131	triplicate; lea	10.0	Basalt water		90		2nm filter	65.0
SRL 131	triplicate; lea	10.0	Basalt water		90		2nm filter	65.0
BATTELLE 80-207		10.0	DIW		25			
BATTELLE 80-207		10.0	BASALT		25	9.30		100.0
BATTELLE 80-207		10.0	TUFF		25			
BATTELLE 80-207		10.0	GRANITE		25			
BATTELLE 80-207		10.0	SHALE		25			
BATTELLE 80-207		10.0	CRYSTAL POOL		25			
BATTELLE 80-207		10.0	RED LAKE WELL		25			
BATTELLE 80-207		10.0	RENTFROW		25			
BATTELLE 80-207		10.0	WELL 5C		25			
BATTELLE 80-207		10.0	DIW		90			
BATTELLE 80-207		10.0	BASALT		90			
BATTELLE 80-207		10.0	TUFF		90			
BATTELLE 80-207		10.0	GRANITE		90			
BATTELLE 80-207		10.0	SHALE		90			
BATTELLE 80-207		10.0	CRYSTAL POOL		90			
BATTELLE 80-207		10.0	RED LAKE WELL		90			
BATTELLE 80-207		10.0	RENTFROW		90			
BATTELLE 80-207		10.0	WELL 5C		90			
BATTELLE 80-207		10.0	BASALT		25			110.0
BATTELLE 80-207		10.0	BASALT		90			120.0
BATTELLE 80-207		10.0	SHALE		25			14.0
BATTELLE 80-207		10.0	SHALE		90			0.5
BATTELLE 80-207		10.0	TUFF		25			65.0
BATTELLE 80-207		10.0	TUFF		90			60.0

CLASS	SHEET	VERSION	2	WDOUOTE	Expt. 27	Status	Report	MOD	CLASS

-----PRETEST LEACHANT COMPOSITION-----\ /-----TEST RESULTS-----									
Class	%	Cl	SO ₄	Mg	F	Duration	pH	Si	2
Time	(min)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(ppm)	(ppm)	(ppm)

SRP (TDS/131,75%						13	8.59		
SRP (TDS/131,10%						13	8.58		
SRP (TDS/131,50%						13	8.59		
SRP (TDS/131,25%Cl						14	8.51		
SRP (TDS/131,30%Cl						14	8.52		
SRP (TDS/131,75%Cl						14	8.54		
SRP (TDS/131,25%hydroxymethyl aminomethane)						14	8.59		
SRP (TDS/131,30%hydroxymethyl aminomethane)						14	8.52		
SRP (TDS/131,35%hydroxymethyl aminomethane)						14	8.53		
SRP (TDS/131,25%						14	10.56		
SRP (TDS/131,30%						14	10.51		
SRP (TDS/131,75%						14	10.51		
SRP 131						764	8.50		
SRP 131						728	8.50		
SRP 131						764	10.50		
SRP 131						728	8.50		
SRP 131	47.9					764	8.50		
SRP 131	47.9					764	8.50		
SRP 131	34400.0			30500.0		764	7.90		
SRP 131	74400.0			30500.0		728	7.10		
SRP 131	34400.0			70800.0		764	7.20		
SRP 131	364.0					764	9.00		
SRP 131	364.0					764	10.00		
SRP 131	364.0					728	10.00		
BATTELLE 90-207						760			
BATTELLE 90-207	300.0	140.0	75.0		52.0	760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
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BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207						760			
BATTELLE 90-207	250.0			0.1	53.0	180			270.0
BATTELLE 90-207	280.0			0.1	55.0	180			290.0
BATTELLE 90-207	340.0			55.0		180			360.0
BATTELLE 90-207	1000.0			40.0		180			1,000.0
BATTELLE 90-207	46.0			2.1		180			50.0
BATTELLE 90-207	49.0			0.1		180			52.0

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****				*****					
// ---FINAL LEACHATE COMPOSITION---				/ \-----NORMALIZED					
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mn (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)
=====									
SRP(TDS/131,35X								18.18	25.20
SRP(TDS/131,40X								18.48	26.04
SRP(TDS/131,50X								15.96	24.92
SRP(TDS/131,25X								26.04	27.58
SRP(TDS/131,30X								27.72	30.10
SRP(TDS/131,35X								35.70	35.98
SRP(TDS/131,25X								3.08	13.58
SRP(TDS/131,30X								1.40	8.40
SRP(TDS/131,35X								0.98	4.06
SRP(TDS/131,25X								32.06	45.36
SRP(TDS/131,30X								27.44	41.86
SRP(TDS/131,35X								26.88	40.88
SRL 131								6.70	9.40
SRL 131								8.20	14.00
SRL 131								70.00	131.00
SRL 131								63.00	125.00
SRL 131								0.69	1.70
SRL 131								35.00	67.00
SRL 131								0.80	1.10
SRL 131								2.80	2.20
SRL 131								2.00	14.00
SRL 131								0.30	0.60
SRL 131								39.00	124.00
SRL 131								39.00	133.00
BATTELLE 80-207							Pu 5830 pCi/L		
BATTELLE 80-207							Pu 65700 pCi/L		
BATTELLE 80-207							Pu 3930 pCi/L		
BATTELLE 80-207							Pu 6210 pCi/L		
BATTELLE 80-207							Pu 8840 pCi/L		
BATTELLE 80-207							Pu 97700 pCi/L		
BATTELLE 80-207							Pu 185000 pCi/L		
BATTELLE 80-207							Pu 73600 pCi/L		
BATTELLE 80-207							Pu 17300 pCi/L		
BATTELLE 80-207							Pu 2260 pCi/L		
BATTELLE 80-207							Pu 77200 pCi/L		
BATTELLE 80-207							Pu 6910 pCi/L		
BATTELLE 80-207							Pu 24000 pCi/L		
BATTELLE 80-207							Pu 2500 pCi/L		
BATTELLE 80-207							Pu 12700 pCi/L		
BATTELLE 80-207							Pu 3400 pCi/L		
BATTELLE 80-207							Pu 8550 pCi/L		
BATTELLE 80-207							Pu 12000 pCi/L		
BATTELLE 80-207							F 53.00, Ca 3.00, Mg 0.60, Fe 0.170, and		
BATTELLE 80-207							F 55.00, Ca 7.2	3.51	
BATTELLE 80-207							Ca 51.00, Mg 57.00, Fe 0.03, and SiO2 13		
BATTELLE 80-207							Ca 18.00, Mg 19	0.05	
BATTELLE 80-207							Ca 13.00, Mg 2.30, Fe 0.08 and SiO2 61.0		
BATTELLE 80-207							Ca 9.40, Mg 0.7	15.10	

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Glass /---- Comments ----->

Type

=====

SRP(TDS/131,35%SR) Laboratory,waste load=35%
 SRP(TDS/131,40%SR) Laboratory,waste load=40%
 • SRP(TDS/131,50%SR) Laboratory,Waste load=50%
 SRP(TDS/131,25%SR) Laboratory,Waste load=25%
 SRP(TDS/131,30%SR) Laboratory,waste load=30%
 • SRP(TDS/131,35%SR) Laboratory,waste load=35%
 SRP(TDS/131,25%SR) Laboratory,Waste load=25%
 SRP(TDS/131,30%SR) Laboratory,waste load=30%
 SRP(TDS/131,35%SR) Laboratory,waste load=35%
 SRP(TDS/131,25%SR) Laboratory,Waste load=25%
 SRP(TDS/131,30%SR) Laboratory,waste load=30%
 SRP(TDS/131,35%SR) Laboratory,waste load=35%

SR 131 PNL
 SR 131 PNL
 SR 131 PNL
 SR 131 PNL
 SR 131 PNL
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 SR 131 PNL

BATTELLE 80-207 U S Geological Survey
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 BATTELLE 80-207 U S Geological Survey

BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 1.50, Fe 0.19
 • BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 1.50, Fe 0.21
 BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 50.00, Fe 0.009
 BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 10.00, Fe 0.009
 • BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 13.00, Fe 0.009
 BATTELLE 80-207US66; Pretest leachant (ppm) - Ca 1.40, Fe 0.009

6 - 1 16-Sep-87 NOQUOTE.WK1

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS DURABILITY	

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----									
Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3 NiO
=====									
BASE			0.63				1.96	15.32	5.78
COMP. 2			0.63				1.96	14.55	5.78
COMP. 3			0.63				1.96	16.09	5.78
COMP. 4			0.63				1.96	15.32	5.78
COMP. 5			0.63				1.96	14.55	5.78
COMP. 6			0.63				1.96	16.09	5.78
COMP. 7			0.63				1.96	16.09	5.78
COMP. 8			0.63				1.94	15.32	5.77
COMP. 9			0.63				1.94	15.32	5.77
COMP. 10			0.63				1.94	15.32	5.78
COMP. 11			0.63				1.96	15.32	5.77
COMP. 12			0.63				1.96	15.32	5.77
COMP. 13			0.63				1.94	15.32	5.77
Glass+35%Waste				2.60		4.90		13.50	
Glass+35%Waste				2.60		4.90		13.50	
Glass+35%Waste				2.60		4.90		13.50	
Glass+35%Waste				2.60		4.90		13.50	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
PNL 80-207		1.97		1.89	3.18			7.27	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	
SRP BLACK FRIT					0.70	1.98		10.20	

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GLASS		DURABILITY		SPREAD SHEET		VERSION 2		MCC	

// ---GLASS		COMPOSITION		WEIGHT		PERCENT		// \\\	
Glass	InO	IrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type	
=====									
BASE	5.75	2.10			1.45	99.98	N	MCC-1	
COMP. 2	5.75	2.10			1.45	103.27	N	MCC-1	
COMP. 3	5.75	2.10			1.45	100.20	N	MCC-1	
COMP. 4	5.75	2.10			1.45	98.22	N	MCC-1	
COMP. 5	5.75	2.10			1.45	99.75	N	MCC-1	
COMP. 6	5.75	2.10			1.45	96.68	N	MCC-1	
COMP. 7	5.75	2.10			1.45	98.45	N	MCC-1	
COMP. 8	5.75	2.10			1.45	97.60	N	MCC-1	
COMP. 9	5.75	2.10			1.45	97.60	N	MCC-1	
COMP. 10	5.75	2.10			1.45	97.60	N	MCC-1	
COMP. 11	5.75	2.10			1.45	98.08	N	MCC-1	
COMP. 12	5.75	2.10			1.45	98.10	N	MCC-1	
COMP. 13	5.75	2.10			1.45	98.09	N	MCC-1	
Glass+35%Waste					8.80	100.00	Y	MCC-1	
Glass+35%Waste					8.80	100.00	Y	MCC-1	
Glass+35%Waste					8.80	100.00	Y	MCC-1	
Glass+35%Waste					8.80	100.00	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
PNL 80-207	0.29	1.09				98.62	Y	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(1/M)	Water Type	Media	Material	(Eh)	Degrees C (Start) Pretreatment	(ppm)
=====								
BASE		10.0	DIW			90		
COMP. 2		10.0	DIW			90		
COMP. 3		10.0	DIW			90		
COMP. 4		10.0	DIW			90		
COMP. 5		10.0	DIW			90		
COMP. 6		10.0	DIW			90		
COMP. 7		10.0	DIW			90		
COMP. 8		10.0	DIW			90		
COMP. 9		10.0	DIW			90		
COMP. 10		10.0	DIW			90		
COMP. 11		10.0	DIW			90		
COMP. 12		10.0	DIW			90		
COMP. 13		10.0	DIW			90		
Glass+35%Waste	10E6 R/hr; glas	10.0	DIW			40	6.50	
Glass+35%Waste	10E6 R/hr; glas	10.0	BRINE			40	6.50	
Glass+35%Waste	10E6 R/hr; glas	10.0	SILICATE			40	7.50	58.0
Glass+35%Waste	10E6 R/hr; glas	10.0	DIW			40		
PNL 80-207	Even though com	10.0	BASALT WATER			25	9.30	110.0
PNL 80-207	Even though com	10.0	TUFF WATER			25	7.80	65.0
PNL 80-207	Even though com	10.0	SHALE WATER			25	8.40	14.0
PNL 80-207	Although compos	10.0	GRANITE WATER			25	8.30	10.0
PNL 80-207	Although compos	10.0	CRYSTALPOOL WATER			25	7.50	27.0
PNL 80-207	Although compos	10.0	WELL 5C WATER			25	9.00	57.0
PNL 80-207	Although compos	10.0	RENTROW WELL WATER			25	7.60	17.0
PNL 80-207	Although compos	10.0	RED LAKE S.WELL WATER			25	7.90	15.0
PNL 80-207	Even though com	10.0	BASALT WATER			90	9.60	120.0
PNL 80-207	Even though com	10.0	TUFF WATER			90	8.60	60.0
PNL 80-207	Even though com	10.0	SHALE WATER			90	9.20	0.5
PNL 80-207	Although compos	10.0	GRANITE WATER			90	8.30	10.0
PNL 80-207	Although compos	10.0	CRYSTALPOOL WATER			90	7.50	27.0
PNL 80-207	Although compos	10.0	WELL 5C WATER			90	9.00	57.0
PNL 80-207	Although compos	10.0	RENTROW WELL WATER			90	7.60	17.0
PNL 80-207	Although compos	10.0	RED LAKE S.WELL WATER			90	7.90	15.0
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	10.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Glass doped wit	100.0	DIW			90		
SRP BLACK FRIT	Powder 40-60 me	1000.0	Buffered			90	3.00 Buffered similar to t	

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		

// -----PRETEST LEACHANT COMPOSITION-----\\ //---TEST RESULTS---> -----										
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
=====										
PAGE						28	9.34			
COMP. 2						28				
COMP. 3						28				
COMP. 4						28				
COMP. 5						28				
COMP. 6						28				
COMP. 7						28				
COMP. 8						28				
COMP. 9						28				
COMP. 10						28				
COMP. 11						28				
COMP. 12						28				
COMP. 13						28				
Glass+35%Waste						28	7.70			
Glass+35%Waste	35400.0	163800.0		29600.0		28	6.50			
Glass+35%Waste	220.0					28	8.30			
Glass+35%Waste						134				
PNL 80-207	260.0	140.0		0.1	53.0	180	9.40	51.40		270.00
PNL 80-207	46.0	7.0		2.1	2.3	180	8.40	28.50		50.00
PNL 80-207	940.0	61.0		56.0	0.1	180	8.80	6.08		960.00
PNL 80-207	300.0	73.0		3.0	0.8					
PNL 80-207	75.0	22.0		21.0	1.9					
PNL 80-207	140.0	10.0		0.4	1.0					
PNL 80-207	380.0	150.0		210.0	2.3					
PNL 80-207	280.0	480.0		24.0	1.9					
PNL 80-207	280.0			0.1	55.0	180	9.60			
PNL 80-207	49.0			0.1		180	9.60			
PNL 80-207	1000.0			40.0		180	9.30			
PNL 80-207	300.0	73.0		3.0	0.8					
PNL 80-207	75.0	22.0		21.0	1.9					
PNL 80-207	140.0	10.0		0.4	1.0					
PNL 80-207	380.0	150.0		210.0	2.3					
PNL 80-207	280.0	480.0		24.0	1.9					
SRP BLACK FRIT						1	8.30			
SRP BLACK FRIT						3	9.00			
SRP BLACK FRIT						7	9.30			
SRP BLACK FRIT						14	9.30			
SRP BLACK FRIT						28	9.50			
SRP BLACK FRIT						56	9.20			
SRP BLACK FRIT						238	9.70			
SRP BLACK FRIT						1	9.30			
SRP BLACK FRIT						3	9.30			
SRP BLACK FRIT						7	9.50			
SRP BLACK FRIT						14	9.50			
SRP BLACK FRIT						28	9.60			
SRP BLACK FRIT						56	9.50			
SRP BLACK FRIT						238	9.70			
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						1		36.8	4.53	32.4

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// -----FINAL LEACHATE COMPOSITION-----/ \-----NORMALIZED										
Glass Type	Li (ppm)	K (ppm)	Cs (ppm)	Br (ppm)	U (ppm)	Mn (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)	
=====										
BASE								5.46	1.37	
COMP. 2										
COMP. 3										
COMP. 4										
COMP. 5										
COMP. 6								9.02	6.16	
COMP. 7										
COMP. 8										
COMP. 9										
COMP. 10										
COMP. 11										
COMP. 12										
COMP. 13										
Glass+35%Waste										
Glass+35%Waste										
Glass+35%Waste										
Glass+35%Waste										
PNL 80-207							F 53, Ca 3.0, Mg 0.6			
PNL 80-207							Ca 13, Mg 2.3			
PNL 80-207							Ca 51, Mg 57			
PNL 80-207										
PNL 80-207										
PNL 80-207										
PNL 80-207										
PNL 80-207								3.51		
PNL 80-207								7.01		
PNL 80-207								0.01		
PNL 80-207										
PNL 80-207										
PNL 80-207										
PNL 80-207										
SRP BLACK FRIT								1.81	1.95	
SRP BLACK FRIT								4.44	4.86	
SRP BLACK FRIT								7.77	8.33	
SRP BLACK FRIT								10.43	11.51	
SRP BLACK FRIT								15.23	17.30	
SRP BLACK FRIT								17.92	20.55	
SRP BLACK FRIT								28.70	34.75	
SRP BLACK FRIT								1.00	1.11	
SRP BLACK FRIT								1.46	1.72	
SRP BLACK FRIT								1.90	2.23	
SRP BLACK FRIT								2.38	2.91	
SRP BLACK FRIT								2.91	3.44	
SRP BLACK FRIT								3.19	3.75	
SRP BLACK FRIT								5.24	6.35	
SRP BLACK FRIT										
SRP BLACK FRIT			0.111	0.148	1.93		Al 3.57; Fe 15.	0.15	0.20	

GLASS	SHEET	VERSION 2		MOD	GLASS	DURABILITY	SPREAD SHEET		

-----//	LEACH	VALUES			-----		NORMALIZED	LEACH	VALUES
Glass	Na	Li	K	Cs	Sr	U	Mn	Other	
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	
=====									
BASE	4.45			0.431	0.031		0.523	In .025	
COMP. 2									
COMP. 3									
COMP. 4									
COMP. 5									
COMP. 6	18.6			1.17	0.0076		1.71		
COMP. 7									
COMP. 8									
COMP. 9									
COMP. 10									
COMP. 11									
COMP. 12									
COMP. 13									
Glass+35%Waste				0.34	0.45			Gross alpha - 1	
Glass+35%Waste				0.39	0.26			Gross alpha - 0	
Glass+35%Waste				7.84	0.03			Gross alpha - 0	
Glass+35%Waste				0.94	0.63			Gross alpha - 1	
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207	18.50							Mg 10.1; Fe 6.0	
PNL 80-207	42.60							Mg 3.2; Fe 0.2;	
PNL 80-207								Pu 0.006; Mg, F	
PNL 80-207									
PNL 80-207									
PNL 80-207									
PNL 80-207									
SRP BLACK FRIT	2.01			0.00	1.32	0.00		Al 1.59; Fe 0.7	
SRP BLACK FRIT	5.25			0.00	2.41	0.00		Al 4.65; Fe 0.1	
SRP BLACK FRIT	9.31			0.00	2.42	0.00		Al 7.21; Fe 0.25	
SRP BLACK FRIT	12.68			12.99	2.03	0.00		Al 9.17; Fe 0.36	
SRP BLACK FRIT	19.01			17.75	1.66	2.91		Al 12.43; Fe 0.	
SRP BLACK FRIT	21.73			22.74	1.42	2.95		Al 13.776; Fe 0	
SRP BLACK FRIT	37.51			20.71	2.05	8.81		Al 23.68; Fe 2.3	
SRP BLACK FRIT	1.23			1.21	0.20	0.00		Al 0.967; Fe 0.	
SRP BLACK FRIT	1.94			1.56	0.12	0.00		Al 1.24; Fe 0.0	
SRP BLACK FRIT	2.45			1.93	0.12	0.58		Al 1.54; Fe 0.1	
SRP BLACK FRIT	3.07			2.32	0.22	0.89		Al 1.89; Fe 0.2	
SRP BLACK FRIT	3.75			3.53	0.41	1.57		Al 2.26; Fe 0.6	
SRP BLACK FRIT	3.94			3.55	0.49	1.53		Al 2.319; Fe 0.	
SRP BLACK FRIT	7.12			3.57	0.90	2.86		Al 3.689; Fe 1.	
SRP BLACK FRIT	0.43			0.16	0.20	0.19		Al 0.149; Fe 0.	

[illegible]

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\\--INDEX--// \\		GLASS COMPOSITION WEIGHT PERCENT-----								
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CaO2	Cr2O3	Cs2O	CuO	Fe2O3
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
CHANDLER-84	SRP BLACK FRIT	4.54	7.35					0.07		11.40
STRACHAN-80	PNL 7668									
STRACHAN-80	PNL 7668									
STRACHAN-80	PNL 7668									
STRACHAN-80	PNL 7668									
STRACHAN-80	PNL 7668									
PEGG-86	WVCM46	7.68	9.35	0.03	0.79	0.05	0.35	0.08	0.04	11.60
PEGG-86	WVCM41									
PEGG-86	WVCM41									
PEGG-86	WVCM42									
PEGG-86	WVCM42									
PEGG-86	WVCM44	6.49	9.03	0.21	0.89	0.06	0.28	0.07	0.05	11.55
PEGG-86	WVCM44	6.49	9.03	0.21	0.89	0.06	0.28	0.07	0.05	11.55
PEGG-86	WVCM45	7.97	7.43	0.18	0.75	0.07	0.31	0.08	0.04	12.33
PEGG-86	WVCM45	7.97	7.43	0.18	0.75	0.07	0.31	0.08	0.04	12.33
STRACHAN-84	PNL 7668									
STRACHAN-84	PNL 7668									
STRACHAN-84	PNL 7668									
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 1	2.1	23.1	0.46				0.87		0.6
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----

-----GLASS COMPOSITION WEIGHT PERCENT-----

Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
---------------	-------	-----	-------	------	-----	------	------	------	-------	-----

SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
SRP BLACK FRIT					0.70	1.98		10.20		
PNL 7668										
PNL 7668										
PNL 7668										
PNL 7668										
PNL 7668										
WVCM46		1.91	0.04	2.07	1.37	1.09		8.63	0.06	0.32
WVCM41										
WVCM41										
WVCM42										
WVCM42										
WVCM44		3.25	0.03	2.75	1.20	1.31		9.88	0.17	0.32
WVCM44		3.25	0.03	2.75	1.20	1.31		9.88	0.17	0.32
WVCM45		1.57	0.03	2.97	1.31	1.30		10.15	0.19	0.34
WVCM45		1.57	0.03	2.97	1.31	1.30		10.15	0.19	0.34
PNL 7668										
PNL 7668										
PNL 7668										
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 1			0.7			0.76	1.62	13.6	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37

// PERCENT		GLASS COMPOSITION		WEIGHT	PERCENT					
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	VO2
=====										
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
SRP BLACK FRIT						53.50	0.09			
PNL 7668										
PNL 7668										
PNL 7668										
PNL 7668										
PNL 7668										
WVCM46	0.32	2.40				45.70			0.96	0.53
WVCM41										
WVCM41										
WVCM42										
WVCM42										
WVCM44	0.32	2.28		0.00	0.00	44.80	0.00		0.89	0.54
WVCM44	0.32	2.28		0.00	0.00	44.80	0.00		0.89	0.54
WVCM45	0.34	2.50		0.00	0.00	44.69	0.00		0.98	0.59
WVCM45	0.34	2.50		0.00	0.00	44.69	0.00		0.98	0.59
PNL 7668										
PNL 7668										
PNL 7668										
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 1	0.37					50	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

//	GLASS	COMPOSITION	WEIGHT	PERCENT			//	\\
Glass	InO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
SRP BLACK FRIT					1.19	91.02	N	MCC-1/Mod
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
WVCM46	0.04	0.26			3.58	98.93	N	MCC-3
WVCM41						0.00	N	MCC-3
WVCM41						0.00	N	MCC-3
WVCM42						0.00	N	MCC-3
WVCM42						0.00	N	MCC-3
WVCM44	0.03	0.42			3.50	100.00	N	MCC-3
WVCM44	0.03	0.42			3.50	100.00	N	MCC-3
WVCM45	0.03	0.38			3.83	100.02	N	MCC-3
WVCM45	0.03	0.38			3.83	100.02	N	MCC-3
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
PNL 7668						0.00	N	MCC-1
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 1		1.27	0.38	0.21	2.57	100.07	Y	MCC-1 *
ABS 19		1.27	0.38	0.21	2.57	99.97	Y	MCC-1 *
ABS 19		1.27	0.38	0.21	2.57	99.97	Y	MCC-1 *
ABS 19		1.27	0.38	0.21	2.57	99.97	Y	MCC-1 *
ABS 19		1.27	0.38	0.21	2.57	99.97	Y	MCC-1 *
ABS 19		1.27	0.38	0.21	2.57	99.97	Y	MCC-1 *

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****					*****					
-----LEACH TEST-----					-----LEACH TEST-----					
Glass Type	-- Comment -->	SA/V (1/M)	Leachant Water Type	Geologic Media	Canister Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
=====										
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	7.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	11.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	3.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	7.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	11.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	3.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	7.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	11.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	3.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	7.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	11.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	3.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	7.00	Buffered similar to t	
SRP BLACK FRIT Powder 40-60 me		1000.0	Buffered				90	11.00	Buffered similar to t	
PNL 7668	Three runs; WIP	100.0	BRINE				90	6.50		
PNL 7668	Three runs; Tuf	100.0	SILICATE				90	7.50		57.2
PNL 7668	Five runs	100.0	DIW				90			
PNL 7668	Five runs	100.0	DIW				90			
PNL 7668	Five runs	100.0	DIW				90			
WVCM46	7-da powder	2680.0	DIW				90			
WVCM41	7-da powder	2680.0	DIW				90			
WVCM41	28-da powder	2680.0	DIW				90			
WVCM42	7-da powder	2680.0	DIW				90			
WVCM42	28-da powder	2680.0	DIW				90			
WVCM44	7-da powder	2680.0	DIW				90			
WVCM44	28-da powder	2680.0	DIW				90			
WVCM45	7-da powder	2680.0	DIW				90			
WVCM45	28-da powder	2680.0	DIW				90			
PNL 7668	three runs; SA/V assume 1		DIW				90			
PNL 7668	three runs; SA/V assume 1		SILICATE				90	7.50		27.1
PNL 7668	three runs; SA/V assume 1		BRINE				90	6.50		0
ABS 1	like MCC-1 test	1.0	DIW				90	6.5		
ABS 1	like MCC-1 test	10.0	DIW				90	6.5		
ABS 1	like MCC-1 test	100.0	DIW				90	6.5		
ABS 1	like MCC-1 test	1.0	DIW				90	6.5		
ABS 1	like MCC-1 test	10.0	DIW				90	6.5		
ABS 1	like MCC-1 test	100.0	DIW				90	6.5		
ABS 1	like MCC-1 test	1.0	DIW				90	6.5		
ABS 1	like MCC-1 test	10.0	DIW				90	6.5		
ABS 1	like MCC-1 test	100.0	DIW				90	6.5		
ABS 1	like MCC-1 test	1.0	DIW				90	6.5		
ABS 1	like MCC-1 test	10.0	DIW				90	6.5		
ABS 1	like MCC-1 test	100.0	DIW				90	6.5		
ABS 19	like MCC-1 test	1.0	DIW				90	6.5		
ABS 19	like MCC-1 test	10.0	DIW				90	6.5		
ABS 19	like MCC-1 test	100.0	DIW				90	6.5		
ABS 19	like MCC-1 test	1.0	DIW				90	6.5		
ABS 19	like MCC-1 test	10.0	DIW				90	6.5		

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
//-----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						1		5.03	1.34	22.6
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						1		66.0	7.40	33.7
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						3		75.3	8.21	4.90
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						3		11.7	4.12	41.5
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						3		121.9	14.4	59.4
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						7		96.4	10.3	72.3
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						7		10.1	4.13	41.0
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						7		127.0	15.8	66.1
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						14		135	15.1	115.
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						14		14.6	6.79	63.6
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						14		137	17.5	73.1
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						28		142	17.4	157
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						28		17.5	9.91	33.7
SRP BLACK FRIT hose used by Wicks, et al," The Chemical Durabi						28		155	20.4	85.4
PNL 7668	35200.0	159200.0		28400.0		28				
PNL 7668	48.2	--				28				
PNL 7668						28				
PNL 7668						14				
PNL 7668						3				
WVCM46						7	8.87	35.87	8.06	21.68
WVCM41						7	10.53	178.80	148.40	290.90
WVCM41						28	10.82	357.10	711.20	1,266.00
WVCM42						7	10.15	98.85	73.76	152.30
WVCM42						28	9.80	118.20	95.17	219.00
WVCM44						7	10.23	66.16	23.17	61.22
WVCM44						28	9.98	87.17	41.54	113.00
WVCM45						7	9.95	51.72	9.34	29.45
WVCM45						28	9.95	63.90	13.40	46.46
PNL 7668						365	9.47	122.33	37.00	137.67
PNL 7668	54.8	0		0		365	9.65	125.67	32.70	169.33
PNL 7668	32200.0	165000.0		32000.0		365	5.78	59.00	44.33	*****
ABS 1						1	4.16	3.38	0.2	0.3
ABS 1						1	6.61	5.13	2.7	1.57
ABS 1						1		116.65	40	70
ABS 1						7	6.01	1.4	0.4	0.56
ABS 1						7	6.78	16.92	8.7	6.7
ABS 1						7	9.19	117.3	91	62
ABS 1						14	6.75	3.65	0.8	1.1
ABS 1						14	7.04	13.88	9.5	6.2
ABS 1						14	7.27	268		230
ABS 1						28	6.35	10.49	1.2	1.75
ABS 1						28	8.07	192.5	42	47
ABS 1						28	7.96	163.34	270	132
ABS 19						1	5.65	1.98	0.5	0.18
ABS 19						1	6.42	2.56	1.9	1.5
ABS 19						1		93.32	20	19
ABS 19						7	6.16	0.82	0.2	0.4
ABS 19						7	6.47	6.3	6.7	5

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// -----FINAL LEACHATE COMPOSITION-----/ \----- NORMALIZED										
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)	
=====										
SRP BLACK FRIT			0	0.0362	0		Al 0; Fe -0.016	0.02	0.08	
SRP BLACK FRIT			0.123	0.0113	1.73		Al 4.85; Fe 3.7	0.26	0.32	
SRP BLACK FRIT			0.269	0.27	3.45		Al 7.22; Fe 28.	0.30	0.36	
SRP BLACK FRIT			0	0.0917	0		Al 0.547; Fe 1.	0.05	0.18	
SRP BLACK FRIT			0.264	0.0363	3.88		Al 8.41; Fe 10.	0.49	0.63	
SRP BLACK FRIT			0.321	0.349	4.48		Al 9.3; Fe 36.5	0.39	0.45	
SRP BLACK FRIT			0.111	0.121	0		Al 0.194; Fe 0.	0.04	0.19	
SRP BLACK FRIT			0.231	0.0285	3.94		Al 7.73; Fe 9.2	0.51	0.69	
SRP BLACK FRIT			0.476	0.491	6.53		Al 13; Fe 53; M	0.54	0.66	
SRP BLACK FRIT			0.180	0.181	0		Al 0.514; Fe 1.	0.06	0.30	
SRP BLACK FRIT			0.273	0.0365	4.65		Al 7.74; Fe 11;	0.55	0.77	
SRP BLACK FRIT			0.761	0.55	7.18		Al 13.4; Fe 58.	0.57	0.76	
SRP BLACK FRIT			0.326	0.241	0.628		Al 0.592; Fe 2.	0.07	0.43	
SRP BLACK FRIT			0.426	0.0381	5.06		Al 8.07; Fe 12.	0.62	0.89	
PNL 7668								10.40	47.80	
PNL 7668								36.00	70.30	
PNL 7668								36.10	65.20	
PNL 7668								20.20	30.60	
PNL 7668								8.92	11.70	
WVCM46	0.27	3.75					Fe 0.22; Al 0.4	0.06	0.10	
WVCM41	54.80	84.10					Fe 5.04; Al 1.2	0.31	2.01	
WVCM41	178.30	325.80					Fe 3; Al 1.01;	0.62	9.63	
WVCM42	29.08	25.00					Fe 6.43; Al 2.3	0.18	0.90	
WVCM42	38.19	34.15					Fe 10.22; Al 4.	2.10	1.16	
WVCM44	0.60	16.27					Fe 2.98; Al 5.9	0.12	3.08	
WVCM44	20.56	27.71					Fe 4.44; Al 2.9	0.15	0.55	
WVCM45	6.53	5.32					Fe 2.44; Al 9.86	0.09	0.15	
WVCM45	11.74	6.27					Fe 4.50; Al 6.9	0.11	0.22	
PNL 7668	0.11	0.34	5.97	0.01		16.07	Ca 0.006; F 3.75			
PNL 7668	0.08	0.68	5.27	0.01		14.33	Ca 0.098; F 3.84			
PNL 7668	0.47	*****	7.63	5.00		19.67	Ca 1.166			
ABS 1										
ABS 1										
ABS 1										
ABS 1							Mn:0.03			
ABS 1						0.5	Mn:0.08			
ABS 1										
ABS 1						0.1	Mn:0.03			
ABS 1						0.4	Mn:0.03			
ABS 1										
ABS 1			1.1			0.2	Mn:0.06			
ABS 1			1.8			0.9	Mn:0.01			
ABS 1										
ABS 19										
ABS 19										
ABS 19										
ABS 19							Mn:0.02			
ABS 19						0.2	Mn:0.06			

GLASS	SHEET	VERSION 2			MCC	GLASS	DURABILITY	SPREAD SHEET	

//		LEACH	VALUES			NORMALIZED		LEACH	VALUES
Glass	Na	Li	K	Ca	Sr	U	Mn	Other	
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	
=====									
SRP BLACK FRIT	0.30			0.00	0.05	0.90		Al 0; Fe -0.000	
SRP BLACK FRIT	0.45			0.12	0.02	0.17		Al 0.202; Fe 0.	
SRP BLACK FRIT	0.06			0.39	0.36	0.34		Al 0.3; Fe 0.36	
SRP BLACK FRIT	0.55			0.00	0.12	0.00		Al 0.023; Fe 0.	
SRP BLACK FRIT	0.78			0.38	0.05	0.38		Al 0.35; Fe 0.1	
SRP BLACK FRIT	0.95			0.46	0.47	0.44		Al .387; Fe 0.4	
SRP BLACK FRIT	0.54			0.16	0.16	0.00		Al 0.008; Fe 0.	
SRP BLACK FRIT	0.88			0.33	0.04	0.39		Al 0.322; Fe 0.	
SRP BLACK FRIT	1.51			0.69	0.66	0.65		Al 0.54; Fe 0.6	
SRP BLACK FRIT	0.84			0.26	0.24	0.00		Al 0.021; Fe 0.	
SRP BLACK FRIT	0.96			0.39	0.05	0.46		Al 0.322; Fe 0.	
SRP BLACK FRIT	2.07			1.10	0.73	0.71		Al 0.357; Fe 0.	
SRP BLACK FRIT	1.11			0.47	0.32	0.06		Al 0.025; Fe 0.	
SRP BLACK FRIT	1.15			0.62	0.05	0.50		Al 0.336; Fe 0.	
PNL 7668	--			66.00	48.30		39.80	Ba 47.3; Ca 35.	
PNL 7668	59.60			86.00	0.19		71.00	Ba <0.05; Ca 0.	
PNL 7668	54.60			64.00	0.28		66.40	Ba <0.05; Ca 0.	
PNL 7668	26.10			39.00	0.87		30.80	Ba 0.13; Ca 0.9	
PNL 7668	9.87			15.00	3.49		11.90	Ba 0.88; Ca 3.3	
WVCM46	0.12	0.01	0.11					Fe 0.0007; Al 0	
WVCM41	1.49	1.47	1.07					Fe 0.02; Al 0.0	
WVCM41	6.50	4.79	4.14					Fe 0.014; Al 0.	
WVCM42	0.72	0.84	0.60					Fe 0.027; Al 0.	
WVCM42	2.44	1.11	0.82					Fe 0.045; Al 0.	
WVCM44	0.31	0.02	0.22					Fe 0.014; Al 0.0	
WVCM44	0.57	0.60	0.38					Fe 0.196; Al 0.	
WVCM45	0.15	0.18	0.15					Fe 0.011; Al 0.	
WVCM45	0.23	0.32	0.18					Fe 0.019; Al 0.	
PNL 7668									
PNL 7668									
PNL 7668									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 1									
ABS 19									
ABS 19									
ABS 19									
ABS 19									
ABS 19									

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Glass /--- Comments ----->

Type

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SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 SRP BLACK FRIT E.I. duPont (SRL); Listed other - U308; only major constituents in composition
 PNL 7669 PNL; no composition data
 PNL 7669 PNL; no composition data
 PNL 7669 PNL; no composition data
 PNL 7669 PNL; no composition data
 PNL 7669 PNL; no composition data
 WVCN46 Listed Other:CoO, 0.02; ThO2 3.56--Catholic University
 WVCN41 Listed Other:CoO, 0.02; ThO2 3.56--Catholic University
 WVCN41 Catholic Univ.
 WVCN42 032; Ca 0.006;Zr 0.012; P 0.628 -- Catholic University
 WVCN42 Catholic University
 WVCN44 Listed Other:CoO 0.03;SO3 0.20;Sm2O3 0.01; ThO2 3.26 (Glass Compositions from 9/86 Report)-- Cath
 WVCN44 Listed Other:CoO 0.03;SO3 0.20;Sm2O3 0.01; ThO2 3.26 -- Catholic University
 WVCN45 Listed Other: CoO 0.02; SO3 0.22;Sm2O3 0.01; ThO2 3.58 (Glass Compositions from 9/86 Report)-- Ca
 WVCN45 Listed Other: CoO 0.02; SO3 0.22;Sm2O3 0.01; ThO2 3.58 -- Catholic University
 PNL 7668 Strachan & Krupka, PNL; Grambow, Hahn-Meitner Institut, Berlin, Germany
 PNL 7668 Strachan & Krupka, PNL; Grambow, Hahn-Meitner Institut, Berlin, Germany
 PNL 7668 Strachan & Krupka, PNL; Grambow, Hahn-Meitner Institut, Berlin, Germany
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
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 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 1 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38
 ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CoO, 0.38

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 19	2	22.2	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 24	2.2	14.5	0.46				0.87		4
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	ABS 29	2.5	15.9	0.46			0.75	0.88		0.6
HENCH-80.	PNL 76-68									
HENCH-80.	PNL 76-68									
HENCH-80.	PNL 76-68									
HENCH-80.	PNL 76-68									
BARKATT-82.	PNL 7668	0.10	9.47	0.59	2.00	1.26	0.44	1.09		10.34
BARKATT-82.	PNL 7668	0.10	9.47	0.59	2.00	1.26	0.44	1.09		10.34
BARKATT-82.	PNL 7668	0.10	9.47	0.59	2.00	1.26	0.44	1.09		10.34
BARKATT-82.	PNL 7668	0.10	9.47	0.59	2.00	1.26	0.44	1.09		10.34
BARKATT-82.	SRL TDS-131	3.70								
BARKATT-82.	SRL TDS-131	3.70								
BARKATT-82.	SRL TDS-131	3.70								
BARKATT-82.	SRL TDS-131	3.70								
BARKATT-82.	CU PGM	8.10								
BARKATT-82.	CU PGM	8.10								
BARKATT-82.	CU PGM	8.10								
BARKATT-82.	CU PGM	8.10								
STRACHAN-82 (*)	PNL7668	0.46	8.52	0.52	2.15	1.03	0.49	0.84		10.80
STRACHAN-82 (*)	PNL7668	0.46	8.52	0.52	2.15	1.03	0.49	0.84		10.80

// ---GLASS COMPOSITION WEIGHT PERCENT---GLASS COMPOSITION WEIGHT PERCENT---

Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
------------	-------	-----	-------	------	-----	------	------	------	-------	-----

ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 19			0.7			0.76	1.62	13.1	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 24			0.7	1.8		0.76	1.62	8.5	1.2	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
ABS 29			0.71	3		0.77	1.63	9.4	1.21	0.37
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 7668	0.05		0.56				2.42	12.80	4.67	0.21
PNL 7668	0.05		0.56				2.42	12.80	4.67	0.21
PNL 7668	0.05		0.56				2.42	12.80	4.67	0.21
PNL 7668	0.05		0.56				2.42	12.80	4.67	0.21
SRL TDS-131										
SRL TDS-131										
SRL TDS-131										
SRL TDS-131										
CU PGM										
CU PGM										
CU PGM										
CU PGM										
PNL7668	0.07		0.49			0.04	1.89	15.00	4.12	0.25
PNL7668	0.07		0.49			0.04	1.89	15.00	4.12	0.25

// PERCENT		GLASS		COMPOSITION	WEIGHT	PERCENT				
Glass	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
Type										
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 19	0.37					48	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 24	0.37					51.6	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
ABS 29	0.37					52	0.26			
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 7668	0.21	0.51			1.13	39.80	0.40	0.28	2.97	
PNL 7668	0.21	0.51			1.13	39.80	0.40	0.28	2.97	
PNL 7668	0.21	0.51			1.13	39.80	0.40	0.28	2.97	
PNL 7668	0.21	0.51			1.13	39.80	0.40	0.28	2.97	
SRL TDS-131						43.90				
SRL TDS-131						43.90				
SRL TDS-131						43.90				
SRL TDS-131						43.90				
CU PGM		4.40				57.30				
CU PGM		4.40				57.30				
CU PGM		4.40				57.30				
CU PGM		4.40				57.30				
PNL7668	0.25	0.70			0.78	42.80	0.36	0.21	3.05	
PNL7668	0.25	0.70			0.78	42.80	0.36	0.21	3.05	

GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC		

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
// -----LEACH TEST-----					-----LEACH TEST-----				
Glass Type	-- Comment --->	SA/V (l/M)	Leachant Water Type	Geologic Canister Media Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
=====									
ABS 19	like MCC-1 test	100.0	DIW			90	6.5		
ABS 19	like MCC-1 test	1.0	DIW			90	6.5		
ABS 19	like MCC-1 test	10.0	DIW			90	6.5		
ABS 19	like MCC-1 test	100.0	DIW			90	6.5		
ABS 19	like MCC-1 test	1.0	DIW			90	6.5		
ABS 19	like MCC-1 test	10.0	DIW			90	6.5		
ABS 19	like MCC-1 test	100.0	DIW			90	6.5		
ABS 24	like MCC-1 test	1.0	DIW			90	6.5		
ABS 24	like MCC-1 test	10.0	DIW			90	6.5		
ABS 24	like MCC-1 test	100.0	DIW			90	6.5		
ABS 24	like MCC-1 test	1.0	DIW			90	6.5		
ABS 24	like MCC-1 test	10.0	DIW			90	6.5		
ABS 24	like MCC-1 test	100.0	DIW			90	6.5		
ABS 24	like MCC-1 test	1.0	DIW			90	6.5		
ABS 24	like MCC-1 test	10.0	DIW			90	6.5		
ABS 24	like MCC-1 test	100.0	DIW			90	6.5		
ABS 24	like MCC-1 test	1.0	DIW			90	6.5		
ABS 24	like MCC-1 test	10.0	DIW			90	6.5		
ABS 24	like MCC-1 test	100.0	DIW			90	6.5		
ABS 29	like MCC-1 test	1.0	DIW			90	6.5		
ABS 29	like MCC-1 test	10.0	DIW			90	6.5		
ABS 29	like MCC-1 test	100.0	DIW			90	6.5		
ABS 29	like MCC-1 test	1.0	DIW			90	6.5		
ABS 29	like MCC-1 test	10.0	DIW			90	6.5		
ABS 29	like MCC-1 test	100.0	DIW			90	6.5		
ABS 29	like MCC-1 test	1.0	DIW			90	6.5		
ABS 29	like MCC-1 test	10.0	DIW			90	6.5		
ABS 29	like MCC-1 test	100.0	DIW			90	6.5		
ABS 29	like MCC-1 test	1.0	DIW			90	6.5		
ABS 29	like MCC-1 test	10.0	DIW			90	6.5		
ABS 29	like MCC-1 test	100.0	DIW			90	6.5		
PNL 76-68	like MCC-1 test	10.0	DIW			90			
PNL 76-68	like MCC-1 test	10.0	DIW			90			
PNL 76-68	like MCC-1 test	10.0	DIW			90			
PNL 76-68	like MCC-1 test	10.0	DIW			90			
PNL 7668	Gamma field-8.6	10.0	DIW	Polypropylene test		25			
PNL 7668	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	6.00 Buffer, 0.05M phospha		
PNL 7668	Gamma field-8.6	10.0	BUFFER	Polypropylene test		90	4 to 6		
PNL 7668	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	5.00 Buffer, 0.05M/0.01M o		
SRL TDS-131	Gamma field-8.6	10.0	DIW	Polypropylene test		25			
SRL TDS-131	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	6.00 Buffer, 0.05M phospha		
SRL TDS-131	Gamma field-8.6	10.0	BUFFER	Polypropylene test		90	4 to 6		
SRL TDS-131	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	5.00 Buffer, 0.05M/0.01M o		
CU PGM	Gamma field-8.6	10.0	DIW	Polypropylene test		25			
CU PGM	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	6.00 Buffer, 0.05M phospha		
CU PGM	Gamma field-8.6	10.0	BUFFER	Polypropylene test		90	4 to 6		
CU PGM	Gamma field-8.6	10.0	BUFFER	Polypropylene test		25	5.00 Buffer, 0.05M/0.01M o		
PNL7668		10.0	DIW			40			
PNL7668		10.0	DIW			40			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 97	Status	Report	MCC	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
=====										
ABS 19						7	7.76	115.5	98	57
ABS 19						14	6.44	0.58	0.6	0.5
ABS 19						14	6.39	4.67	5.1	7.4
ABS 19						14	4.91	295	140	85
ABS 19						28	5.71	3.49	0.3	0.67
ABS 19						28	6.46	14	4	13.2
ABS 19						28	7.49	425	150	113
ABS 24						1	5.25	0.58		0.05
ABS 24						1	5.17	0.11	0.4	0.2
ABS 24						1				2.9
ABS 24						7	5.72			
ABS 24						7	5.19	0.58	0.9	0.5
ABS 24						7	6.46	10.49	1	3.3
ABS 24						14	5.15		0.2	0.06
ABS 24						14	5.01	0.7	0.1	0.8
ABS 24						28	3.16	1.98		0.2
ABS 24						28	4.9	28	2	4.8
ABS 24						28	5.76	105	20	10
ABS 29						1	5.58	2.33		0.1
ABS 29						1	6.85	0.11	0.6	0.6
ABS 29						1		4.78		1.5
ABS 29						7	6.51	0.12		0.2
ABS 29						7	5.96	0.23	2.5	1.5
ABS 29						7	6.83	11.66	3	3.5
ABS 29						14	6.01	0.82	0.3	0.15
ABS 29						14	5.91	1.17	2.1	1.8
ABS 29						14		58.32	4	3.3
ABS 29						28	5.71	2.68	0.2	0.24
ABS 29						28	5.75	24.5	3	6.2
ABS 29						28	6.48	35	20	13
PNL 76-68						1				
PNL 76-68						7				
PNL 76-68						14				
PNL 76-68						28				
PNL 7668						15				
PNL 7668	te					15				
PNL 7668						15				
PNL 7668	xalic acid					15				
SRL TDS-131						15				
SRL TDS-131	te					15				
SRL TDS-131						15				
SRL TDS-131	xalic acid					15				
CU PGM						15				
CU PGM	te					15				
CU PGM						15				
CU PGM	xalic acid					15				
PNL7668						3	6.60			
PNL7668						7	6.70			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// -----FINAL LEACHATE COMPOSITION-----/ \----- NORMALIZED										
Glass Type	Li (ppm)	K (ppm)	Cs (ppm)	Sr (ppm)	U (ppm)	Mn (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)	
=====										
ABS 19										
ABS 19						0.1	Mn:0.02			
ABS 19						0.1	Mn:0.11			
ABS 19										
ABS 19							Mn:0.02			
ABS 19						0.6	Mn:0.16			
ABS 19										
ABS 24										
ABS 24										
ABS 24										
ABS 24							Mn:0.02			
ABS 24							Mn:0.03			
ABS 24										
ABS 24							Mn:0.02			
ABS 24							Mn:0.05			
ABS 24										
ABS 24							Mn:0.06			
ABS 24										
ABS 29										
ABS 29										
ABS 29										
ABS 29							Mn:0.01			
ABS 29						0.2	Mn:0.07			
ABS 29										
ABS 29							Mn:0.02			
ABS 29						0.1	Mn:0.08			
ABS 29										
ABS 29							Mn:0.02			
ABS 29							Mn:0.09			
ABS 29										
PNL 76-68								0.22	0.11	
PNL 76-68								0.91	0.4	
PNL 76-68								1.4	0.49	
PNL 76-68								1.71	0.64	
PNL 7668										
PNL 7668										
PNL 7668										
PNL 7668										
SRL TDS-131										
SRL TDS-131										
SRL TDS-131										
SRL TDS-131										
CU PGM										
CU PGM										
CU PGM										
CU PGM										
PNL7668								0.52	0.56	
PNL7668								0.98	0.96	

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET		

-----//	LEACH	VALUES	-----			NORMALIZED	LEACH	VALUES
Glass	Na	Li	K	Cs	Sr	U	Mo	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====								
ABS 19								
ABS 19								
ABS 19								
ABS 19								
ABS 19								
ABS 19								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 24								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
PNL 76-68	0.09							
PNL 76-68	0.27							
PNL 76-68	0.45							
PNL 76-68	0.95							
PNL 7668								Ratio,Si=1.35,S
PNL 7668								Ratio,Si=1.15,S
PNL 7668								Ratio,Si=2.2,Sr
PNL 7668								Ratio,Si=2.0,Ca
SRL TDS-131								Ratio,Si=3.9,Sr
SRL TDS-131								Ratio,Si=1.2,Sr
SRL TDS-131								Ratio,Si=11.0,S
SRL TDS-131								Ratio,Si=6.9,Ca
CU PGM								Ratio,Si=3.5,Na
CU PGM								Ratio,Si=1.4S
CU PGM								Ratio,Si=6.5,Sr
CU PGM								Ratio,Si=0.7,Ca
PNL7668	0.52						0.52	
PNL7668	1.04						1.04	

GLASS VERSION 2

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 Glass /--- Comments -----
 Type

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ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 19 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 24 Sim. waste: 9%; Univ. of Florida; Other includes 2.40% of UO2/CeO2, fission product is CeO, 0.38
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
ABS 29 Sim. waste: 9%; Univ. of Florida; Other includes 1.7% of UO2/CeO2, 0.38% rare earths = 0.38% Pr2
PNL 76-68 Univ. of Florida
PNL 76-68 Univ. of Florida
PNL 76-68 Univ. of Florida
PNL 76-68 Univ. of Florida
PNL 7668 Catholic U., ratio=irradiated/non-irradiated leach rates; Other-Y2O3=0.23;Rh2O3=0.18;PdO0.56;Ag2O
PNL 7668 Catholic U., ratio=irradiated/non-irradiated leach rates; Other-Y2O3=0.23;Rh2O3=0.18;PdO0.56;Ag2O
PNL 7668 Catholic U., ratio=irradiated/non-irradiated leach rates; Other-Y2O3=0.23;Rh2O3=0.18;PdO0.56;Ag2O
PNL 7668 Catholic U., ratio=irradiated/non-irradiated leach rates; Other-Y2O3=0.23;Rh2O3=0.18;PdO0.56;Ag2O
SRL TDS-131 Catholic Univ., ratio=irradiated/non-irradiated leach rates.
SRL TDS-131 Catholic Univ., ratio=irradiated/non-irradiated leach rates.
SRL TDS-131 Catholic Univ., ratio=irradiated/non-irradiated leach rates.
SRL TDS-131 Catholic Univ., ratio=irradiated/non-irradiated leach rates.
CU PGM Catholic Univ., ratio=irradiated/non-irradiated leach rates.
CU PGM Catholic Univ., ratio=irradiated/non-irradiated leach rates.
CU PGM Catholic Univ., ratio=irradiated/non-irradiated leach rates.
CU PGM Catholic Univ., ratio=irradiated/non-irradiated leach rates.
PNL7668 PNL. B. Day's unfinished; 7-23-87
PNL7668 PNL

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[illegible]

[illegible]

GLASS GLASS DURABILITY SPREAD SHEET VERSION 2					MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
// -----LEACH TEST-----					-----LEACH TEST-----				
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(l/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment	(ppm)
=====									
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				40		
PNL7668		10.0	DIW				70		
PNL7668		10.0	DIW				70		
PNL7668		10.0	DIW				70		
PNL7668		10.0	DIW				70		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	DIW				90		
PNL7668		10.0	SILICATE				70		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	SILICATE				90		
PNL7668		10.0	BRINE				70		
PNL7668		10.0	BRINE				90		
PNL7668		10.0	BRINE				90		
PNL7668		10.0	BRINE				90		
PNL7668		10.0	BRINE				90		
PNL7668		10.0	BRINE				90		
PNL7668		10.0	BRINE				90		
PNL7668 + 33% slisted others:		6.0	DIW		Polymethylpentane		90		
50% glass + 50%listed others:		6.0	DIW		Polymethylpentane		90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	600 grit surfac	10.0	DIW				90		
ABS 29	polypropylene t	10.0	DIW				90		
SRL-131/TDS-3A	Glass disc + crushed basa	Basalt gro	Basalt, Grande Ronde (Umt		100	9.70 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		90	11.20 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		90	11.20 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		150	10.70 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		150	10.70 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		150	10.70 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		150	10.70 0.4um filter	73.0		
SRL-131/TDS-3A	Crushed glass + crushed b	Basalt gro	Basalt, Grande Ronde (Umt		150	10.70 0.4um filter	73.0		

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
PNL7668						14	7.00			
PNL7668						28	7.10			
PNL7668						56	7.10			
PNL7668						121	7.40			
PNL7668						187	8.00			
PNL7668						364	8.80			
PNL7668						3	7.20			
PNL7668						7	7.40			
PNL7668						14	7.60			
PNL7668						28	9.50			
PNL7668						3	9.00			
PNL7668						7	8.80			
PNL7668						14	8.90			
PNL7668						28	9.70			
PNL7668						56	9.50			
PNL7668						91	9.70			
PNL7668						182	9.60			
PNL7668						365	9.50			
PNL7668						28	9.30			
PNL7668						28	9.60			
PNL7668						56	9.60			
PNL7668						91	9.70			
PNL7668						182	9.70			
PNL7668						365	9.60			
PNL7668						28	7.10			
PNL7668						28	6.60			
PNL7668						56	6.20			
PNL7668						91	6.10			
PNL7668						182	6.00			
PNL7668						365	5.80			
PNL7668 + 33% s						3	9.10			
50% glass + 50%						3	7.40			
ABS 29						3	6.80	3.00	2.10	0.70
ABS 29						7	7.00	5.10	1.30	
ABS 29						14	6.60	7.20	2.10	5.20
ABS 29						28	7.80	10.00	4.60	12.00
ABS 29						3	7.30	4.80	3.10	1.80
ABS 29						7	8.40	7.40	4.70	2.70
ABS 29						14	8.70	22.00	15.00	7.50
ABS 29						28	9.20	36.00	25.00	11.00
ABS 29						14	7.60	13.00	2.70	3.20
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	372	9.20		5.20	
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	282	11.40		440.00	
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	155	11.30		320.00	
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	254	11.40	1,570.00	1,970.00	5,440.00
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	160	11.40	1,750.00	1,460.00	4,690.00
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	92	10.70	1,090.00	640.00	2,090.00
SRL-131/TDS-3A	349.0	290.0	170.0	0.3	33.0	20	10.90	639.00	254.00	1,140.00

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****				*****					
// -----FINAL LEACHATE COMPOSITION-----				/ \-----NORMALIZED					
Glass Type	Li (ppm)	K (ppm)	Cs (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)
=====									
PNL7668								1.24	1.36
PNL7668								1.74	1.97
PNL7668								2.21	2.32
PNL7668								3.43	3.95
PNL7668								4.21	5.10
PNL7668								11.00	17.00
PNL7668								1.60	1.88
PNL7668								3.50	3.95
PNL7668								5.70	6.84
PNL7668								9.70	12.30
PNL7668								5.35	6.04
PNL7668								10.30	12.20
PNL7668								15.10	21.00
PNL7668								26.00	40.00
PNL7668								33.00	54.00
PNL7668								44.00	86.00
PNL7668								47.60	118.00
PNL7668								51.00	111.00
PNL7668								21.00	13.70
PNL7668								22.00	40.00
PNL7668								30.00	52.00
PNL7668								29.90	61.00
PNL7668								35.60	103.00
PNL7668								40.00	98.00
PNL7668								7.90	6.60
PNL7668								10.00	30.00
PNL7668								13.00	49.00
PNL7668								17.60	61.00
PNL7668								17.20	96.00
PNL7668								14.20	133.00
PNL7668 + 33% s								15.00	20.00
50% glass + 50%								10.00	20.00
ABS 29									
ABS 29									
ABS 29									
ABS 29									
ABS 29									
ABS 29									
ABS 29									
ABS 29									
ABS 29									
SRL-131/TDS-3A	2.20							Original leachant: B 0.6, Li 0.00	
SRL-131/TDS-3A								Original leachant: B 0.6, Li 0.00	
SRL-131/TDS-3A								Original leachant: B 0.6, Li 0.00	
SRL-131/TDS-3A	218.00	256.00		0.20				Al 0.4;Ca 0.18;Mg 0.1;Fe 0.08;Sr 0.2; F	
SRL-131/TDS-3A	238.00	202.00		0.12					
SRL-131/TDS-3A	102.00	134.00		0.02				Cl 350; SO4 230; F 32	
SRL-131/TDS-3A	104.00	69.00		0.00				Cl 320; SO4 190; F 34	

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET		

-----//	LEACH	VALUES	-----	NORMALIZED	LEACH	VALUES		
Glass	Na	Li	K	Cs	Gr	U	Mo	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====								
PNL7668	1.33						1.37	
PNL7668	2.02						2.00	
PNL7668	2.45						2.40	
PNL7668	4.24						4.40	
PNL7668	4.59						5.00	
PNL7668	15.00						17.00	
PNL7668	2.30						1.90	
PNL7668	4.10						3.80	
PNL7668	7.20						8.50	
PNL7668	11.00						12.70	
PNL7668	6.17						6.21	
PNL7668	13.60						12.80	
PNL7668	19.80						20.80	
PNL7668	36.00						40.00	
PNL7668	46.00						55.00	
PNL7668	74.00						84.00	
PNL7668	101.00						119.00	
PNL7668	102.00						111.00	
PNL7668	16.30						13.60	
PNL7668	40.00						40.00	
PNL7668	56.00						63.00	
PNL7668	53.00						63.80	
PNL7668	92.00						104.00	
PNL7668	80.00						98.00	
PNL7668							4.40	
PNL7668							20.00	
PNL7668							50.00	
PNL7668							65.00	
PNL7668							93.00	
PNL7668							128.00	
PNL7668 + 33% s	23.00			17.80	0.50		19.00	Ca=2
50% glass + 50%	100.00			3.00	12.00		57.00	Ca=4
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
ABS 29								
SRL-131/TDS-3A								
SRL-131/TDS-3A								
SRL-131/TDS-3A								
SRL-131/TDS-3A 42; C1 360; 504 290								
SRL-131/TDS-3A								
SRL-131/TDS-3A								
SRL-131/TDS-3A								

[illegible][illegible][illegible]

\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
WALD-82	PNL 76-68		8.82	0.49	3.05	0.70	0.31	1.02		11.37
JOHNSTON-82	NBS	3.58	16.85	0.27	0.14					0.10
JOHNSTON-82	NBS	3.58	16.85	0.27	0.14					0.10
JOHNSTON-82	NBS	3.58	16.85	0.27	0.14					0.10
JOHNSTON-82	BASALT	13.09		0.03	9.47		0.03			10.76
JOHNSTON-82	BASALT	13.09		0.03	9.47		0.03			10.76
JOHNSTON-82	BASALT	13.09		0.03	9.47		0.03			10.76
JOHNSTON-82	MCC 7668	0.60	8.81	0.53	2.36	0.90	0.15	1.02		9.40
JOHNSTON-82	MCC 7668	0.60	8.81	0.53	2.36	0.90	0.15	1.02		9.40
JOHNSTON-82	MCC 7668	0.60	8.81	0.53	2.36	0.90	0.15	1.02		9.40
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (81)	1.85	2.70		0.83					9.50
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (82) +	1.76	2.70	0.34	0.76	0.86				9.00
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
STEINDLER-82	SRL 131 (83) +W	2.03	2.57	0.12	0.89	0.30	0.18	0.04		9.56
KIRCHER-83	PNL 76-68									
KIRCHER-83	PNL 76-68									
KIRCHER-83	PNL 76-68									
KIRCHER-83	PNL 76-68									
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
BIBLER-86	Radioactive SRP	9.80	8.40		0.24					6.00
MOHR-86	WVCM17									
MOHR-86	WVCM17									
MOHR-86	WVCM17 + Al2O3	6.86	8.69	0.62	0.77	0.14	0.12			12.56
MOHR-86	WVCM17 + Al2O3	6.86	8.69	0.62	0.77	0.14	0.12			12.56

GLASS DURABILITY SPREAD SHEET VERSION 2							MCC GLASS DURABILITY			

-----//-----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
PNL 76-68	0.02	0.18	4.28		0.15	0.06	1.86	12.40	1.26	0.24
NBS		7.15		0.46				2.68		
NBS		7.15		0.46				2.68		
NBS		7.15		0.46				2.68		
BASALT		0.45			5.75	0.21		4.68		
BASALT		0.45			5.75	0.21		4.68		
BASALT		0.45			5.75	0.21		4.68		
MCC 7668		0.13	4.06		0.15	0.06	1.93	11.53	1.38	0.25
MCC 7668		0.13	4.06		0.15	0.06	1.93	11.53	1.38	0.25
MCC 7668		0.13	4.06		0.15	0.06	1.93	11.53	1.38	0.25
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G1)			0.29	1.86	0.77	2.20		9.50		1.15
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G2) +			0.28	1.72	0.82	2.30		9.30	0.84	1.11
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
SRL 131 (G3) +W		0.06	0.34	1.83	0.87	2.62	0.06	0.49	0.35	1.33
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 76-68										
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
Radioactive SRP				4.90	1.00	1.90		11.00		0.90
WVCM17										
WVCM17										
WVCM17 + A12O3		3.29		3.29	1.35	1.55		10.43		0.97
WVCM17 + A12O3		3.29		3.29	1.35	1.55		10.43		0.97

// PERCENT		GLASS COMPOSITION WEIGHT PERCENT								
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
PNL 76-68	0.24	0.80				43.19	0.43		2.95	
NBS			0.09			66.52				
NBS			0.09			66.52				
NBS			0.09			66.52				
BASALT						46.85	0.24		1.64	
BASALT						46.85	0.24		1.64	
BASALT						46.85	0.24		1.64	
MCC 7668	0.25					40.84	0.42		3.03	
MCC 7668	0.25					40.84	0.42		3.03	
MCC 7668	0.25					40.84	0.42		3.03	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G1)	1.15					20.50			0.49	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G2) +	1.11				0.20	20.10	0.15		0.37	
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
SRL 131 (G3) +W	1.33		0.11		0.15	18.10	0.05		0.41	0.85
PNL 76-68										
PNL 76-68										
PNL 76-68										
PNL 76-68										
Radioactive SRP	0.90					55.40				
Radioactive SRP	0.90					55.40				
Radioactive SRP	0.90					55.40				
Radioactive SRP	0.90					55.40				
Radioactive SRP	0.90					55.40				
*Radioactive SRP	0.90					55.40				
WVCM17										
WVCM17										
*WVCM17 + Al2O3	0.97	2.42				42.03			0.97	
WVCM17 + Al2O3	0.97	2.42				42.03			0.97	

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

// ---GLASS		COMPOSITION	WEIGHT	PERCENT	-----// \			
Glass	InO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
PNL 76-68	4.74	1.65			0.03	100.00	N	MCC-1
NBS						97.84	N	MCC-1
NBS						97.84	N	MCC-1
NBS						97.84	N	MCC-1
BASALT		0.03				93.23	N	MCC-1
BASALT		0.03				93.23	N	MCC-1
BASALT		0.03				93.23	N	MCC-1
MCC 7668	4.72	1.68			1.27	95.22	N	MCC-1
MCC 7668	4.72	1.68			1.27	95.22	N	MCC-1
MCC 7668	4.72	1.68			1.27	95.22	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G1)		0.32				51.96	N	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G2) +		0.23			0.10	52.94	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
SRL 131 (G3) +W	0.12	0.25			0.44	44.12	Y	MCC-1
PNL 76-68						0.00	N	MCC-1
PNL 76-68						0.00	N	MCC-1
PNL 76-68						0.00	N	MCC-1
PNL 76-68						0.00	N	MCC-1
Radioactive SRP						99.54	Y	STATIC
Radioactive SRP						99.54	Y	STATIC
Radioactive SRP						99.54	Y	STATIC
Radioactive SRP						99.54	Y	STATIC
Radioactive SRP						99.54	Y	STATIC
Radioactive SRP						99.54	Y	STATIC
WVCM17						0.00	N	MCC-3
WVCM17						0.00	N	MCC-3
WVCM17 + Al2O3		2.90				98.96	N	MCC-3
WVCM17 + Al2O3		2.90				98.96	N	MCC-3

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****					*****					
// -----LEACH TEST-----					-----LEACH TEST-----					
Glass Type	-- Comment -->	SA/V (1/M)	Leachant Water Type	Geologic Media	Canister Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
=====										
PNL 76-68	Other Matrices	10.0	DIW				90	6.90		
NBS	RoundRobin Avg.	10.0	Silicate Water				90	7.50		
NBS	RoundRobin Avg.	10.0	DIW				90			
NBS	RoundRobin Avg.	10.0	Brine				90	6.40		
BASALT	RoundRobin Avg.	10.0	Silicate Water				90	7.50		
BASALT	RoundRobin Avg.	10.0	DIW				90			
BASALT	RoundRobin Avg.	10.0	Brine				90	6.40		
MCC 7668	RoundRobin Avg.	10.0	Silicate Water				90	7.50		
MCC 7668	RoundRobin Avg.	10.0	DIW				90			
MCC 7668	RoundRobin Avg.	10.0	Brine				90	6.40		
SRL 131 (G1)	Specimen L-298	9.8	DIW				90	6.10		
SRL 131 (G1)	Specimen L-299		DIW				90	6.20		
SRL 131 (G1)	Specimen L-300	9.2	DIW				90	6.30		
SRL 131 (G1)	Three Test Aver	9.4	DIW				90	6.30		
SRL 131 (G1)	Specimen L-304	8.9	DIW				90	6.30		
SRL 131 (G1)	Specimen L-305	9.5	DIW				90	6.30		
SRL 131 (G1)	Two Test Averag	9.3	DIW				90	6.30		
SRL 131 (G1)	Two Test Averag	9.4	DIW				90	6.30		
SRL 131 (G2)	+Listed Other: E	9.7	DIW				90	6.30		
SRL 131 (G2)	+Listed Other: E	8.8	DIW				90	6.10		
SRL 131 (G2)	+Listed Other: E	9.2	DIW				90	6.00		
SRL 131 (G2)	+Three Test Aver	8.9	DIW				90	6.00		
SRL 131 (G2)	+Listed Other: E	8.9	DIW				90	6.00		
SRL 131 (G2)	+Listed Other: E	9.6	DIW				90	6.15		
SRL 131 (G2)	+Two Test Averag	9.8	DIW				90	6.15		
SRL 131 (G2)	+Two Test Averag	10.2	DIW				90	6.15		
SRL 131 (G2)	+Listed Other: E	9.8	DIW				90	6.15		
SRL 131 (G3)	+WListed Other: E	11.2	DIW				90	5.70		
SRL 131 (G3)	+WListed Other: E	9.1	DIW				90	5.70		
SRL 131 (G3)	+WListed Other: E	10.0	DIW				90	5.70		
SRL 131 (G3)	+WTwo Test Averag	10.0	DIW				90	5.70		
SRL 131 (G3)	+WListed Other: E	10.0	DIW				90	5.70		
SRL 131 (G3)	+WListed Other: E	10.7	DIW				90	5.70		
SRL 131 (G3)	+WListed Other: E	8.7	DIW				90	5.70		
PNL 76-68	Gamma Irradiate	10.0	DIW				50	5.70		
PNL 76-68		10.0	DIW				50	5.70		
PNL 76-68	Gamma Irradiate	10.0	DIW				90	5.70		
PNL 76-68		10.0	DIW				90	5.70		
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
Radioactive SRPHOT SRP Glass w		100.0	J-13/TUFF		316SS Test Vessel		90	7.40	Dose rate to	57.8
WVCM17		2684.0	DIW				90			
WVCM17		2684.0	DIW				90			
WVCM17 + A1203	Reduced	2684.0	DIW				90			
WVCM17 + A1203	Reduced	2684.0	DIW				90			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 37	Status	Report	MCC	GLASS		
*****							*****			
//-----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
=====										
PNL 76-68						14	9.50			
NBS						28	7.58	22.76	0.16	49.00
NBS						28				
NBS						28				
BASALT						28				
BASALT						28				
BASALT						28				
MCC 7668						28				
MCC 7668						28				
MCC 7668						28				
SRL 131 (G1)						3	9.80	19.50	4.15	12.90
SRL 131 (G1)						7	9.80	25.00	6.22	19.00
SRL 131 (G1)						14	9.80	27.90	7.77	22.30
SRL 131 (G1)						28	9.80	35.73	9.16	25.96
SRL 131 (G1)						42	9.40	41.20	9.85	27.40
SRL 131 (G1)						91	9.80	55.90	14.40	
SRL 131 (G1)						183	9.30	90.75	25.20	63.40
SRL 131 (G1)						392	9.70	92.20	23.80	74.70
SRL 131 (G2) +						3	9.70	16.00	3.68	
SRL 131 (G2) +						7	9.70	24.10	5.36	
SRL 131 (G2) +						14	9.70	28.70	6.88	
SRL 131 (G2) +						28	9.80	33.80	8.75	25.10
SRL 131 (G2) +						37	9.60	39.20	8.79	27.20
SRL 131 (G2) +						91	9.60	53.30	14.20	
SRL 131 (G2) +						195	9.70	61.40	24.40	69.80
SRL 131 (G2) +						386	9.90	97.30	30.60	90.40
SRL 131 (G2) +						546	9.50	88.90	32.00	91.00
SRL 131 (G3) +W						3	9.40	15.70	3.41	
SRL 131 (G3) +W						7	9.50	22.60	4.62	
SRL 131 (G3) +W						14	9.70	36.90	8.09	
SRL 131 (G3) +W						28	9.70	60.10	16.00	
SRL 131 (G3) +W						56	9.60	71.10	21.80	63.00
SRL 131 (G3) +W						91	9.70	84.80	27.10	75.00
SRL 131 (G3) +W						182	9.60	81.20	25.80	73.00
PNL 76-68						5	3.30	6.50	1.10	5.00
PNL 76-68						5	7.20	1.44	0.26	1.80
PNL 76-68						13	4.60	177.10	31.30	130.00
PNL 76-68						13	8.50	21.00	4.50	18.50
Radioactive SRP	42.0					14	7.10			
Radioactive SRP	42.0					32	7.35			
Radioactive SRP	42.0					56	7.20			
Radioactive SRP	42.0					71	7.20			
Radioactive SRP	42.0					91	7.40			
Radioactive SRP	42.0					134	7.70			
WVCM17						7	10.04	88.68	50.94	93.00
WVCM17						28	10.18	175.00	432.00	735.00
WVCM17 + Al2O3						7	10.27	120.00	202.00	311.00
WVCM17 + Al2O3						28	10.04	103.00	213.00	332.00

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****				*****					
// ---FINAL LEACHATE COMPOSITION---				/ \-----NORMALIZED					
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mn (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)
=====									
PNL 76-68								9.24	21.00
NBS		0.78	0.11	0.00			Ca 0.072; Fe 0.	25.60	61.10
NBS								4.90	17.80
NBS								8.10	19.20
BASALT								2.70	
BASALT								5.60	
BASALT								2.20	30.80
MCC 7668								18.10	32.40
MCC 7668								23.90	36.00
MCC 7668								11.10	23.20
SRL 131 (G1)	2.32						Mn <0.05, Ca 0.	9.20	15.60
SRL 131 (G1)	3.52						Mn <0.05, Ca <0	12.50	23.70
SRL 131 (G1)	4.02						Mn <0.05, Ca <0	14.80	31.20
SRL 131 (G1)	4.93						Mn 0.11, Ca 0.5	18.60	36.20
SRL 131 (G1)	5.42						Mn 0.2, Ca 0.15	21.00	38.20
SRL 131 (G1)							Mn 0.25, Ca 0.0	27.60	54.00
SRL 131 (G1)	11.85						Mn 0.38, Ca 0.0	44.20	93.10
SRL 131 (G1)	14.00						Mn 0.28, Ca 0.0	39.70	77.80
SRL 131 (G2) +							Mn <0.05, Ca 0.	9.20	14.00
SRL 131 (G2) +							Mn 0.05, Ca 0.1	13.70	22.70
SRL 131 (G2) +							Mgn 0.05, Ca 0.	15.40	27.60
SRL 131 (G2) +	4.80						Mn 0.06, Ca <0.	18.80	36.20
SRL 131 (G2) +	5.22						Mn 0.08, Ca <0.	21.50	36.00
SRL 131 (G2) +							Mn 0.15, Ca <0.	26.50	52.70
SRL 131 (G2) +	69.80						Mn 0.21, Ca <0.	28.90	85.40
SRL 131 (G2) +	90.40						Mn 0.58, Ca <0.	40.90	95.90
SRL 131 (G2) +	91.00						Mn 0.46, Ca <0.	36.80	98.60
SRL 131 (G3) +W				0.02	0.10	0.10	Mn 0.039, Ca 0.	7.50	11.50
SRL 131 (G3) +W					0.12	0.13	Mn 0.052, Ca 0.	13.60	19.60
SRL 131 (G3) +W					0.20	0.22	Mn 0.055, Ca <0	20.20	31.20
SRL 131 (G3) +W					0.23	0.30	Mn .10, Ca <0.0	31.40	59.80
SRL 131 (G3) +W	15.00				0.31	0.40	Mn 0.31, Ca <0.	37.20	80.30
SRL 131 (G3) +W	18.00				0.31	0.49	Mn 0.51, Ca 0.0	39.50	99.00
SRL 131 (G3) +W	17.00				0.31	0.46	Mn 0.08, Ca 0.0	46.50	104.00
PNL 76-68			0.00	0.14		0.10	Ca 0.8, Ba 0.19, Zn 2.0		
PNL 76-68			0.13	0.03		0.13	Ca 0.18, Ba 0.03, Zn 0.17		
PNL 76-68			0.00	1.40		7.20	Ca 7.9, Ba 0.9, Zn 37.6		
PNL 76-68			2.20	0.20		2.60	Ca. 1.0, Ba 0.1, Zn 0.09		
Radioactive SRP									
Radioactive SRP									
Radioactive SRP									
Radioactive SRP									
Radioactive SRP									
Radioactive SRP									
WVCM17	20.41	16.15		0.00			Fe 7.37, Al 1.5	0.28	5.88
WVCM17	103.00	98.00		0.01			Fe 10.60, Al 1.	0.28	5.88
WVCM17 + Al2O3	70.50	41.80		0.02			Fe 16.90, Al 4.	0.22	2.77
WVCM17 + Al2O3	61.10	38.70		0.00			Fe 23.60, Al 4.	0.22	2.77

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET

-----//	LEACH	VALUES			NORMALIZED	LEACH
Glass	Na	Li	K	Cs	Sr	U
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====						
PNL 76-68	12.46			15.12	0.84	14.56 Ba 0.14; Ca 0.8
NBS			45.00			
NBS	13.30		11.70			
NBS						
BASALT						Ca 0.07
BASALT	9.90					Ca 2.7
BASALT						Fe 1.0
MCC 7668				23.80	0.08	Listed Others=
MCC 7668				27.80	1.80	Listed Others=
MCC 7668				22.60	16.50	Listed Others=
SRL 131 (G1)	13.80	12.70				Mn <0.2, Ca 1.1
SRL 131 (G1)	2.00	19.40				Mn <0.2, Ca <0.
SRL 131 (G1)	25.50	23.40				Mn <0.2, Ca <0.
SRL 131 (G1)	33.60	28.20				Mn 0.8, Ca 0.7,
SRL 131 (G1)	30.20	30.50				Mn 1, Ca 1.8, A
SRL 131 (G1) Not Determined		Not Determined				Mn 1.2, Ca 0.6,
SRL 131 (G1)	66.70	63.60				Mn 1.7 Ca 0.9,
SRL 131 (G1)	69.40	66.40				Mn 1.1, Ca 0.8,
SRL 131 (G2) +						Mn <0.2, Ca 4.5
SRL 131 (G2) +						Mn 0.3, Ca 1.7,
SRL 131 (G2) +						Mn 0.3, Ca 0.9,
SRL 131 (G2) +	30.10	30.90				Mn 0.3,Ca <0.7
SRL 131 (G2) +	32.30	33.50				Mn 0.4, Ca <0.7
SRL 131 (G2) +						Mn 0.7, Ca <0.7
SRL 131 (G2) +	70.90	73.80				Mn 0.9, Ca <0.7
SRL 131 (G2) +	82.40	89.60				Mn 2.1, Ca <0.7
SRL 131 (G2) +	81.40	101.60				Mn 1.7, Ca <0.7
SRL 131 (G3) +W	9.20	3.30			3.50	1.00 14.50 Mn 0.13, Ca 3.8
SRL 131 (G3) +W	16.20	6.00				1.50 23.60 Mn 0.22, Ca 3.1
SRL 131 (G3) +W	25.70	9.20				2.30 36.30 Mn 0.21, Ca <0.
SRL 131 (G3) +W	46.10	17.00				2.50 47.80
SRL 131 (G3) +W	62.90	77.60				3.60 63.10 Mn 1.1, Ca <0.0
SRL 131 (G3) +W	66.70	83.00				3.30 68.90 Mn 1.6, Ca 0.05
SRL 131 (G3) +W	88.60	96.20				4.00 79.40 Mn 0.32, Ca 0.0
PNL 76-68						
PNL 76-68						
PNL 76-68						
PNL 76-68						
Radioactive SRP						Sr-90 0.3, Pu-2
Radioactive SRP				2.70		Sr-90 0.96, Pu-
Radioactive SRP				2.70		Sr-90 0.57, Pu-
Radioactive SRP				2.70		Sr-90 0.25, Pu-
Radioactive SRP				2.70		Sr-90 0.86, Pu-
Radioactive SRP				2.70		Sr-90 0.30, Pu-
WVCM17						
WVCM17						
WVCM17 + Al2O3						
WVCM17 + Al2O3						

-----//

Glass /---- Comments -----)

Type

=====

PNL 76-68 PNL. Listed as Other: CdO .03

NBS Round Robin of 17 laboratories; summary by Materials Characterization Center, PNL.

NBS Round Robin of 17 laboratories; summary by Materials Characterization Center, PNL.

NBS Round Robin of 17 laboratories; summary by Materials Characterization Center, PNL.

BASALT Round Robin of 9 laboratories; summary by Materials Characterization Center, PNL.

BASALT Round Robin of 9 laboratories; summary by Materials Characterization Center, PNL.

BASALT Round Robin of 9 laboratories; summary by Materials Characterization Center, PNL.

MCC 7668 Round Robin of 12 laboratories; summary by Materials Characterization Center, PNL.

MCC 7668 Round Robin of 12 laboratories; summary by Materials Characterization Center, PNL.

MCC 7668 Round Robin of 12 laboratories; summary by Materials Characterization Center, PNL.

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G1) Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

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SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G2) +Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

SRL 131 (G3) +Wd, Sr, Ba, Ce, & Eu were added as radiotracers to glasses--Argonne National Laboratory

PNL 76-68 ONWI-Battelle Memorial Institute

PNL 76-68 ONWI-Battelle Memorial Institute

PNL 76-68 ONWI-Battelle Memorial Institute

PNL 76-68 ONWI-Battelle Memorial Institute

Radioactive SRP Dual runs; Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test

Radioactive SRP Dual runs; Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test

Radioactive SRP Dual runs; Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test

Radioactive SRP Dual runs; Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test

Radioactive SRP Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test vessel wall

Radioactive SRP Dual runs; Normalized Mass Losses for Sr-90 & Pu-238 are low because of adherence to steel test

WVCM17 No WTX composition given

WVCM17 No WTX composition given

WVCM17 + Al2O3 Weight % listed is nominal composition

WVCM17 + Al2O3 Weight % listed is nominal composition

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS DURABILITY		

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
WVCM17 + Al2O3		3.29		3.29	1.35	1.55		10.43		0.97
WVCM17 + Al2O3		3.29		3.29	1.35	1.55		10.43		0.97
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
PNL7668										
PNL7668										
PNL7668										
PNL7668										
PNL7668										
SRL131*										
SRL131*										
SRL131*										
SRL131*										
SRL131**	0.07	0.40	4.00	1.40	3.60	0.08		13.20	0.30	1.60
SRL131**	0.07	0.40	4.00	1.40	3.60	0.08		13.20	0.30	1.60
SRL131**	0.07	0.40	4.00	1.40	3.60	0.08		13.20	0.30	1.60
SRL131**	0.07	0.40	4.00	1.40	3.60	0.08		13.20	0.30	1.60
SRL131										
SRL131										
SRL131										
SRL131										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
Blank experimen										
Blank experimen										
Blank experimen										
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18	0.70	2.27		10.85		0.85
SRL 165				4.18						

GLASS DURABILITY SPREAD SHEET				VERSION 2	NOQUOTE Sept. 87 Status Report				MCC	

// PERCENT-----				GLASS	COMPOSITION	WEIGHT	PERCENT-----			
Glass	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
Type										
=====										
WVCM17 + A1203	0.97	2.42				42.03			0.97	
WVCM17 + A1203	0.97	2.42				42.03			0.97	
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
SRL 131-3A										
PNL7668										
PNL7668										
PNL7668										
PNL7668										
PNL7668										
SRL131*										
SRL131*										
SRL131*										
SRL131*										
SRL131**	1.60		0.09		0.20	41.20	0.07		0.70	
SRL131**	1.60		0.09		0.20	41.20	0.07		0.70	
SRL131**	1.60		0.09		0.20	41.20	0.07		0.70	
SRL131**	1.60		0.09		0.20	41.20	0.07		0.70	
SRL131										
SRL131										
SRL131										
SRL131										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
PNL7668 - spike										
Blank experimen										
Blank experimen										
Blank experimen										
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86	0.11		0.14	
SRL 165	0.85					52.86</				

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

// ---GLASS		COMPOSITION	WEIGHT	PERCENT		// \\\	
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive
Type			Earth Oxides	Product Oxides			Glass (Y/N)
=====							
WVCM17 + A1203		2.90				98.96	N
WVCM17 + A1203		2.90				98.96	N
SRL 131-3A						0.00	N
SRL 131-3A						0.00	N
SRL 131-3A						0.00	N
SRL 131-3A						0.00	N
SRL 131-3A						0.00	N
PNL7668						0.00	N
PNL7668						0.00	N
PNL7668						0.00	N
PNL7668						0.00	N
PNL7668						0.00	N
SRL131*						0.00	Y
SRL131*						0.00	Y
SRL131*						0.00	Y
SRL131*						0.00	Y
SRL131**		0.10			4.53	100.00	Y
SRL131**		0.10			4.53	100.00	Y
SRL131**		0.10			4.53	100.00	Y
SRL131**		0.10			4.53	100.00	Y
SRL131						0.00	N
SRL131						0.00	N
SRL131						0.00	N
SRL131						0.00	N
PNL7668 - spike						0.00	Y
PNL7668 - spike						0.00	Y
PNL7668 - spike						0.00	Y
PNL7668 - spike						0.00	Y
PNL7668 - spike						0.00	Y
PNL7668 - spike						0.00	Y
Blank experimen						0.00	
Blank experimen						0.00	
Blank experimen						0.00	
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66		0.96	97.56	N
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66	0.03	0.96	97.59	Y
SRL 165		0.04	0.66	0.03	0.96	97.59	Y

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(1/M)	Water Type	Media Material	(Eh)	Degrees C	(Start) Pretreatment	(ppm)
=====								
WVCM17 + A1203	Oxidized	2684.0	DIW			90		
WVCM17 + A1203	Oxidized	2684.0	DIW			90		
SRL 131-3A	Results are for SRL-131-3		DIW			90		
SRL 131-3A	Results are for SRL-131-3		DIW			90		
SRL 131-3A	Results are for SRL-131-3		DIW			90		
SRL 131-3A	Results are for SRL-131-3		DIW			90		
SRL 131-3A	Results are for SRL-131-3		DIW			90		
PNL766B			DIW			90		
PNL766B			DIW			90		
PNL766B			DIW			90		
PNL766B			DIW			90		
PNL766B			DIW			90		
SRL131*	radiotracer spike in glas		DIW			90		
SRL131*	radiotracer spike in glas		DIW			90		
SRL131*	radiotracer spike in glas		DIW			90		
SRL131*	radiotracer spike in glas		DIW			90		
SRL131**	radiotracer spike in glas		DIW			90		
SRL131**	radiotracer spike in glas		DIW			90		
SRL131**	radiotracer spike in glas		DIW			90		
SRL131**	radiotracer spike in glas		DIW			90		
SRL131			DIW			90		
SRL131			DIW			90		
SRL131			DIW			90		
SRL131			DIW			90		
PNL766B - spikeSample No. 501		10.4	DIW			90		
PNL766B - spikeSample No. 502		10.2	DIW			90		
PNL766B - spikeSample No. 503		10.6	DIW			90		
PNL766B - spikeSample No.s 504		10.5	DIW			90		
PNL766B - spikeSample No. 507		10.6	DIW			90		
PNL766B - spikeSample No.s 508		11.5	DIW			90		
Blank experimenSample No. 511 blank			DIW			90		
Blank experimenSample No. 512 blank			DIW			90		
Blank experimenSample No. 513 blank			DIW			90		
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13			90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
-----//-----PRETEST LEACHANT COMPOSITION-----\\//---TEST RESULTS--->-----										
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
WVCM17 + A1203						7	9.60	43.80	12.65	32.10
WVCM17 + A1203						28	9.35	42.50	17.10	39.00
SRL 131-3A						1				
SRL 131-3A						3				
SRL 131-3A						7				
SRL 131-3A						14				
SRL 131-3A						28				
PNL766B						1				
PNL766B						3				
PNL766B						7				
PNL766B						14				
PNL766B						28				
SRL131*						3				
SRL131*						7				
SRL131*						14				
SRL131*						28				
SRL131**						3				
SRL131**						7				
SRL131**						14				
SRL131**						28				
SRL131						3				
SRL131						7				
SRL131						14				
SRL131						28				
PNL766B - spike						3				
PNL766B - spike						7				
PNL766B - spike						15				
PNL766B - spike						28	8.73			
PNL766B - spike						56	9.20			
PNL766B - spike						91	9.40			
Blank experimen						28	7.90			
Blank experimen						91	8.10			
Blank experimen						28	7.40			
SRL 165	46.5					7	6.85			
SRL 165	46.5					14	6.69			
SRL 165	46.5					28	6.79			
SRL 165	46.5					56	6.35			
SRL 165	46.5					7	6.90			
SRL 165	46.5					14	6.48			
SRL 165	46.5					28	6.61			
SRL 165	46.5					56	6.63			
SRL 165	46.5					7	7.19			
SRL 165	46.5					14	7.06			
SRL 165	46.5					28	7.14			
SRL 165	46.5					56	6.64			
SRL 165	46.5					7	6.96			
SRL 165	46.5					14	6.76			
SRL 165	46.5					28	6.86			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY		SPREAD

// -----FINAL LEACHATE COMPOSITION-----/ \-----											
Glass Type	Li (ppm)	K (ppm)	Cs (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	NORMALIZED B (g/m2)		
=====											
WVCM17 + A1203	6.31	6.99		0.02			Fe 1.71, Al 4.9	0.08	0.22		
WVCM17 + A1203	9.64	6.60		0.00			Fe 1.63, Al 4.9	0.08	0.22		
SRL 131-3A								1.60	0.80		
SRL 131-3A								4.50	2.94		
SRL 131-3A								7.00	4.62		
SRL 131-3A								7.56	5.18		
SRL 131-3A								11.20	5.88		
PNL7668								1.30	1.20		
PNL7668								2.70	1.65		
PNL7668								3.08	3.43		
PNL7668								5.18	6.02		
PNL7668								8.12	5.04		
SRL131*											
SRL131*											
SRL131*											
SRL131*											
SRL131**											
SRL131**											
SRL131**											
SRL131**											
SRL131											
SRL131											
SRL131											
SRL131											
PNL7668 - spike											
PNL7668 - spike											
PNL7668 - spike											
PNL7668 - spike											
PNL7668 - spike											
PNL7668 - spike											
Blank experimen											
Blank experimen											
Blank experimen											
SRL 165								0.80	0.10		
SRL 165								(0.35)	0.30		
SRL 165								(0.30)	0.20		
SRL 165								1.85	1.30		
SRL 165								1.90	0.20		
SRL 165								0.10	0.25		
SRL 165								0.15	0.45		
SRL 165								2.30	1.65		
SRL 165								1.20	0.10		
SRL 165								0.35	0.20		
SRL 165								(0.40)	0.30		
SRL 165								2.25	1.35		
SRL 165								2.80	0.15		
SRL 165								0.70	0.25		
SRL 165								0.70	0.45		

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET

-----//						
	LEACH	VALUES			NORMALIZED	LEACH
Glass	Na	Li	K	Cs	Sr	U
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

WVCM17 + A1203						
WVCM17 + A1203						
SRL 131-3A	3.50					Al 2.9, Fe 0.21
SRL 131-3A	6.30					Al 1.92, Fe 0.5
SRL 131-3A	10.50					Al 1.19, Fe 0.5
SRL 131-3A	12.04					Al 1.40, Fe 0.7
SRL 131-3A	13.44					Al 17.36, Fe 0.
PNL766B	3.00					Fe 0.12, Mn 0.1
PNL766B	2.46					Fe 0.33, Mn 0.2
PNL766B	2.66					Fe 0.70, Mn 0.3
PNL766B	9.10					Fe 1.54, Mn 0.7
PNL766B	15.68					Fe 2.24, Mn 2.1
SRL131*			9.00			Sr 4.00, Ba 0.8
SRL131*			15.50			Sr 1.70, Ba 0.3
SRL131*			21.60			Sr 1.50, Ba 0.4
SRL131*			20.00			Sr 1.30, Ba 0.3
SRL131**			18.80			Sr 1.40, Ba 0.1
SRL131**			27.50			Sr 0.50, Ba 0.6
SRL131**			32.40			Sr 0.14, Ba 0.0
SRL131**			36.60			Sr 0.11, Ba 0.0
SRL131					0.75	
SRL131					1.09	
SRL131					1.40	
SRL131			43.10		1.54	
PNL766B - spike				5.10	0.13	Ba 1.75
PNL766B - spike				5.10		Ba 1.05
PNL766B - spike				4.90	0.25	Ba 0.70
PNL766B - spike			36.15	2.50	0.55	Ba 0.50, Ce 0.1
PNL766B - spike			34.50		0.62	Ba 0.145, Ce 0.
PNL766B - spike			51.30	0.55	0.96	Ba 0.2867, Ce 0
Blank experimen						
Blank experimen						
Blank experimen						
SRL 165	0.30	0.55	0.00	0.00	0.06	
SRL 165	0.95	0.90	0.00	0.20	0.24	
SRL 165	1.40	1.35	0.00	0.05	0.33	
SRL 165	2.50	2.00	0.00	0.40	1.50	
SRL 165	0.80	0.90	0.00	0.05	0.15	
SRL 165	0.90	1.10	0.00	0.10	0.19	
SRL 165	1.85	1.85	0.00	0.10	0.48	
SRL 165	2.40	2.50	0.00	0.60	1.80	
SRL 165	0.55	0.60	0.00	0.00	0.65	
SRL 165	0.80	0.75	0.00	(0.05)	0.19	
SRL 165	0.20	1.15	0.00	(0.01)	0.35	
SRL 165	3.15	2.05	0.00	0.50	1.49	
SRL 165	1.40	0.85	0.00	0.00	0.09	
SRL 165	0.30	1.00	0.00	0.05	0.19	
SRL 165	1.90	1.55	0.00	0.05	0.38	

-----//
 Glass /---- Comments ----->
 Type

WVCM17 + Al2O3 Weight % listed is nominal composition

WVCM17 + Al2O3 Weight % listed is nominal composition

• SRL 131-3A Savannah River Lab
 SRL 131-3A Savannah River Lab
 SRL 131-3A Savannah River Lab
 • SRL 131-3A Savannah River Lab
 SRL 131-3A Savannah River Lab
 PNL766B Savannah River Lab
 PNL766B Savannah River Lab
 PNL766B Savannah River Lab
 PNL766B Savannah River Lab
 PNL766B Savannah River Lab
 SRL131* 0, Ce 0.004 and Eu 0.005
 SRL131* 0, Ce 0.02 and Eu 0.005
 SRL131* 0 and Eu 0.003
 SRL131* 0, Ce 0.04 and Eu 0.01
 SRL131** Nominal compositions; other includes: Na2B04 0.40, ZrO 0.40, Zeolite 2.70, U3O8 0.90, Eu2O3 0.03
 SRL131** Nominal compositions; other includes: Na2B04 0.40, ZrO 0.40, Zeolite 2.70, U3O8 0.90, Eu2O3 0.03
 SRL131** Nominal compositions; other includes: Na2B04 0.40, ZrO 0.40, Zeolite 2.70, U3O8 0.90, Eu2O3 0.03
 SRL131** Nominal compositions; other includes: Na2B04 0.40, ZrO 0.40, Zeolite 2.70, U3O8 0.90, Eu2O3 0.03
 SRL131 For additional data refer to Stone, J.A., S.T. Boforth and P.K. Smith; "Preliminary Evaluation of
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 SRL131 For additional data refer to Stone, J.A., S.T. Boforth and P.K. Smith; "Preliminary Evaluation of
 SRL131 For additional data refer to Stone, J.A., S.T. Boforth and P.K. Smith; "Preliminary Evaluation of
 PNL766B - spike Actinides, U and radiotracers added to glass; results only for radioactive species! Savannah Riv
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 PNL766B - spike Actinides, U and radiotracers added to glass; results only for radioactive species! Savannah Riv
 Blank experimen Blank test, Savannah River Lab
 Blank experimen Blank test, Savannah River Lab
 Blank experimen Blank test, Savannah River Lab
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
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 • SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.

// PERCENT		GLASS COMPOSITION WEIGHT PERCENT								
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00							

[illegible]

[illegible]

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment -->	(1/M)	Water Type	Media	Material	(En)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
SRL 165	two runs, gamma	30.0	EJ 13	Tuff		90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
SRL 165	two runs, gamma	90.0	EJ 13			90		73.6
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	DIW				90	6.04 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: .45u	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
//-----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	P (ppm)	Na (ppm)
SRL 165	46.5					56	6.72			
SRL 165	46.5					7	7.02			
SRL 165	46.5					14	6.67			
SRL 165	46.5					28	6.62			
SRL 165	46.5					56	6.53			
SRL 165	46.5					7	7.02			
SRL 165	46.5					14	6.77			
SRL 165	46.5					28	6.52			
SRL 165	46.5					56	6.96			
ARM-1						18	9.82	55.90	13.00	28.10
ARM-1						30	10.20	61.60	14.20	30.40
ARM-1						56	9.97	71.90	17.50	37.80
ARM-1						122	10.30	75.90	21.90	46.20
ARM-1						182	10.20	82.00	22.50	46.90
ARM-1						18	9.82	55.20	12.80	28.00
ARM-1						30	10.20	60.90	14.00	30.20
ARM-1						56	9.97	70.60	17.10	37.30
ARM-1						122	10.30	73.80	21.30	44.90
ARM-1						182	10.20	78.10	21.40	44.70
ARM-1						18	9.82	48.90	13.30	26.40
ARM-1						30	10.20	58.50	15.40	31.50
ARM-1						56	9.97	61.80	16.80	34.40
ARM-1						122	10.30	72.30	22.00	49.20
ARM-1						182	10.20	69.50	15.40	45.00
ARM-1						18	9.82	48.30	13.10	26.30
ARM-1						30	10.20	57.90	15.10	31.30
ARM-1						56	9.97	60.70	16.40	34.00
ARM-1						122	10.30	69.60	20.40	46.90
ARM-1						182	10.20	65.80	20.40	42.10
ARM-1	50.0					14	9.48	58.50	9.47	67.60
ARM-1	50.0					28	9.63	62.50	11.20	71.30
ARM-1	50.0					56	9.82	70.30	13.10	76.40
ARM-1	50.0					122	9.95	77.90	19.10	88.00
ARM-1	50.0					182	10.00	75.60	16.30	80.10
ARM-1	50.0					14	9.48	29.10	8.25	16.50
ARM-1	50.0					28	9.63	32.90	9.82	20.10
ARM-1	50.0					56	9.82	40.20	11.60	24.90
ARM-1	50.0					122	9.95	45.70	18.40	31.30
ARM-1	50.0					182	10.00	42.50	15.40	23.20
ARM-1	50.0					14	9.48	52.10	8.83	62.70
ARM-1	50.0					28	9.63	60.00	11.00	71.30
ARM-1	50.0					56	9.82	64.50	12.80	73.40
ARM-1	50.0					122	9.95	71.40	19.50	86.00
ARM-1	50.0					182	10.00	69.70	16.20	76.90
ARM-1	50.0					14	9.48	23.60	8.65	13.10
ARM-1	50.0					28	9.63	31.30	10.70	21.50
ARM-1	50.0					56	9.82	35.40	12.30	23.30
ARM-1	50.0					122	9.95	40.70	17.10	32.40

GLASS	DURABILITY	SPREAD SHEET	VERSION 2			MCC	GLASS	DURABILITY	SPREAD

// -----FINAL LEACHATE COMPOSITION-----/ \----- NORMALIZED									
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)
=====									
SRL 165								1.90	1.45
SRL 165								0.34	0.00
SRL 165								(0.15)	0.10
SRL 165								0.10	0.20
SRL 165								1.30	0.75
SRL 165								0.35	0.10
SRL 165								(0.15)	0.10
SRL 165								0.10	0.20
SRL 165								1.30	0.85
ARM-1	10.70		2.10	0.364		4.43			
ARM-1	11.90		2.30	0.428		4.63			
ARM-1	14.60		2.67	0.459		5.53			
ARM-1	19.40		1.95	0.161		7.32			
ARM-1	20.00		2.52	0.443		7.23			
ARM-1	10.60		2.12	0.351		4.37			
ARM-1	11.80		2.29	0.409		4.56			
ARM-1	14.40		2.63	0.442		5.44			
ARM-1	18.90		1.89	0.156		7.11			
ARM-1	19.10		2.40	0.507		6.98			
ARM-1	9.95		1.60	0.016		4.22			
ARM-1	12.40		1.80	0.010		4.93			
ARM-1	13.60		1.92	0.012		5.37			
ARM-1	19.20		1.65			7.27			
ARM-1	19.30		1.45	0.014		7.09			
ARM-1	9.88		1.56	0.005		4.17			
ARM-1	12.30		1.76	-0.001		4.87			
ARM-1	13.40		1.79	0.001		5.27			
ARM-1	18.50		1.55			7.01			
ARM-1	18.30		1.33	0.004		6.72			
ARM-1	9.13		1.50	0.134		2.31			
ARM-1	10.60		1.60	0.191		3.18			
ARM-1	13.30		1.63	0.235		3.49			
ARM-1	19.00		1.80	0.128		5.38			
ARM-1	17.30		1.67	0.225		4.45			
ARM-1	9.06		1.46	0.132		2.65			
ARM-1	10.40		1.58	0.188		3.06			
ARM-1	13.00		1.62	0.239		3.33			
ARM-1	18.40		1.75	0.103		5.20			
ARM-1	16.40		1.59	0.194		4.22			
ARM-1	8.41		1.20	0.021		2.49			
ARM-1	10.50		1.20	0.003		3.09			
ARM-1	12.90		1.20	0.010		3.35			
ARM-1	17.90		1.42			5.22			
ARM-1	16.60		1.20	0.027		4.38			
ARM-1	8.38		0.99	0.019		2.43			
ARM-1	10.30		0.98	0.001		3.00			
ARM-1	12.50		0.97	0.008		3.23			
ARM-1	17.40		1.35			5.00			

[illegible]

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Glass /----- Comments ----->

Type

SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.
 SRL 165 Argonne Nat'l Lab. Al,Ca,Mg data also.

ARM-1 Not Volume-Corrected, MCC, PNL
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 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
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 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
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 ARM-1 Blank & Volume-Corrected, MCC, PNL
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 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Blank & Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
 ARM-1 Not Volume-Corrected, MCC, PNL
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11/11

-GLASS COMPOSITION WEIGHT PERCENT

WEIGHT PERCENT

PERCENT

[illegible]

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Reference
Code

Glass
Type

41203

8203

BaO

CaO

Ce02

Cr 203

Cs2D

CuO

Fe 203

[illegible]

[illegible]

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT---

[illegible]

 

[illegible]

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// PERCENT		GLASS COMPOSITION WEIGHT PERCENT								
Glass Type	NaO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2

[illegible]

13 - 4 16-Sep-87 NOQUOTE.WK1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment -->	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	8.39 Filter: 18A	56.7
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	Silicate				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: .45um	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	Test: 4g -40+80 pdr/40mL	MCC Brine				90	6.11 Filter: 18A	
ARM-1	three runs	10.0	DIW			90	6.07 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	six runs	10.0	DIW			90	5.68 Filter: .45um	
ARM-1	five runs	10.0	DIW			90	5.58 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.13 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.07 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	six runs	10.0	DIW			90	5.68 Filter: .45um	
ARM-1	five runs	10.0	DIW			90	5.58 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	two runs	10.0	DIW			90	6.26 Filter: .45um	
ARM-1	three runs	10.0	DIW			90	6.13 Filter: .45um	
ARM-1	three runs	10.0	Silicate			90	7.91 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	7.91 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	8.18 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	7.88 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.31 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.18 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.13 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.13 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	8.30 Filter: .45u	58.8

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 97	Status	Report	MCC	GLASS		
*****							*****			
-----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS----->-----										
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
ARM-1	50.0					182	10.00	38.30	14.50	23.10
ARM-1	33500.0			28500.0		14	6.02	18.00	13.50	
ARM-1	33500.0			28500.0		28	6.18	26.60	22.30	
ARM-1	33500.0			28500.0		56	5.69	20.40	29.60	
ARM-1	33500.0			28500.0		122	5.77	21.50	50.20	
ARM-1	33500.0			28500.0		182	5.68	16.50	74.10	
ARM-1	33500.0			28500.0		14	6.02	16.30	13.10	
ARM-1	33500.0			28500.0		28	6.18	24.90	21.60	
ARM-1	33500.0			28500.0		56	5.69	18.60	28.70	
ARM-1	33500.0			28500.0		122	5.77	19.80	48.40	
ARM-1	33500.0			28500.0		182	5.68	14.70	71.00	
ARM-1	33500.0			28500.0		14	6.02	18.10	14.90	
ARM-1	33500.0			28500.0		28	6.18	19.20	17.20	
ARM-1	33500.0			28500.0		56	5.69	19.60	22.80	
ARM-1	33500.0			28500.0		122	5.77	19.20	46.00	
ARM-1	33500.0			28500.0		182	5.68	16.10	71.70	
ARM-1	33500.0			28500.0		14	6.02	17.10	13.90	
ARM-1	33500.0			28500.0		28	6.18	18.20	16.60	
ARM-1	33500.0			28500.0		56	5.69	18.50	22.10	
ARM-1	33500.0			28500.0		122	5.77	17.60	44.20	
ARM-1	33500.0			28500.0		182	5.68	14.50	68.60	
ARM-1						3	9.56	11.60	2.23	4.68
ARM-1						7	9.40	15.80	2.98	6.30
ARM-1						14	9.61	18.20	3.74	7.74
ARM-1						28	9.67	20.50	4.33	8.65
ARM-1						56	9.02	24.00	5.09	10.30
ARM-1						91	9.27	23.60	4.89	9.77
ARM-1						182	9.11	25.70	5.50	11.10
ARM-1						364	9.01	28.00	6.20	11.80
ARM-1						546	9.11	22.80	6.05	11.60
ARM-1						3	9.56	11.60	2.23	4.68
ARM-1						7	9.40	15.80	2.98	6.30
ARM-1						14	9.61	18.20	3.74	7.74
ARM-1						28	9.67	20.50	4.33	8.65
ARM-1						56	9.02	24.00	5.09	10.30
ARM-1						91	9.27	23.60	4.89	9.77
ARM-1						182	9.11	25.70	5.50	11.10
ARM-1						364	9.01	28.00	6.20	11.80
ARM-1						546	9.11	22.80	6.05	11.60
ARM-1	45.5					3	9.17	32.50	0.93	48.10
ARM-1	45.5					7	9.27	34.80	1.33	52.80
ARM-1	45.5					14	9.48	37.50	1.91	52.50
ARM-1	45.5					28	9.45	41.70	3.45	59.00
ARM-1	45.5					56	9.35	39.30	2.23	47.40
ARM-1	45.5					91	9.50	42.90	2.76	58.60
ARM-1	45.5					182	9.52	44.40	3.20	57.90
ARM-1	45.5					364	9.51	48.70	3.64	62.30
ARM-1	45.5					546	9.60	45.70	3.73	61.70

GLASS	DURABILITY	SPREAD SHEET	VERSION 2			MCC	GLASS	DURABILITY	SPREAD

// -----FINAL LEACHATE COMPOSITION----- / \----- NORMALIZED									
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Sr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (g/m2)	B (g/m2)

ARM-1	15.30		1.11	0.022		4.10			
ARM-1	12.20			1.310		3.54			
ARM-1	19.00			2.160		5.59			
ARM-1	29.30		5.67	3.220		5.98			
ARM-1	41.90		13.00	5.690		9.13			
ARM-1	54.40		18.50	8.340		7.00			
ARM-1	12.10			1.300		3.41			
ARM-1	18.70			2.150		5.44			
ARM-1	28.90		5.62	3.190		5.72			
ARM-1	40.90		12.70	5.550		8.83			
ARM-1	54.40		18.00	8.240		6.69			
ARM-1	12.80			1.370		3.67			
ARM-1	13.80			1.640		4.25			
ARM-1	17.60		5.93	2.440		5.01			
ARM-1	29.20		12.30	5.240		8.29			
ARM-1	54.90		18.50	8.340		6.84			
ARM-1	12.60			1.360		3.57			
ARM-1	13.70			1.620		4.14			
ARM-1	17.40		5.88	2.410		4.89			
ARM-1	36.70		12.00	5.110		8.04			
ARM-1	53.00		17.90	8.060		6.56			
ARM-1	1.37		0.37	0.18		0.76		5.32	6.32
ARM-1	1.97		0.56	0.22		1.00		7.25	8.49
ARM-1	2.35		0.73	0.22		1.29		8.39	10.60
ARM-1	2.84		0.92	0.21		1.47		9.44	12.30
ARM-1	3.37		1.31	0.22		1.70		11.10	14.40
ARM-1	3.34		1.35	0.19		1.74		10.90	13.90
ARM-1	3.64		1.33	0.19		1.89		11.90	15.70
ARM-1	3.95		1.33	0.17		1.88		12.90	17.70
ARM-1	3.96		0.75	0.04		1.98		10.50	17.20
ARM-1	1.37		0.37	0.18		0.76		5.31	6.31
ARM-1	1.97		0.56	0.22		1.00		7.22	8.46
ARM-1	2.35		0.73	0.22		1.29		8.31	10.50
ARM-1	2.84		0.92	0.21		1.47		9.33	12.20
ARM-1	3.37		1.31	0.22		1.70		10.90	14.20
ARM-1	3.34		1.35	0.19		1.74		10.60	13.60
ARM-1	3.64		1.33	0.19		1.89		11.20	14.90
ARM-1	3.95		1.33	0.17		1.88		11.90	16.20
ARM-1	3.96		0.75	0.04		1.98		10.00	16.50
ARM-1	0.62		0.18	0.08		0.30		1.81	2.60
ARM-1	0.94		0.28	0.09		0.42		2.77	3.78
ARM-1	1.22		0.25	0.10		0.58		4.55	5.12
ARM-1	2.34		0.58	0.16		1.15		6.16	9.82
ARM-1	1.52		0.60	0.09		0.79		4.44	6.27
ARM-1	1.87		0.57	0.09		0.88		5.50	7.85
ARM-1	1.99		0.83	0.09		1.09		5.55	9.08
ARM-1	2.47		0.91	0.08		1.00		6.86	10.30
ARM-1	2.49		0.61	0.05		1.08		5.41	10.60

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET		
*****			*****					
//	LEACH	VALUES	NORMALIZED			LEACH	VALUES	
Glass	Na	Li	K	Cs	Sr	U	Mo	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====								
ARM-1								
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ARM-1								

Type 2

ARM-1 Norm.Val.not Vol-corr.FNL.Other leaching data for Al, Ba, Ca, Co, Nd, P, Ti, Zn, Zr (both pos and neg)

Reference Code	Glass Type	Al ₂ O ₃	B ₂ O ₃	BaO	CaO	CeO ₂	Cr ₂ O ₃	Cs ₂ O	CuO	Fe ₂ O ₃
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14 - 1 16-Sep-87 NQDUOTE.WK1

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT---

Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
ARM-1				5.08			1.67	9.67	5.96	
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
72-68		4			1.5			4		
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	

◆◆◆◆◆

[illegible]

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \--								
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
ARM-1	1.46	1.80				98.90	N	MCC-1
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
72-68	21.3				26.3	100.00	N	Static
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment -->	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
ARM-1	three runs	10.0	Silicate			90	7.91 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	7.91 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	8.18 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	7.88 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.31 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.18 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.13 Filter: .45u	58.8
ARM-1	two runs	10.0	Silicate			90	8.13 Filter: .45u	58.8
ARM-1	three runs	10.0	Silicate			90	8.30 Filter: .45u	58.8
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	3 Runs; K=25500	10.0	MCC Brine			90	6.56 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
ARM-1	2 Runs; K=25500	10.0	MCC Brine			90	6.40 Filter: .45um	
72-68		77.0	DIW			100		
72-68		77.0	DIW			100		
72-68		77.0	DIW			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HCl			100		
72-68		77.0	0.1M HNO3			100		
72-68		77.0	0.1M NaOH			100		
72-68		77.0	0.1M NaOH			100		
72-68		77.0	0.1M NaOH			100		
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	
PNL 72-68		3.9	DIW		497 mV	22	6.1	

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
// ---PRETEST LEACHANT COMPOSITION---\\ //---TEST RESULTS--->										
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
ARM-1	45.5					3	9.17	32.50	0.93	48.10
ARM-1	45.5					7	9.27	34.80	1.33	52.80
ARM-1	45.5					14	9.48	37.50	1.81	52.50
ARM-1	45.5					28	9.45	41.70	3.45	59.00
ARM-1	45.5					56	9.35	39.30	2.23	47.40
ARM-1	45.5					91	9.50	42.90	2.76	58.60
ARM-1	45.5					182	9.52	44.40	3.20	57.90
ARM-1	45.5					364	9.31	48.90	3.64	62.30
ARM-1	45.5					546	9.60	45.70	3.73	61.70
ARM-1	35500.0			30500.0		3	7.04	6.31	1.21	
ARM-1	35500.0			30500.0		7	6.91	9.46	1.89	
ARM-1	35500.0			30500.0		14	6.98	11.40	2.31	
ARM-1	35500.0			30500.0		28	6.69	12.20	2.55	
ARM-1	35500.0			30500.0		56	6.63	15.90	3.25	
ARM-1	35500.0			30500.0		91	6.52	17.20	3.53	
ARM-1	35500.0			30500.0		182	6.41	20.60	4.40	
ARM-1	35500.0			30500.0		364	6.27	21.30	6.00	
ARM-1	35500.0			30500.0		3	7.04	6.31	1.21	
ARM-1	35500.0			30500.0		7	6.91	9.46	1.89	
ARM-1	35500.0			30500.0		14	6.98	11.40	2.31	
ARM-1	35500.0			30500.0		28	6.69	12.20	2.55	
ARM-1	35500.0			30500.0		56	6.63	15.90	3.25	
ARM-1	35500.0			30500.0		91	6.52	17.20	3.53	
ARM-1	35500.0			30500.0		182	6.41	20.60	4.40	
ARM-1	35500.0			30500.0		364	6.27	21.30	6.00	
72-68						0				
72-68						2				
72-68						7				
72-68						0				
72-68						1				
72-68						2				
72-68						4				
72-68						4				
72-68						7				
72-68						7				
72-68						0				
72-68						2				
72-68						7				
PNL 72-68	10.0	0.2			0.1	1				
PNL 72-68	10.0	0.2			0.1	2				
PNL 72-68	10.0	0.2			0.1	3				
PNL 72-68	10.0	0.2			0.1	4				
PNL 72-68	10.0	0.2			0.1	8				
PNL 72-68	10.0	0.2			0.1	14				
PNL 72-68	10.0	0.2			0.1	21				
PNL 72-68	10.0	0.2			0.1	28				
PNL 72-68	10.0	0.2			0.1	35				
PNL 72-68	10.0	0.2			0.1	42				

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// ---FINAL LEACHATE COMPOSITION--- / \----- NORMALIZED										
Glass	Li	K	Cs	Sr	U	Mo	Other	Si	B	
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)	
=====										
ARM-1	0.52		0.15	0.08		0.30		1.50	1.58	
ARM-1	0.94		0.28	0.09		0.42		2.77	3.75	
ARM-1	1.22		0.25	0.10		0.58		4.47	5.07	
ARM-1	2.34		0.58	0.16		1.15		6.07	9.55	
ARM-1	1.52		0.60	0.09		0.79		4.34	6.13	
ARM-1	1.87		0.57	0.09		0.88		5.37	7.66	
ARM-1	1.99		0.83	0.09		1.09		5.28	8.65	
ARM-1	2.47		0.91	0.08		1.00		6.30	9.53	
ARM-1	2.49		0.61	0.05		1.08		5.18	10.20	
ARM-1	0.90			0.16		0.23		2.91	3.44	
ARM-1	1.25			0.23		0.29		4.36	5.38	
ARM-1	1.50			0.27		0.40		5.25	6.57	
ARM-1	2.00			0.32		0.52		5.60	7.28	
ARM-1	2.10			0.35		0.88		7.29	9.24	
ARM-1	2.34			0.39		0.80		7.94	10.00	
ARM-1	2.92			0.47		1.07		9.47	12.30	
ARM-1	3.54			0.69		1.96		10.20	16.60	
ARM-1	0.90			0.16		0.23		2.90	3.44	
ARM-1	1.25			0.23		0.29		4.34	5.38	
ARM-1	1.50			0.27		0.40		5.21	6.54	
ARM-1	2.00			0.32		0.52		5.56	7.21	
ARM-1	2.10			0.35		0.88		7.21	9.12	
ARM-1	2.34			0.39		0.80		7.82	9.90	
ARM-1	2.92			0.47		1.07		9.14	11.90	
ARM-1	3.54			0.69		1.96		9.83	15.90	
72-68								0.19		
72-68								0.03		
72-68								0.005		
72-68								2.34		
72-68								0.88		
72-68								0.49		
72-68								0.2		
72-68								0.1		
72-68								0.06		
72-68								0.09		
72-68								0.18		
72-68								0.16		
72-68								0.26		
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
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PNL 72-68										
PNL 72-68										

GLASS SHEET			VERSION 2		GLASS		DURABILITY		SPREAD SHEET	

//		LEACH	VALUES			-----		NORMALIZED	LEACH	VALUES
Glass	Na	Li	K	Os	Sr	U	Mo		Other	
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)		(g/m2)	(g/m2)
=====										
ARM-1	0.69	2.58		1.62	1.83		2.72			
ARM-1	8.08	3.95		2.55	2.19		3.78			
ARM-1	8.67	5.08		2.19	2.48		5.16			
ARM-1	14.00	9.77		5.21	3.93		10.10			
ARM-1	4.50	6.27		5.32	2.27		6.83			
ARM-1	12.90	7.74		5.04	2.26		7.74			
ARM-1	5.38	8.01		7.15	2.00		8.36			
ARM-1	8.21	9.58		7.58	1.88		8.30			
ARM-1	7.80	10.10		5.24	1.18		9.35			
ARM-1		3.38			4.22		1.52			
ARM-1		5.30			5.92		2.45			
ARM-1		5.81			6.96		3.39			
ARM-1		8.31			8.39		4.48			
ARM-1		8.87			9.14		7.51			
ARM-1		9.91			10.10		7.26			
ARM-1		11.60			11.90		9.66			
ARM-1		14.60			16.90		15.40			
ARM-1		3.37			4.21		1.52			
ARM-1		5.28			5.90		2.45			
ARM-1		5.77			6.92		3.37			
ARM-1		8.24			8.32		4.45			
ARM-1		8.76			9.03		7.41			
ARM-1		9.75			9.96		7.14			
ARM-1		11.10			11.50		9.32			
ARM-1		14.00			16.20		14.70			
72-68	0.10								In-0.01	
72-68	0.05			0.003	0.002					
72-68	0.00									
72-68	7.00			3.75	5.93					
72-68	2.90			0.52	2					
72-68	1.60			0.92	1.27					
72-68	1.20			0.5	0.3					
72-68	1.50			0.5	0.9					
72-68	0.64			0.4	0.34					
72-68	0.72			0.25	0.36					
72-68				0.08	0.02					
72-68				0.14	0.01					
72-68				0.65	0.02					
PNL 72-68				1	0.78					
PNL 72-68				0.56	0.42					
PNL 72-68				0.99	0.72					
PNL 72-68				1.36	1.04					
PNL 72-68				1.44	0.52					
PNL 72-68				2.8	1.96					
PNL 72-68				3.99	2.94					
PNL 72-68				6.44	4.76					
PNL 72-68				7.7	2.56					
PNL 72-68				9.66	6.72					

-----//

Glass /--- Comments -----

Type

ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
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 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
 ARM-1 Norm.Val.not Vol-corr.PNL.Other leaching data for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both ppm ana
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 ARM-1 Norm.Val.are Vol-Corr.PNL.Other leaching data given for Al, Ba, Ca, Ce, Nd, P, Ti, Zn, Zr (both p
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ca-0.003, Zn-0.005 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ba-0.009 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ca-3.75, Zn-42.2 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ca-1.4, Zn-19 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ca-0.85, Zn-9.2 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ca-0.5, Zn-4.2 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ba-4.4, Ca-0.5, Zn-6.0 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ba-2.0, Ca-0.1, Zn-3.06 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ba-0.83, Ca-0.25, Zn-3.0 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Zn-0.28 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Zn-0.26 g/m2 as other, Univ. of Florida
 72-68 Glass: 72-68(PW-4b(2.8)73-1); Ba- 0.67, Ca-0.02, Zn-0.53 g/m2 as other, Univ. of Florida
 PNL 72-68 PNL; Cs and Sr results are calculated using cumulative days from start, which is in duration colu
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NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS
*****										*****
\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
BRADLEY-78	PNL 72-68		11.3	2	1.5	1		0.8		
CHICK-80	76-68		10.6		2.8		0.2	0.3		4.8
CHICK-80	79-417	3.5	10.5		0.4		0.2	0.5		0.7
CHICK-80	79-418	4.1	10.5		0.1		0.1	0.2		6.5
CHICK-80	79-339	4.1	10.5		1.2					6.3
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
BRADLEY-79	76-68		9.5	0.56	2	1.19	0.4	1.03		9.6
JANTZEN-86.	M2	8.86	18.33	0.67	0.00		0.00	1.28		2.69
JANTZEN-86.	M3	4.20	14.05	0.58	4.25		0.00	1.11		1.09
JANTZEN-86.	M4	5.08	22.81	0.84	0.00		0.00	1.62		1.82
JANTZEN-86.	M5	3.11	14.96	0.64	2.08		0.00	1.25		2.00
JANTZEN-86.	M6	2.08	19.17	0.64	3.90		0.36	1.25		2.00
JANTZEN-86.	MCC 76-68	0.60	8.81	0.53	2.36		0.15	1.02		7.23
JANTZEN-86.	AECL	19.10	0.00	0.00	18.80		0.40	0.01		2.15
JANTZEN-86.	JAP 687	4.84	9.27	1.70	1.16		0.46	0.04		7.14
JANTZEN-86.	JAP 62	6.73	9.47	0.70	1.96		0.45	1.00		6.88
JANTZEN-86.	131AT30X	3.37	10.29	0.00	1.20					10.92
JANTZEN-86.	165 BLACK	4.50	7.30	0.00	1.74					5.53
JANTZEN-86.	131AT50X	5.62	7.35	0.00	2.00					18.20
JANTZEN-86.	165MM	3.98	7.14	0.00	1.49					8.37
JANTZEN-86.	SRLS2	5.03	14.00	0.00	1.58					9.91
JANTZEN-86.	SRLS12	7.55	11.00	0.00	2.37					14.84

GLASS DURABILITY SPREAD SHEET VERSION 2						MCC GLASS DURABILITY				

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass Type	Bd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
PNL 72-68	0.05	4.1	0.45		1.5		1.6	4.1	1.5	
76-68		1.8					1	15.7		0.2
79-417		0.1				0.1	2.2	10.6		0.1
79-418							0.6	11.4		
79-339						1.1		10.8		
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
76-68	0.05		0.53				2.2	12.5	1.65	0.2
M2		0.00		0.00	0.00			14.63	4.65	0.54
M3		0.00		0.00	0.36			13.67	4.02	0.47
M4		0.00		0.00	0.00			9.12	5.86	0.67
M5		0.00		2.08	0.00			12.98	4.51	0.52
M6		0.00		0.00	0.00			11.71	4.51	0.52
MCC 76-68		0.13		0.00	0.15			11.53	6.82	0.25
AECL		3.90		0.00	0.40			11.70	0.00	0.20
JAP 5B7		1.00		1.94	0.08			8.48	6.10	1.27
JAP 62		2.08		3.14	0.07			8.43	6.10	0.50
131AT30%				3.99	2.28			13.67	0.35	4.06
165 BLACK				5.17	0.69			9.97	0.00	0.99
131AT50%				2.85	1.00			10.99	0.50	2.90
165MM				5.10	0.71			11.55		0.77
SRLS2				0.00	0.72			13.64		1.00
SRLS12				8.25	0.58			3.20		1.62

// PERCENT				GLASS	COMPOSITION	WEIGHT	PERCENT			
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
PNL 72-68				0.12	0.09	27.8	1.9			10.3
76-68	0.2					51.7	0.3		2.9	
79-417	0.1					61.4	0.6			
79-418						63.7	0.2			
79-339						66				
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
76-68	0.2	0.46		0.046	1.07	40	0.37	0.26	3	4.2
M2	0.54	0.00				43.98	0.38		0.00	0.00
M3	0.47	0.00				52.99	0.00		1.61	0.00
M4	0.67	0.00				47.28	0.48		0.00	0.00
M5	0.52	0.00				51.90	0.36		0.00	0.00
M6	0.52	0.00				50.24	0.00		0.00	0.00
MCC 76-68	0.25	0.74				40.84	0.42		3.03	0.00
AECL	0.20	0.00				46.30	0.10		0.20	1.10
JAP 687	1.27	0.00				50.06	0.37		0.03	0.00
JAP 62	0.50	0.00				45.78	0.42		0.03	0.19
131AT30%	4.06	0.00				43.87	0.00		0.70	0.00
165 BLACK	0.99	0.00				53.16	0.08		0.00	1.06
131AT50%	2.90	0.00				34.52	0.00		0.50	0.00
165MM	0.77	0.00				54.42	0.10		0.00	0.00
SRLS2	1.00	0.00				46.43	0.00		0.00	0.00
SRLS12	1.62	0.00				39.64	0.00		0.00	0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \\								
Glass Type	ZnO	ZrO2	General Rare Earth Oxides	General Fission Product Oxides	Listed Other	TOTAL	Radioactive Glass (Y/N)	Test Type
=====								
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
PNL 72-68	21.7	1.6	0.79	1.29		95.49	Y	IAEA
76-68	4.8	1.1			3.6	101.80	Y	STATIC
79-417	0.2	2.2				93.30	Y	STATIC
79-418	0.1	0.6			1.9	100.00	Y	STATIC
79-339						100.00	Y	STATIC
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
76-68	5	1.7	0.92	0.76	0.8	100.00	Y	mod. IAEA
M2		1.86			1.65	99.52		MCC-1
M3		0.33			1.09	99.82		MCC-1
M4		2.34			1.62	99.54		MCC-1
M5		1.81			1.43	99.63		MCC-1
M6		1.81			1.43	99.62		MCC-1
MCC 76-68		1.68			2.00	88.29		MCC-1
AECL		0.00			0.58	104.94		MCC-1
JAP 6B7		2.12			2.17	98.22		MCC-1
JAP 62		2.12			2.12	98.15		MCC-1
131AT30%		0.35			6.27	101.32		MCC-1
165 BLACK		0.67			6.59	97.45		MCC-1
131AT50%		0.25			10.47	97.15		MCC-1
165MM		0.71			4.94	99.28		MCC-1
SRLS2		0.70			6.25	99.26		MCC-1
SRLS12		0.55			9.36	98.96		MCC-1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
// -----LEACH TEST-----					-----LEACH TEST-----				
Glass		SA/V	Leachant	Geologic Canister	REDOX	Temperature	Ph	Leachant	SiO2
Type	-- Comment -->	(1/M)	Water Type	Media Material	(Eh)	Degrees C	(Start)	Pretreatment	(ppm)
=====									
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
PNL 72-68		3.9	DIW		497 mV	22	6.1		
76-68		10.0	DIW			90	5.7		
79-417		10.0	DIW			90	5.7		
79-418		10.0	DIW			90	5.7		
79-339		10.0	DIW			90	5.7		
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
76-68		10.0	DIW			25			
M2	Other: FeO/MnO,	10.0	DIW			90			
M3	Other: FeO/MnO,	10.0	DIW			90			
M4	Other: FeO/MnO,	10.0	DIW			90			
M5	Other: FeO/MnO,	10.0	DIW			90			
M6	Other: FeO/MnO,	10.0	DIW			90			
MCC 76-68	Other: FeO/MnO,	10.0	DIW			90			
AECL	Other: FeO 0.58	10.0	DIW			90			
JAP 6B7	Other: FeO/MnO,	10.0	DIW			90			
JAP 62	Other: FeO/MnO,	10.0	DIW			90			
131AT30%	Other: FeO/MnO,	10.0	DIW			90			
165 BLACK	Other: FeO/MnO,	10.0	DIW			90			
131AT50%	Other: FeO/MnO,	10.0	DIW			90			
165MM	Other: FeO/MnO,	10.0	DIW			90			
SRLS2	Other: FeO/MnO,	10.0	DIW			90			
SRLS12	Other: FeO/MnO,	10.0	DIW			90			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
-----//-----PRETEST LEACHANT COMPOSITION-----\\//---TEST RESULTS-->-----										
Glass Type	Na (ppm)	Cl (ppm)	SO4 (ppm)	Mg (ppm)	F (ppm)	Duration (Days)	pH (End)	Si (ppm)	B (ppm)	Na (ppm)
=====										
PNL 72-68	10.0	0.2			0.1	49				
PNL 72-68	10.0	0.2			0.1	56				
PNL 72-68	10.0	0.2			0.1	86				
PNL 72-68	10.0	0.2			0.1	116				
PNL 72-68	10.0	0.2			0.1	150				
PNL 72-68	10.0	0.2			0.1	182				
PNL 72-68	10.0	0.2			0.1	211				
PNL 72-68	10.0	0.2			0.1	239				
PNL 72-68	10.0	0.2			0.1	421				
PNL 72-68	10.0	0.2			0.1	639				
76-68						28	8.1			
79-417						28	4.7			
79-418						28	5.1			
79-339						28	4.2			
76-68						1				
76-68						2				
76-68						3				
76-68						4				
76-68						11				
76-68						18				
76-68						25				
76-68						32				
76-68						46				
76-68						60				
76-68						91				
76-68						151				
76-68						212				
76-68						269				
76-68						331				
76-68						391				
76-68						454				
76-68						517				
76-68						577				
M2						28	8.50			
M3						28	8.35			
M4						28	8.50			
M5						28	9.10			
M6						28	8.80			
MCC 76-68						28	9.75			
AECL						28	8.21			
JAP 687						28	7.80			
JAP 62						28	7.81			
131AT30%						28	9.48			
165 BLACK						28	9.50			
131AT50%						28	9.39			
165MM						28	8.50			
SRL92						28	9.00			
SRL912						28	9.80			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

// ---FINAL LEACHATE COMPOSITION--- / \----- NORMALIZED										
Glass	Li	K	Cs	Sr	U	Mn	Other	Si	B	
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)	
=====										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
PNL 72-68										
76-68								14		
79-417								1.1		
79-418								1.6		
79-339								0.5		
76-68								0.06		
76-68								0.08		
76-68								0.09		
76-68								0.05		
76-68								0.06		
76-68								0.09		
76-68								1.65		
76-68								0.13		
76-68								0.27		
76-68								0.4		
76-68								0.51		
76-68								0.41		
76-68								0.61		
76-68								0.73		
76-68								1.22		
76-68								1.21		
76-68								1.23		
76-68								2.12		
76-68								3		
M2								7.20		
M3								4.20		
M4								10.60		
M5								9.20		
M6								14.80		
MCC 76-68								23.90		
AECL								16.60		
JAP 687								9.06		
JAP 62								9.86		
131AT30%								17.16		
165 BLACK								15.31		
131AT50%								15.99		
165MM								13.23		
SRL62								16.17		
SRLS12								25.01		

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET

//			NORMALIZED			
Glass	LEACH	VALUES				
Na	Li	K	Ca	Br	U	Mo
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====						
PNL 72-68			12.74	8.82		
PNL 72-68			12.88	10.06		
PNL 72-68			18.92	12.9		
PNL 72-68			24.36	16.24		
PNL 72-68			33	24		
PNL 72-68			54.6	36.4		
PNL 72-68			118.16	50.64		
PNL 72-68			126.67	57.36		
PNL 72-68			113.67	109.46		
PNL 72-68			53.04	50.48		
76-68						
79-417						
79-418						
79-339						
76-68						1 interim day,
76-68						1 interim day,
76-68						1 interim day,
76-68						1 interim day,
76-68						7 interim days,
76-68						7 interim days,
76-68						7 interim days,
76-68						7 interim days,
76-68						14 interim days
76-68						14 interim days
76-68						31 interim days
76-68						60 interim days
76-68						61 interim days
76-68						57 interim days
76-68						62 interim days
76-68						60 interim days
76-68						63 interim days
76-68						63 interim days
76-68						60 interim days
M2						
M3						
M4						
M5						
M6						
MCC 76-68						
AECL						
JAP 887						
JAP 82						
131AT30%						
165 ELACK						
131AT30%						
165MM						
BR162						
BR1612						

[illegible]

M2	Savannah River; Duplicate runs, no surface polishing of sample.
M3	Savannah River; Duplicate runs, no surface polishing of sample.
M4	Savannah River; Duplicate runs, no surface polishing of sample.
M5	Savannah River; Duplicate runs, no surface polishing of sample.
M6	Savannah River; Duplicate runs, no surface polishing of sample.
MCD 76-43	Savannah River; Duplicate runs, no surface polishing of sample.
AEDL	Savannah River; Duplicate runs, no surface polishing of sample.
JAP B37	Savannah River; Duplicate runs, no surface polishing of sample.
JAF B2	Savannah River; Duplicate runs, no surface polishing of sample.
171AT30%	Savannah River; Duplicate runs, no surface polishing of sample.
165 BLACK	Savannah River; Duplicate runs, no surface polishing of sample.
131AT50%	Savannah River; Duplicate runs, no surface polishing of sample.
165MM	Savannah River; Duplicate runs, no surface polishing of sample.
SRLB2	Savannah River; Duplicate runs, no surface polishing of sample.
SRLB12	Savannah River; Duplicate runs, no surface polishing of sample.

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS
*****										*****
\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
JANTZEN-86.	SRLS15	7.55	0.00	0.00	2.37					14.84
JANTZEN-86.	SRLS17	5.03	6.65	0.00	1.58					9.89
JANTZEN-86.	SRL 168	4.87	12.07	0.00	1.53					9.56
JANTZEN-86.	SRL 168	4.87	12.07	0.00	1.53					9.56
JANTZEN-86.	TNX165	0.00	7.28	0.00	2.11		0.05			9.04
JANTZEN-86.	165AL	10.22	8.60	0.00	1.43		0.19			5.95
JANTZEN-86.	SRL131TDS	10.77	11.37	0.00	1.53		0.18			8.95
JANTZEN-86.	SRL165AL	10.23	8.60	0.16	1.43		0.19			5.83
JANTZEN-86.	SRL131FE	3.51	12.08		1.15		0.23			12.54
JANTZEN-86.	SRL165TDS	6.05	8.98		1.82		0.20			10.22
JANTZEN-86.	SRL165TDS	6.05	8.98		1.82		0.20			10.22
JANTZEN-86.	SRL131AL	11.19	10.11		1.87		0.20			6.75
JANTZEN-86.	SRL131FE	3.51	12.08		1.15		0.23			12.53
JANTZEN-86.	SRL131AL	11.19	10.11		1.87		0.20			6.75
JANTZEN-86.	SRL131TDS	7.35	8.82		1.47		0.26			5.86
JANTZEN-86.	SRL165FE	2.57	11.56		1.16		0.22	0.14		11.88
JANTZEN-86.	SRL131TDS	7.35	8.82		1.47		0.26	0.00		5.88
JANTZEN-86.	AH1	4.19	8.65		1.32			0.09		9.00
JANTZEN-86.	AH2	4.44	13.26		0.84			0.06		9.00
JANTZEN-86.	AH3	4.19	9.91		1.32			0.09		9.00
JANTZEN-86.	AH4	4.19	6.90		1.32			0.09		9.00
JANTZEN-86.	AH5	4.44	6.86		0.84			0.06		8.89
JANTZEN-86.	AH6	4.44	8.78		0.84			0.06		8.89
JANTZEN-86.	AH7	4.44	11.34		0.84			0.06		8.89
JANTZEN-86.	AH8	4.44	10.06		0.84			0.06		8.89
JANTZEN-86.	AH9	4.44	9.10		0.84			0.00		8.89
JANTZEN-86.	AH10	4.44	7.50		0.84			0.06		8.89
JANTZEN-86.	AH11	4.44	11.98		0.84			0.06		8.89
JANTZEN-86.	AH12	5.50	11.99		1.72			0.06		11.12
JANTZEN-86.	AH13	5.50	6.34		1.72			0.06		11.12
JANTZEN-86.	AH14	5.50	8.03		1.72			0.06		11.12
JANTZEN-86.	AH15	5.50	9.16		1.72			0.06		11.12
JANTZEN-86.	AH131	4.26	10.58		0.84			0.06		8.89
JANTZEN-86.	AH165	4.26	7.20		0.84			0.06		8.89
JANTZEN-86.	ESF151	3.90	0.00		19.00			0.00		0.30
JANTZEN-86.	ESF77-33	4.10	0.00	0.20	22.60			0.00		2.50
JANTZEN-86.	ESF144	3.90	0.00	0.20	20.60			0.00		2.10
JANTZEN-86.	ESF158	3.80	0.00	0.00	28.40			0.00		0.00
JANTZEN-86.	ESF147	3.80	0.00	0.00	30.10			0.00		0.00
JANTZEN-86.	ESF148	3.90	0.00	0.00	25.90			0.00		0.40
JANTZEN-86.	ESF149	4.20	0.00	0.00	21.50			0.00		0.00
JANTZEN-86.	ESF150	4.30	0.00	0.00	21.90			0.00		0.30
JANTZEN-86.	ESF159	3.90	0.00	0.00	34.90			0.00		0.10
JANTZEN-86.	A&T	12.21	0.07	0.00	2.46			0.00		0.00
JANTZEN-86.	CORNING	12.19	0.00	0.00	2.71			0.00		0.00
JANTZEN-86.	OBSDIAN	0.00	0.03	0.04	1.40			0.00		0.00
JANTZEN-86.	CORNING	12.19	0.00	0.00	2.71			0.00		0.00
JANTZEN-86.	RRL2-3134	13.06	0.00	0.00	3.64			0.00		0.00

GLASS	DURABILITY	SPREAD SHEET		VERSION 2				MCC	GLASS	DURABILITY
*****					*****					
//					GLASS COMPOSITION WEIGHT PERCENT					
Glass	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
Type										
=====										
SRLS15				9.25	0.58			5.95		1.62
SRLS17				5.25	0.72			10.49		1.00
SRL 168				4.26	0.73			10.23		1.04
SRL 168				4.26	0.73			10.23		1.04
TNX165		4.61		4.31	0.70			6.79		1.02
165AL		0.00		4.03	0.87			8.55		0.98
SRL131TDS		0.00		3.16	1.43			9.13		0.96
SRL165AL		0.00		4.03	0.87			8.55		0.98
SRL131FE		0.00		4.03	1.33			14.69		2.11
SRL165TDS		0.00		4.33	0.97			9.02		1.26
SRL165TDS		0.00		4.33	0.97			9.02		1.26
SRL131AL		0.00		3.92	1.81			9.92		1.01
SRL131FE		0.00		4.03	1.33			14.69		2.11
SRL131AL		0.00		3.92	1.81			9.92		1.01
SRL131TDS		0.06		3.57	1.46			14.42		1.01
SRL165FE		0.00		3.94	0.88			14.83		1.27
SRL131TDS		0.06		3.57	1.46			14.42		1.01
AH1		3.19		4.40	0.63			11.76		0.93
AH2		3.20		3.84	0.64			11.23		0.98
AH3		3.19		3.14	1.26			10.51		0.93
AH4		3.19		4.00	0.70			10.00		0.93
AH5		3.20		3.84	0.64			9.31		0.98
AH6		3.20		4.48	0.64			11.23		0.98
AH7		3.20		3.20	0.64			9.31		0.98
AH8		3.20		3.20	1.28			9.95		0.98
AH9		3.20		3.52	0.64			9.31		0.98
AH10		3.20		4.48	1.28			6.75		0.98
AH11		3.20		3.84	1.28			6.75		0.98
AH12		3.20		3.39	0.57			10.47		1.23
AH13		3.20		3.39	0.57			8.77		1.23
AH14		3.20		3.96	0.57			10.47		1.23
AH15		3.20		2.83	1.13			9.34		1.23
AH131		0.00		4.10	1.44			13.59	0.36	0.98
AH165		0.00		5.04	0.72			10.21	0.00	0.98
ESF151		7.20		0.00	3.20			5.00	0.00	0.00
ESF77-33		0.00		0.00	0.05			21.70	0.00	0.00
ESF144		29.50		0.00	0.04			0.10	0.00	0.00
ESF158		24.20		0.00	0.06			0.10	0.00	0.10
ESF147		14.60		0.00	0.05			0.10	0.00	0.00
ESF148		14.60		0.00	0.05			0.10	0.00	0.08
ESF149		14.30		0.00	0.05			0.10	0.00	0.00
ESF150		1.50		0.00	6.60			9.50	0.00	0.00
ESF159		14.50		0.00	0.07			0.00	0.00	0.00
A&T		2.34		0.02	1.92			1.70	0.00	0.00
CORNING		1.83		0.00	1.87			4.43	0.00	0.00
OBSEIDIAN		5.07		0.00	0.25			1.44	0.00	0.00
CORNING		1.83		0.00	1.87			4.43	0.00	0.00
RRL2-3134		2.30		0.00	0.56			3.07	0.00	0.00

GLASS	DURABILITY SPREAD SHEET			VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC		

// PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----											
Glass Type	NaO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2	
=====											
SRLS15	1.62	0.00				47.99	0.00		0.00	0.00	
SRLS17	1.00	0.00				51.68	0.00		0.00	0.00	
SRL 168	1.04	0.00				48.30	0.00		0.00	0.00	
SRL 168	1.04	0.00				48.30	0.00		0.00	0.00	
TNX165	1.02	0.00				52.03	0.01		0.21	0.00	
165AL	0.98	0.00				52.93	0.05		0.07	0.88	
SRL131TDS	0.96	0.01				44.33	0.05		0.73	2.13	
SRL165AL	0.98	0.14	0.26			52.93	0.05		0.07	0.88	
SRL131FE	2.11					35.73	0.07		0.78	1.13	
SRL165TDS	1.26					52.00	0.06		0.00	1.19	
SRL165TDS	1.26					52.00	0.06		0.00	1.19	
SRL131AL	1.01					47.92	0.05		0.08	1.00	
SRL131FE	2.11					35.73	0.07		0.78	1.13	
SRL131AL	1.01					47.92	0.05		0.08	1.00	
SRL131TDS	1.01					44.07	0.05		0.82	2.13	
SRL165FE	1.27					47.49	0.07		0.80	0.00	
SRL131TDS	1.01					44.07	0.05		0.82	2.13	
AH1	0.93					47.48	0.04		1.26	0.00	
AH2	0.98					42.65	0.05		1.30	0.00	
AH3	0.93					48.74	0.04		1.26	0.00	
AH4	0.93					52.00	0.04		1.26	0.00	
AH5	0.98					51.61	0.05		1.30	0.00	
AH6	0.98					46.49	0.05		1.30	0.00	
AH7	0.98					47.77	0.05		1.30	0.00	
AH8	0.98					47.77	0.05		1.30	0.00	
AH9	0.98					49.69	0.05		1.30	0.00	
AH10	0.98					52.25	0.05		1.30	0.00	
AH11	0.98					48.41	0.05		1.30	0.00	
AH12	1.23					38.76	0.06		1.30	0.00	
AH13	1.23					46.67	0.06		1.30	0.00	
AH14	1.23					42.15	0.06		1.30	0.00	
AH15	1.23					43.28	0.06		1.30	0.00	
AH131	0.98					44.66	0.05		2.02	0.00	
AH165	0.98					51.93	0.05		1.30	0.00	
ESF151	0.00	3.90	0.71			56.00	0.00		0.20	0.00	
ESF77-33	0.00		0.00			48.70	0.00		0.10	0.00	
ESF144	0.00		0.00			43.60	0.00		0.10	0.00	
ESF158	0.10		0.14			42.60	0.00		0.00	0.00	
ESF147	0.00		0.00			48.70	0.10		0.50	0.00	
ESF148	0.08		0.90			53.80	0.00		0.00	0.00	
ESF149	0.00		0.00			56.80	0.00		0.20	0.00	
ESF150	0.00		0.00			55.40	0.00		0.00	0.00	
ESF159	0.00		0.50			44.00	0.00		0.50	0.00	
A&T	0.00		0.00			69.31	0.00		0.78	0.00	
CORNING	0.00		0.00			74.45	0.00		0.18	0.00	
OBSIDIAN	0.00	0.09	0.00			73.59	0.00		0.87	0.00	
CORNING	0.00	0.00	0.00			74.45	0.00		0.18	0.00	
RRL2-3134	0.00	0.98	0.00			59.47	0.00		2.55	0.00	

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	
*****						*****	
-----//	---GLASS	COMPOSITION	WEIGHT	PERCENT	-----//	\\	-----
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive
Type			Earth Oxides	Product Oxides			Glass (Y/N)
=====							
SRLS15		0.55			9.36	98.96	MCC-1
SRLS17		0.70			6.24	99.23	MCC-1
SRL 168		0.71			6.04	99.34	MCC-1
SRL 168		0.71			6.04	99.34	MCC-1
TNX165		0.78			4.21	93.16	MCC-1
165AL		1.05			3.04	98.73	MCC-1
SRL131TDS		0.48			4.87	100.07	MCC-1
SRL165AL		1.05			3.03	99.26	MCC-1
SRL131FE		0.50			6.69	96.57	MCC-1
SRL165TDS		0.72			5.04	101.86	MCC-1
SRL165TDS		0.72			5.04	101.86	MCC-1
SRL131AL		0.54			3.45	99.82	MCC-1
SRL131FE		0.50			6.69	96.57	MCC-1
SRL131AL		0.54			3.45	99.82	MCC-1
SRL131TDS		0.50			3.04	94.90	MCC-1
SRL165FE		0.55			5.76	103.13	MCC-1
SRL131TDS		0.50			3.04	94.91	MCC-1
AH1		0.62			4.45	98.01	MCC-1
AH2		0.64			5.05	97.18	MCC-1
AH3		0.00			4.45	98.03	MCC-1
AH4		0.00			4.45	98.07	MCC-1
AH5		0.00			5.02	97.04	MCC-1
AH6		0.64			5.02	97.04	MCC-1
AH7		0.00			5.02	97.04	MCC-1
AH8		0.00			5.02	97.04	MCC-1
AH9		0.00			5.02	96.98	MCC-1
AH10		0.00			5.02	97.04	MCC-1
AH11		0.00			5.02	97.04	MCC-1
AH12		0.57			6.29	96.23	MCC-1
AH13		0.57			6.29	96.79	MCC-1
AH14		0.57			6.29	96.23	MCC-1
AH15		0.00			6.96	96.89	MCC-1
AH131		0.36			5.02	97.21	MCC-1
AH165		0.72			5.02	97.22	MCC-1
ESF151		0.00			0.50	99.91	MCC-1
ESF77-33		0.00			0.05	100.00	MCC-1
ESF144		0.00			0.05	100.19	MCC-1
ESF158		0.00			0.10	99.50	MCC-1
ESF147		0.10			0.00	98.05	MCC-1
ESF148		0.00			0.20	99.93	MCC-1
ESF149		0.00			1.80	98.95	MCC-1
ESF150		0.20			0.00	99.70	MCC-1
ESF159		0.00			1.00	99.47	MCC-1
A&T		0.04			5.64	96.49	MCC-1
CORNING		0.00			1.47	99.14	MCC-1
OBSIDIAN		0.05			5.24	88.08	MCC-1
CORNING		0.00			1.47	99.14	MCC-1
RRL2-3134		0.00			10.04	95.57	MCC-1

GLASS DURABILITY SPREAD SHEET VERSION 2					MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	--- Comment ---> (l/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start)	Pretreatment
								SiO2 (ppm)
SRLS15	Other: FeO/MnO,	10.0	DIW			90		
SRLS17	Other: FeO/MnO,	10.0	DIW			90		
SRL 169	Other: FeO/MnO,	10.0	DIW			90		
SRL 168	Other: FeO/MnO,	10.0	DIW			90		
TNX165	Other: FeO/MnO,	10.0	DIW			90		
165AL	Other: FeO/MnO,	10.0	DIW			90		
SRL131TDS	Other: FeO/MnO,	10.0	DIW			90		
SRL165AL	Other: FeO/MnO,	10.0	DIW			90		
SRL131FE	Other: FeO/MnO,	10.0	DIW			90		
SRL165TDS	Other: FeO/MnO,	10.0	DIW			90		
SRL165TDS	Other: FeO/MnO,	10.0	DIW			90		
SRL131AL	Other: FeO/MnO,	10.0	DIW			90		
SRL131FE	Other: FeO/MnO,	10.0	DIW			90		
SRL131AL	Other: FeO/MnO,	10.0	DIW			90		
SRL131TDS	Other: FeO/MnO,	10.0	DIW			90		
SRL165FE	Other: FeO/MnO,	10.0	DIW			90		
SRL131TDS	Other: FeO/MnO,	10.0	DIW			90		
AH1	Other: FeO/MnO,	10.0	DIW			90		
AH2	Other: FeO/MnO,	10.0	DIW			90		
AH3	Other: FeO/MnO,	10.0	DIW			90		
AH4	Other: FeO/MnO,	10.0	DIW			90		
AH5	Other: FeO/MnO,	10.0	DIW			90		
AH6	Other: FeO/MnO,	10.0	DIW			90		
AH7	Other: FeO/MnO,	10.0	DIW			90		
AH8	Other: FeO/MnO,	10.0	DIW			90		
AH9	Other: FeO/MnO,	10.0	DIW			90		
AH10	Other: FeO/MnO,	10.0	DIW			90		
AH11	Other: FeO/MnO,	10.0	DIW			90		
AH12	Other: FeO/MnO,	10.0	DIW			90		
AH13	Other: FeO/MnO,	10.0	DIW			90		
AH14	Other: FeO/MnO,	10.0	DIW			90		
AH15	Other: FeO/MnO,	10.0	DIW			90		
AH131	Other: FeO/MnO,	10.0	DIW			90		
AH165	Other: FeO/MnO,	10.0	DIW			90		
ESF151	Other: MnO 0.50	10.0	DIW			90		
ESF77-33	Other: MnO 0.05	10.0	DIW			90		
ESF144	Other: MnO	10.0	DIW			90		
ESF158	Other: MnO	10.0	DIW			90		
ESF147		10.0	DIW			90		
ESF148	Other: MnO	10.0	DIW			90		
ESF149	Other: MnO	10.0	DIW			90		
ESF150		10.0	DIW			90		
ESF159	Other: MnO	10.0	DIW			90		
A&T	Other: FeO/MnO,	10.0	DIW			90		
CORNING	Other: FeO 1.47	10.0	DIW			90		
OBSIDIAN	Other: FeO/MnO,	10.0	DIW			90		
CORNING	Other: FeO	10.0	DIW			90		
RRL2-3134	Other: FeO/MnO,	10.0	DIW			90		

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
=====										
SRL315						28	10.00			
SRL317						28	10.00			
SRL 168						28	8.20			
SRL 168						28	9.44			
TNX165						28	9.84			
165AL						28	8.90			
SRL131TDS						28	9.85			
SRL165AL						28	9.04			
SRL131FE						28	9.20			
SRL165TDS						28	9.58			
SRL165TDS						28	8.85			
SRL131AL						28	8.77			
SRL131FE						28	9.97			
SRL131AL						28	8.97			
SRL131TDS						28	9.16			
SRL165FE						28	9.10			
SRL131TDS						28	9.19			
AH1						28	8.77			
AH2						28	8.15			
AH3						28	8.92			
AH4						28	8.86			
AH5						28	8.36			
AH6						28	8.96			
AH7						28	8.35			
AH8						28	8.83			
AH9						28	8.58			
AH10						28	8.84			
AH11						28	8.83			
AH12						28	8.88			
AH13						28	8.91			
AH14						28	9.10			
AH15						28	8.86			
AH131						28	9.64			
AH165						28	9.38			
ESF151						28	9.94			
ESF77-33						28	9.81			
ESF144						28	10.75			
ESF158						28	10.60			
ESF147						28	9.84			
ESF148						28	9.27			
ESF149						28	10.20			
ESF150						28	10.24			
ESF159						28	10.60			
A&T						28	6.52			
CORNING						28	4.70			
OBSEIDIAN						28	6.20			
CORNING						28	8.28			
RRL2-3134						28	8.28			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY	SPREAD

-----// -----FINAL LEACHATE COMPOSITION-----/ \----- NORMALIZED										
Glass	Li	K	Ca	Sr	U	Mo	Other	Si	B	
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)	
=====										
SRL1515								19.67		
SRL1517								22.51		
SRL 168								19.57		
SRL 168								19.60		
TNX165								17.80		
165AL								7.81		
SRL131TDS								16.80		
SRL165AL								8.61		
SRL131FE								23.77		
SRL165TDS								13.49		
SRL165TDS								14.28		
SRL131AL								13.71		
SRL131FE								41.95		
SRL131AL								13.26		
SRL131TDS								22.23		
SRL165FE								24.60		
SRL131TDS								20.49		
AH1								17.12		
AH2								16.75		
AH3								18.83		
AH4								21.39		
AH5								15.71		
AH6								18.73		
AH7								15.45		
AH8								18.85		
AH9								15.59		
AH10								15.56		
AH11								15.03		
AH12								20.75		
AH13								19.80		
AH14								20.20		
AH15								19.48		
AH131								20.17		
AH165								15.70		
ESF151								134.00		
ESF77-33								84.00		
ESF144								163.20		
ESF158								109.00		
ESF147								95.34		
ESF148								62.90		
ESF149								94.20		
ESF150								77.22		
ESF159								97.00		
A&T								1.90		
CORNING								1.70		
OBSIDIAN								1.21		
CORNING								2.27		
RRL2-3134								4.03		

GLASS	SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD SHEET		

-----//	LEACH	VALUES	-----	NORMALIZED	LEACH	VALUES		
Glass	Na	Li	K	Ca	Sr	U	Mg	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

BRL15								
BRL17								
BRL 138								
BRL 168								
TNX165								
165AL								
BRL131TDS								
BRL165AL								
BRL131FE								
BRL165TDS								
BRL165TDS								
BRL131AL								
BRL131FE								
BRL131AL								
BRL131TDS								
BRL165FE								
BRL131TDS								
AH1								
AH2								
AH3								
AH4								
AH5								
AH6								
AH7								
AH8								
AH9								
AH10								
AH11								
AH12								
AH13								
AH14								
AH15								
AH131								
AH165								
ESF151								
ESF77-33								
ESF144								
ESF158								
ESF147								
ESF148								
ESF149								
ESF150								
ESF159								
AQT								
CORNING								
OBSEIDIAN								
CORNING								
BRL2-3134								

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Class	Comments
Type	

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SRL915	Savannah River; Duplicate runs, no surface polishing of sample.
SRL917	Savannah River; Duplicate runs, no surface polishing of sample.
SRL 168	Savannah River; Duplicate runs, no surface polishing of sample.
SRL 168	Savannah River; Duplicate runs, no surface polishing of sample.
TNX165	Savannah River; Duplicate runs, no surface polishing of sample.
165AL	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131TDS	Savannah River; Duplicate runs, no surface polishing of sample.
SRL165AL	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131FE	Savannah River; Duplicate runs, no surface polishing of sample.
SRL165TDS	Savannah River; Duplicate runs, no surface polishing of sample.
SRL165TDS	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131AL	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131FE	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131AL	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131TDS	Savannah River; Duplicate runs, no surface polishing of sample.
SRL165FE	Savannah River; Duplicate runs, no surface polishing of sample.
SRL131TDS	Savannah River; Duplicate runs, no surface polishing of sample.
AH1	Savannah River; Duplicate runs, no surface polishing of sample.
AH2	Savannah River; Duplicate runs, no surface polishing of sample.
AH3	Savannah River; Duplicate runs, no surface polishing of sample.
AH4	Savannah River; Duplicate runs, no surface polishing of sample.
AH5	Savannah River; Duplicate runs, no surface polishing of sample.
AH6	Savannah River; Duplicate runs, no surface polishing of sample.
AH7	Savannah River; Duplicate runs, no surface polishing of sample.
AH8	Savannah River; Duplicate runs, no surface polishing of sample.
AH9	Savannah River; Duplicate runs, no surface polishing of sample.
AH10	Savannah River; Duplicate runs, no surface polishing of sample.
AH11	Savannah River; Duplicate runs, no surface polishing of sample.
AH12	Savannah River; Duplicate runs, no surface polishing of sample.
AH13	Savannah River; Duplicate runs, no surface polishing of sample.
AH14	Savannah River; Duplicate runs, no surface polishing of sample.
AH15	Savannah River; Duplicate runs, no surface polishing of sample.
AH131	Savannah River; Duplicate runs, no surface polishing of sample.
AH165	Savannah River; Duplicate runs, no surface polishing of sample.
ESF151	Savannah River; Duplicate runs, no surface polishing of sample.
ESF77-33	Savannah River; Duplicate runs, no surface polishing of sample.
ESF144	Savannah River; Duplicate runs, no surface polishing of sample.
ESF158	Savannah River; Duplicate runs, no surface polishing of sample.
ESF147	Savannah River; Duplicate runs, no surface polishing of sample.
ESF148	Savannah River; Duplicate runs, no surface polishing of sample.
ESF149	Savannah River; Duplicate runs, no surface polishing of sample.
ESF150	Savannah River; Duplicate runs, no surface polishing of sample.
ESF159	Savannah River; Duplicate runs, no surface polishing of sample.
A&T	Savannah River; Duplicate runs, no surface polishing of sample.
CORNING	Savannah River; Duplicate runs, no surface polishing of sample.
OBSEIDIAN	Savannah River; Duplicate runs, no surface polishing of sample.
CORNING	Savannah River; Duplicate runs, no surface polishing of sample.
RRL2-3134	Savannah River; Duplicate runs, no surface polishing of sample.

NOQUOTE MCC GLASS DURABILITY SPREAD SHEET VERSION 2 Sept. 87 Status Report MCC GLASS

 \-----INDEX-----// \-----GLASS COMPOSITION WEIGHT PERCENT-----

Reference Code	Glass Type	Al2O3	SiO2	BaO	CaO	CaO2	Cr2O3	Cs2O	CuO	Fe2O3
JANTZEN-86.	OBSIDIAN	0.00	0.03	0.00	1.40			0.00		0.00
JANTZEN-86.	GGU	12.43	0.06	0.00	15.39		0.02	0.00		0.00
JANTZEN-86.	GGT	13.70	0.00	0.00	16.65		0.01	0.00		0.00
JANTZEN-86.	GGQ	13.19	0.06	0.00	5.86		0.02	0.00		0.00
JANTZEN-86.	GGN	13.04	0.00	0.00	5.88		0.02	0.00		0.00
JANTZEN-86.	DDH	18.10	0.00	0.00	8.83		0.02	0.00		8.01
JANTZEN-86.	DDF	12.56	0.00	0.00	4.47		0.02	0.00		3.96
JANTZEN-86.	BRF	8.47	0.00	0.00	10.98		0.03	0.00		0.00
JANTZEN-86.	SILICA	0.00	0.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	SILICA GLAS	0.39	0.78	0.00	0.65		0.06	0.00		0.00
JANTZEN-86.	PYREX 7740	2.00	13.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	PYREX CMJ	2.00	13.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	WINDOW	0.50	0.00	0.00	13.10		0.00	0.00		0.00
JANTZEN-86.	PB GLASS	4.21	0.00	0.00	1.51		0.00	0.00		9.01
JANTZEN-86.	NBS	3.58	16.85	0.27	0.14		0.00	0.00		0.10
JANTZEN-86.	LIBYAN DESE	0.00	0.06	0.00	0.81		0.06	0.00		0.00
JANTZEN-86.	CUA	8.79	3.45	0.00	1.05		0.00	0.15		7.11
JANTZEN-86.	FRIT 131	0.00	14.70	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT21	0.00	9.40	0.00	4.20		0.00	0.00		0.00
JANTZEN-86.	FRIT211	0.00	11.10	0.00	5.60		0.00	0.00		0.00
JANTZEN-86.	FRIT153	0.00	10.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT S15	0.00	0.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT 168A	1.25	16.51	0.00	0.67		0.00	0.00		0.34
JANTZEN-86.	FRIT S12	0.00	20.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT S2	0.00	20.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT165	0.00	10.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT 168	0.00	17.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT 165	0.00	10.00	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	FRIT S17	0.00	9.50	0.00	0.00		0.00	0.00		0.00
JANTZEN-86.	UMTANUM	12.06	0.04	0.00	7.81		0.02	0.00		0.00
JANTZEN-86.	LLNLS29	28.38	0.00	0.00	6.30		0.00	1.37		0.00
JANTZEN-86.	BGC-50	12.00	0.00	0.00	5.50		0.00	0.00		6.92
JANTZEN-86.	HANFORD BAS	13.09	0.00	0.00	9.47		0.03	0.00		0.00
JANTZEN-86.	SPODUMENE G	21.54	0.03	0.00	0.56		0.00	0.00		0.21
JANTZEN-86.	SPODUMENE G	21.54	0.03	0.00	0.56		0.00	0.00		0.21
JANTZEN-86.	POMONA	14.38	0.04	0.03	11.05		0.23	0.00		0.00
JANTZEN-86.	STRIPA GRAN	13.34	0.06	0.04	0.83		0.04	0.00		0.00
JANTZEN-86.	COHASSET	13.13	0.04	0.00	7.70		0.02	0.00		0.00
JANTZEN-86.	GRANITE	12.91	0.00	0.00	0.86		0.01	0.00		0.00
JANTZEN-86.	MCCOY CANYO	13.11	0.05	0.00	8.48		0.03	0.00		0.00
JANTZEN-86.	UMTANUM	12.06	0.04	0.00	7.81		0.02	0.00		0.00
JANTZEN-86.	NEPHELINE S	30.87	0.04	0.00	2.85		0.00	0.00		0.34
JANTZEN-86.	P-16F	16.20	0.00	0.00	-15.60		0.00	0.00		1.50
JANTZEN-86.	P-1	12.20	0.00	0.00	5.20		0.00	0.00		4.10
JANTZEN-86.	P-3	8.40	3.00	0.00	4.60		0.00	0.00		5.40
JANTZEN-86.	P-40	5.70	0.00	0.00	7.20		0.30	0.10		10.84
JANTZEN-86.	AY	1.34	0.00	0.00	12.94		0.00	0.00		1.21
JANTZEN-86.	AX	1.50	0.00	0.00	21.27		0.00	0.00		1.20

GLASS	DURABILITY	SPREAD SHEET					VERSION 2	MCC	GLASS DURABILITY		

//	GLASS	COMPOSITION	WEIGHT		PERCENT	GLASS		COMPOSITION	WEIGHT	PERCENT	
Glass	Bd203	K2O	La203	Li2O	MgO	MnO2	MoO3	Na2O	Nd203	NiO	
Type											
OBSIDIAN		5.07		0.00	0.25			1.44	0.04	0.00	
BQU		0.77		0.02	4.33			0.89	0.00	0.14	
BQT		0.00		0.00	4.76			1.03	0.00	0.00	
BQQ		0.00		0.15	21.23			0.16	0.00	0.06	
BQN		1.00		0.02	4.48			0.62	0.00	0.03	
DQH		1.00		0.02	2.97			1.62	0.00	0.02	
DQF		0.49		0.04	0.70			6.00	0.00	0.03	
GRF		0.07		0.04	6.57			0.28	0.00	0.29	
SILICA		0.00		0.00	0.00			0.00	0.00	0.00	
SILICA GLAS		0.00		0.00	0.14			0.03	0.00	0.08	
PYREX 7740		0.00		0.00	0.00			4.00	0.00	0.00	
PYREX CMJ		0.00		0.00	0.00			4.00	0.00	0.00	
WINDOW		0.00		0.00	1.70			13.90	0.00	0.00	
PB GLASS		0.00		9.08	0.00			0.00	0.00	0.00	
NBS		7.15		0.46	0.00			2.68	0.00	0.00	
LIBYAN DESE		0.01		0.19	0.07			0.11	0.00	0.00	
CUA		0.00		0.00	0.00			2.30	0.74	2.09	
FRIT 131		0.00		5.70	2.00			17.70	0.50	0.00	
FRIT21		0.00		3.60	2.10			17.20	0.00	0.00	
FRIT211		0.00		4.40	0.00			20.60	0.00	0.00	
FRIT153		0.00		4.50	2.00			13.50	0.00	0.00	
FRIT S15		0.00		15.00	1.00			8.00	0.00	0.00	
FRIT 168A		0.00		5.98	0.97			12.40	0.00	0.18	
FRIT S12		0.00		15.00	1.00			3.00	0.00	0.00	
FRIT S2		0.00		0.00	1.00			18.00	0.00	0.00	
FRIT165		0.00		7.00	1.00			13.00	0.00	0.00	
FRIT 168		0.00		6.00	1.00			13.00	0.00	0.00	
FRIT 165		0.00		7.00	1.00			13.00	0.00	0.00	
FRIT S17		0.00		7.50	1.00			13.50	0.00	0.00	
UMTANUM		0.43		0.00	3.96			4.80	0.00	0.13	
LLNLS29		0.00		0.00	0.00			12.62	0.00	0.00	
BGC-50		0.00		0.00	2.50			9.00	0.00	0.00	
HANFORD BAS		0.45		0.00	5.75			4.68	0.00	0.00	
SPODUMENE 6		0.00		4.13	0.03			0.16	0.00	0.36	
SPODUMENE 6		0.00		4.13	0.03			0.16	0.00	0.36	
POMONA		0.46		0.00	6.77			1.85	0.00	0.12	
STRIPA GRAN		3.99		0.02	0.20			4.02	0.00	0.22	
COHASSET		1.59		0.00	3.47			3.15	0.00	0.10	
GRANITE		5.89		0.03	0.34			3.41	0.00	0.01	
MCCOY CANYO		1.11		0.00	4.26			2.94	0.00	0.19	
UMTANUM		0.43		0.00	3.96			2.40	0.00	0.13	
NEPHELINE S		0.07		0.01	0.03			12.91	0.00	0.00	
P-16F		1.87		0.00	3.25			4.98	0.00	0.00	
P-1		0.00		0.00	0.00			18.00	0.00	0.60	
P-3		0.00		0.00	0.00			16.00	0.00	1.30	
P-40		0.00		0.00	0.80			10.00	0.70	0.90	
AY		1.93		0.00	2.24			13.49	0.00	0.00	
AX		9.62		0.12	2.40			2.63	0.00	0.00	

GLASS DURABILITY SPREAD SHEET				VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	
*****										*****
// PERCENT-----				GLASS	COMPOSITION	WEIGHT	PERCENT-----			
Glass	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
Type										
=====										
OBSEIDIAN	0.00	0.00	0.00			73.59	0.00		0.87	0.00
SQU	0.14	0.00	0.02			44.28	0.01		6.69	0.00
GQT	0.00	0.00	0.00			54.55	0.01		1.13	0.00
GQR	0.06	0.00	0.34			48.35	0.01		1.13	0.00
GQN	0.03	0.01	0.14			68.89	0.00		1.02	0.00
DQH	0.02	0.00	0.00			61.44	0.00		0.01	0.00
DQF	0.03	0.00	0.08			72.35	0.02		0.02	0.00
BRF	0.29	0.00	0.00			45.20	0.01		10.44	0.00
SILICA	0.00	0.00	0.00			100.00	0.00		0.00	0.00
SILICA GLAS	0.08	0.03	0.05			93.02	0.01		0.01	0.00
PYREX 7740	0.00	0.00	0.00			81.00	0.00		0.00	0.00
PYREX CMJ	0.00	0.00	0.00			81.00	0.00		0.00	0.00
WINDOW	0.00	0.00	0.00			70.80	0.00		0.00	0.00
PB GLASS	0.00	0.00	13.25			50.70	0.00		0.00	0.00
NBS	0.00	0.00	0.09			66.52	0.00		0.00	0.00
LIBYAN DESE	0.00	0.00	0.00			92.42	0.00		0.20	0.00
CUA	2.09	0.00	0.00			59.00	0.10		0.00	1.19
FRIT 131	0.00	0.00	0.00			57.90	0.00		1.00	0.00
FRIT21	0.00	0.00	0.00			52.50	0.00		9.70	0.00
FRIT211	0.00	0.00	0.00			58.30	0.00		0.00	0.00
FRIT153	0.00	0.00	0.00			67.00	0.00		2.00	0.00
FRIT S15	0.00	0.00	0.00			75.00	0.00		0.00	0.00
FRIT 168A	0.18	0.00	0.00			59.34	0.00		0.00	0.00
FRIT S12	0.00	0.00	0.00			60.00	0.00		0.00	0.00
FRIT S2	0.00	0.00	0.00			60.00	0.00		0.00	0.00
FRIT165	0.00	0.00	0.00			68.00	0.00		0.00	0.00
FRIT 168	0.00	0.00	0.00			62.00	0.00		0.00	0.00
FRIT 165	0.00	0.00	0.00			68.00	0.00		0.00	0.00
FRIT S17	0.00	0.00	0.00			67.50	0.00		0.00	0.00
UMTANUM	0.13	0.00	0.31			46.21	0.03		2.10	0.00
LLNLS29	0.00	0.00	0.00			36.66	0.22		4.45	0.00
BGC-50	0.00	2.00	0.00			55.00	0.00		3.00	0.00
HANFORD BAS	0.00	0.00	0.00			46.85	0.24		1.64	0.00
SPODUMENE 6	0.36	0.00	0.00			65.89	0.00		1.45	0.06
SPODUMENE 6	0.36	0.00	0.00			65.89	0.00		1.45	0.06
POMONA	0.12	0.00	0.04			50.49	0.03		1.73	0.00
STRIPA GRAN	0.22	0.00	0.10			71.67	0.01		0.00	0.00
COHASSET	0.10	0.00	0.34			54.12	0.04		2.47	0.00
GRANITE	0.01	0.00	0.00			71.24	0.00		0.01	0.00
MCCOY CANYO	0.19	0.47	0.00			51.13	0.00		2.19	0.00
UMTANUM	0.13	0.45	0.00			46.21	0.04		2.10	0.00
NEPHELINE S	0.00	0.00	0.00			47.92	0.01		0.03	0.00
P-16F	0.00	0.00	0.00			53.60	0.04		0.11	0.00
P-1	0.60	0.00	0.00			52.30	0.00		0.00	1.53
P-3	1.30	0.00	0.00			49.20	0.00		3.00	0.96
P-40	0.90	0.00	0.00			55.60	0.10		0.00	1.30
AY	0.00	0.00	0.00			66.62	0.06		0.00	
AX	0.00	0.00	0.00			64.39	0.00		0.00	

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \\\								
Glass	InO	IrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
OBSSIDIAN		0.05			5.80	88.55		MCC-1
GQU		0.00			12.55	97.61		MCC-1
GQT		0.00			14.07	105.92		MCC-1
GQQ		0.00			6.28	96.83		MCC-1
GQN		0.00			5.46	100.58		MCC-1
DQH		0.00			0.12	102.16		MCC-1
DQF		0.01			0.05	100.81		MCC-1
GRF		0.04			16.72	99.15		MCC-1
SILICA		0.00			0.00	100.00		MCC-1
SILICA GLAS		0.00			1.02	96.25		MCC-1
PYREX 7740		0.00			0.00	100.00		MCC-1
PYREX CMJ		0.00			0.00	100.00		MCC-1
WINDOW		0.00			0.00	100.00		MCC-1
PB GLASS		0.00			2.80	90.57		MCC-1
NBS		0.00			0.00	97.84		MCC-1
LIBYAN DESE		0.04			1.93	95.91		MCC-1
CUA		0.00			14.02	99.99		MCC-1
FRIT 131		0.50			0.00	100.00		MCC-1
FRIT21		0.00			0.00	98.70		MCC-1
FRIT211		0.00			0.00	100.00		MCC-1
FRIT153		1.00			0.00	100.00		MCC-1
FRIT S15		1.00			0.00	100.00		MCC-1
FRIT 168A		0.83			0.00	98.48		MCC-1
FRIT S12		1.00			0.00	100.00		MCC-1
FRIT S2		1.00			0.00	100.00		MCC-1
FRIT165		1.00			0.00	100.00		MCC-1
FRIT 168		1.00			0.00	100.00		MCC-1
FRIT 165		1.00			0.00	100.00		MCC-1
FRIT S17		1.00			0.00	100.00		MCC-1
UMTANUM		0.02			14.40	92.33		MCC-1
LLNLS29		3.68			6.32	100.00		MCC-1
BGC-50		0.00			1.87	97.79		MCC-1
HANFORD BAS		0.03			9.85	92.08		MCC-1
SPODUMENE 6		1.51			0.00	95.94		MCC-1
SPODUMENE 6		1.51			0.00	95.94		MCC-1
POMONA		0.00			12.91	100.12		MCC-1
STRIPA GRAN		0.00			1.71	96.24		MCC-1
COHASSET		0.03			16.87	103.07		MCC-1
GRANITE		0.01			1.67	96.39		MCC-1
MCCDY CANYO		0.02			14.03	98.02		MCC-1
UMTANUM		0.02			14.40	90.07		MCC-1
NEPHELINE S		0.00			0.32	95.42		MCC-1
P-16F		0.22			1.50	98.87		MCC-1
P-1					5.90	99.83		MCC-1
P-3					7.10	98.96		MCC-1
P-40					5.81	99.35		MCC-1
AY					0.94	100.78		MCC-1
AX					0.99	104.13		MCC-1

GLASS GLASS DURABILITY SPREAD SHEET VERSION 2 MCC GLASS DURABILITY SPREAD

//		LEACH TEST			LEACH TEST					
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant	SiO2	
Type	-- Comment -->	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start)	Pretreatment	(ppm)
=====										
OBSIDIAN	Other: FeO/MnO,	10.0	DIW				90			
GSU	Other: FeO/MnO,	10.0	DIW				90			
GQT	Other: FeO/MnO,	10.0	DIW				90			
GQQ	Other: FeO/MnO,	10.0	DIW				90			
GQN	Other: FeO/MnO,	10.0	DIW				90			
DQH	Other: MnO	10.0	DIW				90			
DQF	Other: MnO	10.0	DIW				90			
GRF	Other: FeO/MnO,	10.0	DIW				90			
SILICA		10.0	DIW				90			
SILICA GLAS	Other: FeO/MnO,	10.0	DIW				90			
PYREX 7740		10.0	DIW				90			
PYREX CMJ		10.0	DIW				90			
WINDOW		10.0	DIW				90			
PB GLASS	Other: MnO	10.0	DIW				90			
NBS		10.0	DIW				90			
LIBYAN DESE	Other: FeO/MnO,	10.0	DIW				90			
CUA	Other: FeO/MnO,	10.0	DIW				90			
FRIT 131		10.0	DIW				90			
FRIT21		10.0	DIW				90			
FRIT211		10.0	DIW				90			
FRIT153		10.0	DIW				90			
FRIT S15		10.0	DIW				90			
FRIT 168A		10.0	DIW				90			
FRIT S12		10.0	DIW				90			
FRIT S2		10.0	DIW				90			
FRIT165		10.0	DIW				90			
FRIT 168		10.0	DIW				90			
FRIT 165		10.0	DIW				90			
FRIT S17		10.0	DIW				90			
UMTANUM	Other: FeO/MnO,	10.0	DIW				90			
LLNLS29	Other: FeO/MnO,	10.0	DIW				90			
BGC-50	Other: FeO	10.0	DIW				90			
HANFORD BAS	Other: FeO/MnO,	10.0	DIW				90			
SPODUMENE G		10.0	DIW				90			
SPODUMENE S		10.0	DIW				90			
POMONA	Other: FeO/MnO,	10.0	DIW				90			
STRIPA GRAN	Other: FeO/MnO,	10.0	DIW				90			
COHASSET	Other: FeO/MnO,	10.0	DIW				90			
GRANITE	Other: FeO/MnO,	10.0	DIW				90			
MCCOY CANYO	Other: FeO/MnO,	10.0	DIW				90			
UMTANUM	Other: FeO/MnO,	10.0	DIW				90			
NEPHELINE S	Other: FeO/MnO,	10.0	DIW				90			
P-16F	Other: FeO	10.0	DIW				90			
P-1	Other: FeO/MnO,	10.0	DIW				90			
P-3	Other: FeO/MnO,	10.0	DIW				90			
P-40	Other: FeO/MnO,	10.0	DIW				90			
AY	Other: MnO	10.0	DIW				90			
AX	Other: MnO	10.0	DIW				90			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\\							//---TEST RESULTS--->			
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
=====										
OBESIDIAN						28	7.50			
GGU						28	9.33			
GQT						28	9.41			
GQR						28	7.92			
GQN						28	9.20			
DQH						28	8.60			
DQF						28	8.55			
GRF						28	9.22			
SILICA						28	5.15			
SILICA GLAS						28	7.60			
PYREX 7740						28	3.70			
PYREX CMJ						28	7.10			
WINDOW						28	7.79			
P8 GLASS						28	7.01			
NBS						28	7.52			
LIBYAN DESE						28	8.50			
CUA						28	7.00			
FRIT 131						28	11.06			
FRIT21						28	10.30			
FRIT211						28	10.30			
FRIT153						28	9.60			
FRIT S15						28	12.20			
FRIT 168A						28	10.43			
FRIT S12						28	9.50			
FRIT S2						28	9.50			
FRIT165						28	9.85			
FRIT 168						28	11.46			
FRIT 165						28	10.46			
FRIT S17						28	10.50			
UMTANUM						28	7.81			
LLNL829						28	6.50			
BBC-50						28	7.16			
HANFORD BAS						28	7.11			
SPODUMENE B						28	8.30			
SPODUMENE S						28	8.30			
POMONA						28	7.69			
STRIPA GRAN						28	7.36			
COHASSET						28	7.46			
BRANITE						28	8.05			
MCCOY CANYO						28	7.73			
UMTANUM						28	7.71			
NEPHELINE S						28	8.36			
P-16F						28	8.50			
P-1						28	9.97			
P-3						28	9.30			
P-40						28	8.00			
AY						28	9.82			
AX						28	10.45			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY		SPREAD	

// -----FINAL LEACHATE COMPOSITION-----/ \----- NORMALIZED												
Glass	Li	K	Cs	Sr	U	Mo	Other	Si	B			
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)			
=====												
OBSSIDIAN								1.21				
SDU								5.22				
SQT								5.92				
SDQ								2.57				
SDN								3.53				
DSH								5.12				
DDF								3.39				
GRF								8.90				
SILICA								0.26				
SILICA GLAS								0.15				
• PYREX 7740								0.73				
• PYREX CMJ								1.29				
WINDOW								3.64				
• PP GLASS								2.47				
NBS								3.20				
LIBYAN DESE								0.88				
CUA								1.68				
FRIT 131								555.00				
FRIT21								97.80				
FRIT211								50.23				
FRIT153								78.96				
FRIT S15								70.23				
FRIT 168A								308.41				
FRIT S12								15.83				
FRIT S2								38.60				
FRIT165								62.72				
FRIT 168								560.38				
FRIT 165								215.51				
FRIT S17								154.35				
UMTANUM								9.26				
LLNL929								9.38				
BGC-50								0.84				
HANFORD BAS								6.30				
SPODUMENE 8								1.80				
SPODUMENE 9								1.85				
POMONA								8.22				
STRIPA GRAN								1.29				
CONASSET								6.80				
GRANITE								0.98				
MCCOY CANYO								5.57				
UMTANUM								6.03				
NEPHELINE S								4.51				
P-16F								5.79				
P-1								11.49				
P-3								11.15				
P-40								9.66				
AY								22.26				
AX								17.04				

GLASS	SHEET	VERSION 2	MOO	GLASS	DURABILITY	SPREAD SHEET

LEACH	VALUES	NORMALIZED			LEACH	VALUES
Glass	Na	Li	K	Ca	Si	U
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

OBESIDIAN						
BCU						
BQT						
BQZ						
BON						
BQH						
BQF						
BRF						
SILICA						
SILICA GLAS						
PYREX 7740						
PYREX CMJ						
WINDOW						
PB GLASS						
NBS						
LIBYAN DESE						
CUA						
FRIT 131						
FRIT21						
FRIT211						
FRIT153						
FRIT 815						
FRIT 168A						
FRIT 812						
FRIT 92						
FRIT165						
FRIT 168						
FRIT 165						
FRIT 817						
UMTANUM						
LLNL929						
BGC-50						
HANFORD BAG						
SPODUMENE 6						
SPODUMENE 6						
POMONA						
STRIPA GRAN						
COHASSET						
GRANITE						
MCCOY CANYO						
UMTANUM						
NEPHELINE 6						
P-16F						
P-1						
P-3						
P-40						
AY						
AX						

GLASS VERSION 2

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 Glass /---- Comments ----->
 Type

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=====
OBESIDIAN Savannah River; Duplicate runs, no surface polishing of sample.
GBU Savannah River; Duplicate runs, no surface polishing of sample.
GBT Savannah River; Duplicate runs, no surface polishing of sample.
GGG Savannah River; Duplicate runs, no surface polishing of sample.
GGM Savannah River; Duplicate runs, no surface polishing of sample.
GGH Savannah River; Duplicate runs, no surface polishing of sample.
DGF Savannah River; Duplicate runs, no surface polishing of sample.
GRF Savannah River; Duplicate runs, no surface polishing of sample.
SILICA Savannah River; Duplicate runs, no surface polishing of sample.
SILICA GLASS Savannah River; Duplicate runs, no surface polishing of sample.
PYREX 7740 Savannah River; Duplicate runs, no surface polishing of sample.
PYREX CMJ Savannah River; Duplicate runs, no surface polishing of sample.
WINDOW Savannah River; Duplicate runs, no surface polishing of sample.
PB GLASS Savannah River; Duplicate runs, no surface polishing of sample.
NBS Savannah River; Duplicate runs, no surface polishing of sample.
LIBYAN DESE Savannah River; Duplicate runs, no surface polishing of sample.
CUA Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 131 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT21 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT211 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT153 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 315 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 168A Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 312 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 32 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT155 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 169 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 165 Savannah River; Duplicate runs, no surface polishing of sample.
FRIT 317 Savannah River; Duplicate runs, no surface polishing of sample.
UMTANUM Savannah River; Duplicate runs, no surface polishing of sample.
LLNL529 Savannah River; Duplicate runs, no surface polishing of sample.
300-50 Savannah River; Duplicate runs, no surface polishing of sample.
HANFORD BASS Savannah River; Duplicate runs, no surface polishing of sample.
SPODUMENE 6S Savannah River; Duplicate runs, no surface polishing of sample.
SPODUMENE 8S Savannah River; Duplicate runs, no surface polishing of sample.
POMONA Savannah River; Duplicate runs, no surface polishing of sample.
STRIPA GRANS Savannah River; Duplicate runs, no surface polishing of sample.
CORASSET Savannah River; Duplicate runs, no surface polishing of sample.
GRANITE Savannah River; Duplicate runs, no surface polishing of sample.
MCCOY CANYO Savannah River; Duplicate runs, no surface polishing of sample.
UMTANUM Savannah River; Duplicate runs, no surface polishing of sample.
NEPHELINE 6S Savannah River; Duplicate runs, no surface polishing of sample.
P-16F Savannah River; Duplicate runs, no surface polishing of sample.
P-1 Savannah River; Duplicate runs, no surface polishing of sample.
P-3 Savannah River; Duplicate runs, no surface polishing of sample.
P-40 Savannah River; Duplicate runs, no surface polishing of sample.
AY Savannah River; Duplicate runs, no surface polishing of sample.
AX Savannah River; Duplicate runs, no surface polishing of sample.

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\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----

Reference Glass Al2O3 B2O3 BaO CaO CeO2 Cr2O3 Cs2O CuO Fe2O3
Code Type

JANTZEN-86. JQD 1.12 0.00 0.00 15.32 0.02 0.00 1.33
JANTZEN-86. JQR 1.89 0.00 0.00 16.23 0.00 0.00 1.12
JANTZEN-86. AV 1.26 0.00 0.00 2.39 0.00 0.00 0.17
JANTZEN-86. 19K 0.00 0.00 0.00 9.00 0.00 0.00 0.00
JANTZEN-86. 19M 0.23 0.00 0.00 8.55 0.00 0.00 0.00
JANTZEN-86. 19L 0.00 0.00 0.00 8.00 0.00 0.00 0.00
JANTZEN-86. 1825 ACT 1.13 0.06 0.00 6.86 0.00 0.00 0.70
JANTZEN-86. 635ACTUAL 3.21 0.00 0.00 11.89 0.02 0.00 0.18
JANTZEN-86. 642ACTUAL 2.85 0.03 0.02 9.39 0.02 0.00 0.49
JANTZEN-86. 1824ACT 1.30 0.13 0.00 7.28 0.02 0.00 0.56
JANTZEN-86. EZI 2.63 0.00 0.00 10.42 0.02 0.00 1.89
JANTZEN-86. AAX 2.66 0.05 0.00 7.82 0.00 0.00 0.58
JANTZEN-86. DGH 2.76 0.00 0.00 6.65 0.01 0.00 0.35
JANTZEN-86. JXU 1.25 0.00 0.00 1.67 0.01 0.00 0.19
JANTZEN-86. TWB 0.39 0.00 11.72 0.43 0.24 0.00 1.42
JANTZEN-86. DA 2.12 0.00 0.00 4.23 0.00 0.00 0.33
JANTZEN-86. DC 2.06 0.00 20.00 2.06 0.00 0.00 0.59
JANTZEN-86. DD 2.00 0.00 30.00 1.00 0.00 0.00 0.40
JANTZEN-86. DB 2.00 0.00 10.00 3.00 0.00 0.00 0.40
JANTZEN-86. DE 1.50 0.00 0.00 1.00 0.00 0.00 0.20
JANTZEN-86. DBW 3.12 0.00 0.00 18.60 0.01 0.00 1.72
JANTZEN-86. SCU 1.34 0.00 0.19 10.45 0.00 0.00 0.72
JANTZEN-86. UK 0.16 0.00 0.00 10.93 0.01 0.16 0.32
JANTZEN-86. EZA 4.23 0.00 0.00 19.59 0.00 0.00 0.15
JANTZEN-86. 19AF 0.36 0.00 0.00 12.62 0.00 0.00 0.15
JANTZEN-86. EZB 3.10 0.00 0.00 12.22 0.00 0.00 0.15
JANTZEN-86. EZC 2.21 0.00 0.00 6.46 0.00 0.00 0.00
JANTZEN-86. 19AG 0.05 0.00 0.00 12.27 0.00 0.00 0.12
JANTZEN-86. 19AE 0.24 0.00 0.00 11.19 0.00 0.00 0.21
JANTZEN-86. DYS 0.26 13.30 0.00 8.49 0.00 0.00 0.00
JANTZEN-86. 19AH 0.00 0.00 0.00 11.30 0.00 0.00 0.00
JANTZEN-86. GPX 0.25 0.00 0.00 10.62 0.00 0.00 0.27
JANTZEN-86. GPX-DUP 0.25 0.00 0.00 10.62 0.00 0.00 0.27
JANTZEN-86. X 0.26 9.72 0.00 8.71 0.00 0.00 0.23
JANTZEN-86. DTJ 0.30 50.56 0.00 0.47 0.00 0.00 0.24
JANTZEN-86. DTK 0.00 47.00 0.00 0.00 0.00 0.00 0.00
JANTZEN-86. EZT 2.38 0.00 0.00 8.77 0.00 0.00 1.10
JANTZEN-86. DF 1.50 0.00 0.00 1.00 0.00 0.00 0.50

GLASS	DURABILITY	SPREAD SHEET				VERSION 2		MCC	GLASS	DURABILITY

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
Type										
=====										
JQO		7.06		0.04	6.07			2.70	0.00	0.03
JQR		18.50		0.04	2.50			1.43	0.00	0.00
AV		20.00		0.02	1.06			0.29	0.00	0.00
19K		14.00		0.00	0.00			0.00	0.00	0.00
19M		11.00		0.02	0.07			0.15	0.00	0.00
19L		11.00		0.00	0.00			0.00	0.00	0.00
1825 ACT		2.17		0.02	4.81			11.03	0.00	0.00
635ACTUAL		3.96		0.02	0.66			14.29	0.00	0.02
642ACTUAL		0.77		0.04	0.61			11.73	0.00	0.03
1824ACT		2.35		0.04	5.14			9.79	0.00	0.02
EZI		0.96		0.00	1.00			16.90	0.00	0.02
AAX		1.00		0.00	0.95			17.12	0.00	0.00
DGH		1.00		0.04	1.53			11.88	0.00	0.01
JXU		20.00		0.00	0.05			0.27	0.00	0.03
TWB		0.00		0.00	0.04			3.21	0.00	0.26
DA		0.50		0.00	0.56			20.50	0.00	0.00
DC		0.61		0.00	0.49			2.49	0.00	0.00
DD		0.50		0.00	0.30			1.00	0.00	0.00
DB		2.00		0.00	1.00			3.00	0.00	0.00
DE		1.00		0.00	0.50			14.50	0.00	0.00
DGW		10.00		0.02	2.97			1.79	0.00	0.01
SCU		10.49		0.02	1.37			2.22	0.00	0.19
UK		0.00		0.04	0.05			18.00	0.00	0.00
EZA		6.31		0.09	1.76			20.00	0.00	0.00
19AF		8.38		0.06	0.08			2.14	6.00	0.00
EZB		15.20		0.13	7.63			9.80	0.00	0.02
EZC		23.80		0.00	10.20			4.31	0.00	0.00
19AG		11.30		0.02	0.07			2.80	6.00	0.00
19AE		12.00		0.04	0.05			3.41	0.00	0.02
DYS		1.92		0.02	0.08			8.05	0.00	0.00
19AH		11.30		0.00	0.00			3.80	6.00	0.00
GPX		0.04		0.06	0.06			20.00	0.00	0.01
GPX-DUP		0.04		0.06	0.06			20.00	0.00	0.01
X		0.00		0.00	0.05			16.00	0.00	0.00
DTJ		0.00		0.00	0.00			20.09	0.00	0.00
DTK		0.00		0.00	0.00			21.00	0.00	0.00
EZT		2.00		0.04	2.50			16.90	0.00	0.00
DF		0.50		0.00	0.00			1.00	0.00	0.00

// PERCENT				GLASS COMPOSITION WEIGHT PERCENT						
Glass Type	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
JQD	0.03	3.83	0.17			55.13	0.01		0.01	
JQR	0.00	1.02	0.00			55.50	0.05		0.00	
AV	0.00	0.00	0.00			74.45	0.00		0.00	
19K	0.00	0.00	10.00			67.00	0.00		0.00	
19M	0.00	0.00	25.00			53.55	0.01		0.00	
19L	0.00	0.00	25.00			56.00	0.00		0.00	
1925 ACT	0.00	0.09	0.03			71.50	0.00		0.03	
635ACTUAL	0.02	0.04	0.05			66.53	0.12		0.02	
642ACTUAL	0.03	0.15	0.05			73.42	0.06		0.06	
1824ACT	0.02	0.11	0.08			69.53	0.05		0.06	
EZI	0.02	0.00	0.02			62.04	0.01		0.02	
AAX	0.00	0.00	0.00			67.00	0.00		0.00	
D6H	0.01	0.00	0.00			74.88	0.01		0.00	
JXU	0.03	0.15	3.00			72.50	0.01		0.02	
TWB	0.26	0.00	45.00			37.01	0.00		0.00	
DA	0.00	0.00	0.68			69.10	0.00		0.00	
DC	0.00	0.00	30.00			42.00	0.00		0.00	
DD	0.00	0.00	45.00			19.70	0.00		0.00	
DB	0.00	0.00	15.00			63.50	0.00		0.00	
DE	0.00	0.00	15.20			66.00	0.00		0.00	
D6W	0.01	0.00	0.12			59.50	0.01		0.00	
SCU	0.19	0.00	0.00			73.27	0.26		0.22	
UK	0.00	0.00	0.00			59.80	0.01		0.06	
EZA	0.00	0.00	0.00			47.80	0.00			
19AF	0.00	0.00	0.00			67.60	0.00			
EZB	0.02	0.00	0.00			49.42	0.00			
EZC	0.00	0.00	0.00			51.56	0.00			
19AG	0.00	0.00	0.00			64.82	0.00			
19AE	0.02	0.00	0.00			72.20	0.00			
DYS	0.00	0.00	0.52			66.45	0.00			
19AH	0.00	0.00	0.00			67.60	0.00			
GPX	0.01	0.00	0.00			69.96	0.01			
GPX-DUP	0.01	0.00	0.00			69.96	0.01			
X	0.00	0.00	0.00			62.92	0.01			
DTJ	0.00	0.00	0.00			23.32	0.00			
DTK	0.00	0.00	0.00			32.00	0.00			
EZT	0.00	0.00	0.00			66.20	0.00			
DF	0.00	0.00	64.00			30.50	0.00			

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

// ---GLASS		COMPOSITION	WEIGHT		PERCENT		// \\\	
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
JGB					0.94	93.79		MCC-1
JGR					0.90	99.19		MCC-1
AV					0.00	99.63		MCC-1
19K					0.00	100.00		MCC-1
19M					1.76	100.33		MCC-1
19L					0.00	100.00		MCC-1
1825 ACT					0.41	98.85		MCC-1
635ACTUAL		0.01			0.50	101.54		MCC-1
642ACTUAL					0.37	100.10		MCC-1
1824ACT		0.01			0.30	96.76		MCC-1
EZI					0.97	96.89		MCC-1
AAX					0.35	97.53		MCC-1
DGH					0.01	99.12		MCC-1
JXU		0.01			0.01	99.16		MCC-1
TWB					0.00	99.71		MCC-1
DA					0.00	98.01		MCC-1
DC					0.00	100.30		MCC-1
DD					0.00	99.90		MCC-1
DB					0.00	99.90		MCC-1
DE					0.00	99.90		MCC-1
DGW					0.68	98.55		MCC-1
SCU		0.24			0.02	101.01		MCC-1
UK					0.00	89.54		MCC-1
EZA					0.00	99.92		MCC-1
19AF					0.00	97.39		MCC-1
EZB					0.01	97.67		MCC-1
EZC					0.00	98.54		MCC-1
19AG					0.00	97.46		MCC-1
19AE					0.00	99.37		MCC-1
DYS					0.00	99.09		MCC-1
19AH					0.00	100.00		MCC-1
GPX					0.00	101.27		MCC-1
GPX-DUP					0.00	101.27		MCC-1
X					0.00	97.90		MCC-1
DTJ					0.00	94.97		MCC-1
DTK					0.00	100.00		MCC-1
EZT					1.20	101.10		MCC-1
DF						99.00		MCC-1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****					*****					
// -----LEACH TEST-----					-----LEACH TEST-----					
Glass Type	-- Comment -->	SA/Y (1/M)	Leachant Water Type	Geologic Media	Canister Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
JQD	Other: MnO	10.0	DIW,				90			
JQR	Other: MnO	10.0	DIW				90			
AV		10.0	DIW				90			
19K		10.0	DIW				90			
19M	Other: MnO	10.0	DIW				90			
19L		10.0	DIW				90			
1825 ACT	Other: MnO	10.0	DIW				90			
635ACTUAL	Other: MnO	10.0	DIW				90			
642ACTUAL	Other: MnO	10.0	DIW				90			
1824ACT	Other: MnO	10.0	DIW				90			
EZI	Other: MnO	10.0	DIW				90			
AAX	Other: MnO	10.0	DIW				90			
DGH	Other: MnO	10.0	DIW				90			
JXU	Other: MnO	10.0	DIW				90			
TWB		10.0	DIW				90			
DA		10.0	DIW				90			
DC		10.0	DIW				90			
DD		10.0	DIW				90			
DB		10.0	DIW				90			
DE		10.0	DIW				90			
DGW	Other: MnO	10.0	DIW				90			
SCU	Other: MnO	10.0	DIW				90			
UK		10.0	DIW				90			
EZA		10.0	DIW				90			
19AF		10.0	DIW				90			
EZB	Other: MnO	10.0	DIW				90			
EZC		10.0	DIW				90			
19AG		10.0	DIW				90			
19AE		10.0	DIW				90			
DYS		10.0	DIW				90			
19AH		10.0	DIW				90			
GPX		10.0	DIW				90			
GPX-DUP		10.0	DIW				90			
X		10.0	DIW				90			
DTJ		10.0	DIW				90			
DTK		10.0	DIW				90			
EZT	Other: MnO	10.0	DIW				90			
DF		10.0	DIW				90			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	NCC	GLASS		

// -----PRETEST LEACHANT COMPOSITION-----\\ //---TEST RESULTS---//										
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)
JQR						28	9.50			
JOR						28	9.92			
AV						28	10.54			
19K						28	9.25			
19M						28	9.10			
19L						28	8.71			
1825 ACT						28	9.50			
635ACTUAL						28	9.90			
642ACTUAL						28	9.91			
1824ACT						28	9.60			
EZ1						28	9.98			
AAX						28	9.40			
DGH						28	9.63			
JXU						28	11.97			
TWB						28	8.64			
DA						28	11.50			
DC						28	8.32			
DD						28	8.07			
DB						28	8.28			
DE						28	10.33			
DGW						28	10.04			
SCU						28	10.00			
UK						28	10.54			
EZA						28	10.51			
19AF						28	10.20			
EZB						28	10.68			
EZC						28	11.00			
19AG						28	10.05			
19AE						28	10.05			
DYS						28	9.32			
19AH						28	10.07			
GPX						28	11.26			
GPX-DUP						28	9.92			
X						28	9.71			
DTJ						28	9.16			
DTK						28	9.20			
EZT						28	9.55			
DF						28	8.50			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	GLASS	DURABILITY		SPREAD	

// ---FINAL LEACHATE COMPOSITION---/ \----- NORMALIZED												
Glass	Li	K	Cs	Sr	U	Mo	Other	Si	B			
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m2)	(g/m2)			
=====												
JGQ								25.72				
JGR								20.38				
AV								21.32				
19K								4.83				
19M								5.67				
19L								2.01				
1825 ACT								28.91				
635ACTUAL								11.99				
642ACTUAL								11.29				
1824ACT								27.70				
EZI								14.31				
AAX								14.02				
DGH								9.71				
JXU								41.02				
TWB								4.71				
DA								190.10				
DC								2.36				
DD								6.89				
DB								0.86				
DE								5.87				
DGW								12.75				
SCU								12.31				
UK								31.59				
EZA								18.53				
19AF								35.44				
EZB								25.15				
EZC								34.03				
19AG								36.01				
19AE								28.17				
DYS								59.11				
19AH								34.65				
BPX								105.05				
BPX-DUP								52.80				
X								43.52				
DTJ								246.80				
DTK								108.31				
EZT								16.13				
DF								1.47				

GLASS	SHEET	VERSION 2	NOC		GLASS	DURABILITY	SPREAD SHEET	

-----//	LEACH	VALUES	-----			NORMALIZED	LEACH	VALUES
Glass	Na	Li	K	Cs	Br	U	Mo	Other
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====								
J00								
J0R								
JV								
J0K								
J0M								
J0L								
J025 ACT								
635ACTUAL								
642ACTUAL								
1024ACT								
E2I								
AAX								
DGH								
JXU								
TWB								
DA								
DC								
DD								
DB								
DE								
DGW								
SCU								
UK								
E2A								
19AF								
E2B								
E2C								
19AG								
19AE								
DYS								
19AH								
GPX								
GPX-DUP								
X								
DTJ								
DTK								
E2T								
DF								

-----//

Glass /---- Comments ----->

Type

JOB	Savannah River; Duplicate runs, no surface polishing of sample.
JGR	Savannah River; Duplicate runs, no surface polishing of sample.
AV	Savannah River; Duplicate runs, no surface polishing of sample.
19K	Savannah River; Duplicate runs, no surface polishing of sample.
19M	Savannah River; Duplicate runs, no surface polishing of sample.
19L	Savannah River; Duplicate runs, no surface polishing of sample.
1825 ACT	Savannah River; Duplicate runs, no surface polishing of sample.
635ACTUAL	Savannah River; Duplicate runs, no surface polishing of sample.
642ACTUAL	Savannah River; Duplicate runs, no surface polishing of sample.
1824ACT	Savannah River; Duplicate runs, no surface polishing of sample.
EZI	Savannah River; Duplicate runs, no surface polishing of sample.
AAK	Savannah River; Duplicate runs, no surface polishing of sample.
DGH	Savannah River; Duplicate runs, no surface polishing of sample.
JXU	Savannah River; Duplicate runs, no surface polishing of sample.
TWB	Savannah River; Duplicate runs, no surface polishing of sample.
DA	Savannah River; Duplicate runs, no surface polishing of sample.
DC	Savannah River; Duplicate runs, no surface polishing of sample.
DD	Savannah River; Duplicate runs, no surface polishing of sample.
DS	Savannah River; Duplicate runs, no surface polishing of sample.
DE	Savannah River; Duplicate runs, no surface polishing of sample.
DGW	Savannah River; Duplicate runs, no surface polishing of sample.
SCU	Savannah River; Duplicate runs, no surface polishing of sample.
UK	Savannah River; Duplicate runs, no surface polishing of sample.
EZA	Savannah River; Duplicate runs, no surface polishing of sample.
19AF	Savannah River; Duplicate runs, no surface polishing of sample.
EZB	Savannah River; Duplicate runs, no surface polishing of sample.
EZC	Savannah River; Duplicate runs, no surface polishing of sample.
19AG	Savannah River; Duplicate runs, no surface polishing of sample.
19AE	Savannah River; Duplicate runs, no surface polishing of sample.
DYS	Savannah River; Duplicate runs, no surface polishing of sample.
19AH	Savannah River; Duplicate runs, no surface polishing of sample.
GPX	Savannah River; Duplicate runs, no surface polishing of sample.
GPX-DUP	Savannah River; Duplicate runs, no surface polishing of sample.
X	Savannah River; Duplicate runs, no surface polishing of sample.
DTJ	Savannah River; Duplicate runs, no surface polishing of sample.
DTK	Savannah River; Duplicate runs, no surface polishing of sample.
EZT	Savannah River; Duplicate runs, no surface polishing of sample.
DF	Savannah River; Duplicate runs, no surface polishing of sample.

NOQUOTE MDC GLASS DURABILITY SPREAD SHEET VERSION 2 Sept. 87 Status Report MDC GLASS

 \--INDEX--// \--GLASS COMPOSITION WEIGHT PERCENT--
 Reference Glass Al2O3 SiO2 BaO CaO CaO2 Cr2O3 Cs2O CuO Fe2O3
 Code Type
 =====

CHICK-B4.	1-9	1.02	0.00		0.39	0.00	0.00		20.43
CHICK-B4.	2-38	3.29	20.44		4.62	0.46	0.09		5.96
CHICK-B4.	3-15	1.34	0.00		0.31	1.56	0.32		20.89
CHICK-B4.	4-44	8.75	7.63		5.90	0.55	0.11		7.43
CHICK-B4.	5-40	3.46	8.31		5.08	0.59	0.12		6.20
CHICK-B4.	6-71	12.30	0.00		15.16	0.00	0.00		6.97
CHICK-B4.	7-34	4.51	8.41		6.25	0.61	0.12		8.10
CHICK-B4.	8-62	5.64	11.01		1.23	0.00	0.00		11.63
CHICK-B4.	9-3	8.14	0.00		0.00	0.00	0.00		17.19
CHICK-B4.	10-30	0.69	0.00		15.27	0.00	0.00		17.01
CHICK-B4.	11-57	4.40	9.11		0.21	1.52	0.31		0.00
CHICK-B4.	12-65	0.79	11.86		0.00	0.00	0.00		10.90
CHICK-B4.	13-60	0.92	8.98		2.25	0.79	0.16		13.48
CHICK-B4.	14-67	0.98	8.59		0.40	0.00	0.00		20.63
CHICK-B4.	15-74	12.21	20.96		0.00	0.00	0.00		19.74

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----

Glass Type	Bd203	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nb2O3	NiO
---------------	-------	-----	-------	------	-----	------	------	------	-------	-----

=====

1-9	0.00				0.00			16.36	0.00	0.00
2-38	0.02				0.00			17.36	0.11	0.22
3-15	0.08				0.00			12.39	0.38	0.74
4-44	0.03				0.00			18.72	0.13	0.26
5-40	0.03				0.00			28.73	0.14	0.28
6-71	0.00				0.00			30.02	0.00	0.00
7-34	0.03				0.00			19.17	0.15	0.29
8-62	0.00				0.00			16.39	0.00	0.00
9-3	0.00				0.00			12.00	0.00	0.00
10-30	0.00				0.00			30.03	0.00	0.00
11-57	0.08				0.00			29.77	0.37	0.72
12-65	0.00				0.00			15.61	0.00	0.00
13-60	0.04				0.00			16.13	0.19	0.37
14-67	0.00				0.00			6.89	0.00	0.00
15-74	0.00				0.00			9.26	0.00	0.00

GLASS DURABILITY SPREAD SHEET VERSION 2 NOQUOTE Sept. 87 Status Report *DC

-----// PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----

Glass NaO P2O5 PbO PuO2 RuO2 SiO2 SrO TeO2 TiO2 UO2

Type

=====

1-9	0.00	0.00				61.79	0.00			0.00
2-38	0.22	1.69				42.12	0.09			0.71
3-15	0.74	5.74				43.98	0.32			2.43
4-44	0.26	2.02				44.16	0.11			0.85
5-40	0.28	2.18				42.20	0.12			0.92
6-71	0.00	0.00				35.55	0.00			0.00
7-34	0.29	2.24				45.32	0.12			0.95
8-62	0.00	0.00				54.10	0.00			0.00
9-3	0.00	0.00				62.67	0.00			0.00
10-30	0.00	0.00				37.00	0.00			0.00
11-57	0.72	5.58				35.98	0.31			2.36
12-65	0.00	0.00				60.83	0.00			0.00
13-60	0.37	2.90				47.57	0.16			1.23
14-67	0.00	0.00				62.50	0.00			0.00
15-74	0.00	0.00				37.84	0.00			0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

-----//	---GLASS	COMPOSITION	WEIGHT	PERCENT	-----// \			
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								

1-9		0.00				99.99	N	MCC-1
2-38		0.12			2.20	99.51	N	MCC-1
3-15		0.42			7.50	98.37	N	MCC-1
4-44		0.15			2.63	99.43	N	MCC-1
5-40		0.16			2.84	99.37	N	MCC-1
6-71		0.00			0.00	100.00	N	MCC-1
7-34		0.16			2.92	99.36	N	MCC-1
8-62		0.00			0.00	100.00	N	MCC-1
9-3		0.00			0.00	100.00	N	MCC-1
10-30		0.00			0.00	100.00	N	MCC-1
11-57		0.41			7.29	98.42	N	MCC-1
12-65		0.00			0.00	99.99	N	MCC-1
13-60		0.21			3.79	99.18	N	MCC-1
14-67		0.00			0.00	99.99	N	MCC-1
15-74		0.00			0.00	100.01	N	MCC-1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment ---	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
*****					*****			

1-9		10.0	DIW	90
2-38	Other is ThO2	10.0	DIW	90
3-15	Other is ThO2	10.0	DIW	90
4-44	Other is ThO2	10.0	DIW	90
5-40	Other is ThO2	10.0	DIW	90
6-71	Other is ThO2	10.0	DIW	90
7-34	Other is ThO2	10.0	DIW	90
8-62	Other is ThO2	10.0	DIW	90
9-3	Other is ThO2	10.0	DIW	90
10-30	Other is ThO2	10.0	DIW	90
11-57	Other is ThO2	10.0	DIW	90
12-65	Other is ThO2	10.0	DIW	90
13-60	Other is ThO2	10.0	DIW	90
14-67	Other is ThO2	10.0	DIW	90
15-74	Other is ThO2	10.0	DIW	90


```

BLISS SHEET VERSION 2 NOQUOTE Sept. 87 Status Report MOD BLISS
*****
-----PRETEST LENGTHY COMPOSITION-----PRETEST RESULTS-----
Time In Out GPa P Duration pH ZI B As
1.12 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
*****

```

1-9	28	9.50
2-38	28	9.50
3-15	18	7.30
4-44	20	9.40
5-40	28	12.30
6-71	28	12.30
7-34	28	9.20
8-62	28	9.20
9-3	28	8.30
10-30	28	12.30
11-57	28	12.30
12-65	28	9.30
13-60	28	9.50
14-67	28	9.50
15-74	28	9.40

CLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	CLASS	DURABILITY	SPREAD

-----FINAL LEACHATE COMPOSITION-----										
Element	Li	K	Ca	Br	V	Mn	Other	Si	B	
Units	mmol	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	

1-9	14.80	
2-33	70.90	223.60
3-15	12.80	
4-44	9.50	11.30
5-40	237.40	602.00
6-71	24.50	
7-54	13.20	16.70
8-62	13.90	17.20
9-3	5.00	
10-30	345.70	
11-57	516.50	1,728.00
12-65	28.20	29.50
13-60	32.70	45.20
14-57	16.60	18.40
15-74	21.70	36.30

GLASS	SHEET	VERSION 2	NOD	GLASS	DURABILITY	SPREAD SHEET

LEACH		VALUES	VERIFIED		LEACH	VALUES
Class	Ma	Li	Ca	Br	I	Ma
Time	(g/100)	(g/100)	(g/100)	(g/100)	(g/100)	(g/100)

1-9	14.80	Al 12.2
2-38	204.20	Ca 0.50
3-15	13.40	Al 3.40
4-44	12.20	Ca 3.05 and Al
5-40	581.50	Al 19.40
6-71	216.40	Ca 4.47 and Al
7-54	17.70	Ca 2.77 and Al
8-62	14.50	Ca 5.63 and Al
9-3	5.90	Al 1.00
10-30	1799.00	Al 14.70
11-67	1443.00	Al 12.30
12-68	80.90	
13-60	14.90	Al 7.80
14-67	18.70	Ca 0.69 and Al
15-74	27.50	Al 3.50

SL-88 VERSION 2

Class :
Title :

1-8 PNL study for West Valley
2-38 PNL study for West Valley
3-15 PNL study for West Valley
4-24 PNL study for West Valley
5-40 PNL study for West Valley
6-71 PNL study for West Valley
7-34 PNL study for West Valley
8-62 PNL study for West Valley
9-3 PNL study for West Valley
10-30 PNL study for West Valley
11-37 PNL study for West Valley
12-65 PNL study for West Valley
13-60 PNL study for West Valley
14-67 PNL study for West Valley
15-74 PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX-----// \\		-----GLASS COMPOSITION				WEIGHT PERCENT-----		*****		
Reference Code	Glass Type	Al2O3	SiO2	BaO	CaO	NaO2	Cr2O3	Na2O	CuO	Fe2O3
=====										
CHICK-B4.	16-58	1.91	7.17		15.15		0.00	0.00		21.21
CHICK-B4.	17-21	0.81	11.26		0.22		0.00	0.00		20.50
CHICK-B4.	18-69	12.83	0.00		0.30		1.56	0.32		0.00
CHICK-B4.	19-73	12.44	14.55		9.43		1.53	0.31		0.00
CHICK-B4.	20-22	1.04	0.00		0.39		0.80	0.16		20.85
CHICK-B4.	21-36	2.92	5.14		4.23		0.44	0.09		5.24
CHICK-B4.	22-27	8.27	19.82		7.46		0.00	0.00		0.00
CHICK-B4.	23-61	0.91	6.37		1.31		0.81	0.16		13.44
CHICK-B4.	24-41	4.98	9.16		0.60		0.73	0.15		9.06
CHICK-B4.	25-64	12.49	11.59		0.42		0.00	0.00		0.00
CHICK-B4.	26-10	0.64	19.31		0.20		0.00	0.00		6.80
CHICK-B4.	27-2	8.38	0.00		0.21		0.00	0.00		0.00
CHICK-B4.	28-45	5.04	9.77		7.93		0.66	0.14		0.00
CHICK-B4.	29-37	5.24	0.00		7.68		0.68	0.14		9.56
CHICK-B4.	30-14	8.80	0.00		15.48		1.58	0.32		0.00
CHICK-B4.	31-1	8.15	0.00		14.96		0.00	0.00		0.00
CHICK-B4.	32-70	12.55	19.83		0.21		1.51	0.31		0.00
CHICK-B4.	33-6	8.32	19.22		0.14		0.00	0.00		0.00
CHICK-B4.	34-19	8.47	19.92		0.20		1.51	0.31		0.00
CHICK-B4.	35-35	5.51	10.44		8.05		0.69	0.14		5.80
CHICK-B4.	36-19	8.98	0.00		0.26		0.00	0.00		20.31
CHICK-B4.	37-31	0.40	0.00		15.31		1.58	0.32		0.00
CHICK-B4.	38-53	0.64	0.00		0.17		0.38	0.08		4.27
CHICK-B4.	39-59	12.40	0.00		13.70		0.42	0.08		4.30
CHICK-B4.	40-47	5.07	9.54		7.75		0.00	0.00		9.74
CHICK-B4.	41-63	12.54	9.73		1.20		0.00	0.00		6.02
CHICK-B4.	42-34	4.46	8.10		6.33		0.57	0.12		8.00
CHICK-B4.	43-11	6.42	0.00		0.31		1.55	0.32		0.00
CHICK-B4.	44-23	0.90	0.00		0.16		1.55	0.31		11.51
CHICK-B4.	45-17	8.25	0.00		0.07		1.57	0.32		0.00
CHICK-B4.	46-56	9.13	0.00		8.10		0.99	0.20		20.20
CHICK-B4.	47-4	0.41	6.01		0.15		1.45	0.29		0.00
CHICK-B4.	48-32	8.18	0.00		0.40		1.45	0.29		17.49
CHICK-B4.	49-13	0.29	20.05		15.11		0.00	0.00		0.00
CHICK-B4.	50-5	1.04	0.00		0.13		1.49	0.30		0.00
CHICK-B4.	51-66	5.63	10.31		0.53		0.27	0.06		4.73
CHICK-B4.	52-42	3.65	6.57		15.11		0.45	0.09		6.46
CHICK-B4.	53-52	0.64	0.00		14.89		0.48	0.10		5.57
CHICK-B4.	54-72	12.08	19.74		15.11		0.00	0.00		0.00
CHICK-B4.	55-27	8.17	19.62		7.07		0.00	0.00		0.00
CHICK-B4.	56-68	0.83	0.00		10.94		1.63	0.33		0.00
CHICK-B4.	57-7	1.11	0.00		4.23		0.00	0.00		20.02
CHICK-B4.	58-39	5.24	9.29		7.09		0.66	0.13		9.19
CHICK-B4.	59-6	8.32	19.45		0.16		0.00	0.00		0.00
CHICK-B4.	60-20	8.48	23.56		0.24		0.00	0.00		19.43
CHICK-B4.	61-60	1.91	8.91		2.46		0.84	0.17		12.81
CHICK-B4.	62-54	4.38	20.04		15.45		0.91	0.18		0.00
CHICK-B4.	63-34	4.42	8.02		6.27		0.61	0.12		7.92

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----

Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Na2O3	NiO
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16-58		0.00			0.00			18.18	0.00	0.00
17-21		0.00			0.00			29.79	0.00	0.00
18-69		0.08			0.00			29.21	0.38	0.74
19-73		0.08			0.00			7.52	0.37	0.73
20-22		0.04			0.00			29.56	0.19	0.38
21-36		0.02			0.00			16.33	0.11	0.21
22-27		0.00			0.00			28.91	0.00	0.00
23-61		0.04			0.00			13.44	0.20	0.38
24-41		0.04			0.00			20.10	0.18	0.34
25-64		0.00			0.00			15.63	0.00	0.00
26-10		0.00			0.00			11.86	0.00	0.00
27-2		0.00			0.00			29.96	0.00	0.00
28-45		0.04			0.00			20.82	0.17	0.32
29-37		0.04			0.00			20.95	0.17	0.32
30-14		0.09			0.00			12.72	0.38	0.75
31-1		0.00			0.00			16.65	0.00	0.00
32-70		0.08			0.00			11.23	0.37	0.71
33-6		0.00			0.00			11.59	0.00	0.00
34-18		0.08			0.00			12.15	0.37	0.71
35-35		0.04			0.00			21.93	0.17	0.33
36-19		0.00			0.00			29.84	0.00	0.00
37-31		0.09			0.00			28.13	0.39	0.75
38-53		0.02			0.00			29.44	0.09	0.18
39-59		0.02			0.00			7.00	0.10	0.20
40-47		0.00			0.00			20.78	0.00	0.00
41-63		0.00			0.00			16.25	0.00	0.00
42-34		0.03			0.00			19.73	0.14	0.27
43-11		0.08			0.00			12.04	0.38	0.74
44-23		0.08			0.00			30.13	0.38	0.73
45-17		0.08			0.00			29.84	0.38	0.74
46-56		0.05			0.00			12.31	0.24	0.47
47-4		0.08			0.00			13.28	0.35	0.69
48-32		0.08			0.00			10.97	0.35	0.69
49-13		0.00			0.00			12.80	0.00	0.00
50-5		0.08			0.00			18.16	0.36	0.70
51-66		0.01			0.00			14.54	0.07	0.13
52-42		0.02			0.00			18.14	0.11	0.21
53-52		0.03			0.00			12.05	0.12	0.23
54-72		0.00			0.00			18.33	0.00	0.00
55-27		0.00			0.00			30.38	0.00	0.00
56-68		0.09			0.00			7.33	0.40	0.77
57-7		0.00			0.00			12.27	0.00	0.00
58-39		0.04			0.00			12.37	0.16	0.31
59-6		0.00			0.00			11.93	0.00	0.00
60-20		0.00			0.00			11.72	0.00	0.00
61-60		0.05			0.00			16.29	0.20	0.40
62-54		0.05			0.00			12.32	0.22	0.43
63-34		0.03			0.00			19.94	0.15	0.29

GLASS	DURABILITY	SPREAD SHEET			VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC

// PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass Type	NaO	P2O5	PbO	PuO2	RuO2	SiO2	BrO	TeO2	TiO2	UO2
=====										
16-58	0.00	0.00				37.27	0.00			0.00
17-21	0.00	0.00				37.42	0.00			0.00
18-69	0.74	5.73				36.58	0.32			2.42
19-73	0.73	5.64				35.33	0.31			2.38
20-22	0.38	2.92				37.40	0.16			1.24
21-36	0.21	1.61				60.20	0.09			0.68
22-27	0.00	0.00				35.55	0.00			0.00
23-61	0.38	2.99				53.55	0.16			1.26
24-41	0.34	2.67				46.28	0.15			1.13
25-64	0.00	0.00				59.88	0.00			0.00
26-10	0.00	0.00				61.20	0.00			0.00
27-2	0.00	0.00				61.45	0.00			0.00
28-45	0.32	2.51				47.21	0.14			1.06
29-37	0.32	2.51				47.35	0.14			1.06
30-14	0.75	5.80				41.67	0.32			2.45
31-1	0.00	0.00				60.25	0.00			0.00
32-70	0.71	5.55				35.77	0.31			2.35
33-6	0.00	0.00				60.43	0.00			0.00
34-18	0.71	5.53				38.92	0.31			2.34
35-35	0.33	2.54				38.94	0.14			1.07
36-19	0.00	0.00				40.62	0.00			0.00
37-31	0.75	5.82				34.78	0.32			2.46
38-53	0.18	1.39				60.38	0.08			0.59
39-59	0.20	1.53				56.99	0.08			0.65
40-47	0.00	0.00				47.12	0.00			0.00
41-63	0.00	0.00				54.26	0.00			0.00
42-34	0.27	2.09				45.69	0.12			0.88
43-11	0.74	5.71				60.22	0.32			2.42
44-23	0.73	5.70				36.34	0.31			2.41
45-17	0.74	5.77				40.63	0.32			2.44
46-56	0.47	3.63				36.92	0.20			1.53
47-4	0.69	5.33				60.55	0.29			2.25
48-32	0.69	5.33				43.36	0.29			2.25
49-13	0.00	0.00				51.74	0.00			0.00
50-5	0.70	5.48				60.53	0.30			2.32
51-66	0.13	1.00				60.57	0.06			0.42
52-42	0.21	1.66				43.99	0.09			0.70
53-52	0.23	1.77				60.36	0.10			0.75
54-72	0.00	0.00				34.74	0.00			0.00
55-27	0.00	0.00				34.76	0.00			0.00
56-68	0.77	5.97				58.94	0.33			2.53
57-7	0.00	0.00				62.37	0.00			0.00
58-39	0.31	2.44				47.85	0.13			1.03
59-6	0.00	0.00				60.14	0.00			0.00
60-20	0.00	0.00				36.57	0.00			0.00
61-60	0.40	3.09				47.14	0.17			1.31
62-54	0.43	3.35				35.49	0.18			1.42
63-34	0.29	2.25				45.24	0.12			0.95

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \:									
Glass	ZrC	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (1/4)	Type	
=====									
16-59		0.00			0.00	99.99	N	MCC-1	
17-21		0.00			0.00	100.00	N	MCC-1	
18-69		0.42			7.48	98.37	N	MCC-1	
19-73		0.41			7.36	98.40	N	MCC-1	
20-22		0.22			3.82	99.16	N	MCC-1	
21-36		0.12			2.10	99.52	N	MCC-1	
22-27		0.00			0.00	100.01	N	MCC-1	
23-61		0.22			3.90	99.16	N	MCC-1	
24-41		0.20			3.49	99.25	N	MCC-1	
25-64		0.00			0.00	100.01	N	MCC-1	
26-10		0.00			0.00	100.01	N	MCC-1	
27-2		0.00			0.00	100.00	N	MCC-1	
28-45		0.18			3.28	99.29	N	MCC-1	
29-37		0.18			3.27	99.29	N	MCC-1	
30-14		0.43			7.57	98.35	N	MCC-1	
31-1		0.00			0.00	100.01	N	MCC-1	
32-70		0.41			7.24	98.42	N	MCC-1	
33-6		0.00			0.00	100.00	N	MCC-1	
34-18		0.41			7.22	98.43	N	MCC-1	
35-35		0.19			3.31	99.28	N	MCC-1	
36-19		0.00			0.00	100.01	N	MCC-1	
37-31		0.43			7.59	98.36	N	MCC-1	
38-53		0.10			1.81	99.61	N	MCC-1	
39-59		0.11			1.99	99.57	N	MCC-1	
40-47		0.00			0.00	100.00	N	MCC-1	
41-63		0.00			0.00	100.00	N	MCC-1	
42-34		0.15			2.73	99.41	N	MCC-1	
43-11		0.42			7.46	98.37	N	MCC-1	
44-23		0.42			7.44	98.39	N	MCC-1	
45-17		0.42			7.53	98.36	N	MCC-1	
46-56		0.27			4.73	98.96	N	MCC-1	
47-4		0.39			6.96	98.49	N	MCC-1	
48-32		0.39			6.95	98.48	N	MCC-1	
49-13		0.00			0.00	99.99	N	MCC-1	
50-5		0.40			7.15	98.45	N	MCC-1	
51-66		0.07			1.31	99.71	N	MCC-1	
52-42		0.12			2.16	99.54	N	MCC-1	
53-52		0.13			2.30	99.50	N	MCC-1	
54-72		0.00			0.00	100.00	N	MCC-1	
55-27		0.00			0.00	100.00	N	MCC-1	
56-68		0.44			7.80	98.31	N	MCC-1	
57-7		0.00			0.00	100.00	N	MCC-1	
58-39		0.18			3.18	99.31	N	MCC-1	
59-6		0.00			0.00	100.00	N	MCC-1	
60-20		0.00			0.00	100.00	N	MCC-1	
61-60		0.23			4.04	99.11	N	MCC-1	
62-54		0.25			4.37	99.05	N	MCC-1	
63-34		0.17			2.94	99.36	N	MCC-1	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass Type	-- Comment -->	SA/VV (1/M)	Leachant Geologic Canister Water Type Media Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
16-29	Other is ThO2	10.0	DIW		90			
17-21	Other is ThO2	10.0	DIW		90			
18-69	Other is ThO2	10.0	DIW		90			
19-73	Other is ThO2	10.0	DIW		90			
20-22	Other is ThO2	10.0	DIW		90			
21-36	Other is ThO2	10.0	DIW		90			
22-27	Other is ThO2	10.0	DIW		90			
23-61	Other is ThO2	10.0	DIW		90			
24-41	Other is ThO2	10.0	DIW		90			
25-64	Other is ThO2	10.0	DIW		90			
26-10	Other is ThO2	10.0	DIW		90			
27-2	Other is ThO2	10.0	DIW		90			
28-45	Other is ThO2	10.0	DIW		90			
29-37	Other is ThO2	10.0	DIW		90			
30-14	Other is ThO2	10.0	DIW		90			
31-1	Other is ThO2	10.0	DIW		90			
32-70	Other is ThO2	10.0	DIW		90			
33-6	Other is ThO2	10.0	DIW		90			
34-18	Other is ThO2	10.0	DIW		90			
35-35	Other is ThO2	10.0	DIW		90			
36-19	Other is ThO2	10.0	DIW		90			
37-31	Other is ThO2	10.0	DIW		90			
38-53	Other is ThO2	10.0	DIW		90			
39-59	Other is ThO2	10.0	DIW		90			
40-47	Other is ThO2	10.0	DIW		90			
41-63	Other is ThO2	10.0	DIW		90			
42-34	Other is ThO2	10.0	DIW		90			
43-11	Other is ThO2	10.0	DIW		90			
44-23	Other is ThO2	10.0	DIW		90			
45-17	Other is ThO2	10.0	DIW		90			
46-56	Other is ThO2	10.0	DIW		90			
47-4	Other is ThO2	10.0	DIW		90			
48-32	Other is ThO2	10.0	DIW		90			
49-13	Other is ThO2	10.0	DIW		90			
50-5	Other is ThO2	10.0	DIW		90			
51-66	Other is ThO2	10.0	DIW		90			
52-42	Other is ThO2	10.0	DIW		90			
53-52	Other is ThO2	10.0	DIW		90			
54-72	Other is ThO2	10.0	DIW		90			
55-27	Other is ThO2	10.0	DIW		90			
56-68	Other is ThO2	10.0	DIW		90			
57-7	Other is ThO2	10.0	DIW		90			
58-39	Other is ThO2	10.0	DIW		90			
59-6	Other is ThO2	10.0	DIW		90			
60-20	Other is ThO2	10.0	DIW		90			
61-60	Other is ThO2	10.0	DIW		90			
62-54	Other is ThO2	10.0	DIW		90			
63-34	Other is ThO2	10.0	DIW		90			

GLASS	SHEET	VERSION 2	NOQUOTE	Sept. 97	Status	Report	MCC	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\							//-----TEST RESULTS-----\			
Place	Na	Cl	ED4	mg	F	Similar	ed	Cl	S	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	Data	(Ed.)	(ppm)	(ppm)	(ppm)

16-35						28	10.40			
17-31						28	11.70			
18-37						28	11.70			
19-73						28	8.40			
20-22						28	12.30			
21-36						28	9.50			
22-27						28	11.50			
23-81						28	9.40			
24-41						28	9.60			
25-64						28	9.50			
26-10						28	7.00			
27-2						28	12.70			
28-45						28	10.20			
29-37						28	10.30			
30-14						28	10.30			
31-1						28	10.30			
32-70						28	3.60			
33-6						28	8.80			
34-19						28				
35-35						28	10.40			
36-19						28	12.00			
37-31						28	13.00			
38-53						28	12.20			
39-59						28	9.30			
40-47						28	10.00			
41-63						28	9.00			
42-34						28	9.90			
43-11						28	8.80			
44-23						28	12.60			
45-17						28	11.00			
46-56						28	9.60			
47-4						28	9.90			
48-32						28	9.10			
49-13						28	9.90			
50-5						28	10.30			
51-66						28	9.40			
52-42						28	10.30			
53-52						28	10.20			
54-72						28	3.30			
55-27						28	12.20			
56-68						28	9.00			
57-7						28	9.50			
58-39						28	9.10			
59-6						28	8.80			
60-20						28	3.90			
61-60						28	9.70			
62-34						28	9.70			
63-34						28	9.80			

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****				*****					
// -----FINAL LEACHATE COMPOSITION-----				/ -----NORMALIZED-----					
GLASS Type	Li (ppm)	K (ppm)	Ca (ppm)	Cr (ppm)	U (ppm)	Mo (ppm)	Other (ppm)	Si (ppm2)	B (ppm2)
-----				-----				-----	
16-55								11.40	47.20
17-31								155.20	295.50
18-69								22.40	
19-75								6.90	6.20
20-22								161.70	
21-76								10.90	11.50
22-27								56.00	223.30
23-61								19.30	21.70
24-41								17.70	19.30
25-64								4.00	8.00
26-10								25.30	37.70
27-2								704.10	
28-45								22.60	34.60
29-37								11.50	
30-14								7.50	
31-1								8.70	
32-70								10.30	43.60
33-6								4.40	21.30
34-13								12.80	73.30
35-35								19.70	38.70
36-17								76.30	
37-31								1,213.00	
38-53								573.60	
39-59								6.60	
40-17								11.60	14.20
41-63								9.00	9.70
42-34								13.40	17.60
43-11								3.60	
44-33								521.40	
45-17								24.90	
46-56								2.30	
47-4								10.00	22.70
48-32								3.70	
49-13								31.70	33.00
50-5								15.30	
51-66								6.70	9.50
52-42								14.50	22.60
53-52								21.70	
54-72								10.00	11.50
55-27								97.30	540.10
56-68								9.40	
57-7								16.00	
58-39								9.30	11.10
59-6								4.30	28.30
60-20								20.90	71.20
61-60								33.30	48.80
62-34								24.90	52.70
63-34								13.40	18.90

SLIPS	SHEET	VERSION 1	MOD	CLASS	DURABILITY	SPREAD SHEET

-----//	LEACH	VALUES	-----			NORMALISED LEACH VALUES
Class	Na	Li	K	Ca	Br	Other
Type	g/m ²	(g/m ²)	(g/m ²)	(g/m ²)	(g/m ²)	(g/m ²)
=====						
15-55	10.70					Ca 9.13 and Al
17-31	265.20					Al 26.70
18-19	61.80					Al 23.31
15-73	7.10					Ca 1.31 and Al
20-22	355.40					Al 75.10
21-36	12.00					Ca 5.09 and Al
22-27	237.60					Ca 10.37 and Al
23-61	21.50					Al 8.40
24-41	19.30					Al 19.20
25-64	4.40					Al 3.50
26-10	34.20					Al 12.40
27-1	1415.00					Al 18.60
28-45	75.00					Ca 5.07 and Al
29-37	16.50					Ca 3.65 and Al
30-14	17.20					Ca 7.09 and Al
31-1	12.10					Ca 5.07 and Al
32-70	25.70					Al 10.10
33-6	19.70					Al 8.40
34-13	40.30					Al 13.11
35-35	37.50					Ca 6.77 and Al
36-19	166.60					Ca 7.66 and Al
37-31	2524.00					Ca 6.25 and Al
38-53	2091.00					Ca 16.35 and Al
39-59	6.10					Ca 5.06 and Al
40-47	14.70					Ca 3.31 and Al
41-63	9.30					Ca 5.35 and Al
42-34	17.30					Ca 3.02 and P
43-11	5.40					Al 3.50
44-23	1207.00					Ca 15.81 and Al
45-17	42.20					Ca 10.02 and Al
46-56	9.70					Ca 3.31 and Al
47-4	25.10					Ca 105.70 and P
48-32	12.10					Ca 6.71 and Al
49-13	31.70					Ca 30.77 and Al
50-5	21.50					Al 7.71
51-46	5.60					Ca 61.87 and Al
52-42	22.70					Ca 3.37 and Al
53-52	39.10					Ca 14.15 and Al
54-72	11.10					Ca 10.38 and Al
55-27	169.80					Ca 3.30 and Al
56-13	3.60					Ca 3.38 and Al
57-7	19.00					Ca 6.33 and Al
58-79	10.50					Ca 4.57 and Al
59-6	15.20					Al 4.70
60-20	31.50					Al 10.40
61-60	44.60					Al 7.50
62-54	32.70					Ca 17.09 and Al
63-34	17.10					Ca 2.56 and Al

PLANS VERSION 2

----- Dominants -----

Type

16-55	PML study for West Valley
17-31	PML study for West Valley
18-57	PML study for West Valley
19-73	PML study for West Valley
20-22	PML study for West Valley
21-36	PML study for West Valley
22-37	PML study for West Valley
23-61	PML study for West Valley
24-41	PML study for West Valley
25-64	PML study for West Valley
26-10	PML study for West Valley
27-2	PML study for West Valley
28-45	PML study for West Valley
29-37	PML study for West Valley
30-19	PML study for West Valley
31-1	PML study for West Valley
32-71	PML study for West Valley
33-6	PML study for West Valley
34-18	PML study for West Valley
35-35	PML study for West Valley
36-19	PML study for West Valley
37-31	PML study for West Valley
38-53	PML study for West Valley
39-59	PML study for West Valley
40-47	PML study for West Valley
41-63	PML study for West Valley
42-34	PML study for West Valley
43-11	PML study for West Valley
44-23	PML study for West Valley
45-17	PML study for West Valley
46-36	PML study for West Valley
47-4	PML study for West Valley
48-35	PML study for West Valley
49-12	PML study for West Valley
50-5	PML study for West Valley
51-46	PML study for West Valley
52-42	PML study for West Valley
53-32	PML study for West Valley
54-72	PML study for West Valley
55-37	PML study for West Valley
56-58	PML study for West Valley
57-7	PML study for West Valley
58-79	PML study for West Valley
59-6	PML study for West Valley
60-20	PML study for West Valley
61-50	PML study for West Valley
62-54	PML study for West Valley
63-34	PML study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS
*****										*****
\\-----INDEX -----// \\-----GLASS COMPOSITION HEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-84.	64-28	0.85	19.97		9.18		0.00	0.00		20.17
CHICK-84.	65-49	0.95	0.00		15.45		1.19	0.24		17.13
CHICK-84.	67-75	12.82	0.00		0.19		0.00	0.00		19.68
CHICK-84.	68-50	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-84.	69-16	8.96	0.00		15.68		0.00	0.00		20.37
CHICK-84.	70-55	4.52	19.77		0.25		0.00	0.00		9.33
CHICK-84.	72-2	8.36	0.00		0.33		0.00	0.00		0.00
CHICK-84.	73-1	8.30	0.00		15.30		0.00	0.00		0.00
CHICK-84.	74-12	0.38	0.00		14.92		0.00	0.00		0.00
CHICK-84.	75-26	8.54	8.30		15.02		1.52	0.31		0.00
CHICK-84.	76-29	0.46	19.25		11.12		1.58	0.32		0.00
CHICK-84.	77-25	8.45	19.76		15.48		0.00	0.00		9.45
CHICK-84.	78-48	3.50	5.77		4.33		1.52	0.31		5.66
CHICK-84.	79-43	0.77	8.70		6.86		0.66	0.13		8.49
CHICK-84.	80-46	3.59	5.53		4.30		0.45	0.09		19.98
CHICK-84.	81-34	4.42	8.02		6.37		0.62	0.13		7.91
CHICK-84.	82-24	0.34	19.09		0.00		1.29	0.26		0.00
CHICK-84.	83-8	0.44	19.47		0.25		0.00	0.00		0.00
CHICK-84.	84-51	0.93	19.74		0.20		1.13	0.23		14.90
CHICK-84.	85-16	8.83	0.00		15.84		0.00	0.00		20.00
CHICK-84.	86-88	12.22	0.00		0.10		0.00	0.00		0.00
CHICK-84.	87-86	7.91	0.00		13.84		0.44	0.09		4.62
CHICK-84.	88-91	0.50	5.92		15.17		0.45	0.09		2.56
CHICK-84.	89-77	8.00	16.66		0.16		0.00	0.00		17.98
CHICK-84.	90-85	0.70	0.00		12.28		1.28	0.26		12.64
CHICK-84.	91-89	12.46	0.51		0.19		0.80	0.16		10.14
CHICK-84.	92-84	3.64	6.73		5.12		1.11	0.22		6.64
CHICK-84.	93-81	0.31	17.49		8.38		0.99	0.20		0.00
CHICK-84.	94-92	3.44	5.87		0.25		1.52	0.31		0.00
CHICK-84.	95-90	12.81	0.00		9.97		0.81	0.16		10.27
CHICK-84.	96-76	0.32	0.00		12.97		0.00	0.00		0.00
CHICK-84.	97-82	0.27	0.00		11.76		1.36	0.27		0.00
CHICK-84.	98-79	0.61	0.00		0.44		1.37	0.28		9.64
CHICK-84.	99-78	0.92	0.00		12.17		0.79	0.16		14.54
CHICK-84.	100-93	4.61	0.00		7.81		0.82	0.17		10.86
CHICK-84.	101-80	7.27	17.07		13.09		0.00	0.00		7.47
CHICK-84.	102-87	11.65	16.89		0.19		1.37	0.28		0.00
CHICK-84.	103-83	0.33	14.56		10.84		0.00	0.00		0.00
STRACHAN-86.	SRL-165NR	4.88	7.12	0.11	0.97		0.14	0.00		10.80
EISENSTATT-86.	WV205NR	3.31	9.96	0.06	0.61		0.22	0.10		11.84
KONNECKE-85.	UK209	5.22	10.88	0.37	0.00		0.36	0.50		11.71
STRACHAN-85.	SRL-131	3.05	9.84	0.01	1.04		0.18	0.30		14.28
CHICK-84.	1-9	1.02	0.00		0.39		0.00	0.00		20.43
CHICK-84.	2-38	3.29	20.44		4.62		0.46	0.09		5.96
CHICK-84.	3-15	1.34	0.00		0.31		1.56	0.32		20.36
CHICK-84.	4-44	8.75	7.63		5.90		0.55	0.11		7.45
CHICK-84.	5-40	3.46	6.31		5.08		0.59	0.12		6.20
CHICK-84.	6-71	12.30	0.00		15.16		0.00	0.00		6.97

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS	DURABILITY	

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass Type	Ba2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
64-23		0.00			0.00			12.51	0.00	0.00
65-49		0.06			0.00			12.51	0.29	0.58
67-75		0.00			0.00			30.48	0.00	0.00
68-50		0.00			0.00			6.89	0.00	0.00
69-16		0.00			0.00			12.73	0.00	0.00
70-55		0.00			0.00			31.01	0.00	0.00
72-2		0.00			0.00			30.84	0.00	0.00
73-1		0.00			0.00			17.40	0.00	0.00
74-12		0.00			0.00			30.34	0.00	0.00
75-26		0.08			0.00			12.29	0.37	0.72
76-29		0.09			0.00			12.21	0.38	0.75
77-25		0.00			0.00			12.53	0.00	0.00
78-48		0.08			0.00			17.92	0.37	0.72
79-43		0.04			0.00			20.77	0.16	0.31
80-46		0.02			0.00			17.42	0.11	0.21
81-34		0.03			0.00			19.63	0.15	0.29
82-24		0.07			0.00			29.33	0.31	0.61
83-8		0.00			0.00			21.03	0.00	0.00
84-51		0.06			0.00			12.34	0.28	0.54
85-16		0.00			0.00			12.59	0.00	0.00
86-88		0.00			0.00			26.68	0.00	0.00
87-86		0.02			0.00			28.11	0.11	0.21
88-91		0.02			0.00			18.19	0.11	0.21
89-77		0.00			0.00			12.19	0.00	0.00
90-85		0.07			0.00			12.18	0.31	0.60
91-89		0.04			0.00			15.13	0.19	0.39
92-84		0.06			0.00			18.71	0.27	0.32
93-81		0.05			0.00			12.88	0.24	0.47
94-92		0.08			0.00			18.75	0.37	0.72
95-90		0.04			0.00			15.25	0.20	0.38
96-76		0.00			0.00			26.54	0.00	0.00
97-82		0.07			0.00			22.70	0.33	0.64
98-79		0.07			0.00			26.58	0.33	0.65
99-78		0.04			0.00			12.79	0.19	0.37
100-93		0.04			0.00			10.26	0.20	0.39
101-80		0.00			0.00			11.96	0.00	0.00
102-87		0.07			0.00			9.97	0.33	0.65
103-83		0.00			0.00			22.10	0.00	0.00
SRL-165NR		0.09		5.05	0.75			10.90	0.60	0.85
WV205NR		3.51		3.05	1.31			11.03	0.00	0.70
UK209		0.00		4.09	5.89			8.25	1.72	0.33
SRL-131		0.12		3.89	1.24			14.77	0.45	1.54
1-9		0.00			0.00			18.36	0.00	0.00
2-38		0.02			0.00			17.36	0.11	0.22
3-15		0.08			0.00			12.39	0.38	0.74
4-44		0.03			0.00			18.72	0.13	0.26
5-40		0.03			0.00			28.73	0.14	0.28
6-71		0.00			0.00			30.02	0.00	0.00

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC
*****								*****
GLASS	PERCENT	PERCENT	PERCENT	PERCENT	COMPOSITION	WEIGHT	PERCENT	
Glass Type	NaO	P2O5	PbO	PuO2	RuO2	SiO2	BrO	TeO2
								UO2
64-28	0.00	0.00				37.32	0.00	0.00
65-49	0.56	4.38				37.84	0.24	1.85
67-75	0.00	0.00				36.84	0.00	0.00
68-50	0.00	0.00				62.50	0.00	0.00
69-16	0.00	0.00				42.26	0.00	0.00
70-55	0.00	0.00				35.12	0.00	0.00
72-2	0.00	0.00				60.47	0.00	0.00
73-1	0.00	0.00				59.00	0.00	0.00
74-12	0.00	0.00				54.36	0.00	0.00
75-26	0.72	5.58				35.33	0.31	2.36
76-29	0.75	5.81				35.59	0.32	2.46
77-25	0.00	0.00				35.34	0.00	0.00
78-48	0.72	5.57				42.33	0.31	2.36
79-43	0.31	2.44				45.44	0.13	1.03
80-46	0.21	1.57				43.03	0.09	0.71
81-34	0.29	2.29				45.23	0.13	0.97
82-24	0.61	4.74				33.81	0.26	2.01
83-8	0.00	0.00				58.81	0.00	0.00
84-51	0.54	4.16				36.59	0.23	1.76
85-16	0.00	0.00				42.74	0.00	0.00
86-88	0.00	0.00				61.00	0.00	0.00
87-86	0.21	1.61				39.59	0.09	0.68
88-91	0.21	1.66				51.54	0.09	0.70
89-77	0.00	0.00				45.01	0.00	0.00
90-85	0.60	4.69				44.97	0.26	1.98
91-89	0.38	2.93				41.70	0.16	1.24
92-84	0.52	4.08				44.17	0.22	1.72
93-81	0.47	3.65				47.54	0.20	1.54
94-92	0.72	5.58				51.17	0.31	2.36
95-90	0.38	2.97				40.77	0.16	1.26
96-76	0.00	0.00				60.17	0.00	0.00
97-82	0.54	4.99				48.34	0.27	2.11
98-79	0.65	5.63				44.24	0.28	2.13
99-78	0.37	2.91				48.89	0.16	1.23
100-93	0.39	3.01				55.41	0.17	1.27
101-80	0.00	0.00				43.14	0.00	0.00
102-87	0.65	5.04				42.76	0.28	2.13
103-83	0.00	0.00				52.16	0.00	0.00
SRL-165NR	0.85	0.03	0.11			51.36	0.03	0.00
WV205NR	0.70	2.52				45.20	0.12	0.97
UK209	0.33	0.00				53.02	0.31	0.00
SRL-131	1.54	0.10				38.60	0.14	0.75
1-9	0.00	0.00				61.79	0.00	0.00
2-38	0.22	1.69				42.12	0.09	0.71
3-15	0.74	5.74				43.98	0.32	2.43
4-44	0.26	2.02				44.16	0.11	0.85
5-40	0.28	2.18				42.20	0.12	0.92
6-71	0.00	0.00				35.55	0.00	0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC	

// ---GLASS		COMPOSITION	WEIGHT	PERCENT	// \\\			
Glass	InO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type
=====								
64-28		0.00			0.00	100.00	N	MCC-1
65-49		0.32			5.72	98.76	N	MCC-1
67-75		0.00			0.00	100.01	N	MCC-1
68-50		0.00			0.00	99.99	N	MCC-1
69-16		0.00			0.00	100.00	N	MCC-1
70-55		0.00			0.00	100.00	N	MCC-1
72-2		0.00			0.00	100.00	N	MCC-1
73-1		0.00			0.00	100.00	N	MCC-1
74-12		0.00			0.00	100.00	N	MCC-1
75-26		0.41			7.28	98.42	N	MCC-1
76-29		0.43			7.58	98.35	N	MCC-1
77-25		0.00			0.00	100.01	N	MCC-1
78-48		0.41			7.27	98.42	N	MCC-1
79-43		0.18			3.19	99.32	N	MCC-1
80-46		0.12			2.18	99.52	N	MCC-1
81-34		0.17			2.99	99.35	N	MCC-1
82-24		0.35			6.19	98.67	N	MCC-1
83-8		0.00			0.00	100.00	N	MCC-1
84-51		0.31			5.44	98.83	N	MCC-1
85-16		0.00			0.00	100.00	N	MCC-1
86-88		0.00			0.00	100.00	N	MCC-1
87-86		0.12			2.11	99.54	N	MCC-1
88-91		0.12			2.17	99.53	N	MCC-1
89-77		0.00			0.00	100.00	N	MCC-1
90-85		0.34			6.12	98.67	N	MCC-1
91-89		0.22			3.83	99.18	N	MCC-1
92-84		0.30			5.32	98.85	N	MCC-1
93-81		0.27			4.76	98.98	N	MCC-1
94-92		0.41			7.28	98.41	N	MCC-1
95-90		0.22			3.88	99.16	N	MCC-1
96-76		0.00			0.00	100.00	N	MCC-1
97-82		0.37			6.51	99.99	N	MCC-1
98-79		0.37			6.56	98.58	N	MCC-1
99-78		0.21			3.79	99.18	N	MCC-1
100-93		0.22			3.93	99.16	N	MCC-1
101-80		0.00			0.00	100.00	N	MCC-1
102-87		0.37			6.58	98.56	N	MCC-1
103-83		0.00			0.00	99.99	N	MCC-1
SRL-165NR		1.52			0.00	95.31	N	MCC-1
WV205NR		3.12			0.00	97.63	N	MCC-1
UK209		1.28			0.00	103.73	N	MCC-1
SRL-131		0.31			0.00	92.23	N	MCC-1
1-9		0.00			0.00	99.99	N	MCC-1
2-38		0.12			2.20	99.51	N	MCC-1
3-15		0.42			7.50	98.37	N	MCC-1
4-44		0.15			2.63	99.43	N	MCC-1
5-40		0.16			2.84	99.37	N	MCC-1
6-71		0.00			0.00	100.00	N	MCC-1

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
-----LEACH TEST-----					-----LEACH TEST-----				
Glass Type	-- Comment --	SA/V (1/M)	Leachant Water Type	Geologic Canister Media Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pre-treatment	SiO2 (ppm)
=====									
64-28	Other is ThO2	10.0	DIW			90			
65-49	Other is ThO2	10.0	DIW			90			
67-75	Other is ThO2	10.0	DIW			90			
68-50	Other is ThO2	10.0	DIW			90			
69-16	Other is ThO2	10.0	DIW			90			
70-55	Other is ThO2	10.0	DIW			90			
72-2	Other is ThO2	10.0	DIW			90			
73-1	Other is ThO2	10.0	DIW			90			
74-12	Other is ThO2	10.0	DIW			90			
75-26	Other is ThO2	10.0	DIW			90			
76-29	Other is ThO2	10.0	DIW			90			
77-25	Other is ThO2	10.0	DIW			90			
78-48	Other is ThO2	10.0	DIW			90			
79-43	Other is ThO2	10.0	DIW			90			
80-46	Other is ThO2	10.0	DIW			90			
81-34	Other is ThO2	10.0	DIW			90			
82-24	Other is ThO2	10.0	DIW			90			
83-8	Other is ThO2	10.0	DIW			90			
84-51	Other is ThO2	10.0	DIW			90			
85-16	Other is ThO2	10.0	DIW			90			
86-88	Other is ThO2	10.0	DIW			90			
87-86	Other is ThO2	10.0	DIW			90			
88-91	Other is ThO2	10.0	DIW			90			
89-77	Other is ThO2	10.0	DIW			90			
90-85	Other is ThO2	10.0	DIW			90			
91-89	Other is ThO2	10.0	DIW			90			
92-94	Other is ThO2	10.0	DIW			90			
93-31	Other is ThO2	10.0	DIW			90			
94-92	Other is ThO2	10.0	DIW			90			
95-90	Other is ThO2	10.0	DIW			90			
96-76	Other is ThO2	10.0	DIW			90			
97-82	Other is ThO2	10.0	DIW			90			
98-79	Other is ThO2	10.0	DIW			90			
99-78	Other is ThO2	10.0	DIW			90			
100-93	Other is ThO2	10.0	DIW			90			
101-80	Other is ThO2	10.0	DIW			90			
102-87	Other is ThO2	10.0	DIW			90			
103-83		10.0	DIW			90			
SRL-165NR		10.0	DIW			90			
WV205NR		10.0	DIW			90			
UK209	European Round	10.0	DIW			90			
SRL-131		10.0	DIW			90			
1-9	Other is ThO2	10.0	DIW			40			
2-38	Other is ThO2	10.0	DIW			40			
3-15	Other is ThO2	10.0	DIW			40			
4-44	Other is ThO2	10.0	DIW			40			
5-40	Other is ThO2	10.0	DIW			40			
6-71	Other is ThO2	10.0	DIW			40			

CLASS	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	CLASS		
*****							*****			
-----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS-----							-----			
Class	Ca	Cl	SO ₄	Mg	F	Duration	pH	El	2	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(Equiv)	(ppm)	(ppm)	(ppm)
=====										
31-33						28	9.31			
33-35						28	10.21			
37-38						28	11.50			
43-50						28	13.50			
57-58						28	10.10			
70-65						28	11.00			
72-2						28	12.70			
73-1						28	10.20			
74-12						28	12.50			
75-26						28	9.40			
76-29						28	9.70			
77-25						28	9.70			
78-43						28	9.71			
79-43						28	10.70			
80-46						28	10.00			
81-34						28	8.50			
82-24						28	10.90			
83-8						28	10.50			
84-31						28	9.70			
85-16						28	8.90			
86-38						28	12.40			
87-86						28	11.20			
88-91						28	10.60			
89-77						28	8.90			
90-25						28	9.90			
91-89						28	9.90			
92-94						28	9.70			
93-81						28	9.40			
94-92						28	9.60			
95-50						28	9.20			
96-75						28	11.70			
97-32						28	1.65			
98-79						28	11.10			
99-78						28	10.10			
100-97						28	9.20			
101-80						28	9.50			
102-87						28	9.50			
103-83						28	10.20			
SRL-135NR						28	10.00			
WV205NR						28	9.78			
UK209						28	9.10			
SRL-131						28	10.10			
1-9						7	7.10			
2-38						7	8.90			
3-15						7	8.90			
4-44						7	7.70			
5-40						7	9.51			
6-71						7	10.40			

GLASS	DURABILITY		SPREAD SHEET		VERSION 2		MOD	GLASS	DURABILITY		SPREAD

-----//-----FINAL LEACHATE COMPOSITION-----//-----NORMALLIZED											
Glass Type	Li (ppm)	K (ppm)	Ca (ppm)	Si (ppm)	U (ppm)	Mn (ppm)	Other (ppm)	Si (ppm)	E (ppm)		
=====											
64-28								27.70	39.30		
65-49								9.20			
67-73								41.00			
68-80								38.50			
69-16								7.20			
70-55								122.60	386.40		
72-2								812.30			
73-1								7.90			
74-12								99.70			
75-26								8.40	5.30		
76-29								57.30	367.70		
77-25								9.20	14.90		
79-48								12.20	14.70		
79-43								30.30	168.90		
80-46								17.00	14.40		
81-34								13.50	17.70		
82-24								271.30	2,704.90		
83-8								198.90	550.00		
84-51								37.20	153.00		
85-16								7.50			
86-98								18.70			
87-86								11.50			
88-91								34.20	45.10		
89-77								5.70	13.90		
90-85								12.90			
91-69								8.20	9.30		
92-84								13.00	17.00		
93-81								63.20	97.50		
94-92								6.50			
95-90								9.90	9.10		
96-76								79.90			
97-32								7.23			
98-79								39.30			
99-78								11.30			
100-93								6.40			
101-80								8.70	11.10		
102-87								5.30	18.90		
103-82								29.60	29.40		
SRL-163NR								14.32			
WV205NR								13.32			
UK209								12.50			
SRL-131								24.33			
1-9								0.85			
2-38								7.21			
3-15								0.15			
4-40								0.09			
5-40								6.35			
6-71								23.17			

GLASS	SHEET	VERSION 2	MOD	GLASS	DURABILITY	SPREAD SHEET

LEADER	VALUES	VERNALIZED			LEADER	VALUES
Ca	Li	Al	Ca	Pr	U	Ca
(g/100)	(g/100)	(g/100)	(g/100)	(g/100)	(g/100)	(g/100)

64-16	59.10					Ca 7.37 and Al
65-17	15.10					Ca 7.39 and Al
67-19	115.60					Ca 11.37 and Al
68-20	1440.60					Ca 0.17 and Al
69-11	9.70					Ca 5.31 and Al
70-55	335.80					Ca 2.47 and Al
72-2	1551.00					
73-1	9.40					Ca 7.43 and Al
74-12	340.50					Ca 0.69 and Al
75-25	13.20					Ca 5.32 and Al
76-29	122.20					Ca 5.74
77-15	14.20					Ca 5.85 and Al
78-42	14.50					Ca 1.69 and Al
79-43	160.10					Ca 0.11 and Al
80-46	24.50					Ca 5.58 and Al
91-34	17.60					Ca 3.11 and Al
92-24	2451.00					
93-8	545.40					Ca 5.70 and Al
94-51	129.70					Al 7.70
95-16	10.70					Ca 5.31 and Al
96-18	419.50					Ca 3.06 and Al
97-86	25.60					Ca 3.12 and Al
98-91	45.80					Ca 20.31
99-77	11.40					Ca 1.69 and Al
90-53	18.20					Ca 4.17
11-39	9.10					Ca 1.44 and Al
12-24	16.30					Ca 1.69 and Al
13-31	99.50					Ca 14.34
14-42	8.70					Ca 7.85 and Al
15-90	9.10					Al 7.50
16-76	155.80					Ca 2.37
17-82	42.60					Ca 1.60
18-70	42.20					Al 19.30
19-78	23.50					Ca 2.27
100-93	7.10					Ca 4.28 and Al
101-30	11.20					Ca 3.09 and Al
102-67	11.60					Al 5.20
103-53	19.60					Ca 29.57 and Al
9RL-145NR						
WV205NR						
UK209						
9RL-131						
1-9						
2-35						
3-15						
4-44						
5-40						
6-74						

GLASS VERSION 2

-----/

Class /----- Comments -----
Type

64-66	PNL study for West Valley
65-67	PNL study for West Valley
67-75	PNL study for West Valley
68-70	PNL study for West Valley
69-71	PNL study for West Valley
70-73	PNL study for West Valley
72-74	PNL study for West Valley
73-75	PNL study for West Valley
74-76	PNL study for West Valley
75-77	PNL study for West Valley
76-78	PNL study for West Valley
77-79	PNL study for West Valley
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79-81	PNL study for West Valley
80-82	PNL study for West Valley
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95-97	PNL study for West Valley
96-98	PNL study for West Valley
97-99	PNL study for West Valley
98-100	PNL study for West Valley
100-101	PNL study for West Valley
101-102	PNL study for West Valley
102-103	PNL study for West Valley
103-104	PNL study for West Valley
8RL-165NR	Pacific Northwest Lab
WV205NR	West Valley/Catholic Univ.
UK209	European round robin
8RL-131	Pacific Northwest Lab
1-9	PNL study for West Valley
2-39	PNL study for West Valley
3-45	PNL study for West Valley
4-44	PNL study for West Valley
5-40	PNL study for West Valley
6-71	PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX		// \\		GLASS COMPOSITION		WEIGHT PERCENT				
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CoO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-B4.	7-34	4.51	9.41		6.25		0.61	0.12		8.10
CHICK-B4.	8-62	5.64	11.01		1.23		0.00	0.00		11.63
CHICK-B4.	9-3	8.14	0.00		0.00		0.00	0.00		17.19
CHICK-B4.	10-30	0.69	0.00		15.27		0.00	0.00		17.01
CHICK-B4.	11-57	4.40	9.11		0.21		1.52	0.31		0.00
CHICK-B4.	12-65	0.79	11.86		0.00		0.00	0.00		10.90
CHICK-B4.	13-60	0.92	8.98		2.25		0.79	0.16		13.48
CHICK-B4.	14-67	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-B4.	15-74	12.21	20.96		0.00		0.00	0.00		19.74
CHICK-B4.	16-58	1.01	7.17		15.15		0.00	0.00		21.21
CHICK-B4.	17-21	0.81	11.26		0.22		0.00	0.00		20.50
CHICK-B4.	18-69	12.83	0.00		0.30		1.56	0.32		0.00
CHICK-B4.	19-73	12.44	14.55		9.43		1.53	0.31		0.00
CHICK-B4.	20-22	1.04	0.00		0.39		0.80	0.16		20.85
CHICK-B4.	21-36	2.92	5.14		4.23		0.44	0.09		5.24
CHICK-B4.	22-27	8.27	19.82		7.46		0.00	0.00		0.00
CHICK-B4.	23-61	0.91	6.37		1.31		0.81	0.16		13.44
CHICK-B4.	24-41	4.98	9.16		0.60		0.73	0.15		9.96
CHICK-B4.	25-64	12.49	11.59		0.42		0.00	0.00		0.00
CHICK-B4.	26-10	0.64	19.31		0.20		0.00	0.00		6.80
CHICK-B4.	27-2	8.38	0.00		0.21		0.00	0.00		0.00
CHICK-B4.	28-45	5.04	9.77		7.93		0.66	0.14		0.00
CHICK-B4.	29-37	5.24	0.00		7.68		0.68	0.14		9.56
CHICK-B4.	30-14	8.80	0.00		15.48		1.58	0.32		0.00
CHICK-B4.	31-1	8.15	0.00		14.96		0.00	0.00		0.00
CHICK-B4.	32-70	12.55	19.83		0.21		1.51	0.31		0.00
CHICK-B4.	33-6	8.32	19.22		0.14		0.00	0.00		0.00
CHICK-B4.	34-18	8.47	19.92		0.20		1.51	0.31		0.00
CHICK-B4.	35-35	5.51	10.44		8.05		0.69	0.14		5.80
CHICK-B4.	36-19	8.98	0.00		0.26		0.00	0.00		20.31
CHICK-B4.	37-31	0.40	0.00		15.31		1.58	0.32		0.00
CHICK-B4.	38-53	0.64	0.00		0.17		0.38	0.08		4.27
CHICK-B4.	39-59	12.40	0.00		13.70		0.42	0.08		4.30
CHICK-B4.	40-47	5.07	9.54		7.75		0.00	0.00		9.74
CHICK-B4.	41-63	12.54	9.73		1.20		0.00	0.00		6.02
CHICK-B4.	42-34	4.46	8.10		6.33		0.57	0.12		8.00
CHICK-B4.	43-11	6.42	0.00		0.31		1.55	0.32		0.00
CHICK-B4.	44-23	0.90	0.00		0.16		1.55	0.31		11.51
CHICK-B4.	45-17	8.25	0.00		0.07		1.57	0.32		0.00
CHICK-B4.	46-56	9.13	0.00		8.10		0.99	0.20		20.20
CHICK-B4.	47-4	0.41	6.01		0.15		1.45	0.29		0.00
CHICK-B4.	48-32	8.18	0.00		0.40		1.45	0.29		17.49
CHICK-B4.	49-13	0.29	20.05		15.11		0.00	0.00		0.00
CHICK-B4.	50-5	1.04	0.00		0.13		1.49	0.30		0.00
CHICK-B4.	51-66	5.63	10.31		0.53		0.27	0.06		4.73
CHICK-B4.	52-42	3.65	6.57		15.11		0.45	0.09		6.46
CHICK-B4.	53-52	0.64	0.00		14.89		0.48	0.10		5.57
CHICK-B4.	54-72	12.08	19.74		15.11		0.00	0.00		0.00

GLASS DURABILITY SPREAD SHEET VERSION 2							MCC GLASS DURABILITY			
*****							*****			
-----// ---GLASS COMPOSITION WEIGHT PERCENT-----							-----GLASS COMPOSITION WEIGHT PERCENT----			
Glass Type	SiO2	K2O	CaO	Li2O	MgO	MnO2	Na2O	Na2O3	NiO	
7-34	0.03				0.00		19.17	0.15	0.29	
8-62	0.00				0.00		16.39	0.00	0.00	
9-3	0.00				0.00		12.00	0.00	0.00	
10-30	0.00				0.00		30.03	0.00	0.00	
11-57	0.08				0.00		29.77	0.37	0.72	
12-65	0.00				0.00		15.61	0.00	0.00	
13-60	0.04				0.00		16.13	0.19	0.37	
14-67	0.00				0.00		6.89	0.00	0.00	
15-74	0.00				0.00		9.26	0.00	0.00	
16-58	0.00				0.00		18.18	0.00	0.00	
17-21	0.00				0.00		29.79	0.00	0.00	
18-69	0.08				0.00		29.21	0.38	0.74	
19-73	0.08				0.00		7.52	0.37	0.73	
20-22	0.04				0.00		29.56	0.19	0.38	
21-36	0.02				0.00		16.33	0.11	0.21	
22-27	0.00				0.00		28.91	0.00	0.00	
23-61	0.04				0.00		13.44	0.20	0.38	
24-41	0.04				0.00		20.10	0.18	0.34	
25-64	0.00				0.00		15.63	0.00	0.00	
26-10	0.00				0.00		11.86	0.00	0.00	
27-2	0.00				0.00		29.96	0.00	0.00	
28-45	0.04				0.00		20.82	0.17	0.32	
29-37	0.04				0.00		20.95	0.17	0.32	
30-14	0.09				0.00		12.72	0.38	0.75	
31-1	0.00				0.00		16.65	0.00	0.00	
32-70	0.08				0.00		11.23	0.37	0.71	
33-6	0.00				0.00		11.89	0.00	0.00	
34-18	0.08				0.00		12.15	0.37	0.71	
35-35	0.04				0.00		21.93	0.17	0.33	
36-19	0.00				0.00		29.84	0.00	0.00	
37-31	0.09				0.00		28.13	0.39	0.75	
38-53	0.02				0.00		29.44	0.09	0.18	
39-59	0.02				0.00		7.00	0.10	0.20	
40-47	0.00				0.00		20.78	0.00	0.00	
41-63	0.00				0.00		16.25	0.00	0.00	
42-34	0.03				0.00		19.73	0.14	0.27	
43-11	0.08				0.00		12.04	0.38	0.74	
44-23	0.08				0.00		30.13	0.38	0.73	
45-17	0.08				0.00		29.84	0.38	0.74	
46-56	0.05				0.00		12.31	0.24	0.47	
47-4	0.08				0.00		13.28	0.35	0.69	
48-32	0.08				0.00		10.97	0.35	0.69	
49-13	0.00				0.00		12.80	0.00	0.00	
50-5	0.08				0.00		18.16	0.36	0.70	
51-66	0.01				0.00		14.54	0.07	0.13	
52-42	0.02				0.00		18.14	0.11	0.21	
53-52	0.03				0.00		12.05	0.12	0.23	
54-72	0.00				0.00		18.33	0.00	0.00	

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC
*****								*****
---// PERCENT---				GLASS	COMPOSITION	WEIGHT	PERCENT---	
Glass	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2
Type								TiO2
								VO2
7-34	0.29	2.24				45.32	0.12	0.95
8-62	0.00	0.00				54.10	0.00	0.00
9-3	0.00	0.00				62.67	0.00	0.00
10-30	0.00	0.00				37.00	0.00	0.00
11-57	0.72	5.58				35.98	0.31	2.36
12-65	0.00	0.00				60.83	0.00	0.00
13-60	0.37	2.90				47.57	0.16	1.23
14-67	0.00	0.00				62.50	0.00	0.00
15-74	0.00	0.00				37.84	0.00	0.00
16-58	0.00	0.00				37.27	0.00	0.00
17-21	0.00	0.00				37.42	0.00	0.00
18-69	0.74	5.73				36.58	0.32	2.42
19-73	0.73	5.64				35.33	0.31	2.38
20-22	0.38	2.92				37.40	0.16	1.24
21-36	0.21	1.61				60.20	0.09	0.68
22-27	0.00	0.00				35.55	0.00	0.00
23-61	0.38	2.99				53.55	0.16	1.26
24-41	0.34	2.67				46.28	0.15	1.13
25-64	0.00	0.00				59.88	0.00	0.00
26-10	0.00	0.00				61.20	0.00	0.00
27-2	0.00	0.00				61.45	0.00	0.00
28-45	0.32	2.51				47.21	0.14	1.06
29-37	0.32	2.51				47.35	0.14	1.06
30-14	0.75	5.80				41.67	0.32	2.45
31-1	0.00	0.00				60.25	0.00	0.00
32-70	0.71	5.55				35.77	0.31	2.35
33-6	0.00	0.00				60.43	0.00	0.00
34-18	0.71	5.53				38.92	0.31	2.34
35-35	0.33	2.54				38.94	0.14	1.07
36-19	0.00	0.00				40.62	0.00	0.00
37-31	0.75	5.82				34.78	0.32	2.46
38-53	0.18	1.39				60.38	0.08	0.59
39-59	0.20	1.53				56.99	0.08	0.65
40-47	0.00	0.00				47.12	0.00	0.00
41-63	0.00	0.00				54.26	0.00	0.00
42-34	0.27	2.09				45.69	0.12	0.88
43-11	0.74	5.71				60.22	0.32	2.42
44-23	0.73	5.70				36.34	0.31	2.41
45-17	0.74	5.77				40.63	0.32	2.44
46-56	0.47	3.63				36.92	0.20	1.53
47-4	0.69	5.33				60.55	0.29	2.25
48-32	0.69	5.33				43.36	0.29	2.25
49-13	0.00	0.00				51.74	0.00	0.00
50-5	0.70	5.48				60.53	0.30	2.32
51-66	0.13	1.00				60.57	0.06	0.42
52-42	0.21	1.66				43.99	0.09	0.70
53-52	0.23	1.77				60.36	0.10	0.75
54-72	0.00	0.00				34.74	0.00	0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment --	(%/V)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
7-14	Other is ThO2	10.0	DIW			40		
8-62	Other is ThO2	10.0	DIW			40		
9-5	Other is ThO2	10.0	DIW			40		
10-30	Other is ThO2	10.0	DIW			40		
11-87	Other is ThO2	10.0	DIW			40		
12-65	Other is ThO2	10.0	DIW			40		
13-60	Other is ThO2	10.0	DIW			40		
14-67	Other is ThO2	10.0	DIW			40		
15-74	Other is ThO2	10.0	DIW			40		
16-58	Other is ThO2	10.0	DIW			40		
17-21	Other is ThO2	10.0	DIW			40		
18-69	Other is ThO2	10.0	DIW			40		
19-73	Other is ThO2	10.0	DIW			40		
20-22	Other is ThO2	10.0	DIW			40		
21-36	Other is ThO2	10.0	DIW			40		
22-27	Other is ThO2	10.0	DIW			40		
23-61	Other is ThO2	10.0	DIW			40		
24-41	Other is ThO2	10.0	DIW			40		
25-64	Other is ThO2	10.0	DIW			40		
26-10	Other is ThO2	10.0	DIW			40		
27-2	Other is ThO2	10.0	DIW			40		
28-45	Other is ThO2	10.0	DIW			40		
29-37	Other is ThO2	10.0	DIW			40		
30-14	Other is ThO2	10.0	DIW			40		
31-1	Other is ThO2	10.0	DIW			40		
32-70	Other is ThO2	10.0	DIW			40		
33-6	Other is ThO2	10.0	DIW			40		
34-18	Other is ThO2	10.0	DIW			40		
35-35	Other is ThO2	10.0	DIW			40		
36-19	Other is ThO2	10.0	DIW			40		
37-31	Other is ThO2	10.0	DIW			40		
38-53	Other is ThO2	10.0	DIW			40		
39-59	Other is ThO2	10.0	DIW			40		
40-47	Other is ThO2	10.0	DIW			40		
41-63	Other is ThO2	10.0	DIW			40		
42-34	Other is ThO2	10.0	DIW			40		
43-11	Other is ThO2	10.0	DIW			40		
44-23	Other is ThO2	10.0	DIW			40		
45-17	Other is ThO2	10.0	DIW			40		
46-56	Other is ThO2	10.0	DIW			40		
47-4	Other is ThO2	10.0	DIW			40		
48-32	Other is ThO2	10.0	DIW			40		
49-13	Other is ThO2	10.0	DIW			40		
50-5	Other is ThO2	10.0	DIW			40		
51-66	Other is ThO2	10.0	DIW			40		
52-42	Other is ThO2	10.0	DIW			40		
53-52	Other is ThO2	10.0	DIW			40		
54-72	Other is ThO2	10.0	DIW			40		

PLUG#	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	NOQ	GLASS		
*****							*****			
// -----PRETEST LEACHANT COMPOSITION-----\\							//-----TEST RESULTS-----			
Glass	Na	Cl	SO4	Mg	F	Duration	pH	Si	S	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	End	(ppm)	(ppm)	(ppm)
=====										
7-71						7	7.70			
8-62						7	6.90			
9-3						7	6.00			
10-30						7	11.00			
11-57						7	9.20			
12-65						7	6.60			
13-60						7	6.90			
14-67						7	6.10			
15-74						7	6.70			
16-58						7	9.90			
17-31						7	9.90			
18-67						7	9.00			
19-77						7	6.50			
20-32						7	10.00			
21-76						7	6.10			
22-27						7	10.20			
23-61						7	8.00			
24-41						7	7.40			
25-64						7	7.20			
26-10						7	7.90			
27-2						7	9.10			
28-45						7	9.70			
29-37						7	8.60			
30-14						7	9.30			
31-1						7	7.90			
32-70						7	7.20			
3-4						7				
34-18						7	9.20			
35-35						7	9.10			
36-19						7	9.50			
37-31						7	12.30			
38-53						7	11.10			
39-59						7	7.00			
40-47						7	7.80			
41-63						7	6.20			
42-34						7	7.50			
43-11						7	6.70			
44-23						7	11.00			
45-17						7	9.50			
46-56						7	6.10			
47-4						7	6.20			
48-32						7	6.10			
49-13						7	7.50			
50-5						7	7.30			
51-66						7	6.30			
52-42						7	9.40			
53-52						7	7.50			
54-72						7	9.60			

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	YCD	GLASS	DURABILITY	SPREAD
*****				*****			
// -----FINAL LEADGLASS COMPOSITION-----							
Glass	Si	Na	Ca	Fe	Al	Sum	Calculated
" 73	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	" 73
*****				*****			
1-1							1.11
2-1							1.07
3-1							1.07
11-74							68.39
11-87							3.37
12-83							0.05
13-60							0.15
14-87							0.03
15-74							0.09
16-58							10.22
17-21							18.40
18-59							1.39
19-71							0.27
20-21							2.27
21-36							0.19
22-27							39.17
23-61							0.13
24-41							0.13
25-64							0.16
26-10							0.19
27-2							0.16
29-45							3.27
29-37							0.17
30-14							1.01
31-1							0.14
32-70							0.40
33-6							
34-18							0.78
35-35							3.96
36-19							1.20
37-31							617.10
38-53							17.59
39-59							0.11
40-47							0.12
41-63							0.24
42-34							0.30
43-11							0.11
44-23							15.41
45-17							0.74
46-56							0.21
47-4							0.15
48-32							0.27
49-13							14.56
50-5							0.34
51-66							0.03
52-42							4.55
53-52							0.10
54-72							11.45

CLASS	SHEET	VERSION 2	NO	CLASS	CAPABILITY	SPREAD SHEET
CLASS	LEACH	VALUES	CLASS	LEACH	VALUES	CLASS
7-11	7-11	7-11	7-11	7-11	7-11	7-11

7-11
 8-11
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Class ----- Comments ----->

Type

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7-74	PNL study for West Valley
8-82	PNL study for West Valley
9-3	PNL study for West Valley
10-30	PNL study for West Valley
11-37	PNL study for West Valley
12-65	PNL study for West Valley
13-60	PNL study for West Valley
14-67	PNL study for West Valley
15-74	PNL study for West Valley
16-58	PNL study for West Valley
17-21	PNL study for West Valley
18-69	PNL study for West Valley
19-72	PNL study for West Valley
20-22	PNL study for West Valley
21-76	PNL study for West Valley
22-27	PNL study for West Valley
23-84	PNL study for West Valley
24-11	PNL study for West Valley
25-61	PNL study for West Valley
26-10	PNL study for West Valley
27-2	PNL study for West Valley
28-45	PNL study for West Valley
29-37	PNL study for West Valley
30-14	PNL study for West Valley
31-1	PNL study for West Valley
32-70	PNL study for West Valley
33-6	PNL study for West Valley
34-13	PNL study for West Valley
35-35	PNL study for West Valley
36-19	PNL study for West Valley
37-31	PNL study for West Valley
38-53	PNL study for West Valley
39-59	PNL study for West Valley
40-47	PNL study for West Valley
41-63	PNL study for West Valley
42-34	PNL study for West Valley
43-11	PNL study for West Valley
44-23	PNL study for West Valley
45-17	PNL study for West Valley
46-36	PNL study for West Valley
47-4	PNL study for West Valley
48-32	PNL study for West Valley
49-17	PNL study for West Valley
50-5	PNL study for West Valley
51-66	PNL study for West Valley
52-12	PNL study for West Valley
53-52	PNL study for West Valley
54-12	PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS
*****										*****
\\-----INDEX -----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	SiO2	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-84.	55-27	8.17	19.62		7.07		0.00	0.00		0.00
CHICK-84.	56-68	0.83	0.00		10.94		1.63	0.33		0.00
CHICK-84.	57-7	1.11	0.00		4.23		0.00	0.00		20.02
CHICK-84.	58-39	5.24	9.29		7.09		0.66	0.13		9.19
CHICK-84.	59-6	8.32	19.45		0.16		0.00	0.00		0.00
CHICK-84.	60-20	8.48	23.56		0.24		0.00	0.00		19.43
CHICK-84.	61-60	1.01	8.91		2.46		0.84	0.17		12.81
CHICK-84.	62-54	4.38	20.04		15.45		0.91	0.18		0.00
CHICK-84.	63-34	4.42	8.02		6.27		0.61	0.12		7.92
CHICK-84.	64-28	0.85	19.97		9.18		0.00	0.00		20.17
CHICK-84.	65-49	0.95	0.00		15.45		1.19	0.24		17.13
CHICK-84.	67-75	12.82	0.00		0.19		0.00	0.00		19.68
CHICK-84.	68-50	0.98	8.59		9.40		0.00	0.00		20.63
CHICK-84.	69-16	8.96	0.00		15.68		0.00	0.00		20.37
CHICK-84.	70-55	4.52	19.77		0.25		0.00	0.00		9.33
CHICK-84.	72-2	8.36	0.00		0.33		0.00	0.00		0.00
CHICK-84.	73-1	8.30	0.00		15.30		0.00	0.00		0.00
CHICK-84.	74-12	0.38	0.00		14.92		0.00	0.00		0.00
CHICK-84.	75-26	8.54	8.30		15.02		1.52	0.31		0.00
CHICK-84.	76-29	0.46	19.25		11.12		1.58	0.32		0.00
CHICK-84.	77-25	8.45	19.76		15.48		0.00	0.00		8.45
CHICK-84.	78-48	3.50	5.77		4.33		1.52	0.31		5.66
CHICK-84.	79-43	0.77	8.70		6.86		0.66	0.13		8.49
CHICK-84.	80-46	3.59	5.53		4.30		0.45	0.09		19.98
CHICK-84.	81-34	4.42	8.02		6.37		0.62	0.13		7.91
CHICK-84.	82-24	0.34	19.09		0.00		1.29	0.26		0.00
CHICK-84.	83-8	0.44	19.47		0.25		0.00	0.00		0.00
CHICK-84.	84-51	0.93	19.74		0.20		1.13	0.23		14.90
CHICK-84.	85-16	8.83	0.00		15.84		0.00	0.00		20.00
CHICK-84.	86-88	12.22	0.00		0.10		0.00	0.00		0.00
CHICK-84.	87-86	7.91	0.00		13.84		0.44	0.09		4.62
CHICK-84.	88-91	0.50	5.92		15.17		0.45	0.09		2.56
CHICK-84.	89-77	8.00	16.66		0.16		0.00	0.00		17.98
CHICK-84.	90-85	0.70	0.00		12.28		1.28	0.26		12.64
CHICK-84.	91-89	12.46	9.61		0.19		0.80	0.16		10.14
CHICK-84.	92-84	3.64	6.73		5.12		1.11	0.22		6.64
CHICK-84.	93-81	0.31	17.49		8.38		0.99	0.20		0.00
CHICK-84.	94-92	3.44	5.87		0.25		1.52	0.31		0.00
CHICK-84.	95-90	12.81	0.00		9.97		0.81	0.16		10.27
CHICK-84.	96-76	0.32	0.00		12.97		0.00	0.00		0.00
CHICK-84.	97-82	0.27	0.00		11.76		1.36	0.27		0.00
CHICK-84.	98-79	0.61	0.00		0.44		1.37	0.28		7.64
CHICK-84.	99-78	0.92	0.00		12.17		0.79	0.16		14.54
CHICK-84.	100-93	4.61	0.00		7.81		0.82	0.17		10.86
CHICK-84.	101-90	7.27	17.07		13.09		0.00	0.00		7.47
CHICK-84.	102-87	11.65	16.89		0.19		1.37	0.28		0.00
CHICK-84.	103-83	0.33	14.56		10.84		0.00	0.00		0.00
CHICK-84.	1-9	1.02	0.00		0.39		0.00	0.00		20.43

GLASS DURABILITY SPREAD SHEET VERSION 2						MCC		GLASS DURABILITY		
*****						*****		*****		
-----// -----GLASS COMPOSITION WEIGHT PERCENT-----						-----GLASS COMPOSITION		WEIGHT PERCENT-----		
Glass Type	SiO2	K2O	CaO	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
55-27		0.00			0.00			30.38	0.00	0.00
56-68		0.09			0.00			7.33	0.40	0.77
57-7		0.00			0.00			12.27	0.00	0.00
58-39		0.04			0.00			12.37	0.16	0.31
59-6		0.00			0.00			11.93	0.00	0.00
60-20		0.00			0.00			11.72	0.00	0.00
61-60		0.05			0.00			16.29	0.20	0.40
62-54		0.05			0.00			12.32	0.22	0.43
63-34		0.03			0.00			19.84	0.15	0.29
64-28		0.00			0.00			12.51	0.00	0.00
65-49		0.06			0.00			12.51	0.29	0.56
67-75		0.00			0.00			30.48	0.00	0.00
68-50		0.00			0.00			6.89	0.00	0.00
69-16		0.00			0.00			12.73	0.00	0.00
70-55		0.00			0.00			31.01	0.00	0.00
72-2		0.00			0.00			30.84	0.00	0.00
73-1		0.00			0.00			17.40	0.00	0.00
74-12		0.00			0.00			30.34	0.00	0.00
75-26		0.08			0.00			12.29	0.37	0.71
76-29		0.09			0.00			12.21	0.38	0.75
77-25		0.00			0.00			12.53	0.00	0.00
78-48		0.08			0.00			17.92	0.37	0.72
79-43		0.04			0.00			20.77	0.16	0.31
80-46		0.02			0.00			17.42	0.11	0.21
81-34		0.03			0.00			19.63	0.15	0.29
82-24		0.07			0.00			29.33	0.31	0.61
83-8		0.00			0.00			21.03	0.00	0.00
84-51		0.06			0.00			12.34	0.28	0.54
85-16		0.00			0.00			12.59	0.00	0.00
86-88		0.00			0.00			26.68	0.00	0.00
87-86		0.02			0.00			28.11	0.11	0.21
88-91		0.02			0.00			18.19	0.11	0.21
89-77		0.00			0.00			12.19	0.00	0.00
90-85		0.07			0.00			12.18	0.31	0.60
91-89		0.04			0.00			15.13	0.19	0.38
92-84		0.06			0.00			18.71	0.27	0.52
93-81		0.05			0.00			12.88	0.24	0.47
94-92		0.08			0.00			18.75	0.37	0.72
95-90		0.04			0.00			15.25	0.20	0.38
96-76		0.00			0.00			26.54	0.00	0.00
97-82		0.07			0.00			22.70	0.33	0.64
98-79		0.07			0.00			26.58	0.33	0.65
99-78		0.04			0.00			12.79	0.19	0.37
100-93		0.04			0.00			10.26	0.20	0.39
101-80		0.00			0.00			11.96	0.00	0.00
102-87		0.07			0.00			9.97	0.33	0.65
103-83		0.00			0.00			22.10	0.00	0.00
1-9		0.00			0.00			16.36	0.00	0.00

CLASS	DURABILITY	SPREAD SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC
*****								*****
// PERCENT				GLASS	COMPOSITION	WEIGHT	PERCENT	
Glass	NiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2
Type								TiO2
								UO2
55-27	0.00	0.00				34.76	0.00	0.00
56-68	0.77	5.97				58.94	0.33	2.53
57-7	0.00	0.00				62.37	0.00	0.00
58-39	0.31	2.44				47.85	0.13	1.03
59-6	0.00	0.00				60.14	0.00	0.00
60-20	0.00	0.00				36.57	0.00	0.00
61-60	0.40	3.09				47.14	0.17	1.31
62-54	0.43	3.35				35.49	0.18	1.42
63-34	0.29	2.25				45.24	0.12	0.95
64-28	0.00	0.00				37.32	0.00	0.00
65-49	0.56	4.38				37.84	0.24	1.85
67-75	0.00	0.00				36.84	0.00	0.00
68-50	0.00	0.00				62.50	0.00	0.00
69-16	0.00	0.00				42.26	0.00	0.00
70-55	0.00	0.00				35.12	0.00	0.00
72-2	0.00	0.00				60.47	0.00	0.00
73-1	0.00	0.00				59.00	0.00	0.00
74-12	0.00	0.00				54.36	0.00	0.00
75-26	0.72	5.58				35.33	0.31	2.36
76-29	0.75	5.81				35.59	0.32	2.46
77-25	0.00	0.00				35.34	0.00	0.00
78-48	0.72	5.57				42.33	0.31	2.36
79-43	0.31	2.44				45.44	0.13	1.03
80-46	0.21	1.67				43.03	0.09	0.71
81-34	0.29	2.29				45.23	0.13	0.97
82-24	0.61	4.74				33.81	0.26	2.01
83-8	0.00	0.00				58.81	0.00	0.00
84-51	0.54	4.16				36.59	0.23	1.76
85-16	0.00	0.00				42.74	0.00	0.00
86-88	0.00	0.00				61.00	0.00	0.00
87-96	0.21	1.61				39.59	0.09	0.68
88-91	0.21	1.66				51.54	0.09	0.70
89-77	0.00	0.00				45.01	0.00	0.00
90-85	0.60	4.69				44.97	0.26	1.98
91-89	0.38	2.93				41.70	0.16	1.24
92-84	0.52	4.08				44.17	0.22	1.72
93-81	0.47	3.65				47.54	0.20	1.54
94-92	0.72	5.58				51.17	0.31	2.36
95-90	0.38	2.97				40.77	0.16	1.26
96-76	0.00	0.00				60.17	0.00	0.00
97-82	0.64	4.99				48.34	0.27	2.11
98-79	0.65	5.03				44.24	0.28	2.13
99-78	0.37	2.91				48.89	0.16	1.23
100-93	0.39	3.01				55.41	0.17	1.27
101-80	0.00	0.00				43.14	0.00	0.00
102-87	0.65	5.04				42.76	0.28	2.13
103-83	0.00	0.00				52.16	0.00	0.00
1-9	0.00	0.00				61.79	0.00	0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \\\									
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type	
=====									
55-27		0.00			0.00	100.00	N	MCC-1	
56-68		0.44			7.20	98.31	N	MCC-1	
57-7		0.00			0.00	100.00	N	MCC-1	
58-39		0.18			3.18	99.31	N	MCC-1	
59-6		0.00			0.00	100.00	N	MCC-1	
60-20		0.00			0.00	100.00	N	MCC-1	
61-60		0.23			4.04	99.11	N	MCC-1	
62-54		0.25			4.37	99.05	N	MCC-1	
63-34		0.17			2.94	99.36	N	MCC-1	
64-28		0.00			0.00	100.00	N	MCC-1	
65-49		0.32			5.72	98.76	N	MCC-1	
67-75		0.00			0.00	100.01	N	MCC-1	
68-50		0.00			0.00	99.99	N	MCC-1	
69-16		0.00			0.00	100.00	N	MCC-1	
70-55		0.00			0.00	100.00	N	MCC-1	
72-2		0.00			0.00	100.00	N	MCC-1	
73-1		0.00			0.00	100.00	N	MCC-1	
74-12		0.00			0.00	100.00	N	MCC-1	
75-26		0.41			7.28	98.42	N	MCC-1	
76-29		0.43			7.58	98.35	N	MCC-1	
77-25		0.00			0.00	100.01	N	MCC-1	
78-48		0.41			7.27	98.42	N	MCC-1	
79-43		0.18			3.19	99.32	N	MCC-1	
80-46		0.12			2.18	99.52	N	MCC-1	
81-34		0.17			2.99	99.35	N	MCC-1	
82-24		0.35			6.19	98.67	N	MCC-1	
83-8		0.00			0.00	100.00	N	MCC-1	
84-51		0.31			5.44	98.83	N	MCC-1	
85-16		0.00			0.00	100.00	N	MCC-1	
86-88		0.00			0.00	100.00	N	MCC-1	
87-86		0.12			2.11	99.54	N	MCC-1	
88-91		0.12			2.17	99.53	N	MCC-1	
89-77		0.00			0.00	100.00	N	MCC-1	
90-35		0.34			6.12	98.67	N	MCC-1	
91-89		0.22			3.83	99.18	N	MCC-1	
92-84		0.30			5.32	98.85	N	MCC-1	
93-81		0.27			4.76	98.98	N	MCC-1	
94-92		0.41			7.28	98.41	N	MCC-1	
95-90		0.22			3.88	99.16	N	MCC-1	
96-76		0.00			0.00	100.00	N	MCC-1	
97-82		0.37			6.51	99.99	N	MCC-1	
98-79		0.37			6.56	98.58	N	MCC-1	
99-78		0.21			3.79	99.18	N	MCC-1	
100-93		0.22			3.93	99.16	N	MCC-1	
101-80		0.00			0.00	100.00	N	MCC-1	
102-87		0.37			6.58	98.56	N	MCC-1	
103-83		0.00			0.00	99.99	N	MCC-1	
1-9		0.00			0.00	99.99	N	MCC-1	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD	
*****					*****				
-----LEACH TEST-----					-----LEACH TEST-----				
Glass Type	-- Comment -->	SA/V (1/M)	Leachant Water Type	Geologic Media	Canister Material	REDOX (Eh)	Temperature Degrees C	Ph (Start) Pretreatment	SiO2 (ppm)
55-27	Other is ThO2	10.0	DIW				40		
56-63	Other is ThO2	10.0	DIW				40		
57-7	Other is ThO2	10.0	DIW				40		
58-39	Other is ThO2	10.0	DIW				40		
59-6	Other is ThO2	10.0	DIW				40		
60-20	Other is ThO2	10.0	DIW				40		
61-60	Other is ThO2	10.0	DIW				40		
62-54	Other is ThO2	10.0	DIW				40		
63-34	Other is ThO2	10.0	DIW				40		
64-28	Other is ThO2	10.0	DIW				40		
65-49	Other is ThO2	10.0	DIW				40		
67-75	Other is ThO2	10.0	DIW				40		
68-50	Other is ThO2	10.0	DIW				40		
69-16	Other is ThO2	10.0	DIW				40		
70-55	Other is ThO2	10.0	DIW				40		
72-2	Other is ThO2	10.0	DIW				40		
73-1	Other is ThO2	10.0	DIW				40		
74-12	Other is ThO2	10.0	DIW				40		
75-26	Other is ThO2	10.0	DIW				40		
76-29	Other is ThO2	10.0	DIW				40		
77-25	Other is ThO2	10.0	DIW				40		
78-48	Other is ThO2	10.0	DIW				40		
79-43	Other is ThO2	10.0	DIW				40		
80-46	Other is ThO2	10.0	DIW				40		
81-34	Other is ThO2	10.0	DIW				40		
82-24	Other is ThO2	10.0	DIW				40		
83-8	Other is ThO2	10.0	DIW				40		
84-51	Other is ThO2	10.0	DIW				40		
85-16	Other is ThO2	10.0	DIW				40		
86-88	Other is ThO2	10.0	DIW				40		
87-86	Other is ThO2	10.0	DIW				40		
88-91	Other is ThO2	10.0	DIW				40		
89-77	Other is ThO2	10.0	DIW				40		
90-85	Other is ThO2	10.0	DIW				40		
91-89	Other is ThO2	10.0	DIW				40		
92-84	Other is ThO2	10.0	DIW				40		
93-31	Other is ThO2	10.0	DIW				40		
94-72	Other is ThO2	10.0	DIW				40		
95-90	Other is ThO2	10.0	DIW				40		
96-76	Other is ThO2	10.0	DIW				40		
97-82	Other is ThO2	10.0	DIW				40		
98-79	Other is ThO2	10.0	DIW				40		
99-78	Other is ThO2	10.0	DIW				40		
100-93	Other is ThO2	10.0	DIW				40		
101-80	Other is ThO2	10.0	DIW				40		
102-87	Other is ThO2	10.0	DIW				40		
103-83	Other is ThO2	10.0	DIW				40		
1-9	Other is ThO2	10.0	DIW				40		

GLASS SHEET VERSION 2 WDDUOTE Sept. 97 Status Report MOD GLASS

-----TEST LEACHANT COMPOSITION-----\ \-----TEST RESULTS-----										
Glass	Ca	Cl	SO4	Mg	F	Duration	pH	Si	P	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	End	(ppm)	(ppm)	(ppm)

57-07						7	11.50			
58-06						7	8.30			
57-7						7	6.20			
58-09						7	8.00			
59-6						7	7.00			
60-20						7	8.70			
61-60						7	7.50			
62-34						7	9.40			
63-34						7	7.70			
64-29						7	9.40			
65-49						7	8.10			
67-75						7	10.10			
68-50						7	11.50			
69-16						7	7.30			
70-55						7	10.50			
72-2						7	10.10			
73-1						7	8.00			
74-12						7	10.50			
75-26						7	9.10			
76-29						7	9.10			
77-25						7	9.30			
78-48						7	7.40			
79-13						7	8.40			
80-46						7	6.90			
81-34						7	7.90			
82-04						7	10.60			
83-8						7	9.30			
84-51						7	6.90			
85-16						7	6.10			
86-08						7	9.20			
87-86						7	9.20			
88-91						7	8.70			
89-77						7	8.40			
90-85						7	6.50			
91-89						7	6.50			
92-84						7	6.80			
93-31						7	3.30			
94-92						7	7.00			
95-90						7	7.00			
96-76						7	9.50			
97-82						7	9.30			
98-79						7	9.90			
99-78						7	7.80			
100-93						7	6.20			
101-80						7	8.70			
102-87						7	6.70			
103-93						7	9.90			
1-9						7	6.50			

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****				*****			
/ FINAL LEACHATE COMPOSITION				/ NORMALIZED			
Glass	Li	Fe	Ca	Si	Al	Na	Other
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
*****				*****			
55-27							56.74
56-68							3.15
57-7							
58-39							3.11
59-6							9.07
60-20							3.47
61-60							0.28
62-54							10.36
63-34							0.25
64-28							9.84
65-49							2.66
67-75							5.89
68-50							34.72
69-16							0.13
70-55							43.81
72-2							3.63
73-1							0.06
74-12							16.23
75-26							3.75
76-29							12.72
77-25							7.67
78-48							0.45
79-43							6.51
80-46							3.21
81-34							0.90
82-24							350.60
83-8							12.11
84-51							0.94
85-16							0.10
86-89							0.11
87-86							2.03
88-91							7.02
89-77							0.06
90-35							0.39
91-89							
92-84							0.14
93-81							6.41
94-92							0.10
95-90							0.11
96-76							7.03
97-82							7.51
98-79							1.39
99-78							0.13
100-93							0.06
101-80							4.13
102-37							0.07
103-83							21.01
1-9							4.50

PLAGE	SHEET	VERSION 2	NO	PLAGE	DURABILITY	SPREAD SHEET
*****	*****	*****	*****	*****	*****	*****
-----	LEAD	VALUES	-----	NORMALIZED	LEAD	VALUES
31-42	21	11	11	21	21	21
7-2	11-21	11-21	11-21	11-21	11-21	11-21

32-27
 33-28
 34-29
 35-30
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 102-97
 103-98
 1-9

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Class /----- Comments -----

Type

37-37	PNL study for West Valley
38-38	PNL study for West Valley
39-39	PNL study for West Valley
40-40	PNL study for West Valley
41-41	PNL study for West Valley
42-42	PNL study for West Valley
43-43	PNL study for West Valley
44-44	PNL study for West Valley
45-45	PNL study for West Valley
46-46	PNL study for West Valley
47-47	PNL study for West Valley
48-48	PNL study for West Valley
49-49	PNL study for West Valley
50-50	PNL study for West Valley
51-51	PNL study for West Valley
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64-64	PNL study for West Valley
65-65	PNL study for West Valley
66-66	PNL study for West Valley
67-67	PNL study for West Valley
68-68	PNL study for West Valley
69-69	PNL study for West Valley
70-70	PNL study for West Valley
71-71	PNL study for West Valley
72-72	PNL study for West Valley
73-73	PNL study for West Valley
74-74	PNL study for West Valley
75-75	PNL study for West Valley
76-76	PNL study for West Valley
77-77	PNL study for West Valley
78-78	PNL study for West Valley
79-79	PNL study for West Valley
80-80	PNL study for West Valley
81-81	PNL study for West Valley
82-82	PNL study for West Valley
83-83	PNL study for West Valley
84-84	PNL study for West Valley
85-85	PNL study for West Valley
86-86	PNL study for West Valley
87-87	PNL study for West Valley
88-88	PNL study for West Valley
89-89	PNL study for West Valley
90-90	PNL study for West Valley
91-91	PNL study for West Valley
92-92	PNL study for West Valley
93-93	PNL study for West Valley
94-94	PNL study for West Valley
95-95	PNL study for West Valley
96-96	PNL study for West Valley
97-97	PNL study for West Valley
98-98	PNL study for West Valley
99-99	PNL study for West Valley
100-100	PNL study for West Valley
101-101	PNL study for West Valley
102-102	PNL study for West Valley
103-103	PNL study for West Valley
104-104	PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX-----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	SiO2	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-B4.	2-38	3.29	20.44		4.62		0.46	0.09		5.96
CHICK-B4.	3-15	1.34	0.00		0.31		1.56	0.32		20.85
CHICK-B4.	4-44	8.75	7.63		5.90		0.55	0.11		7.43
CHICK-B4.	5-40	3.46	6.31		5.08		0.59	0.12		6.20
CHICK-B4.	6-71	12.30	0.00		15.16		0.00	0.00		6.97
CHICK-B4.	7-34	4.51	8.41		6.25		0.61	0.12		8.10
CHICK-B4.	8-62	5.64	11.01		1.23		0.00	0.00		11.63
CHICK-B4.	9-3	8.14	0.00		0.00		0.00	0.00		17.19
CHICK-B4.	10-30	0.69	0.00		15.27		0.00	0.00		17.01
CHICK-B4.	11-57	4.40	9.11		0.21		1.52	0.31		0.00
CHICK-B4.	12-65	0.79	11.86		0.00		0.00	0.00		10.90
CHICK-B4.	13-60	0.92	8.98		2.25		0.79	0.16		13.48
CHICK-B4.	14-67	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-B4.	15-74	12.21	20.96		0.00		0.00	0.00		19.74
CHICK-B4.	16-58	1.01	7.17		15.15		0.00	0.00		21.21
CHICK-B4.	17-21	0.81	11.26		0.22		0.00	0.00		20.50
CHICK-B4.	18-69	12.83	0.00		0.30		1.56	0.32		0.00
CHICK-B4.	19-73	12.44	14.55		9.43		1.53	0.31		0.00
CHICK-B4.	20-22	1.04	0.00		0.39		0.80	0.16		20.85
CHICK-B4.	21-36	2.92	5.14		4.23		0.44	0.09		5.24
CHICK-B4.	22-27	8.27	19.82		7.46		0.00	0.00		0.00
CHICK-B4.	23-61	0.91	6.37		1.31		0.81	0.16		13.44
CHICK-B4.	24-41	4.98	9.16		0.60		0.73	0.15		9.06
CHICK-B4.	25-64	12.49	11.59		0.42		0.00	0.00		0.00
CHICK-B4.	26-10	0.64	19.31		0.20		0.00	0.00		6.80
CHICK-B4.	27-2	8.38	0.00		0.21		0.00	0.00		0.00
CHICK-B4.	28-45	5.04	9.77		7.93		0.68	0.14		0.00
CHICK-B4.	29-37	5.24	0.00		7.68		0.68	0.14		9.56
CHICK-B4.	30-14	8.80	0.00		15.48		1.58	0.32		0.00
CHICK-B4.	31-1	8.15	0.00		14.96		0.00	0.00		0.00
CHICK-B4.	32-70	12.55	19.83		0.21		1.51	0.31		0.00
CHICK-B4.	33-6	8.32	19.22		0.14		0.00	0.00		0.00
CHICK-B4.	34-18	8.47	19.92		0.20		1.51	0.31		0.00
CHICK-B4.	35-35	5.51	10.44		8.05		0.69	0.14		5.80
CHICK-B4.	36-19	8.98	0.00		0.26		0.00	0.00		20.31
CHICK-B4.	37-31	0.40	0.00		15.31		1.58	0.32		0.00
CHICK-B4.	38-53	0.64	0.00		0.17		0.38	0.08		4.27
CHICK-B4.	39-59	12.40	0.00		13.70		0.42	0.08		4.30
CHICK-B4.	40-47	5.07	9.54		7.75		0.00	0.00		9.74
CHICK-B4.	41-63	12.54	9.73		1.20		0.00	0.00		6.02
CHICK-B4.	42-34	4.46	8.10		6.33		0.57	0.12		8.00
CHICK-B4.	43-11	6.42	0.00		0.31		1.55	0.32		0.00
CHICK-B4.	44-23	0.90	0.00		0.16		1.55	0.31		11.51
CHICK-B4.	45-17	8.25	0.00		0.07		1.57	0.32		0.00
CHICK-B4.	46-56	9.13	0.00		8.10		0.99	0.20		20.20
CHICK-B4.	47-4	0.41	6.01		0.15		1.45	0.29		0.00
CHICK-B4.	48-32	8.18	0.00		0.40		1.45	0.29		17.49
CHICK-B4.	49-13	0.29	20.05		15.11		0.00	0.00		0.00

GLASS DURABILITY SPREAD SHEET VERSION 2							MCC GLASS DURABILITY		
*****							*****		
// ---GLASS COMPOSITION WEIGHT PERCENT---							GLASS COMPOSITION WEIGHT PERCENT---		
Glass Type	SiO2	Al2O3	Li2O	NaO	MnO2	MoO3	Na2O	Na2O3	Na3
2-38	0.02			0.00			17.36	0.11	0.20
3-15	0.08			0.00			12.39	0.38	0.71
4-44	0.03			0.00			12.72	0.13	0.20
5-40	0.03			0.00			26.73	0.14	0.20
6-71	0.00			0.00			30.02	0.00	0.00
7-34	0.03			0.00			19.17	0.15	0.20
8-62	0.00			0.00			16.39	0.00	0.00
9-3	0.00			0.00			12.00	0.00	0.00
10-30	0.00			0.00			30.03	0.00	0.00
11-57	0.08			0.00			29.77	0.37	0.72
12-65	0.00			0.00			15.61	0.00	0.00
13-60	0.04			0.00			16.13	0.19	0.37
14-67	0.00			0.00			6.89	0.00	0.00
15-74	0.00			0.00			9.26	0.00	0.00
16-58	0.00			0.00			19.19	0.00	0.00
17-21	0.00			0.00			29.79	0.00	0.00
18-69	0.08			0.00			29.21	0.38	0.74
19-73	0.08			0.00			7.52	0.37	0.75
20-22	0.04			0.00			29.56	0.19	0.38
21-36	0.02			0.00			16.33	0.11	0.21
22-27	0.00			0.00			28.91	0.00	0.00
23-61	0.04			0.00			13.44	0.20	0.38
24-41	0.04			0.00			20.10	0.18	0.34
25-64	0.00			0.00			15.63	0.00	0.00
26-10	0.00			0.00			11.86	0.00	0.00
27-2	0.00			0.00			29.96	0.00	0.00
28-45	0.04			0.00			20.82	0.17	0.32
29-37	0.04			0.00			20.96	0.17	0.32
30-14	0.09			0.00			12.72	0.38	0.75
31-1	0.00			0.00			16.65	0.00	0.00
32-70	0.08			0.00			11.23	0.37	0.71
33-6	0.00			0.00			11.89	0.00	0.00
34-18	0.08			0.00			12.15	0.37	0.71
35-35	0.04			0.00			21.93	0.17	0.32
36-19	0.00			0.00			29.84	0.00	0.00
37-31	0.09			0.00			28.13	0.39	0.75
38-53	0.02			0.00			29.44	0.09	0.18
39-59	0.02			0.00			7.00	0.10	0.20
40-47	0.00			0.00			20.78	0.00	0.00
41-63	0.00			0.00			16.25	0.00	0.00
42-34	0.03			0.00			19.73	0.14	0.27
43-11	0.08			0.00			12.04	0.38	0.74
44-23	0.08			0.00			30.13	0.38	0.73
45-17	0.08			0.00			29.84	0.38	0.74
46-56	0.05			0.00			12.31	0.24	0.47
47-4	0.08			0.00			13.28	0.35	0.69
48-32	0.08			0.00			10.97	0.35	0.69
49-13	0.00			0.00			12.80	0.00	0.00

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCD
*****								*****
// PERCENT		GLASS		COMPOSITION		WEIGHT PERCENT		
Glass	WtO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2
Type								UO2
2-38	0.22	1.69				42.12	0.09	0.71
3-15	0.74	5.74				43.98	0.32	2.43
4-44	0.26	2.02				44.16	0.11	0.85
5-40	0.28	2.18				42.20	0.12	0.92
6-71	0.00	0.00				35.55	0.00	0.00
7-34	0.29	2.24				45.32	0.12	0.95
8-62	0.00	0.00				54.10	0.00	0.00
9-3	0.00	0.00				62.67	0.00	0.00
10-30	0.00	0.00				37.00	0.00	0.00
11-57	0.72	5.58				35.98	0.31	2.36
12-65	0.00	0.00				60.83	0.00	0.00
13-60	0.37	2.90				47.57	0.16	1.23
14-67	0.00	0.00				62.50	0.00	0.00
15-74	0.00	0.00				37.84	0.00	0.00
16-58	0.00	0.00				37.27	0.00	0.00
17-21	0.00	0.00				37.42	0.00	0.00
18-69	0.74	5.73				36.58	0.32	2.42
19-73	0.73	5.64				35.33	0.31	2.38
20-22	0.38	2.92				37.40	0.16	1.24
21-36	0.21	1.61				60.20	0.09	0.68
22-27	0.00	0.00				35.55	0.00	0.00
23-61	0.38	2.99				53.55	0.16	1.26
24-41	0.34	2.67				46.28	0.15	1.13
25-64	0.00	0.00				59.88	0.00	0.00
26-10	0.00	0.00				61.20	0.00	0.00
27-2	0.00	0.00				61.45	0.00	0.00
28-45	0.32	2.51				47.21	0.14	1.06
29-37	0.32	2.51				47.35	0.14	1.06
30-14	0.75	5.80				41.67	0.32	2.45
31-1	0.00	0.00				60.25	0.00	0.00
32-70	0.71	5.55				35.77	0.31	2.35
33-6	0.00	0.00				60.43	0.00	0.00
34-18	0.71	5.53				38.92	0.31	2.34
35-35	0.33	2.54				38.94	0.14	1.07
36-19	0.00	0.00				40.62	0.00	0.00
37-31	0.75	5.82				34.78	0.32	2.46
38-53	0.18	1.39				60.38	0.08	0.59
39-59	0.20	1.53				56.99	0.08	0.65
40-47	0.00	0.00				47.12	0.00	0.00
41-63	0.00	0.00				54.26	0.00	0.00
42-34	0.27	2.09				45.69	0.12	0.88
43-11	0.74	5.71				60.22	0.32	2.42
44-23	0.73	5.70				36.34	0.31	2.41
45-17	0.74	5.77				40.63	0.32	2.44
46-56	0.47	3.63				36.92	0.20	1.53
47-4	0.69	5.33				60.55	0.29	2.25
48-32	0.69	5.33				43.36	0.29	2.25
49-13	0.00	0.00				51.74	0.00	0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Container	SEDOX	Temperature	PH	Leachant
Type	--- Comment ---	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
2-38	Other is Th02	10.0	DIW			90		
3-15	Other is Th02	10.0	DIW			90		
4-44	Other is Th02	10.0	DIW			90		
5-40	Other is Th02	10.0	DIW			90		
6-71	Other is Th02	10.0	DIW			90		
7-34	Other is Th02	10.0	DIW			90		
8-62	Other is Th02	10.0	DIW			90		
9-3	Other is Th02	10.0	DIW			90		
10-30	Other is Th02	10.0	DIW			90		
11-57	Other is Th02	10.0	DIW			90		
12-65	Other is Th02	10.0	DIW			90		
13-60	Other is Th02	10.0	DIW			90		
14-67	Other is Th02	10.0	DIW			90		
15-74	Other is Th02	10.0	DIW			90		
16-58	Other is Th02	10.0	DIW			90		
17-21	Other is Th02	10.0	DIW			90		
18-69	Other is Th02	10.0	DIW			90		
19-73	Other is Th02	10.0	DIW			90		
20-22	Other is Th02	10.0	DIW			90		
21-36	Other is Th02	10.0	DIW			90		
22-27	Other is Th02	10.0	DIW			90		
23-61	Other is Th02	10.0	DIW			90		
24-41	Other is Th02	10.0	DIW			90		
25-64	Other is Th02	10.0	DIW			90		
26-10	Other is Th02	10.0	DIW			90		
27-2	Other is Th02	10.0	DIW			90		
28-45	Other is Th02	10.0	DIW			90		
29-37	Other is Th02	10.0	DIW			90		
30-14	Other is Th02	10.0	DIW			90		
31-1	Other is Th02	10.0	DIW			90		
32-70	Other is Th02	10.0	DIW			90		
33-6	Other is Th02	10.0	DIW			90		
34-18	Other is Th02	10.0	DIW			90		
35-35	Other is Th02	10.0	DIW			90		
36-19	Other is Th02	10.0	DIW			90		
37-31	Other is Th02	10.0	DIW			90		
38-53	Other is Th02	10.0	DIW			90		
39-59	Other is Th02	10.0	DIW			90		
40-47	Other is Th02	10.0	DIW			90		
41-63	Other is Th02	10.0	DIW			90		
42-34	Other is Th02	10.0	DIW			90		
43-11	Other is Th02	10.0	DIW			90		
44-23	Other is Th02	10.0	DIW			90		
45-17	Other is Th02	10.0	DIW			90		
46-56	Other is Th02	10.0	DIW			90		
47-4	Other is Th02	10.0	DIW			90		
48-32	Other is Th02	10.0	DIW			90		
49-13	Other is Th02	10.0	DIW			90		

PLANE	SHEET	VERSION 2	NOQUOTE Best. 87	Status	Report	MOD	CLASS			
*****							*****			
-----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS-----										
Plane	Na	Cl	SO4	%g	S	Concentration	pH	Si	S	Na
Time	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)

3-35						7	9.20			
3-15						7	7.80			
4-44						7	9.60			
5-80						7	10.70			
6-71						7	11.30			
7-34						7	9.60			
8-52						7	8.70			
9-3						7	5.90			
10-30						7	12.20			
11-57						7	11.10			
12-65						7	9.40			
13-60						7	9.40			
14-67						7	7.60			
15-74						7	9.60			
16-59						7	10.40			
17-51						7	10.30			
18-69						7	10.50			
19-73						7	7.00			
20-22						7	10.70			
21-36						7	9.20			
22-27						7	10.50			
23-61						7	9.00			
24-41						7	9.20			
25-64						7	3.50			
26-10						7	9.20			
27-2						7	11.50			
28-45						7	9.60			
29-37						7	9.60			
30-14						7	9.70			
31-1						7	9.80			
32-70						7	9.60			
33-6						7				
34-13						7	9.60			
35-35						7	10.30			
36-19						7	10.40			
37-31						7	12.30			
38-53						7	11.30			
39-59						7	3.90			
40-17						7	10.30			
41-63						7	3.00			
42-34						7	3.70			
43-11						7	3.10			
44-13						7	11.30			
45-17						7	11.10			
46-55						7	9.40			
47-4						7	3.10			
48-32						7	3.20			
49-13						7	9.90			

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		
*****				*****					
// -----FINAL LEACHATE COMPOSITION-----/									
Glass	Li	K	Ca	Sr	U	Mo	Other	Si	Normalized
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m ²)	(g/m ²)

2-35								48.50	
3-15								3.50	
4-44								19.20	
5-40								78.50	
6-71								41.90	
7-34								24.70	
9-62								2.90	
9-3								0.80	
10-30								231.70	
11-57								229.40	
12-65								5.90	
13-60								27.50	
14-67								1.20	
15-74								7.20	
16-58								26.70	
17-21								191.90	
18-69								25.00	
19-73								1.40	
20-22								33.90	
21-36								5.20	
22-27								99.00	
23-61								10.90	
24-41								9.50	
25-64								0.50	
26-10								7.90	
27-2								33.90	
28-45								29.70	
29-37								16.00	
30-14								14.90	
31-1								11.50	
32-70								9.50	
33-6									
34-13								12.50	
35-35								36.90	
36-19								9.50	
37-31								367.30	
38-53								1,302.90	
39-59								5.20	
40-47								34.00	
41-53								3.90	
42-34								34.50	
43-11								1.60	
44-23								193.90	
45-17								16.30	
46-56								14.90	
47-4								2.10	
48-32								3.20	
49-13								88.90	

BLISS	SHEET	VERSION 2	MOO	CLASS	CLASSILITY	SPREAD SHEET
*****	*****	*****	*****	*****	*****	*****
INDEX	LEADER	VALUES	VALUES	VALUES	VALUES	VALUES
Index	1a	1b	1c	1d	1e	1f
Type	1a-121	1a-121	1a-121	1a-121	1a-121	1a-121
1-13						
2-13						
3-11						
5-10						
6-71						
7-34						
8-62						
9-3						
10-30						
11-57						
12-65						
13-60						
14-67						
15-74						
16-53						
17-51						
18-49						
19-70						
20-22						
21-36						
22-37						
23-31						
24-41						
25-60						
26-10						
27-2						
28-43						
29-37						
30-14						
31-1						
32-73						
33-6						
34-19						
35-35						
36-19						
37-31						
38-53						
39-59						
40-47						
41-63						
42-34						
43-11						
44-27						
45-17						
46-36						
47-1						
48-32						
49-12						

[illegible]
$$x_1 = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \sqrt{1 + 4} \right) = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \sqrt{5} \right) = \frac{1}{4} \left(1 + \sqrt{5} \right)$$

0 50 100 150 200 250 300 350 400 450 500

10 20 30 40 50 60 70 80 90 100

• • •

[illegible]

1-75	PML study for West Valley
2-75	PML study for West Valley
3-75	PML study for West Valley
5-75	PML study for West Valley
6-75	PML study for West Valley
7-84	PML study for West Valley
8-82	PML study for West Valley
9-83	PML study for West Valley
10-80	PML study for West Valley
11-87	PML study for West Valley
12-85	PML study for West Valley
13-80	PML study for West Valley
14-87	PML study for West Valley
15-74	PML study for West Valley
16-88	PML study for West Valley
17-81	PML study for West Valley
18-89	PML study for West Valley
19-88	PML study for West Valley
20-82	PML study for West Valley
21-83	PML study for West Valley
22-87	PML study for West Valley
23-81	PML study for West Valley
24-81	PML study for West Valley
25-81	PML study for West Valley
26-81	PML study for West Valley
27-81	PML study for West Valley
28-85	PML study for West Valley
29-87	PML study for West Valley
30-87	PML study for West Valley
31-81	PML study for West Valley
32-80	PML study for West Valley
33-81	PML study for West Valley
34-83	PML study for West Valley
35-83	PML study for West Valley
36-89	PML study for West Valley
37-81	PML study for West Valley
38-88	PML study for West Valley
39-89	PML study for West Valley
40-87	PML study for West Valley
41-83	PML study for West Valley
42-88	PML study for West Valley
43-81	PML study for West Valley
44-88	PML study for West Valley
45-87	PML study for West Valley
46-88	PML study for West Valley
47-81	PML study for West Valley
48-88	PML study for West Valley
49-88	PML study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX-----// \\		-----GLASS COMPOSITION				WEIGHT PERCENT-----				
Reference	Glass	Al2O3	B2O3	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
Code	Type									
=====										
CHICK-B4.	50-5	1.04	0.00		0.13		1.49	0.30		0.00
CHICK-B4.	51-66	5.63	10.31		0.53		0.27	0.06		4.73
CHICK-B4.	52-42	3.65	6.57		15.11		0.45	0.09		6.46
CHICK-B4.	53-52	0.64	0.00		14.89		0.48	0.10		5.57
CHICK-B4.	54-72	12.08	19.74		15.11		0.00	0.00		0.00
CHICK-B4.	55-27	8.17	19.62		7.07		0.00	0.00		0.00
CHICK-B4.	56-68	0.83	0.00		10.94		1.63	0.33		0.00
CHICK-B4.	57-7	1.11	0.00		4.23		0.00	0.00		20.02
CHICK-B4.	58-39	5.24	9.29		7.09		0.66	0.13		9.19
CHICK-B4.	59-6	8.32	19.45		0.16		0.00	0.00		0.00
CHICK-B4.	60-20	8.48	23.56		0.24		0.00	0.00		19.43
CHICK-B4.	61-60	1.01	8.91		2.46		0.84	0.17		12.81
CHICK-B4.	62-54	4.38	20.04		15.45		0.91	0.18		0.00
CHICK-B4.	63-34	4.42	8.02		6.27		0.61	0.12		7.92
CHICK-B4.	64-28	0.85	19.97		9.18		0.00	0.00		20.17
CHICK-B4.	65-49	0.95	0.00		15.45		1.19	0.24		17.13
CHICK-B4.	67-75	12.82	0.00		0.19		0.00	0.00		19.68
CHICK-B4.	68-50	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-B4.	69-16	8.96	0.00		15.68		0.00	0.00		20.37
CHICK-B4.	70-55	4.52	19.77		0.25		0.00	0.00		9.33
CHICK-B4.	72-2	8.36	0.00		0.33		0.00	0.00		0.00
CHICK-B4.	73-1	8.30	0.00		15.30		0.00	0.00		0.00
CHICK-B4.	74-12	0.38	0.00		14.92		0.00	0.00		0.00
CHICK-B4.	75-26	8.54	8.30		15.02		1.52	0.31		0.00
CHICK-B4.	76-29	0.46	19.25		11.12		1.58	0.32		0.00
CHICK-B4.	77-25	8.45	19.76		15.48		0.00	0.00		8.45
CHICK-B4.	78-48	3.50	5.77		4.33		1.52	0.31		5.66
CHICK-B4.	79-43	0.77	8.70		6.86		0.66	0.13		8.49
CHICK-B4.	80-46	3.59	5.53		4.30		0.45	0.09		19.98
CHICK-B4.	81-34	4.42	8.02		6.37		0.62	0.13		7.91
CHICK-B4.	82-24	0.34	19.09		0.00		1.29	0.26		0.00
CHICK-B4.	83-8	0.44	19.47		0.25		0.00	0.00		0.00
CHICK-B4.	84-51	0.93	19.74		0.20		1.13	0.23		14.90
CHICK-B4.	85-16	8.83	0.00		15.84		0.00	0.00		20.00
CHICK-B4.	86-88	12.22	0.00		0.10		0.00	0.00		0.00
CHICK-B4.	87-86	7.91	0.00		13.84		0.44	0.09		4.62
CHICK-B4.	88-91	0.50	5.92		15.17		0.45	0.09		2.56
CHICK-B4.	89-77	8.00	16.66		0.16		0.00	0.00		17.98
CHICK-B4.	90-85	0.70	0.00		12.28		1.28	0.26		12.64
CHICK-B4.	91-89	12.46	9.61		0.19		0.80	0.16		10.14
CHICK-B4.	92-84	3.64	6.73		5.12		1.11	0.22		6.64
CHICK-B4.	93-81	0.31	17.49		8.38		0.99	0.20		0.00
CHICK-B4.	94-92	3.44	5.87		0.25		1.52	0.31		0.00
CHICK-B4.	95-90	12.81	0.00		9.97		0.81	0.16		10.27
CHICK-B4.	96-76	0.32	0.00		12.97		0.00	0.00		0.00
CHICK-B4.	97-82	0.27	0.00		11.76		1.36	0.27		0.00
CHICK-B4.	98-79	0.61	0.00		0.44		1.37	0.28		9.64
CHICK-B4.	99-78	0.92	0.00		12.17		0.79	0.16		14.54

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS	DURABILITY

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----									
Glass Type	Ba2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3 NiO
=====									
50-5		0.08			0.00			18.16	0.36 0.70
51-56		0.01			0.00			14.54	0.07 0.13
52-42		0.02			0.00			18.14	0.11 0.21
53-52		0.03			0.00			12.05	0.12 0.23
54-72		0.00			0.00			18.33	0.00 0.00
55-27		0.00			0.00			30.38	0.00 0.00
56-68		0.09			0.00			7.33	0.40 0.77
57-7		0.00			0.00			12.27	0.00 0.00
58-39		0.04			0.00			12.37	0.16 0.31
59-6		0.00			0.00			11.93	0.00 0.00
60-20		0.00			0.00			11.72	0.00 0.00
61-60		0.05			0.00			16.29	0.20 0.40
62-54		0.05			0.00			12.32	0.22 0.43
63-34		0.03			0.00			19.84	0.15 0.29
64-28		0.00			0.00			12.51	0.00 0.00
65-49		0.06			0.00			12.51	0.29 0.56
67-75		0.00			0.00			30.48	0.00 0.00
68-50		0.00			0.00			6.89	0.00 0.00
69-16		0.00			0.00			12.73	0.00 0.00
70-55		0.00			0.00			31.01	0.00 0.00
72-2		0.00			0.00			30.84	0.00 0.00
73-1		0.00			0.00			17.40	0.00 0.00
74-12		0.00			0.00			30.34	0.00 0.00
75-26		0.08			0.00			12.29	0.37 0.72
76-29		0.09			0.00			12.21	0.38 0.75
77-25		0.00			0.00			12.53	0.00 0.00
78-48		0.08			0.00			17.92	0.37 0.72
79-43		0.04			0.00			20.77	0.16 0.31
80-46		0.02			0.00			17.42	0.11 0.21
81-34		0.03			0.00			19.63	0.15 0.29
82-24		0.07			0.00			29.33	0.31 0.61
83-8		0.00			0.00			21.03	0.00 0.00
84-51		0.06			0.00			12.34	0.28 0.54
85-16		0.00			0.00			12.59	0.00 0.00
86-88		0.00			0.00			26.68	0.00 0.00
87-86		0.02			0.00			28.11	0.11 0.21
88-91		0.02			0.00			18.19	0.11 0.21
89-77		0.00			0.00			12.19	0.00 0.00
90-85		0.07			0.00			12.18	0.31 0.60
91-89		0.04			0.00			15.15	0.19 0.36
92-84		0.06			0.00			19.71	0.27 0.52
93-81		0.05			0.00			12.38	0.24 0.47
94-92		0.08			0.00			15.75	0.37 0.72
95-90		0.04			0.00			15.25	0.20 0.38
96-76		0.00			0.00			26.54	0.00 0.00
97-82		0.07			0.00			22.70	0.33 0.64
98-79		0.07			0.00			25.58	0.33 0.65
99-78		0.04			0.00			12.79	0.19 0.37

GLASS DURABILITY SPREAD SHEET				VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	
*****										*****
// PERCENT				GLASS	COMPOSITION	WEIGHT	PERCENT			
Glass Type	NaO	P2O5	PbO	PuO2	RuO2	SiO2	BrO	TeO2	TiO2	UO2
=====										
50-5	0.70	5.48				60.53	0.30			2.32
51-66	0.13	1.00				60.57	0.06			0.42
52-42	0.21	1.66				43.99	0.09			0.70
53-52	0.23	1.77				60.36	0.10			0.75
54-72	0.00	0.00				34.74	0.00			0.00
55-27	0.00	0.00				34.76	0.00			0.00
56-68	0.77	5.97				58.94	0.33			2.53
57-7	0.00	0.00				62.37	0.00			0.00
58-39	0.31	2.44				47.85	0.13			1.03
59-6	0.00	0.00				60.14	0.00			0.00
60-20	0.00	0.00				36.57	0.00			0.00
61-60	0.40	3.09				47.14	0.17			1.31
62-54	0.43	3.35				35.49	0.18			1.42
63-34	0.29	2.25				45.24	0.12			0.95
64-28	0.00	0.00				37.32	0.00			0.00
65-49	0.56	4.38				37.84	0.24			1.85
67-75	0.00	0.00				36.84	0.00			0.00
68-50	0.00	0.00				62.50	0.00			0.00
69-16	0.00	0.00				42.26	0.00			0.00
70-55	0.00	0.00				35.12	0.00			0.00
72-2	0.00	0.00				60.47	0.00			0.00
73-1	0.00	0.00				59.00	0.00			0.00
74-12	0.00	0.00				54.36	0.00			0.00
75-26	0.72	5.58				35.33	0.31			2.36
76-29	0.75	5.81				35.59	0.32			2.46
77-25	0.00	0.00				35.34	0.00			0.00
78-48	0.72	5.57				42.33	0.31			2.36
79-43	0.31	2.44				45.44	0.13			1.03
80-46	0.21	1.67				43.03	0.09			0.71
81-34	0.29	2.29				45.23	0.13			0.97
82-24	0.61	4.74				33.81	0.26			2.01
83-8	0.00	0.00				58.81	0.00			0.00
84-51	0.54	4.16				36.59	0.23			1.76
85-16	0.00	0.00				42.74	0.00			0.00
86-88	0.00	0.00				61.00	0.00			0.00
87-86	0.21	1.61				39.59	0.09			0.68
88-91	0.21	1.66				51.54	0.09			0.70
89-77	0.00	0.00				45.01	0.00			0.00
90-85	0.60	4.69				44.97	0.26			1.98
91-89	0.38	2.93				41.70	0.16			1.24
92-84	0.52	4.08				44.17	0.22			1.72
93-81	0.47	3.65				47.54	0.20			1.54
94-92	0.72	5.58				51.17	0.31			2.36
95-90	0.38	2.97				40.77	0.16			1.26
96-76	0.00	0.00				60.17	0.00			0.00
97-82	0.64	4.99				48.34	0.27			2.11
98-79	0.65	5.03				44.24	0.28			2.13
99-78	0.37	2.91				48.89	0.16			1.23

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC		

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \---										
Glass	ZnO	ZrO2	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test		
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type		
=====										
50-5		0.40			7.15	98.45	N	MCC-1		
51-56		0.07			1.31	99.71	N	MCC-1		
52-42		0.12			2.15	99.54	N	MCC-1		
53-52		0.13			2.30	99.50	N	MCC-1		
54-72		0.00			0.00	100.00	N	MCC-1		
55-27		0.00			0.00	100.00	N	MCC-1		
56-68		0.44			7.80	98.31	N	MCC-1		
57-7		0.00			0.00	100.00	N	MCC-1		
58-39		0.18			3.18	99.31	N	MCC-1		
59-6		0.00			0.00	100.00	N	MCC-1		
60-20		0.00			0.00	100.00	N	MCC-1		
61-60		0.23			4.04	99.11	N	MCC-1		
62-54		0.25			4.37	99.05	N	MCC-1		
63-34		0.17			2.94	99.36	N	MCC-1		
64-29		0.00			0.00	100.00	N	MCC-1		
65-49		0.32			5.72	98.76	N	MCC-1		
67-75		0.00			0.00	100.01	N	MCC-1		
68-50		0.00			0.00	99.99	N	MCC-1		
69-16		0.00			0.00	100.00	N	MCC-1		
70-55		0.00			0.00	100.00	N	MCC-1		
72-2		0.00			0.00	100.00	N	MCC-1		
73-1		0.00			0.00	100.00	N	MCC-1		
74-12		0.00			0.00	100.00	N	MCC-1		
75-26		0.41			7.28	98.42	N	MCC-1		
76-29		0.43			7.58	98.35	N	MCC-1		
77-25		0.00			0.00	100.01	N	MCC-1		
78-48		0.41			7.27	98.42	N	MCC-1		
79-43		0.18			3.19	99.32	N	MCC-1		
80-46		0.12			2.18	99.52	N	MCC-1		
81-34		0.17			2.99	99.35	N	MCC-1		
82-24		0.35			6.19	98.67	N	MCC-1		
83-8		0.00			0.00	100.00	N	MCC-1		
84-51		0.31			5.44	98.33	N	MCC-1		
85-16		0.00			0.00	100.00	N	MCC-1		
86-98		0.00			0.00	100.00	N	MCC-1		
87-86		0.12			2.11	99.54	N	MCC-1		
88-91		0.12			2.17	99.53	N	MCC-1		
89-77		0.00			0.00	100.00	N	MCC-1		
90-85		0.34			6.12	98.67	N	MCC-1		
91-89		0.22			3.83	99.18	N	MCC-1		
92-84		0.30			5.32	98.85	N	MCC-1		
93-81		0.27			4.76	98.98	N	MCC-1		
94-92		0.41			7.28	98.41	N	MCC-1		
95-90		0.22			3.88	99.16	N	MCC-1		
96-76		0.00			0.00	100.00	N	MCC-1		
97-82		0.37			6.51	99.99	N	MCC-1		
98-79		0.37			6.56	98.58	N	MCC-1		
99-78		0.21			3.79	99.18	N	MCC-1		

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
// -----LEACH TEST-----					-----LEACH TEST-----			
Glass Type	-- Comment --	SA/V (1/M)	Leachant Geologic Canister Water Type Media Material	REDOX (Eh)	Temperature Degrees C	Ph (Start)	Leachant Pretreatment	SiO2 (ppm)
50-5	Other is ThO2	10.0	DIW		90			
51-55	Other is ThO2	10.0	DIW		90			
52-42	Other is ThO2	10.0	DIW		90			
53-52	Other is ThO2	10.0	DIW		90			
54-72	Other is ThO2	10.0	DIW		90			
55-27	Other is ThO2	10.0	DIW		90			
56-68	Other is ThO2	10.0	DIW		90			
57-7	Other is ThO2	10.0	DIW		90			
58-39	Other is ThO2	10.0	DIW		90			
59-6	Other is ThO2	10.0	DIW		90			
60-20	Other is ThO2	10.0	DIW		90			
61-50	Other is ThO2	10.0	DIW		90			
62-54	Other is ThO2	10.0	DIW		90			
63-34	Other is ThO2	10.0	DIW		90			
64-28	Other is ThO2	10.0	DIW		90			
65-49	Other is ThO2	10.0	DIW		90			
67-75	Other is ThO2	10.0	DIW		90			
68-50	Other is ThO2	10.0	DIW		90			
69-16	Other is ThO2	10.0	DIW		90			
70-55	Other is ThO2	10.0	DIW		90			
72-2	Other is ThO2	10.0	DIW		90			
73-1	Other is ThO2	10.0	DIW		90			
74-12	Other is ThO2	10.0	DIW		90			
75-26	Other is ThO2	10.0	DIW		90			
76-29	Other is ThO2	10.0	DIW		90			
77-25	Other is ThO2	10.0	DIW		90			
78-48	Other is ThO2	10.0	DIW		90			
79-43	Other is ThO2	10.0	DIW		90			
80-46	Other is ThO2	10.0	DIW		90			
81-34	Other is ThO2	10.0	DIW		90			
82-24	Other is ThO2	10.0	DIW		90			
83-9	Other is ThO2	10.0	DIW		90			
84-51	Other is ThO2	10.0	DIW		90			
85-16	Other is ThO2	10.0	DIW		90			
86-88	Other is ThO2	10.0	DIW		90			
87-26	Other is ThO2	10.0	DIW		90			
88-91	Other is ThO2	10.0	DIW		90			
89-77	Other is ThO2	10.0	DIW		90			
90-85	Other is ThO2	10.0	DIW		90			
91-89	Other is ThO2	10.0	DIW		90			
92-84	Other is ThO2	10.0	DIW		90			
93-81	Other is ThO2	10.0	DIW		90			
94-92	Other is ThO2	10.0	DIW		90			
95-90	Other is ThO2	10.0	DIW		90			
96-76	Other is ThO2	10.0	DIW		90			
97-82	Other is ThO2	10.0	DIW		90			
98-79	Other is ThO2	10.0	DIW		90			
99-78	Other is ThO2	10.0	DIW		90			

BLUES	SHEET	VERSION 2	NOQUOTE	Sept. 97	Status	Report	MCC	CLASS		
*****							*****			
-----PRETEST LEACHMAN COMPOSITION-----\\							//---TEST RESULTS---			
Blues	Na	Cl	SO4	Mg	F	Duration	ph	Si	S	Na
Time	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)

50-7						7	8.70			
51-86						7	8.50			
52-40						7	10.10			
53-52						7	10.00			
54-72						7	8.70			
55-27						7	10.90			
56-68						7	8.30			
57-7						7	9.40			
58-39						7	7.40			
59-6						7	8.60			
60-20						7	8.30			
61-60						7	8.50			
62-34						7	8.70			
63-30						7	8.30			
64-28						7	7.80			
65-49						7	10.10			
67-75						7	11.60			
68-50						7	12.20			
69-16						7	10.20			
70-55						7	10.70			
72-2						7	12.10			
73-1						7	8.90			
74-12						7	11.70			
75-26						7	8.50			
76-29						7	8.80			
77-25						7	9.20			
78-48						7	8.10			
79-43						7	8.70			
80-46						7	8.30			
81-34						7	8.90			
82-24						7	10.50			
83-8						7	9.80			
84-51						7	8.10			
85-16						7	10.10			
86-98						7	11.20			
87-86						7	10.50			
88-91						7	10.20			
89-77						7	8.70			
90-55						7	8.30			
91-39						7	8.60			
92-34						7	8.60			
93-81						7	9.40			
94-92						7	8.60			
95-90						7	8.90			
96-76						7	11.00			
97-52						7	10.50			
98-79						7	10.60			
99-78						7	8.30			

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****				*****			
-----// -----FINAL LEACHATE COMPOSITION-----/-----							
Class	Li	Na	Ca	Si	U	Mo	Other
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)

50-5							6.90
51-56							11.10
52-42							50.50
53-52							21.50
54-72							36.10
55-27							107.90
56-49							6.00
57-7							17.00
58-39							15.00
59-6							1.80
60-20							19.50
61-50							27.50
62-54							45.10
63-54							27.20
64-28							59.10
65-49							19.30
67-75							82.10
68-50							107.80
69-16							24.90
70-55							247.00
72-2							235.50
73-1							14.60
74-12							116.80
75-26							22.10
76-29							92.00
77-25							34.70
78-49							15.20
79-43							52.20
80-46							25.70
81-54							27.10
82-54							1,009.80
83-8							183.70
84-51							74.10
85-15							21.90
86-39							10.70
87-96							38.70
88-91							56.20
89-77							4.60
90-85							19.30
91-89							5.90
92-84							20.50
93-81							87.50
94-92							15.30
95-80							4.30
96-76							50.10
97-82							58.30
98-79							12.80
99-78							17.00

BLANK	SHEET	VERSION 2	MOD	CLASS	DURABILITY	SPREAD SHEET

LEACH	VALUES	NORMALIZED			LEACH	VALUES
Is	Is	Is	Is	Is	Is	Other
Is	Is	Is	Is	Is	Is	Is

50-5						
51-55						
52-12						
53-52						
54-52						
55-27						
56-53						
57-7						
58-39						
59-6						
60-20						
61-50						
62-54						
63-54						
64-33						
65-49						
67-75						
68-50						
69-15						
70-55						
72-2						
73-1						
74-12						
75-26						
76-29						
77-25						
78-49						
79-47						
80-16						
81-34						
82-24						
83-5						
84-51						
85-14						
86-52						
87-55						
88-51						
89-77						
90-25						
91-59						
92-84						
93-51						
94-52						
95-50						
96-75						
97-52						
98-79						
99-72						

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31-81	PNL study for West Valley
31-82	PNL study for West Valley
31-83	PNL study for West Valley
32-81	PNL study for West Valley
33-81	PNL study for West Valley
34-81	PNL study for West Valley
35-81	PNL study for West Valley
36-81	PNL study for West Valley
37-81	PNL study for West Valley
38-81	PNL study for West Valley
39-81	PNL study for West Valley
40-81	PNL study for West Valley
41-81	PNL study for West Valley
42-81	PNL study for West Valley
43-81	PNL study for West Valley
44-81	PNL study for West Valley
45-81	PNL study for West Valley
46-81	PNL study for West Valley
47-81	PNL study for West Valley
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96-81	PNL study for West Valley
97-81	PNL study for West Valley
98-81	PNL study for West Valley
99-81	PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS
*****										*****
\--INDEX		// \--		GLASS COMPOSITION		WEIGHT	PERCENT		-----	
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	CaO2	Cr2O3	Cs2O	CuO	Fe2O3
CHICK-B4.	100-93	4.61	0.00		7.81		0.82	0.17		10.86
CHICK-B4.	101-B0	7.27	17.07		13.09		0.00	0.00		7.47
CHICK-B4.	102-87	11.65	16.89		0.19		1.37	0.28		0.00
CHICK-B4.	103-83	0.33	14.56		10.84		0.00	0.00		0.00
CHICK-B4.	1-9	1.02	0.00		0.39		0.00	0.00		20.43
CHICK-B4.	2-38	3.29	20.44		4.62		0.46	0.09		5.96
CHICK-B4.	3-15	1.34	0.00		0.31		1.56	0.32		20.86
CHICK-B4.	4-44	8.75	7.63		5.90		0.55	0.11		7.43
CHICK-B4.	5-40	3.46	6.31		5.08		0.59	0.12		6.20
CHICK-B4.	6-71	12.30	0.00		15.16		0.00	0.00		6.97
CHICK-B4.	7-34	4.51	8.41		6.25		0.61	0.12		8.10
CHICK-B4.	8-62	5.64	11.01		1.23		0.00	0.00		11.63
CHICK-B4.	9-3	8.14	0.00		0.00		0.00	0.00		17.19
CHICK-B4.	10-30	0.69	0.00		15.27		0.00	0.00		17.01
CHICK-B4.	11-57	4.40	9.11		0.21		1.52	0.31		0.00
CHICK-B4.	12-65	0.79	11.86		0.00		0.00	0.00		10.90
CHICK-B4.	13-60	0.92	8.98		2.25		0.79	0.16		13.48
CHICK-B4.	14-67	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-B4.	15-74	12.21	20.96		0.00		0.00	0.00		19.74
CHICK-B4.	16-58	1.01	7.17		15.15		0.00	0.00		21.21
CHICK-B4.	17-21	0.81	11.26		0.22		0.00	0.00		20.50
CHICK-B4.	18-69	12.83	0.00		0.30		1.56	0.32		0.00
CHICK-B4.	19-73	12.44	14.55		9.43		1.53	0.31		0.00
CHICK-B4.	20-22	1.04	0.00		0.39		0.80	0.16		20.85
CHICK-B4.	21-36	2.92	5.14		4.23		0.44	0.09		5.24
CHICK-B4.	22-27	8.27	19.92		7.46		0.00	0.00		0.00
CHICK-B4.	23-61	0.91	6.57		1.31		0.81	0.16		13.44
CHICK-B4.	24-41	4.98	9.16		0.60		0.73	0.15		9.06
CHICK-B4.	25-64	12.49	11.59		0.42		0.00	0.00		0.00
CHICK-B4.	26-10	0.64	19.31		0.20		0.00	0.00		6.80
CHICK-B4.	27-2	8.38	0.00		0.21		0.00	0.00		0.00
CHICK-B4.	28-45	5.64	9.77		7.93		0.68	0.14		0.00
CHICK-B4.	29-37	5.24	0.00		7.68		0.68	0.14		9.56
CHICK-B4.	30-14	8.80	0.00		15.48		1.58	0.32		0.00
CHICK-B4.	31-1	8.15	0.00		14.96		0.00	0.00		0.00
CHICK-B4.	32-70	12.55	19.83		0.21		1.51	0.31		0.00
CHICK-B4.	33-6	8.32	19.22		0.14		0.00	0.00		0.00
CHICK-B4.	34-18	8.47	19.92		0.20		1.51	0.31		0.00
CHICK-B4.	35-35	5.51	10.44		8.05		0.69	0.14		5.80
CHICK-B4.	36-19	8.98	0.00		0.26		0.00	0.00		20.31
CHICK-B4.	37-31	0.40	0.00		15.31		1.58	0.32		0.00
CHICK-B4.	38-53	0.64	0.00		0.17		0.38	0.08		4.27
CHICK-B4.	39-59	12.40	0.00		13.70		0.42	0.08		4.30
CHICK-B4.	40-47	5.07	9.54		7.75		0.00	0.00		7.74
CHICK-B4.	41-63	12.54	9.73		1.20		0.00	0.00		6.02
CHICK-B4.	42-34	4.46	8.10		6.33		0.57	0.12		8.00
CHICK-B4.	43-11	6.42	0.00		0.31		1.55	0.32		0.00
CHICK-B4.	44-23	0.90	0.00		0.16		1.55	0.31		11.51

GLASS	DURABILITY	SPREAD SHEET		VERSION 2		MCC		GLASS	DURABILITY

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----									
Glass Type	SiO2	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Na2O3 NiO
=====									
100-93		0.04			0.00			10.26	0.20 0.39
101-90		0.00			0.00			11.96	0.00 0.00
102-87		0.07			0.00			9.97	0.33 0.25
103-83		0.00			0.00			22.10	0.00 0.00
1-9		0.00			0.00			16.36	0.00 0.00
2-38		0.02			0.00			17.36	0.11 0.22
3-15		0.08			0.00			12.39	0.38 0.74
4-44		0.03			0.00			18.72	0.13 0.26
5-40		0.03			0.00			28.73	0.14 0.28
6-71		0.00			0.00			30.02	0.00 0.00
7-34		0.03			0.00			19.17	0.15 0.29
8-62		0.00			0.00			16.39	0.00 0.00
9-3		0.00			0.00			12.00	0.00 0.00
10-30		0.00			0.00			30.03	0.00 0.00
11-57		0.08			0.00			29.77	0.37 0.72
12-65		0.00			0.00			15.61	0.00 0.00
13-60		0.04			0.00			16.13	0.19 0.37
14-67		0.00			0.00			6.89	0.00 0.00
15-74		0.00			0.00			9.26	0.00 0.00
16-58		0.00			0.00			18.18	0.00 0.00
17-21		0.00			0.00			29.79	0.00 0.00
18-69		0.08			0.00			29.21	0.38 0.74
19-73		0.08			0.00			7.52	0.37 0.73
20-22		0.04			0.00			29.56	0.19 0.38
21-36		0.02			0.00			16.33	0.11 0.21
22-27		0.00			0.00			28.91	0.00 0.00
23-61		0.04			0.00			13.44	0.20 0.38
24-41		0.04			0.00			20.10	0.19 0.34
25-64		0.00			0.00			15.63	0.00 0.00
26-10		0.00			0.00			11.86	0.00 0.00
27-2		0.00			0.00			29.96	0.00 0.00
28-45		0.04			0.00			20.82	0.17 0.32
29-37		0.04			0.00			20.95	0.17 0.32
30-14		0.09			0.00			12.72	0.38 0.75
31-1		0.00			0.00			16.65	0.00 0.00
32-70		0.08			0.00			11.23	0.37 0.71
33-6		0.00			0.00			11.99	0.00 0.00
34-18		0.08			0.00			12.15	0.37 0.71
35-35		0.04			0.00			21.93	0.17 0.33
36-19		0.00			0.00			29.84	0.00 0.00
37-31		0.09			0.00			28.13	0.39 0.75
38-53		0.02			0.00			29.44	0.09 0.18
39-59		0.02			0.00			7.00	0.10 0.20
40-47		0.00			0.00			20.78	0.00 0.00
41-63		0.00			0.00			16.25	0.00 0.00
42-34		0.03			0.00			19.73	0.14 0.27
43-11		0.08			0.00			12.04	0.38 0.74
44-23		0.09			0.00			30.13	0.38 0.73

GLASS Type	SiO2 PERCENT	P2O5	PbO	PuO2	COMPOSITION RuO2	SiO2	SrO	TeO2	TiO2	UO2
100-93	0.39	3.01				55.41	0.17			1.27
101-80	0.00	0.00				43.14	0.00			0.00
102-87	0.65	5.04				42.76	0.28			2.13
103-83	0.00	0.00				52.16	0.00			0.00
1-9	0.00	0.00				61.79	0.00			0.00
2-38	0.22	1.69				42.12	0.09			0.71
3-15	0.74	5.74				43.98	0.32			2.43
4-44	0.26	2.02				44.16	0.11			0.85
5-40	0.28	2.18				42.20	0.12			0.92
6-71	0.00	0.00				35.55	0.00			0.00
7-34	0.29	2.24				45.32	0.12			0.95
8-62	0.00	0.00				54.10	0.00			0.00
9-3	0.00	0.00				62.67	0.00			0.00
10-30	0.00	0.00				37.00	0.00			0.00
11-57	0.72	5.58				35.99	0.31			2.36
12-65	0.00	0.00				60.83	0.00			0.00
13-60	0.37	2.90				47.57	0.16			1.23
14-67	0.00	0.00				62.50	0.00			0.00
15-74	0.00	0.00				37.84	0.00			0.00
16-58	0.00	0.00				37.27	0.00			0.00
17-21	0.00	0.00				37.42	0.00			0.00
18-69	0.74	5.73				36.58	0.32			2.42
19-73	0.73	5.64				35.33	0.31			2.38
20-22	0.38	2.92				37.40	0.16			1.24
21-36	0.21	1.61				60.20	0.09			0.68
22-27	0.00	0.00				35.55	0.00			0.00
23-61	0.38	2.99				53.55	0.16			1.26
24-41	0.34	2.67				46.28	0.15			1.13
25-64	0.00	0.00				59.88	0.00			0.00
26-10	0.00	0.00				61.20	0.00			0.00
27-2	0.00	0.00				61.45	0.00			0.00
28-45	0.32	2.51				47.21	0.14			1.06
29-37	0.32	2.51				47.35	0.14			1.06
30-14	0.75	5.80				41.67	0.32			2.45
31-1	0.00	0.00				60.25	0.00			0.00
32-70	0.71	5.55				35.77	0.31			2.35
33-6	0.00	0.00				60.43	0.00			0.00
34-18	0.71	5.53				38.92	0.31			2.34
35-35	0.33	2.54				38.94	0.14			1.07
36-19	0.00	0.00				40.62	0.00			0.00
37-31	0.75	5.82				34.78	0.32			2.46
38-53	0.18	1.39				60.38	0.08			0.59
39-59	0.20	1.53				56.99	0.08			0.65
40-47	0.00	0.00				47.12	0.00			0.00
41-63	0.00	0.00				54.26	0.00			0.00
42-34	0.27	2.09				45.69	0.12			0.88
43-11	0.74	5.71				60.22	0.32			2.42
44-23	0.73	5.70				36.34	0.31			2.41

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----//-----LEACH TEST-----					-----LEACH TEST-----			
Glass Type	-- Comment --->	SA/V (l/m)	Leachant Water Type	Geologic Canister Media Material	REDOX (Eh)	Temperature Degrees C	Ph (Start) Pretreatment	SiO2 (ppm)
100-97	Other is ThO2	10.0	DIW			90		
101-80	Other is ThO2	10.0	DIW			90		
102-37	Other is ThO2	10.0	DIW			90		
103-83	Other is ThO2	10.0	DIW			90		
1-9	Other is ThO2	10.0	DIW			150		
2-38	Other is ThO2	10.0	DIW			150		
3-15	Other is ThO2	10.0	DIW			150		
4-44	Other is ThO2	10.0	DIW			150		
5-40	Other is ThO2	10.0	DIW			150		
6-71	Other is ThO2	10.0	DIW			150		
7-34	Other is ThO2	10.0	DIW			150		
8-62	Other is ThO2	10.0	DIW			150		
9-3	Other is ThO2	10.0	DIW			150		
10-30	Other is ThO2	10.0	DIW			150		
11-57	Other is ThO2	10.0	DIW			150		
12-65	Other is ThO2	10.0	DIW			150		
13-60	Other is ThO2	10.0	DIW			150		
14-67	Other is ThO2	10.0	DIW			150		
15-74	Other is ThO2	10.0	DIW			150		
16-58	Other is ThO2	10.0	DIW			150		
17-21	Other is ThO2	10.0	DIW			150		
18-69	Other is ThO2	10.0	DIW			150		
19-73	Other is ThO2	10.0	DIW			150		
20-22	Other is ThO2	10.0	DIW			150		
21-36	Other is ThO2	10.0	DIW			150		
22-27	Other is ThO2	10.0	DIW			150		
23-61	Other is ThO2	10.0	DIW			150		
24-41	Other is ThO2	10.0	DIW			150		
25-64	Other is ThO2	10.0	DIW			150		
26-10	Other is ThO2	10.0	DIW			150		
27-2	Other is ThO2	10.0	DIW			150		
28-45	Other is ThO2	10.0	DIW			150		
29-37	Other is ThO2	10.0	DIW			150		
30-14	Other is ThO2	10.0	DIW			150		
31-1	Other is ThO2	10.0	DIW			150		
32-70	Other is ThO2	10.0	DIW			150		
33-6	Other is ThO2	10.0	DIW			150		
34-18	Other is ThO2	10.0	DIW			150		
35-35	Other is ThO2	10.0	DIW			150		
36-19	Other is ThO2	10.0	DIW			150		
37-31	Other is ThO2	10.0	DIW			150		
38-83	Other is ThO2	10.0	DIW			150		
39-59	Other is ThO2	10.0	DIW			150		
40-47	Other is ThO2	10.0	DIW			150		
41-63	Other is ThO2	10.0	DIW			150		
42-34	Other is ThO2	10.0	DIW			150		
43-11	Other is ThO2	10.0	DIW			150		
44-23	Other is ThO2	10.0	DIW			150		

SLAB	SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MCC	PLATE

-----PRETEST LEACHANT COMPOSITION-----\ /-----TEST RESULTS-----								
Slab	Na	Cl	SO4	Mg	F	Duration	pH	Si
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(E.C.)	(ppm)

10-51						7	8.30	
10-30						7	8.70	
10-87						7	8.00	
10-83						7	10.20	
1-9						7	8.90	
2-39						7	9.30	
3-15						7	7.60	
4-44						7	9.10	
5-40						7	12.10	
6-71						7	11.20	
7-34						7	9.50	
8-62						7	8.90	
9-3						7	7.80	
10-30						7	12.60	
11-57						7	11.70	
12-85						7	9.30	
13-90						7	8.50	
14-67						7	9.40	
15-74						7	8.20	
16-58						7	10.20	
17-21						7	12.00	
18-69						7	12.10	
19-73						7	8.20	
20-22						7	12.30	
21-36						7	8.60	
22-27						7	11.30	
23-61						7	9.40	
24-41						7	9.80	
25-64						7	8.20	
26-10						7	9.20	
27-2						7	12.20	
28-45						7	10.00	
29-37						7	10.30	
30-14						7	10.00	
31-1						7	10.10	
32-76						7	8.20	
33-6						7		
34-18						7	8.70	
35-35						7	10.10	
36-19						7	12.30	
37-31						7	12.10	
38-53						7	11.50	
39-59						7	9.50	
40-47						7	10.00	
41-63						7	8.70	
42-34						7	9.20	
43-11						7	7.30	
44-23						7	12.00	

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCD	GLASS	DURABILITY	SPREAD
*****				*****			
// -----FINAL LEACHATE COMPOSITION-----				/ \-----NORMALIZED			
Glass Type	Li (ppm)	V (ppm)	Fe (ppm)	Br (ppm)	V (ppm)	Fe (ppm)	Other (ppm)
10-87							7.33
101-80							33.30
102-87							1.50
103-83							104.90
1-9							31.50
2-38							300.50
3-15							49.00
4-44							83.10
5-40							736.10
6-71							71.50
7-34							118.20
8-62							118.20
9-7							13.10
10-30							352.30
11-87							118.20
12-85							177.30
13-80							103.70
14-87							110.50
15-74							111.30
16-58							12.10
17-81							503.50
18-49							575.30
19-73							71.30
20-82							571.50
21-36							100.20
22-27							328.50
23-61							140.10
24-41							161.20
25-84							19.60
26-10							509.10
27-0							380.30
28-18							84.70
29-37							77.10
30-14							38.00
31-1							37.10
32-70							127.30
33-6							
34-12							111.70
35-88							103.30
36-18							513.50
37-81							1,049.00
38-83							1,545.10
39-89							41.50
40-47							89.70
41-63							70.10
42-76							112.50
43-11							11.50
44-23							597.30

GLASS	SHEET	VERSION 2	WCC	GLASS	DURABILITY	SPREAD SHEET	

CLASS	LEACH	VALUES			NORMALIZED	LEACH	VALUES
Type	Na	Li	Y	Ca	Sc	L	Other
	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)
=====							
100-PT							
101-30							
102-27							
103-53							
1-9							
2-38							
3-15							
4-44							
5-40							
6-71							
7-34							
8-42							
9-3							
10-30							
11-57							
12-55							
13-50							
14-67							
15-74							
16-38							
17-21							
18-69							
19-73							
20-22							
21-36							
22-27							
23-41							
24-41							
25-54							
26-16							
27-2							
28-45							
29-37							
30-14							
31-1							
32-70							
33-5							
34-18							
35-35							
36-19							
37-31							
38-53							
39-39							
40-47							
41-53							
42-34							
43-11							
44-23							

Class Comment -----

7,00

10-87	PML study for West Valley
101-89	PML study for West Valley
102-87	PML study for West Valley
103-83	PML study for West Valley
1-8	PML study for West Valley
2-88	PML study for West Valley
3-15	PML study for West Valley
4-44	PML study for West Valley
5-40	PML study for West Valley
6-71	PML study for West Valley
7-34	PML study for West Valley
8-62	PML study for West Valley
8-3	PML study for West Valley
10-30	PML study for West Valley
11-37	PML study for West Valley
12-15	PML study for West Valley
13-50	PML study for West Valley
14-57	PML study for West Valley
15-74	PML study for West Valley
16-58	PML study for West Valley
17-21	PML study for West Valley
18-69	PML study for West Valley
19-72	PML study for West Valley
20-22	PML study for West Valley
21-36	PML study for West Valley
22-27	PML study for West Valley
23-61	PML study for West Valley
24-41	PML study for West Valley
25-14	PML study for West Valley
26-10	PML study for West Valley
27-2	PML study for West Valley
28-65	PML study for West Valley
29-37	PML study for West Valley
30-14	PML study for West Valley
31-1	PML study for West Valley
32-70	PML study for West Valley
33-1	PML study for West Valley
34-18	PML study for West Valley
35-35	PML study for West Valley
36-19	PML study for West Valley
37-31	PML study for West Valley
38-52	PML study for West Valley
39-59	PML study for West Valley
40-47	PML study for West Valley
41-63	PML study for West Valley
42-74	PML study for West Valley
43-11	PML study for West Valley
44-22	PML study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX-----// \\		-----GLASS COMPOSITION WEIGHT PERCENT-----								
Reference Code	Glass Type	Al2O3	SiO2	BaO	CaO	CeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-84.	45-17	8.25	0.00		0.07		1.57	0.32		0.00
CHICK-84.	46-56	9.13	0.00		8.10		0.99	0.20		20.20
CHICK-84.	47-4	0.41	6.01		0.15		1.45	0.29		0.00
CHICK-84.	48-32	8.18	0.00		0.40		1.45	0.29		17.49
CHICK-84.	49-13	0.29	20.05		15.11		0.00	0.00		0.00
CHICK-84.	50-5	1.04	0.00		0.13		1.49	0.30		0.00
CHICK-84.	51-66	5.63	10.31		0.53		0.27	0.06		4.73
CHICK-84.	52-42	3.65	6.57		15.11		0.45	0.09		6.46
CHICK-84.	53-52	0.64	0.00		14.89		0.48	0.10		5.57
CHICK-84.	54-72	12.08	19.74		15.11		0.00	0.00		0.00
CHICK-84.	55-27	8.17	19.62		7.07		0.00	0.00		0.00
CHICK-84.	56-68	0.83	0.00		10.94		1.63	0.33		0.00
CHICK-84.	57-7	1.11	0.00		4.23		0.00	0.00		20.02
CHICK-84.	58-39	5.24	9.29		7.09		0.66	0.13		9.19
CHICK-84.	59-6	8.32	19.45		0.16		0.00	0.00		0.00
CHICK-84.	60-20	8.48	23.56		0.24		0.00	0.00		19.43
CHICK-84.	61-60	1.01	8.91		2.46		0.84	0.17		12.91
CHICK-84.	62-54	4.38	20.04		15.45		0.91	0.18		0.00
CHICK-84.	63-34	4.42	8.02		6.27		0.61	0.12		7.92
CHICK-84.	64-28	0.85	19.97		9.18		0.00	0.00		20.17
CHICK-84.	65-49	0.95	0.00		15.45		1.19	0.24		17.13
CHICK-84.	67-75	12.82	0.00		0.19		0.00	0.00		19.68
CHICK-84.	68-50	0.98	8.59		0.40		0.00	0.00		20.63
CHICK-84.	69-16	8.96	0.00		15.68		0.00	0.00		20.37
CHICK-84.	70-55	4.52	19.77		0.25		0.00	0.00		9.33
CHICK-84.	72-2	8.36	0.00		0.33		0.00	0.00		0.00
CHICK-84.	73-1	8.30	0.00		15.30		0.00	0.00		1.10
CHICK-84.	74-12	0.38	0.00		14.92		0.00	0.00		0.00
CHICK-84.	75-26	8.54	8.30		15.02		1.52	0.31		0.00
CHICK-84.	76-29	0.46	19.25		11.12		1.58	0.32		0.00
CHICK-84.	77-25	8.45	19.76		15.48		0.00	0.00		8.45
CHICK-84.	78-48	3.50	5.77		4.33		1.52	0.31		5.66
CHICK-84.	79-43	0.77	8.70		6.86		0.66	0.13		8.49
CHICK-84.	80-46	3.59	5.53		4.30		0.45	0.09		19.98
CHICK-84.	81-34	4.42	8.02		6.37		0.62	0.13		7.91
CHICK-84.	82-24	0.34	19.09		0.00		1.29	0.26		0.00
CHICK-84.	83-8	0.44	19.47		0.25		0.00	0.00		0.00
CHICK-84.	84-51	0.93	19.74		0.20		1.13	0.23		14.90
CHICK-84.	85-16	8.83	0.00		15.84		0.00	0.00		20.00
CHICK-84.	86-88	12.22	0.00		0.10		0.00	0.00		0.00
CHICK-84.	87-86	7.91	0.00		13.84		0.44	0.09		4.62
CHICK-84.	88-91	0.50	5.92		15.17		0.45	0.09		2.56
CHICK-84.	89-77	8.00	16.66		0.16		0.00	0.00		17.98
CHICK-84.	90-85	0.70	0.00		12.28		1.28	0.26		12.64
CHICK-84.	91-89	12.46	9.61		0.19		0.80	0.16		10.14
CHICK-84.	92-84	3.64	6.73		5.12		1.11	0.22		5.64
CHICK-84.	93-81	0.31	17.49		8.38		0.99	0.20		0.00
CHICK-84.	94-92	3.44	5.97		0.25		1.52	0.31		0.00

GLASS	DURABILITY	SPREAD SHEET				VERSION 2		MCC	GLASS	DURABILITY

-----// -----GLASS COMPOSITION WEIGHT PERCENT-----GLASS COMPOSITION WEIGHT PERCENT-----										
Glass	Ba2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	Wt%
Type										
=====										
45-17		0.09			0.00			29.34	0.38	0.74
46-56		0.05			0.00			12.31	0.24	0.47
47-4		0.08			0.00			13.28	0.35	0.69
48-32		0.08			0.00			10.97	0.35	0.69
49-13		0.00			0.00			12.80	0.00	0.00
50-5		0.08			0.00			18.16	0.36	0.70
51-66		0.01			0.00			14.54	0.07	0.13
52-42		0.02			0.00			18.14	0.11	0.21
53-52		0.03			0.00			12.05	0.12	0.23
54-72		0.00			0.00			18.33	0.00	0.00
55-27		0.00			0.00			30.38	0.00	0.00
56-68		0.09			0.00			7.33	0.40	0.77
57-7		0.00			0.00			12.27	0.00	0.00
58-39		0.04			0.00			12.37	0.16	0.31
59-6		0.00			0.00			11.93	0.00	0.00
60-20		0.00			0.00			11.72	0.00	0.00
61-60		0.05			0.00			16.29	0.20	0.40
62-54		0.05			0.00			12.32	0.22	0.43
63-34		0.03			0.00			19.84	0.15	0.28
64-28		0.00			0.00			12.51	0.00	0.00
65-49		0.06			0.00			12.51	0.29	0.58
67-75		0.00			0.00			30.48	0.00	0.00
68-50		0.00			0.00			6.29	0.00	0.00
69-16		0.00			0.00			12.73	0.00	0.00
70-55		0.00			0.00			31.01	0.00	0.00
72-2		0.00			0.00			30.84	0.00	0.00
73-1		0.00			0.00			17.40	0.00	0.00
74-12		0.00			0.00			30.34	0.00	0.00
75-26		0.08			0.00			12.29	0.37	0.72
76-29		0.09			0.00			12.21	0.38	0.75
77-25		0.00			0.00			12.53	0.00	0.00
78-48		0.08			0.00			17.92	0.37	0.72
79-43		0.04			0.00			20.77	0.16	0.31
80-46		0.02			0.00			17.42	0.11	0.21
81-34		0.03			0.00			19.63	0.15	0.29
82-24		0.07			0.00			29.33	0.31	0.61
83-8		0.00			0.00			21.03	0.00	0.00
84-51		0.06			0.00			12.34	0.28	0.54
85-16		0.00			0.00			12.59	0.00	0.00
86-88		0.00			0.00			26.68	0.00	0.00
87-84		0.02			0.00			28.11	0.11	0.21
88-91		0.02			0.00			18.19	0.11	0.21
89-77		0.00			0.00			12.19	0.00	0.00
90-85		0.07			0.00			12.18	0.31	0.60
91-89		0.04			0.00			15.13	0.19	0.39
92-84		0.06			0.00			18.71	0.27	0.52
93-81		0.05			0.00			12.88	0.24	0.47
94-92		0.08			0.00			18.75	0.37	0.72

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	NOQUOTE	Sept. 87	Status	Report	MOG
*****								*****
GLASS	PERCENT	PERCENT	PERCENT	GLASS	COMPOSITION	WEIGHT	PERCENT	PERCENT
Glass	SiO2	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2
Type								TiO2
								UO2
45-17	0.74	5.77				40.63	0.32	2.44
46-56	0.47	3.63				38.92	0.20	1.53
47-4	0.69	5.33				60.55	0.29	2.25
48-32	0.69	5.33				43.36	0.29	2.25
49-13	0.00	0.00				51.74	0.00	0.00
50-5	0.70	5.48				60.53	0.30	2.32
51-66	0.13	1.00				60.57	0.06	0.42
52-42	0.21	1.66				43.99	0.09	0.70
53-52	0.23	1.77				60.36	0.10	0.75
54-72	0.00	0.00				34.74	0.00	0.00
55-27	0.00	0.00				34.76	0.00	0.00
56-68	0.77	5.97				58.94	0.33	2.53
57-7	0.00	0.00				62.37	0.00	0.00
58-39	0.31	2.44				47.85	0.13	1.03
59-6	0.00	0.00				60.14	0.00	0.00
60-20	0.00	0.00				36.57	0.00	0.00
61-60	0.40	3.09				47.14	0.17	1.31
62-54	0.43	3.35				35.49	0.18	1.42
63-34	0.29	2.25				45.24	0.12	0.95
64-28	0.00	0.00				37.32	0.00	0.00
65-49	0.56	4.38				37.84	0.24	1.85
67-75	0.00	0.00				36.84	0.00	0.00
68-50	0.00	0.00				62.50	0.00	0.00
69-16	0.00	0.00				42.26	0.00	0.00
70-55	0.00	0.00				35.12	0.00	0.00
72-2	0.00	0.00				60.47	0.00	0.00
73-1	0.00	0.00				59.00	0.00	0.00
74-12	0.00	0.00				54.36	0.00	0.00
75-26	0.72	5.58				35.33	0.31	2.36
76-29	0.75	5.81				35.59	0.32	2.46
77-25	0.00	0.00				35.34	0.00	0.00
78-48	0.72	5.57				42.33	0.31	2.36
79-43	0.31	2.44				45.44	0.13	1.03
80-46	0.21	1.67				43.03	0.09	0.71
81-34	0.29	2.29				45.23	0.13	0.97
82-24	0.61	4.74				33.81	0.26	2.01
83-8	0.00	0.00				58.81	0.00	0.00
84-51	0.54	4.16				36.59	0.23	1.76
85-16	0.00	0.00				42.74	0.00	0.00
86-88	0.00	0.00				61.00	0.00	0.00
87-86	0.21	1.61				39.59	0.09	0.68
88-91	0.21	1.66				51.54	0.09	0.70
89-77	0.00	0.00				45.01	0.00	0.00
90-85	0.60	4.69				44.97	0.26	1.98
91-89	0.38	2.93				41.70	0.16	1.24
92-84	0.52	4.08				44.17	0.22	1.72
93-81	0.47	3.65				47.54	0.20	1.54
94-92	0.72	5.58				51.17	0.31	2.36

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

-----//	---GLASS	COMPOSITION	WEIGHT	PERCENT	-----// \\\				
Glass	InQ	2r02	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (Y/N)	Type	
=====									
45-17		0.42			7.53	98.36	N	MCC-1	
46-56		0.27			4.73	98.96	N	MCC-1	
47-4		0.39			6.96	98.49	N	MCC-1	
48-32		0.39			6.95	98.48	N	MCC-2	
49-13		0.00			0.00	99.99	N	MCC-1	
50-5		0.40			7.15	98.45	N	MCC-2	
51-66		0.07			1.31	99.71	N	MCC-2	
52-42		0.12			2.16	99.54	N	MCC-2	
53-52		0.13			2.30	99.50	N	MCC-2	
54-72		0.00			0.00	100.00	N	MCC-2	
55-27		0.00			0.00	100.00	N	MCC-2	
56-68		0.44			7.80	98.31	N	MCC-2	
57-7		0.00			0.00	100.00	N	MCC-2	
58-39		0.18			3.18	99.31	N	MCC-2	
59-6		0.00			0.00	100.00	N	MCC-1	
60-20		0.00			0.00	100.00	N	MCC-2	
61-60		0.23			4.04	99.11	N	MCC-1	
62-54		0.25			4.37	99.05	N	MCC-2	
63-34		0.17			2.94	99.36	N	MCC-1	
64-28		0.00			0.00	100.00	N	MCC-1	
65-49		0.32			5.72	98.76	N	MCC-1	
67-75		0.00			0.00	100.01	N	MCC-1	
68-50		0.00			0.00	99.99	N	MCC-1	
69-16		0.00			0.00	100.00	N	MCC-1	
70-55		0.00			0.00	100.00	N	MCC-1	
72-2		0.00			0.00	100.00	N	MCC-1	
73-1		0.00			0.00	100.00	N	MCC-1	
74-12		0.00			0.00	100.00	N	MCC-1	
75-26		0.41			7.28	98.42	N	MCC-1	
76-29		0.43			7.58	98.35	N	MCC-1	
77-25		0.00			0.00	100.01	N	MCC-1	
78-48		0.41			7.27	98.42	N	MCC-1	
79-43		0.18			3.19	99.32	N	MCC-1	
80-46		0.12			2.18	99.52	N	MCC-1	
81-34		0.17			2.99	99.35	N	MCC-1	
82-24		0.35			6.19	98.67	N	MCC-1	
83-8		0.00			0.00	100.00	N	MCC-1	
84-51		0.31			5.44	98.93	N	MCC-1	
85-16		0.00			0.00	100.00	N	MCC-1	
86-88		0.00			0.00	100.00	N	MCC-1	
87-86		0.12			2.11	99.54	N	MCC-1	
88-91		0.12			2.17	99.53	N	MCC-1	
89-77		0.00			0.00	100.00	N	MCC-1	
90-85		0.34			6.12	98.67	N	MCC-1	
91-89		0.22			3.83	99.18	N	MCC-1	
92-84		0.30			5.32	98.85	N	MCC-1	
93-81		0.27			4.76	98.98	N	MCC-1	
94-92		0.41			7.28	98.41	N	MCC-1	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Biologic	Canister	REDOX	Temperature	pH	Leachant
Type	-- Comment --	(1/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
45-17	Other is ThO2	10.0	DIW				150	
46-56	Other is ThO2	10.0	DIW				150	
47-4	Other is ThO2	10.0	DIW				150	
48-32	Other is ThO2	10.0	DIW				150	
49-13	Other is ThO2	10.0	DIW				150	
50-5	Other is ThO2	10.0	DIW				150	
51-66	Other is ThO2	10.0	DIW				150	
52-42	Other is ThO2	10.0	DIW				150	
53-52	Other is ThO2	10.0	DIW				150	
54-72	Other is ThO2	10.0	DIW				150	
55-27	Other is ThO2	10.0	DIW				150	
56-68	Other is ThO2	10.0	DIW				150	
57-7	Other is ThO2	10.0	DIW				150	
58-39	Other is ThO2	10.0	DIW				150	
59-6	Other is ThO2	10.0	DIW				150	
60-20	Other is ThO2	10.0	DIW				150	
61-60	Other is ThO2	10.0	DIW				150	
62-54	Other is ThO2	10.0	DIW				150	
63-34	Other is ThO2	10.0	DIW				150	
64-28	Other is ThO2	10.0	DIW				150	
65-49	Other is ThO2	10.0	DIW				150	
67-75	Other is ThO2	10.0	DIW				150	
68-50	Other is ThO2	10.0	DIW				150	
69-16	Other is ThO2	10.0	DIW				150	
70-55	Other is ThO2	10.0	DIW				150	
72-2	Other is ThO2	10.0	DIW				150	
73-1	Other is ThO2	10.0	DIW				150	
74-12	Other is ThO2	10.0	DIW				150	
75-26	Other is ThO2	10.0	DIW				150	
76-29	Other is ThO2	10.0	DIW				150	
77-25	Other is ThO2	10.0	DIW				150	
78-48	Other is ThO2	10.0	DIW				150	
79-43	Other is ThO2	10.0	DIW				150	
80-46	Other is ThO2	10.0	DIW				150	
81-34	Other is ThO2	10.0	DIW				150	
82-24	Other is ThO2	10.0	DIW				150	
83-8	Other is ThO2	10.0	DIW				150	
84-51	Other is ThO2	10.0	DIW				150	
85-16	Other is ThO2	10.0	DIW				150	
86-88	Other is ThO2	10.0	DIW				150	
87-86	Other is ThO2	10.0	DIW				150	
88-91	Other is ThO2	10.0	DIW				150	
89-77	Other is ThO2	10.0	DIW				150	
90-85	Other is ThO2	10.0	DIW				150	
91-89	Other is ThO2	10.0	DIW				150	
92-84	Other is ThO2	10.0	DIW				150	
93-81	Other is ThO2	10.0	DIW				150	
94-92	Other is ThO2	10.0	DIW				150	

CLASS	SHEET	VERSION 1	NOQUOTE	Sept. 97	Status	Report	MCC	CLASS		
*****							*****			
//-----PRETEST LEACHANT COMPOSITION-----//-----TEST RESULTS-----										
Class	Na	Cl	SO4	Mg	F	Duration	pH	Si	B	Na
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	(End)	(ppm)	(ppm)	(ppm)

45-17						7	12.00			
46-06						7	9.50			
47-1						7	7.50			
48-22						7	8.20			
49-13						7	9.50			
50-8						7	9.90			
51-66						7	9.30			
52-42						7	10.20			
53-52						7	10.90			
54-72						7	9.70			
55-37						7	11.70			
56-68						7	9.10			
57-7						7	8.80			
58-39						7	8.70			
59-6						7	8.40			
60-20						7	8.50			
61-60						7	7.80			
62-54						7	9.50			
63-34						7	10.10			
64-28						7	9.50			
65-49						7	10.10			
67-75						7	12.20			
68-50						7	12.30			
69-16						7	10.10			
70-55						7	11.20			
72-2						7	12.00			
73-1						7	10.20			
74-12						7	12.20			
75-26						7	9.20			
76-29						7	9.30			
77-25						7	9.30			
78-48						7	9.70			
79-43						7	10.20			
80-46						7	10.30			
81-34						7	11.80			
82-24						7	10.50			
83-9						7	8.90			
84-51						7	8.00			
85-14						7	10.20			
86-68						7	12.10			
87-86						7	11.50			
88-91						7	10.70			
89-77						7	8.80			
90-25						7	9.80			
91-89						7	8.30			
92-94						7	10.90			
93-21						7	7.50			
94-32						7	10.90			

CLASS	DURABILITY		SPREAD SHEET		VERSION 2		MCC	CLASS	DURABILITY	SPREAD

-----//-----FINAL LEACHATE COMPOSITION-----//-----NORMALIZED										
Class	Li	Na	Ca	Mg	K	Mn	Other	Si	P	
(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(% of)	(% of)	

45-17								793.11		
46-76								65.70		
47-1								17.50		
48-22								36.00		
49-13								138.20		
50-5								59.40		
51-66								32.50		
52-42								63.70		
53-52								78.00		
54-72								80.40		
55-27								284.10		
56-68								67.60		
57-7								121.00		
58-39										
59-6								17.30		
60-20								152.50		
61-60								214.70		
62-54								91.90		
63-34								106.10		
64-28								94.90		
65-49								49.70		
67-75								586.30		
68-50								315.00		
69-16								51.50		
70-55								385.30		
72-2								719.30		
73-1								61.70		
74-12								610.20		
75-26								11.00		
76-29								237.60		
77-25								65.40		
78-48								97.30		
79-13								270.50		
80-46								160.30		
81-74								110.30		
82-24								1,465.00		
83-8								1,217.00		
84-51								415.20		
85-16								50.00		
86-89								385.00		
87-86								55.40		
88-91								102.30		
89-77								15.70		
90-85								50.90		
91-89								58.60		
92-84								177.10		
93-31								261.20		
94-92								55.80		

GLASS	SHEET	VERSION 2	MO	GLASS	DURABILITY	SPREAD SHEET
*****			*****			
-----/	LEACH	VALUES	-----			
GLASS	Na	Li	K	Ca	Br	U
Type	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)	(g/m2)

45-17						
46-56						
47-4						
48-32						
49-13						
50-5						
51-66						
52-42						
53-32						
54-72						
55-27						
56-68						
57-7						
58-39						
59-6						
60-30						
61-60						
62-34						
63-34						
64-28						
65-49						
67-75						
68-50						
69-16						
70-55						
72-2						
73-1						
74-12						
75-26						
76-29						
77-25						
78-48						
79-43						
80-46						
81-34						
82-34						
87-8						
84-51						
85-16						
86-88						
87-86						
88-91						
89-77						
90-65						
91-89						
92-34						
93-31						
94-72						

-----/

Class /----- Comments -----

Type

45-17	PNL study for West Valley
46-35	PNL study for West Valley
47-4	PNL study for West Valley
48-32	PNL study for West Valley
49-13	PNL study for West Valley
50-5	PNL study for West Valley
51-66	PNL study for West Valley
52-42	PNL study for West Valley
53-52	PNL study for West Valley
54-72	PNL study for West Valley
55-37	PNL study for West Valley
56-32	PNL study for West Valley
57-7	PNL study for West Valley
58-39	PNL study for West Valley
59-4	PNL study for West Valley
60-20	PNL study for West Valley
61-61	PNL study for West Valley
62-54	PNL study for West Valley
63-54	PNL study for West Valley
64-28	PNL study for West Valley
65-49	PNL study for West Valley
67-75	PNL study for West Valley
68-50	PNL study for West Valley
69-15	PNL study for West Valley
70-55	PNL study for West Valley
72-2	PNL study for West Valley
73-1	PNL study for West Valley
74-12	PNL study for West Valley
75-26	PNL study for West Valley
76-29	PNL study for West Valley
77-25	PNL study for West Valley
78-39	PNL study for West Valley
79-43	PNL study for West Valley
80-46	PNL study for West Valley
81-34	PNL study for West Valley
82-24	PNL study for West Valley
83-8	PNL study for West Valley
84-31	PNL study for West Valley
85-16	PNL study for West Valley
86-58	PNL study for West Valley
87-26	PNL study for West Valley
88-31	PNL study for West Valley
89-77	PNL study for West Valley
90-35	PNL study for West Valley
91-29	PNL study for West Valley
92-34	PNL study for West Valley
93-31	PNL study for West Valley
94-32	PNL study for West Valley

NOQUOTE	MCC	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	Sept. 87	Status	Report	MCC	GLASS

\\-----INDEX -----// \\-----GLASS COMPOSITION WEIGHT PERCENT-----										
Reference Code	Glass Type	Al2O3	B2O3	BaO	CaO	GeO2	Cr2O3	Cs2O	CuO	Fe2O3
=====										
CHICK-84.	95-90	12.81	0.00		9.97		0.81	0.16		10.27
CHICK-84.	96-76	0.32	0.00		12.97		0.00	0.00		0.00
CHICK-84.	97-82	0.27	0.00		11.76		1.36	0.27		0.00
CHICK-84.	98-79	0.61	0.00		0.44		1.37	0.28		9.64
CHICK-84.	99-78	0.92	0.00		12.17		0.79	0.16		14.54
CHICK-84.	100-93	4.61	0.00		7.81		0.82	0.17		10.86
CHICK-84.	101-80	7.27	17.07		13.09		0.00	0.00		7.47
CHICK-84.	102-87	11.65	16.89		0.19		1.37	0.28		0.00
CHICK-84.	103-83	0.33	14.56		10.84		0.00	0.00		0.00

GLASS DURABILITY SPREAD SHEET VERSION 2							MCC GLASS DURABILITY			
*****							*****			
-----// -----GLASS COMPOSITION WEIGHT PERCENT-----							-----GLASS COMPOSITION WEIGHT PERCENT---			
Glass Type	Gd2O3	K2O	La2O3	Li2O	MgO	MnO2	MoO3	Na2O	Nd2O3	NiO
=====										
95-90		0.04			0.00			15.25	0.20	0.32
96-76		0.00			0.00			26.54	0.00	0.00
97-82		0.07			0.00			22.70	0.33	0.64
98-79		0.07			0.00			26.58	0.33	0.65
99-78		0.04			0.00			12.79	0.19	0.37
100-93		0.04			0.00			10.26	0.20	0.39
101-80		0.00			0.00			11.96	0.00	0.00
102-87		0.07			0.00			9.97	0.33	0.65
103-83		0.00						22.10	0.00	0.00

// PERCENT-----				GLASS COMPOSITION WEIGHT PERCENT-----						
Glass Type	KiO	P2O5	PbO	PuO2	RuO2	SiO2	SrO	TeO2	TiO2	UO2
95-90	0.38	2.97				40.77	0.16			1.26
96-76	0.00	0.00				60.17	0.00			0.00
97-82	0.64	4.99				48.34	0.27			2.11
98-79	0.55	5.03				44.24	0.28			2.13
99-78	0.37	2.91				48.89	0.16			1.23
100-93	0.39	3.01				55.41	0.17			1.27
101-80	0.00	0.00				43.14	0.00			0.00
102-87	0.65	5.04				42.76	0.28			2.13
103-83	0.00	0.00				52.16	0.00			0.00

GLASS	GLASS	DURABILITY	SPREAD SHEET		VERSION 2			MCC	

-----// ---GLASS COMPOSITION WEIGHT PERCENT-----// \---									
Glass	In0	Ir02	General Rare	General Fission	Listed Other	TOTAL	Radioactive	Test	
Type			Earth Oxides	Product Oxides			Glass (W/W)	Type	
=====									
95-90		0.22			3.58	99.16	N	MCC-1	
96-76		0.00			0.00	100.00	N	MCC-1	
97-82		0.37			6.51	99.99	N	MCC-2	
98-79		0.37			6.56	98.58	N	MCC-2	
99-78		0.21			3.79	99.18	N	MCC-2	
100-93		0.22			3.93	99.16	N	MCC-2	
101-80		0.00			0.00	100.00	N	MCC-2	
102-87		0.37			6.58	98.56	N	MCC-2	
103-83		0.00			0.00	99.99	N	MCC-2	

GLASS	GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD
*****					*****			
-----LEACH TEST-----					-----LEACH TEST-----			
Glass	SA/V	Leachant	Geologic	Canister	REDOX	Temperature	Ph	Leachant
Type	-- Comment -->	(l/M)	Water Type	Media	Material	(Eh)	Degrees C	(Start) Pretreatment
								SiO2
								(ppm)
95-96	Other is ThO2	10.0	DIW				150	
96-96	Other is ThO2	10.0	DIW				150	
97-92	Other is ThO2	10.0	DIW				150	
98-79	Other is ThO2	10.0	DIW				150	
99-78	Other is ThO2	10.0	DIW				150	
100-93	Other is ThO2	10.0	DIW				150	
101-90	Other is ThO2	10.0	DIW				150	
102-87	Other is ThO2	10.0	DIW				150	
103-83	Other is ThO2	10.0	DIW				150	

GLASS	SHEET	VERSION 2	NOOQUTE	Sept. 87	Status	Report	NOO	GLASS

-----//-----PRETEST LEACHANT COMPOSITION-----\\-----TEST RESULTS-----								
Glass	Na	Si	BOH	Mg	F	Duration	pH	Si
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(Days)	End	(ppm)
=====								
85-86						7	9.40	
86-86						7	10.10	
87-82						7	10.70	
88-79						7	11.20	
89-78						7	9.80	
100-93						7	9.50	
101-80						7	9.70	
102-87						7	8.30	
103-83						7	10.00	

GLASS	DURABILITY	SPREAD SHEET	VERSION 2	MCC	GLASS	DURABILITY	SPREAD		

-----//-----FINAL LEACHATE COMPOSITION-----/----- (CONTINUED)									
Glass	Li	K	Ca	Sr	B	Na	Other	Si	P
Type	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(g/m ²)	(g/m ²)
=====								=====	
95-99								74.30	
96-99								592.10	
97-99								198.00	
98-99								241.30	
99-99								52.70	
100-93								57.90	
101-90								56.70	
102-87								57.30	
103-83								219.70	

CLASS	SHEET	VERSION 2	MOD	CLASS	DURABILITY	SPREAD SHEET
-----//	LEACH	VALUES			NORMALIZED	LEACH
Element	Na	Li	K	Ca	Br	U
1-13	g/gm	g/gm	g/gm	g/gm	g/gm	g/gm
90-91						
92-93						
94-95						
96-97						
98-99						
100-93						
101-90						
102-97						
103-93						

PLAGE VERSION 2

Class -----

File

95-96	PML study for West Valley
96-97	PML study for West Valley
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98-99	PML study for West Valley
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