Major oxide, trace element, and glass chemistry pertinent to regional correlation of Grande Ronde Basalt flows, Columbia River Basalt Group, Washington

Margaret T. Mangan
Thomas L. Wright
Donald A. Swanson
Gary R. Byerly*

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* Department of Geology, Louisiana State University, Baton Rouge, Louisiana 70808

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INTRODUCTION

Data pertinent to a regional flow correlation study in the Grande Ronde Basalt are presented in this report. It is designed to supplement Mangan and others (in preparation) in which the correlations are used to identify and characterize individual eruptive events occurring during Grande Ronde time.

The flood basalts of the Columbia River Basalt Group cover over 200,000 km^2 of Washington, Oregon and Idaho. An estimated 300,000 km^3 or more (Reidel and others, 1982) of tholeiitic basalt erupted over a period of 11 m.y. beginning about 17 m.y. ago and covered the province to a depth of approximately 1 km.

The Grande Ronde Basalt which is the most voluminous formation within the Columbia River Group, consists of four magnetostratigraphic units designated N_2, R_2, N_1, R_1 from youngest to oldest. These magnetostratigraphic units consist of numerous flows and provide the broad stratigraphic framework for the Grande Ronde Basalt (Swanson and others, 1979). The regional extent of individual flows within the magnetostratigraphic units is not easily determined, as nearly all flows are aphryic and fine-grained with no distinctive field or petrographic characteristics. We have found that major element chemistry combined with relative stratigraphic position within magnetostratigraphic units form the only reliable basis for correlating Grande Ronde flows on a regional scale.

Most Grande Ronde flows fall into one of five major chemical groupings (referred to as regional chemical types 1 through 5) which are distinguished primarily by small but significant variation in MgO, TiO_2 and P_2O_5 content. In addition to the five regional chemical types, four chemical types local to the eastern part of the province have been identified. These local chemical types are referred to as LH2, MG6, AS16, KB5, with each name reflecting a particular reference locality.

Flows of each regional chemical type delimit specific chemical-stratigraphic subunits within the N_2 and R_2 units in the Grande Ronde. The earliest Grande Ronde flows are exposed in only a few areas of the Columbia Plateau, prohibiting widespread correlation of N_1 and R_1 flows.

ANALYTICAL METHODS AND CORRELATION PROCEDURE

Major oxide chemical analyses were obtained from three different laboratories as outlined in published U.S. Geological Survey open-file reports (Wright and others, 1979, 1980, 1982). The laboratories and analytical methods used are: (1) U.S. Geological Survey, Reston; rapid rock (RR), (2) U.S. Geological Survey Menlo Park; x-ray fluorescence (XRF), and (3) Washington State University; x-ray fluorescence (WRU).

In order to ensure comparibility of analytical data, splits from each of six reference samples of Columbia River Basalt were simultaneously analyzed in the U.S. Geological Survey, Menlo Park and Reston laboratories to detect the presence of any systematic interlaboratory analytical bias. Splits from three of the reference samples were also analyzed in the WSU labs. The differences between WSU and USGS Reston laboratories was also evaluated by making a graphical determination of analytical bias between average chemistries and major Columbia River Basalt chemical-stratigraphic units for which a body of analyses was available from each laboratory. The magnitude of the analytical biases are not constant within the reference samples although their sign is generally the same. The average interlaboratory analytical biases in weight percent oxide are as follows:

Oxide	RR[1]	XRF[2]	WSU[3]
SiO_2	'0.00'	-0.74	+0.33
Al_2O_3	'0.00'	0.00	-0.48
'FeO'	'0.00'	+0.35	-0.30
MgO	'0.00'	+0.01	+0.16
CaO	'0.00'	-0.08	-0.17
Na_2O	'0.00'	-0.11	+0.20
K_2O	'0.00'	+0.07	-0.07
TiO_2	'0.00'	+0.04	+0.02
P_2O_5	'0.00'	+0.09	+0.05
MnO	'0.00'	--	--

[1] Reference laboratory; U.S. Geological Survey, Reston, Rapid Rock Analyses.
[2] U.S. Geological Survey, Menlo park, X-Ray Fluorescence Analyses. RR = Bias + XRF
[3] Washington State University, X-Ray Fluorescence Analyses. RR = Bias + WSU

The use of three different laboratories was governed by availability of rapid analytical support at different stages in the project. Most of the field sections studied were analyzed in the Menlo Park XRF laboratory with the exception of the following sections which were analyzed in Reston: Casey Creek, Palouse Falls, Yakawawa, Marengo Grade, North Patit Creek, Eckler Mountain, Upper Pettijohn, Newby Mountain, Chase Mountain, Godman Trig, Tramway, Green Fork, East of Jasper, Pioneer Park and Pettijohn Summit. The WSU laboratories analyzed some out-of-section samples (see table 6) and a few dikes.

Flow correlations and chemical types within the Grande Ronde Basalt were defined independently for the eastern and western areas of the Plateau using samples from closely spaced sections in each area, using the method of Wright and Hamilton (1978). Later, the sequence of chemistries in the eastern and western sections was examined and gross similarities were discovered. Chemical types in each area were defined by allowing the total chemical variation within each type to approximate that shown by the Roza flow (see Wright and Hamilton, 1978) known to consist of several flow units defining a single eruptive sequence. Eastern and western sections were then compared (taking the estimates of analytical bias into account when appropriate) in order to make the regional flow correlations presented in Mangan and others (in preparation). These final flow correlations were made using the known stratigraphic sequence and by cross correlation of chemistries. Using the program of Wright and Hamilton (1978), chemistries defined for the eastern sections were identified in terms of chemistries defined for the western sections and vice versa. [Note: the data of Tables 2A and 2B are given as analyzed. The bias corrections when needed were made in the program before identification.] Chemistries that correlated both ways were accepted as legitimate plateau-wide correlative units. That is, given the following hypothetical sequence of chemical types:

West	East
A	1
B	2
C	3
D	4
E	5
F	6

If A was identified as 2, using Eastern chemical types as a reference set, and 1 was identified as A, using western chemical types as a reference set, then 1 and A were established as correlative stratigraphic unit. Chemistries which (1) didn't correlate at all, (2) correlated with chemistry far removed in stratigraphic order (i.e., A identified as 5 after 2 and B had been established as a correlative unit), or (3) correlated in only one direction, were not defined as regionally correlative units but assumed to be of more local extent.

Flows collected in the course of regional mapping that did not occur in measured sections were identified in terms of chemistries defined for nearby sections. Flows analyzed by WSU later in the project were associated with either the eastern or western chemistries, depending on the sample location, and after applying the appropriate bias. These were then correlated with either regional or local flows depending on the specific chemical identifications within the framework set up by samples in the measured sections.

Trace elements from flows whose major oxide chemistry had previously been analyzed were all analyzed in U.S. Geological Survey, Reston laboratories using three different methods, instrumental neutron activation analysis (INAA), x-ray fluorescence (XRF) and atomic absorption spectroscopy (AAS). The following elements were analyzed using the indicated techniques:

INAA: Ba, Co, Cr, Cs, Hf, Rb, Ta, Th, U, Zn, Zr, Sc, La, Ce, Nd, Sm, Eu, Gd, Tb, Yb, Lu

XRF: Ba, Nb, Rb, Sr, Y, Zr (denoted BaX, NbX etc. in succeeding tables)

AAS: Cu, Ni

In general, the relative values of Ba, Rb, and Zr measured both by INAA and XRF agree. The XRF values were found to be more precise. Both XRF and INAA values are given for these elements in succeeding tables.

Electron microprobe analyses of glasses given in this report were done by Gary R. Byerly and Tim O'Hearn using the electron microprobe at the Department of Mineral Sciences, Smithsonian Institution, using methods given by Byerly and others (1977).

LISTING OF DATA TABLES WITH EXPLANATORY COMMENTS

Table 1. Location of Field Sections: D. Swanson, T. Wright and G. Byerly collected 47 of the field sections studied. These sections, which form the framework of the correlation study, are located in Washington within 2 geographic areas: 1) in the Blue Mountains and along the Snake River, in the eastern part of the province and 2) along the Columbia River in the north-northwestern part of the province. One field section, Divide Ridge, is located along the eastern margin of the Cascade Range in Washington. Field section abbreviations are given in parentheses.

Table 2A. Major Element Analyses of Flows, Snake River-Blue Mountains Sections: Analyses are grouped according to the appropriate chemical-stratigraphic subunit, which are arranged in stratigraphic order with the uppermost unit (1A) at the top of listing. Units of each chemical type, with the exception of type 1, are repeated at irregular intervals within the stratigraphic sequence. Flows of type 2 chemistry are repeated six times (units 2A-F); type 3 seven times (units 3A-G); type 4 three times (units 4A-C); and type 5 nine times (units 5A-I). Flows of local chemistry (designated LH2, MG6, KB5 or AS16) and of ambiguous chemistry (designated GRB unclassified flow) are included in table 2A in the appropriate stratigraphic position. The N_2/R_2 and R_2/N_1 magnetic polarity boundaries are inserted in the proper stratigraphic positions. Analyses for the Horton Grade (except 72-292,293), New York Bar, Lower Long Hallow, Patrick Grade, Little Goose, Swift Bar, Almota Schultz Bar, Toe, Kelly Bar, Tramway, Aquia Creek, and Pataha Creek section were done in Menlo Park. The others were done in Reston.

Each flow is identified by a sample number and a sample name (given under "section" in Table 2A), which is composed of three entities: 1) a two-letter abbreviation reflecting the geographic location of the field section; 2) a numeral indicating the relative position of the flow counted sequentially from the top of the section to the base; and 3) the magnetic polarity of the flow. Thus DC1N2 (#71-103) is the top flow in the Devils Canyon Section and is within the N_2 magnetostratigraphic unit.

An asterisk preceeding the sample number indicates a tentative correlation. The analysis is not included in the averaging calculation. In all tables total iron is reported as FeO.

Table 2B. Major Element Analyses of Flows, Columbia River Sections: Table 2B is constructed in the same fashion as 2A. The analyses from the Snake River-Blue Mountains sections and the Columbia River sections are listed separately in order to compare the stratigraphy observed in the source region (the east) with that observed away from the source (the west). Comparison of the two tables show that many of the chemical-stratigraphic subunits present in the east do not occur in the western part of the province. All analyses were done in Menlo Park except those for the Divide Ridge section which were done in Reston.

Note that the Divide Ridge samples do not follow the general scheme for naming flows in section.

Table 3. Major Element Analyses of Dikes: Feeder dikes of each chemical type have been identified. The locations of dikes are given in Wright and others (1980 and 1979), however, not all of the Grande Ronde dikes reported by Wright can be unequivocally identified in terms of the chemical types presented here. In general, compositional variability is greater in dikes relative to flows. In the field, flows are generally fresher than dikes and it is likely that the variability observed in dike chemistry is due to alteration. Analyses are grouped according to chemical type. Dikes of ambiguous chemistry are not included. Most analyses were done in Reston. Samples 72-165, 74-235, 75-151, 76-241, 78-462 are WSU analyses.

Table 4A and 4B. Major Element Analyses of Dike and Pillow Glasses: Analyses of dike glasses are from rapidly quenched dike selvages (Table 4A); analyses of pillow glass (Table 4B) are from the glassy rind formed when flows entered water or wet sediments. The dike-pillow distinction between glass samples is also a geographic distinction as basalt pillows are mostly found in the western field sections and known dikes are confined to the eastern half of the province. Sampling locations for all glass specimens are given in Wright and others (1979, 1980 and 1982). All glass analyses are grouped according to chemical type.

Table 5A and 5B. Trace Element Data: Flows and Dikes: In Table 5A, flows from eastern and western field sections for which trace element data are available are combined and grouped according to the appropriate chemical-stratigraphic subunit. The available trace element data for identified dikes are given in Table 5B.

Table 6. Additional Grande Ronde Samples: Identifications and Locations: Analyses of grab samples collected by D.A. Swanson and T.L. Wright during the course of reconnassiance mapping of the Columbia Plateau are given in Table 6. The location of each flow collected is given in columns 13-16 (W = Washington, O = Oregon and I = Idaho) and the chemical-stratigraphic subunit to which the flow is tentatively assigned is given in column 12. Analyses were done in the following labs:

Reston:	71- , 72- , most 73- , 74- , 75- , 76-
Menlo Park:	78-1 to 78-286, SB76- , SB77- , 73-335, 73-342, 73-347, 73-363, C-
WSU:	78-003 to 78-079, 78-106 to 78-130, 78-217, 78-225, 78-235 to 78-237, 78-300 to 78-472, 79- , 80-

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Table 1. Locations of field sections.

SNAKE RIVER SECTIONS

SECTION NAME	COUNTY	LOCATION 1:250,000 SHEET	SECTION	TOWNSHIP	RANGE
Devils Canyon (DC)	Franklin	Walla Walla	NW/SW 34-SE/SW 9	13N	34E
Palouse Falls (PF)	Franklin	Walla Walla	SE/SW 30	14N	36E
Little Goose (LG)	Whitman	Walla Walla	SE/SW 22-NE/NW 27	13N	38E
Private Road (PR)	Columbia	Walla Walla	NE/SE 2-NW/NW 11	12N	38E
New York Bar (NY)	Garfield	Pullman	NE/SE 18-NW/NE 18	13N	40E
Horton Grade (HG)	Whitman	Pullman	NW/SE 11-SW/NE 13	14N	40E
Lower Long Hollow (LH)	Whitman	Pullman	NW/NW 15	14N	41E
Swift Bar (SB)	Whitman	Pullman	SE/SE 19	14N	42E
Almota-Shultz Bar (AS)	Whitman	Pullman	SE/SE 15-NW/NE 13	14N	42E
Tramway (TA)	Whitman	Pullman	NE/NE 34-NE/SW 34	14N	43E
Casey Creek (CC)	Garfield	Pullman	NE/NW 1-SW/SE 35	13-14N	42E
Kelly Bar (KB)	Whitman	Pullman	NW/SW 35-SW/NE 2	12N	44E
Yakawawa (Y)	Whitman	Pullman	SW/SW 26	13N	44E
Toe (T)	Whitman	Pullman	SE/NE 31-NE/NE 1	11-12N	44-45E

BLUE MOUNTAINS SECTIONS

SECTION NAME	COUNTY	LOCATION 1:250,000 SHEET	SECTION	TOWNSHIP	RANGE
Aquia Creek (AC)	Garfield	Pullman	SW/SW 11-SW/NE 18	11N	43-44E
Marengo Grade (MG)	Columbia	Pullman	NE/NE 12-SW/SE 12	11N	40E
Pataha Creek (PC)	Garfield	Pullman	SW/NW 2-NW/NW 11	9N	42E
North Patit Creek (NP)	Columbia	Pullman	NE/NW 9	9N	41E
Patrick Grade (PG)	Columbia	Pullman	NW/NW 24-NW/NE 25	9N	40E
Eckler Mountain (EM)	Columbia	Pullman	SW/NE 27-SW/SW 27	9N	40E
Upper Pettijohn (UP)	Columbia	Pullman	SW/NW 8	8N	39E
Newby Mountain (NM)	Columbia	Pullman	NW/NE 26	8N	39E
Chase Mountain (CM)	Columbia	Pullman	NE/NW 32	8N	40E
Godman Trig (GT)	Columbia	Pullman	NE/SE 10-SW/SW 11	7N	40E
Table Rock (TR)	Columbia	Pullman	NW/NE 3	6N	39E
Green Fork (GF)	Walla Walla	Pullman	NE/SW 18-SE/SE 13	7N	38-39E
East of Jasper Mtn (EJ)	Columbia	Pullman	SW/NE 19	8N	39E
Pioneer Park (PP)	Columbia	Pullman	NW/SW 4	9N	40E
Pettijohn Summit (PS)	Columbia	Pullman	NW/NE 32	9N	39E

COLUMBIA RIVER SECTIONS

SECTION NAME	COUNTY	LOCATION 1:250,000 SHEET	SECTION	TOWNSHIP	RANGE
Lincoln (L)	Lincoln	Ritzville	NE/NE 19-NE/NW 20	27N	35E
Keller Ferry (KF)	Lincoln	Ritzville	NE/SE 1-SE/SW 31	27-28N	32-33E
Spring Canyon (SC)	Lincoln	Ritzville	SE/SW 17-NE/SW 17	28N	31E
Lake Lenore (LL)	Grant	Ritzville	SE/NE 27-SW/NW 26	23N	26E
Douglas Creek (DC)	Douglas	Ritzville	SW/SW 30	23N	24E
Moses Coulee (MS)	Douglas	Ritzville	NW/NW 1-NE/NE 2	22N	23E
Keane Ranch (KR)	Douglas	Wenatchee	SE/SW 29-SW/SW 29	22N	22E
Rock Island Dam (RI)	Douglas	Wenatchee	SE/SW 4	21N	22E
* Alcoa (A)	Chelan	Wenatchee	NE/NW 6-NW/NE 6	21N	22E
* Rocky Point (RP)	Douglas	Wenatchee	E/NW 22	21N	22E
Cape Horn (CH)	Kittitas	Wenatchee	NE/NW 21-SW/NW 16	20N	22E
Cresent Bar (CB)	Grant	Ritzville	NE/SE 19	20N	23E
Quilomine Bay (QB)	Kittitas	Wenatchee	NE/SE 26-SE/NE 26	19N	22E
Brushey Creek (BC)	Kittitas	Wenatchee	NE/NW 30-SE/SW 19	19N	22E
Stray Gulch (SG)	Kittitas	Wenatchee	NW/NE 3-SW/SW 35	19-20N	21E
Naneaum Canyon (NC)	Kittitas	Wenatchee	NW/NW 2-NE/SE 4	19N	19E
Corbaly Canyon (CC)	Douglas	Wenatchee	SE/SW 18-NW/NE 24	25N	22-21E
Divide Ridge (DR)	Yakima	Yakima	SE/SE 21-SW/SW 15	13N	14E

* Glass analyses available only.

Table 2A. Major element analyses of flows, Snake River-Blue Mountains field sections.

1A GRANDE RONDE UNIT 1A

NO. OF OXIDES=10 NO. OF DATA CARDS= 19

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-316	55.17	14.48	10.57	4.58	8.35	2.75	1.52	1.63	0.37	0.19	EJ1N2
	71-103	54.54	14.98	11.15	4.28	8.31	2.85	1.22	1.77	0.32	0.20	DC1N2
	72-66	55.25	14.44	10.39	4.24	8.82	2.92	1.31	1.81	0.36	0.20	MG1N2
	72-67	55.48	14.75	10.22	4.24	8.47	2.83	1.31	1.81	0.36	0.19	MG2N2
	72-88	54.98	14.45	11.00	4.44	8.22	2.93	1.31	1.81	0.42	0.18	PR1N2
	73-233	54.45	14.50	11.10	4.76	8.40	2.73	1.31	1.82	0.37	0.15	CM1N2
	73-265	54.89	14.30	11.02	4.26	8.52	2.73	1.52	1.82	0.40	0.15	PP1N2
	73-317	54.32	14.28	11.27	4.49	8.47	2.79	1.59	1.79	0.38	0.15	EJ2N2
	73-319 C	53.95	15.03	10.35	4.87	8.92	3.04	1.21	1.82	0.37	0.15	UP1N2
	74-207	54.15	14.28	11.24	4.76	8.58	2.81	1.63	1.78	0.34	0.19	LG1N2
	73-215	55.72	15.31	9.25	4.33	8.25	2.82	1.71	1.81	0.41	0.14	GT1N2
	75-221	56.10	14.81	9.40	4.59	8.27	2.55	1.63	1.83	0.40	0.15	EM1N2
	72-322 C	54.73	14.24	11.46	4.57	8.12	2.64	1.42	1.93	0.36	0.15	PF1N2
	73-297	53.32	14.91	12.13	4.86	8.64	2.64	0.62	1.79	0.32	0.14	GF1N2
	73-298	54.35	14.00	11.88	4.56	8.27	2.90	1.14	1.86	0.38	0.15	GF2N2
	73-299	55.04	14.60	10.27	4.52	8.61	2.98	1.23	1.85	0.39	0.14	GF3N2
	73-243	55.08	14.50	10.88	4.43	8.53	2.61	1.40	1.71	0.37	0.15	TR1N2
	73-244	54.82	14.76	11.01	4.75	8.25	2.73	1.11	1.82	0.34	0.16	TR2N2
	73-245	54.47	14.35	11.65	4.47	8.23	2.54	1.42	1.83	0.38	0.15	TR3N2
	NO.POINTS	19	19	19	19	19	19	19	19	19	19	
1A	AVERAGE	54.78	14.58	10.85	4.53	8.43	2.78	1.35	1.80	0.37	0.16	
	STD.DEV.	0.65	0.33	0.75	0.20	0.21	0.14	0.25	0.06	0.03	0.02	
	MAXIMUM	56.10	15.31	12.13	4.87	8.92	3.04	1.71	1.93	0.42	0.20	
	MINIMUM	53.32	14.00	9.25	4.24	8.12	2.54	0.62	1.63	0.32	0.14	
	DIFFERENCE	2.78	1.31	2.88	0.63	0.80	0.50	1.09	0.30	0.10	0.06	

2A GRANDE RONDE UNIT 2A

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-271	54.24	13.53	12.68	3.76	7.50	3.25	1.52	2.34	0.51	0.17	NM1N2
	73-272	54.35	13.51	13.20	3.75	7.40	3.14	1.21	2.33	0.46	0.18	NM2N2
	73-281	54.42	13.68	12.65	3.90	7.48	3.29	1.33	2.26	0.45	0.18	PS1N2
	73-320 C	54.08	13.69	12.77	3.75	7.69	3.45	1.31	2.23	0.48	0.18	UP3N2
	73-234	54.07	14.28	12.71	3.87	7.25	3.16	1.32	2.14	0.41	0.19	CM2N2
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	
2A	AVERAGE	54.23	13.74	12.80	3.81	7.46	3.26	1.34	2.26	0.46	0.18	
	STD.DEV.	0.16	0.31	0.23	0.07	0.16	0.12	0.11	0.08	0.04	0.01	
	MAXIMUM	54.42	14.28	13.20	3.90	7.69	3.45	1.52	2.34	0.51	0.19	
	MINIMUM	54.07	13.51	12.65	3.75	7.25	3.14	1.21	2.14	0.41	0.17	
	DIFFERENCE	0.35	0.77	0.55	0.15	0.44	0.31	0.31	0.20	0.10	0.02	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	72-106	54.96	14.56	10.96	3.69	7.47	3.28	1.33	2.46	0.60	0.14	PG1N2
	72-107	55.98	13.86	11.10	3.49	7.17	3.28	1.33	2.46	0.57	0.20	PG2N2
	73-216	55.90	13.74	11.16	3.53	7.42	3.03	1.71	2.32	0.51	0.16	GT2N2

	NO.POINTS	3	3	3	3	3	3	3	3	3	3
GRB	AVERAGE	55.61	14.05	11.07	3.57	7.35	3.20	1.46	2.41	0.56	0.17
	STD.DEV.	0.57	0.44	0.10	0.11	0.16	0.14	0.22	0.08	0.05	0.03
	MAXIMUM	55.98	14.56	11.16	3.69	7.47	3.28	1.71	2.46	0.60	0.20
	MINIMUM	54.96	13.74	10.96	3.49	7.17	3.03	1.33	2.32	0.51	0.14
	DIFFERENCE	1.02	0.82	0.20	0.20	0.30	0.25	0.38	0.14	0.09	0.06

3A GRANDE RONDE UNIT 3A

NO. OF OXIDES=10 NO. OF DATA CARDS= 18

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
71-55	53.91	14.69	11.42	5.06	8.61	2.63	1.11	1.72	0.28	0.30	AC1N2
73-266	53.94	14.35	11.17	5.12	8.98	2.76	1.02	1.74	0.30	0.15	PP2N2
74-48	53.53	14.85	11.06	4.92	9.39	3.00	0.87	1.73	0.24	0.18	PG3N2
74-208	53.29	14.22	11.42	5.45	9.10	2.89	1.16	1.78	0.26	0.21	LG2N2
74-219	52.97	14.47	11.64	5.42	9.37	2.78	0.92	1.74	0.24	0.19	NY1N2
72-68	53.32	14.44	11.10	5.45	9.11	3.02	1.00	1.81	0.30	0.19	MG3N2
72-293 C	53.94	14.24	11.59	5.08	8.73	2.74	1.01	1.83	0.29	0.18	HG1N2
72-323 C	53.29	14.07	11.63	5.22	9.13	2.81	1.20	1.81	0.29	0.17	PF2N2
73-282	54.06	14.44	10.90	5.15	9.05	2.78	0.93	1.85	0.28	0.16	PS2N2
74-220	54.11	14.43	10.95	4.87	8.76	2.98	1.33	1.81	0.34	0.19	NY2N2
74-261	54.54	14.50	10.29	4.98	9.03	2.86	1.27	1.80	0.31	0.20	AS1N2
72-22	54.23	14.62	11.40	4.77	8.51	2.74	1.21	1.82	0.33	0.15	CC1N2
72-89	53.81	14.39	11.70	4.96	8.58	2.73	0.91	1.82	0.33	0.17	PR2N2
74-260	53.69	14.25	11.79	5.03	8.85	2.73	1.11	1.81	0.30	0.20	AS2N2
73-375FB	53.80	14.10	11.40	5.20	8.96	2.90	1.03	1.60	0.31	0.21	NY3N2
73-235	53.38	14.21	12.46	4.60	8.87	2.76	0.71	1.84	0.28	0.23	CM3N2
73-283	54.01	14.09	11.96	5.18	8.73	2.79	0.72	1.76	0.29	0.16	PS3N2
73-374FB	53.54	14.15	11.82	5.03	8.91	2.96	0.89	1.78	0.29	0.21	NY4N2
NO.POINTS	18	18	18	18	18	18	18	18	18	18	
3A AVERAGE	53.74	14.36	11.43	5.08	8.93	2.83	1.02	1.78	0.29	0.19	
STD.DEV.	0.40	0.22	0.48	0.23	0.25	0.11	0.17	0.06	0.03	0.04	
MAXIMUM	54.54	14.85	12.46	5.45	9.39	3.02	1.33	1.85	0.34	0.30	
MINIMUM	52.97	14.07	10.29	4.60	8.51	2.63	0.71	1.60	0.24	0.15	
DIFFERENCE	1.57	0.78	2.17	0.85	0.88	0.39	0.62	0.25	0.10	0.15	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
73-104 C	55.12	14.08	11.40	4.28	8.15	2.75	1.32	2.24	0.32	0.16	PF3N3
72-44	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	AC2N2
72-97	54.54	14.64	10.27	5.05	8.68	2.92	1.11	1.91	0.33	0.17	NP1N2
73-321 C	54.60	14.79	9.83	5.10	9.13	2.85	1.02	1.93	0.29	0.14	UP4N2
73-300	54.51	14.81	10.01	4.83	8.62	2.98	1.54	1.95	0.39	0.16	GF4N2
NO.POINTS	5	5	5	5	5	5	5	5	5	5	
GRB AVERAGE	54.65	14.53	10.37	4.89	8.71	2.88	1.24	1.99	0.33	0.16	
STD.DEV.	0.27	0.32	0.61	0.37	0.38	0.09	0.20	0.14	0.04	0.01	
MAXIMUM	55.12	14.81	11.40	5.20	9.13	2.98	1.54	2.24	0.39	0.18	
MINIMUM	54.46	14.08	9.83	4.28	8.15	2.75	1.02	1.90	0.29	0.14	
DIFFERENCE	0.66	0.73	1.57	0.92	0.98	0.23	0.52	0.34	0.10	0.04	

4A GRANDE RONDE UNIT 4A

NO. OF OXIDES=10 NO. OF DATA CARDS= 14

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	75-220	53.19	14.06	12.71	4.99	8.34	2.64	1.12	2.03	0.36	0.18	EM2N2
	72-96	54.82	14.22	12.08	4.36	7.68	2.80	1.03	2.07	0.34	0.18	NP2N2
	72-108	54.22	14.37	12.11	4.68	7.93	2.85	0.91	2.03	0.32	0.20	PG4N2
	73-217	53.98	15.03	11.39	4.74	8.43	2.72	0.84	2.11	0.34	0.16	GT3N2
	72-292 C	53.40	14.03	12.04	4.88	8.63	2.94	0.88	2.03	0.45	0.20	HG2N2
	74-266	53.65	13.80	12.33	4.65	8.33	3.10	1.23	1.98	0.46	0.22	LH1N2
	72-186	53.37	14.53	12.41	4.57	8.18	2.74	1.22	2.13	0.44	0.17	CC2N2
	73-273	54.44	13.99	11.76	4.73	8.51	2.67	1.13	1.95	0.33	0.16	NM3N2
	73-301	53.10	14.13	12.11	5.19	8.69	3.11	0.82	1.97	0.31	0.17	GF5N2
	73-246	53.64	14.43	11.52	4.70	8.77	2.86	1.22	1.84	0.26	0.14	TR4N2
	73-302	53.01	14.38	11.92	5.03	9.21	2.83	0.78	1.88	0.29	0.15	GF6N2
	73-373FB	53.51	13.81	11.93	4.96	8.84	2.76	1.26	1.99	0.32	0.21	NY5N2
	74-209	54.15	13.97	11.31	4.69	8.83	3.00	1.37	1.94	0.31	0.21	LG3N2
	73-247	53.89	14.16	12.05	4.92	8.60	2.46	1.02	1.95	0.28	0.15	TR5N2
	NO.POINTS	14	14	14	14	14	14	14	14	14	14	
4A	AVERAGE	53.74	14.21	11.98	4.79	8.50	2.82	1.06	1.99	0.34	0.18	
	STD.DEV.	0.53	0.33	0.39	0.21	0.39	0.18	0.19	0.08	0.06	0.03	
	MAXIMUM	54.82	15.03	12.71	5.19	9.21	3.11	1.37	2.13	0.46	0.22	
	MINIMUM	53.01	13.80	11.31	4.36	7.68	2.46	0.78	1.84	0.26	0.14	
	DIFFERENCE	1.81	1.23	1.40	0.83	1.53	0.65	0.59	0.29	0.20	0.08	

3B GRANDE RONDE UNIT 3B

NO. OF OXIDES=10 NO. OF DATA CARDS= 6

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-49	53.78	14.52	11.46	4.87	8.86	2.92	1.11	1.80	0.25	0.19	PG5N2
	74-50	53.50	14.20	11.91	4.81	9.05	2.83	1.19	1.81	0.25	0.20	PG6N2
	75-208	53.49	14.63	11.90	4.91	8.54	3.09	1.05	1.75	0.24	0.18	PC1N2
	75-77	53.66	14.70	11.21	5.12	8.82	2.77	1.31	1.71	0.27	0.20	TA1N2
	73-218	54.18	14.40	11.12	4.56	9.40	2.63	1.11	1.72	0.32	0.16	GT4N2
	73-248	54.16	14.27	12.04	4.55	8.49	2.83	1.01	1.72	0.34	0.15	TR6N2
	NO.POINTS	6	6	6	6	6	6	6	6	6	6	
3B	AVERAGE	53.80	14.45	11.61	4.80	8.86	2.85	1.13	1.75	0.28	0.18	
	STD.DEV.	0.31	0.20	0.40	0.22	0.34	0.15	0.11	0.04	0.04	0.02	
	MAXIMUM	54.18	14.70	12.04	5.12	9.40	3.09	1.31	1.81	0.34	0.20	
	MINIMUM	53.49	14.20	11.12	4.55	8.49	2.63	1.01	1.71	0.24	0.15	
	DIFFERENCE	0.69	0.50	0.92	0.57	0.91	0.46	0.30	0.10	0.10	0.05	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-219	54.33	14.51	11.06	4.53	8.73	2.92	0.94	2.01	0.34	0.15	GT5N2
	73-303	54.41	14.16	11.37	4.85	8.38	2.93	1.11	2.02	0.31	0.17	GF7N2
	72-69	54.28	14.31	11.13	4.84	8.62	2.98	1.03	2.06	0.32	0.19	MG4N2
	73-220	54.42	13.92	12.35	3.97	7.93	3.08	1.39	1.98	0.35	0.16	GT6N2
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	
GRB	AVERAGE	54.36	14.23	11.48	4.55	8.41	2.98	1.12	2.02	0.33	0.17	
	STD.DEV.	0.07	0.25	0.60	0.41	0.35	0.07	0.19	0.03	0.02	0.02	

MAXIMUM	54.42	14.51	12.35	4.85	8.73	3.08	1.39	2.06	0.35	0.19
MINIMUM	54.28	13.92	11.06	3.97	7.93	2.92	0.94	1.98	0.31	0.15
DIFFERENCE	0.14	0.59	1.29	0.88	0.80	0.16	0.45	0.08	0.04	0.04

4B GRANDE RONDE UNIT 4B

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
73-304	53.85	13.84	12.50	4.74	8.25	2.93	1.01	2.12	0.33	0.17	GF8N2
73-221	52.88	14.66	12.58	4.44	8.74	2.62	1.01	2.02	0.38	0.16	GT7N2
NO.POINTS	2	2	2	2	2	2	2	2	2	2	
4B AVERAGE	53.37	14.25	12.54	4.59	8.49	2.78	1.01	2.07	0.36	0.17	
STD.DEV.	0.69	0.58	0.06	0.21	0.35	0.22	0.00	0.07	0.04	0.01	
MAXIMUM	53.85	14.66	12.58	4.74	8.74	2.93	1.01	2.12	0.38	0.17	
MINIMUM	52.88	13.84	12.50	4.44	8.25	2.62	1.01	2.02	0.33	0.16	
DIFFERENCE	0.97	0.82	0.08	0.30	0.49	0.31	0.00	0.10	0.05	0.01	

LH2 GRANDE RONDE UNIT LH2

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
72-43	54.37	14.95	9.48	6.16	9.79	2.72	0.70	1.21	0.20	0.15	AC3N2
73-355FB	53.69	15.32	9.29	6.07	10.22	2.91	0.63	1.09	0.26	0.16	HG3N2
74-231	53.69	14.91	9.74	6.23	9.84	2.88	0.86	1.18	0.28	0.18	LH2N2
71-64 C	54.94	15.91	9.30	5.03	9.01	2.87	0.81	1.12	0.42	0.10	MG5N2
71-64NEW	54.72	15.80	9.33	5.30	9.45	3.06	0.81	1.12	0.31	0.12	MG5N2
NO.POINTS	5	5	5	5	5	5	5	5	5	5	
LH2 AVERAGE	54.28	15.38	9.43	5.76	9.66	2.89	0.76	1.14	0.29	0.14	
STD.DEV.	0.58	0.47	0.19	0.55	0.46	0.12	0.09	0.05	0.08	0.03	
MAXIMUM	54.94	15.91	9.74	6.23	10.22	3.06	0.86	1.21	0.42	0.18	
MINIMUM	53.69	14.91	9.29	5.03	9.01	2.72	0.63	1.09	0.20	0.10	
DIFFERENCE	1.25	1.00	0.45	1.20	1.21	0.34	0.23	0.12	0.22	0.08	

MG6 GRANDE RONDE UNIT MG6

NO. OF OXIDES=10 NO. OF DATA CARDS= 8

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
72-70	51.96	14.71	11.37	5.94	9.97	2.71	0.62	1.66	0.32	0.16	MG6N2
75-219	51.18	15.53	12.16	5.99	9.33	2.64	0.47	1.72	0.32	0.18	EM3N2
74-210	51.31	14.42	12.07	5.91	9.92	3.12	0.80	1.70	0.29	0.20	LG4N2
* 73-328RA	52.72	14.71	11.14	5.82	9.40	2.86	0.77	1.63	0.33	0.20	PF4N2
73-328FA	52.60	14.49	11.58	5.81	9.72	2.74	0.76	1.57	0.28	0.21	PF4N2
73-329FB	52.49	15.02	11.24	5.13	9.69	3.00	0.77	1.58	0.29	0.17	PF5N2
73-356FB	52.24	14.43	11.61	5.65	9.93	2.93	0.67	1.54	0.29	0.18	HG4N2
73-372FB	52.60	14.97	11.20	5.30	9.52	2.99	0.86	1.59	0.29	0.17	NY6N2
NO.POINTS	7	7	7	7	7	7	7	7	7	7	
MG6 AVERAGE	52.05	14.80	11.60	5.68	9.73	2.88	0.71	1.62	0.30	0.18	
STD.DEV.	0.60	0.41	0.38	0.34	0.24	0.18	0.13	0.07	0.02	0.02	
MAXIMUM	52.60	15.53	12.16	5.99	9.97	3.12	0.86	1.72	0.32	0.21	
MINIMUM	51.18	14.42	11.20	5.13	9.33	2.64	0.47	1.54	0.28	0.16	
DIFFERENCE	1.42	1.11	0.96	0.86	0.64	0.48	0.39	0.18	0.04	0.05	

2B GRANDE RONDE UNIT 2B

NO. OF OXIDES=10 NO. OF DATA CARDS= 7

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-259	56.69	13.55	11.00	3.43	7.06	3.00	2.15	2.28	0.40	0.20	AS3N2
	72-82	57.69	14.21	9.47	3.50	7.09	3.09	1.85	2.16	0.40	0.18	MG7N2
	73-274	57.12	14.38	10.06	3.44	6.94	3.03	1.92	2.22	0.41	0.16	NM4N2
	75-218	57.52	14.48	9.24	3.67	7.34	2.75	2.03	2.14	0.39	0.15	EM4N2
	73-249	56.72	13.92	11.09	3.33	6.95	2.92	1.91	2.22	0.42	0.16	TR7N2
	73-305	56.27	13.61	11.34	3.86	7.18	3.04	1.72	2.13	0.40	0.17	GF9N2
	73-222	55.00	14.05	11.59	3.51	7.60	3.21	1.90	2.30	0.41	0.15	GT8N2
	NO.POINTS	7	7	7	7	7	7	7	7	7	7	
2B	AVERAGE	56.72	14.03	10.54	3.53	7.17	3.01	1.93	2.21	0.40	0.17	
	STD.DEV.	0.90	0.36	0.94	0.18	0.24	0.14	0.14	0.07	0.01	0.02	
	MAXIMUM	57.69	14.48	11.59	3.86	7.60	3.21	2.15	2.30	0.42	0.20	
	MINIMUM	55.00	13.55	9.24	3.33	6.94	2.75	1.72	2.13	0.39	0.15	
	DIFFERENCE	2.69	0.93	2.35	0.53	0.66	0.46	0.43	0.17	0.03	0.05	

5A GRANDE RONDE UNIT 5A

NO. OF OXIDES=10 NO. OF DATA CARDS= 23

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-211	55.46	14.09	11.53	3.86	7.25	3.22	1.92	1.89	0.32	0.20	LG5N2
	73-330FB	55.45	13.73	12.09	3.96	7.24	2.78	1.68	1.94	0.31	0.18	PF6N2
	73-331FB	55.90	13.64	11.87	3.65	7.09	2.97	1.80	1.99	0.35	0.20	PF7N2
	73-357FB	55.68	13.56	11.95	3.78	7.34	2.83	1.85	1.92	0.33	0.19	HG5N2
	73-371FB	55.27	14.04	11.83	3.65	7.29	2.92	1.79	1.95	0.35	0.18	NY7N2
	74-212	55.33	14.03	12.08	3.77	7.16	3.00	1.94	1.94	0.34	0.17	LG6N2
	73-332FB	56.71	14.02	10.31	3.63	7.28	3.15	2.03	2.01	0.35	0.20	PF8N2
	72-187	56.55	14.86	10.46	3.50	7.10	2.78	1.96	1.96	0.29	0.12	CC3N2
	72-188	56.65	14.75	10.62	3.58	6.94	2.86	1.74	1.94	0.31	0.13	CC4N2
	73-370FB	56.25	14.07	10.59	3.75	7.27	2.99	2.15	2.04	0.34	0.20	NY8N2
	72-189	56.18	14.35	11.63	3.35	6.89	2.84	1.83	1.93	0.31	0.17	CC5N2
	73-358FB	56.04	13.95	10.98	3.76	7.43	3.00	2.02	1.97	0.33	0.18	HG6N2
	73-369FB	56.14	13.92	10.97	3.72	7.28	3.03	2.12	1.94	0.35	0.19	NY9N2
	74-213	55.84	14.16	11.19	3.66	7.17	3.08	2.15	1.95	0.35	0.21	LG7N2
	74-229	56.16	14.12	11.11	3.60	7.09	3.01	2.20	1.96	0.35	0.18	LH4N2
	74-230	55.87	14.07	11.40	3.75	7.23	3.14	1.87	1.92	0.33	0.19	LH3N2
	73-359FB	55.90	13.95	11.53	3.72	7.05	3.24	1.68	1.95	0.34	0.17	HG7N2
*	73-368RA	56.37	13.97	11.53	3.76	6.45	3.25	1.76	2.03	0.42	0.17	NY10N2
	73-368FA	56.25	13.77	11.88	3.69	6.64	3.19	1.75	2.02	0.37	0.19	NY10N2
	75-209	55.92	14.31	11.76	3.44	6.82	3.11	2.04	1.93	0.29	0.17	PC2N2
	74-51	55.60	14.13	12.48	3.22	6.92	2.99	1.78	2.11	0.33	0.18	PG7N2
	73-277	56.15	13.60	11.58	3.68	7.03	3.06	1.94	2.14	0.34	0.15	PG8N2
	73-367FB	55.94	13.46	11.63	3.70	7.31	2.90	1.94	2.12	0.31	0.20	NY11N2
	NO.POINTS	22	22	22	22	22	22	22	22	22	22	
5A	AVERAGE	55.97	14.03	11.43	3.66	7.13	3.00	1.92	1.98	0.33	0.18	
	STD.DEV.	0.40	0.34	0.58	0.16	0.19	0.14	0.16	0.07	0.02	0.02	
	MAXIMUM	56.71	14.86	12.48	3.96	7.43	3.24	2.20	2.14	0.37	0.21	
	MINIMUM	55.27	13.46	10.31	3.22	6.64	2.78	1.68	1.89	0.29	0.12	
	DIFFERENCE	1.44	1.40	2.17	0.74	0.79	0.46	0.52	0.25	0.08	0.09	

GRB UNCLASSIFIED FLOW

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	72-42	55.75	13.16	12.83	3.01	6.81	3.01	1.70	2.61	0.56	0.19	AC4N2

2C GRANDE RONDE UNIT 2C

NO. OF OXIDES=10 NO. OF DATA CARDS= 9

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-334FB	54.54	13.26	13.10	3.59	7.03	3.34	1.69	2.40	0.42	0.20	SRPN2
	73-340FB	55.46	13.49	12.33	3.51	6.76	3.46	1.73	2.30	0.42	0.19	SRPN2
	73-341FB	54.58	13.34	13.05	3.73	6.86	3.38	1.67	2.41	0.42	0.20	SRPN2
	73-346FB	54.61	13.29	13.13	3.62	7.07	3.25	1.67	2.39	0.43	0.20	SRPN2
	74-214	56.15	13.90	11.04	3.61	7.06	3.00	2.06	2.31	0.42	0.21	LG8N2
	72-190	55.14	14.64	12.42	3.32	6.63	2.59	1.66	2.28	0.37	0.24	CC6N2
	72-191	54.62	14.23	12.51	3.53	6.95	3.12	1.61	2.42	0.38	0.18	CC7N2
	74-228	55.29	13.59	12.34	3.48	6.98	3.09	2.08	2.30	0.40	0.20	LH5N2
	75-78	55.49	13.90	12.02	3.37	7.02	3.18	1.94	2.26	0.37	0.20	TA2N2
	NO.POINTS	9	9	9	9	9	9	9	9	9	9	
2C	AVERAGE	55.10	13.74	12.44	3.53	6.93	3.16	1.79	2.34	0.40	0.20	
	STD.DEV.	0.56	0.47	0.66	0.13	0.15	0.26	0.18	0.06	0.02	0.02	
	MAXIMUM	56.15	14.64	13.13	3.73	7.07	3.46	2.08	2.42	0.43	0.24	
	MINIMUM	54.54	13.26	11.04	3.32	6.63	2.59	1.61	2.26	0.37	0.18	
	DIFFERENCE	1.61	1.38	2.09	0.41	0.44	0.87	0.47	0.16	0.06	0.06	

4C GRANDE RONDE UNIT 4C

NO. OF OXIDES=10 NO. OF DATA CARDS= 7

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-275	54.00	13.81	12.26	4.94	8.52	2.67	1.03	1.85	0.38	0.18	NM5N2
	73-276	52.99	13.81	12.24	4.94	8.41	3.09	1.73	1.85	0.38	0.17	NM6N2
	73-250	53.74	14.22	12.11	4.60	8.62	2.86	1.12	1.84	0.40	0.16	TR8N2
	73-306	53.84	14.17	11.52	5.03	8.91	2.87	0.84	1.84	0.38	0.16	GF10N2
	73-307	52.48	14.02	11.81	5.15	9.35	3.29	1.03	1.85	0.37	0.15	GF11N2
	73-308	53.69	14.14	12.17	4.91	8.15	3.17	0.94	1.94	0.35	0.15	GF12N2
	73-251	53.72	14.09	12.13	4.76	8.48	2.93	1.01	2.02	0.40	0.17	TR9N2
	NO.POINTS	7	7	7	7	7	7	7	7	7	7	
4C	AVERAGE	53.49	14.04	12.03	4.90	8.63	2.98	1.10	1.88	0.38	0.16	
	STD.DEV.	0.55	0.17	0.27	0.18	0.39	0.21	0.29	0.07	0.02	0.01	
	MAXIMUM	54.00	14.22	12.26	5.15	9.35	3.29	1.73	2.02	0.40	0.18	
	MINIMUM	52.48	13.81	11.52	4.60	8.15	2.67	0.84	1.84	0.35	0.15	
	DIFFERENCE	1.52	0.41	0.74	0.55	1.20	0.62	0.89	0.18	0.05	0.03	

5B GRANDE RONDE UNIT 5B

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-215	56.24	14.13	10.92	3.73	7.15	3.02	2.20	1.88	0.32	0.18	LG9N2
	74-52	56.73	14.12	11.02	3.34	7.08	3.31	1.62	2.06	0.32	0.17	NM7N2
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
5B	AVERAGE	56.49	14.13	10.97	3.54	7.12	3.16	1.91	1.97	0.32	0.18	
	STD.DEV.	0.35	0.01	0.07	0.28	0.05	0.21	0.41	0.13	0.00	0.01	

MAXIMUM	56.73	14.13	11.02	3.73	7.15	3.31	2.20	2.06	0.32	0.18
MINIMUM	56.24	14.12	10.92	3.34	7.08	3.02	1.62	1.88	0.32	0.17
DIFFERENCE	0.49	0.01	0.10	0.39	0.07	0.29	0.58	0.18	0.00	0.01

3C GRANDE RONDE UNIT 3C

NO. OF OXIDES=10 NO. OF DATA CARDS= 6

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-258	54.22	14.53	10.23	4.45	9.70	2.94	1.43	1.75	0.31	0.22	AS4N2
	74-257	54.62	14.20	11.06	4.64	8.80	2.88	1.32	1.77	0.30	0.18	AS5N2
	74-256	54.18	14.24	11.32	4.77	8.62	2.98	1.38	1.76	0.31	0.19	AS6N2
	74-227	52.80	14.24	11.31	5.84	9.74	2.79	0.96	1.64	0.25	0.19	LH6N2
	74-255	53.60	14.66	10.54	5.24	9.71	2.89	1.06	1.65	0.24	0.19	AS7N2
	75-100	52.87	14.59	11.48	5.65	9.60	2.65	0.92	1.59	0.22	0.19	AC5N2
	NO.POINTS	6	6	6	6	6	6	6	6	6	6	
3C	AVERAGE	53.72	14.41	10.99	5.10	9.36	2.86	1.18	1.69	0.27	0.19	
	STD.DEV.	0.76	0.21	0.50	0.57	0.51	0.12	0.22	0.08	0.04	0.01	
	MAXIMUM	54.62	14.66	11.48	5.84	9.74	2.98	1.43	1.77	0.31	0.22	
	MINIMUM	52.80	14.20	10.23	4.45	8.62	2.65	0.92	1.59	0.22	0.18	
	DIFFERENCE	1.82	0.46	1.25	1.39	1.12	0.33	0.51	0.18	0.09	0.04	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-309	51.92	14.92	11.03	6.11	10.23	3.00	0.39	1.45	0.30	0.15	GF13N2
	73-310	56.25	12.80	10.61	4.09	7.96	3.17	2.04	2.25	0.36	0.16	GF14N2
	73-311	51.28	14.53	11.64	5.73	11.04	2.76	0.49	1.53	0.28	0.15	GF15N2
	NO.POINTS	3	3	3	3	3	3	3	3	3	3	
GRB	AVERAGE	53.15	14.08	11.09	5.31	9.74	2.98	0.97	1.74	0.31	0.15	
	STD.DEV.	2.70	1.13	0.52	1.07	1.60	0.21	0.93	0.44	0.04	0.01	
	MAXIMUM	56.25	14.92	11.64	6.11	11.04	3.17	2.04	2.25	0.36	0.16	
	MINIMUM	51.28	12.80	10.61	4.09	7.96	2.76	0.39	1.45	0.28	0.15	
	DIFFERENCE	4.97	2.12	1.03	2.02	3.08	0.41	1.65	0.80	0.08	0.01	

5C GRANDE RONDE UNIT 5C

NO. OF OXIDES=10 NO. OF DATA CARDS= 6

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-312	55.83	13.80	12.20	3.73	6.78	3.11	1.45	2.07	0.38	0.15	GF16N2
	73-252	56.14	13.75	12.09	3.94	6.53	3.03	1.51	2.12	0.35	0.14	TR10R2
	74-53	57.93	14.28	9.18	3.37	7.16	3.22	2.20	1.96	0.30	0.18	PG9R2
	73-313	54.86	14.07	12.13	4.14	7.11	3.00	1.55	2.07	0.39	0.15	GF17R2
	74-54	54.64	14.10	12.22	3.77	7.47	3.21	1.75	2.07	0.33	0.19	PG10R2
	74-55	55.34	14.21	11.15	3.83	7.54	3.07	1.91	2.15	0.36	0.20	PG11R2
	NO.POINTS	6	6	6	6	6	6	6	6	6	6	
5C	AVERAGE	55.79	14.03	11.49	3.80	7.10	3.11	1.73	2.07	0.35	0.17	
	STD.DEV.	1.19	0.22	1.20	0.26	0.39	0.09	0.29	0.06	0.03	0.02	
	MAXIMUM	57.93	14.28	12.22	4.14	7.54	3.22	2.20	2.15	0.39	0.20	
	MINIMUM	54.64	13.75	9.18	3.37	6.53	3.00	1.45	1.96	0.30	0.14	
	DIFFERENCE	3.29	0.53	3.04	0.77	1.01	0.22	0.75	0.19	0.09	0.06	

3D GRANDE RONDE UNIT 3D

NO. OF OXIDES=10 NO. OF DATA CARDS= 15

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	73-253	53.81	14.24	11.65	4.91	8.89	2.66	0.90	1.74	0.33	0.18	TR11R2
	71-76	53.31	14.44	11.51	5.15	8.89	2.82	1.41	1.78	0.26	0.20	Y1R2
	71-77	54.56	14.88	10.84	4.85	8.31	2.93	1.31	1.70	0.26	0.16	Y2R2
*	73-360FB	54.03	14.72	10.79	4.92	9.03	2.88	1.22	1.58	0.28	0.17	HG8R2
	73-380FB	53.65	14.50	10.95	5.31	9.02	2.88	1.17	1.65	0.27	0.16	LH7R2
	74-56	53.63	14.86	10.22	5.29	9.69	2.93	1.06	1.67	0.25	0.18	PG12R2
	74-226	53.43	14.44	11.37	5.44	8.69	3.03	1.22	1.69	0.28	0.17	LH7R2
	74-254	53.79	14.42	11.30	5.13	8.94	2.80	1.19	1.73	0.26	0.20	AS8R2
	74-271	53.63	14.21	10.94	5.40	9.53	2.81	1.04	1.72	0.29	0.19	TO1R2
	74-272	53.86	14.23	10.96	5.37	9.26	2.70	1.19	1.72	0.29	0.18	TO2R2
	75-11	53.12	14.60	11.35	5.28	9.17	2.96	1.07	1.76	0.24	0.20	KB1R2
	75-12	53.42	14.73	10.89	5.29	9.22	3.01	1.11	1.68	0.23	0.19	KB2R2
	75-79	52.80	14.87	11.68	5.30	9.12	2.92	0.93	1.70	0.25	0.19	TA3R2
	75-80	53.03	14.75	11.73	5.18	8.90	2.93	1.06	1.75	0.24	0.19	TA4R2
	75-210	52.74	15.20	11.66	5.06	9.17	2.95	0.85	1.75	0.25	0.18	PC3R2
	NO.POINTS	14	14	14	14	14	14	14	14	14	14	
3D	AVERAGE	53.48	14.60	11.22	5.21	9.06	2.88	1.11	1.72	0.26	0.18	
	STD.DEV.	0.48	0.29	0.43	0.18	0.34	0.11	0.16	0.04	0.03	0.01	
	MAXIMUM	54.56	15.20	11.73	5.44	9.69	3.03	1.41	1.78	0.33	0.20	
	MINIMUM	52.74	14.21	10.22	4.85	8.31	2.66	0.85	1.65	0.23	0.16	
	DIFFERENCE	1.82	0.99	1.51	0.59	1.38	0.37	0.56	0.13	0.10	0.04	

5D GRANDE RONDE UNIT 5D

NO. OF OXIDES=10 NO. OF DATA CARDS= 7

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-253	55.24	13.91	11.95	4.13	7.74	2.67	1.68	1.96	0.29	0.18	AS9R2
	75-81	54.56	14.16	12.01	4.19	7.84	2.96	1.63	1.94	0.28	0.18	TA5R2
	74-225	54.62	14.12	11.53	4.35	7.95	3.11	1.77	1.84	0.29	0.18	LH8R2
	74-239	54.95	13.92	11.54	4.45	8.19	3.04	1.37	1.83	0.27	0.20	SB1R2
	74-252	55.57	14.09	11.31	4.22	7.68	3.06	1.46	1.88	0.28	0.20	AS10R2
	74-251	55.36	13.74	11.63	4.58	7.45	3.17	1.50	1.87	0.28	0.17	AS11R2
	75-211	54.75	14.34	11.70	4.15	7.75	3.04	1.68	1.90	0.29	0.19	PC4R2
	NO.POINTS	7	7	7	7	7	7	7	7	7	7	
5D	AVERAGE	55.01	14.04	11.67	4.30	7.80	3.01	1.58	1.89	0.28	0.19	
	STD.DEV.	0.39	0.20	0.25	0.17	0.23	0.16	0.14	0.05	0.01	0.01	
	MAXIMUM	55.57	14.34	12.01	4.58	8.19	3.17	1.77	1.96	0.29	0.20	
	MINIMUM	54.56	13.74	11.31	4.13	7.45	2.67	1.37	1.83	0.27	0.17	
	DIFFERENCE	1.01	0.60	0.70	0.45	0.74	0.50	0.40	0.13	0.02	0.03	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
75-212	55.81	14.54	10.23	3.89	7.53	3.15	2.06	2.06	0.37	0.18	PC5R2
75-213	55.55	14.56	11.34	3.28	7.13	3.46	1.56	2.31	0.46	0.15	PC6R2
74-273	54.97	13.45	12.32	3.81	7.45	3.02	1.73	2.30	0.49	0.20	TO3R2

	NO.POINTS	3	3	3	3	3	3	3	3	3	3
GRB	AVERAGE	55.44	14.18	11.30	3.66	7.37	3.21	1.78	2.22	0.44	0.18
	STD.DEV.	0.43	0.64	1.05	0.33	0.21	0.23	0.25	0.14	0.06	0.03
	MAXIMUM	55.81	14.56	12.32	3.89	7.53	3.46	2.06	2.31	0.49	0.20
	MINIMUM	54.97	13.45	10.23	3.28	7.13	3.02	1.56	2.06	0.37	0.15
	DIFFERENCE	0.84	1.11	2.09	0.61	0.40	0.44	0.50	0.25	0.12	0.05

2D GRANDE RONDE UNIT 2D

NO. OF OXIDES=10 NO. OF DATA CARDS= 34

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
74-250	54.78	13.55	12.66	3.77	7.46	3.11	1.68	2.14	0.37	0.21	AS12R2
75-82	54.11	14.31	12.20	4.00	7.73	3.09	1.60	2.10	0.40	0.21	TA6R2
73-381FB	54.87	14.19	11.76	3.83	7.39	3.26	1.61	2.08	0.39	0.20	LH9R2
74-57	54.83	14.09	11.83	3.79	7.68	3.22	1.69	2.12	0.33	0.18	PG13R2
74-58	54.59	14.28	12.37	3.61	7.15	3.19	1.90	2.12	0.35	0.19	PG14R2
75-101	54.30	14.14	12.19	3.92	7.72	3.03	1.71	2.15	0.39	0.19	AC6R2
71-78	54.36	14.22	13.01	3.32	6.46	3.32	1.81	2.26	0.42	0.20	Y3R2
74-59	54.21	14.03	12.63	3.75	7.33	3.41	1.53	2.25	0.40	0.19	PG15R2
75-13	54.15	14.11	12.79	3.79	7.17	3.16	1.69	2.25	0.44	0.20	KB3R2
74-60	54.51	14.23	11.75	3.89	7.87	3.00	1.75	2.16	0.40	0.19	PG16R2
74-61	54.43	14.32	11.83	3.84	7.81	3.02	1.76	2.16	0.39	0.19	PG17R2
75-214	54.13	14.71	12.01	3.86	7.75	3.05	1.48	2.20	0.41	0.19	PC7R2
73-293	55.04	13.66	12.12	3.64	7.27	2.83	2.22	2.32	0.43	0.21	GF18R2
75-83	54.71	14.09	12.03	3.55	7.28	2.95	2.09	2.43	0.43	0.20	TA7R2
74-238	55.90	13.50	12.01	3.18	6.75	3.03	2.38	2.31	0.50	0.19	SB2R2
74-249	56.16	13.66	11.48	3.25	6.79	2.97	2.39	2.30	0.53	0.23	AS13R2
74-62	54.02	14.08	12.97	3.69	6.93	3.29	1.71	2.44	0.42	0.18	PG18R2
74-237	54.20	13.64	12.93	3.81	7.25	3.10	1.67	2.49	0.43	0.20	SB3R2
74-248	53.95	13.69	12.70	3.87	7.33	3.33	1.72	2.50	0.44	0.22	AS14R2
74-274	54.01	13.55	12.89	3.93	7.24	3.24	1.76	2.46	0.45	0.20	TO4R2
75-84	54.15	14.20	12.39	3.69	7.19	2.98	2.08	2.44	0.43	0.19	TA8R2
75-85	53.72	14.19	12.79	3.78	7.24	2.99	1.98	2.42	0.43	0.19	TA9R2
75-215	54.18	14.30	11.99	3.75	7.43	3.30	1.78	2.46	0.43	0.18	PC8R2
74-275	55.24	13.71	12.38	3.39	6.96	3.10	1.99	2.29	0.45	0.23	TO5R2
74-276	55.67	13.58	11.44	3.58	7.18	3.22	2.04	2.36	0.48	0.20	TO6R2
75-14	55.41	14.24	12.00	3.39	6.77	3.01	1.98	2.33	0.44	0.18	KB4R2
74-277	55.58	13.86	11.77	3.50	7.07	3.20	1.95	2.20	0.43	0.20	TO7R2
74-278	55.54	13.58	11.90	3.51	7.11	3.17	2.10	2.24	0.41	0.20	TO8R2
75-86	55.54	14.29	11.98	3.46	6.94	2.99	1.83	2.15	0.39	0.18	TA10R2
75-102	56.34	14.01	11.32	3.27	6.96	3.04	2.08	2.18	0.37	0.19	AC7R2
74-63	56.94	14.32	9.86	3.37	6.99	3.10	2.35	2.25	0.42	0.19	PG19R2
74-236	56.14	13.90	11.34	3.35	6.97	2.91	2.26	2.25	0.43	0.20	SB4R2
74-247	56.27	14.12	11.42	3.50	6.43	3.32	1.90	2.23	0.40	0.17	AS15R2
75-216	55.34	14.15	11.93	3.74	6.46	3.55	1.83	2.26	0.40	0.15	PC9R2
NO.POINTS	34	34	34	34	34	34	34	34	34	34	
2D AVERAGE	54.92	14.01	12.08	3.63	7.18	3.13	1.89	2.27	0.42	0.19	
STD.DEV.	0.84	0.30	0.63	0.22	0.38	0.16	0.24	0.12	0.04	0.02	
MAXIMUM	56.94	14.71	13.01	4.00	7.87	3.55	2.39	2.50	0.53	0.23	
MINIMUM	53.72	13.50	9.86	3.18	6.43	2.83	1.48	2.08	0.33	0.15	
DIFFERENCE	3.22	1.21	3.15	0.82	1.44	0.72	0.91	0.42	0.20	0.08	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
73-382FB	56.04	14.10	10.26	3.76	7.59	3.07	2.04	2.14	0.43	0.21	LH10R2

	73-383FB	55.94	13.99	10.72	3.45	7.15	3.14	2.00	2.37	0.54	0.17 LH11R2
	74-64	55.80	14.18	12.01	2.89	6.66	3.49	1.78	2.31	0.46	0.16 PG20R2
	75-217	54.89	14.38	12.01	3.26	6.95	3.44	1.84	2.35	0.49	0.19 PC10R2
	NO.POINTS	4	4	4	4	4	4	4	4	4	4
GRB	AVERAGE	55.67	14.16	11.25	3.34	7.09	3.29	1.92	2.29	0.48	0.18
	STD.DEV.	0.53	0.16	0.90	0.36	0.39	0.21	0.12	0.10	0.05	0.02
	MAXIMUM	56.04	14.38	12.01	3.76	7.59	3.49	2.04	2.37	0.54	0.21
	MINIMUM	54.89	13.99	10.26	2.89	6.66	3.07	1.78	2.14	0.43	0.16
	DIFFERENCE	1.15	0.39	1.75	0.87	0.93	0.42	0.26	0.23	0.11	0.05

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-246	54.15	13.69	12.26	4.58	8.19	2.95	1.42	1.99	0.31	0.20	AS16R2
	75-87	53.99	14.24	12.27	4.45	8.28	2.78	1.29	1.96	0.29	0.19	TA11R2
	75-88	54.18	14.30	11.62	4.50	8.24	3.02	1.38	2.03	0.30	0.18	TA12R2
	75-89	53.83	14.08	12.44	4.40	7.98	3.08	1.33	2.08	0.32	0.20	TA13R2
	74-279	54.55	13.71	12.02	4.48	8.01	3.18	1.18	2.06	0.34	0.21	T09R2
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	
AS16	AVERAGE	54.14	14.00	12.12	4.48	8.14	3.00	1.32	2.02	0.31	0.20	
	STD.DEV.	0.27	0.29	0.32	0.07	0.14	0.15	0.09	0.05	0.02	0.01	
	MAXIMUM	54.55	14.30	12.44	4.58	8.28	3.18	1.42	2.08	0.34	0.21	
	MINIMUM	53.83	13.69	11.62	4.40	7.98	2.78	1.18	1.96	0.29	0.19	
	DIFFERENCE	0.72	0.61	0.82	0.18	0.30	0.40	0.24	0.12	0.05	0.02	

2E GRANDE RONDE UNIT 2E

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-65	54.86	14.11	12.71	3.52	7.11	3.10	1.71	2.13	0.32	0.17	PG21R2
	74-66	55.74	13.99	11.56	3.59	7.17	2.99	2.03	2.14	0.36	0.20	PG22R2
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
2E	AVERAGE	55.30	14.05	12.14	3.56	7.14	3.05	1.87	2.14	0.34	0.19	
	STD.DEV.	0.62	0.08	0.81	0.05	0.04	0.08	0.23	0.01	0.03	0.02	
	MAXIMUM	55.74	14.11	12.71	3.59	7.17	3.10	2.03	2.14	0.36	0.20	
	MINIMUM	54.86	13.99	11.56	3.52	7.11	2.99	1.71	2.13	0.32	0.17	
	DIFFERENCE	0.88	0.12	1.15	0.07	0.06	0.11	0.32	0.01	0.04	0.03	

KB5 GRANDE RONDE UNIT KB5

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-245	53.89	13.54	13.02	4.12	7.80	3.17	1.31	2.25	0.41	0.21	AS17R2
	74-280	53.52	13.42	13.02	4.11	7.94	3.34	1.43	2.28	0.45	0.22	T010R2
	75-15	53.36	14.00	12.94	4.17	7.78	3.11	1.51	2.23	0.41	0.22	KB5R2
	75-90	53.84	14.08	12.45	4.10	7.76	2.98	1.74	2.18	0.41	0.21	TA14N1
	75-91	53.55	14.17	12.64	4.15	7.79	3.10	1.52	2.21	0.40	0.21	TA15N1
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	

R2
N1

KB5	AVERAGE	53.63	13.84	12.81	4.13	7.81	3.14	1.50	2.23	0.42	0.21
	STD.DEV.	0.23	0.34	0.26	0.03	0.07	0.13	0.16	0.04	0.02	0.01
	MAXIMUM	53.89	14.17	13.02	4.17	7.94	3.34	1.74	2.28	0.45	0.22
	MINIMUM	53.36	13.42	12.45	4.10	7.76	2.98	1.31	2.18	0.40	0.21
	DIFFERENCE	0.53	0.75	0.57	0.07	0.18	0.36	0.43	0.10	0.05	0.01

3E GRANDE RONDE UNIT 3E

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	SECTION
	74-244	54.67	14.13	11.25	5.04	8.14	3.28	1.16	1.70	0.24	0.16	AS18N1
	74-281	53.87	14.33	11.25	5.17	8.81	3.19	1.03	1.67	0.25	0.19	TO11N1
	75-16	54.04	14.50	11.08	5.14	8.77	2.94	1.25	1.64	0.22	0.18	KB6N1
	NO.POINTS	3	3	3	3	3	3	3	3	3	3	
3E	AVERAGE	54.19	14.32	11.19	5.12	8.57	3.14	1.15	1.67	0.24	0.18	
	STD.DEV.	0.42	0.19	0.10	0.07	0.38	0.18	0.11	0.03	0.02	0.02	
	MAXIMUM	54.67	14.50	11.25	5.17	8.81	3.28	1.25	1.70	0.25	0.19	
	MINIMUM	53.87	14.13	11.08	5.04	8.14	2.94	1.03	1.64	0.22	0.16	
	DIFFERENCE	0.80	0.37	0.17	0.13	0.67	0.34	0.22	0.06	0.03	0.03	

GRB UNCLASSIFIED FLOW

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	SECTION
	74-282	53.90	13.96	12.51	4.27	7.88	3.12	1.53	1.95	0.40	0.21	TO12N1

3F GRANDE RONDE UNIT 3F

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	SECTION
	74-67	54.14	14.55	11.38	5.02	8.73	2.83	1.06	1.65	0.23	0.18	PG23N1
	74-283	54.12	14.13	11.38	5.02	8.89	2.94	1.12	1.70	0.29	0.17	TO13N1
	75-17	54.12	14.81	10.95	5.00	8.79	2.91	1.11	1.67	0.22	0.18	KB7N1
	75-92	54.40	14.84	10.51	4.93	8.87	3.02	1.13	1.63	0.24	0.19	TA16N1
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	
3F	AVERAGE	54.20	14.58	11.06	4.99	8.82	2.93	1.11	1.66	0.25	0.18	
	STD.DEV.	0.14	0.33	0.42	0.04	0.07	0.08	0.03	0.03	0.03	0.01	
	MAXIMUM	54.40	14.84	11.38	5.02	8.89	3.02	1.13	1.70	0.29	0.19	
	MINIMUM	54.12	14.13	10.51	4.93	8.73	2.83	1.06	1.63	0.22	0.17	
	DIFFERENCE	0.28	0.71	0.87	0.09	0.16	0.19	0.07	0.07	0.07	0.02	

5E GRANDE RONDE UNIT 5E

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	SECTION
	75-18	54.55	14.49	11.18	4.52	8.21	2.98	1.55	1.78	0.30	0.20	KB8N1
	75-93	54.40	14.38	11.79	4.43	8.01	3.07	1.38	1.81	0.29	0.19	TA17N1
	75-94	54.41	14.41	11.62	4.52	8.20	2.92	1.40	1.77	0.30	0.20	TA18N1
	NO.POINTS	3	3	3	3	3	3	3	3	3	3	
5E	AVERAGE	54.45	14.43	11.53	4.49	8.14	2.99	1.44	1.79	0.30	0.20	

STD.DEV.	0.08	0.06	0.31	0.05	0.11	0.08	0.09	0.02	0.01	0.01
MAXIMUM	54.55	14.49	11.79	4.52	8.21	3.07	1.55	1.81	0.30	0.20
MINIMUM	54.40	14.38	11.18	4.43	8.01	2.92	1.38	1.77	0.29	0.19
DIFFERENCE	0.15	0.11	0.61	0.09	0.20	0.15	0.17	0.04	0.01	0.01

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	75-19	54.39	14.41	11.64	4.22	8.12	3.12	1.39	1.94	0.33	0.20	KB9N1
	75-20	54.29	14.05	12.15	3.94	7.76	3.08	1.71	2.18	0.39	0.20	KB10N1
	74-284	53.96	14.02	12.43	4.42	7.71	3.26	1.37	2.00	0.38	0.19	TO14N1
	75-95	53.91	14.18	12.88	4.28	7.23	3.23	1.39	2.07	0.37	0.19	TA19N1
	75-96	54.94	14.16	12.36	3.85	7.30	3.20	1.41	2.01	0.30	0.21	TA20N1
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	
AS16	AVERAGE	54.30	14.16	12.29	4.14	7.62	3.18	1.45	2.04	0.35	0.20	
	STD.DEV.	0.41	0.15	0.45	0.24	0.36	0.08	0.14	0.09	0.04	0.01	
	MAXIMUM	54.94	14.41	12.88	4.42	8.12	3.26	1.71	2.18	0.39	0.21	
	MINIMUM	53.91	14.02	11.64	3.85	7.23	3.08	1.37	1.94	0.30	0.19	
	DIFFERENCE	1.03	0.39	1.24	0.57	0.89	0.18	0.34	0.24	0.09	0.02	

3G GRANDE RONDE UNIT 3G

NO. OF OXIDES=10 NO. OF DATA CARDS= 5

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	75-21	55.00	14.87	10.11	4.72	8.59	3.12	1.19	1.73	0.28	0.19	KB11N1
	74-68	54.24	14.55	11.09	4.95	8.67	3.08	1.07	1.68	0.24	0.19	PG24N1
	74-285	54.48	14.46	11.23	4.71	8.58	2.80	1.33	1.71	0.27	0.19	TO15N1
	74-286	54.49	14.30	10.96	4.90	8.50	3.08	1.37	1.69	0.29	0.19	TO16N1
	75-22	54.33	14.71	11.48	4.67	8.44	2.87	1.15	1.69	0.24	0.18	KB12N1
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	
3G	AVERAGE	54.51	14.58	10.97	4.79	8.56	2.99	1.22	1.70	0.26	0.19	
	STD.DEV.	0.29	0.22	0.52	0.13	0.09	0.14	0.13	0.02	0.02	0.00	
	MAXIMUM	55.00	14.87	11.48	4.95	8.67	3.12	1.37	1.73	0.29	0.19	
	MINIMUM	54.24	14.30	10.11	4.67	8.44	2.80	1.07	1.68	0.24	0.18	
	DIFFERENCE	0.76	0.57	1.37	0.28	0.23	0.32	0.30	0.05	0.05	0.01	

5F GRANDE RONDE UNIT 5F

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	75-23	56.00	14.28	10.87	3.80	7.49	3.29	1.57	1.97	0.31	0.19	KB13N1
	75-97	55.66	14.23	11.46	3.79	7.30	3.16	1.74	1.92	0.31	0.19	TA21N1
	75-98	55.38	14.61	10.68	4.18	7.90	3.21	1.40	1.96	0.29	0.18	TA22N1
	74-287	55.40	13.80	12.02	3.76	7.22	3.43	1.57	2.04	0.33	0.18	TO17N1
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	
5F	AVERAGE	55.61	14.23	11.26	3.88	7.48	3.27	1.57	1.97	0.31	0.19	
	STD.DEV.	0.29	0.33	0.61	0.20	0.30	0.12	0.14	0.05	0.02	0.01	
	MAXIMUM	56.00	14.61	12.02	4.18	7.90	3.43	1.74	2.04	0.33	0.19	
	MINIMUM	55.38	13.80	10.68	3.76	7.22	3.16	1.40	1.92	0.29	0.18	
	DIFFERENCE	0.62	0.81	1.34	0.42	0.68	0.27	0.34	0.12	0.04	0.01	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-69	53.46	15.11	12.37	4.73	7.91	3.08	0.81	1.80	0.28	0.19	PG25N1

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-288	54.34	13.93	12.47	4.05	7.51	3.51	1.42	1.98	0.32	0.22	TO18N1
	75-24	54.47	14.26	11.83	4.29	7.93	3.30	1.29	1.93	0.27	0.20	KB14N1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
AS16	AVERAGE	54.41	14.10	12.15	4.17	7.72	3.40	1.36	1.96	0.30	0.21	
	STD.DEV.	0.09	0.23	0.45	0.17	0.30	0.15	0.09	0.04	0.04	0.01	
	MAXIMUM	54.47	14.26	12.47	4.29	7.93	3.51	1.42	1.98	0.32	0.22	
	MINIMUM	54.34	13.93	11.83	4.05	7.51	3.30	1.29	1.93	0.27	0.20	
	DIFFERENCE	0.13	0.33	0.64	0.24	0.42	0.21	0.13	0.05	0.05	0.02	

5G GRANDE RONDE UNIT 5G

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-70	54.58	14.52	11.36	4.48	8.02	2.92	1.61	1.78	0.31	0.19	PG26N1

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-289	54.14	14.00	12.45	4.07	7.87	3.04	1.57	2.06	0.35	0.19	TO19N1
	75-99	53.75	14.55	12.61	4.40	7.97	2.88	1.06	2.10	0.25	0.17	TA23N1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
AS16	AVERAGE	53.94	14.28	12.53	4.24	7.92	2.96	1.32	2.08	0.30	0.18	
	STD.DEV.	0.28	0.39	0.11	0.23	0.07	0.11	0.36	0.03	0.07	0.01	
	MAXIMUM	54.14	14.55	12.61	4.40	7.97	3.04	1.57	2.10	0.35	0.19	
	MINIMUM	53.75	14.00	12.45	4.07	7.87	2.88	1.06	2.06	0.25	0.17	
	DIFFERENCE	0.39	0.55	0.16	0.33	0.10	0.16	0.51	0.04	0.10	0.02	

5H GRANDE RONDE UNIT 5H

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-290	55.34	13.91	11.54	4.08	7.71	3.11	1.56	2.01	0.30	0.20	TO20N1
	75-25	55.14	14.50	11.46	3.92	7.60	2.94	1.78	1.96	0.28	0.18	KB15N1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
5H	AVERAGE	55.24	14.20	11.50	4.00	7.66	3.03	1.67	1.99	0.29	0.19	
	STD.DEV.	0.14	0.42	0.06	0.11	0.08	0.12	0.16	0.04	0.01	0.01	
	MAXIMUM	55.34	14.50	11.54	4.08	7.71	3.11	1.78	2.01	0.30	0.20	

MINIMUM	55.14	13.91	11.46	3.92	7.60	2.94	1.56	1.96	0.28	0.18
DIFFERENCE	0.20	0.59	0.08	0.16	0.11	0.17	0.22	0.05	0.02	0.02

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
75-26	54.54	14.53	11.59	4.24	7.82	3.12	1.52	1.93	0.28	0.19	KB16N1

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-291	57.04	13.58	11.36	3.17	6.75	3.10	2.10	2.15	0.32	0.18	TO21N1
	75-27	56.28	14.17	11.97	3.06	6.55	3.25	1.86	2.12	0.31	0.18	KB17N1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
GRB	AVERAGE	56.66	13.88	11.66	3.12	6.65	3.17	1.98	2.13	0.31	0.18	
	STD.DEV.	0.54	0.42	0.43	0.08	0.14	0.11	0.17	0.02	0.01	0.00	
	MAXIMUM	57.04	14.17	11.97	3.17	6.75	3.25	2.10	2.15	0.32	0.18	
	MINIMUM	56.28	13.58	11.36	3.06	6.55	3.10	1.86	2.12	0.31	0.18	
	DIFFERENCE	0.76	0.59	0.61	0.11	0.20	0.15	0.24	0.03	0.01	0.00	

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-292	56.60	13.51	11.86	3.32	6.87	3.08	1.93	2.09	0.30	0.19	TO22N1
	75-28	54.60	14.66	11.61	4.19	7.71	3.08	1.43	1.98	0.31	0.18	KB18N1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
AS16	AVERAGE	55.60	14.09	11.73	3.76	7.29	3.08	1.68	2.04	0.31	0.19	
	STD.DEV.	1.41	0.81	0.18	0.62	0.59	0.00	0.35	0.08	0.01	0.01	
	MAXIMUM	56.60	14.66	11.86	4.19	7.71	3.08	1.93	2.09	0.31	0.19	
	MINIMUM	54.60	13.51	11.61	3.32	6.87	3.08	1.43	1.98	0.30	0.18	
	DIFFERENCE	2.00	1.15	0.25	0.87	0.84	0.00	0.50	0.11	0.01	0.01	

2F GRANDE RONDE UNIT 2F

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-293	54.74	13.61	12.86	3.82	7.29	3.16	1.53	2.16	0.36	0.22	TO23R1
	74-294	54.67	13.57	12.81	3.62	7.13	3.46	1.58	2.27	0.43	0.20	TO24R1
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
2F	AVERAGE	54.71	13.59	12.84	3.72	7.21	3.31	1.56	2.22	0.40	0.21	
	STD.DEV.	0.05	0.03	0.04	0.14	0.11	0.21	0.04	0.08	0.05	0.01	
	MAXIMUM	54.74	13.61	12.86	3.82	7.29	3.46	1.58	2.27	0.43	0.22	
	MINIMUM	54.67	13.57	12.81	3.62	7.13	3.16	1.53	2.16	0.36	0.20	
	DIFFERENCE	0.07	0.04	0.05	0.20	0.16	0.30	0.05	0,11	0.07	0.02	

5I GRANDE RONDE UNIT 5I

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
74-295	55.81	14.01	11.33	3.95	7.49	3.08	1.61	1.99	0.30	0.19	TO25R1

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
74-296	54.21	13.75	12.12	4.39	8.33	2.85	1.44	2.15	0.33	0.19	TO26R1

Table 2B. Major element analyses of flows, Columbia River field sections.

1A GRANDE RONDE UNIT 1A

NO. OF OXIDES-10 NO. OF DATA CARDS- 8

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	SB77-081	54.78	14.25	10.89	4.64	8.59	3.01	1.40	1.75	0.29	0.19	CH2N2
	SB77-095	54.25	14.43	11.19	4.97	8.51	2.90	1.36	1.69	0.27	0.19	BC1N2
	SB77-180	54.20	14.25	11.21	4.98	8.63	2.97	1.26	1.71	0.26	0.19	QB1N2
	SB77-181	54.25	14.27	11.30	4.73	8.55	3.04	1.25	1.77	0.29	0.19	QB2N2
	78-216 M	54.78	14.28	11.21	4.70	8.08	3.07	1.45	1.74	0.29	0.17	CB1N2
	78-252 M	54.72	14.22	10.87	4.96	8.35	3.10	1.37	1.75	0.28	0.17	DC1N2
	78-251 M	54.72	14.51	10.89	4.84	8.27	3.22	1.18	1.72	0.27	0.17	DC2N2
*	SB77-123	56.12	14.71	8.98	4.57	8.53	3.20	1.41	1.78	0.31	0.18	SG1N2
	NO.POINTS	7	7	7	7	7	7	7	7	7	7	
1A	AVERAGE	54.53	14.32	11.08	4.83	8.43	3.04	1.32	1.73	0.28	0.18	
	STD.DEV.	0.28	0.11	0.19	0.14	0.20	0.10	0.10	0.03	0.01	0.01	
	MAXIMUM	54.78	14.51	11.30	4.98	8.63	3.22	1.45	1.77	0.29	0.19	
	MINIMUM	54.20	14.22	10.87	4.64	8.08	2.90	1.18	1.69	0.26	0.17	
	DIFFERENCE	0.58	0.29	0.43	0.34	0.55	0.32	0.27	0.08	0.03	0.02	

3A GRANDE RONDE UNIT 3A

NO. OF OXIDES-10 NO. OF DATA CARDS- 14

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	78-249 M	54.13	14.73	10.58	4.98	8.93	2.93	1.28	1.80	0.25	0.18	DC4N2
	SB77-178	54.48	13.95	11.13	5.19	8.87	2.86	1.17	1.72	0.22	0.20	QB4N2
	SB77-080	53.07	14.54	11.35	5.51	9.25	2.85	1.09	1.71	0.20	0.19	CH3N2
	SB77-079	53.62	14.44	11.14	5.32	9.16	2.81	1.14	1.73	0.23	0.19	CH4N2
	SB77-092	53.24	14.27	11.75	5.35	9.05	2.93	0.97	1.77	0.22	0.20	BC2N2
	SB77-094	53.62	14.40	11.37	5.34	9.04	2.78	1.10	1.71	0.22	0.19	BC3N2
	SB77-093	53.78	14.49	11.18	5.01	9.30	2.76	1.08	1.75	0.22	0.19	BC4N2
	SB77-179	53.44	14.42	11.42	5.33	9.06	2.83	1.09	1.74	0.23	0.19	QB3N2
	SB77-138	53.70	14.21	11.52	5.20	8.83	3.10	1.00	1.76	0.26	0.19	NC1N2
	78-215 M	54.04	14.26	11.55	5.14	8.55	3.05	1.00	1.77	0.23	0.17	CB2N2
	78-250 M	53.88	14.66	10.76	5.28	8.84	3.07	1.16	1.74	0.23	0.18	DC3N2
	78-280 M	53.66	14.34	11.32	5.23	8.85	2.89	1.26	1.76	0.23	0.18	LL1N2
	78-221 M	53.96	13.94	11.81	5.22	8.81	2.83	0.98	1.78	0.24	0.18	CC1N2
	SB77-078	53.30	14.21	11.79	5.12	8.86	2.99	1.22	1.78	0.28	0.20	CH5N2
	SB74-024	54.04	14.39	10.93	5.13	8.94	2.91	1.10	1.81	0.31	0.16	DR15N2
	NO.POINTS	15	15	15	15	15	15	15	15	15	15	
3A	AVERAGE	53.73	14.35	11.31	5.22	8.96	2.91	1.11	1.76	0.24	0.19	
	STD.DEV.	0.37	0.22	0.36	0.14	0.19	0.11	0.10	0.03	0.03	0.01	
	MAXIMUM	54.48	14.73	11.81	5.51	9.30	3.10	1.28	1.81	0.31	0.20	
	MINIMUM	53.07	13.94	10.58	4.98	8.55	2.76	0.97	1.71	0.20	0.16	
	DIFFERENCE	1.41	0.79	1.23	0.53	0.75	0.34	0.31	0.10	0.11	0.04	

4A GRANDE RONDE UNIT 4A

NO. OF OXIDES-10 NO. OF DATA CARDS- 30

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	78-248 M	53.66	14.25	11.66	5.02	8.75	2.96	1.25	1.78	0.26	0.18	DC5N2
	SB77-122	53.85	14.14	11.43	4.98	8.79	3.11	1.18	1.80	0.29	0.20	SG2N2
	78-214 M	54.12	14.27	11.55	4.98	8.51	2.92	1.15	1.80	0.29	0.18	CB3N2

	78-213 M	53.99	14.03	11.70	5.05	8.46	3.00	1.27	1.81	0.29	0.18	CB4N2
	78-279 M	53.93	14.22	11.54	4.86	8.52	2.95	1.35	1.85	0.31	0.19	LL2N2
	SB77-077	53.61	14.14	12.00	4.81	8.69	2.98	1.20	1.87	0.26	0.20	CH6N2
	SB77-177	53.89	14.10	11.97	4.88	8.45	2.94	1.20	1.87	0.25	0.20	QB5N2
	SB77-091	53.59	14.33	11.68	4.92	8.74	2.94	1.18	1.91	0.26	0.20	BC5N2
	SB77-090	53.74	14.20	11.99	4.94	8.50	2.95	1.11	1.88	0.25	0.20	BC6N2
	SB77-089	53.99	14.13	11.85	4.77	8.59	2.95	1.15	1.89	0.25	0.20	BC7N2
	78-212 M	54.90	14.02	11.49	4.68	8.11	3.03	1.21	1.90	0.25	0.19	CB5N2
	78-247 M	54.45	14.09	11.53	4.42	8.51	3.06	1.32	1.94	0.27	0.19	DC6N2
	78-246 M	54.16	13.95	11.91	4.66	8.28	3.15	1.29	1.92	0.26	0.19	DC7N2
	78-097 M	53.81	14.36	11.55	4.95	8.80	2.95	1.09	1.82	0.27	0.19	SC1N2
*	78-097 M	53.13	14.47	11.83	4.85	8.87	2.79	1.13	1.86	0.37	0.18	SC1N2
	78-087 M	53.93	14.26	11.65	4.80	8.59	3.04	1.22	1.86	0.24	0.20	KF1N2
*	78-087 M	53.31	14.40	12.10	4.73	8.31	2.98	1.33	1.95	0.41	0.19	KF1N2
	78-065 M	53.96	14.24	11.31	4.90	8.87	3.08	1.27	1.84	0.33	0.19	L1N2
*	78-065 M	53.05	14.23	11.63	5.12	8.98	2.97	1.33	1.84	0.33	0.23	L1N2
	78-096 M	53.85	14.30	11.37	4.84	8.67	3.07	1.35	1.84	0.31	0.19	SC2N2
	78-095 M	54.06	14.36	10.96	4.68	8.74	3.19	1.37	1.91	0.32	0.20	SC3N2
	78-064 M	53.60	14.39	11.31	5.04	8.92	3.03	1.19	1.80	0.31	0.20	L2N2
	78-063 M	53.79	14.12	11.55	4.87	8.59	3.08	1.35	1.88	0.36	0.20	L3N2
	SB76-104	55.85	14.30	9.53	4.59	8.59	2.98	1.44	1.92	0.40	0.18	RI4N2
	SB76-102	55.21	14.07	10.55	4.75	8.44	3.02	1.34	1.85	0.37	0.18	RI5N2
	78-062 M	53.15	13.84	12.28	4.66	8.31	3.29	1.40	2.26	0.38	0.21	L4N2
	78-061 M	53.23	14.27	11.46	4.89	9.04	3.26	1.15	2.01	0.29	0.20	L5N2
	78-278 M	54.53	14.21	11.10	4.42	8.33	3.14	1.33	2.05	0.42	0.19	LL3N2
	78-277 M	54.04	14.03	12.40	4.33	7.97	3.23	1.22	2.02	0.27	0.19	LL4N2
	78-088 M	53.78	14.26	11.59	4.71	8.68	2.98	1.29	2.04	0.27	0.20	KF2N2
	74-023 M	54.06	14.12	11.71	4.97	8.21	3.15	1.11	1.82	0.35	0.16	DR14N2
	74-022 M	53.63	14.77	11.91	4.55	7.98	3.03	1.31	2.02	0.36	0.17	DR13N2
	NO.POINTS	29	29	29	29	29	29	29	29	29	29	
4A	AVERAGE	54.01	14.20	11.54	4.79	8.54	3.05	1.25	1.90	0.30	0.19	
	STD.DEV.	0.55	0.17	0.54	0.19	0.26	0.10	0.09	0.10	0.05	0.01	
	MAXIMUM	55.85	14.77	12.40	5.05	9.04	3.29	1.44	2.26	0.42	0.21	
	MINIMUM	53.15	13.84	9.53	4.33	7.97	2.92	1.09	1.78	0.24	0.16	
	DIFFERENCE	2.70	0.93	2.87	0.72	1.07	0.37	0.35	0.48	0.18	0.05	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	78-089 M	56.38	14.28	11.25	3.53	6.87	3.12	1.80	2.13	0.25	0.19	KF3N2
	78-090 M	56.60	13.84	10.57	3.53	7.09	3.41	1.90	2.37	0.29	0.20	KF4N2
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
GRB	AVERAGE	56.49	14.06	10.91	3.53	6.98	3.27	1.85	2.25	0.27	0.20	
	STD.DEV.	0.16	0.31	0.48	0.00	0.16	0.21	0.07	0.17	0.03	0.01	
	MAXIMUM	56.60	14.28	11.25	3.53	7.09	3.41	1.90	2.37	0.29	0.20	
	MINIMUM	56.38	13.84	10.57	3.53	6.87	3.12	1.80	2.13	0.25	0.19	
	DIFFERENCE	0.22	0.44	0.68	0.00	0.22	0.29	0.10	0.24	0.04	0.01	

5A GRANDE RONDE UNIT 5A

NO. OF OXIDES=10 NO. OF DATA CARDS= 19

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	78-211 M	55.79	13.70	12.13	3.85	7.07	3.22	1.54	1.99	0.34	0.12	CB6N2
	SB77-076	56.04	13.81	11.34	3.85	7.57	2.85	1.72	1.98	0.28	0.20	CH7N2
	78-060 M	55.42	14.00	11.06	4.21	7.73	3.39	1.70	1.85	0.28	0.18	L6N2

	SB77-002	55.35	13.85	11.74	4.08	7.56	3.32	1.49	1.92	0.26	0.17 RI7N2
	78-245 M	57.31	13.98	10.10	3.62	7.17	3.28	1.94	1.92	0.30	0.17 DC8N2
	SB76-099	56.60	13.59	11.29	3.57	7.23	3.18	1.90	1.93	0.28	0.18 RI7N2
	SB77-074	56.53	13.88	11.18	3.57	7.16	3.28	1.77	1.93	0.28	0.18 CH8N2
	SB77-087	56.45	13.96	11.17	3.54	7.02	3.29	1.85	1.98	0.31	0.18 BC9N2
	SB77-120	56.41	13.97	11.26	3.61	7.02	3.37	1.75	1.90	0.28	0.18 SG3N2
	SB77-119	56.39	13.99	11.29	3.62	7.06	3.34	1.71	1.90	0.27	0.18 SG4N2
	SB77-118	56.65	14.10	11.08	3.54	7.09	3.18	1.71	1.93	0.29	0.18 SG5N2
	SB77-176	56.18	14.00	11.31	3.66	7.15	3.24	1.86	1.90	0.28	0.18 QB6N2
	78-210 M	56.38	14.26	11.26	3.69	6.80	3.41	1.67	1.88	0.28	0.17 CB7N2
	78-244 M	57.28	13.58	10.84	3.63	7.10	3.23	1.67	1.97	0.30	0.18 DC9N2
	78-222 M	56.61	14.55	10.37	3.62	6.93	3.49	1.79	1.93	0.30	0.20 CC2N2
	78-276 M	56.28	14.03	11.62	3.45	6.89	3.39	1.70	1.90	0.28	0.17 LL5N2
	78-275 M	56.32	14.18	11.18	3.58	6.87	3.40	1.81	1.93	0.29	0.17 LL6N2
	SB77-088	56.47	14.01	11.24	3.56	7.17	3.18	1.78	1.91	0.28	0.18 BC8N2
	SB76-097	56.43	13.71	11.59	3.58	7.17	3.23	1.70	1.90	0.26	0.18 RI8N2
	74-021 M	56.27	13.96	11.51	3.54	6.66	3.44	1.72	2.12	0.36	0.15 DR12N2
	NO.POINTS	20	20	20	20	20	20	20	20	20	20
5A	AVERAGE	56.36	13.96	11.23	3.67	7.12	3.29	1.74	1.93	0.29	0.18
	STD.DEV.	0.48	0.23	0.44	0.19	0.26	0.14	0.11	0.06	0.02	0.02
	MAXIMUM	57.31	14.55	12.13	4.21	7.73	3.49	1.94	2.12	0.36	0.20
	MINIMUM	55.35	13.58	10.10	3.45	6.66	2.85	1.49	1.85	0.26	0.12
	DIFFERENCE	1.96	0.97	2.03	0.76	1.07	0.64	0.45	0.27	0.10	0.08

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 2 DATA SORTED ON:

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	74-020 M	56.30	14.20	9.12	4.00	7.40	3.30	1.70	2.00	0.37	0.16	DR11N2
	74-019 M	57.30	14.50	8.60	3.80	7.10	3.20	2.00	2.00	0.36	0.15	DR10N2
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	
GRB	AVERAGE	56.80	14.35	8.86	3.90	7.25	3.25	1.85	2.00	0.37	0.16	
	STD.DEV.	0.71	0.21	0.37	0.14	0.21	0.07	0.21	0.00	0.01	0.01	
	MAXIMUM	57.30	14.50	9.12	4.00	7.40	3.30	2.00	2.00	0.37	0.16	
	MINIMUM	56.30	14.20	8.60	3.80	7.10	3.20	1.70	2.00	0.36	0.15	
	DIFFERENCE	1.00	0.30	0.52	0.20	0.30	0.10	0.30	0.00	0.01	0.01	

3C GRANDE RONDE UNIT 3C

NO. OF OXIDES=10 NO. OF DATA CARDS= 9

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
	SB76-095	53.18	14.51	11.29	5.51	8.87	2.99	1.22	1.71	0.29	0.19	RI9N2
	SB77-073	53.63	14.67	11.09	4.95	9.07	3.04	1.15	1.72	0.25	0.19	CH9N2
	78-267 M	53.60	14.56	11.53	5.34	8.63	2.87	1.06	1.69	0.27	0.18	MC1N2
	78-266 M	53.47	14.57	11.49	5.21	8.61	2.94	1.26	1.73	0.27	0.18	MC2N2
	78-243 M	53.84	14.36	11.26	5.15	8.92	3.15	0.93	1.68	0.25	0.18	DC10N2
	78-242 M	53.98	14.22	11.53	5.16	8.43	3.05	1.20	1.74	0.27	0.19	DC11N2
	78-274 M	53.61	14.70	10.98	5.29	8.78	3.24	1.00	1.70	0.25	0.18	LL7N2
	78-273 M	53.55	14.51	11.50	5.07	8.48	3.19	1.21	1.75	0.27	0.18	LL8N2
	78-272 M	54.88	14.72	10.79	4.39	8.32	3.28	1.16	1.76	0.28	0.15	LL9N2
	NO.POINTS	9	9	9	9	9	9	9	9	9	9	
3C	AVERAGE	53.75	14.54	11.27	5.12	8.68	3.08	1.13	1.72	0.27	0.18	
	STD.DEV.	0.48	0.16	0.27	0.32	0.25	0.14	0.11	0.03	0.01	0.01	
	MAXIMUM	54.88	14.72	11.53	5.51	9.07	3.28	1.26	1.76	0.29	0.19	

MINIMUM	53.18	14.22	10.79	4.39	8.32	2.87	0.93	1.68	0.25	0.15
DIFFERENCE	1.70	0.50	0.74	1.12	0.75	0.41	0.33	0.08	0.04	0.04

5C GRANDE RONDE UNIT 5C

NO. OF OXIDES=10 NO. OF DATA CARDS= 6

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
SB77-072	56.59	14.22	10.87	3.59	7.18	3.11	1.86	1.88	0.26	0.18	CH10R2
SB77-086	56.67	13.87	11.07	3.62	7.11	3.14	1.96	1.88	0.26	0.18	BC10R2
SB77-085	56.68	13.84	11.16	3.60	7.16	3.08	1.92	1.87	0.26	0.17	BC11R2
SB77-117	56.35	13.94	11.50	3.61	7.10	3.01	1.91	1.88	0.27	0.18	SG6R2
SB77-137	57.02	14.04	10.60	3.57	7.11	3.14	1.94	1.88	0.29	0.18	NC2R2
SB77-136	56.90	14.30	10.64	3.60	7.13	3.10	1.72	1.91	0.31	0.17	NC3R2
NO.POINTS	6	6	6	6	6	6	6	6	6	6	
AVERAGE	56.70	14.03	10.97	3.60	7.13	3.10	1.89	1.88	0.28	0.18	
STD.DEV.	0.24	0.19	0.34	0.02	0.03	0.05	0.09	0.01	0.02	0.01	
MAXIMUM	57.02	14.30	11.50	3.62	7.18	3.14	1.96	1.91	0.31	0.18	
MINIMUM	56.35	13.84	10.60	3.57	7.10	3.01	1.72	1.87	0.26	0.17	
DIFFERENCE	0.67	0.46	0.90	0.05	0.08	0.13	0.24	0.04	0.05	0.01	

5D GRANDE RONDE UNIT 5D

NO. OF OXIDES=10 NO. OF DATA CARDS= 12

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
78-223 M	55.86	14.32	10.75	3.91	7.69	3.24	1.67	1.88	0.29	0.17	CC3R2
78-281 M	55.00	13.91	12.07	3.97	7.30	3.29	1.68	2.01	0.30	0.18	LL10R2
SB76-014	55.41	13.94	11.64	3.82	7.74	3.08	1.57	2.05	0.30	0.18	KR2R2
* SB76-023	54.86	14.32	11.10	4.67	8.07	3.23	1.36	1.71	0.24	0.18	KR2R2
SB76-027	54.99	13.85	12.13	3.95	7.59	3.22	1.51	2.02	0.29	0.18	KR2R2
78-265 M	55.77	14.16	11.40	4.08	7.23	3.21	1.57	1.88	0.26	0.16	MC3R2
78-264 M	55.83	14.08	11.44	4.05	7.24	3.22	1.56	1.89	0.26	0.16	MC4R2
78-059 M	55.90	14.14	10.24	4.28	7.91	3.36	1.76	1.78	0.27	0.17	L7R2
78-224 M	55.50	14.18	11.15	4.44	7.56	3.25	1.47	1.80	0.27	0.17	CC4R2
78-057 M	55.51	14.38	11.29	4.24	7.38	3.23	1.45	1.83	0.31	0.18	L8R2
78-058 M	55.56	14.20	10.79	4.22	7.82	3.24	1.71	1.80	0.28	0.18	L9R2
SB77-135	55.16	14.38	11.05	4.40	8.02	3.18	1.44	1.73	0.24	0.18	NC4N2
NO.POINTS	11	11	11	11	11	11	11	11	11	11	
AVERAGE	55.50	14.14	11.27	4.12	7.59	3.23	1.58	1.88	0.28	0.17	
STD.DEV.	0.33	0.18	0.56	0.21	0.27	0.07	0.11	0.11	0.02	0.01	
MAXIMUM	55.90	14.38	12.13	4.44	8.02	3.36	1.76	2.05	0.31	0.18	
MINIMUM	54.99	13.85	10.24	3.82	7.23	3.08	1.44	1.73	0.24	0.16	
DIFFERENCE	0.91	0.53	1.89	0.62	0.79	0.28	0.32	0.32	0.07	0.02	

2D GRANDE RONDE UNIT 2D

NO. OF OXIDES=10 NO. OF DATA CARDS= 17

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
78-263 M	55.88	13.99	11.39	3.63	6.98	3.20	1.94	2.15	0.38	0.18	MC5R2
SB77-134	56.36	13.88	10.95	3.36	6.96	3.20	2.20	2.24	0.44	0.19	NC5R2
SB77-133	55.81	13.90	11.98	3.33	6.84	3.13	1.87	2.26	0.45	0.18	NC6R2
78-091 M	55.37	13.96	12.01	3.55	7.03	3.10	1.86	2.30	0.35	0.18	KF5R2
78-056 M	55.40	13.94	11.83	3.53	7.14	3.19	1.87	2.32	0.39	0.18	L10R2
SB76-029	54.82	14.03	12.02	3.68	7.66	3.13	1.51	2.30	0.34	0.26	KR3R2

SB76-030	55.01	13.90	12.41	3.57	7.08	3.25	1.68	2.27	0.38	0.19	KR4R2
SB76-031	55.52	13.77	12.02	3.55	7.06	3.29	1.76	2.23	0.36	0.19	KR5R2
78-261 M	54.77	13.99	12.08	3.80	7.33	3.15	1.80	2.26	0.34	0.18	MC7R2
78-260 M	55.15	14.10	11.92	3.69	7.14	3.14	1.82	2.23	0.35	0.17	MC8R2
78-259 M	55.19	14.08	11.98	3.66	7.15	3.10	1.79	2.23	0.34	0.18	MC9R2
SB77-140	55.27	13.99	11.91	3.66	7.05	3.32	1.74	2.24	0.38	0.19	NC7R2
78-282 M	54.73	14.01	11.98	3.74	7.34	3.31	1.83	2.24	0.35	0.18	LL11R2
SB76-032	55.51	13.88	11.98	3.49	7.07	3.33	1.74	2.22	0.34	0.18	KR6R2
SB76-033	55.40	13.80	12.23	3.36	6.99	3.52	1.65	2.25	0.35	0.18	KR7R2
78-258 M	55.91	13.77	11.69	3.46	6.85	3.41	1.82	2.27	0.34	0.20	MC10R2
78-055 M	55.08	13.89	12.24	3.50	6.99	3.39	1.82	2.30	0.37	0.19	L11R2
74-018 M	56.94	13.85	10.62	3.41	6.81	3.51	2.10	2.00	0.33	0.15	DR9R2
74-017 M	56.73	13.85	11.33	3.31	6.81	3.21	2.00	2.00	0.35	0.15	DR8R2
74-016 M	56.82	13.75	11.21	3.41	6.81	3.11	2.00	2.10	0.36	0.15	DR7R2
74-015 M	55.05	14.11	12.08	3.83	7.24	3.02	1.71	2.11	0.43	0.16	DR6R2
74-014 M	54.18	14.07	12.82	3.61	7.22	3.21	1.60	2.41	0.41	0.17	DR5R2
NO.POINTS	22	22	22	22	22	22	22	22	22	22	
2D AVERAGE	55.50	13.93	11.85	3.55	7.07	3.24	1.82	2.22	0.37	0.18	
STD.DEV.	0.71	0.11	0.49	0.15	0.21	0.13	0.16	0.10	0.03	0.02	
MAXIMUM	56.94	14.11	12.82	3.83	7.66	3.52	2.20	2.41	0.45	0.26	
MINIMUM	54.18	13.75	10.62	3.31	6.81	3.02	1.51	2.00	0.33	0.15	
DIFFERENCE	2.76	0.36	2.20	0.52	0.85	0.50	0.69	0.41	0.12	0.11	

GRB UNCLASSIFIED FLOWS

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SECTION
SB77-139	54.33	14.06	12.28	4.01	7.55	3.35	1.42	2.16	0.37	0.20	NC8N1
SB77-127	54.33	13.74	12.61	3.98	7.44	3.50	1.35	2.21	0.39	0.20	NC9N1
74-013 M	56.70	14.10	9.30	3.60	6.70	3.40	1.50	1.90	0.32	0.14	DR4N1
74-012 M	55.00	13.70	10.73	4.50	7.80	3.10	1.20	1.70	0.32	0.15	DR3N1
74-011 M	55.00	14.10	10.39	4.80	8.00	3.20	1.10	1.70	0.28	0.15	DR2N1
74-025 M	54.70	14.00	11.00	4.60	7.80	3.20	1.00	1.90	0.28	0.16	DR1N1
NO.POINTS	6	6	6	6	6	6	6	6	6	6	
GRB AVERAGE	55.01	13.95	11.05	4.25	7.55	3.29	1.26	1.93	0.33	0.17	
STD.DEV.	0.88	0.18	1.23	0.46	0.46	0.15	0.19	0.22	0.05	0.03	
MAXIMUM	56.70	14.10	12.61	4.80	8.00	3.50	1.50	2.21	0.39	0.20	
MINIMUM	54.33	13.70	9.30	3.60	6.70	3.10	1.00	1.70	0.28	0.14	
DIFFERENCE	2.37	0.40	3.31	1.20	1.30	0.40	0.50	0.51	0.11	0.06	

R2
N1

Table 3. Major element analyses of dikes.

CT1 GRB DIKES: REGIONAL CHEMICAL TYPE 1

NO. OF OXIDES=10 NO. OF DATA CARDS= 11 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	WT-2684	55.08	14.27	10.91	5.03	7.92	3.02	1.21	1.71	0.26	0.15
	WT-0043	54.40	14.36	11.33	4.85	8.27	2.83	1.42	1.82	0.33	0.19
	WT-1063	54.67	13.80	11.67	4.80	8.46	2.96	1.23	1.74	0.34	0.15
*	WT-1072	56.25	14.14	10.38	4.78	8.11	2.85	1.22	1.63	0.30	0.14
	77-290	53.75	14.35	11.34	4.75	8.76	2.83	1.62	1.82	0.40	0.20
	78-425	54.93	14.12	11.18	4.74	7.91	3.09	1.24	1.75	0.36	0.21
	77-292	54.04	14.29	11.30	4.63	8.63	2.92	1.51	1.81	0.40	0.19
	WT-0119	53.87	14.64	11.10	4.57	8.13	3.56	1.22	1.83	0.33	0.16
	WT-0112	54.68	13.88	11.92	4.42	7.79	2.78	1.44	1.95	0.44	0.20
	WT-0042	54.29	14.70	10.59	4.39	9.01	2.96	1.33	1.84	0.40	0.17
*	WT-0126	56.16	14.07	10.98	4.18	7.46	2.96	1.63	1.83	0.43	0.17
	NO.POINTS	9	9	9	9	9	9	9	9	9	9
CT1	AVERAGE	54.41	14.27	11.26	4.69	8.32	2.99	1.36	1.81	0.36	0.18
	STD.DEV.	0.47	0.30	0.39	0.21	0.42	0.23	0.15	0.07	0.05	0.02
	MAXIMUM	55.08	14.70	11.92	5.03	9.01	3.56	1.62	1.95	0.44	0.21
	MINIMUM	53.75	13.80	10.59	4.39	7.79	2.78	1.21	1.71	0.26	0.15
	DIFFERENCE	1.33	0.90	1.33	0.64	1.22	0.78	0.41	0.24	0.18	0.06

CT2 GRB DIKES: REGIONAL CHEMICAL TYPE 2

NO. OF OXIDES=10 NO. OF DATA CARDS= 29 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	71-001	54.40	13.88	12.86	4.05	7.50	2.74	1.52	2.13	0.49	0.24
	WT-0020	54.35	13.66	12.77	4.01	7.24	3.19	1.44	2.26	0.52	0.17
	WT-0017	54.94	13.69	12.18	3.98	6.98	3.27	1.53	2.35	0.52	0.17
	WT-0076	53.88	13.98	12.61	3.91	7.35	3.29	1.23	2.57	0.43	0.19
	WT-1065	55.16	13.53	12.67	3.90	6.83	3.08	1.74	2.26	0.43	0.15
*	WT-0093	54.72	13.71	12.78	3.89	7.18	3.17	1.43	2.25	0.46	0.19
	WT-0224	54.23	13.35	12.95	3.87	7.52	3.16	1.63	2.45	0.45	0.19
*	76-278	54.51	13.70	12.36	3.83	7.43	3.12	1.61	2.62	0.42	0.16
*	WT-1073	55.68	13.84	12.36	3.82	6.50	3.31	1.24	2.27	0.39	0.12
	75-158	54.79	13.75	12.79	3.81	7.00	3.21	1.61	2.21	0.41	0.16
	73-387	54.63	13.22	13.21	3.79	6.83	3.07	1.74	2.46	0.45	0.16
	WT-0056	55.19	13.82	12.31	3.76	7.29	3.15	1.63	2.03	0.44	0.19
	75-157	54.50	14.34	12.35	3.76	6.80	3.05	2.03	2.24	0.42	0.16
	WT-0051	54.96	13.18	12.91	3.75	7.16	3.14	1.83	2.23	0.41	0.15
	WT-2465	54.01	13.43	13.67	3.73	6.84	3.43	1.51	2.32	0.41	0.18
	WT-0223	54.85	13.54	12.65	3.64	7.03	3.03	1.82	2.53	0.45	0.19
	WT-1056	55.46	13.40	12.47	3.61	6.87	3.20	1.75	2.27	0.52	0.15
	71-013	54.77	13.36	12.72	3.52	7.22	3.42	1.91	2.22	0.38	0.21
	WT-2808	54.33	13.78	13.23	3.52	6.82	3.12	1.61	2.52	0.44	0.18
	WT-0121	54.58	13.95	12.72	3.49	6.87	3.28	1.44	2.56	0.40	0.18
	WT-0055	55.09	13.52	12.29	3.43	7.14	3.33	1.92	2.32	0.55	0.19
	WT-0018	54.89	14.28	12.05	3.37	7.31	3.37	1.63	2.35	0.40	0.17
	WT-0018M	54.89	14.28	12.05	3.37	7.31	3.37	1.63	2.35	0.40	0.17
	WT-0005	55.01	14.01	12.18	3.32	6.64	3.11	1.76	2.59	0.52	0.16
	WT-0143	54.81	14.65	12.16	3.28	7.07	3.28	1.33	2.36	0.36	0.17
	WT-1174	55.52	12.89	12.90	3.25	6.56	3.15	1.62	2.54	0.42	0.15
	WT-0123	54.88	14.74	11.71	3.25	7.57	3.15	1.73	2.24	0.39	0.16
	WT-0052	55.01	12.78	13.52	3.07	6.38	3.48	1.74	2.45	0.99	0.19
	76-241 H	56.95	14.34	12.03	3.04	6.04	3.08	1.68	2.10	0.37	0.00
	NO.POINTS	26	26	26	26	26	26	26	26	26	25
CT2	AVERAGE	54.85	13.74	12.61	3.60	7.01	3.20	1.65	2.34	0.46	0.18

STD.DEV.	0.59	0.50	0.48	0.29	0.36	0.16	0.18	0.15	0.12	0.02
MAXIMUM	56.95	14.74	13.67	4.05	7.57	3.48	2.03	2.59	0.99	0.24
MINIMUM	53.88	12.78	11.71	3.04	6.04	2.74	1.23	2.03	0.36	0.15
DIFFERENCE	3.07	1.96	1.96	1.01	1.53	0.74	0.80	0.56	0.63	0.09

CT3 GRB DIKES: REGIONAL CHEMICAL TYPE 3

NO. OF OXIDES=10 NO. OF DATA CARDS= 15 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
*	76-249	52.83	14.48	11.26	5.81	9.27	2.86	0.98	1.84	0.37	0.15
*	75-205	52.45	14.25	11.42	5.73	9.70	3.03	1.12	1.65	0.26	0.20
	73-229	53.59	14.11	11.93	5.52	8.63	2.86	0.89	1.64	0.34	0.15
	76-260	53.62	14.54	10.98	5.45	8.96	2.83	1.21	1.72	0.31	0.15
	WT-0031	53.36	14.62	11.47	5.42	8.77	2.86	1.02	1.74	0.38	0.18
	C-0169	53.47	14.32	11.38	5.39	8.96	2.90	1.17	1.74	0.27	0.19
	WT-2745	53.38	14.36	11.88	5.26	8.57	2.83	1.21	1.72	0.27	0.16
	75-151 H	53.88	14.59	11.12	5.25	9.07	2.55	0.97	1.77	0.33	0.00
	77-267	52.49	14.38	11.82	5.23	9.30	2.92	1.21	1.81	0.35	0.24
	WT-0064	53.14	14.95	11.10	5.22	8.88	2.97	0.89	1.74	0.37	0.17
	WT-0091	53.85	14.28	11.40	5.20	8.82	2.65	1.33	1.73	0.34	0.18
	WT-0039	53.50	14.24	11.25	5.19	9.24	2.75	1.22	1.73	0.37	0.17
	WT-2679	52.66	14.46	12.77	4.96	8.54	2.89	0.72	1.86	0.30	0.19
	WT-0041	54.29	14.49	11.15	4.90	8.53	2.86	1.22	1.73	0.35	0.19
	WT-1069	53.78	15.74	11.06	4.84	8.35	2.72	1.21	1.61	0.29	0.14
	NO.POINTS	13	13	13	13	13	13	13	13	13	12
CT3	AVERAGE	53.46	14.54	11.49	5.22	8.82	2.81	1.10	1.73	0.33	0.18
	STD.DEV.	0.49	0.42	0.50	0.21	0.29	0.12	0.18	0.06	0.04	0.03
	MAXIMUM	54.29	15.74	12.77	5.52	9.30	2.97	1.33	1.86	0.38	0.24
	MINIMUM	52.49	14.11	10.98	4.84	8.35	2.55	0.72	1.61	0.27	0.14
	DIFFERENCE	1.80	1.63	1.79	0.68	0.95	0.42	0.61	0.25	0.11	0.10

CT4 GRB DIKES: REGIONAL CHEMICAL TYPE 4

NO. OF OXIDES=10 NO. OF DATA CARDS= 10 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	74-240 H	54.36	14.50	11.49	5.04	8.34	2.40	1.32	1.75	0.35	0.00
	77-291	54.45	14.45	11.49	4.99	7.71	2.85	1.53	1.83	0.42	0.07
	WT-3023	53.06	13.93	12.69	4.98	7.80	2.95	1.22	2.24	0.43	0.18
	77-247	53.15	14.38	11.62	4.90	8.85	3.16	1.33	1.84	0.35	0.21
	WT-1048	54.88	14.31	11.34	4.84	7.88	2.99	1.34	1.75	0.34	0.15
	WT-0010	52.74	15.11	11.38	4.73	8.98	3.08	1.03	2.06	0.36	0.19
	WT-2420	52.36	14.84	12.83	4.70	7.99	2.82	1.05	2.19	0.40	0.17
	WT-0087	54.85	14.17	11.44	4.59	8.03	3.06	1.02	1.94	0.35	0.18
	73-384	54.83	13.41	12.34	4.58	7.76	2.77	1.17	2.13	0.52	0.16
	WT-0040	54.13	13.74	12.36	4.51	7.96	2.77	1.44	2.15	0.51	0.19
	NO.POINTS	10	10	10	10	10	10	10	10	10	9
CT4	AVERAGE	53.88	14.28	11.90	4.79	8.13	2.88	1.25	1.99	0.40	0.17
	STD.DEV.	0.96	0.50	0.59	0.19	0.45	0.22	0.18	0.19	0.07	0.04
	MAXIMUM	54.88	15.11	12.83	5.04	8.98	3.16	1.53	2.24	0.52	0.21
	MINIMUM	52.36	13.41	11.34	4.51	7.71	2.40	1.02	1.75	0.34	0.07
	DIFFERENCE	2.52	1.70	1.49	0.53	1.27	0.76	0.51	0.49	0.18	0.14

CT5 GRB DIKE:CHEMICAL TYPE 5

NO. OF OXIDES=10 NO. OF DATA CARDS= 12 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	WT-2693M	54.23	14.24	11.34	4.54	8.15	3.23	1.41	1.92	0.30	0.15
*	WT-1050	54.45	13.61	12.93	4.47	7.67	2.95	1.32	1.73	0.36	0.14
	WT-1071M	56.28	13.58	11.09	4.32	7.59	3.09	1.44	1.96	0.29	0.13
	WT-1068M	56.15	13.60	11.15	4.19	7.35	3.07	1.74	1.94	0.35	0.14
	WT-0124	55.29	14.56	11.16	4.17	7.41	3.05	1.73	2.04	0.29	0.16
	WT-0050	54.69	13.29	13.16	4.09	7.06	3.17	1.64	2.15	0.38	0.15
	WT-1136	56.18	13.40	11.48	4.05	7.14	3.01	1.66	2.28	0.39	0.15
	75-152	54.70	14.25	12.22	4.01	7.10	3.11	1.71	2.11	0.40	0.16
	WT-2686	54.63	13.63	12.73	3.97	7.10	2.95	1.63	2.14	0.36	0.17
	76-259	55.75	14.06	11.38	3.92	7.38	3.31	1.41	2.11	0.34	0.16
	WT-0171	57.46	14.10	11.43	3.89	5.75	3.05	1.68	2.00	0.31	0.18
	WT-1173	55.75	13.20	12.79	3.86	7.10	3.15	1.22	2.03	0.45	0.15
	NO.POINTS	11	11	11	11	11	11	11	11	11	11
CT5	AVERAGE	55.56	13.81	11.81	4.09	7.19	3.11	1.57	2.06	0.35	0.15
	STD.DEV.	0.96	0.45	0.76	0.20	0.58	0.10	0.17	0.11	0.05	0.01
	MAXIMUM	57.46	14.56	13.16	4.54	8.15	3.31	1.74	2.28	0.45	0.18
	MINIMUM	54.23	13.20	11.09	3.86	5.75	2.95	1.22	1.92	0.29	0.13
	DIFFERENCE	3.23	1.36	2.07	0.68	2.40	0.36	0.52	0.36	0.16	0.05

LH2 GRB DIKES: CHEMICAL TYPE LH2

NO. OF OXIDES=10 NO. OF DATA CARDS= 10 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	76-256 H	53.96	15.20	9.39	6.44	9.59	2.80	0.78	1.11	0.31	0.00
	72-165 H	54.78	15.43	8.49	6.28	9.56	2.55	1.05	1.11	0.33	0.00
	76-256	53.63	15.68	9.69	6.28	9.76	2.60	0.85	1.09	0.26	0.16
	C-0170	53.92	14.77	9.65	6.28	9.86	2.76	0.92	1.18	0.29	0.18
	75-114	54.51	14.84	9.35	6.26	9.53	2.73	0.89	1.21	0.28	0.16
	74-235 H	54.28	15.10	9.30	6.24	9.69	2.58	0.93	1.14	0.31	0.00
	75-203 H	54.63	15.02	9.09	6.22	9.63	2.59	0.94	1.14	0.31	0.00
	WT-0048	54.35	14.95	9.20	6.16	9.69	2.63	1.11	1.21	0.33	0.17
	75-154	54.45	14.81	9.60	6.03	9.24	2.86	1.02	1.33	0.30	0.15
	75-113	54.66	15.59	8.76	5.37	10.00	2.83	0.72	1.32	0.24	0.16
	NO.POINTS	10	10	10	10	10	10	10	10	10	6
LH2	AVERAGE	54.32	15.14	9.25	6.16	9.66	2.69	0.92	1.18	0.30	0.16
	STD.DEV.	0.37	0.33	0.39	0.29	0.20	0.12	0.12	0.08	0.03	0.01
	MAXIMUM	54.78	15.68	9.69	6.44	10.00	2.86	1.11	1.33	0.33	0.18
	MINIMUM	53.63	14.77	8.49	5.37	9.24	2.55	0.72	1.09	0.24	0.15
	DIFFERENCE	1.15	0.91	1.20	1.07	0.76	0.31	0.39	0.24	0.09	0.03

MG6 GRB DIKES: CHEMICAL TYPE MG6

NO. OF OXIDES=10 NO. OF DATA CARDS= 11 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
*	76-251	52.95	14.43	11.22	6.00	9.32	2.95	0.65	1.83	0.34	0.15
	75-230 H	53.07	14.56	11.32	5.86	9.16	2.52	1.02	1.69	0.35	0.00
	78-462 H	53.14	14.33	11.13	5.86	9.21	2.96	0.90	1.67	0.33	0.00
	WT-2811	52.24	14.15	12.23	5.86	9.04	2.73	1.11	1.82	0.35	0.17
	WT-0047	52.59	14.44	11.52	5.80	9.43	2.64	1.02	1.73	0.36	0.18
	78-342	51.93	14.43	11.82	5.79	9.65	2.85	0.97	1.73	0.35	0.21
	76-257 H	52.56	14.63	11.76	5.79	9.46	2.61	0.72	1.66	0.33	0.00
	75-115	52.58	14.59	11.53	5.77	9.40	2.84	0.88	1.72	0.30	0.16
	78-343	52.00	14.34	11.89	5.76	9.59	2.83	1.11	1.72	0.34	0.20

	75-226	52.44	14.33	11.71	5.75	9.29	3.21	0.89	1.71	0.28	0.19
	WT-2488M	51.27	15.13	11.63	5.48	10.33	2.84	0.81	1.73	0.27	0.16
	NO.POINTS	10	10	10	10	10	10	10	10	10	7
MG6	AVERAGE	52.38	14.49	11.65	5.77	9.46	2.80	0.94	1.72	0.33	0.18
	STD.DEV.	0.56	0.27	0.31	0.11	0.36	0.20	0.13	0.04	0.03	0.02
	MAXIMUM	53.14	15.13	12.23	5.86	10.33	3.21	1.11	1.82	0.36	0.21
	MINIMUM	51.27	14.15	11.13	5.48	9.04	2.52	0.72	1.66	0.27	0.16
	DIFFERENCE	1.87	0.98	1.10	0.38	1.29	0.69	0.39	0.16	0.09	0.05

KB5 GRB DIKE: CHEMICAL TYPE KB5

NO. OF OXIDES=10 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	WT-2690	53.13	13.76	13.16	4.25	7.34	3.34	1.42	2.43	0.49	0.18
	75-108	54.30	14.00	12.06	4.23	8.02	2.72	1.41	2.32	0.51	0.19
	WT-0077	53.90	13.32	13.28	4.17	7.40	3.15	1.42	2.24	0.48	0.19
	75-204	54.15	13.73	12.66	3.95	7.56	3.28	1.65	2.19	0.41	0.20
	NO.POINTS	4	4	4	4	4	4	4	4	4	4
KB5	AVERAGE	53.87	13.70	12.79	4.15	7.58	3.12	1.48	2.30	0.47	0.19
	STD.DEV.	0.52	0.28	0.56	0.14	0.31	0.28	0.12	0.10	0.04	0.01
	MAXIMUM	54.30	14.00	13.28	4.25	8.02	3.34	1.65	2.43	0.51	0.20
	MINIMUM	53.13	13.32	12.06	3.95	7.34	2.72	1.41	2.19	0.41	0.18
	DIFFERENCE	1.17	0.68	1.22	0.30	0.68	0.62	0.24	0.24	0.10	0.02

AS16 GRB DIKE: CHEMICAL TYPE AS16

NO. OF OXIDES=10 NO. OF DATA CARDS= 3 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	WT-2725	53.87	14.05	11.97	4.58	7.92	3.06	1.32	2.14	0.38	0.15
	WT-0175	53.96	14.46	11.52	4.28	8.22	3.16	1.43	2.14	0.47	0.18
	WT-0065	53.82	13.76	12.97	4.25	7.66	3.14	1.32	2.12	0.39	0.18
	NO.POINTS	3	3	3	3	3	3	3	3	3	3
AS16	AVERAGE	53.88	14.09	12.15	4.37	7.93	3.12	1.36	2.13	0.41	0.17
	STD.DEV.	0.07	0.35	0.74	0.18	0.28	0.05	0.06	0.01	0.05	0.02
	MAXIMUM	53.96	14.46	12.97	4.58	8.22	3.16	1.43	2.14	0.47	0.18
	MINIMUM	53.82	13.76	11.52	4.25	7.66	3.06	1.32	2.12	0.38	0.15
	DIFFERENCE	0.14	0.70	1.45	0.33	0.58	0.10	0.11	0.02	0.09	0.03

Table 4A. Major element analyses of dike glasses.

GRANDE RONDE DIKE GLASS

CT1 GRANDE RONDE CHEMICAL TYPE 1

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	74-240 G	55.02	13.26	13.09	3.75	7.77	3.01	1.33	2.16	0.34	0.00
	77-290 G	54.48	14.06	11.79	4.20	8.06	3.00	0.95	1.84	0.36	0.00
	77-292 G	54.71	13.81	11.97	3.96	8.13	2.85	1.02	1.92	0.37	0.00
	NO.POINTS	3	3	3	3	3	3	3	3	3	0
CT1	AVERAGE	54.74	13.71	12.28	3.97	7.99	2.95	1.10	1.97	0.36	0.00
	STD.DEV.	0.27	0.41	0.70	0.23	0.19	0.09	0.20	0.17	0.02	0.00
	MAXIMUM	55.02	14.06	13.09	4.20	8.13	3.01	1.33	2.16	0.37	0.00
	MINIMUM	54.48	13.26	11.79	3.75	7.77	2.85	0.95	1.84	0.34	0.00
	DIFFERENCE	0.54	0.80	1.30	0.45	0.36	0.16	0.38	0.32	0.03	0.00

CT2 GRANDE RONDE CHEMICAL TYPE 2

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-157 G	55.60	13.16	13.17	3.10	7.00	2.57	1.47	2.46	0.43	0.00
	75-158AG	54.82	13.26	13.06	3.53	7.22	2.69	1.33	2.22	0.41	0.00
	75-158BG	53.98	12.91	14.20	3.19	6.76	2.99	1.84	2.56	0.41	0.00
	76-278 G	55.37	13.56	13.02	3.10	7.11	3.13	1.62	2.30	0.37	0.00
	NO.POINTS	4	4	4	4	4	4	4	4	4	0
CT2	AVERAGE	54.94	13.22	13.36	3.23	7.02	2.85	1.57	2.38	0.41	0.00
	STD.DEV.	0.72	0.27	0.56	0.20	0.20	0.26	0.22	0.15	0.03	0.00
	MAXIMUM	55.60	13.56	14.20	3.53	7.22	3.13	1.84	2.56	0.43	0.00
	MINIMUM	53.98	12.91	13.02	3.10	6.76	2.57	1.33	2.22	0.37	0.00
	DIFFERENCE	1.62	0.65	1.18	0.43	0.46	0.56	0.51	0.34	0.06	0.00

CT3 GRANDE RONDE CHEMICAL TYPE 3

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-115 G	52.69	13.61	12.68	4.88	9.37	2.61	0.80	1.96	0.26	0.00
	76-249 G	53.11	13.49	12.80	4.59	9.08	2.95	0.96	2.09	0.38	0.00
	76-260 G	54.69	13.13	12.44	3.84	7.90	2.10	1.81	2.08	0.34	0.00
	77-267 G	53.37	13.75	12.23	4.60	8.70	2.96	1.00	1.93	0.29	0.00
	NO.POINTS	4	4	4	4	4	4	4	4	4	0
CT3	AVERAGE	53.47	13.49	12.54	4.48	8.76	2.65	1.14	2.02	0.32	0.00
	STD.DEV.	0.86	0.27	0.25	0.45	0.64	0.40	0.45	0.08	0.05	0.00
	MAXIMUM	54.69	13.75	12.80	4.88	9.37	2.96	1.81	2.09	0.38	0.00
	MINIMUM	52.69	13.13	12.23	3.84	7.90	2.10	0.80	1.93	0.26	0.00
	DIFFERENCE	2.00	0.62	0.57	1.04	1.47	0.86	1.01	0.16	0.12	0.00

CT4 GRANDE RONDE CHEMICAL TYPE 4

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	77-247 G	53.74	13.62	12.05	4.24	8.11	2.91	1.05	1.89	0.33	0.00

CT5 GRANDE RONDE CHEMICAL TYPE 5

NO. OF OXIDES=10 NO. OF DATA CARDS= 2

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-152 G	55.32	13.29	13.42	3.21	6.85	2.69	1.56	2.45	0.39	0.00
	76-259 G	56.00	13.53	11.88	3.43	7.30	3.18	1.35	2.17	0.29	0.00
	NO.POINTS	2	2	2	2	2	2	2	2	2	0
CT5	AVERAGE	55.66	13.41	12.65	3.32	7.08	2.94	1.46	2.31	0.34	0.00
	STD.DEV.	0.48	0.17	1.09	0.16	0.32	0.35	0.15	0.20	0.07	0.00
	MAXIMUM	56.00	13.53	13.42	3.43	7.30	3.18	1.56	2.45	0.39	0.00
	MINIMUM	55.32	13.29	11.88	3.21	6.85	2.69	1.35	2.17	0.29	0.00
	DIFFERENCE	0.68	0.24	1.54	0.22	0.45	0.49	0.21	0.28	0.10	0.00

LH2 GRANDE RONDE CHEMICAL TYPE LH2

NO. OF OXIDES=10 NO. OF DATA CARDS= 4

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-113 G	54.82	14.30	10.48	5.06	9.25	2.60	0.82	1.40	0.27	0.00
	75-114 G	55.52	14.37	10.33	5.03	9.29	2.95	0.83	1.48	0.26	0.00
	75-154 G	56.69	14.18	10.71	4.89	9.15	2.88	0.90	1.47	0.28	0.00
	76-256 G	56.28	14.87	10.55	5.15	9.40	0.53	0.82	1.45	0.35	0.00
	NO.POINTS	4	4	4	4	4	4	4	4	4	0
LH2	AVERAGE	55.83	14.43	10.52	5.03	9.27	2.24	0.84	1.45	0.29	0.00
	STD.DEV.	0.83	0.30	0.16	0.11	0.10	1.15	0.04	0.04	0.04	0.00
	MAXIMUM	56.69	14.87	10.71	5.15	9.40	2.95	0.90	1.48	0.35	0.00
	MINIMUM	54.82	14.18	10.33	4.89	9.15	0.53	0.82	1.40	0.26	0.00
	DIFFERENCE	1.87	0.69	0.38	0.26	0.25	2.42	0.08	0.08	0.09	0.00

MG6 GRANDE RONDE CHEMICAL TYPE MG6

NO. OF OXIDES=10 NO. OF DATA CARDS= 3

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-230 G	53.22	13.97	13.05	4.57	8.94	2.07	0.92	2.05	0.35	0.00
	76-257 G	52.96	14.20	12.35	5.49	9.73	2.64	0.71	1.70	0.27	0.00
	78-462 G	52.56	14.18	12.70	4.77	9.12	2.25	1.08	2.09	0.45	0.00
	NO.POINTS	3	3	3	3	3	3	3	3	3	0
MG6	AVERAGE	52.91	14.12	12.70	4.94	9.26	2.32	0.90	1.95	0.36	0.00
	STD.DEV.	0.33	0.13	0.35	0.48	0.41	0.29	0.19	0.21	0.09	0.00
	MAXIMUM	53.22	14.20	13.05	5.49	9.73	2.64	1.08	2.09	0.45	0.00
	MINIMUM	52.56	13.97	12.35	4.57	8.94	2.07	0.71	1.70	0.27	0.00
	DIFFERENCE	0.66	0.23	0.70	0.92	0.79	0.57	0.37	0.39	0.18	0.00

KB5 GRANDE RONDE CHEMICAL TYPE KB5

NO. OF OXIDES=10 NO. OF DATA CARDS= 1

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	75-108 G	53.27	13.15	13.84	3.85	7.71	2.85	1.37	2.52	0.51	0.00

Table 4B. Major element analyses of pillow glasses.

GRANDE RONDE PILLOW GLASS

CT1 GRANDE RONDE CHEMICAL TYPE 1

NO. OF OXIDES=10 NO. OF DATA CARDS= 8

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
*	77-010GL	55.77	13.68	12.38	3.94	7.93	2.41	1.23	1.99	0.33	0.00
*	77-007GL	55.92	13.87	12.45	4.00	7.96	2.78	1.24	2.02	0.33	0.00
	77-081GL	55.47	13.52	12.28	3.89	8.03	2.83	1.33	2.05	0.30	0.00
*	77-180GL	54.68	13.61	12.64	4.20	8.41	2.25	1.19	2.11	0.31	0.00
	78-216 G	54.82	14.12	11.87	4.04	8.10	2.84	1.40	2.02	0.37	0.00
	78-252 G	54.59	14.12	11.83	4.24	8.35	2.81	1.33	2.02	0.35	0.00
	78-251 G	54.71	13.88	11.70	4.19	8.27	3.00	1.30	2.06	0.32	0.00
*	77-024GL	56.92	13.52	11.92	3.94	7.94	2.52	1.44	2.05	0.35	0.00
	NO.POINTS	4	4	4	4	4	4	4	4	4	0
CT1	AVERAGE	54.90	13.91	11.92	4.09	8.19	2.87	1.34	2.04	0.34	0.00
	STD.DEV.	0.39	0.28	0.25	0.16	0.15	0.09	0.04	0.02	0.03	0.00
	MAXIMUM	55.47	14.12	12.28	4.24	8.35	3.00	1.40	2.06	0.37	0.00
	MINIMUM	54.59	13.52	11.70	3.89	8.03	2.81	1.30	2.02	0.30	0.00
	DIFFERENCE	0.88	0.60	0.58	0.35	0.32	0.19	0.10	0.04	0.07	0.00

CT2 GRANDE RONDE CHEMICAL TYPE 2

NO. OF OXIDES=10 NO. OF DATA CARDS= 6

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	78-262 G	55.27	12.93	12.46	2.50	6.36	2.06	2.08	2.68	0.49	0.00
	77-059GL	56.20	12.50	13.28	2.68	6.56	2.68	2.15	2.81	0.40	0.00
*	76-030GL	55.27	12.16	12.88	2.62	6.23	2.42	1.77	2.69	0.37	0.20
	78-224 G	54.47	12.91	12.61	2.95	6.78	3.01	1.86	2.68	0.43	0.00
	78-259 G	54.76	13.07	12.73	2.97	6.98	3.21	1.82	2.65	0.42	0.00
	78-261 G	54.40	12.56	12.96	2.69	6.64	2.65	2.03	2.81	0.42	0.00
	NO.POINTS	5	5	5	5	5	5	5	5	5	0
CT2	AVERAGE	55.02	12.79	12.81	2.76	6.66	2.72	1.99	2.73	0.43	0.00
	STD.DEV.	0.74	0.25	0.32	0.20	0.23	0.44	0.14	0.08	0.03	0.00
	MAXIMUM	56.20	13.07	13.28	2.97	6.98	3.21	2.15	2.81	0.49	0.00
	MINIMUM	54.40	12.50	12.46	2.50	6.36	2.06	1.82	2.65	0.40	0.00
	DIFFERENCE	1.80	0.57	0.82	0.47	0.62	1.15	0.33	0.16	0.09	0.00

CT3 GRANDE RONDE CHEMICAL TYPE 3

NO. OF OXIDES=10 NO. OF DATA CARDS= 23

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
*	77-031GL	55.40	13.42	12.05	4.28	8.07	3.02	1.25	2.02	0.30	0.00
*	77-032GL	55.69	13.40	12.20	4.20	8.33	2.95	1.22	1.97	0.30	0.00
*	77-033GL	53.98	13.53	11.53	4.54	8.88	3.02	0.95	1.86	0.24	0.00
*	77-006GL	54.73	13.89	12.12	4.44	8.62	2.43	1.01	1.98	0.29	0.00
	77-178GL	54.08	13.40	13.03	4.00	8.16	2.80	1.12	2.21	0.33	0.00
	77-080GL	54.31	13.54	12.21	4.52	8.81	2.53	1.07	2.01	0.26	0.00
	77-079GL	54.79	13.62	12.28	4.50	8.79	2.56	1.03	1.94	0.25	0.00
	77-093GL	54.30	13.44	12.27	4.36	8.75	2.84	1.06	2.02	0.25	0.00
	77-179GL	54.17	13.63	12.37	4.26	8.58	2.77	1.13	2.08	0.29	0.00
	77-138GL	55.03	13.28	12.82	4.04	8.65	2.50	0.97	2.16	0.28	0.00
	78-250 G	54.16	14.13	11.79	4.91	9.15	2.51	0.98	1.98	0.29	0.00
*	78-221 G	54.45	13.59	12.59	4.01	8.02	2.55	1.27	2.28	0.43	0.00

	*	77-009GL	54.79	13.97	12.35	4.41	8.71	2.49	1.01	1.97	0.28	0.00
	*	77-005GL	54.37	13.80	12.03	4.62	8.81	2.96	0.94	1.92	0.27	0.00
		76-105GL	55.26	14.02	11.60	4.59	8.92	2.97	0.92	1.91	0.21	0.00
	*	77-023GL	55.08	13.45	12.11	4.46	8.53	2.72	1.16	1.98	0.27	0.00
	*	77-022GL	55.21	13.48	12.31	4.27	8.34	2.53	1.20	2.05	0.29	0.00
		77-073GL	54.73	13.15	12.93	3.88	7.98	3.10	1.11	2.28	0.33	0.00
		78-266 G	54.86	13.66	12.95	4.03	8.05	2.88	1.40	2.31	0.32	0.00
		78-243 G	54.48	13.16	12.58	3.98	7.99	2.44	1.34	2.24	0.39	0.00
		78-242 G	54.14	13.63	12.86	3.96	7.85	3.16	1.34	2.25	0.35	0.00
		78-273 G	54.47	13.52	12.83	3.92	8.00	3.10	1.34	2.25	0.33	0.00
		78-274 G	54.47	13.66	12.65	4.00	7.73	3.00	1.40	2.23	0.35	0.00
		NO.POINTS	14	14	14	14	14	14	14	14	14	0
CT3		AVERAGE	54.52	13.56	12.51	4.21	8.39	2.80	1.16	2.13	0.30	0.00
		STD.DEV.	0.36	0.28	0.44	0.32	0.46	0.25	0.17	0.14	0.05	0.00
		MAXIMUM	55.26	14.13	13.03	4.91	9.15	3.16	1.40	2.31	0.39	0.00
		MINIMUM	54.08	13.15	11.60	3.88	7.73	2.44	0.92	1.91	0.21	0.00
		DIFFERENCE	1.18	0.98	1.43	1.03	1.42	0.72	0.48	0.40	0.18	0.00

CT4 GRANDE RONDE CHEMICAL TYPE 4

NO. OF OXIDES=10 NO. OF DATA CARDS= 21

		SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
		78-248 G	53.95	14.17	11.93	4.55	8.72	3.04	1.10	2.04	0.31	0.00
	*	77-030GL	55.66	13.35	12.86	4.11	8.20	3.01	1.20	2.12	0.27	0.00
		77-121GL	54.98	13.39	12.90	4.09	8.36	2.54	1.26	2.17	0.31	0.00
		78-214 G	53.92	13.55	12.30	4.37	8.34	2.48	1.23	2.13	0.37	0.00
		78-213 G	53.76	13.70	12.00	4.47	8.54	3.04	1.18	2.07	0.34	0.00
		78-279 G	54.78	13.96	12.43	4.51	8.70	2.50	1.16	2.15	0.28	0.00
		77-077GL	54.87	13.03	13.59	3.87	8.11	2.32	1.08	2.30	0.30	0.00
		77-089GL	54.25	13.36	13.06	4.05	8.34	2.87	1.10	2.15	0.27	0.00
		77-177GL	54.08	13.44	12.92	4.10	8.25	2.94	1.11	2.17	0.29	0.00
		78-212 G	54.85	13.58	12.50	4.23	8.46	2.73	1.14	2.16	0.29	0.00
		78-246 G	54.32	13.64	12.72	4.19	8.15	3.10	1.16	2.23	0.33	0.00
		78-097 G	53.95	13.67	12.20	4.27	8.41	3.03	1.18	2.08	0.38	0.00
		78-063 G	54.70	13.38	13.03	3.79	7.90	2.73	1.36	2.32	0.47	0.00
		78-065 G	54.97	13.70	12.28	4.45	8.53	2.77	1.18	2.20	0.33	0.00
		78-064 G	54.64	13.69	12.16	4.50	8.56	2.91	1.14	2.07	0.36	0.00
		76-104GL	55.05	13.21	12.29	4.28	8.51	3.01	0.99	1.98	0.29	0.00
		77-004GL	54.36	13.27	13.39	3.53	7.70	2.69	1.29	2.35	0.45	0.00
		78-062 G	53.86	12.72	14.17	3.22	7.34	2.28	1.46	2.94	0.55	0.00
		78-061 G	53.86	13.60	12.76	4.34	8.52	2.79	1.06	2.31	0.31	0.00
		78-088 G	53.78	12.50	14.00	3.00	7.16	2.31	1.57	2.87	0.53	0.00
		78-088BG	54.16	13.14	13.05	3.71	7.80	2.63	1.34	2.54	0.42	0.00
		NO.POINTS	20	20	20	20	20	20	20	20	20	0
CT4		AVERAGE	54.35	13.44	12.78	4.08	8.22	2.74	1.20	2.26	0.36	0.00
		STD.DEV.	0.46	0.39	0.64	0.44	0.43	0.26	0.14	0.25	0.08	0.00
		MAXIMUM	55.05	14.17	14.17	4.55	8.72	3.10	1.57	2.94	0.55	0.00
		MINIMUM	53.76	12.50	11.93	3.00	7.16	2.28	0.99	1.98	0.27	0.00
		DIFFERENCE	1.29	1.67	2.24	1.55	1.56	0.82	0.58	0.96	0.28	0.00

CT5 GRANDE RONDE CHEMICAL TYPE 5

NO. OF OXIDES=10 NO. OF DATA CARDS= 50

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
	78-211 G	54.30	13.30	12.90	3.14	7.19	2.51	1.83	2.26	0.38	0.00
	77-029GL	56.92	12.92	13.30	3.23	7.13	2.85	1.63	2.23	0.30	0.00

	77-076GL	55.53	12.74	13.56	3.19	7.06	2.69	1.35	2.41	0.36	0.00
*	77-021GL	55.12	12.64	13.01	3.35	7.16	1.71	1.91	2.32	0.40	0.00
	77-020GL	56.19	12.73	12.98	3.37	7.34	3.18	1.49	2.20	0.30	0.00
	77-045GL	56.21	12.87	13.13	3.10	7.33	2.84	1.37	2.23	0.29	0.00
	77-027GL	57.55	13.27	12.16	3.10	6.77	2.97	1.90	2.07	0.32	0.00
	77-087GL	56.08	13.07	12.47	2.91	6.77	2.84	1.77	2.17	0.29	0.00
*	77-062GL	56.68	13.25	12.20	3.05	6.38	2.95	2.29	2.19	0.35	0.00
*	77-019GL	55.90	13.40	12.23	3.09	6.88	2.04	1.65	1.94	0.29	0.00
*	77-018GL	54.88	13.33	12.21	3.11	6.92	2.44	1.60	1.98	0.26	0.00
*	76-011GL	56.95	13.90	12.39	3.19	7.05	3.09	1.61	2.08	0.35	0.00
	77-075GL	57.05	13.42	12.61	3.16	6.87	2.71	1.41	2.17	0.32	0.00
*	77-003GL	56.23	13.51	12.30	3.16	6.92	3.04	1.51	1.99	0.29	0.00
	77-074GL	57.14	13.18	12.45	3.09	6.82	2.79	1.45	2.10	0.32	0.00
	77-118GL	57.32	13.45	12.37	3.16	6.96	2.63	1.82	2.09	0.32	0.00
	77-176GL	56.48	13.37	12.41	3.04	6.94	3.14	1.67	2.09	0.28	0.00
	77-070GL	57.14	13.16	12.39	3.23	6.93	2.88	1.47	2.13	0.36	0.00
*	78-268 G	56.93	13.81	12.14	3.23	7.14	2.66	1.83	2.09	0.30	0.00
	78-222 G	56.34	13.60	12.01	3.08	6.93	3.18	1.70	2.17	0.37	0.00
	78-244 G	55.84	13.79	11.94	3.26	7.00	3.02	1.71	2.09	0.34	0.00
	78-276 G	56.65	13.91	11.90	3.20	7.00	2.92	1.80	2.11	0.32	0.00
	76-099GL	56.67	13.05	12.36	3.04	6.79	3.21	1.62	2.16	0.34	0.00
	76-101GL	56.53	13.29	12.36	3.08	6.92	2.96	1.45	2.06	0.27	0.00
	77-001GL	54.80	13.44	12.58	3.90	7.94	3.21	1.17	2.15	0.31	0.00
	78-060 G	56.37	13.62	12.15	3.30	7.20	2.82	1.70	2.18	0.35	0.00
	77-072GL	56.77	12.93	12.29	2.85	6.49	3.04	1.58	2.17	0.34	0.00
	77-136GL	57.49	13.17	12.09	2.78	6.83	3.01	1.62	2.24	0.31	0.00
*	78-241 G	56.14	13.85	12.08	3.38	7.08	2.93	1.72	2.10	0.33	0.00
	78-223 G	55.84	13.60	11.82	3.42	7.20	3.09	1.64	2.15	0.35	0.00
	78-271 G	55.66	13.81	12.01	3.56	7.32	3.20	1.65	2.16	0.31	0.00
	76-012GL	56.35	13.24	13.03	3.13	6.98	3.25	1.66	2.32	0.37	0.00
	76-010GL	55.29	12.69	13.27	2.91	6.67	3.10	1.56	2.37	0.33	0.00
*	78-240 G	53.84	13.20	12.93	3.76	7.78	3.04	1.38	2.29	0.40	0.00
	76-009GL	55.75	12.61	13.28	2.74	6.78	3.31	1.71	2.49	0.36	0.00
	76-005GL	56.95	12.37	13.54	2.71	6.71	3.16	1.60	2.46	0.30	0.20
	76-004GL	55.90	13.19	13.26	2.85	6.89	3.03	1.78	2.35	0.35	0.00
	76-003GL	55.88	13.02	12.77	3.10	7.03	3.25	1.62	2.40	0.35	0.00
	76-001GL	56.25	12.80	13.05	2.90	6.68	3.19	1.65	2.40	0.31	0.00
	77-071GL	56.20	12.46	13.33	2.87	6.64	2.95	1.54	2.55	0.36	0.00
	77-064GL	56.03	12.69	13.19	2.78	6.51	3.15	2.03	2.64	0.41	0.00
	76-094GL	56.03	13.08	13.10	2.93	6.74	3.20	1.59	2.41	0.35	0.00
	76-093GL	56.56	12.76	13.39	3.06	6.93	3.24	1.61	2.43	0.36	0.20
	77-069GL	55.60	12.62	13.31	2.86	6.69	2.91	1.50	2.57	0.46	0.00
	77-068GL	55.65	12.74	13.12	2.93	7.07	2.58	1.59	2.42	0.36	0.00
	76-013GL	56.00	12.83	13.30	2.91	6.82	3.21	1.68	2.41	0.35	0.00
	76-014GL	55.41	12.39	13.06	2.92	6.83	2.95	1.60	2.31	0.33	0.00
*	78-264 G	54.90	13.01	12.24	2.59	6.43	2.38	2.06	2.52	0.47	0.00
*	78-057 G	55.78	13.79	11.76	3.61	7.47	3.14	1.61	2.06	0.34	0.00
	78-239 G	55.67	13.74	11.87	3.79	7.61	3.11	1.54	2.08	0.31	0.00
	NO.POINTS	39	39	39	39	39	39	39	39	39	2
CT5	AVERAGE	56.22	13.10	12.72	3.09	6.96	3.01	1.62	2.27	0.34	0.20
	STD.DEV.	0.71	0.41	0.54	0.26	0.29	0.21	0.16	0.16	0.04	0.00
	MAXIMUM	57.55	13.91	13.56	3.90	7.94	3.31	2.03	2.64	0.46	0.20
	MINIMUM	54.30	12.37	11.82	2.71	6.49	2.51	1.17	2.06	0.27	0.20
	DIFFERENCE	3.25	1.54	1.74	1.19	1.45	0.80	0.86	0.58	0.19	0.00

Table 5A. Trace element data: flows.

1A GRANDE RONDE UNIT 1A

NO. OF OXIDES=39 NO. OF DATA CARDS= 7 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
SB77-180	54.20	14.25	11.21	4.98	8.63	2.97	1.26	1.71	0.26	0.19	484.	515.	34.1	40.7	0.800	3.80	13.0
73-319	53.95	15.03	10.35	4.87	8.92	3.04	1.21	1.82	0.37	0.15	616.	624.	40.7	41.8	0.740	4.17	9.0
74-207 a	54.16	14.29	11.25	4.77	8.58	2.81	1.63	1.79	0.34	0.19	542.	0.	37.7	47.6	0.973	4.14	0.0
74-207 b	54.16	14.29	11.25	4.77	8.58	2.81	1.63	1.79	0.34	0.19	627.	0.	37.5	48.4	0.900	4.20	0.0
74-207C	54.15	14.28	11.24	4.76	8.58	2.81	1.63	1.78	0.34	0.19	532.	543.	34.2	41.7	0.900	3.90	12.0
SB77-081	54.78	14.25	10.89	4.64	8.59	3.01	1.40	1.75	0.29	0.19	520.	559.	33.0	37.4	0.900	3.60	13.0
71-103	54.54	14.98	11.15	4.28	8.31	2.85	1.22	1.77	0.32	0.20	579.	564.	36.4	37.3	0.970	4.29	12.0
NO.POINTS	7	7	7	7	7	7	7	7	7	7	7	5	7	7	7	7	5
1A AVERAGE	54.28	14.48	11.05	4.72	8.60	2.90	1.43	1.77	0.32	0.19	557.	561.	36.2	42.1	0.883	4.01	11.8
STD.DEV.	0.28	0.36	0.33	0.22	0.18	0.10	0.20	0.03	0.04	0.02	52.	40.	2.7	4.4	0.086	0.25	1.6
MAXIMUM	54.78	15.03	11.25	4.98	8.92	3.04	1.63	1.82	0.37	0.20	627.	624.	40.7	48.4	0.973	4.29	13.0
MINIMUM	53.95	14.25	10.35	4.28	8.31	2.81	1.21	1.71	0.26	0.15	484.	515.	33.0	37.3	0.740	3.60	9.0
DIFFERENCE	0.83	0.78	0.90	0.70	0.61	0.23	0.42	0.11	0.11	0.05	143.	109.	7.7	11.1	0.233	0.69	4.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
SB77-180	28.0	31.0	327.	0.70	3.50	1.100	30.0	109.	130.	167.	30.8	18.0	37.0	24.0	5.5	1.57	5.1
73-319	25.0	26.0	337.	0.76	4.04	0.000	33.0	132.	167.	169.	34.7	22.2	42.1	30.0	5.9	1.46	5.2
74-207 a	30.1	0.0	0.	0.65	4.10	0.000	0.0	152.	0.	0.	35.3	22.3	45.9	25.2	6.1	1.78	0.0
74-207 b	27.0	0.0	0.	0.83	4.40	0.000	0.0	125.	0.	0.	34.6	22.0	45.0	24.0	6.0	1.80	0.0
74-207C	34.0	38.0	342.	0.76	4.00	1.100	32.0	119.	180.	170.	33.8	22.0	40.0	22.0	6.0	1.56	5.6
SB77-081	31.0	38.0	322.	0.73	3.70	1.000	32.0	119.	190.	167.	31.1	19.0	40.0	24.0	5.1	1.57	5.5
71-103	37.0	34.0	324.	0.75	4.43	0.000	35.0	132.	141.	170.	33.9	21.9	43.0	32.0	6.0	1.45	5.0
NO.POINTS	7	5	5	7	7	3	5	7	5	5	7	7	7	7	7	7	5
1A AVERAGE	30.3	33.4	330.	0.74	4.02	1.067	32.4	127.	162.	169.	33.5	21.1	41.9	25.9	5.8	1.60	5.3
STD.DEV.	4.2	5.1	9.	0.06	0.34	0.058	1.8	14.	25.	2.	1.8	1.8	3.1	3.7	0.4	0.14	0.3
MAXIMUM	37.0	38.0	342.	0.83	4.43	1.100	35.0	152.	190.	170.	35.3	22.3	45.9	32.0	6.1	1.80	5.6
MINIMUM	25.0	26.0	322.	0.65	3.50	1.000	30.0	109.	130.	167.	30.8	18.0	37.0	22.0	5.1	1.45	5.0
DIFFERENCE	12.0	12.0	20.	0.18	0.93	0.100	5.0	43.	60.	3.	4.5	4.3	8.9	10.0	1.0	0.35	0.6

SAMPLE	Tb	Yb	Lu	Cu	Ni
SB77-180	0.84	2.80	0.42	28.0	11.0
73-319	0.99	3.50	0.51	46.0	18.0
74-207 a	0.95	2.95	0.55	0.0	0.0
74-207 b	1.08	2.60	0.52	0.0	0.0
74-207C	0.89	3.40	0.47	24.0	11.0
SB77-081	0.84	3.00	0.43	31.0	10.0
71-103	0.90	3.18	0.53	24.0	18.0
NO.POINTS	7	7	7	5	5
1A AVERAGE	0.93	3.06	0.49	30.6	13.6
STD.DEV.	0.09	0.32	0.05	9.1	4.0
MAXIMUM	1.08	3.50	0.55	46.0	18.0
MINIMUM	0.84	2.60	0.42	24.0	10.0
DIFFERENCE	0.24	0.90	0.13	22.0	8.0

3A GRANDE RONDE UNIT 3A

NO. OF OXIDES=39 NO. OF DATA CARDS= 9 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX

	SB77-080	53.07	14.54	11.35	5.51	9.25	2.85	1.09	1.71	0.20	0.19	447.	445.	39.4	61.3	0.600	3.60	10.0
	74-208	53.29	14.22	11.42	5.45	9.10	2.89	1.16	1.78	0.26	0.21	456.	448.	37.9	52.0	0.600	3.60	10.0
	SB77-078	53.30	14.21	11.79	5.12	8.86	2.99	1.22	1.78	0.28	0.20	496.	463.	37.8	48.4	0.700	4.10	13.0
	72-293 C	53.94	14.24	11.59	5.08	8.73	2.74	1.01	1.83	0.29	0.18	458.	469.	38.5	49.9	0.500	4.05	13.0
	71-55	53.91	14.69	11.42	5.06	8.61	2.63	1.11	1.72	0.28	0.30	472.	482.	39.6	52.7	0.800	3.80	12.0
	74-260 a	53.69	14.25	11.79	5.03	8.85	2.73	1.11	1.81	0.30	0.20	529.	0.	-19.7	58.5	-.009	3.98	0.0
	74-260 b	53.70	14.25	11.79	5.03	8.85	2.74	1.12	1.82	0.30	0.20	449.	0.	40.0	57.8	-.009	3.90	0.0
	74-261 b	54.54	14.50	10.30	4.99	9.03	2.87	1.28	1.80	0.31	0.20	575.	491.	-53.1	59.7	0.900	4.00	16.0
	74-261 a	54.54	14.50	10.29	4.98	9.03	2.86	1.27	1.80	0.31	0.20	596.	0.	-54.2	63.9	1.291	4.00	0.0
	NO.POINTS	9	9	9	9	9	9	9	9	9	9	9	6	6	9	7	9	6
3A	AVERAGE	53.78	14.38	11.30	5.14	8.92	2.81	1.15	1.78	0.28	0.21	498.	466.	38.9	56.0	0.770	3.89	12.3
	STD.DEV.	0.52	0.18	0.60	0.20	0.20	0.11	0.09	0.04	0.03	0.04	57.	18.	0.9	5.4	0.266	0.19	2.3
	MAXIMUM	54.54	14.69	11.79	5.51	9.25	2.99	1.28	1.83	0.31	0.30	596.	491.	40.0	63.9	1.291	4.10	16.0
	MINIMUM	53.07	14.21	10.29	4.98	8.61	2.63	1.01	1.71	0.20	0.18	447.	445.	37.8	48.4	0.500	3.60	10.0
	DIFFERENCE	1.47	0.48	1.50	0.53	0.64	0.36	0.27	0.12	0.11	0.12	149.	46.	2.2	15.5	0.791	0.50	6.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	SB77-080	30.0	27.0	343.	0.71	3.20	0.700	31.0	112.	130.	153.	38.3	18.0	36.0	22.0	5.0	1.54	3.7
	74-208	25.0	26.0	332.	0.69	3.20	0.800	29.0	105.	120.	155.	35.8	18.0	34.0	19.0	5.3	1.53	5.9
	SB77-078	31.0	32.0	326.	0.75	3.60	0.800	33.0	123.	140.	163.	37.2	21.0	40.0	23.0	6.1	1.73	5.4
	72-293 C	29.0	23.0	315.	0.67	3.60	0.880	31.0	122.	207.	157.	37.2	19.4	38.8	23.0	5.4	1.59	6.3
	71-55	28.0	30.0	334.	0.70	3.20	0.800	33.0	120.	110.	161.	36.8	18.0	37.0	22.0	4.9	1.62	6.5
	74-260 a	29.3	0.0	0.	-1.32	3.88	0.000	0.0	129.	0.	0.	-18.4	20.0	41.3	25.9	5.8	1.82	0.0
	74-260 b	24.0	0.0	0.	0.69	3.30	0.000	0.0	144.	0.	0.	36.4	20.0	42.0	20.0	5.8	1.78	0.0
	74-261 b	38.0	26.0	363.	0.77	3.50	0.000	40.0	145.	0.	175.	36.5	21.0	44.0	24.0	6.0	1.84	0.0
	74-261 a	28.6	0.0	0.	0.81	3.96	0.000	0.0	133.	0.	0.	37.1	22.1	45.0	24.9	6.3	1.80	0.0
	NO.POINTS	9	6	6	8	9	5	6	9	5	6	8	9	9	9	9	9	5
3A	AVERAGE	29.2	27.3	336.	0.72	3.49	0.796	32.8	126.	141.	161.	36.9	19.7	39.8	22.6	5.6	1.69	5.6
	STD.DEV.	4.0	3.2	16.	0.05	0.29	0.064	3.8	13.	38.	8.	0.7	1.5	3.7	2.2	0.5	0.12	1.1
	MAXIMUM	38.0	32.0	363.	0.81	3.96	0.880	40.0	145.	207.	175.	38.3	22.1	45.0	25.9	6.3	1.84	6.5
	MINIMUM	24.0	23.0	315.	0.67	3.20	0.700	29.0	105.	110.	153.	35.8	18.0	34.0	19.0	4.9	1.53	3.7
	DIFFERENCE	14.0	9.0	48.	0.14	0.76	0.180	11.0	40.	97.	22.	2.5	4.1	11.0	6.9	1.4	0.31	2.8

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	SB77-080	0.86	3.10	0.46	34.0	17.0
	74-208	0.80	3.20	0.46	36.0	18.0
	SB77-078	0.93	3.40	0.50	34.0	14.0
	72-293 C	0.95	3.30	0.47	34.0	14.0
	71-55	0.87	3.10	0.47	36.0	18.0
	74-260 a	1.02	3.25	0.53	0.0	0.0
	74-260 b	1.05	3.00	0.54	0.0	0.0
	74-261 b	1.11	3.00	0.58	0.0	0.0
	74-261 a	1.20	3.22	0.57	0.0	0.0
	NO.POINTS	9	9	9	5	5
3A	AVERAGE	0.98	3.17	0.51	34.8	16.2
	STD.DEV.	0.13	0.14	0.05	1.1	2.0
	MAXIMUM	1.20	3.40	0.58	36.0	18.0
	MINIMUM	0.80	3.00	0.46	34.0	14.0
	DIFFERENCE	0.40	0.40	0.12	2.0	4.0

GRB GRANDE RONDE UNCLASSIFIED FLOWS

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
72-44	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	505.	0.	40.8	51.0	1.030	4.03	0.0

	72-44A	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	509.	487.	40.7	51.0	0.800	4.02	12.0
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1
GRB	AVERAGE	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	507.	487.	40.8	51.0	0.915	4.03	12.0
	STD.DEV.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.	0.	0.1	0.0	0.163	0.01	0.0
	MAXIMUM	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	509.	487.	40.8	51.0	1.030	4.03	12.0
	MINIMUM	54.46	14.31	10.34	5.20	8.99	2.90	1.20	1.90	0.32	0.18	505.	487.	40.7	51.0	0.800	4.02	12.0
	DIFFERENCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.	0.	0.1	0.0	0.230	0.01	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	72-44	38.0	0.0	0.	0.75	3.55	1.200	0.0	128.	0.	0.	37.3	20.1	38.9	25.0	5.4	1.64	6.0
	72-44A	33.0	32.0	322.	0.73	3.51	1.200	30.0	125.	150.	164.	36.7	19.7	38.7	24.0	5.7	1.60	6.1
	NO.POINTS	2	1	1	2	2	2	1	2	1	1	2	2	2	2	2	2	2
GRB	AVERAGE	35.5	32.0	322.	0.74	3.53	1.200	30.0	127.	150.	164.	37.0	19.9	38.8	24.5	5.6	1.62	6.1
	STD.DEV.	3.5	0.0	0.	0.01	0.03	0.000	0.0	2.	0.	0.	0.4	0.3	0.1	0.7	0.2	0.03	0.1
	MAXIMUM	38.0	32.0	322.	0.75	3.55	1.200	30.0	128.	150.	164.	37.3	20.1	38.9	25.0	5.7	1.64	6.1
	MINIMUM	33.0	32.0	322.	0.73	3.51	1.200	30.0	125.	150.	164.	36.7	19.7	38.7	24.0	5.4	1.60	6.0
	DIFFERENCE	5.0	0.0	0.	0.02	0.04	0.000	0.0	3.	0.	0.	0.6	0.4	0.2	1.0	0.3	0.04	0.1

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	72-44	0.94	3.19	0.49	36.0	16.0
	72-44A	1.01	3.15	0.48	36.0	16.0
	NO.POINTS	2	2	2	2	2
GRB	AVERAGE	0.98	3.17	0.49	36.0	16.0
	STD.DEV.	0.05	0.03	0.01	0.0	0.0
	MAXIMUM	1.01	3.19	0.49	36.0	16.0
	MINIMUM	0.94	3.15	0.48	36.0	16.0
	DIFFERENCE	0.07	0.04	0.01	0.0	0.0

4A GRANDE RONDE UNIT 4A

NO. OF OXIDES=39 NO. OF DATA CARDS= 3 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	SB77-90	53.74	14.20	11.99	4.94	8.50	2.95	1.11	1.88	0.25	0.20	439.	439.	38.1	23.8	0.500	3.90	14.0
	74-209	54.15	13.97	11.31	4.69	8.83	3.00	1.37	1.94	0.31	0.21	494.	512.	38.6	25.3	0.800	4.10	15.0
	72-108	54.22	14.37	12.11	4.68	7.93	2.85	0.91	2.03	0.32	0.20	450.	433.	39.8	31.0	0.390	3.81	12.0
	NO.POINTS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4A	AVERAGE	54.04	14.18	11.80	4.77	8.42	2.93	1.13	1.95	0.29	0.20	461.	461.	38.8	26.7	0.563	3.94	13.7
	STD.DEV.	0.26	0.20	0.43	0.15	0.46	0.08	0.23	0.08	0.04	0.01	29.	44.	0.9	3.8	0.212	0.15	1.5
	MAXIMUM	54.22	14.37	12.11	4.94	8.83	3.00	1.37	2.03	0.32	0.21	494.	512.	39.8	31.0	0.800	4.10	15.0
	MINIMUM	53.74	13.97	11.31	4.68	7.93	2.85	0.91	1.88	0.25	0.20	439.	433.	38.1	23.8	0.390	3.81	12.0
	DIFFERENCE	0.48	0.40	0.80	0.26	0.90	0.15	0.46	0.15	0.07	0.01	55.	79.	1.7	7.2	0.410	0.29	3.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	SB77-90	27.0	29.0	338.	0.72	3.60	0.800	32.0	112.	76.	164.	35.2	19.0	37.0	23.0	5.2	1.57	4.8
	74-209	33.0	31.0	337.	0.78	3.79	0.000	33.0	130.	144.	173.	36.8	20.4	39.9	27.0	5.9	1.66	6.1
	72-108	27.0	24.0	321.	0.71	3.22	0.000	30.0	120.	213.	157.	36.1	18.1	36.3	28.0	5.7	1.42	5.4
	NO.POINTS	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3
4A	AVERAGE	29.0	28.0	332.	0.74	3.54	0.800	31.7	121.	144.	165.	36.0	19.2	37.7	26.0	5.6	1.55	5.4
	STD.DEV.	3.5	3.6	10.	0.04	0.29	0.000	1.5	9.	69.	8.	0.8	1.2	1.9	2.6	0.4	0.12	0.7
	MAXIMUM	33.0	31.0	338.	0.78	3.79	0.800	33.0	130.	213.	173.	36.8	20.4	39.9	28.0	5.9	1.66	6.1

	MINIMUM	27.0	24.0	321.	0.71	3.22	0.800	30.0	112.	76.	157.	35.2	18.1	36.3	23.0	5.2	1.42	4.8
	DIFFERENCE	6.0	7.0	17.	0.07	0.57	0.000	3.0	18.	137.	16.	1.6	2.3	3.6	5.0	0.7	0.24	1.3

SAMPLE	Tb	Yb	Lu	Cu	Ni
SB77-90	0.82	3.10	0.46	28.0	8.0
74-209	0.85	3.20	0.52	28.0	16.0
72-108	0.90	3.03	0.51	36.0	17.0
NO.POINTS	3	3	3	3	3
AVERAGE	0.86	3.11	0.50	30.7	13.7
STD.DEV.	0.04	0.09	0.03	4.6	4.9
MAXIMUM	0.90	3.20	0.52	36.0	17.0
MINIMUM	0.82	3.03	0.46	28.0	8.0
DIFFERENCE	0.08	0.17	0.06	8.0	9.0

4A

3B GRANDE RONDE UNIT 3B

NO. OF OXIDES=39 NO. OF DATA CARDS= 3 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
75-077 a	53.66	14.71	11.21	5.13	8.83	2.77	1.31	1.72	0.27	0.20	522.	0.	40.7	47.7	-.009	3.80	0.0
75-077 b	53.66	14.71	11.21	5.13	8.83	2.77	1.31	1.72	0.27	0.20	507.	0.	40.1	49.2	0.600	3.60	0.0
75-77	53.66	14.70	11.21	5.12	8.82	2.77	1.31	1.71	0.27	0.20	526.	500.	37.6	49.7	0.800	4.00	12.0
NO.POINTS	3	3	3	3	3	3	3	3	3	3	3	1	3	3	2	3	1
AVERAGE	53.66	14.71	11.21	5.13	8.83	2.77	1.31	1.72	0.27	0.20	518.	500.	39.5	48.9	0.700	3.80	12.0
STD.DEV.	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	10.	0.	1.6	1.0	0.141	0.20	0.0
MAXIMUM	53.66	14.71	11.21	5.13	8.83	2.77	1.31	1.72	0.27	0.20	526.	500.	40.7	49.7	0.800	4.00	12.0
MINIMUM	53.66	14.70	11.21	5.12	8.82	2.77	1.31	1.71	0.27	0.20	507.	500.	37.6	47.7	0.600	3.60	12.0
DIFFERENCE	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	19.	0.	3.1	2.0	0.200	0.40	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-077 a	18.5	0.0	0.	0.62	3.40	0.000	0.0	141.	0.	0.	36.8	19.4	42.6	23.6	5.6	1.70	0.0
75 077 b	55.0	0.0	0.	0.69	3.80	0.000	0.0	150.	0.	0.	37.0	20.0	39.0	24.0	5.7	1.65	0.0
75-77	32.0	31.0	328.	0.76	3.70	0.800	30.0	134.	200.	161.	37.4	21.0	39.0	23.0	5.5	0.17	100.5
NO.POINTS	3	1	1	3	3	1	1	3	1	1	3	3	3	3	3	3	1
AVERAGE	35.2	31.0	328.	0.69	3.63	0.800	30.0	142.	200.	161.	37.1	20.1	40.2	23.5	5.6	1.17	100.5
STD.DEV.	18.5	0.0	0.	0.07	0.21	0.000	0.0	8.	0.	0.	0.3	0.8	2.1	0.5	0.1	0.87	0.0
MAXIMUM	55.0	31.0	328.	0.76	3.80	0.800	30.0	150.	200.	161.	37.4	21.0	42.6	24.0	5.7	1.70	100.5
MINIMUM	18.5	31.0	328.	0.62	3.40	0.800	30.0	134.	200.	161.	36.8	19.4	39.0	23.0	5.5	0.17	100.5
DIFFERENCE	36.5	0.0	0.	0.14	0.40	0.000	0.0	16.	0.	0.	0.6	1.6	3.6	1.0	0.2	1.53	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-077 a	0.95	3.05	0.52	0.0	0.0
75-077 b	1.18	3.00	0.49	0.0	0.0
75-77	90.08	60.33	0.05	103.3	1.4
NO.POINTS	3	3	3	1	1
AVERAGE	30.74	22.13	0.35	103.3	1.4
STD.DEV.	51.39	33.09	0.26	0.0	0.0
MAXIMUM	90.08	60.33	0.52	103.3	1.4
MINIMUM	0.95	3.00	0.05	103.3	1.4
DIFFERENCE	89.13	57.33	0.47	0.0	0.0

3B

LH2 GRANDE RONDE UNIT LH2

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	73-355 b	53.69	15.32	9.29	6.08	10.22	2.92	0.64	1.10	0.27	0.16	380.	0.	33.2	78.6	-.009	2.80	0.0
	73-355 c	53.69	15.32	9.29	6.08	10.22	2.92	0.64	1.10	0.27	0.16	397.	0.	35.2	87.4	-.009	2.80	0.0
	73-355 d	53.69	15.32	9.29	6.08	10.22	2.92	0.64	1.10	0.27	0.16	366.	0.	35.4	97.3	-.009	2.80	0.0
	73-355 a	53.69	15.32	9.29	6.07	10.22	2.91	0.63	1.09	0.26	0.16	326.	0.	32.2	74.6	-.009	2.66	0.0
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	0	4	4	0	4	0
LH2	AVERAGE	53.69	15.32	9.29	6.08	10.22	2.92	0.64	1.10	0.27	0.16	367.	0.	34.0	84.5	0.000	2.77	0.0
	STD.DEV.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	30.	0.	1.6	10.1	0.000	0.07	0.0
	MAXIMUM	53.69	15.32	9.29	6.08	10.22	2.92	0.64	1.10	0.27	0.16	397.	0.	35.4	97.3	0.000	2.80	0.0
	MINIMUM	53.69	15.32	9.29	6.07	10.22	2.91	0.63	1.09	0.26	0.16	326.	0.	32.2	74.6	0.000	2.66	0.0
	DIFFERENCE	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00	71.	0.	3.2	22.7	0.000	0.14	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	73-355 b	20.0	26.0	486.	0.39	1.80	0.000	23.0	127.	0.	119.	36.1	16.0	33.0	21.0	4.5	1.34	0.0
	73-355 c	11.6	0.0	0.	0.40	1.89	0.000	0.0	125.	0.	0.	37.4	15.1	30.9	18.2	4.3	1.35	0.0
	73-355 d	0.0	0.0	0.	0.48	2.10	0.000	0.0	113.	0.	0.	37.5	15.0	28.0	17.0	4.1	1.14	0.0
	73-355 a	19.9	0.0	0.	0.45	1.60	0.000	0.0	124.	0.	0.	36.2	16.1	31.5	17.3	4.3	1.18	0.0
	NO.POINTS	3	1	1	4	4	0	1	4	0	1	4	4	4	4	4	4	0
LH2	AVERAGE	17.2	26.0	486.	0.43	1.85	0.000	23.0	122.	0.	119.	36.8	15.6	30.9	18.4	4.3	1.25	0.0
	STD.DEV.	4.8	0.0	0.	0.04	0.21	0.000	0.0	6.	0.	0.	0.8	0.6	2.1	1.8	0.2	0.11	0.0
	MAXIMUM	20.0	26.0	486.	0.48	2.10	0.000	23.0	127.	0.	119.	37.5	16.1	33.0	21.0	4.5	1.35	0.0
	MINIMUM	11.6	26.0	486.	0.39	1.60	0.000	23.0	113.	0.	119.	36.1	15.0	28.0	17.0	4.1	1.14	0.0
	DIFFERENCE	8.4	0.0	0.	0.09	0.50	0.000	0.0	14.	0.	0.	1.4	1.1	5.0	4.0	0.4	0.21	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	73-355 b	0.82	1.80	0.43	0.0	0.0
	73-355 c	-1.01	2.02	0.40	0.0	0.0
	73-355 d	0.82	1.80	0.41	0.0	0.0
	73-355 a	0.67	2.11	0.39	0.0	0.0
	NO.POINTS	3	4	4	0	0
LH2	AVERAGE	0.77	1.93	0.41	0.0	0.0
	STD.DEV.	0.09	0.16	0.02	0.0	0.0
	MAXIMUM	0.82	2.11	0.43	0.0	0.0
	MINIMUM	0.67	1.80	0.39	0.0	0.0
	DIFFERENCE	0.15	0.31	0.04	0.0	0.0

MG6 GRANDE RONDE UNIT MG6

NO. OF OXIDES=39 NO. OF DATA CARDS= 8 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-219 a	51.18	15.53	12.16	5.99	9.33	2.64	0.47	1.72	0.32	0.18	461.	0.	41.2	98.2	-.009	3.40	0.0
	75-219 b	51.19	15.54	12.17	5.99	9.33	2.64	0.48	1.73	0.33	0.18	431.	0.	39.8	100.0	0.300	3.30	0.0
	72-070 b	51.97	14.71	11.37	5.95	9.98	2.71	0.63	1.67	0.32	0.17	370.	0.	40.3	102.0	0.500	3.00	0.0
	72-070 a	51.96	14.71	11.37	5.94	9.97	2.71	0.62	1.66	0.32	0.16	364.	0.	39.1	98.8	0.500	3.10	0.0
	73-356 a	52.24	14.43	11.61	5.65	9.93	2.93	0.67	1.54	0.29	0.18	416.	0.	37.4	117.2	-.009	2.88	0.0
	73-356 b	52.25	14.44	11.62	5.65	9.93	2.94	0.68	1.54	0.30	0.19	415.	301.	38.2	113.8	-.009	2.80	0.0
	73-372	52.60	14.97	11.20	5.30	9.52	2.99	0.86	1.59	0.29	0.17	416.	433.	41.4	118.0	0.400	3.40	14.0
	73-329FB	52.49	15.02	11.24	5.13	9.69	3.00	0.77	1.58	0.29	0.17	479.	445.	36.4	91.0	1.380	3.40	12.0
	NO.POINTS	8	8	8	8	8	8	8	8	8	8	8	3	8	8	5	8	2

MG6	AVERAGE	51.99	14.92	11.59	5.70	9.71	2.82	0.65	1.63	0.31	0.18	419.	393.	39.2	104.9	0.616	3.16	13.0
	STD.DEV.	0.54	0.44	0.38	0.33	0.28	0.16	0.13	0.08	0.02	0.01	40.	80.	1.8	10.1	0.435	0.25	1.4
	MAXIMUM	52.60	15.54	12.17	5.99	9.98	3.00	0.86	1.73	0.33	0.19	479.	445.	41.4	118.0	1.380	3.40	14.0
	MINIMUM	51.18	14.43	11.20	5.13	9.33	2.64	0.47	1.54	0.29	0.16	364.	301.	36.4	91.0	0.300	2.80	12.0
	DIFFERENCE	1.42	1.11	0.97	0.86	0.65	0 36	0.39	0.19	0.04	0.03	115.	144.	5.0	27.0	1.080	0.60	2.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-219 a	33.0	0.0	0.	0.62	2.60	-.009	0.0	125.	150.	0.	39.1	17.0	34.0	23.0	3.8	1.52	4.5
75-219 b	0.0	0.0	0.	0.59	2.60	0.600	0.0	124.	150.	0.	37.6	17.0	36.0	21.0	4.0	1.53	4.1
72-070 b	20.0	0.0	0.	0.68	2.10	-.009	0.0	123.	0.	0.	38.5	15.0	30.0	18.0	3.8	1.35	5.3
72-070 a	0.0	0.0	0.	0.58	2.20	1.200	0.0	120.	140.	0.	38.1	15.0	29.0	23.0	3.4	1.37	5.3
73-356 a	11.3	0.0	0.	0.54	2.24	0.000	0.0	125.	0.	0.	36.3	17.2	32.9	25.1	5.0	1.70	0.0
73-356 b	13.0	17.0	411.	0.66	1.90	0.000	31.0	135.	0.	121.	35.6	17.0	33.0	19.0	5.0	1.47	0.0
73-372	23.0	26.0	350.	0.66	2.40	0.710	32.0	124.	179.	133.	41.5	16.8	35.2	25.0	5.2	1.48	5.1
73-329FB	29.0	35.0	381.	0.63	2.50	0.680	29.0	117.	0.	139.	36.7	18.1	35.6	20.0	5.3	1.55	4.1
NO.POINTS	6	3	3	8	8	4	3	8	4	3	8	8	8	8	8	8	6

MG6	AVERAGE	21.6	26.0	381.	0.62	2.32	0.798	30.7	124.	155.	131.	37.9	16.6	33.2	21.8	4.4	1.50	4.7
	STD.DEV.	8.6	9.0	31.	0.05	0.25	0.272	1.5	5.	17.	9.	1.9	1.1	2.6	2.7	0.8	0.11	0.6
	MAXIMUM	33.0	35.0	411.	0.68	2.60	1.200	32.0	135.	179.	139.	41.5	18.1	36.0	25.1	5.3	1.70	5.3
	MINIMUM	11.3	17.0	350.	0.54	1.90	0.600	29.0	117.	140.	121.	35.6	15.0	29.0	18.0	3.4	1.35	4.1
	DIFFERENCE	21.7	18.0	61.	0.14	0.70	0.600	3.0	18.	39.	18.	5.9	3.1	7.0	7.1	1.9	0.35	1.2

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-219 a	0.80	2.90	0.41	0.0	0.0
75-219 b	0.73	2.90	0.41	0.0	0.0
72-070 b	0.77	2.90	0.42	0.0	0.0
72-070 a	0.80	2.90	0.40	0.0	0.0
73-356 a	0.94	2.32	0.45	0.0	0.0
73-356 b	0.89	2.30	0.45	0.0	0.0
73-372	0.83	3.08	0.43	59.0	19.0
73-329FB	0.85	3.06	0.43	40.0	21.0
NO.POINTS	8	8	8	2	2

MG6	AVERAGE	0.83	2.80	0.43	49.5	20.0
	STD.DEV.	0.07	0.31	0.02	13.4	1.4
	MAXIMUM	0.94	3.08	0.45	59.0	21.0
	MINIMUM	0.73	2.30	0.40	40.0	19.0
	DIFFERENCE	0.21	0.78	0.05	19.0	2.0

2B GRANDE RONDE UNIT 2B

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-259 a	56.69	13.55	11.00	3.43	7.06	3.00	2.15	2.28	0.40	0.20	856.	0.	35.3	0.0	1.382	4.89	0.0
74-259 b	56.69	13.56	11.01	3.43	7.07	3.00	2.16	2.28	0.41	0.20	830.	0.	34.9	6.1	1.400	4.90	0.0
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	1	2	2	0

2B	AVERAGE	56.69	13.56	11.01	3.43	7.07	3.00	2.16	2.28	0.41	0.20	843.	0.	35.1	6.1	1.391	4.89	0.0
	STD.DEV.	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	18.	0.	0.3	0.0	0.013	0.01	0.0
	MAXIMUM	56.69	13.56	11.01	3.43	7.07	3.00	2.16	2.28	0.41	0.20	856.	0.	35.3	6.1	1.400	4.90	0.0
	MINIMUM	56.69	13.55	11.00	3.43	7.06	3.00	2.15	2.28	0.40	0.20	830.	0.	34.9	6.1	1.382	4.89	0.0
	DIFFERENCE	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	26.	0.	0.4	0.0	0.018	0.01	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-259 a	48.3	0.0	0.	0.76	6.01	0.000	0.0	134.	0.	0.	32.4	29.9	60.0	39.7	7.6	2.16	0.0
74-259 b	64.5	0.0	0.	0.52	5.80	0.000	0.0	134.	0.	0.	32.3	30.0	57.0	34.0	7.4	2.23	0.0

	NO.POINTS	2	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
2B	AVERAGE	56.4	0.0	0.	0.64	5.91	0.000	0.0	134.	0.	0.	32.4	30.0	58.5	36.9	7.5	2.20	0.0
	STD.DEV.	11.5	0.0	0.	0.17	0.15	0.000	0.0	0.	0.	0.	0.1	0.1	2.1	4.0	0.1	0.05	0.0
	MAXIMUM	64.5	0.0	0.	0.76	6.01	0.000	0.0	134.	0.	0.	32.4	30.0	60.0	39.7	7.6	2.23	0.0
	MINIMUM	48.3	0.0	0.	0.52	5.80	0.000	0.0	134.	0.	0.	32.3	29.9	57.0	34.0	7.4	2.16	0.0
	DIFFERENCE	16.2	0.0	0.	0.24	0.21	0.000	0.0	0.	0.	0.	0.1	0.1	3.0	5.7	0.2	0.07	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-259 a	1.33	3.86	0.64	0.0	0.0
	74-259 b	1.24	3.70	0.63	0.0	0.0
	NO.POINTS	2	2	2	0	0
2B	AVERAGE	1.29	3.78	0.63	0.0	0.0
	STD.DEV.	0.06	0.11	0.01	0.0	0.0
	MAXIMUM	1.33	3.86	0.64	0.0	0.0
	MINIMUM	1.24	3.70	0.63	0.0	0.0
	DIFFERENCE	0.09	0.16	0.01	0.0	0.0

5A GRANDE RONDE UNIT 5A

NO. OF OXIDES=39 NO. OF DATA CARDS= 14 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	73-330FB	55.45	13.73	12.09	3.96	7.24	2.78	1.68	1.94	0.31	0.18	654.	614.	35.2	8.9	1.900	4.90	15.0
	73-357FB	55.68	13.56	11.95	3.78	7.34	2.83	1.85	1.92	0.33	0.19	707.	686.	34.5	7.2	1.680	4.85	14.0
	73-358 a	56.04	13.96	10.98	3.77	7.43	3.01	2.02	1.97	0.34	0.18	749.	0.	36.7	9.5	1.332	4.73	0.0
	73-358 b	56.04	13.96	10.98	3.77	7.43	3.01	2.02	1.97	0.34	0.18	783.	0.	38.0	16.3	1.400	4.90	0.0
	73-358FB	56.04	13.95	10.98	3.76	7.43	3.00	2.02	1.97	0.33	0.18	744.	767.	37.1	8.9	1.380	5.00	13.0
	73-359 a	55.91	13.96	11.54	3.73	7.05	3.25	1.68	1.95	0.35	0.17	694.	0.	38.4	13.2	0.930	4.81	0.0
	73-359 b	55.91	13.96	11.54	3.73	7.05	3.25	1.68	1.95	0.35	0.17	756.	0.	38.6	9.6	0.800	5.00	0.0
	73-359	55.90	13.95	11.53	3.72	7.05	3.24	1.68	1.95	0.34	0.17	689.	705.	36.2	7.1	0.700	4.88	15.0
	73-367FB	55.94	13.46	11.63	3.70	7.31	2.90	1.94	2.12	0.31	0.20	777.	782.	35.9	8.5	1.600	4.97	11.0
	78-210	56.38	14.26	11.26	3.69	6.80	3.41	1.67	1.88	0.28	0.17	649.	694.	35.1	13.3	1.280	4.60	19.0
	73-331FB	55.90	13.64	11.87	3.65	7.09	2.97	1.80	1.99	0.35	0.20	772.	766.	40.0	5.9	1.440	5.10	13.0
	73-331FB	55.90	13.64	11.87	3.65	7.09	2.97	1.80	1.99	0.35	0.20	800.	0.	39.4	5.4	1.450	4.99	0.0
	SB76-097	56.43	13.71	11.59	3.58	7.17	3.23	1.70	1.90	0.26	0.18	705.	756.	35.7	8.3	1.390	4.91	13.0
	78-276	56.28	14.03	11.62	3.45	6.89	3.39	1.70	1.90	0.28	0.17	683.	663.	34.9	6.5	0.146	4.73	16.0
	NO.POINTS	14	14	14	14	14	14	14	14	14	14	14	9	14	14	14	14	9
5A	AVERAGE	55.99	13.84	11.53	3.71	7.17	3.09	1.80	1.96	0.32	0.18	726.	715.	36.8	9.2	1.245	4.88	14.3
	STD.DEV.	0.26	0.22	0.36	0.11	0.20	0.20	0.14	0.06	0.03	0.01	49.	57.	1.8	3.1	0.456	0.13	2.3
	MAXIMUM	56.43	14.26	12.09	3.96	7.43	3.41	2.02	2.12	0.35	0.20	800.	782.	40.0	16.3	1.900	5.10	19.0
	MINIMUM	55.45	13.46	10.98	3.45	6.80	2.78	1.67	1.88	0.26	0.17	649.	614.	34.5	5.4	0.146	4.60	11.0
	DIFFERENCE	0.98	0.80	1.11	0.51	0.63	0.63	0.35	0.24	0.09	0.03	151.	168.	5.5	10.9	1.754	0.50	8.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	73-330FB	58.0	60.0	347.	0.92	6.10	1.430	35.0	121.	135.	205.	30.8	26.3	50.1	31.0	6.4	1.80	6.9
	73-357FB	59.0	53.0	333.	0.92	6.40	1.520	32.0	129.	213.	194.	30.7	27.6	52.0	31.0	6.7	1.73	7.8
	73-358 a	48.2	0.0	0.	0.89	5.85	0.000	0.0	148.	0.	0.	31.8	26.8	52.4	28.4	6.7	1.93	0.0
	73-358 b	53.0	0.0	0.	1.18	6.20	0.000	0.0	132.	0.	0.	31.9	26.0	55.0	30.0	6.8	1.90	0.0
	73-358FB	58.0	49.0	339.	0.89	6.40	1.700	34.0	134.	144.	190.	31.7	28.0	53.8	33.0	6.7	1.84	6.6
	73-359 a	63.3	0.0	0.	0.87	6.65	0.000	0.0	153.	0.	0.	32.4	27.0	55.4	28.9	6.9	2.07	0.0
	73-359 b	42.0	0.0	0.	0.93	6.70	0.000	0.0	134.	0.	0.	32.5	27.0	54.0	27.0	7.0	2.14	0.0
	73-359	50.0	48.0	324.	1.00	6.40	1.560	35.0	128.	0.	190.	31.5	27.0	53.2	29.0	6.6	1.77	8.4
	73-367FB	53.0	57.0	336.	0.90	6.30	1.800	34.0	132.	243.	201.	31.8	26.7	51.0	28.0	6.3	1.80	6.6
	78-210	46.0	59.0	333.	0.83	5.90	1.380	36.0	134.	203.	191.	31.0	26.2	50.0	30.0	6.2	1.79	4.2
	73-331FB	54.0	51.0	342.	0.95	6.80	1.500	35.0	133.	239.	198.	31.9	28.7	55.6	33.0	6.9	1.89	7.7
	73-331FB	57.0	0.0	0.	0.94	6.30	1.900	0.0	136.	190.	0.	31.9	29.4	56.9	32.0	7.2	1.89	6.8

	SB76-097	52.0	46.0	337.	0.98	6.50	1.700	33.0	138.	187.	188.	30.5	28.3	52.0	30.0	6.5	1.83	7.2
	78-276	56.0	56.0	328.	0.90	6.40	1.700	36.0	136.	178.	189.	30.6	28.4	54.0	30.0	6.7	1.89	8.0
	NO.POINTS	14	9	9	14	14	10	9	14	9	9	14	14	14	14	14	14	10
5A	AVERAGE	53.5	53.2	335.	0.94	6.35	1.619	34.4	135.	192.	194.	31.5	27.4	53.2	30.1	6.7	1.88	7.0
	STD.DEV.	5.7	5.0	7.	0.08	0.28	0.167	1.3	8.	37.	6.	0.7	1.0	2.1	1.8	0.3	0.11	1.2
	MAXIMUM	63.3	60.0	347.	1.18	6.80	1.900	36.0	153.	243.	205.	32.5	29.4	56.9	33.0	7.2	2.14	8.4
	MINIMUM	42.0	46.0	324.	0.83	5.85	1.380	32.0	121.	135.	188.	30.5	26.0	50.0	27.0	6.2	1.73	4.2
	DIFFERENCE	21.3	14.0	23.	0.35	0.95	0.520	4.0	32.	108.	17.	2.0	3.4	6.9	6.0	1.0	0.41	4.2

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	73-330FB	1.14	3.29	0.47	16.0	7.1
	73-357FB	1.19	3.40	0.48	13.0	4.7
	73-358 a	0.90	2.96	0.54	0.0	0.0
	73-358 b	1.03	2.80	0.53	0.0	0.0
	73-358FB	1.08	3.50	0.49	15.0	6.2
	73-359 a	1.10	3.04	0.57	0.0	0.0
	73-359 b	1.07	3.10	0.56	0.0	0.0
	73-359	1.22	3.37	0.48	13.0	6.5
	73-367FB	1.18	3.48	0.53	17.0	7.0
	78-210	0.86	3.35	0.47	0.0	0.0
	73-331FB	1.24	3.51	0.55	13.0	6.9
	73-331FB	1.16	3.90	0.55	13.0	6.9
	SB76-097	1.07	3.40	0.52	0.0	0.0
	78-276	1.05	3.49	0.51	0.0	0.0
	NO.POINTS	14	14	14	7	7
5A	AVERAGE	1.09	3.33	0.52	14.3	6.5
	STD.DEV.	0.11	0.28	0.03	1.7	0.8
	MAXIMUM	1.24	3.90	0.57	17.0	7.1
	MINIMUM	0.86	2.80	0.47	13.0	4.7
	DIFFERENCE	0.38	1.10	0.10	4.0	2.4

2C GRANDE RONE UNIT 2C

NO. OF OXIDES=39 NO. OF DATA CARDS= 5 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	73-341FB	54.58	13.34	13.05	3.73	6.86	3.38	1.67	2.41	0.42	0.20	740.	672.	37.8	3.0	1.100	5.10	15.0
	73-334FB	54.54	13.26	13.10	3.59	7.03	3.34	1.69	2.40	0.42	0.20	711.	734.	37.1	0.0	0.630	4.91	15.0
	73-340FB	55.46	13.49	12.33	3.51	6.76	3.46	1.73	2.30	0.42	0.19	758.	699.	35.5	4.0	0.830	5.00	15.0
	75-078 b	55.49	13.91	12.02	3.38	7.02	3.19	1.95	2.26	0.38	0.20	751.	0.	36.2	0.0	1.500	4.60	0.0
	75-078 a	55.49	13.90	12.02	3.37	7.02	3.18	1.94	2.26	0.37	0.20	740.	0.	35.9	0.0	1.246	4.99	0.0
	NO.POINTS	5	5	5	5	5	5	5	5	5	5	5	3	5	2	5	5	3
2C	AVERAGE	55.11	13.58	12.50	3.52	6.94	3.31	1.80	2.33	0.40	0.20	740.	702.	36.5	3.5	1.061	4.92	15.0
	STD.DEV.	0.50	0.31	0.54	0.15	0.12	0.12	0.14	0.07	0.02	0.00	18.	31.	0.9	0.7	0.342	0.19	0.0
	MAXIMUM	55.49	13.91	13.10	3.73	7.03	3.46	1.95	2.41	0.42	0.20	758.	734.	37.8	4.0	1.500	5.10	15.0
	MINIMUM	54.54	13.26	12.02	3.37	6.76	3.18	1.67	2.26	0.37	0.19	711.	672.	35.5	3.0	0.630	4.60	15.0
	DIFFERENCE	0.95	0.65	1.08	0.36	0.27	0.28	0.28	0.15	0.05	0.01	47.	62.	2.3	1.0	0.870	0.50	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	73-341FB	49.0	52.0	337.	0.95	5.50	1.320	39.0	142.	186.	198.	34.0	27.7	54.5	29.0	7.2	2.01	7.5
	73-334FB	45.0	49.0	329.	0.95	5.60	1.480	40.0	143.	191.	190.	33.3	27.3	52.4	33.0	7.0	1.98	6.3
	73-340FB	52.0	53.0	342.	0.96	6.10	1.480	39.0	142.	222.	199.	32.0	28.3	54.4	31.0	7.2	1.94	7.4
	75-078 b	36.0	0.0	0.	0.82	5.30	0.000	0.0	130.	0.	0.	33.3	29.0	55.0	31.0	7.0	2.12	0.0
	75-078 a	57.0	0.0	0.	0.89	5.93	0.000	0.0	135.	0.	0.	32.2	27.2	55.3	28.8	7.0	2.26	0.0
	NO.POINTS	5	3	3	5	5	3	3	5	3	3	5	5	5	5	5	5	3

2C	AVERAGE	47.8	51.3	336.	0.91	5.69	1.427	39.3	138.	200.	196.	33.0	27.9	54.3	30.6	7.1	2.06	7.1
	STD.DEV.	7.9	2.1	7.	0.06	0.32	0.092	0.6	6.	20.	5.	0.8	0.8	1.1	1.7	0.1	0.13	0.7
	MAXIMUM	57.0	53.0	342.	0.98	6.10	1.480	40.0	143.	222.	199.	34.0	29.0	55.3	33.0	7.2	2.26	7.5
	MINIMUM	36.0	49.0	329.	0.82	5.30	1.320	39.0	130.	186.	190.	32.0	27.2	52.4	28.8	7.0	1.94	6.3
	DIFFERENCE	21.0	4.0	13.	0.14	0.80	0.160	1.0	13.	36.	9.	2.0	1.8	2.9	4.2	0.2	0.32	1.2

SAMPLE	Tb	Yb	Lu	Cu	Ni
73-341FB	1.26	3.65	0.58	13.0	5.3
73-334FB	1.17	3.74	0.54	13.0	5.2
73-340FB	1.31	3.50	0.53	13.0	5.0
75-078 b	1.14	3.80	0.55	0.0	0.0
75-078 a	0.99	3.28	0.56	0.0	0.0
NO.POINTS	5	5	5	3	3
2C AVERAGE	1.17	3.59	0.55	13.0	5.2
STD.DEV.	0.12	0.21	0.02	0.0	0.2
MAXIMUM	1.31	3.80	0.58	13.0	5.3
MINIMUM	0.99	3.28	0.53	13.0	5.0
DIFFERENCE	0.32	0.52	0.05	0.0	0.3

5B GRANDE RONDE BASALT UNIT 5B

NO. OF OXIDES=39 NO. OF DATA CARDS= 1 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-215	56.24	14.13	10.92	3.73	7.15	3.02	2.20	1.88	0.32	0.18	707.	715.	33.7	10.8	1.330	4.61	14.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-215	56.0	53.0	319.	0.87	6.10	1.700	34.0	131.	214.	184.	29.9	25.8	48.9	31.0	6.3	1.69	7.9

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-215	0.88	3.31	0.50	0.0	0.0

3C GRANDE RONDE BASALT UNIT 3C

NO. OF OXIDES=39 NO. OF DATA CARDS= 13 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-227	52.80	14.24	11.31	5.84	9.74	2.79	0.96	1.64	0.25	0.19	393.	406.	37.8	116.0	0.640	3.32	14.0
78-274	53.61	14.70	10.98	5.29	8.78	3.24	1.00	1.70	0.25	0.18	475.	474.	39.0	57.0	0.620	3.43	14.0
74-255 a	53.60	14.66	10.54	5.24	9.71	2.89	1.06	1.65	0.24	0.19	407.	0.	41.2	141.5	-.009	3.53	0.0
74-255 b	53.60	14.66	10.55	5.24	9.72	2.89	1.06	1.66	0.25	0.19	453.	0.	41.3	144.7	-.009	3.30	0.0
74-255	53.60	14.66	10.55	5.24	9.72	2.89	1.06	1.66	0.25	0.19	399.	421.	37.6	116.0	0.710	3.36	10.0
SB77-073	53.63	14.67	11.09	4.95	9.07	3.04	1.15	1.72	0.25	0.19	478.	462.	39.6	54.0	0.750	3.64	13.0
74-256 b	54.19	14.25	11.33	4.78	8.63	2.99	1.39	1.76	0.31	0.19	486.	410.	43.2	58.7	-.009	3.80	24.0
74-256 a	54.18	14.24	11.32	4.77	8.62	2.98	1.38	1.76	0.31	0.19	559.	0.	43.6	56.6	-.009	3.90	0.0
74-257 b	54.63	14.20	11.06	4.64	8.80	2.89	1.32	1.78	0.31	0.18	515.	0.	40.0	54.1	-.009	3.80	0.0
74-257 a	54.62	14.20	11.06	4.64	8.80	2.88	1.32	1.77	0.30	0.18	511.	0.	40.8	52.7	0.828	3.83	0.0
74-258 b	54.23	14.53	10.24	4.46	9.71	2.94	1.43	1.76	0.31	0.22	585.	0.	47.5	56.5	0.900	3.80	0.0
74-258 a	54.22	14.53	10.23	4.45	9.70	2.94	1.43	1.75	0.31	0.22	544.	0.	48.0	58.3	-.009	3.84	0.0
78-272	54.88	14.72	10.79	4.39	8.32	3.28	1.16	1.76	0.28	0.15	501.	487.	37.8	47.1	0.600	3.66	16.0
NO.POINTS	13	13	13	13	13	13	13	13	13	13	13	6	13	13	7	13	6
3C AVERAGE	53.98	14.48	10.85	4.92	9.18	2.97	1.21	1.72	0.28	0.19	485.	443.	41.3	77.9	0.721	3.63	15.2
STD.DEV.	0.57	0.22	0.39	0.43	0.54	0.14	0.17	0.05	0.03	0.02	60.	35.	3.4	36.8	0.112	0.22	4.8
MAXIMUM	54.88	14.72	11.33	5.84	9.74	3.28	1.43	1.78	0.31	0.22	585.	487.	48.0	144.7	0.900	3.90	24.0

	MINIMUM	52.80	14.20	10.23	4.39	8.32	2.79	0.96	1.64	0.24	0.15	393.	406.	37.6	47.1	0.600	3.30	10.0
	DIFFERENCE	2.08	0.52	1.10	1.45	1.42	0.49	0.47	0.14	0.07	0.07	192.	81.	10.4	97.6	0.300	0.60	14.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-227	20.0	25.0	317.	0.67	3.00	0.900	32.0	122.	0.	138.	37.5	16.6	32.9	19.0	4.6	1.43	5.0
78-274	23.0	28.0	364.	0.72	2.78	0.520	31.0	123.	158.	144.	36.9	17.7	35.9	24.0	5.3	1.55	51.0
74-255 a	17.9	0.0	0.	0.55	3.08	0.000	0.0	124.	0.	0.	38.6	16.8	34.4	16.0	5.1	1.58	0.0
74-255 b	19.0	0.0	0.	0.62	3.20	0.000	0.0	140.	0.	0.	38.2	17.0	34.0	18.0	5.1	1.57	0.0
74-255	34.0	26.0	317.	0.70	3.10	0.750	27.0	124.	116.	136.	37.4	16.7	33.3	23.0	4.9	1.45	4.0
SB77-073	33.0	29.0	348.	0.74	3.20	0.960	32.0	127.	178.	147.	35.6	18.9	37.3	19.0	5.4	1.59	4.0
74-256 b	18.0	36.0	345.	0.90	3.70	0.000	28.0	138.	0.	160.	35.9	19.0	39.0	24.0	5.6	1.74	0.0
74-256 a	33.4	0.0	0.	0.58	3.81	0.000	0.0	132.	0.	0.	36.6	20.0	41.7	20.5	5.8	1.79	0.0
74-257 b	31.0	0.0	0.	0.88	3.40	0.000	0.0	135.	0.	0.	36.1	20.0	41.0	21.0	5.8	1.78	0.0
74-257 a	22.3	0.0	0.	0.90	3.49	0.000	0.0	106.	0.	0.	36.4	19.8	40.7	24.8	5.8	1.77	0.0
74-258 b	41.0	0.0	0.	0.65	3.90	0.000	0.0	137.	0.	0.	36.6	20.0	38.0	23.0	5.7	1.67	0.0
74-258 a	38.6	0.0	0.	0.82	3.66	0.000	0.0	129.	0.	0.	36.8	19.9	40.7	24.4	5.8	1.78	0.0
78-272	30.0	33.0	350.	0.71	3.50	0.900	33.0	124.	158.	154.	35.5	19.4	37.9	24.0	5.6	1.59	6.2
NO.POINTS	13	6	6	13	13	5	6	13	4	6	13	13	13	13	13	13	5
AVERAGE	27.8	29.5	340.	0.73	3.37	0.806	30.5	128.	153.	147.	36.8	18.6	37.4	21.6	5.4	1.64	14.0
STD.DEV.	8.1	4.2	19.	0.12	0.34	0.178	2.4	9.	26.	9.	0.9	1.4	3.1	2.9	0.4	0.13	20.7
MAXIMUM	41.0	36.0	364.	0.90	3.90	0.960	33.0	140.	178.	160.	38.6	20.0	41.7	24.8	5.8	1.79	51.0
MINIMUM	17.9	25.0	317.	0.55	2.78	0.520	27.0	106.	116.	136.	35.5	16.6	32.9	16.0	4.6	1.43	4.0
DIFFERENCE	23.1	11.0	47.	0.35	1.12	0.440	6.0	34.	62.	24.	3.1	3.4	8.8	8.8	1.2	0.36	47.0

3C

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-227	0.75	2.82	0.41	0.0	0.0
78-274	0.84	2.97	0.44	0.0	0.0
74-255 a	0.98	2.49	0.47	0.0	0.0
74-255 b	1.01	2.50	0.47	0.0	0.0
74-255	0.78	2.85	0.45	0.0	0.0
SB77-073	0.84	3.17	0.46	0.0	0.0
74-256 b	0.81	2.60	0.51	0.0	0.0
74-256 a	0.97	2.70	0.51	0.0	0.0
74-257 b	1.04	2.80	0.51	0.0	0.0
74-257 a	1.17	2.60	0.52	0.0	0.0
74-258 b	0.87	2.80	0.51	0.0	0.0
74-258 a	1.06	2.89	0.51	0.0	0.0
78-272	0.87	3.15	0.46	0.0	0.0
NO.POINTS	13	13	13	0	0
AVERAGE	0.92	2.80	0.48	0.0	0.0
STD.DEV.	0.13	0.22	0.03	0.0	0.0
MAXIMUM	1.17	3.17	0.52	0.0	0.0
MINIMUM	0.75	2.49	0.41	0.0	0.0
DIFFERENCE	0.42	0.68	0.11	0.0	0.0

3C

3D GRANDE RONDE UNIT 3D

NO. OF OXIDES=39 NO. OF DATA CARDS= 19 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-226	53.43	14.44	11.37	5.44	8.69	3.03	1.22	1.69	0.28	0.17	451.	493.	37.0	93.4	0.600	3.54	13.0
74-271 a	53.63	14.21	10.94	5.40	9.53	2.81	1.04	1.72	0.29	0.19	520.	0.	40.2	100.6	-.009	3.62	0.0
74-271 b	53.63	14.22	10.94	5.40	9.54	2.81	1.04	1.73	0.30	0.19	557.	0.	40.5	96.6	0.900	3.80	0.0
74-272 b	53.86	14.24	10.97	5.38	9.26	2.71	1.20	1.73	0.30	0.18	528.	0.	39.1	114.5	0.700	3.70	0.0
74-272 a	53.86	14.23	10.96	5.37	9.26	2.70	1.19	1.72	0.29	0.18	439.	0.	40.6	113.1	0.897	3.62	0.0
73-380	53.65	14.50	10.95	5.31	9.02	2.88	1.17	1.65	0.27	0.16	455.	501.	38.1	91.0	0.480	3.53	14.0
75-079 b	52.81	14.88	11.69	5.31	9.12	2.93	0.93	1.70	0.25	0.19	443.	0.	42.4	83.8	-.009	3.70	0.0
75-079 a	52.80	14.87	11.68	5.30	9.12	2.92	0.93	1.70	0.25	0.19	517.	0.	42.1	87.7	-.009	3.85	0.0

	75-011 b	53.13	14.60	11.36	5.29	9.17	2.97	1.08	1.77	0.24	0.20	464.	0.	42.7	60.9	-.009	3.80	0.0
	75-012 a	53.42	14.73	10.89	5.29	9.22	3.01	1.11	1.68	0.23	0.19	498.	0.	44.0	130.9	-.009	3.63	0.0
	75-012 b	53.42	14.74	10.90	5.29	9.22	3.02	1.12	1.69	0.23	0.19	420.	0.	42.7	125.2	-.009	3.50	0.0
	75-011 a	53.12	14.60	11.35	5.28	9.17	2.96	1.07	1.76	0.24	0.20	545.	461.	43.5	68.5	-.009	3.91	13.0
	75-080 a	53.03	14.75	11.73	5.18	8.90	2.93	1.06	1.75	0.24	0.19	532.	0.	41.6	95.0	-.009	3.82	0.0
	75-080 b	53.04	14.75	11.73	5.18	8.90	2.94	1.07	1.76	0.24	0.19	482.	0.	42.7	102.7	0.700	3.80	0.0
	74-254 a	53.79	14.42	11.30	5.13	8.94	2.80	1.19	1.73	0.26	0.20	576.	0.	40.5	118.9	-.009	3.86	0.0
	74-254 b	53.80	14.42	11.31	5.13	8.94	2.81	1.19	1.74	0.26	0.20	494.	0.	39.7	116.5	0.700	3.80	0.0
*	73-360 a	54.03	14.72	10.79	4.92	9.03	2.88	1.22	1.58	0.28	0.17	412.	0.	39.0	95.6	1.106	3.47	0.0
*	73-360 b	54.03	14.72	10.79	4.92	9.03	2.88	1.22	1.58	0.28	0.17	508.	0.	39.1	92.1	0.500	3.90	0.0
*	73-360FB	54.03	14.72	10.79	4.92	9.03	2.88	1.22	1.58	0.28	0.17	496.	485.	38.1	93.0	0.750	3.52	17.0
	NO.POINTS	16	16	16	16	16	16	16	16	16	16	16	3	16	16	7	16	3
3D	AVERAGE	53.40	14.54	11.25	5.29	9.12	2.89	1.10	1.72	0.26	0.19	495.	485.	41.1	100.0	0.711	3.72	13.3
	STD.DEV.	0.37	0.24	0.32	0.10	0.23	0.10	0.09	0.03	0.02	0.01	47.	21.	2.0	19.5	0.151	0.13	0.6
	MAXIMUM	53.86	14.88	11.73	5.44	9.54	3.03	1.22	1.77	0.30	0.20	576.	501.	44.0	130.9	0.900	3.91	14.0
	MINIMUM	52.80	14.21	10.89	5.13	8.69	2.70	0.93	1.65	0.23	0.16	420.	461.	37.0	60.9	0.480	3.50	13.0
	DIFFERENCE	1.06	0.67	0.84	0.31	0.85	0.33	0.29	0.12	0.07	0.04	156.	40.	7.0	70.0	0.420	0.41	1.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-226	27.0	32.0	295.	0.69	3.60	1.020	31.0	118.	111.	146.	34.4	18.4	36.5	24.0	5.4	1.50	4.0
	74-271 a	24.9	0.0	0.	0.67	3.41	0.000	0.0	151.	0.	0.	38.5	18.3	38.0	22.3	5.7	1.62	0.0
	74-271 b	34.0	0.0	0.	0.82	3.40	0.000	0.0	126.	0.	0.	37.8	17.0	36.0	21.0	5.4	1.78	0.0
	74-272 b	25.0	0.0	0.	0.69	3.70	0.000	0.0	131.	0.	0.	36.1	19.0	38.0	21.0	5.4	1.68	0.0
	74-272 a	27.8	0.0	0.	0.78	3.64	0.000	0.0	150.	0.	0.	37.0	19.1	41.1	22.7	5.7	1.65	0.0
	73-380	32.0	35.0	303.	0.71	3.50	1.030	30.0	119.	129.	146.	34.4	19.3	35.2	24.0	4.3	1.53	6.0
	75-079 b	0.0	0.0	0.	-0.26	3.50	0.000	0.0	136.	0.	0.	38.8	17.0	34.0	20.0	5.2	1.59	0.0
	75-079 a	0.0	0.0	0.	0.79	2.93	0.000	0.0	136.	0.	0.	39.0	17.3	31.8	19.6	5.2	1.58	0.0
	75-011 b	38.0	0.0	0.	0.63	3.20	0.000	0.0	137.	0.	0.	36.4	19.0	38.0	18.0	5.4	1.90	0.0
	75-012 a	35.8	0.0	0.	0.55	3.43	0.000	0.0	121.	0.	0.	38.2	17.8	36.6	22.8	5.3	1.71	0.0
	75-012 b	23.0	0.0	0.	0.68	3.30	0.000	0.0	141.	0.	0.	37.1	18.0	35.0	18.0	5.1	1.66	0.0
	75-011 a	13.3	42.0	327.	0.80	3.53	0.000	39.0	130.	0.	200.	37.8	19.1	40.6	24.1	5.6	1.61	0.0
	75-080 a	20.2	0.0	0.	0.99	2.88	0.000	0.0	134.	0.	0.	37.1	17.8	39.4	20.6	5.4	1.84	0.0
	75-080 b	0.0	0.0	0.	0.74	3.60	0.000	0.0	114.	0.	0.	38.5	18.0	42.0	22.0	5.4	1.69	0.0
	74-254 a	18.9	0.0	0.	0.75	4.21	0.000	0.0	121.	0.	0.	36.7	19.1	40.1	18.5	5.6	1.59	0.0
	74-254 b	40.0	0.0	0.	0.74	3.60	0.000	0.0	135.	0.	0.	35.9	19.0	37.0	10.0	5.3	1.67	0.0
*	73-360 a	23.4	0.0	0.	0.64	3.68	0.000	0.0	140.	0.	0.	34.2	17.2	37.6	18.4	5.3	1.60	0.0
*	73-360 b	24.0	0.0	0.	0.80	3.70	0.000	0.0	121.	0.	0.	33.8	19.0	38.0	21.0	5.3	1.67	0.0
*	73-360FB	36.0	38.0	318.	0.78	3.70	0.870	32.0	123.	147.	153.	35.1	19.0	36.8	22.0	5.5	1.55	6.0
	NO.POINTS	13	3	3	15	16	2	3	16	2	3	16	16	16	16	16	16	2
3D	AVERAGE	27.7	36.3	308.	0.74	3.46	1.025	33.3	131.	120.	164.	37.1	18.3	37.5	20.5	5.3	1.66	5.0
	STD.DEV.	8.0	5.1	17.	0.10	0.31	0.007	4.9	11.	13.	31.	1.4	0.8	2.8	3.5	0.3	0.11	1.4
	MAXIMUM	40.0	42.0	327.	0.99	4.21	1.030	39.0	151.	129.	200.	39.0	19.3	42.0	24.1	5.7	1.90	6.0
	MINIMUM	13.3	32.0	295.	0.55	2.88	1.020	30.0	114.	111.	146.	34.4	17.0	31.8	10.0	4.3	1.50	4.0
	DIFFERENCE	26.7	10.0	32.	0.44	1.33	0.010	9.0	37.	18.	54.	4.6	2.3	10.2	14.1	1.4	0.40	2.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-226	0.81	3.00	0.46	0.0	0.0
74-271 a	0.87	2.57	0.54	0.0	0.0
74-271 b	1.02	2.60	0.52	0.0	0.0
74-272 b	0.98	2.30	0.51	0.0	0.0
74-272 a	0.98	2.65	0.52	0.0	0.0
73-380	0.82	3.07	0.45	0.0	0.0
75-079 b	1.20	2.90	0.47	0.0	0.0
75-079 a	0.89	2.84	0.50	0.0	0.0
75-011 b	1.03	2.70	0.51	0.0	0.0
75-012 a	1.06	2.89	0.50	0.0	0.0
75-012 b	0.96	2.60	0.48	0.0	0.0
75-011 a	0.97	2.94	0.52	41.0	16.0
75-080 a	0.98	2.67	0.50	0.0	0.0
75-080 b	0.82	2.50	0.48	0.0	0.0
74-254 a	1.02	2.86	0.51	0.0	0.0

	74-254 b	0.98	2.40	0.49	0.0	0.0
*	73-360 a	0.86	2.60	0.50	0.0	0.0
*	73-360 b	0.94	2.30	0.49	0.0	0.0
*	73-360FB	0.81	2.92	0.46	0.0	0.0
	NO.POINTS	16	16	16	1	1
3D	AVERAGE	0.96	2.72	0.50	41.0	16.0
	STD.DEV.	0.10	0.22	0.02	0.0	0.0
	MAXIMUM	1.20	3.07	0.54	41.0	16.0
	MINIMUM	0.81	2.30	0.45	41.0	16.0
	DIFFERENCE	0.39	0.77	0.09	0.0	0.0

5D GRANDE RONDE UNIT 5D

NO. OF OXIDES=39 NO. OF DATA CARDS= 8 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-251 b	55.36	13.75	11.64	4.59	7.45	3.17	1.51	1.87	0.29	0.18	575.	0.	41.8	24.6	-.009	4.30	0.0
	74-251 a	55.36	13.74	11.63	4.58	7.45	3.17	1.50	1.87	0.28	0.17	616.	0.	41.4	20.6	-.009	4.01	0.0
	74-252 b	55.57	14.09	11.32	4.23	7.68	3.07	1.47	1.89	0.29	0.20	646.	0.	43.2	23.5	-.009	4.10	0.0
	74-252 a	55.57	14.09	11.31	4.22	7.68	3.06	1.46	1.88	0.28	0.20	692.	0.	41.0	20.5	0.821	4.25	0.0
	75-081 b	54.57	14.17	12.01	4.19	7.84	2.96	1.63	1.95	0.29	0.18	660.	0.	44.8	18.4	1.200	4.30	0.0
	75-081 a	54.56	14.16	12.01	4.19	7.84	2.96	1.63	1.94	0.28	0.18	609.	0.	43.4	17.1	-.009	4.23	0.0
	74-253 b	55.24	13.91	11.95	4.14	7.75	2.67	1.69	1.97	0.30	0.18	685.	0.	38.9	20.1	1.200	4.30	0.0
	74-253 a	55.24	13.91	11.95	4.13	7.74	2.67	1.68	1.96	0.29	0.18	623.	0.	38.8	20.6	1.460	4.38	0.0
	NO.POINTS	8	8	8	8	8	8	8	8	8	8	8	0	8	8	4	8	0
5D	AVERAGE	55.18	13.98	11.73	4.28	7.68	2.97	1.57	1.92	0.29	0.18	638.	0.	41.7	20.7	1.170	4.23	0.0
	STD.DEV.	0.40	0.17	0.30	0.19	0.15	0.20	0.10	0.04	0.01	0.01	40.	0.	2.1	2.4	0.263	0.12	0.0
	MAXIMUM	55.57	14.17	12.01	4.59	7.84	3.17	1.69	1.97	0.30	0.20	692.	0.	44.8	24.6	1.460	4.38	0.0
	MINIMUM	54.56	13.74	11.31	4.13	7.45	2.67	1.46	1.87	0.28	0.17	575.	0.	38.8	17.1	0.821	4.01	0.0
	DIFFERENCE	1.01	0.43	0.70	0.46	0.39	0.50	0.23	0.10	0.02	0.03	117.	0.	6.0	7.5	0.639	0.37	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-251 b	61.0	0.0	0.	1.01	4.60	0.000	0.0	135.	0.	0.	33.7	22.0	41.0	23.0	6.0	1.79	0.0
	74-251 a	34.8	0.0	0.	1.34	5.03	0.000	0.0	118.	0.	0.	32.7	20.8	41.5	24.9	5.8	1.65	0.0
	74-252 b	32.0	0.0	0.	0.69	5.20	0.000	0.0	141.	0.	0.	33.0	22.0	44.0	14.0	5.8	1.83	0.0
	74-252 a	37.2	0.0	0.	0.77	5.14	0.000	0.0	117.	0.	0.	32.7	21.5	44.0	25.2	5.9	1.80	0.0
	75-081 b	58.0	0.0	0.	0.78	4.70	0.000	0.0	159.	0.	0.	35.2	23.0	43.0	25.0	6.2	2.00	0.0
	75-081 a	23.6	0.0	0.	1.10	4.35	0.000	0.0	129.	0.	0.	34.6	22.3	45.1	25.3	6.1	1.80	0.0
	74-253 b	47.0	0.0	0.	0.79	5.30	0.000	0.0	145.	0.	0.	33.1	23.0	45.0	-11.0	5.2	1.99	0.0
	74-253 a	35.5	0.0	0.	0.92	4.93	0.000	0.0	132.	0.	0.	33.7	23.1	45.9	28.2	6.4	1.80	0.0
	NO.POINTS	8	0	0	8	8	0	0	8	0	0	8	8	8	7	8	8	0
5D	AVERAGE	41.1	0.0	0.	0.93	4.91	0.000	0.0	135.	0.	0.	33.6	22.2	43.7	23.7	5.9	1.83	0.0
	STD.DEV.	13.0	0.0	0.	0.22	0.33	0.000	0.0	14.	0.	0.	0.9	0.8	1.7	4.5	0.4	0.11	0.0
	MAXIMUM	61.0	0.0	0.	1.34	5.30	0.000	0.0	159.	0.	0.	35.2	23.1	45.9	28.2	6.4	2.00	0.0
	MINIMUM	23.6	0.0	0.	0.69	4.35	0.000	0.0	117.	0.	0.	32.7	20.8	41.0	14.0	5.2	1.65	0.0
	DIFFERENCE	37.4	0.0	0.	0.65	0.95	0.000	0.0	42.	0.	0.	2.5	2.3	4.9	14.2	1.2	0.35	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-251 b	0.92	2.90	0.50	0.0	0.0
	74-251 a	1.21	2.71	0.49	0.0	0.0
	74-252 b	0.80	2.70	0.50	0.0	0.0
	74-252 a	1.23	2.83	0.49	0.0	0.0
	75-081 b	1.16	2.90	0.52	0.0	0.0
	75-081 a	1.13	3.07	0.54	0.0	0.0
	74-253 b	1.09	2.80	0.55	0.0	0.0
	74-253 a	1.28	3.07	0.54	0.0	0.0

	NO.POINTS	8	8	8	0	0
5D	AVERAGE	1.10	2.87	0.52	0.0	0.0
	STD.DEV.	0.16	0.14	0.02	0.0	0.0
	MAXIMUM	1.28	3.07	0.55	0.0	0.0
	MINIMUM	0.80	2.70	0.49	0.0	0.0
	DIFFERENCE	0.48	0.37	0.06	0.0	0.0

GRB GRANDE RONDE UNCLASSIFIED FLOWS

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-273 a	54.97	13.45	12.32	3.81	7.45	3.02	1.73	2.30	0.49	0.20	751.	0.	41.0	10.4	0.950	4.67	0.0
	74-273 b	54.97	13.46	12.33	3.81	7.45	3.03	1.73	2.30	0.50	0.20	702.	0.	41.1	8.0	1.200	4.90	0.0
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0
GRB	AVERAGE	54.97	13.45	12.32	3.81	7.45	3.03	1.73	2.30	0.50	0.20	727.	0.	41.0	9.2	1.075	4.79	0.0
	STD.DEV.	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	35.	0.	0.1	1.7	0.177	0.16	0.0
	MAXIMUM	54.97	13.46	12.33	3.81	7.45	3.03	1.73	2.30	0.50	0.20	751.	0.	41.1	10.4	1.200	4.90	0.0
	MINIMUM	54.97	13.45	12.32	3.81	7.45	3.02	1.73	2.30	0.49	0.20	702.	0.	41.0	8.0	0.950	4.67	0.0
	DIFFERENCE	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	49.	0.	0.1	2.4	0.250	0.23	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-273 a	35.9	0.0	0.	0.93	5.15	0.000	0.0	159.	0.	0.	33.6	26.4	52.9	29.6	7.4	2.13	0.0
	74-273 b	43.0	0.0	0.	1.04	5.50	0.000	0.0	140.	0.	0.	33.3	26.0	55.0	30.0	7.2	2.13	0.0
	NO.POINTS	2	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
GRB	AVERAGE	39.5	0.0	0.	0.99	5.33	0.000	0.0	150.	0.	0.	33.5	26.2	54.0	29.8	7.3	2.13	0.0
	STD.DEV.	5.0	0.0	0.	0.08	0.25	0.000	0.0	13.	0.	0.	0.2	0.3	1.5	0.3	0.1	0.00	0.0
	MAXIMUM	43.0	0.0	0.	1.04	5.50	0.000	0.0	159.	0.	0.	33.6	26.4	55.0	30.0	7.4	2.13	0.0
	MINIMUM	35.9	0.0	0.	0.93	5.15	0.000	0.0	140.	0.	0.	33.3	26.0	52.9	29.6	7.2	2.13	0.0
	DIFFERENCE	7.1	0.0	0.	0.11	0.35	0.000	0.0	19.	0.	0.	0.3	0.4	2.1	0.4	0.2	0.00	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-273 a	1.17	3.43	0.65	0.0	0.0
	74-273 b	0.97	3.30	0.60	0.0	0.0
	NO.POINTS	2	2	2	0	0
GRB	AVERAGE	1.07	3.37	0.63	0.0	0.0
	STD.DEV.	0.14	0.09	0.04	0.0	0.0
	MAXIMUM	1.17	3.43	0.65	0.0	0.0
	MINIMUM	0.97	3.30	0.60	0.0	0.0
	DIFFERENCE	0.20	0.13	0.05	0.0	0.0

2D GRANDE RONDE UNIT 2D

NO. OF OXIDES=39 NO. OF DATA CARDS= 40 DATA SORTED ON: MGO

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
75-082 a	54.11	14.31	12.20	4.00	7.73	3.09	1.60	2.10	0.40	0.21	662.	0.	43.9	17.1	1.258	4.88	0.0
75-082 b	54.11	14.31	12.20	4.00	7.74	3.09	1.61	2.11	0.41	0.21	644.	645.	42.5	13.6	1.000	4.60	16.0
74-274 b	54.02	13.55	12.90	3.94	7.24	3.24	1.76	2.47	0.46	0.20	725.	0.	37.5	14.2	1.000	5.10	0.0
74-274 a	54.01	13.55	12.89	3.93	7.24	3.24	1.76	2.46	0.45	0.20	722.	0.	38.4	15.5	0.846	4.81	0.0
74-248 b	53.96	13.69	12.70	3.88	7.33	3.33	1.73	2.50	0.44	0.22	705.	0.	39.1	17.4	1.000	5.00	0.0

	74-248 a	53.95	13.69	12.70	3.87	7.33	3.33	1.72	2.50	0.44	0.22	721.	0.	38.3	14.2	0.839	4.89	0.0
	73-381F	54.87	14.19	11.76	3.83	7.39	3.26	1.61	2.08	0.39	0.20	630.	649.	38.0	8.3	0.650	4.48	13.0
	78-261	54.77	13.99	12.08	3.80	7.33	3.15	1.80	2.26	0.34	0.18	701.	679.	37.1	11.6	1.360	4.71	13.0
	75-013 a	54.15	14.11	12.79	3.79	7.17	3.16	1.69	2.25	0.44	0.20	722.	0.	40.0	12.5	0.983	4.74	0.0
	75-013 b	54.15	14.11	12.79	3.79	7.17	3.17	1.69	2.25	0.45	0.20	667.	0.	38.9	9.6	1.400	4.70	0.0
	74-250 b	54.78	13.55	12.67	3.78	7.46	3.11	1.69	2.15	0.38	0.21	767.	0.	44.7	13.7	1.000	5.10	0.0
	75-085 a	53.72	14.19	12.79	3.78	7.24	2.99	1.98	2.42	0.43	0.19	709.	0.	40.9	14.5	1.434	4.94	0.0
	75-085 b	53.72	14.19	12.79	3.78	7.25	3.00	1.99	2.43	0.44	0.19	701.	0.	38.7	13.7	1.000	4.90	0.0
	74-250 a	54.78	13.55	12.66	3.77	7.46	3.11	1.68	2.14	0.37	0.21	695.	0.	42.5	11.5	1.223	4.72	0.0
	74-59	54.21	14.03	12.63	3.75	7.33	3.41	1.53	2.25	0.40	0.19	689.	683.	36.9	8.9	0.660	4.58	10.0
	75-084 a	54.15	14.20	12.39	3.69	7.19	2.98	2.08	2.44	0.43	0.19	718.	0.	40.4	14.5	1.762	5.14	0.0
	75-084 b	54.15	14.20	12.40	3.69	7.20	2.99	2.08	2.44	0.44	0.19	729.	0.	39.8	15.2	1.600	5.10	0.0
	74-62	54.02	14.08	12.97	3.69	6.93	3.29	1.71	2.44	0.42	0.18	699.	706.	35.2	10.9	0.750	5.00	12.0
	74-276 a	55.67	13.58	11.44	3.58	7.18	3.22	2.04	2.36	0.48	0.20	778.	0.	38.8	12.5	1.414	5.24	0.0
	74-276 b	55.68	13.59	11.45	3.58	7.18	3.23	2.05	2.36	0.49	0.20	742.	0.	38.3	13.1	1.200	5.30	0.0
	75-083 a	54.71	14.09	12.03	3.55	7.28	2.95	2.09	2.43	0.43	0.20	711.	0.	40.4	14.7	1.252	5.07	0.0
	75-083 b	54.71	14.09	12.03	3.55	7.29	2.95	2.10	2.43	0.44	0.20	691.	0.	40.0	12.2	1.300	5.20	0.0
	78-056	55.40	13.94	11.83	3.53	7.14	3.19	1.87	2.32	0.39	0.18	685.	746.	35.9	7.9	1.380	4.88	14.0
	74-278 a	55.54	13.58	11.90	3.51	7.11	3.17	2.10	2.24	0.41	0.20	697.	0.	36.6	11.0	1.348	4.64	0.0
	74-278 b	55.54	13.58	11.91	3.51	7.11	3.17	2.11	2.25	0.42	0.20	701.	0.	36.7	10.9	1.500	4.90	0.0
	74-277	55.58	13.86	11.77	3.50	7.07	3.20	1.95	2.20	0.43	0.20	776.	0.	31.8	12.3	1.260	4.78	0.0
	74-277 a	55.58	13.86	11.77	3.50	7.07	3.20	1.95	2.20	0.43	0.20	775.	0.	33.8	13.4	1.177	4.70	0.0
	74-277 b	55.58	13.86	11.77	3.50	7.08	3.21	1.96	2.20	0.44	0.20	701.	715.	34.1	15.0	1.300	4.70	13.0
	74-247 a	56.27	14.12	11.42	3.50	6.43	3.32	1.90	2.23	0.40	0.17	747.	0.	39.6	17.3	0.900	4.63	0.0
	74-247 b	56.27	14.12	11.43	3.50	6.44	3.32	1.91	2.23	0.41	0.17	697.	614.	41.8	17.3	1.300	4.90	13.0
	78-055	55.08	13.89	12.24	3.50	6.99	3.39	1.82	2.30	0.37	0.19	755.	710.	33.3	7.9	1.500	5.20	16.0
	75-086 a	55.54	14.29	11.98	3.46	6.94	2.99	1.83	2.15	0.39	0.18	764.	0.	36.4	14.6	1.430	4.86	0.0
	75-086 b	55.55	14.30	11.98	3.46	6.95	2.99	1.83	2.15	0.40	0.18	695.	0.	36.2	8.9	1.300	5.00	0.0
	78-258	55.91	13.77	11.69	3.46	6.85	3.41	1.82	2.27	0.34	0.20	676.	720.	33.5	9.8	1.440	4.70	16.0
	75-014 b	55.41	14.24	12.01	3.40	6.78	3.01	1.99	2.33	0.45	0.18	803.	619.	37.6	12.2	1.500	5.50	14.0
	74-275 b	55.24	13.71	12.39	3.40	6.96	3.10	2.00	2.30	0.45	0.24	815.	0.	35.1	9.9	1.800	5.10	0.0
	75-014 a	55.41	14.24	12.00	3.39	6.77	3.01	1.98	2.33	0.44	0.18	855.	0.	37.6	12.8	1.313	5.40	0.0
	74-275 a	55.24	13.71	12.38	3.39	6.96	3.10	1.99	2.29	0.45	0.23	816.	0.	35.3	9.6	1.746	5.08	0.0
	74-249 b	56.16	13.66	11.49	3.25	6.79	2.98	2.40	2.31	0.53	0.23	823.	0.	38.8	11.0	1.700	5.00	0.0
	74-249 a	56.16	13.66	11.48	3.25	6.79	2.97	2.39	2.30	0.53	0.23	824.	827.	37.9	7.8	1.387	4.81	12.0
	NO.POINTS	40	40	40	40	40	40	40	40	40	40	40	12	40	40	40	40	12
2D	AVERAGE	54.95	13.93	12.17	3.63	7.12	3.15	1.89	2.30	0.43	0.20	728.	693.	38.1	12.5	1.255	4.92	13.5
	STD.DEV.	0.79	0.27	0.48	0.20	0.28	0.14	0.20	0.12	0.04	0.02	53.	59.	2.9	2.7	0.293	0.24	1.8
	MAXIMUM	56.27	14.31	12.97	4.00	7.74	3.41	2.40	2.50	0.53	0.24	855.	827.	44.7	17.4	1.800	5.50	16.0
	MINIMUM	53.72	13.55	11.42	3.25	6.43	2.95	1.53	2.08	0.34	0.17	630.	614.	31.8	7.8	0.650	4.48	10.0
	DIFFERENCE	2.55	0.76	1.55	0.75	1.31	0.46	0.87	0.42	0.19	0.07	225.	213.	12.9	9.6	1.150	1.02	6.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-082 a	31.0	0.0	0.	0.87	4.36	0.000	0.0	152.	0.	0.	36.1	24.3	50.9	27.7	7.1	2.04	0.0
75-082 b	0.0	48.0	313.	0.74	3.80	0.000	40.0	161.	0.	194.	36.4	24.0	48.0	32.0	7.0	2.09	0.0
74-274 b	35.0	0.0	0.	0.84	5.00	0.000	0.0	135.	0.	0.	31.7	25.0	53.0	29.0	7.0	2.07	0.0
74-274 a	54.5	0.0	0.	0.91	5.66	0.000	0.0	161.	0.	0.	33.1	24.3	54.8	29.1	7.4	2.07	0.0
74-248 b	-8.0	0.0	0.	1.02	5.00	0.000	0.0	149.	0.	0.	32.6	26.0	52.0	-14.0	7.3	1.99	0.0
74-248 a	34.9	0.0	0.	0.96	4.90	0.000	0.0	134.	0.	0.	31.9	25.2	52.8	32.3	7.3	1.85	0.0
73-381F	50.0	41.0	312.	0.91	5.00	1.270	32.0	149.	159.	176.	32.6	24.0	46.2	27.0	6.5	1.83	6.6
78-261	47.0	50.0	318.	0.83	5.70	1.360	36.0	139.	183.	186.	32.5	25.6	49.5	29.0	6.7	1.81	6.2
75-013 a	30.1	0.0	0.	0.98	5.08	0.000	0.0	132.	0.	0.	33.5	26.6	55.5	32.5	7.2	2.15	0.0
75-013 b	41.0	0.0	0.	0.91	4.80	0.000	0.0	145.	0.	0.	32.3	25.0	54.0	28.0	6.9	2.10	0.0
74-250 b	36.0	0.0	0.	0.77	5.30	0.000	0.0	157.	0.	0.	36.0	27.0	55.0	-17.0	7.3	2.26	0.0
75-085 a	53.1	0.0	0.	0.76	5.10	0.000	0.0	142.	0.	0.	33.0	26.4	56.3	32.9	7.5	2.10	0.0
75-085 b	55.0	0.0	0.	0.58	5.00	0.000	0.0	139.	154.	0.	32.6	26.0	55.0	32.0	7.2	1.99	0.0
74-250 a	45.4	0.0	0.	1.00	4.86	0.000	0.0	133.	0.	0.	34.6	25.0	51.1	31.1	7.1	2.03	0.0
74-59	38.0	29.0	322.	0.97	5.00	1.440	32.0	140.	151.	183.	32.1	26.2	49.8	26.0	6.8	1.91	6.6
75-084 a	41.3	0.0	0.	1.03	5.42	0.000	0.0	153.	0.	0.	33.0	27.4	56.7	34.5	7.7	2.07	0.0
75-084 b	0.0	0.0	0.	0.84	5.00	0.000	0.0	164.	0.	0.	33.1	27.0	58.0	33.0	7.6	2.08	0.0
74-62	50.0	46.0	312.	0.94	5.40	1.180	33.0	146.	242.	194.	31.1	26.8	53.0	31.0	7.1	1.93	7.0
74-276 a	53.0	0.0	0.	0.95	5.64	0.000	0.0	167.	0.	0.	33.1	28.6	61.0	36.7	8.3	2.28	0.0
74-276 b	39.0	0.0	0.	0.99	5.90	0.000	0.0	149.	0.	0.	32.6	28.0	58.0	33.0	7.7	2.24	0.0

	75-083 a	66.0	0.0	0.	1.09	5.36	0.000	0.0	139.	0.	0.	33.4	27.2	59.4	30.4	7.8	2.45	0.0
	75-083 b	49.0	0.0	0.	0.94	5.30	0.000	0.0	154.	0.	0.	33.4	28.0	58.0	35.0	7.8	2.22	0.0
	78-056	55.0	52.0	324.	0.92	6.50	1.630	35.0	145.	157.	191.	30.5	27.9	56.0	28.0	7.3	1.92	6.2
	74-278 a	47.1	0.0	0.	0.84	6.41	0.000	0.0	147.	0.	0.	31.2	27.5	55.4	30.7	7.4	1.97	0.0
	74-278 b	29.0	0.0	0.	0.91	6.30	0.000	0.0	131.	0.	0.	31.5	27.0	54.0	32.0	7.2	2.10	0.0
	74-277	54.0	0.0	0.	0.93	6.70	1.780	0.0	137.	178.	0.	30.5	28.0	53.0	30.0	7.2	1.92	7.0
	74-277 a	51.7	0.0	0.	0.86	6.20	0.000	0.0	151.	0.	0.	31.1	28.5	54.8	30.0	7.5	2.22	0.0
	74-277 b	45.0	51.0	359.	0.96	6.30	0.000	37.0	133.	0.	183.	30.7	27.0	54.0	27.0	7.1	2.08	0.0
	74-247 a	36.4	0.0	0.	0.84	6.81	0.000	0.0	128.	0.	0.	30.6	26.6	55.5	34.1	7.1	2.11	0.0
	74-247 b	40.0	50.0	380.	1.40	6.60	0.000	38.0	146.	0.	201.	32.0	28.0	56.0	30.0	7.4	2.18	0.0
	78-055	51.0	49.0	337.	0.96	5.80	1.450	39.0	146.	195.	207.	30.8	27.9	56.0	31.0	7.3	2.09	8.2
	75-086 a	53.3	0.0	0.	0.98	6.90	0.000	0.0	139.	0.	0.	32.1	27.4	57.1	30.9	7.8	2.10	0.0
	75-086 b	29.0	0.0	0.	0.81	6.70	0.000	0.0	153.	0.	0.	31.6	28.0	59.0	34.0	7.3	2.23	0.0
	78-258	51.0	57.0	345.	0.84	6.40	1.640	36.0	135.	175.	193.	30.0	27.0	51.0	26.0	6.5	1.90	6.4
	75-014 b	48.0	54.0	340.	0.84	6.10	0.000	33.0	142.	0.	231.	29.4	30.0	58.0	34.0	7.7	2.13	0.0
	74-275 b	44.0	0.0	0.	0.98	5.70	0.000	0.0	141.	0.	0.	29.7	27.0	54.0	32.0	7.5	2.15	0.0
	75-014 a	63.5	0.0	0.	1.13	6.44	0.000	0.0	131.	0.	0.	30.8	29.9	61.2	34.1	8.0	2.13	0.0
	74-275 a	44.0	0.0	0.	0.83	5.95	0.000	0.0	153.	0.	0.	30.3	28.4	58.5	31.2	7.8	2.23	0.0
	74-249 b	66.0	0.0	0.	0.93	7.20	0.000	0.0	142.	0.	0.	29.4	29.0	58.0	32.0	8.1	2.04	0.0
	74-249 a	72.4	66.0	321.	0.88	7.47	0.000	34.0	131.	0.	198.	29.1	28.8	56.9	42.1	7.9	2.11	0.0
	NO.POINTS	37	12	12	39	40	8	12	40	9	12	40	40	40	38	40	40	8
2D	AVERAGE	46.7	49.4	332.	0.90	5.73	1.469	35.4	144.	177.	195.	32.0	26.9	54.9	31.4	7.4	2.08	6.8
	STD.DEV.	10.6	8.9	21.	0.10	0.82	0.203	2.7	10.	29.	14.	1.8	1.5	3.4	3.1	0.4	0.13	0.7
	MAXIMUM	72.4	66.0	380.	1.13	7.47	1.780	40.0	167.	242.	231.	36.4	30.0	61.2	42.1	8.3	2.45	8.2
	MINIMUM	29.0	29.0	312.	0.58	3.80	1.180	32.0	128.	151.	176.	29.1	24.0	46.2	26.0	6.5	1.81	6.2
	DIFFERENCE	43.4	37.0	68.	0.55	3.67	0.600	8.0	39.	91.	55.	7.3	6.0	15.0	16.1	1.8	0.64	2.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-082 a	1.35	-4.20	0.64	0.0	0.0
75-082 b	1.15	3.30	0.61	62.0	17.0
74-274 b	1.06	3.00	0.57	0.0	0.0
74-274 a	1.26	3.44	0.65	0.0	0.0
74-248 b	1.18	3.50	0.60	0.0	0.0
74-248 a	1.27	3.63	0.59	0.0	0.0
73-381F	0.93	3.54	0.53	0.0	0.0
78-261	1.00	3.50	0.55	0.0	0.0
75-013 a	1.10	3.63	0.60	0.0	0.0
75-013 b	0.97	3.20	0.58	0.0	0.0
74-250 b	1.74	3.40	0.62	0.0	0.0
75-085 a	1.08	3.44	0.62	0.0	0.0
75-085 b	1.33	3.60	0.55	0.0	0.0
74-250 a	1.42	3.52	0.59	0.0	0.0
74-59	1.08	3.85	0.57	0.0	0.0
75-084 a	1.28	3.80	0.60	0.0	0.0
75-084 b	1.42	3.50	0.59	0.0	0.0
74-62	0.97	3.91	0.56	0.0	0.0
74-276 a	1.31	4.08	0.69	0.0	0.0
74-276 b	1.24	3.40	0.65	0.0	0.0
75-083 a	1.31	3.60	0.63	0.0	0.0
75-083 b	1.38	3.70	0.58	0.0	0.0
78-056	1.20	3.40	0.52	0.0	0.0
74-278 a	1.16	3.25	0.59	0.0	0.0
74-278 b	1.07	3.10	0.56	0.0	0.0
74-277	1.08	3.36	0.51	0.0	0.0
74-277 a	1.06	3.15	0.54	0.0	0.0
74-277 b	1.03	2.80	0.56	0.0	0.0
74-247 a	1.11	3.10	0.51	0.0	0.0
74-247 b	1.31	3.10	0.54	0.0	0.0
78-055	1.08	3.94	0.59	0.0	0.0
75-086 a	1.19	3.56	0.56	0.0	0.0
75-086 b	1.27	3.60	0.53	0.0	0.0
78-258	0.99	3.34	0.48	0.0	0.0
75-014 b	1.13	3.70	0.61	0.0	0.0
74-275 b	1.11	3.30	0.59	0.0	0.0

	75-014 a	1.20	3.91	0.61	0.0	0.0
	74-275 a	1.21	3.60	0.63	0.0	0.0
	74-249 b	1.28	3.30	0.55	0.0	0.0
	74-249 a	1.15	3.49	0.54	18.0	6.0
	NO.POINTS	40	39	40	2	2
2D	AVERAGE	1.19	3.48	0.58	40.0	11.5
	STD.DEV.	0.16	0.28	0.04	31.1	7.8
	MAXIMUM	1.74	4.08	0.69	62.0	17.0
	MINIMUM	0.93	2.80	0.48	18.0	6.0
	DIFFERENCE	0.81	1.28	0.21	44.0	11.0

GRB GRANDE RONDE UNCLASSIFIED FLOWS

NO. OF OXIDES=39 NO. OF DATA CARDS= 1 DATA SORTED ON: MGO

SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
73-382F	56.04	14.10	10.26	3.76	7.59	3.07	2.04	2.14	0.43	0.21	844.	873.	35.7	10.6	1.340	4.86	14.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
73-382F	61.0	57.0	330.	0.88	6.50	1.500	35.0	138.	125.	191.	30.2	27.6	54.0	30.0	7.0	1.94	6.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
73-382F	1.02	3.47	0.51	0.0	0.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 10 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-246 b	54.15	13.70	12.26	4.59	8.19	2.96	1.43	2.00	0.32	0.20	496.	0.	43.0	24.4	1.800	4.00	0.0
	74-246 a	54.15	13.69	12.26	4.58	8.19	2.95	1.42	1.99	0.31	0.20	485.	0.	41.3	22.3	-.009	3.87	0.0
	75-088 a	54.18	14.30	11.62	4.50	8.24	3.02	1.38	2.03	0.30	0.19	510.	0.	42.4	18.8	1.021	4.11	0.0
	75-088 b	54.19	14.30	11.62	4.50	8.25	3.02	1.39	2.04	0.30	0.19	470.	0.	41.3	21.1	0.900	3.80	0.0
	74-279 b	54.56	13.71	12.03	4.49	8.01	3.19	1.19	2.06	0.35	0.21	530.	0.	42.0	22.7	-.009	4.30	0.0
	74-279 a	54.55	13.71	12.02	4.48	8.01	3.18	1.18	2.06	0.34	0.21	568.	0.	42.8	21.0	-.009	3.98	0.0
	75-087 b	53.99	14.25	12.28	4.45	8.28	2.79	1.30	1.96	0.30	0.20	482.	0.	43.2	23.5	1.200	3.80	0.0
	75-087 a	53.99	14.24	12.27	4.45	8.28	2.78	1.29	1.96	0.29	0.19	555.	0.	44.0	15.6	1.409	4.22	0.0
	75-089 a	53.83	14.08	12.44	4.40	7.98	3.08	1.33	2.08	0.32	0.20	574.	0.	41.9	18.5	1.072	4.16	0.0
	75-089 b	53.83	14.08	12.44	4.40	7.99	3.09	1.33	2.09	0.33	0.20	644.	0.	41.8	20.1	0.800	4.00	0.0
	NO.POINTS	10	10	10	10	10	10	10	10	10	10	10	0	10	10	7	10	0
AS16	AVERAGE	54.14	14.01	12.12	4.48	8.14	3.01	1.32	2.03	0.32	0.20	531.	0.	42.4	20.8	1.172	4.02	0.0
	STD.DEV.	0.26	0.27	0.30	0.06	0.13	0.14	0.09	0.05	0.02	0.01	54.	0.	0.9	2.6	0.341	0.17	0.0
	MAXIMUM	54.56	14.30	12.44	4.59	8.28	3.19	1.43	2.09	0.35	0.21	644.	0.	44.0	24.4	1.800	4.30	0.0
	MINIMUM	53.83	13.69	11.62	4.40	7.98	2.78	1.18	1.96	0.29	0.19	470.	0.	41.3	15.6	0.800	3.80	0.0
	DIFFERENCE	0.73	0.61	0.82	0.19	0.30	0.41	0.25	0.13	0.06	0.02	174.	0.	2.7	8.8	1.000	0.50	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-246 b	39.0	0.0	0.	0.62	4.00	0.000	0.0	143.	0.	0.	35.5	19.0	40.0	24.0	6.4	1.70	0.0
74-246 a	18.7	0.0	0.	0.74	3.68	0.000	0.0	128.	0.	0.	34.4	18.2	37.8	22.0	5.9	1.71	0.0
75-088 a	36.3	0.0	0.	0.73	4.31	0.000	0.0	142.	0.	0.	37.1	19.5	40.7	23.9	6.6	1.87	0.0
75-088 b	0.0	0.0	0.	0.68	3.40	0.000	0.0	148.	0.	0.	35.6	18.0	36.0	24.0	5.9	1.90	0.0
74-279 b	0.0	0.0	0.	0.68	3.50	0.000	0.0	133.	0.	0.	34.8	19.0	38.0	22.0	5.7	1.67	0.0
74-279 a	23.5	0.0	0.	0.79	3.96	0.000	0.0	156.	0.	0.	35.6	19.1	40.1	24.4	6.4	1.83	0.0
75-087 b	0.0	0.0	0.	0.67	4.70	0.000	0.0	135.	0.	0.	35.6	19.0	37.0	25.0	5.9	1.49	0.0

	75-087 a	31.2	0.0	0.	0.85	2.67	0.000	0.0	126.	0.	0.	35.6	18.1	41.5	22.5	6.1	1.82	0.0
	75-089 a	32.7	0.0	0.	0.62	3.41	0.000	0.0	143.	0.	0.	36.0	19.2	43.3	24.5	6.2	1.87	0.0
	75-089 b	55.0	0.0	0.	0.71	4.50	0.000	0.0	142.	0.	0.	35.4	19.0	40.0	29.0	6.2	1.93	0.0
	NO.POINTS	7	0	0	10	10	0	0	10	0	0	10	10	10	10	10	10	0
AS16	AVERAGE	33.8	0.0	0.	0.71	3.81	0.000	0.0	140.	0.	0.	35.6	18.8	39.4	24.1	6.1	1.78	0.0
	STD.DEV.	11.7	0.0	0.	0.07	0.61	0.000	0.0	9.	0.	0.	0.7	0.5	2.2	2.0	0.3	0.14	0.0
	MAXIMUM	55.0	0.0	0.	0.85	4.70	0.000	0.0	156.	0.	0.	37.1	19.5	43.3	29.0	6.6	1.93	0.0
	MINIMUM	18.7	0.0	0.	0.62	2.67	0.000	0.0	126.	0.	0.	34.4	18.0	36.0	22.0	5.7	1.49	0.0
	DIFFERENCE	36.3	0.0	0.	0.23	2.03	0.000	0.0	30.	0.	0.	2.7	1.5	7.3	7.0	0.9	0.44	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-246 b	1.20	2.70	0.52	0.0	0.0
	74-246 a	0.94	2.95	0.50	0.0	0.0
	75-088 a	1.35	3.13	0.56	0.0	0.0
	75-088 b	1.18	3.30	0.51	0.0	0.0
	74-279 b	0.98	2.70	0.55	0.0	0.0
	74-279 a	1.01	3.17	0.54	0.0	0.0
	75-087 b	1.05	3.10	0.54	0.0	0.0
	75-087 a	1.15	2.85	0.52	0.0	0.0
	75-089 a	1.03	3.38	0.56	0.0	0.0
	75-089 b	1.46	3.20	0.52	0.0	0.0
	NO.POINTS	10	10	10	0	0
AS16	AVERAGE	1.14	3.05	0.53	0.0	0.0
	STD.DEV.	0.17	0.24	0.02	0.0	0.0
	MAXIMUM	1.46	3.38	0.56	0.0	0.0
	MINIMUM	0.94	2.70	0.50	0.0	0.0
	DIFFERENCE	0.52	0.68	0.06	0.0	0.0

KB5 GRANDE RONDE UNIT KB5

NO. OF OXIDES=39 NO. OF DATA CARDS= 10 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-015 a	53.36	14.00	12.94	4.17	7.78	3.11	1.51	2.23	0.41	0.22	624.	612.	40.2	24.1	-.009	4.19	12.0
	75-015 b	53.37	14.01	12.95	4.17	7.79	3.11	1.51	2.23	0.42	0.22	602.	0.	39.8	26.7	1.200	4.10	0.0
	75-091 b	53.56	14.17	12.64	4.16	7.79	3.11	1.52	2.21	0.41	0.21	455.	0.	40.0	24.1	1.000	4.10	0.0
	75-091 a	53.55	14.17	12.64	4.15	7.79	3.10	1.52	2.21	0.40	0.21	605.	0.	41.4	21.1	1.369	4.17	0.0
	74-245 b	53.90	13.54	13.03	4.13	7.81	3.18	1.32	2.25	0.41	0.22	514.	0.	39.2	26.4	1.200	4.30	0.0
	74-245 a	53.89	13.54	13.02	4.12	7.80	3.17	1.31	2.25	0.41	0.21	576.	0.	38.6	24.6	-.009	4.22	0.0
	75-090 b	53.84	14.09	12.45	4.11	7.76	2.98	1.74	2.18	0.42	0.21	543.	582.	39.8	16.8	1.300	4.20	12.0
	74-280 b	53.53	13.43	13.03	4.11	7.94	3.35	1.44	2.28	0.46	0.22	589.	0.	39.5	19.5	1.000	4.20	0.0
	74-280 a	53.53	13.43	13.03	4.11	7.94	3.35	1.44	2.28	0.46	0.22	605.	0.	38.4	20.3	0.739	4.36	0.0
	75-090 a	53.84	14.08	12.45	4.10	7.76	2.98	1.74	2.18	0.41	0.21	628.	0.	41.5	21.4	1.267	4.61	0.0
	NO.POINTS	10	10	10	10	10	10	10	10	10	10	10	2	10	10	8	10	2
KB5	AVERAGE	53.64	13.85	12.82	4.13	7.82	3.14	1.51	2.23	0.42	0.22	574.	597.	39.8	22.5	1.134	4.25	12.0
	STD.DEV.	0.21	0.32	0.25	0.03	0.07	0.13	0.15	0.04	0.02	0.01	55.	21.	1.0	3.2	0.207	0.15	0.0
	MAXIMUM	53.90	14.17	13.03	4.17	7.94	3.35	1.74	2.28	0.46	0.22	628.	612.	41.5	26.7	1.369	4.61	12.0
	MINIMUM	53.36	13.43	12.45	4.10	7.76	2.98	1.31	2.18	0.40	0.21	455.	582.	38.4	16.8	0.739	4.10	12.0
	DIFFERENCE	0.54	0.74	0.58	0.07	0.18	0.37	0.43	0.10	0.06	0.01	173.	30.	3.1	9.9	0.630	0.51	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	75-015 a	23.3	43.0	347.	0.71	3.96	0.000	37.0	141.	0.	175.	36.2	21.6	45.6	28.9	6.6	2.03	0.0
	75-015 b	22.0	0.0	0.	0.59	3.90	0.000	0.0	152.	0.	0.	35.8	21.0	43.0	-8.0	6.0	2.07	0.0
	75-091 b	0.0	0.0	0.	0.64	4.40	0.000	0.0	149.	0.	0.	36.0	20.0	45.0	27.0	6.6	2.03	0.0
	75-091 a	39.5	0.0	0.	1.02	4.26	0.000	0.0	142.	0.	0.	37.0	21.1	41.0	24.5	6.9	1.95	0.0
	74-245 b	28.0	0.0	0.	0.89	4.20	0.000	0.0	143.	0.	0.	34.9	21.0	43.0	25.0	6.7	2.03	0.0

74-245 a	40.9	0.0	0.	1.06	4.36	0.000	0.0	136.	0.	0.	35.1	20.4	41.9	27.9	6.6	1.96	0.0
75-090 b	73.0	38.0	337.	0.96	3.30	0.000	35.0	151.	0.	179.	36.8	22.0	49.0	26.0	6.8	1.93	0.0
74-280 b	25.0	0.0	0.	0.74	3.90	0.000	0.0	138.	0.	0.	35.6	21.0	43.0	26.0	6.4	1.97	0.0
74-280 a	30.8	0.0	0.	0.79	4.06	0.000	0.0	155.	0.	0.	35.4	21.4	43.6	26.2	6.8	1.86	0.0
75-090 a	45.5	0.0	0.	0.87	3.88	0.000	0.0	148.	0.	0.	37.7	22.0	47.7	26.5	7.0	2.09	0.0
NO.POINTS	8	2	2	10	10	0	2	10	0	2	10	10	10	9	10	10	0
KB5 AVERAGE	31.9	40.5	342.	0.83	4.02	0.000	36.0	146.	0.	177.	36.0	21.2	44.3	26.4	6.6	1.99	0.0
STD.DEV.	8.9	3.5	7.	0.16	0.32	0.000	1.4	6.	0.	3.	0.9	0.6	2.5	1.4	0.3	0.07	0.0
MAXIMUM	45.5	43.0	347.	1.06	4.40	0.000	37.0	155.	0.	179.	37.7	22.0	49.0	28.9	7.0	2.09	0.0
MINIMUM	22.0	38.0	337.	0.59	3.30	0.000	35.0	136.	0.	175.	34.9	20.0	41.0	24.5	6.0	1.86	0.0
DIFFERENCE	23.5	5.0	10.	0.47	1.10	0.000	2.0	19.	0.	4.	2.8	2.0	8.0	4.4	1.0	0.23	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-015 a	1.21	3.33	0.59	27.0	10.0
75-015 b	1.24	3.30	0.57	0.0	0.0
75-091 b	1.12	3.20	0.60	0.0	0.0
75-091 a	1.07	3.83	0.58	0.0	0.0
74-245 b	1.18	3.00	0.55	0.0	0.0
74-245 a	1.31	3.21	0.56	0.0	0.0
75-090 b	1.21	3.40	0.56	27.0	11.0
74-280 b	1.09	3.40	0.62	0.0	0.0
74-280 a	1.11	3.18	0.58	0.0	0.0
75-090 a	1.16	3.94	0.61	0.0	0.0
NO.POINTS	10	10	10	2	2
KB5 AVERAGE	1.17	3.38	0.58	27.0	10.5
STD.DEV.	0.07	0.29	0.02	0.0	0.7
MAXIMUM	1.31	3.94	0.62	27.0	11.0
MINIMUM	1.07	3.00	0.55	27.0	10.0
DIFFERENCE	0.24	0.94	0.07	0.0	1.0

3E GRANDE RONDE UNIT 3E

NO. OF OXIDES=39 NO. OF DATA CARDS= 6 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-281 a	53.87	14.33	11.25	5.17	8.81	3.19	1.03	1.67	0.25	0.19	495.	0.	38.5	23.6	-.009	3.51	0.0
74-281 b	53.88	14.33	11.25	5.17	8.82	3.20	1.04	1.68	0.25	0.19	524.	0.	40.0	24.1	-.009	3.60	0.0
75-016 b	54.05	14.51	11.09	5.15	8.77	2.94	1.26	1.64	0.22	0.18	415.	346.	40.6	23.4	-.009	3.60	11.0
75-016 a	54.04	14.50	11.08	5.14	8.77	2.94	1.25	1.64	0.22	0.18	485.	0.	40.2	25.5	0.972	3.64	0.0
74-244 b	54.67	14.13	11.26	5.05	8.14	3.28	1.16	1.71	0.25	0.16	433.	0.	40.5	26.7	0.900	3.70	0.0
74-244 a	54.67	14.13	11.25	5.04	8.14	3.28	1.16	1.70	0.24	0.16	421.	0.	38.6	24.3	1.000	3.59	0.0
NO.POINTS	6	6	6	6	6	6	6	6	6	6	6	1	6	6	3	6	1
3E AVERAGE	54.20	14.32	11.20	5.12	8.58	3.14	1.15	1.67	0.24	0.18	462.	346.	39.7	24.6	0.957	3.61	11.0
STD.DEV.	0.37	0.17	0.09	0.06	0.34	0.16	0.10	0.03	0.01	0.01	45.	0.	0.9	1.3	0.052	0.06	0.0
MAXIMUM	54.67	14.51	11.26	5.17	8.82	3.28	1.26	1.71	0.25	0.19	524.	346.	40.6	26.7	1.000	3.70	11.0
MINIMUM	53.87	14.13	11.08	5.04	8.14	2.94	1.03	1.64	0.22	0.16	415.	346.	38.5	23.4	0.900	3.51	11.0
DIFFERENCE	0.80	0.38	0.18	0.13	0.68	0.34	0.23	0.07	0.03	0.03	109.	0.	2.1	3.3	0.100	0.19	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-281 a	22.0	0.0	0.	0.73	3.41	0.000	0.0	138.	0.	0.	34.7	15.9	36.4	20.2	5.4	1.56	0.0
74-281 b	0.0	0.0	0.	0.67	3.50	0.000	0.0	124.	0.	0.	35.0	17.0	37.0	22.0	5.4	1.67	0.0
75-016 b	24.0	30.0	298.	0.58	3.60	0.000	31.0	135.	0.	145.	34.0	17.0	36.0	20.0	5.0	1.75	0.0
75-016 a	31.3	0.0	0.	0.91	3.40	0.000	0.0	119.	0.	0.	34.8	16.8	36.7	19.8	5.3	1.66	0.0
74-244 b	0.0	0.0	0.	0.67	3.90	0.000	0.0	132.	0.	0.	34.5	17.0	35.0	21.0	5.6	1.61	0.0
74-244 a	0.0	0.0	0.	0.57	3.78	0.000	0.0	112.	0.	0.	33.8	15.9	33.4	21.5	5.1	1.69	0.0

	NO.POINTS	3	1	1	6	6	0	1	6	0	1	6	6	6	6	6	6	0
3E	AVERAGE	25.8	30.0	298.	0.69	3.60	0.000	31.0	127.	0.	145.	34.5	16.6	35.8	20.8	5.3	1.66	0.0
	STD.DEV.	4.9	0.0	0.	0.12	0.20	0.000	0.0	10.	0.	0.	0.5	0.5	1.3	0.9	0.2	0.07	0.0
	MAXIMUM	31.3	30.0	298.	0.91	3.90	0.000	31.0	138.	0.	145.	35.0	17.0	37.0	22.0	5.6	1.75	0.0
	MINIMUM	22.0	30.0	298.	0.57	3.40	0.000	31.0	112.	0.	145.	33.8	15.9	33.4	19.8	5.0	1.56	0.0
	DIFFERENCE	9.3	0.0	0.	0.34	0.50	0.000	0.0	26.	0.	0.	1.2	1.1	3.6	2.2	0.6	0.19	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-281 a	0.82	2.42	0.48	0.0	0.0
74-281 b	0.85	2.20	0.49	0.0	0.0
75-016 b	0.79	2.30	0.46	0.0	0.0
75-016 a	0.94	2.70	0.48	0.0	0.0
74-244 b	1.09	2.60	0.46	0.0	0.0
74-244 a	1.18	2.58	0.42	0.0	0.0

	NO.POINTS	6	6	6	0	0
3E	AVERAGE	0.94	2.47	0.47	0.0	0.0
	STD.DEV.	0.16	0.19	0.03	0.0	0.0
	MAXIMUM	1.18	2.70	0.49	0.0	0.0
	MINIMUM	0.79	2.20	0.42	0.0	0.0
	DIFFERENCE	0.39	0.50	0.07	0.0	0.0

GRB GRANDE RONDE UNCLASSIFIED FLOWS

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-282 a	53.90	13.96	12.51	4.27	7.88	3.12	1.53	1.95	0.40	0.21	601.	0.	38.3	14.9	1.020	4.13	0.0
74-282 b	53.90	13.97	12.52	4.27	7.89	3.13	1.54	1.95	0.41	0.21	547.	0.	39.0	17.6	1.000	4.30	0.0
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0
GRB AVERAGE	53.90	13.97	12.52	4.27	7.89	3.13	1.53	1.95	0.41	0.21	574.	0.	38.7	16.3	1.010	4.22	0.0
STD.DEV.	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	38.	0.	0.5	1.9	0.014	0.12	0.0
MAXIMUM	53.90	13.97	12.52	4.27	7.89	3.13	1.54	1.95	0.41	0.21	601.	0.	39.0	17.6	1.020	4.30	0.0
MINIMUM	53.90	13.96	12.51	4.27	7.88	3.12	1.53	1.95	0.40	0.21	547.	0.	38.3	14.9	1.000	4.13	0.0
DIFFERENCE	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	54.	0.	0.7	2.7	0.020	0.17	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-282 a	32.1	0.0	0.	0.67	3.64	0.000	0.0	163.	0.	0.	36.3	21.2	45.2	27.5	6.8	1.99	0.0
74-282 b	28.0	0.0	0.	0.80	4.00	0.000	0.0	141.	0.	0.	36.7	21.0	44.0	25.0	6.4	2.01	0.0
NO.POINTS	2	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
GRB AVERAGE	30.0	0.0	0.	0.74	3.82	0.000	0.0	152.	0.	0.	36.5	21.1	44.6	26.3	6.6	2.00	0.0
STD.DEV.	2.9	0.0	0.	0.09	0.25	0.000	0.0	16.	0.	0.	0.3	0.1	0.8	1.8	0.3	0.01	0.0
MAXIMUM	32.1	0.0	0.	0.80	4.00	0.000	0.0	163.	0.	0.	36.7	21.2	45.2	27.5	6.8	2.01	0.0
MINIMUM	28.0	0.0	0.	0.67	3.64	0.000	0.0	141.	0.	0.	36.3	21.0	44.0	25.0	6.4	1.99	0.0
DIFFERENCE	4.1	0.0	0.	0.13	0.36	0.000	0.0	22.	0.	0.	0.4	0.2	1.2	2.5	0.4	0.02	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-282 a	1.02	3.51	0.61	0.0	0.0
74-282 b	1.03	3.00	0.62	0.0	0.0
NO.POINTS	2	2	2	0	0
GRB AVERAGE	1.02	3.26	0.62	0.0	0.0
STD.DEV.	0.01	0.36	0.01	0.0	0.0
MAXIMUM	1.03	3.51	0.62	0.0	0.0
MINIMUM	1.02	3.00	0.61	0.0	0.0

DIFFERENCE	0.01	0.51	0.01	0.0	0.0

3F GRANDE RONDE UNIT 3F

NO. OF OXIDES=39 NO. OF DATA CARDS= 6 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-283 a	54.12	14.13	11.38	5.02	8.89	2.94	1.12	1.70	0.29	0.17	491.	0.	37.8	21.0	1.035	3.52	0.0
	74-283 b	54.13	14.14	11.38	5.02	8.90	2.94	1.13	1.70	0.30	0.17	478.	0.	36.8	24.0	0.900	3.40	0.0
	75-017 b	54.12	14.81	10.95	5.01	8.80	2.92	1.12	1.68	0.23	0.18	420.	0.	35.7	21.5	-.009	3.60	0.0
	75-017 a	54.12	14.81	10.95	5.00	8.79	2.91	1.11	1.67	0.22	0.18	484.	0.	39.9	24.5	1.182	3.64	0.0
	75-092 b	54.41	14.85	10.52	4.94	8.87	3.02	1.14	1.64	0.24	0.19	571.	0.	42.3	17.6	0.900	3.60	0.0
	75-092 a	54.40	14.84	10.51	4.93	8.87	3.02	1.13	1.63	0.24	0.19	540.	528.	42.1	28.5	1.002	3.91	8.0
	NO.POINTS	6	6	6	6	6	6	6	6	6	6	6	1	6	6	5	6	1
3F	AVERAGE	54.22	14.60	10.95	4.99	8.85	2.96	1.13	1.67	0.25	0.18	497.	528.	39.1	22.9	1.004	3.61	8.0
	STD.DEV.	0.15	0.36	0.39	0.04	0.05	0.05	0.01	0.03	0.03	0.01	53.	0.	2.8	3.7	0.116	0.17	0.0
	MAXIMUM	54.41	14.85	11.38	5.02	8.90	3.02	1.14	1.70	0.30	0.19	571.	528.	42.3	28.5	1.182	3.91	8.0
	MINIMUM	54.12	14.13	10.51	4.93	8.79	2.91	1.11	1.63	0.22	0.17	420.	528.	35.7	17.6	0.900	3.40	8.0
	DIFFERENCE	0.29	0.72	0.87	0.09	0.11	0.11	0.03	0.07	0.08	0.02	151.	0.	6.6	10.9	0.282	0.51	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-283 a	29.1	0.0	0.	0.72	3.87	0.000	0.0	139.	0.	0.	35.9	17.8	37.3	20.7	5.5	1.60	0.0
	74-283 b	29.0	0.0	0.	0.67	3.50	0.000	0.0	125.	0.	0.	35.0	17.0	34.0	19.0	5.0	1.72	0.0
	75-017 b	19.0	0.0	0.	0.59	3.40	0.000	0.0	133.	0.	0.	33.4	17.0	36.0	20.0	5.1	1.62	0.0
	75-017 a	32.7	0.0	0.	0.67	3.52	0.000	0.0	120.	0.	0.	34.9	18.9	39.0	21.5	5.5	1.81	0.0
	75-092 b	0.0	0.0	0.	0.75	3.10	0.000	0.0	147.	0.	0.	36.3	17.0	36.0	23.0	5.6	1.46	0.0
	75-092 a	24.4	29.0	346.	0.68	4.08	0.000	35.0	130.	0.	154.	35.7	16.9	38.2	19.8	5.6	1.64	0.0
	NO.POINTS	5	1	1	6	6	0	1	6	0	1	6	6	6	6	6	6	0
3F	AVERAGE	26.8	29.0	346.	0.68	3.58	0.000	35.0	132.	0.	154.	35.2	17.4	36.8	20.7	5.4	1.64	0.0
	STD.DEV.	5.3	0.0	0.	0.05	0.35	0.000	0.0	10.	0.	0.	1.0	0.8	1.8	1.4	0.3	0.12	0.0
	MAXIMUM	32.7	29.0	346.	0.75	4.08	0.000	35.0	147.	0.	154.	36.3	18.9	39.0	23.0	5.6	1.81	0.0
	MINIMUM	19.0	29.0	346.	0.59	3.10	0.000	35.0	120.	0.	154.	33.4	16.9	34.0	19.0	5.0	1.46	0.0
	DIFFERENCE	13.7	0.0	0.	0.16	0.98	0.000	0.0	27.	0.	0.	2.9	2.0	5.0	4.0	0.6	0.35	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-283 a	0.96	2.55	0.48	0.0	0.0
	74-283 b	0.82	2.10	0.48	0.0	0.0
	75-017 b	0.94	2.20	0.44	0.0	0.0
	75-017 a	0.84	2.75	0.48	0.0	0.0
	75-092 b	1.13	3.10	0.50	0.0	0.0
	75-092 a	1.06	2.37	0.49	37.0	16.0
	NO.POINTS	6	6	6	1	1
3F	AVERAGE	0.96	2.51	0.48	37.0	16.0
	STD.DEV.	0.12	0.37	0.02	0.0	0.0
	MAXIMUM	1.13	3.10	0.50	37.0	16.0
	MINIMUM	0.82	2.10	0.44	37.0	16.0
	DIFFERENCE	0.31	1.00	0.06	0.0	0.0

5E GRANDE RONDE UNIT 5E

NO. OF OXIDES=39 NO. OF DATA CARDS= 6 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX

	75-094 b	54.42	14.41	11.62	4.53	8.20	2.93	1.41	1.78	0.31	0.20	500.	0.	41.6	18.4	1.100	4.10	0.0
	75-018 b	54.56	14.50	11.18	4.52	8.22	2.98	1.55	1.79	0.31	0.20	489.	0.	36.8	19.0	1.000	3.90	0.0
	75-094 a	54.41	14.41	11.62	4.52	8.20	2.92	1.40	1.77	0.30	0.20	541.	0.	39.7	19.2	1.087	4.01	0.0
	75-018 a	54.55	14.49	11.18	4.52	8.21	2.98	1.55	1.78	0.30	0.20	567.	0.	39.1	18.5	-.009	4.23	0.0
	75-093 b	54.41	14.38	11.79	4.44	8.02	3.08	1.38	1.82	0.29	0.19	602.	0.	41.0	14.6	1.100	4.00	0.0
	75-093 a	54.40	14.38	11.79	4.43	8.01	3.07	1.38	1.81	0.29	0.19	551.	0.	41.5	13.2	1.092	4.33	0.0
	NO.POINTS	6	6	6	6	6	6	6	6	6	6	6	0	6	6	5	6	0
5E	AVERAGE	54.46	14.43	11.53	4.49	8.14	2.99	1.45	1.79	0.30	0.20	542.	0.	40.0	17.2	1.076	4.10	0.0
	STD.DEV.	0.08	0.05	0.28	0.05	0.10	0.07	0.08	0.02	0.01	0.01	42.	0.	1.8	2.6	0.043	0.16	0.0
	MAXIMUM	54.56	14.50	11.79	4.53	8.22	3.08	1.55	1.82	0.31	0.20	602.	0.	41.6	19.2	1.100	4.33	0.0
	MINIMUM	54.40	14.38	11.18	4.43	8.01	2.92	1.38	1.77	0.29	0.19	489.	0.	36.8	13.2	1.000	3.90	0.0
	DIFFERENCE	0.16	0.12	0.61	0.10	0.21	0.16	0.17	0.05	0.02	0.01	113.	0.	4.8	6.0	0.100	0.43	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	75-094 b	0.0	0.0	0.	0.58	4.10	0.000	0.0	141.	0.	0.	36.5	19.0	40.0	24.0	6.2	1.87	0.0
	75-018 b	45.0	0.0	0.	0.61	3.70	0.000	0.0	152.	0.	0.	35.7	19.0	40.0	22.0	5.6	1.81	0.0
	75-094 a	25.2	0.0	0.	0.80	3.47	0.000	0.0	127.	0.	0.	35.1	19.0	39.1	22.6	6.0	1.88	0.0
	75-018 a	32.1	0.0	0.	0.65	3.24	0.000	0.0	125.	0.	0.	36.3	21.4	41.4	25.2	6.0	1.82	0.0
	75-093 b	0.0	0.0	0.	0.64	3.60	0.000	0.0	128.	0.	0.	35.8	19.0	42.0	26.0	6.3	1.76	0.0
	75-093 a	39.4	0.0	0.	0.87	4.23	0.000	0.0	138.	0.	0.	35.6	19.6	42.3	24.8	6.7	1.87	0.0
	NO.POINTS	4	0	0	6	6	0	0	6	0	0	6	6	6	6	6	6	0
5E	AVERAGE	35.4	0.0	0.	0.69	3.72	0.000	0.0	135.	0.	0.	35.8	19.5	40.8	24.1	6.1	1.84	0.0
	STD.DEV.	8.6	0.0	0.	0.12	0.38	0.000	0.0	10.	0.	0.	0.5	1.0	1.3	1.5	0.4	0.05	0.0
	MAXIMUM	45.0	0.0	0.	0.87	4.23	0.000	0.0	152.	0.	0.	36.5	21.4	42.3	26.0	6.7	1.88	0.0
	MINIMUM	25.2	0.0	0.	0.58	3.24	0.000	0.0	125.	0.	0.	35.1	19.0	39.1	22.0	5.6	1.76	0.0
	DIFFERENCE	19.8	0.0	0.	0.29	0.99	0.000	0.0	27.	0.	0.	1.4	2.4	3.2	4.0	1.1	0.12	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	75-094 b	1.26	3.10	0.52	0.0	0.0
	75-018 b	1.01	3.10	0.52	0.0	0.0
	75-094 a	1.13	2.69	0.53	0.0	0.0
	75-018 a	0.88	3.25	0.55	0.0	0.0
	75-093 b	0.98	3.20	0.54	0.0	0.0
	75-093 a	0.96	3.57	0.58	0.0	0.0
	NO.POINTS	6	6	6	0	0
5E	AVERAGE	1.04	3.15	0.54	0.0	0.0
	STD.DEV.	0.14	0.28	0.02	0.0	0.0
	MAXIMUM	1.26	3.57	0.58	0.0	0.0
	MINIMUM	0.88	2.69	0.52	0.0	0.0
	DIFFERENCE	0.38	0.88	0.06	0.0	0.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 10 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-284 a	53.97	14.03	12.43	4.43	7.71	3.26	1.38	2.01	0.39	0.19	634.	0.	38.6	14.4	0.900	4.30	0.0
74-284 a	53.96	14.02	12.43	4.42	7.71	3.26	1.37	2.00	0.38	0.19	580.	0.	40.0	14.6	-.009	4.16	0.0
75-095 b	53.91	14.18	12.88	4.29	7.24	3.24	1.39	2.08	0.38	0.19	563.	0.	41.8	12.8	0.900	4.20	0.0
75-095 a	53.91	14.18	12.88	4.28	7.23	3.23	1.39	2.07	0.37	0.19	605.	0.	40.6	14.6	1.045	4.16	0.0
75-019 b	54.39	14.41	11.64	4.23	8.13	3.12	1.39	1.94	0.34	0.20	527.	0.	38.1	14.4	1.000	3.90	0.0
75-019 a	54.39	14.41	11.64	4.22	8.12	3.12	1.39	1.94	0.33	0.20	573.	0.	38.7	18.1	0.808	4.10	0.0
75-020 b	54.30	14.05	12.15	3.94	7.77	3.08	1.72	2.18	0.40	0.20	546.	0.	36.9	20.2	1.200	4.00	0.0
75-020 a	54.29	14.05	12.15	3.94	7.76	3.08	1.71	2.18	0.39	0.20	585.	614.	40.5	22.9	1.493	4.30	12.0
75-096 b	54.94	14.17	12.36	3.86	7.31	3.20	1.41	2.02	0.31	0.21	644.	0.	38.0	0.0	1.300	4.50	0.0
75-096 a	54.94	14.16	12.36	3.85	7.30	3.20	1.41	2.01	0.30	0.21	733.	0.	37.4	0.0	1.484	4.94	0.0

	NO.POINTS	10	10	10	10	10	10	10	10	10	10	10	1	10	8	9	10	1
AS16	AVERAGE	54.30	14.17	12.29	4.15	7.63	3.18	1.46	2.04	0.36	0.20	599.	614.	39.1	16.5	1.126	4.26	12.0
	STD.DEV.	0.39	0.14	0.43	0.23	0.34	0.07	0.14	0.09	0.04	0.01	59.	0.	1.6	3.5	0.256	0.29	0.0
	MAXIMUM	54.94	14.41	12.88	4.43	8.13	3.26	1.72	2.18	0.40	0.21	733.	614.	41.8	22.9	1.493	4.94	12.0
	MINIMUM	53.91	14.02	11.64	3.85	7.23	3.08	1.37	1.94	0.30	0.19	527.	614.	36.9	12.8	0.808	3.90	12.0
	DIFFERENCE	1.03	0.39	1.24	0.58	0.90	0.18	0.35	0.24	0.10	0.02	206.	0.	4.9	10.1	0.685	1.04	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-284 a	19.0	0.0	0.	0.72	3.90	0.000	0.0	130.	0.	0.	35.8	20.4	42.3	23.4	5.8	1.91	0.0
74-284 a	56.1	0.0	0.	0.00	4.53	0.000	0.0	144.	0.	0.	35.2	20.0	40.0	19.0	5.8	1.84	0.0
75-095 b	0.0	0.0	0.	0.66	4.40	0.000	0.0	140.	0.	0.	36.6	21.0	43.0	27.0	6.8	2.04	0.0
75-095 a	27.6	0.0	0.	0.76	4.32	0.000	0.0	138.	0.	0.	35.6	20.3	43.9	24.6	6.6	1.98	0.0
75-019 b	36.0	0.0	0.	0.68	4.10	0.000	0.0	151.	0.	0.	34.6	20.0	42.0	23.0	5.7	1.72	0.0
75-019 a	31.7	0.0	0.	0.97	4.27	0.000	0.0	116.	0.	0.	35.1	21.3	42.9	26.7	6.1	1.92	0.0
75-020 b	28.0	0.0	0.	0.69	4.30	0.000	0.0	151.	0.	0.	34.5	21.0	44.0	23.0	5.8	1.93	0.0
75-020 a	45.1	41.0	333.	0.71	4.87	0.000	33.0	137.	0.	179.	36.4	23.4	48.3	27.9	6.6	2.00	0.0
75-096 b	78.0	0.0	0.	0.82	4.60	0.000	0.0	147.	0.	0.	33.0	22.0	46.0	28.0	7.0	2.05	0.0
75-096 a	63.5	0.0	0.	1.00	4.65	0.000	0.0	136.	0.	0.	32.6	21.8	46.4	27.7	7.0	2.08	0.0
NO.POINTS	9	1	1	9	10	0	1	10	0	1	10	10	10	10	10	10	0
AS16 AVERAGE	42.8	41.0	333.	0.78	4.39	0.000	33.0	139.	0.	179.	34.9	21.1	43.9	25.0	6.3	1.95	0.0
STD.DEV.	19.5	0.0	0.	0.13	0.28	0.000	0.0	11.	0.	0.	1.3	1.1	2.4	2.9	0.5	0.11	0.0
MAXIMUM	78.0	41.0	333.	1.00	4.87	0.000	33.0	151.	0.	179.	36.6	23.4	48.3	28.0	7.0	2.08	0.0
MINIMUM	19.0	41.0	333.	0.66	3.90	0.000	33.0	116.	0.	179.	32.6	20.0	40.0	19.0	5.7	1.72	0.0
DIFFERENCE	59.0	0.0	0.	0.34	0.97	0.000	0.0	35.	0.	0.	4.0	3.4	8.3	9.0	1.3	0.36	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-284 a	0.94	3.05	0.52	0.0	0.0
74-284 a	1.09	3.00	0.66	0.0	0.0
75-095 b	1.14	3.10	0.61	0.0	0.0
75-095 a	1.10	2.93	0.56	0.0	0.0
75-019 b	0.91	2.80	0.49	0.0	0.0
75-019 a	1.02	3.17	0.54	0.0	0.0
75-020 b	0.97	2.70	0.51	0.0	0.0
75-020 a	1.07	3.20	0.55	25.0	10.0
75-096 b	1.22	3.70	0.55	0.0	0.0
75-096 a	1.22	3.26	0.59	0.0	0.0
NO.POINTS	10	10	10	1	1
AS16 AVERAGE	1.07	3.09	0.56	25.0	10.0
STD.DEV.	0.11	0.28	0.05	0.0	0.0
MAXIMUM	1.22	3.70	0.66	25.0	10.0
MINIMUM	0.91	2.70	0.49	25.0	10.0
DIFFERENCE	0.31	1.00	0.17	0.0	0.0

3G GRANDE RONDE UNIT 3G

NO. OF OXIDES=39 NO. OF DATA CARDS= 8 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-286 a	54.49	14.30	10.96	4.90	8.50	3.08	1.37	1.69	0.29	0.19	533.	0.	41.1	41.8	-.009	3.63	0.0
74-286 b	54.50	14.30	10.96	4.90	8.51	3.09	1.37	1.70	0.29	0.19	517.	0.	38.1	38.7	0.800	3.90	0.0
74-285 b	54.48	14.46	11.24	4.72	8.58	2.81	1.34	1.71	0.27	0.19	409.	0.	37.5	26.4	1.100	3.60	0.0
75-021 a	55.00	14.87	10.11	4.72	8.59	3.12	1.19	1.73	0.28	0.19	660.	0.	37.6	24.9	0.896	3.88	0.0
75-021 b	55.01	14.87	10.11	4.72	8.59	3.12	1.19	1.73	0.29	0.19	561.	0.	35.1	23.1	0.800	3.90	0.0
74-285 a	54.48	14.46	11.23	4.71	8.58	2.80	1.33	1.71	0.27	0.19	492.	0.	41.0	27.3	1.233	3.90	0.0
75-022 a	54.33	14.71	11.48	4.67	8.44	2.87	1.15	1.69	0.24	0.18	464.	0.	38.9	26.9	1.140	3.81	0.0
75-022 b	54.34	14.71	11.49	4.67	8.44	2.88	1.15	1.69	0.25	0.19	461.	0.	36.9	22.3	1.100	3.70	0.0

	NO.POINTS	8	8	8	8	8	8	8	8	8	8	8	0	8	8	7	8	0
3G	AVERAGE	54.58	14.59	10.95	4.75	8.53	2.97	1.26	1.71	0.27	0.19	512.	0.	38.3	28.9	1.010	3.79	0.0
	STD.DEV.	0.27	0.24	0.55	0.09	0.07	0.14	0.10	0.02	0.02	0.00	76.	0.	2.0	7.3	0.175	0.13	0.0
	MAXIMUM	55.01	14.87	11.49	4.90	8.59	3.12	1.37	1.73	0.29	0.19	660.	0.	41.1	41.8	1.233	3.90	0.0
	MINIMUM	54.33	14.30	10.11	4.67	8.44	2.80	1.15	1.69	0.24	0.18	409.	0.	35.1	22.3	0.800	3.60	0.0
	DIFFERENCE	0.68	0.57	1.38	0.23	0.15	0.32	0.22	0.04	0.05	0.01	251.	0.	6.0	19.5	0.433	0.30	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-286 a	61.0	0.0	0.	0.65	3.83	0.000	0.0	141.	0.	0.	35.7	18.6	39.1	21.0	5.4	1.79	0.0
	74-286 b	31.0	0.0	0.	0.62	3.40	0.000	0.0	126.	0.	0.	34.4	18.0	37.0	22.0	5.3	1.61	0.0
	74-285 b	44.0	0.0	0.	0.71	3.30	0.000	0.0	121.	0.	0.	33.7	17.0	34.0	18.0	5.0	1.58	0.0
	75-021 a	25.2	0.0	0.	0.70	4.09	0.000	0.0	130.	0.	0.	36.3	20.0	41.5	26.1	5.9	1.81	0.0
	75-021 b	21.0	0.0	0.	0.72	3.80	0.000	0.0	153.	0.	0.	34.8	18.0	39.0	22.0	5.4	1.66	0.0
	74-285 a	47.0	0.0	0.	0.00	3.27	0.000	0.0	134.	0.	0.	36.1	18.4	36.7	21.8	5.5	1.88	0.0
	75-022 a	32.0	0.0	0.	0.59	3.62	0.000	0.0	127.	0.	0.	34.7	18.6	37.7	24.5	5.5	1.59	0.0
	75-022 b	24.0	0.0	0.	0.61	3.50	0.000	0.0	143.	0.	0.	33.6	18.0	36.0	20.0	5.1	1.65	0.0
	NO.POINTS	8	0	0	7	8	0	0	8	0	0	8	8	8	8	8	8	0
3G	AVERAGE	35.7	0.0	0.	0.66	3.60	0.000	0.0	134.	0.	0.	34.9	18.3	37.6	21.9	5.4	1.70	0.0
	STD.DEV.	13.8	0.0	0.	0.05	0.29	0.000	0.0	11.	0.	0.	1.0	0.8	2.3	2.5	0.3	0.11	0.0
	MAXIMUM	61.0	0.0	0.	0.72	4.09	0.000	0.0	153.	0.	0.	36.3	20.0	41.5	26.1	5.9	1.88	0.0
	MINIMUM	21.0	0.0	0.	0.59	3.27	0.000	0.0	121.	0.	0.	33.6	17.0	34.0	18.0	5.0	1.58	0.0
	DIFFERENCE	40.0	0.0	0.	0.13	0.82	0.000	0.0	32.	0.	0.	2.7	3.0	7.5	8.1	0.9	0.30	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-286 a	1.06	2.92	0.48	0.0	0.0
	74-286 b	0.74	2.40	0.50	0.0	0.0
	74-285 b	0.80	2.50	0.50	0.0	0.0
	75-021 a	0.93	2.98	0.54	0.0	0.0
	75-021 b	1.03	2.70	0.53	0.0	0.0
	74-285 a	1.06	2.54	0.49	0.0	0.0
	75-022 a	1.05	2.92	0.50	0.0	0.0
	75-022 b	0.92	2.50	0.45	0.0	0.0
	NO.POINTS	8	8	8	0	0
3G	AVERAGE	0.95	2.68	0.50	0.0	0.0
	STD.DEV.	0.12	0.23	0.03	0.0	0.0
	MAXIMUM	1.06	2.98	0.54	0.0	0.0
	MINIMUM	0.74	2.40	0.45	0.0	0.0
	DIFFERENCE	0.32	0.58	0.09	0.0	0.0

5F GRANDE RONDE UNIT 5F

NO. OF OXIDES=39 NO. OF DATA CARDS= 8 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-098 a	55.38	14.61	10.68	4.18	7.90	3.21	1.40	1.96	0.29	0.18	778.	0.	39.8	15.3	1.308	4.58	0.0
	75-098 b	55.38	14.61	10.69	4.18	7.90	3.21	1.40	1.96	0.29	0.18	689.	0.	39.7	12.3	1.000	4.40	0.0
	75-023 b	56.01	14.28	10.88	3.81	7.49	3.29	1.58	1.97	0.31	0.19	598.	0.	39.2	6.7	1.100	4.90	0.0
	75-023 a	56.00	14.28	10.87	3.80	7.49	3.29	1.57	1.97	0.31	0.19	626.	652.	41.9	6.9	1.179	4.96	11.0
	75-097 b	55.67	14.24	11.47	3.79	7.30	3.17	1.75	1.92	0.31	0.19	707.	0.	38.4	0.0	1.100	4.70	0.0
	75-097 a	55.66	14.23	11.46	3.79	7.30	3.16	1.74	1.92	0.31	0.19	656.	642.	37.7	8.6	1.459	4.92	13.0
	74-287 b	55.40	13.81	12.02	3.77	7.22	3.43	1.57	2.04	0.34	0.18	541.	0.	37.0	5.3	0.800	4.80	0.0
	74-287 a	55.40	13.80	12.02	3.76	7.22	3.43	1.57	2.04	0.33	0.18	552.	0.	39.9	0.0	-.009	5.10	0.0
	NO.POINTS	8	8	8	8	8	8	8	8	8	8	8	2	8	6	7	8	2
5F	AVERAGE	55.61	14.23	11.26	3.89	7.48	3.27	1.57	1.97	0.31	0.19	643.	647.	39.2	9.2	1.135	4.80	12.0

	STD.DEV.	0.27	0.31	0.56	0.18	0.28	0.11	0.13	0.05	0.02	0.01	81.	7.	1.5	3.8	0.212	0.23	1.4
	MAXIMUM	56.01	14.61	12.02	4.18	7.90	3.43	1.75	2.04	0.34	0.19	778.	652.	41.9	15.3	1.459	5.10	13.0
	MINIMUM	55.38	13.80	10.68	3.76	7.22	3.16	1.40	1.92	0.29	0.18	541.	642.	37.0	5.3	0.800	4.40	11.0
	DIFFERENCE	0.63	0.81	1.34	0.42	0.68	0.27	0.35	0.12	0.05	0.01	237.	10.	4.9	10.0	0.659	0.70	2.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	75-098 a	39.1	0.0	0.	0.88	4.36	0.000	0.0	138.	0.	0.	34.7	20.7	44.3	22.8	6.7	2.12	0.0
	75-098 b	0.0	0.0	0.	0.75	4.30	0.000	0.0	141.	0.	0.	33.9	21.0	42.0	26.0	6.6	2.05	0.0
	75-023 b	27.0	0.0	0.	0.58	4.50	0.000	0.0	163.	0.	0.	32.4	22.0	45.0	26.0	6.4	1.96	0.0
	75-023 a	35.8	34.0	325.	1.11	5.18	0.000	34.0	154.	0.	192.	33.0	22.7	47.2	27.9	7.4	2.00	0.0
	75-097 b	41.0	0.0	0.	0.74	4.30	0.000	0.0	148.	0.	0.	32.6	19.0	48.0	25.0	6.1	2.09	0.0
	75-097 a	45.4	42.0	323.	0.99	4.56	0.000	36.0	136.	0.	202.	32.5	22.6	48.5	27.7	7.1	2.13	0.0
	74-287 b	37.0	0.0	0.	0.76	3.90	0.000	0.0	131.	0.	0.	31.5	22.0	45.0	25.0	6.2	1.94	0.0
	74-287 a	58.7	0.0	0.	0.88	4.01	0.000	0.0	137.	0.	0.	33.7	22.5	46.8	27.0	6.7	2.03	0.0
	NO.POINTS	7	2	2	8	8	0	2	8	0	2	8	8	8	8	8	8	0
5F	AVERAGE	40.6	38.0	324.	0.84	4.39	0.000	35.0	144.	0.	197.	33.0	21.6	45.9	25.9	6.7	2.04	0.0
	STD.DEV.	9.8	5.7	1.	0.17	0.39	0.000	1.4	11.	0.	7.	1.0	1.3	2.2	1.7	0.4	0.07	0.0
	MAXIMUM	58.7	42.0	325.	1.11	5.18	0.000	36.0	163.	0.	202.	34.7	22.7	48.5	27.9	7.4	2.13	0.0
	MINIMUM	27.0	34.0	323.	0.58	3.90	0.000	34.0	131.	0.	192.	31.5	19.0	42.0	22.8	6.1	1.94	0.0
	DIFFERENCE	31.7	8.0	2.	0.53	1.28	0.000	2.0	32.	0.	10.	3.2	3.7	6.5	5.1	1.3	0.19	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	75-098 a	0.98	2.90	0.58	0.0	0.0
	75-098 b	1.06	3.10	0.54	0.0	0.0
	75-023 b	1.00	3.20	0.54	0.0	0.0
	75-023 a	1.36	3.48	0.60	34.0	10.0
	75-097 b	1.18	3.50	0.54	0.0	0.0
	75-097 a	1.14	3.17	0.59	31.0	14.0
	74-287 b	1.07	3.00	0.56	0.0	0.0
	74-287 a	1.09	3.37	0.57	0.0	0.0
	NO.POINTS	8	8	8	2	2
5F	AVERAGE	1.11	3.22	0.56	32.5	12.0
	STD.DEV.	0.12	0.22	0.02	2.1	2.8
	MAXIMUM	1.36	3.50	0.60	34.0	14.0
	MINIMUM	0.98	2.90	0.54	31.0	10.0
	DIFFERENCE	0.38	0.60	0.06	3.0	4.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 8 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-099 a	53.75	14.55	12.61	4.40	7.97	2.88	1.06	2.10	0.25	0.17	537.	0.	38.7	13.3	1.138	4.74	0.0
	75-099 b	53.75	14.55	12.61	4.40	7.98	2.88	1.06	2.11	0.26	0.18	454.	0.	40.3	12.6	1.100	4.60	0.0
	75-024 a	54.47	14.26	11.83	4.29	7.93	3.30	1.29	1.93	0.27	0.20	573.	0.	40.9	15.0	-.009	4.53	0.0
	75-024 b	54.47	14.27	11.83	4.29	7.93	3.30	1.29	1.93	0.27	0.20	512.	0.	35.8	12.0	0.700	3.90	0.0
	74-289 a	54.14	14.00	12.45	4.07	7.87	3.04	1.57	2.06	0.35	0.19	534.	0.	39.1	10.4	1.215	4.49	0.0
	74-289 b	54.15	14.00	12.46	4.07	7.88	3.04	1.57	2.07	0.36	0.20	537.	0.	36.7	11.4	1.400	4.60	0.0
	74-288 a	54.34	13.93	12.47	4.05	7.51	3.51	1.42	1.98	0.32	0.22	509.	564.	40.3	15.4	1.517	4.20	13.0
	74-288 b	54.35	13.93	12.48	4.05	7.51	3.51	1.43	1.98	0.33	0.22	577.	0.	38.7	12.2	1.300	4.30	0.0
	NO.POINTS	8	8	8	8	8	8	8	8	8	8	8	1	8	8	7	8	1
AS16	AVERAGE	54.18	14.19	12.34	4.20	7.82	3.18	1.34	2.02	0.30	0.20	529.	564.	38.8	12.8	1.196	4.42	13.0
	STD.DEV.	0.29	0.26	0.32	0.16	0.20	0.26	0.20	0.07	0.04	0.02	39.	0.	1.8	1.7	0.263	0.27	0.0
	MAXIMUM	54.47	14.55	12.61	4.40	7.98	3.51	1.57	2.11	0.36	0.22	577.	564.	40.9	15.4	1.517	4.74	13.0
	MINIMUM	53.75	13.93	11.83	4.05	7.51	2.88	1.06	1.93	0.25	0.17	454.	564.	35.8	10.4	0.700	3.90	13.0
	DIFFERENCE	0.72	0.62	0.78	0.35	0.47	0.63	0.51	0.18	0.11	0.05	123.	0.	5.1	5.0	0.817	0.84	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	75-099 a	25.5	0.0	0.	1.07	4.55	0.000	0.0	133.	0.	0.	33.0	21.2	43.9	25.9	6.5	1.92	0.0
	75-099 b	0.0	0.0	0.	0.79	4.90	0.000	0.0	141.	0.	0.	33.6	21.0	44.0	27.0	6.8	2.00	0.0
	75-024 a	19.7	0.0	0.	0.82	4.14	0.000	0.0	148.	0.	0.	33.9	20.4	40.6	25.1	6.4	1.78	0.0
	75-024 b	23.0	0.0	0.	0.74	3.60	0.000	0.0	144.	0.	0.	31.7	18.0	38.0	19.0	5.2	1.71	0.0
	74-289 a	35.6	0.0	0.	0.64	3.86	0.000	0.0	136.	0.	0.	33.9	21.1	45.0	26.8	6.4	1.98	0.0
	74-289 b	60.0	0.0	0.	0.74	3.80	0.000	0.0	127.	0.	0.	33.5	21.0	44.0	27.0	6.4	1.96	0.0
	74-288 a	46.0	39.0	306.	0.61	3.85	0.000	33.0	130.	0.	178.	33.3	20.1	44.9	24.3	6.1	1.96	0.0
	74-288 b	35.0	0.0	0.	0.66	3.70	0.000	0.0	124.	0.	0.	32.3	20.0	39.0	24.0	5.9	1.86	0.0
	NO.POINTS	7	1	1	8	8	0	1	8	0	1	8	8	8	8	8	8	0
AS16	AVERAGE	35.0	39.0	306.	0.76	4.05	0.000	33.0	135.	0.	178.	33.2	20.4	42.4	24.9	6.2	1.90	0.0
	STD.DEV.	14.2	0.0	0.	0.15	0.45	0.000	0.0	8.	0.	0.	0.8	1.1	2.8	2.7	0.5	0.10	0.0
	MAXIMUM	60.0	39.0	306.	1.07	4.90	0.000	33.0	148.	0.	178.	33.9	21.2	45.0	27.0	6.8	2.00	0.0
	MINIMUM	19.7	39.0	306.	0.61	3.60	0.000	33.0	124.	0.	178.	31.7	18.0	38.0	19.0	5.2	1.71	0.0
	DIFFERENCE	40.3	0.0	0.	0.46	1.30	0.000	0.0	24.	0.	0.	2.2	3.2	7.0	8.0	1.6	0.29	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	75-099 a	1.04	2.87	0.53	0.0	0.0
	75-099 b	0.91	3.20	0.59	0.0	0.0
	75-024 a	1.40	3.04	0.53	0.0	0.0
	75-024 b	1.07	2.80	0.47	0.0	0.0
	74-289 a	1.05	3.22	0.58	0.0	0.0
	74-289 b	0.96	2.90	0.57	0.0	0.0
	74-288 a	1.37	3.33	0.57	52.0	10.0
	74-288 b	1.00	2.70	0.56	0.0	0.0
	NO.POINTS	8	8	8	1	1
AS16	AVERAGE	1.10	3.01	0.55	52.0	10.0
	STD.DEV.	0.18	0.23	0.04	0.0	0.0
	MAXIMUM	1.40	3.33	0.59	52.0	10.0
	MINIMUM	0.91	2.70	0.47	52.0	10.0
	DIFFERENCE	0.49	0.63	0.12	0.0	0.0

5H GRANDE RONDE UNIT 5H

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-290 a	55.34	13.91	11.54	4.08	7.71	3.11	1.56	2.01	0.30	0.20	597.	0.	41.4	12.0	1.164	4.70	0.0
	74-290 b	55.34	13.92	11.54	4.08	7.72	3.12	1.57	2.02	0.30	0.20	723.	0.	40.4	9.9	1.300	4.50	0.0
	75-025 b	55.15	14.50	11.46	3.93	7.61	2.95	1.78	1.97	0.29	0.18	583.	0.	0.0	12.6	1.500	4.60	0.0
	75-025 a	55.14	14.50	11.46	3.92	7.60	2.94	1.78	1.96	0.28	0.18	663.	0.	39.0	14.6	1.224	4.68	0.0
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	0	3	4	4	4	0
5H	AVERAGE	55.24	14.21	11.50	4.00	7.66	3.03	1.67	1.99	0.29	0.19	642.	0.	40.3	12.3	1.297	4.62	0.0
	STD.DEV.	0.11	0.34	0.05	0.09	0.06	0.10	0.12	0.03	0.01	0.01	65.	0.	1.2	1.9	0.146	0.09	0.0
	MAXIMUM	55.34	14.50	11.54	4.08	7.72	3.12	1.78	2.02	0.30	0.20	723.	0.	41.4	14.6	1.500	4.70	0.0
	MINIMUM	55.14	13.91	11.46	3.92	7.60	2.94	1.56	1.96	0.28	0.18	583.	0.	39.0	9.9	1.164	4.50	0.0
	DIFFERENCE	0.20	0.59	0.08	0.16	0.12	0.18	0.22	0.06	0.02	0.02	140.	0.	2.4	4.7	0.336	0.20	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-290 a	45.1	0.0	0.	0.91	4.95	0.000	0.0	124.	0.	0.	33.3	21.8	43.4	26.8	6.4	1.87	0.0
	74-290 b	0.0	0.0	0.	0.73	3.90	0.000	0.0	121.	0.	0.	33.1	21.0	49.0	31.0	6.4	1.89	0.0
	75-025 b	0.0	0.0	0.	0.00	4.90	0.000	0.0	0.	0.	0.	32.4	22.0	46.0	28.0	6.6	1.93	0.0
	75-025 a	59.7	0.0	0.	1.05	5.09	0.000	0.0	140.	0.	0.	31.8	21.8	43.4	25.1	6.9	1.80	0.0

	NO.POINTS	2	0	0	3	4	0	0	3	0	0	4	4	4	4	4	4	0
5H	AVERAGE	52.4	0.0	0.	0.90	4.71	0.000	0.0	128.	0.	0.	32.7	21.6	45.5	27.7	6.6	1.87	0.0
	STD.DEV.	10.3	0.0	0.	0.16	0.55	0.000	0.0	10.	0.	0.	0.7	0.4	2.7	2.5	0.2	0.05	0.0
	MAXIMUM	59.7	0.0	0.	1.05	5.09	0.000	0.0	140.	0.	0.	33.3	22.0	49.0	31.0	6.9	1.93	0.0
	MINIMUM	45.1	0.0	0.	0.73	3.90	0.000	0.0	121.	0.	0.	31.8	21.0	43.4	25.1	6.4	1.80	0.0
	DIFFERENCE	14.6	0.0	0.	0.32	1.19	0.000	0.0	19.	0.	0.	1.5	1.0	5.6	5.9	0.5	0.13	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-290 a	1.17	3.18	0.53	0.0	0.0
74-290 b	1.20	3.30	0.49	0.0	0.0
75-025 b	0.00	3.00	0.54	0.0	0.0
75-025 a	1.11	2.88	0.52	0.0	0.0

	NO.POINTS	3	4	4	0	0
5H	AVERAGE	1.16	3.09	0.52	0.0	0.0
	STD.DEV.	0.05	0.19	0.02	0.0	0.0
	MAXIMUM	1.20	3.30	0.54	0.0	0.0
	MINIMUM	1.11	2.88	0.49	0.0	0.0
	DIFFERENCE	0.09	0.42	0.05	0.0	0.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
75-026 a	54.54	14.53	11.59	4.24	7.82	3.12	1.52	1.93	0.28	0.19	687.	0.	39.0	17.3	1.193	4.46	0.0
75-026 b	54.54	14.54	11.60	4.24	7.83	3.13	1.52	1.93	0.29	0.19	590.	0.	37.5	11.8	1.200	4.40	0.0
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0
AS16 AVERAGE	54.54	14.53	11.60	4.24	7.83	3.13	1.52	1.93	0.28	0.19	639.	0.	38.3	14.6	1.197	4.43	0.0
STD.DEV.	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	69.	0.	1.1	3.9	0.005	0.04	0.0
MAXIMUM	54.54	14.54	11.60	4.24	7.83	3.13	1.52	1.93	0.29	0.19	687.	0.	39.0	17.3	1.200	4.46	0.0
MINIMUM	54.54	14.53	11.59	4.24	7.82	3.12	1.52	1.93	0.28	0.19	590.	0.	37.5	11.8	1.193	4.40	0.0
DIFFERENCE	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	97.	0.	1.5	5.5	0.007	0.06	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-026 a	27.6	0.0	0.	0.93	4.67	0.000	0.0	137.	0.	0.	33.7	20.5	39.7	26.6	6.6	1.94	0.0
75-026 b	34.0	0.0	0.	0.73	4.10	0.000	0.0	155.	0.	0.	34.2	20.0	44.0	24.0	6.2	1.87	0.0
NO.POINTS	2	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
AS16 AVERAGE	30.8	0.0	0.	0.83	4.39	0.000	0.0	146.	0.	0.	34.0	20.3	41.9	25.3	6.4	1.91	0.0
STD.DEV.	4.5	0.0	0.	0.14	0.40	0.000	0.0	13.	0.	0.	0.4	0.4	3.0	1.8	0.3	0.05	0.0
MAXIMUM	34.0	0.0	0.	0.93	4.67	0.000	0.0	155.	0.	0.	34.2	20.5	44.0	26.6	6.6	1.94	0.0
MINIMUM	27.6	0.0	0.	0.73	4.10	0.000	0.0	137.	0.	0.	33.7	20.0	39.7	24.0	6.2	1.87	0.0
DIFFERENCE	6.4	0.0	0.	0.20	0.57	0.000	0.0	18.	0.	0.	0.5	0.5	4.3	2.6	0.4	0.07	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-026 a	1.04	3.18	0.55	0.0	0.0
75-026 b	1.01	3.20	0.58	0.0	0.0
NO.POINTS	2	2	2	0	0
AS16 AVERAGE	1.02	3.19	0.56	0.0	0.0
STD.DEV.	0.02	0.01	0.02	0.0	0.0
MAXIMUM	1.04	3.20	0.58	0.0	0.0
MINIMUM	1.01	3.18	0.55	0.0	0.0
DIFFERENCE	0.03	0.02	0.03	0.0	0.0

GRB GRANDE RONDE UNCLASSIFIED FLOWS

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-291 b	57.05	13.59	11.37	3.18	6.75	3.11	2.11	2.16	0.33	0.18	698.	0.	37.3	0.0	1.500	5.20	0.0
	74-291 a	57.04	13.58	11.36	3.17	6.75	3.10	2.10	2.15	0.32	0.18	622.	745.	37.8	8.1	1.725	4.98	16.0
	75-027 a	56.28	14.17	11.97	3.06	6.55	3.25	1.86	2.12	0.31	0.18	769.	0.	36.8	9.2	2.104	5.38	0.0
	75-027 b	56.28	14.17	11.97	3.06	6.56	3.28	1.87	2.12	0.32	0.18	752.	523.	36.1	9.6	2.100	5.30	15.0
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	2	4	3	4	4	2
GRB	AVERAGE	56.66	13.88	11.67	3.12	6.65	3.18	1.99	2.14	0.32	0.18	710.	634.	37.0	9.0	1.857	5.22	15.5
	STD.DEV.	0.44	0.34	0.35	0.07	0.11	0.09	0.14	0.02	0.01	0.00	66.	157.	0.7	0.8	0.297	0.17	0.7
	MAXIMUM	57.05	14.17	11.97	3.18	6.75	3.26	2.11	2.16	0.33	0.18	769.	745.	37.8	9.6	2.104	5.38	16.0
	MINIMUM	56.28	13.58	11.36	3.06	6.55	3.10	1.86	2.12	0.31	0.18	622.	523.	36.1	8.1	1.500	4.98	15.0
	DIFFERENCE	0.77	0.59	0.61	0.12	0.20	0.18	0.25	0.04	0.02	0.00	147.	222.	1.7	1.5	0.604	0.40	1.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-291 b	54.0	0.0	0.	0.88	5.50	0.000	0.0	139.	0.	0.	30.0	24.0	53.0	33.0	6.8	2.06	0.0
	74-291 a	67.1	62.0	325.	0.91	5.27	0.000	39.0	129.	0.	215.	30.2	24.6	53.1	30.0	7.1	2.01	0.0
	75-027 a	48.0	0.0	0.	1.06	6.57	0.000	0.0	149.	0.	0.	29.8	25.5	50.6	31.4	7.6	1.82	0.0
	75-027 b	43.0	66.0	349.	0.94	5.90	0.000	41.0	162.	0.	218.	30.5	25.0	53.0	32.0	7.3	2.03	0.0
	NO.POINTS	4	2	2	4	4	0	2	4	0	2	4	4	4	4	4	4	0
GRB	AVERAGE	53.0	64.0	337.	0.95	5.81	0.000	40.0	145.	0.	217.	30.1	24.8	52.4	31.6	7.2	1.98	0.0
	STD.DEV.	10.4	2.8	17.	0.08	0.57	0.000	1.4	14.	0.	2.	0.3	0.6	1.2	1.3	0.3	0.11	0.0
	MAXIMUM	67.1	66.0	349.	1.06	6.57	0.000	41.0	162.	0.	218.	30.5	25.5	53.1	33.0	7.6	2.06	0.0
	MINIMUM	43.0	62.0	325.	0.88	5.27	0.000	39.0	129.	0.	215.	29.8	24.0	50.6	30.0	6.8	1.82	0.0
	DIFFERENCE	24.1	4.0	24.	0.18	1.30	0.000	2.0	33.	0.	3.	0.7	1.5	2.5	3.0	0.8	0.24	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-291 b	0.94	3.40	0.59	0.0	0.0
	74-291 a	1.13	3.45	0.61	19.0	10.0
	75-027 a	1.36	3.41	0.57	0.0	0.0
	75-027 b	1.20	3.30	0.58	0.0	0.0
	NO.POINTS	4	4	4	1	1
GRB	AVERAGE	1.16	3.39	0.59	19.0	10.0
	STD.DEV.	0.17	0.06	0.02	0.0	0.0
	MAXIMUM	1.36	3.45	0.61	19.0	10.0
	MINIMUM	0.94	3.30	0.57	19.0	10.0
	DIFFERENCE	0.42	0.15	0.04	0.0	0.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K20	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-028 b	54.60	14.67	11.61	4.20	7.71	3.09	1.44	1.99	0.32	0.18	560.	0.	37.4	16.6	1.300	4.90	0.0
	75-028 a	54.60	14.66	11.61	4.19	7.71	3.08	1.43	1.98	0.31	0.18	633.	0.	39.5	16.8	1.625	4.70	0.0
	74-292 b	56.60	13.52	11.87	3.32	6.88	3.09	1.94	2.09	0.30	0.19	652.	0.	36.9	10.7	1.400	5.10	0.0
	74-292 a	56.60	13.51	11.86	3.32	6.87	3.08	1.93	2.09	0.30	0.19	630.	681.	36.1	9.7	1.475	4.99	15.0
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	1	4	4	4	4	1
AS16	AVERAGE	55.60	14.09	11.74	3.76	7.29	3.09	1.69	2.04	0.31	0.19	619.	681.	37.5	13.5	1.450	4.92	15.0

STD.DEV.	1.15	0.66	0.15	0.51	0.48	0.01	0.29	0.06	0.01	0.01	40.	0.	1.5	3.8	0.137	0.17	0.0
MAXIMUM	56.60	14.67	11.87	4.20	7.71	3.09	1.94	2.09	0.32	0.19	652.	681.	39.5	16.8	1.625	5.10	15.0
MINIMUM	54.60	13.51	11.61	3.32	6.87	3.08	1.43	1.98	0.30	0.18	560.	681.	36.1	9.7	1.300	4.70	15.0
DIFFERENCE	2.00	1.16	0.26	0.88	0.84	0.01	0.51	0.11	0.02	0.01	92.	0.	3.4	7.1	0.325	0.40	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-028 b	39.0	0.0	0.	0.80	5.00	0.000	0.0	152.	0.	0.	31.6	23.0	50.0	28.0	6.7	1.92	0.0
75-028 a	30.7	0.0	0.	0.73	4.74	0.000	0.0	141.	0.	0.	31.3	23.1	47.4	26.7	7.3	1.98	0.0
74-292 b	0.0	0.0	0.	0.85	5.50	0.000	0.0	141.	0.	0.	30.6	23.0	48.0	29.0	6.7	2.02	0.0
74-292 a	49.2	54.0	327.	0.95	5.57	0.000	35.0	128.	0.	206.	30.5	23.5	49.2	29.0	6.7	1.97	0.0
NO.POINTS	3	1	1	4	4	0	1	4	0	1	4	4	4	4	4	4	0
AS16 AVERAGE	39.6	54.0	327.	0.83	5.20	0.000	35.0	141.	0.	206.	31.0	23.1	48.7	28.2	6.9	1.97	0.0
STD.DEV.	9.3	0.0	0.	0.09	0.40	0.000	0.0	10.	0.	0.	0.5	0.2	1.2	1.1	0.3	0.04	0.0
MAXIMUM	49.2	54.0	327.	0.95	5.57	0.000	35.0	152.	0.	206.	31.6	23.5	50.0	29.0	7.3	2.02	0.0
MINIMUM	30.7	54.0	327.	0.73	4.74	0.000	35.0	128.	0.	206.	30.5	23.0	47.4	26.7	6.7	1.92	0.0
DIFFERENCE	18.5	0.0	0.	0.22	0.83	0.000	0.0	24.	0.	0.	1.1	0.5	2.6	2.3	0.6	0.10	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-028 b	1.01	2.90	0.55	0.0	0.0
75-028 a	1.21	3.24	0.52	0.0	0.0
74-292 b	1.12	3.00	0.56	0.0	0.0
74-292 a	1.17	3.37	0.55	21.0	10.0
NO.POINTS	4	4	4	1	1
AS16 AVERAGE	1.13	3.13	0.55	21.0	10.0
STD.DEV.	0.09	0.22	0.02	0.0	0.0
MAXIMUM	1.21	3.37	0.56	21.0	10.0
MINIMUM	1.01	2.90	0.52	21.0	10.0
DIFFERENCE	0.20	0.47	0.04	0.0	0.0

2F GRANDE RONDE UNIT 2F

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-293 a	54.74	13.61	12.86	3.82	7.29	3.16	1.53	2.16	0.36	0.22	555.	583.	39.2	15.7	-.009	5.08	16.0
74-293 b	54.74	13.61	12.86	3.82	7.29	3.17	1.54	2.16	0.37	0.23	559.	0.	37.8	18.7	0.800	4.80	0.0
74-294 a	54.67	13.57	12.81	3.62	7.13	3.46	1.58	2.27	0.43	0.20	615.	0.	39.3	13.2	1.443	5.25	0.0
74-294 b	54.68	13.58	12.81	3.62	7.13	3.46	1.58	2.27	0.44	0.20	673.	0.	38.3	15.8	1.000	5.40	0.0
NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	1	4	4	3	4	1
2F AVERAGE	54.71	13.59	12.84	3.72	7.21	3.31	1.56	2.22	0.40	0.21	601.	583.	38.7	15.9	1.081	5.13	16.0
STD.DEV.	0.04	0.02	0.03	0.12	0.09	0.17	0.03	0.06	0.04	0.02	56.	0.	0.7	2.2	0.329	0.26	0.0
MAXIMUM	54.74	13.61	12.86	3.82	7.29	3.46	1.58	2.27	0.44	0.23	673.	583.	39.3	18.7	1.443	5.40	16.0
MINIMUM	54.67	13.57	12.81	3.62	7.13	3.16	1.53	2.16	0.36	0.20	555.	583.	37.8	13.2	0.800	4.80	16.0
DIFFERENCE	0.07	0.04	0.05	0.20	0.16	0.30	0.05	0.11	0.08	0.03	118.	0.	1.5	5.5	0.643	0.60	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-293 a	36.2	42.0	305.	0.98	4.39	0.000	39.0	136.	0.	200.	33.6	22.1	47.8	29.2	7.1	2.11	0.0
74-293 b	64.0	0.0	0.	0.71	4.20	0.000	0.0	138.	0.	0.	32.6	22.0	47.0	32.0	6.7	2.10	0.0
74-294 a	39.6	0.0	0.	0.95	4.17	0.000	0.0	135.	0.	0.	33.4	23.4	52.1	31.4	7.6	2.19	0.0
74-294 b	0.0	0.0	0.	0.67	4.80	0.000	0.0	150.	0.	0.	32.9	24.0	51.0	38.0	7.3	2.33	0.0
NO.POINTS	3	1	1	4	4	0	1	4	0	1	4	4	4	4	4	4	0
2F AVERAGE	46.6	42.0	305.	0.83	4.39	0.000	39.0	140.	0.	200.	33.1	22.9	49.5	32.7	7.2	2.18	0.0
STD.DEV.	15.2	0.0	0.	0.16	0.29	0.000	0.0	7.	0.	0.	0.5	1.0	2.5	3.8	0.4	0.11	0.0

MAXIMUM	64.0	42.0	305.	0.98	4.80	0.000	39.0	150.	0.	200.	33.6	24.0	52.1	38.0	7.6	2.33	0.0
MINIMUM	36.2	42.0	305.	0.67	4.17	0.000	39.0	135.	0.	200.	32.6	22.0	47.0	29.2	6.7	2.10	0.0
DIFFERENCE	27.8	0.0	0.	0.31	0.63	0.000	0.0	15.	0.	0.	1.0	2.0	5.1	8.8	0.9	0.23	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-293 a	1.27	3.50	0.60	42.0	14.0
74-293 b	1.15	3.40	0.53	0.0	0.0
74-294 a	1.07	3.78	0.66	0.0	0.0
74-294 b	1.39	3.90	0.60	0.0	0.0
NO.POINTS	4	4	4	1	1
2F AVERAGE	1.22	3.65	0.60	42.0	14.0
STD.DEV.	0.14	0.23	0.05	0.0	0.0
MAXIMUM	1.39	3.90	0.66	42.0	14.0
MINIMUM	1.07	3.40	0.53	42.0	14.0
DIFFERENCE	0.32	0.50	0.13	0.0	0.0

5I GRANDE RONDE UNIT 5I

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
74-295 b	55.82	14.02	11.33	3.96	7.49	3.09	1.61	2.00	0.31	0.19	582.	0.	38.2	11.5	1.300	4.70	0.0
74-295 a	55.81	14.01	11.33	3.95	7.49	3.08	1.61	1.99	0.30	0.19	566.	0.	39.7	11.1	1.364	4.93	0.0
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0
5I AVERAGE	55.82	14.02	11.33	3.96	7.49	3.09	1.61	2.00	0.31	0.19	574.	0.	39.0	11.3	1.332	4.82	0.0
STD.DEV.	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	11.	0.	1.1	0.3	0.045	0.16	0.0
MAXIMUM	55.82	14.02	11.33	3.96	7.49	3.09	1.61	2.00	0.31	0.19	582.	0.	39.7	11.5	1.364	4.93	0.0
MINIMUM	55.81	14.01	11.33	3.95	7.49	3.08	1.61	1.99	0.30	0.19	566.	0.	38.2	11.1	1.300	4.70	0.0
DIFFERENCE	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	16.	0.	1.5	0.4	0.064	0.23	0.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
74-295 b	0.0	0.0	0.	0.95	5.40	0.000	0.0	107.	0.	0.	30.4	22.0	47.0	27.0	6.3	1.87	0.0
74-295 a	47.2	0.0	0.	0.79	5.12	0.000	0.0	127.	0.	0.	31.5	22.3	45.9	26.1	6.5	1.87	0.0
NO.POINTS	1	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
5I AVERAGE	47.2	0.0	0.	0.87	5.26	0.000	0.0	117.	0.	0.	31.0	22.1	46.5	26.6	6.4	1.87	0.0
STD.DEV.	0.0	0.0	0.	0.11	0.20	0.000	0.0	14.	0.	0.	0.8	0.2	0.8	0.6	0.1	0.00	0.0
MAXIMUM	47.2	0.0	0.	0.95	5.40	0.000	0.0	127.	0.	0.	31.5	22.3	47.0	27.0	6.5	1.87	0.0
MINIMUM	47.2	0.0	0.	0.79	5.12	0.000	0.0	107.	0.	0.	30.4	22.0	45.9	26.1	6.3	1.87	0.0
DIFFERENCE	0.0	0.0	0.	0.16	0.28	0.000	0.0	20.	0.	0.	1.1	0.3	1.1	0.9	0.2	0.00	0.0

SAMPLE	Tb	Yb	Lu	Cu	Ni
74-295 b	1.02	2.60	0.48	0.0	0.0
74-295 a	0.98	3.14	0.53	0.0	0.0
NO.POINTS	2	2	2	0	0
5I AVERAGE	1.00	2.87	0.50	0.0	0.0
STD.DEV.	0.03	0.38	0.04	0.0	0.0
MAXIMUM	1.02	3.14	0.53	0.0	0.0
MINIMUM	0.98	2.60	0.48	0.0	0.0
DIFFERENCE	0.04	0.54	0.05	0.0	0.0

AS16 GRANDE RONDE UNIT AS16

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL203	FEO	MGO	CAO	NA20	K2O	TIO2	P205	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	74-296 a	54.21	13.75	12.12	4.39	8.33	2.85	1.44	2.15	0.33	0.19	462.	0.	41.1	38.0	1.541	4.67	0.0
	74-296 b	54.21	13.75	12.13	4.39	8.34	2.85	1.44	2.15	0.34	0.20	606.	0.	39.8	32.6	1.600	4.60	0.0
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0
AS16	AVERAGE	54.21	13.75	12.13	4.39	8.34	2.85	1.44	2.15	0.34	0.20	534.	0.	40.5	35.3	1.571	4.64	0.0
	STD.DEV.	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	102.	0.	0.9	3.8	0.042	0.05	0.0
	MAXIMUM	54.21	13.75	12.13	4.39	8.34	2.85	1.44	2.15	0.34	0.20	606.	0.	41.1	38.0	1.600	4.67	0.0
	MINIMUM	54.21	13.75	12.12	4.39	8.33	2.85	1.44	2.15	0.33	0.19	462.	0.	39.8	32.6	1.541	4.60	0.0
	DIFFERENCE	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	144.	0.	1.3	5.4	0.059	0.07	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	74-296 a	59.7	0.0	0.	0.81	4.18	0.000	0.0	134.	0.	0.	34.5	21.4	47.1	27.3	6.8	1.97	0.0
	74-296 b	21.0	0.0	0.	0.94	3.40	0.000	0.0	115.	0.	0.	33.7	21.0	45.0	26.0	6.5	1.94	0.0
	NO.POINTS	2	0	0	2	2	0	0	2	0	0	2	2	2	2	2	2	0
AS16	AVERAGE	40.4	0.0	0.	0.88	3.79	0.000	0.0	125.	0.	0.	34.1	21.2	46.0	26.6	6.7	1.96	0.0
	STD.DEV.	27.4	0.0	0.	0.09	0.55	0.000	0.0	13.	0.	0.	0.6	0.3	1.5	0.9	0.2	0.02	0.0
	MAXIMUM	59.7	0.0	0.	0.94	4.18	0.000	0.0	134.	0.	0.	34.5	21.4	47.1	27.3	6.8	1.97	0.0
	MINIMUM	21.0	0.0	0.	0.81	3.40	0.000	0.0	115.	0.	0.	33.7	21.0	45.0	26.0	6.5	1.94	0.0
	DIFFERENCE	38.7	0.0	0.	0.13	0.78	0.000	0.0	19.	0.	0.	0.8	0.4	2.1	1.3	0.3	0.03	0.0

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	74-296 a	1.38	3.40	0.55	0.0	0.0
	74-296 b	0.96	3.40	0.54	0.0	0.0
	NO.POINTS	2	2	2	0	0
AS16	AVERAGE	1.17	3.40	0.55	0.0	0.0
	STD.DEV.	0.30	0.00	0.01	0.0	0.0
	MAXIMUM	1.38	3.40	0.55	0.0	0.0
	MINIMUM	0.96	3.40	0.54	0.0	0.0
	DIFFERENCE	0.42	0.00	0.01	0.0	0.0

Table 5B. Trace element data: dikes.

CT1 GRANDE RONDE DIKE; CHEMICAL TYPE 1

NO. OF OXIDES=39 NO. OF DATA CARDS= 1 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
WT-041	54.29	14.49	11.15	4.90	8.53	2.86	1.22	1.73	0.35	0.19	487.	498.	38.1	44.1	0.900	3.50	12.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
WT-041	32.0	32.0	346.	0.65	3.20	0.800	31.0	120.	120.	151.	33.6	18.0	36.0	21.0	4.9	1.48	5.5

SAMPLE	Tb	Yb	Lu	Cu	Ni
WT-041	0.81	3.00	0.44	50.0	21.0

CT3 GRANDE RONDE DIKE; CHEMICAL TYPE 3

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
75-115	52.58	14.59	11.53	5.77	9.40	2.84	0.88	1.72	0.30	0.16	379.	405.	41.7	111.0	0.600	2.90	13.0
WT-091	53.85	14.28	11.40	5.20	8.82	2.65	1.33	1.73	0.34	0.18	423.	449.	35.7	56.2	0.700	3.50	12.0
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CT3 AVERAGE	53.22	14.44	11.47	5.49	9.11	2.75	1.11	1.73	0.32	0.17	401.	427.	38.7	83.6	0.650	3.20	12.5
STD.DEV.	0.90	0.22	0.09	0.40	0.41	0.13	0.32	0.01	0.03	0.01	31.	31.	4.2	38.7	0.071	0.42	0.7
MAXIMUM	53.85	14.59	11.53	5.77	9.40	2.84	1.33	1.73	0.34	0.18	423.	449.	41.7	111.0	0.700	3.50	13.0
MINIMUM	52.58	14.28	11.40	5.20	8.82	2.65	0.88	1.72	0.30	0.16	379.	405.	35.7	56.2	0.600	2.90	12.0
DIFFERENCE	1.27	0.31	0.13	0.57	0.58	0.19	0.45	0.01	0.04	0.02	44.	44.	6.0	54.8	0.100	0.60	1.0

SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
75-115	23.0	24.0	374.	0.63	2.00	0.700	29.0	108.	140.	134.	38.6	15.0	31.0	21.0	4.4	1.50	4.6
WT-091	32.0	31.0	311.	0.71	3.10	0.900	30.0	101.	200.	152.	33.9	17.0	35.0	23.0	4.7	1.50	4.9
NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CT3 AVERAGE	27.5	27.5	343.	0.67	2.55	0.800	29.5	105.	170.	143.	36.3	16.0	33.0	22.0	4.6	1.50	4.8
STD.DEV.	6.4	4.9	45.	0.06	0.78	0.141	0.7	5.	42.	13.	3.3	1.4	2.8	1.4	0.2	0.00	0.2
MAXIMUM	32.0	31.0	374.	0.71	3.10	0.900	30.0	108.	200.	152.	38.6	17.0	35.0	23.0	4.7	1.50	4.9
MINIMUM	23.0	24.0	311.	0.63	2.00	0.700	29.0	101.	140.	134.	33.9	15.0	31.0	21.0	4.4	1.50	4.6
DIFFERENCE	9.0	7.0	63.	0.08	1.10	0.200	1.0	7.	60.	18.	4.7	2.0	4.0	2.0	0.3	0.00	0.3

SAMPLE	Tb	Yb	Lu	Cu	Ni
75-115	0.70	2.90	0.45	55.0	25.0
WT-091	0.72	2.80	0.44	55.0	22.0
NO.POINTS	2	2	2	2	2
CT3 AVERAGE	0.71	2.85	0.44	55.0	23.5
STD.DEV.	0.01	0.07	0.01	0.0	2.1
MAXIMUM	0.72	2.90	0.45	55.0	25.0
MINIMUM	0.70	2.80	0.44	55.0	22.0
DIFFERENCE	0.02	0.10	0.01	0.0	3.0

CT4 GRANDE RONDE DIKE; CHEMICAL TYPE 4

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	WT-087	54.85	14.17	11.44	4.59	8.03	3.06	1.02	1.94	0.35	0.18	508.	512.	33.7	36.5	0.900	4.00	13.0
	WT-2693	54.23	14.24	11.34	4.54	8.15	3.23	1.41	1.92	0.30	0.15	540.	537.	36.9	16.7	0.900	4.60	12.0
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CT4	AVERAGE	54.54	14.20	11.39	4.57	8.09	3.14	1.22	1.93	0.33	0.17	524.	525.	35.3	26.6	0.900	4.30	12.5
	STD.DEV.	0.44	0.05	0.07	0.04	0.08	0.12	0.28	0.01	0.04	0.02	23.	18.	2.3	14.0	0.000	0.42	0.7
	MAXIMUM	54.85	14.24	11.44	4.59	8.15	3.23	1.41	1.94	0.35	0.18	540.	537.	36.9	36.5	0.900	4.60	13.0
	MINIMUM	54.23	14.17	11.34	4.54	8.03	3.06	1.02	1.92	0.30	0.15	508.	512.	33.7	16.7	0.900	4.00	12.0
	DIFFERENCE	0.62	0.07	0.10	0.05	0.12	0.17	0.39	0.02	0.05	0.03	32.	25.	3.2	19.8	0.000	0.60	1.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	WT-087	39.0	37.0	312.	0.78	4.10	1.100	32.0	113.	0.	168.	33.8	20.0	38.0	21.0	5.3	1.57	6.5
	WT-2693	43.0	44.0	346.	0.93	4.30	1.300	32.0	123.	230.	176.	32.1	21.0	41.0	24.0	6.0	1.79	7.4
	NO.POINTS	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2
CT4	AVERAGE	41.0	40.5	329.	0.86	4.20	1.200	32.0	118.	230.	172.	33.0	20.5	39.5	22.5	5.7	1.68	7.0
	STD.DEV.	2.8	4.9	24.	0.11	0.14	0.141	0.0	7.	0.	6.	1.2	0.7	2.1	2.1	0.5	0.16	0.6
	MAXIMUM	43.0	44.0	346.	0.93	4.30	1.300	32.0	123.	230.	176.	33.8	21.0	41.0	24.0	6.0	1.79	7.4
	MINIMUM	39.0	37.0	312.	0.78	4.10	1.100	32.0	113.	230.	168.	32.1	20.0	38.0	21.0	5.3	1.57	6.5
	DIFFERENCE	4.0	7.0	34.	0.15	0.20	0.200	0.0	10.	0.	8.	1.7	1.0	3.0	3.0	0.7	0.22	0.9

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	WT-087	0.90	3.20	0.46	38.0	15.0
	WT-2693	0.99	3.30	0.48	33.0	9.0
	NO.POINTS	2	2	2	2	2
CT4	AVERAGE	0.94	3.25	0.47	35.5	12.0
	STD.DEV.	0.06	0.07	0.01	3.5	4.2
	MAXIMUM	0.99	3.30	0.48	38.0	15.0
	MINIMUM	0.90	3.20	0.46	33.0	9.0
	DIFFERENCE	0.09	0.10	0.02	5.0	6.0

LH2 GRANDE RONDE DIKE; CHEMICAL TYPE LH2

NO. OF OXIDES=39 NO. OF DATA CARDS= 2 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	75-114	54.51	14.84	9.35	6.26	9.53	2.73	0.89	1.21	0.28	0.16	384.	422.	32.5	91.6	0.000	2.80	10.0
	75-154	54.45	14.81	9.60	6.03	9.24	2.86	1.02	1.33	0.30	0.15	396.	443.	31.6	80.9	0.400	2.60	12.0
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
LH2	AVERAGE	54.48	14.83	9.48	6.15	9.39	2.80	0.95	1.27	0.29	0.16	390.	433.	32.0	86.3	0.400	2.70	11.0
	STD.DEV.	0.04	0.02	0.18	0.16	0.21	0.09	0.09	0.08	0.01	0.01	8.	15.	0.6	7.6	0.000	0.14	1.4
	MAXIMUM	54.51	14.84	9.60	6.26	9.53	2.86	1.02	1.33	0.30	0.16	396.	443.	32.5	91.6	0.400	2.80	12.0
	MINIMUM	54.45	14.81	9.35	6.03	9.24	2.73	0.89	1.21	0.28	0.15	384.	422.	31.6	80.9	0.400	2.60	10.0
	DIFFERENCE	0.06	0.03	0.25	0.23	0.29	0.13	0.13	0.12	0.02	0.01	12.	21.	0.9	10.7	0.000	0.20	2.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	75-114	18.0	21.0	395.	0.41	1.60	0.500	25.0	89.	110.	124.	36.8	14.0	29.0	16.0	4.1	1.18	3.1
	75-154	23.0	26.0	389.	0.42	1.90	0.400	26.0	91.	140.	128.	35.9	15.0	31.0	19.0	4.1	1.25	4.8
	NO.POINTS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LH2	AVERAGE	20.5	23.5	392.	0.41	1.75	0.450	25.5	90.	125.	126.	36.4	14.5	30.0	17.5	4.1	1.22	4.0
	STD.DEV.	3.5	3.5	4.	0.01	0.21	0.071	0.7	1.	21.	3.	0.6	0.7	1.4	2.1	0.0	0.05	1.2

	MAXIMUM	23.0	26.0	395.	0.42	1.90	0.500	26.0	91.	140.	128.	36.8	15.0	31.0	19.0	4.1	1.25	4.8
	MINIMUM	18.0	21.0	389.	0.41	1.60	0.400	25.0	89.	110.	124.	35.9	14.0	29.0	16.0	4.1	1.18	3.1
	DIFFERENCE	5.0	5.0	6.	0.01	0.30	0.100	1.0	2.	30.	4.	0.9	1.0	2.0	3.0	0.0	0.07	1.7

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	75-114	0.52	2.40	0.36	68.0	25.0
	75-154	0.67	2.40	0.37	66.0	22.0
	NO.POINTS	2	2	2	2	2
LH2	AVERAGE	0.60	2.40	0.37	67.0	23.5
	STD.DEV.	0.11	0.00	0.01	1.4	2.1
	MAXIMUM	0.67	2.40	0.37	68.0	25.0
	MINIMUM	0.52	2.40	0.36	66.0	22.0
	DIFFERENCE	0.15	0.00	0.01	2.0	3.0

MG6 GRANDE RONDE DIKE; CHEMICAL TYPE MG6

NO. OF OXIDES=39 NO. OF DATA CARDS= 4 DATA SORTED ON: MGO

	SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	Ba	BaX	Co	Cr	Cs	Hf	NbX
	WT-2811	52.24	14.15	12.23	5.86	9.04	2.73	1.11	1.82	0.35	0.17	482.	462.	40.5	92.3	0.800	3.40	12.0
	76-249	52.83	14.48	11.26	5.81	9.27	2.86	0.98	1.84	0.37	0.15	452.	432.	39.2	117.0	0.600	3.30	12.0
	WT-47 A	52.59	14.44	11.52	5.80	9.43	2.64	1.02	1.73	0.36	0.18	359.	409.	36.6	114.0	0.600	2.80	12.0
	WT-47 B	52.59	14.44	11.52	5.80	9.43	2.64	1.02	1.73	0.36	0.18	382.	0.	38.6	125.0	0.700	3.20	0.0
	NO.POINTS	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3
MG6	AVERAGE	52.56	14.38	11.63	5.82	9.29	2.72	1.03	1.78	0.36	0.17	419.	434.	38.7	112.1	0.675	3.18	12.0
	STD.DEV.	0.24	0.15	0.42	0.03	0.18	0.10	0.06	0.06	0.01	0.01	58.	27.	1.6	14.0	0.098	0.26	0.0
	MAXIMUM	52.83	14.48	12.23	5.86	9.43	2.86	1.11	1.84	0.37	0.18	482.	462.	40.5	125.0	0.800	3.40	12.0
	MINIMUM	52.24	14.15	11.26	5.80	9.04	2.64	0.98	1.73	0.35	0.15	359.	409.	36.6	92.3	0.600	2.80	12.0
	DIFFERENCE	0.59	0.33	0.97	0.06	0.39	0.22	0.13	0.11	0.02	0.03	123.	53.	3.9	32.7	0.200	0.60	0.0

	SAMPLE	Rb	RbX	SrX	Ta	Th	U	YX	Zn	Zr	ZrX	Sc	La	Ce	Nd	Sm	Eu	Gd
	WT-2811	27.0	26.0	395.	0.79	2.50	0.700	29.0	127.	0.	145.	38.7	18.0	35.0	21.0	4.9	1.60	4.7
	76-249	24.0	25.0	393.	0.70	2.20	0.700	30.0	111.	160.	139.	40.2	17.0	35.0	21.0	4.9	1.62	4.4
	WT-47 A	35.0	42.0	389.	0.56	2.10	0.600	29.0	102.	160.	135.	36.4	15.0	30.0	19.0	39.0	1.41	4.4
	WT-47 B	41.0	0.0	0.	0.65	2.20	0.600	0.0	114.	160.	0.	39.7	16.0	31.0	17.0	4.9	1.43	4.2
	NO.POINTS	4	3	3	4	4	4	3	4	3	3	4	4	4	4	4	4	4
MG6	AVERAGE	31.8	31.0	386.	0.68	2.25	0.650	29.3	114.	160.	140.	38.8	16.5	32.8	19.5	13.4	1.51	4.4
	STD.DEV.	7.7	9.5	14.	0.10	0.17	0.058	0.6	10.	0.	5.	1.7	1.3	2.6	1.9	17.1	0.11	0.2
	MAXIMUM	41.0	42.0	395.	0.79	2.50	0.700	30.0	127.	160.	145.	40.2	18.0	35.0	21.0	39.0	1.62	4.7
	MINIMUM	24.0	25.0	389.	0.56	2.10	0.600	29.0	102.	160.	135.	36.4	15.0	30.0	17.0	4.9	1.41	4.2
	DIFFERENCE	17.0	17.0	26.	0.23	0.40	0.100	1.0	25.	0.	10.	3.8	3.0	5.0	4.0	34.1	0.21	0.5

	SAMPLE	Tb	Yb	Lu	Cu	Ni
	WT-2811	0.71	3.10	0.45	66.0	19.0
	76-249	0.77	3.20	0.47	47.0	21.0
	WT-47 A	0.66	2.70	0.39	51.0	21.0
	WT-47 B	0.66	3.00	0.44	0.0	0.0
	NO.POINTS	4	4	4	3	3
MG6	AVERAGE	0.70	3.00	0.44	54.7	20.3
	STD.DEV.	0.05	0.22	0.03	10.0	1.2
	MAXIMUM	0.77	3.20	0.47	66.0	21.0
	MINIMUM	0.66	2.70	0.39	47.0	19.0
	DIFFERENCE	0.11	0.50	0.08	19.0	2.0

Table 6. Additional Grande Ronde samples: identifications and locations.

GRB GRANDE RONDE MISCELLANEOUS FLOWS

SAMPLE	SIO2	AL2O3	FEO	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO	SUBUNIT	STATE	SECTION	TOWNSHIP	RANGE
71-006 M	55.82	13.98	12.27	3.57	6.53	2.96	1.63	2.04	0.36	0.24	5C	O	14	6N	44E
71-027AM	55.08	14.25	11.22	3.84	7.80	3.23	1.72	2.06	0.34	0.21	5F	I	20	29N	2E
71-028AM	54.44	13.96	11.30	4.22	8.56	3.21	1.51	2.09	0.31	0.20	AS16	I	30	29N	2E
71-034 M	54.15	13.34	11.69	4.65	8.13	3.84	1.41	2.10	0.31	0.20	AS16	I	5	30N	1E
71-035 M	54.94	13.03	12.41	3.74	7.77	3.74	1.51	2.04	0.36	0.21	5F	I	32	31N	1E
71-046 M	55.01	12.54	11.78	4.45	8.58	3.13	1.72	2.11	0.31	0.19	AS16	I	4	36N	3W
71-56	53.97	15.46	9.18	6.16	10.00	2.62	0.67	1.21	0.26	0.21	LH2	W	7	11N	42E
71-65	54.83	15.15	9.21	5.69	9.66	2.74	0.74	1.22	0.27	0.20	LH2	W	23	12N	40E
71-143 M	55.51	13.40	12.06	4.33	7.21	3.22	1.51	1.93	0.31	0.19	5C	O	15	6S	20E
71-144 M	56.03	13.35	12.38	3.41	6.55	3.31	2.01	2.08	0.33	0.19	5C	O	15	6S	20E
71-147 M	56.38	13.67	11.61	3.54	6.92	3.24	1.82	1.95	0.33	0.18	5A	O	10	6S	20E
71-148 M	54.65	13.66	12.57	4.28	7.45	3.26	1.33	1.94	0.32	0.24	AS16	O	7	6S	20E
71-152 M	56.91	14.02	11.76	3.09	6.70	2.89	1.75	1.96	0.38	0.23	5A	O	20	7S	17E
72-041 M	54.30	14.84	11.26	4.78	8.36	2.79	1.00	1.79	0.44	0.15	4C	W	22	11N	45E
72-051 M	54.20	14.49	10.85	4.90	9.28	2.65	1.02	1.84	0.32	0.17	3A	W	8	11N	42E
72-59	53.97	15.07	9.76	6.00	9.95	2.74	0.71	1.12	0.28	0.14	LH2	W	15	11N	41E
72-71	53.87	14.48	11.05	5.30	8.83	2.85	0.86	1.83	0.30	0.19	3A	W	16	12N	40E
72-93	54.96	14.52	11.01	4.43	8.26	2.92	1.21	1.81	0.37	0.18	1A	W	18	12N	40E
72-112	54.08	14.92	11.48	4.49	8.48	2.55	1.22	1.94	0.26	0.15	1A	W	9	12N	38E
72-121 M	55.56	14.15	12.33	3.79	6.65	2.87	1.54	2.15	0.34	0.13	5C	W	7	7N	40E
72-151 C	54.16	15.09	9.37	6.01	9.85	2.65	0.79	1.22	0.29	0.20	LH2	W	1	7N	44E
72-156 C	54.67	14.92	10.64	4.90	8.39	2.60	1.10	1.80	0.42	0.15	3D	W	8	10N	44E
72-181 C	53.90	14.95	11.26	4.67	8.51	2.64	1.11	1.83	0.48	0.17	4A	W	31	13N	44E
72-271 M	57.97	13.78	9.76	3.34	6.87	3.04	2.23	2.23	0.34	0.16	2B	W	33	8N	43E
72-303 C	54.22	15.24	10.72	4.70	8.77	2.65	0.83	1.94	0.40	0.15	3A	W	2	17N	41E
73-30 CC	55.11	15.25	10.55	4.27	8.17	2.64	1.22	1.93	0.45	0.16	1A	W	1	11N	33E
73-31 C	55.22	14.80	10.66	4.40	7.89	2.80	1.30	1.90	0.52	0.14	1A	W	1	11N	33E
73-52 C	55.43	15.28	10.68	4.27	7.93	2.64	1.42	1.73	0.20	0.15	1A	W	34	11N	33E
73-065 M	53.93	14.81	11.54	4.60	8.47	2.76	0.85	1.74	0.37	0.13	4A	W	12	11N	33E
73-66 CC	54.77	15.16	11.26	4.17	7.97	2.74	1.22	1.73	0.36	0.18	4A	W	12	11N	33E
73-97 C	54.31	14.44	10.47	5.12	8.90	2.76	1.12	1.94	0.35	0.15	3A	W	21	13N	36E
73-98 C	54.87	14.97	11.07	4.30	7.98	2.66	1.33	1.94	0.46	0.16	1A	W	21	13N	36E
73-103	55.25	14.16	10.71	4.48	8.21	3.02	1.52	1.80	0.42	0.20	1A	W	19	10N	39E
73-107 C	55.37	14.82	10.72	4.23	8.07	2.82	1.21	1.81	0.40	0.14	1A	W	2	12N	37E
73-111 M	54.37	15.13	10.95	4.74	8.25	2.72	1.11	1.92	0.32	0.15	3A	W	8	11N	42E
73-212	55.11	14.56	10.12	4.27	8.83	3.05	1.42	1.62	0.40	0.19	1A	W	10	7N	40E
73-242 M	55.17	13.66	12.10	3.77	6.82	3.37	1.84	2.14	0.49	0.20	2D	O	21	6N	38E
73-324	54.74	14.34	10.66	4.68	8.64	2.95	1.52	1.62	0.37	0.21	1A	W	20	9N	39E
73-326	54.80	14.46	11.18	4.68	8.31	2.85	0.94	1.83	0.33	0.14	3A	W	20	9N	39E
73-335FB	56.50	14.02	10.51	3.81	7.37	3.01	2.03	1.93	0.31	0.19	5B	W	19	13N	39E
73-342FB	55.73	13.79	11.60	3.72	7.23	3.10	1.82	2.06	0.36	0.19	5B	W	23	13N	39E
73-343	53.87	14.32	11.03	5.24	8.97	2.92	1.21	1.71	0.31	0.21	3A	W	27	13N	40E
73-347FB	55.66	13.54	11.80	3.81	7.23	3.15	1.94	2.10	0.31	0.19	5B	W	9	13N	40E
73-363FB	54.70	13.79	12.15	3.79	7.59	3.18	1.82	2.11	0.38	0.19	3D	W	14	9N	46E
75-104	53.36	14.67	11.53	5.12	8.46	3.01	1.00	1.90	0.30	0.18	3A	W	32	12N	44E
75-107	54.05	14.60	11.57	4.56	8.39	3.14	0.81	1.82	0.28	0.14	4A	W	6	12N	44E
75-129	53.83	14.40	11.50	5.10	8.49	3.00	0.98	1.80	0.30	0.17	3A	W	10	10N	44E
75-160 M	54.36	14.10	12.89	3.96	6.57	3.25	1.62	2.23	0.49	0.14	15	W	15	8N	44E
75-225	54.19	14.03	12.81	3.55	7.11	3.25	1.42	2.33	0.50	0.15	2A	W	26	9N	40E
76-264 M	52.92	14.52	10.63	5.85	9.95	2.72	0.91	1.61	0.29	0.24	MG6	O	26	6N	45E
77-342 M	53.90	14.41	11.73	4.67	8.45	2.74	1.12	2.03	0.32	0.17	4A	O	32	3N	35E
78-003 M	54.95	15.52	9.44	4.73	9.36	2.56	1.15	1.82	0.26	0.17	4A	W	34	20N	43E
78-007 M	53.77	15.08	11.40	4.90	8.84	2.40	1.32	1.79	0.26	0.21	4A	W	28	24N	42E
78-011 M	54.22	14.90	11.45	4.42	8.99	2.37	1.32	1.81	0.28	0.21	4A	W	23	26N	41E
78-012 M	53.39	15.28	11.78	4.78	8.82	2.34	1.29	1.79	0.28	0.21	4A	W	20	26N	41E
78-017 M	54.26	14.47	13.48	3.27	7.13	2.63	1.78	2.34	0.37	0.23	2C	W	12	30N	40E
78-022 M	53.63	14.53	12.32	4.63	8.59	2.44	1.37	1.84	0.39	0.22	4A	I	12	46N	3W
78-038 M	53.60	15.22	11.81	4.63	8.66	2.36	1.32	1.82	0.33	0.21	4A	W	5	29N	40E
78-039 M	53.67	14.86	11.94	4.86	8.81	2.21	1.29	1.81	0.30	0.21	4A	W	8	29N	40E
78-040 M	56.45	15.33	10.14	3.25	7.19	2.66	2.12	2.24	0.35	0.22	2C	W	5	29N	40E
78-043 M	53.78	14.81	11.72	4.77	8.82	2.40	1.34	1.81	0.30	0.21	4A	W	22	26N	39E
78-049 M	53.71	14.94	11.91	4.76	8.99	2.21	1.18	1.79	0.26	0.21	4A	W	5	21N	41E

78-052	M	55.24	14.56	12.31	3.36	7.07	2.59	1.89	2.31	0.41	0.22	2D	W	17	28N	36E
78-073	M	53.89	14.65	12.03	4.63	8.70	2.46	1.25	1.81	0.33	0.21	4A	W	14	27N	34E
78-074	M	53.47	15.11	11.48	4.96	8.93	2.43	1.28	1.79	0.28	0.22	4A	W	14	27N	34E
78-079	M	53.50	14.99	11.23	4.94	9.72	2.46	0.92	1.73	0.28	0.20	3A	W	5	22N	30E
78-093	M	53.13	14.58	11.51	4.84	8.73	3.14	1.34	1.88	0.42	0.20	4A	W	17	28N	31E
78-106	M	53.49	15.01	10.91	5.46	9.68	2.37	0.82	1.73	0.28	0.20	3A	W	21	23N	30E
78-110	M	53.51	15.02	11.27	5.18	9.13	2.28	1.34	1.76	0.28	0.20	3A	W	24	24N	28E
C-26	FB	53.36	14.53	11.23	5.55	8.88	3.06	0.94	1.65	0.27	0.19	MG6	W	19	13N	36E
C-32	FB	56.24	14.08	11.46	3.61	7.06	2.96	1.80	1.93	0.33	0.17	5A	W	35	14N	40E
C-109	FB	53.60	14.43	11.42	5.25	9.01	2.57	1.11	1.77	0.30	0.19	3A	W	3	12N	37E
C-0171	M	53.92	13.67	12.64	3.85	7.37	3.03	1.83	2.48	0.46	0.19	2D	W	22	14N	42E
78-130	M	53.60	14.58	12.77	3.91	7.77	3.06	1.48	2.23	0.39	0.20	2A	W	15	8N	41E
78-305	M	53.95	14.88	11.45	4.88	9.15	2.44	0.95	1.81	0.28	0.20	3A	O	4	2N	31E
78-309	M	55.91	14.54	12.38	3.23	6.88	2.60	1.79	2.12	0.35	0.20	5A	O	26	2N	33E
78-315	M	55.56	14.28	12.55	3.34	7.02	2.85	1.82	2.04	0.35	0.20	5B	O	15	2N	34E
78-317	M	55.15	14.74	11.37	3.75	7.81	2.96	1.68	2.03	0.32	0.20	5A	O	12	2N	34E
78-320	M	53.10	14.68	12.60	4.67	9.12	2.54	1.06	1.77	0.26	0.20	3A	O	32	2N	35E
78-323	M	54.37	14.86	11.05	4.63	8.54	2.66	1.60	1.76	0.33	0.20	1A	O	32	5N	39E
78-324	M	53.37	15.21	11.95	4.50	8.63	2.54	1.43	1.82	0.33	0.20	1A	O	32	5N	39E
78-326	M	54.50	15.54	10.99	4.37	8.51	2.41	1.34	1.81	0.33	0.20	1A	O	4	5N	39E
78-335	M	54.98	15.66	9.87	4.58	8.88	2.39	1.40	1.73	0.30	0.20	1A	O	11	4N	39E
78-336	M	53.93	15.38	11.17	4.50	8.61	2.51	1.53	1.84	0.32	0.20	1A	O	11	4N	39E
78-337	M	55.22	15.29	9.98	4.62	8.88	2.23	1.60	1.70	0.28	0.20	1A	O	10	4N	39E
78-354	M	54.49	14.73	12.61	3.75	7.64	2.79	1.43	2.04	0.32	0.20	2A	O	4	2N	36E
78-355	M	53.45	15.02	12.02	4.84	8.96	2.48	0.96	1.81	0.26	0.20	3A	O	18	1S	31E
78-356	M	53.17	15.00	11.84	5.08	9.03	2.78	0.85	1.78	0.26	0.20	3A	O	12	2S	33E
78-367	M	55.33	14.90	12.46	3.37	6.89	2.75	1.82	1.98	0.30	0.20	5C	O	20	6N	42E
78-368	M	54.10	14.68	12.85	3.89	7.47	2.62	1.65	2.19	0.35	0.20	2D	O	20	6N	42E
78-386	M	53.52	14.92	11.88	5.06	9.21	2.25	0.93	1.76	0.26	0.20	3A	O	11	1S	34E
78-388	M	53.67	14.81	12.84	4.52	8.42	2.29	1.00	1.96	0.28	0.20	4A	O	3	1S	35E
78-390	M	53.54	14.55	12.43	4.70	8.78	2.41	1.18	1.94	0.28	0.20	4A	O	10	1N	35E
78-391	M	54.37	15.42	10.53	4.27	8.64	2.87	1.37	2.02	0.30	0.20	1A	O	25	2N	35E
78-396	M	54.08	14.09	13.61	3.79	7.64	2.78	1.40	2.07	0.35	0.20	2A	O	25	1S	35E
78-397	M	53.43	14.05	14.17	3.91	7.72	2.73	1.35	2.07	0.37	0.20	2A	O	26	1S	36E
78-410	M	55.07	14.55	12.04	3.94	7.66	2.48	1.76	2.01	0.28	0.20	5C	O	4	1N	37E
78-412	M	56.16	14.31	12.51	2.98	6.97	2.44	1.97	2.14	0.33	0.20	5B	O	26	2N	37E
78-413	M	56.20	14.15	11.92	3.29	7.15	2.57	2.12	2.09	0.33	0.20	5B	O	26	2N	37E
78-415	M	56.13	14.33	12.41	3.10	6.58	2.82	1.87	2.15	0.41	0.20	2B	O	1	3S	35E
78-417	M	55.55	14.04	12.08	3.34	7.22	2.73	2.04	2.44	0.37	0.20	2C	O	24	2N	37E
78-418	M	56.36	14.17	11.56	3.34	7.18	2.62	2.19	2.07	0.33	0.20	5A	O	24	2N	37E
78-419	M	55.40	14.92	10.36	4.51	8.56	2.63	1.39	1.73	0.30	0.20	1A	O	7	2N	38E
78-422	M	53.35	14.23	13.05	4.43	8.99	2.35	1.12	2.00	0.28	0.20	4A	O	6	2N	38E
78-424	M	54.68	14.62	11.43	4.52	8.60	2.63	1.29	1.73	0.30	0.20	1A	O	3	2N	38E
78-430	M	55.54	14.68	10.24	4.62	8.43	2.69	1.54	1.76	0.30	0.20	1A	O	27	2N	38E
78-431	M	56.35	14.05	12.28	3.22	7.01	2.35	2.16	2.07	0.32	0.20	5A	O	10	2N	38E
78-439	M	56.31	14.24	12.56	3.04	6.89	2.54	1.84	2.05	0.33	0.20	5A	O	29	2N	38E
78-441	M	55.97	14.41	11.98	3.44	7.22	2.51	1.90	2.06	0.32	0.20	5B	O	5	2N	38E
78-442	M	56.32	14.30	11.90	3.19	6.99	2.66	2.03	2.10	0.33	0.20	5B	O	5	2N	38E
78-465	M	54.12	14.75	11.68	4.56	8.34	2.76	1.45	1.79	0.35	0.20	1A	O	11	2N	38E
78-471	M	54.86	14.74	11.05	4.64	8.47	2.81	1.25	1.68	0.30	0.20	1A	O	29	2N	39E
78-472	M	54.75	14.83	10.84	4.68	8.60	2.75	1.32	1.73	0.30	0.20	1A	O	12	2N	38E
79-101	M	53.74	15.25	11.40	4.62	8.73	2.75	1.28	1.75	0.30	0.18	1A	O	30	6N	40E
79-107	M	54.45	15.21	11.21	4.83	8.41	2.64	1.23	1.48	0.32	0.21	3A	O	3	5N	40E
79-108	M	52.79	14.87	12.60	4.87	8.76	2.56	1.04	2.00	0.28	0.23	4A	O	3	5N	40E
79-109	M	53.96	15.23	11.54	4.57	8.63	2.32	1.42	1.73	0.30	0.30	1A	O	3	5N	40E
79-131	M	53.76	14.80	13.34	3.75	7.28	2.73	1.46	2.29	0.39	0.21	2A	O	29	6N	42E
80-002	M	54.67	15.25	11.22	4.34	8.30	2.54	1.29	1.81	0.33	0.24	1A	O	3	1N	27E
80-004	M	54.20	15.29	10.81	4.88	8.72	2.56	1.25	1.79	0.32	0.18	3B	O	27	2N	27E
80-006	M	53.61	15.29	11.43	4.90	8.98	2.60	0.93	1.81	0.26	0.18	3A	O	13	1N	28E
80-011	M	53.12	15.49	11.65	4.92	9.09	2.63	0.79	1.84	0.26	0.21	3A	O	4	1S	24E
80-013	M	53.56	15.62	10.88	5.01	9.03	2.72	0.92	1.81	0.26	0.18	3A	O	19	1S	26E
80-015	M	54.37	15.30	11.19	4.58	8.29	2.88	1.23	1.70	0.28	0.16	1A	O	9	2N	28E
80-021	M	54.23	15.17	11.31	4.25	8.64	2.79	1.15	1.95	0.30	0.21	1A	O	1	1S	23E
80-024	M	53.74	15.17	11.57	4.90	8.77	2.60	0.97	1.83	0.26	0.18	3A	O	11	1S	23E
80-025	M	53.72	15.25	11.60	4.98	8.77	2.62	0.82	1.80	0.26	0.17	3A	O	1	2S	23E
80-027	M	55.97	14.87	11.70	3.42	6.91	2.85	1.70	2.09	0.32	0.18	5A	O	21	1S	24E

80-030 M	55.60	14.71	12.05	3.72	6.97	2.92	1.64	1.90	0.30	0.19	5C	O	36	3S	29E
80-031 M	53.92	15.39	11.19	4.86	9.10	2.35	0.89	1.84	0.26	0.19	4A	O	36	4S	31E
80-033 M	54.47	14.96	11.65	3.62	8.05	2.76	1.68	2.22	0.39	0.21	5C	O	36	6S	31E
80-041 M	52.37	15.12	12.41	4.96	9.55	2.67	0.68	1.79	0.25	0.19	3C	O	21	6S	32E
80-042 M	53.98	14.62	12.38	4.44	8.19	2.45	1.34	2.06	0.33	0.21	4A	O	22	6S	32E
80-046 M	54.98	15.03	10.90	4.32	8.26	2.56	1.56	1.89	0.30	0.19	1A	O	35	5S	30E
80-047 M	54.61	14.88	11.40	4.39	8.07	2.75	1.54	1.87	0.28	0.21	1A	O	35	5S	30E
80-048 M	53.80	14.69	12.78	3.89	7.57	2.92	1.51	2.22	0.39	0.23	2D	O	5	4S	28E
80-052 M	53.29	14.57	12.57	4.51	8.15	2.88	1.43	2.06	0.32	0.22	4A	O	34	6S	30E
80-054 M	54.23	14.56	12.70	3.69	7.57	2.81	1.60	2.22	0.39	0.23	2C	O	19	6S	30E
80-057 M	53.49	14.78	12.75	4.13	8.13	2.82	1.20	2.17	0.33	0.21	4A	O	28	6S	29E
80-061 M	53.55	14.70	12.89	3.88	7.53	3.26	1.43	2.17	0.37	0.22	2A	O	30	4S	33E
80-094 M	53.65	14.60	12.98	4.07	7.77	2.94	1.31	2.08	0.35	0.25	AS16	O	31	3S	37E
80-098 M	53.91	15.01	11.99	4.27	7.91	2.54	1.78	2.06	0.32	0.21	5C	O	9	4S	37E
80-106 M	52.26	15.52	11.53	5.01	9.26	2.72	1.12	2.10	0.28	0.21	4A	O	32	4S	37E
80-107 M	52.66	15.14	11.73	4.76	8.92	2.67	1.35	2.23	0.32	0.22	4A	O	32	4S	37E
80-111 M	53.49	14.55	13.53	3.91	7.74	2.84	1.23	2.10	0.35	0.26	2A	O	26	2S	36E
80-112 M	53.06	14.51	14.31	3.89	7.60	2.76	1.18	2.12	0.35	0.22	2A	O	18	3S	38E
SB76-034	53.41	14.22	11.62	5.35	9.06	3.01	0.95	1.73	0.22	0.18	3C	W	29	22N	22E
SB76-036	53.65	14.30	11.56	5.18	8.91	2.88	1.10	1.75	0.24	0.19	3C	W	28	21N	22E
SB76-037	54.52	14.36	10.97	4.82	8.47	2.96	1.45	1.74	0.30	0.18	1A	W	27	21N	22E
SB76-038	53.91	14.22	11.53	5.25	8.63	3.07	1.03	1.70	0.23	0.18	3C	W	10	22N	23E
SB76-040	56.64	12.24	12.92	3.66	6.36	3.20	1.66	2.35	0.50	0.21	5D	W	10	22N	23E
SB76-067	53.65	14.44	11.30	4.72	9.15	3.07	1.11	1.77	0.36	0.19	4A	W	3	20N	20E
SB76-095	53.18	14.51	11.29	5.51	8.87	2.99	1.22	1.71	0.30	0.19	3C	W	4	21N	22E
SB76-097	56.43	13.71	11.59	3.58	7.17	3.23	1.70	1.90	0.27	0.18	5A	W	4	21N	22E
SB77-053	55.80	14.22	11.03	4.04	7.61	3.42	1.32	1.92	0.23	0.17	5D	W	25	22N	21E
SB77-055	53.33	14.53	11.09	5.52	9.03	3.05	1.12	1.69	0.23	0.18	3A	W	7	22N	23E
SB77-056	53.55	14.47	11.06	5.36	9.39	2.80	1.01	1.71	0.23	0.17	3A	W	18	22N	23E
SB77-058	53.06	14.48	11.37	5.68	9.11	3.05	0.95	1.66	0.22	0.18	3B	W	18	22N	23E
SB77-060	56.57	14.06	10.84	3.69	7.24	3.33	1.70	1.89	0.29	0.16	5A	W	3	21N	21E
SB77-063	56.12	14.05	11.40	3.65	7.11	3.42	1.64	1.91	0.29	0.17	5A	W	3	21N	21E
SB77-105	55.59	14.35	10.99	3.66	7.69	3.26	1.68	2.04	0.32	0.19	5D	W	25	21N	19E
SB77-107	56.55	14.06	10.99	3.62	7.18	3.27	1.74	1.88	0.30	0.18	5A	W	25	21N	19E
SB77-109	53.41	14.34	11.53	5.43	9.10	2.85	0.98	1.72	0.22	0.19	3A	W	25	21N	19E
SB77-142	55.00	14.02	11.66	4.26	7.68	3.27	1.48	1.92	0.28	0.18	5D	W	36	21N	18E
SB77-152	53.96	14.42	11.26	5.05	8.67	2.95	1.19	1.79	0.29	0.19	3A	W	33	21N	18E
SB77-153	53.70	14.27	11.26	5.29	9.04	2.95	1.09	1.74	0.23	0.19	3A	W	33	21N	18E
SB77-155	56.80	14.24	10.76	3.58	7.11	3.19	1.70	1.92	0.28	0.18	5A	W	4	20N	18E
SB77-157	53.87	14.22	11.89	4.86	8.49	3.00	1.09	1.88	0.25	0.20	4A	W	2	20N	18E
SB77-158	54.19	14.29	11.28	4.82	8.74	2.90	1.25	1.81	0.29	0.19	1A	W	2	20N	18E
SB77-159	53.79	14.04	11.68	4.90	8.62	3.07	1.31	1.83	0.31	0.20	1A	W	2	20N	18E
SB77-183	54.52	13.89	12.43	3.90	7.32	3.28	1.63	2.21	0.36	0.19	2D	W	6	17N	16E
SB77-185	54.48	14.19	12.04	4.16	7.72	3.17	1.56	1.95	0.29	0.19	5D	W	6	17N	16E
SB77-188	53.48	14.17	11.93	4.70	8.78	3.07	1.22	1.85	0.32	0.23	4A	W	1	17N	16E
SB77-190	53.89	14.39	10.95	5.17	9.25	2.83	1.11	1.76	0.23	0.19	3A	W	1	17N	16E
SB77-191	54.25	14.26	11.24	4.99	8.56	3.02	1.25	1.72	0.29	0.19	1A	W	1	17N	16E
SB77-197	55.11	13.83	12.09	3.58	7.17	3.36	1.79	2.22	0.41	0.20	2D	W	26	22N	21E
SB77-198	55.26	13.96	11.61	4.17	7.65	3.28	1.49	1.90	0.27	0.17	5A	W	26	22N	21E
74-004 M	53.08	14.44	12.06	5.02	8.79	2.86	1.02	1.94	0.34	0.16	4A	W	33	27N	29E
74-005 M	53.03	14.74	11.91	5.01	8.56	2.86	1.12	1.94	0.35	0.16	4A	W	33	27N	29E
78-207 M	55.81	14.18	11.69	3.49	6.93	2.82	1.93	2.27	0.46	0.18	2D	W	24	25N	21E
78-228 M	55.33	14.04	11.98	3.69	7.30	2.63	1.94	2.27	0.40	0.17	2D	W	5	26N	23E
78-229 M	55.66	14.31	11.02	3.85	7.86	2.83	1.72	1.98	0.35	0.18	5D	W	5	26N	23E
78-230 M	54.43	14.81	10.95	4.84	8.58	2.64	1.18	1.82	0.34	0.19	4A	W	8	26N	23E
78-253 M	56.19	13.94	11.87	3.33	6.82	3.01	1.80	2.24	0.38	0.17	2D	W	2	22N	23E
78-254 M	56.16	13.90	11.77	3.48	6.87	2.80	1.98	2.23	0.38	0.18	2D	W	2	22N	23E
78-255 M	55.80	13.92	11.95	3.58	7.12	2.89	1.72	2.24	0.38	0.17	2D	W	2	22N	23E
78-256 M	55.68	14.09	11.88	3.62	7.15	2.83	1.69	2.23	0.38	0.19	2D	W	2	22N	23E
78-257 M	55.85	14.01	11.86	3.51	7.11	2.81	1.76	2.27	0.39	0.18	2D	W	2	22N	23E
78-285 M	54.48	14.49	11.20	5.07	8.80	2.62	0.99	1.67	0.27	0.17	1A	W	21	17N	23E
78-286 M	55.15	14.27	11.13	4.66	8.27	2.50	1.52	1.75	0.35	0.17	1A	W	20	17N	23E
78-235 M	53.72	14.98	11.44	5.15	8.92	2.43	1.15	1.70	0.26	0.20	3A	W	1	25N	24E
78-236 M	53.88	14.72	11.71	4.88	8.71	2.50	1.23	1.81	0.32	0.20	4A	W	16	29N	24E
78-237 M	54.04	14.65	11.98	4.78	8.52	2.50	1.20	1.78	0.32	0.20	4A	W	35	31N	24E
79-005 M	54.56	15.41	10.05	4.76	9.05	2.24	1.28	2.06	0.37	0.19	4A	W	3	25N	29E

79-008	M	54.79	15.44	9.51	4.70	8.99	2.65	1.26	2.06	0.37	0.19	4A	W	8	25N	29E
79-009	M	53.65	15.29	11.09	5.07	9.27	2.37	1.07	1.71	0.26	0.19	3A	W	27	26N	26E
79-010	M	53.72	15.00	10.97	5.01	9.05	2.65	1.23	1.84	0.28	0.21	3A	W	11	26N	25E
79-023	M	53.69	14.79	12.25	4.38	8.37	2.66	1.31	2.04	0.30	0.21	4A	W	23	10N	13E
79-025	M	55.79	14.95	10.90	3.69	7.39	2.91	1.94	1.93	0.32	0.19	5C	W	23	11N	13E
79-028	M	53.15	14.42	12.58	4.83	8.67	2.69	1.23	1.90	0.30	0.22	4A	W	26	12N	15E
79-039	M	53.62	14.67	11.33	4.89	9.02	2.84	1.34	1.79	0.28	0.21	1A	W	15	3N	10E
79-041	M	53.70	14.71	11.45	5.00	9.01	2.72	1.15	1.81	0.26	0.18	3A	W	15	4N	10E
79-042	M	53.13	14.78	11.83	5.19	9.03	2.79	1.04	1.73	0.26	0.21	3A	W	32	5N	10E
79-046	M	53.62	15.11	11.88	4.63	8.34	2.72	1.35	1.79	0.32	0.23	4A	W	12	6N	10E
79-047	M	53.57	15.23	11.38	4.55	9.14	2.73	1.12	1.78	0.26	0.23	4A	W	32	6N	11E
79-050	M	54.05	15.13	11.85	4.51	8.03	2.82	1.26	1.90	0.26	0.19	4A	W	19	3N	9E
79-051	M	53.68	15.16	11.70	4.65	8.54	2.57	1.34	1.82	0.32	0.21	4A	W	31	3N	7E
79-053	M	53.28	14.91	11.78	4.95	8.90	2.63	1.26	1.79	0.28	0.21	4A	W	11	2N	6E
79-054	M	54.28	15.02	10.63	4.71	8.76	3.17	1.20	1.73	0.28	0.21	1A	W	20	5N	12E
81-002	M	54.00	15.75	11.72	5.15	8.60	1.54	0.95	1.81	0.26	0.21	3A	W	19	7S	15E