MINERALOGY AND GRAIN SIZE OF SURFICIAL SEDIMENT FROM THE BIG LOST RIVER DRAINAGE AND VICINITY, WITH CHEMICAL AND PHYSICAL CHARACTERISTICS OF GEOLOGIC MATERIALS FROM SELECTED SITES AT THE IDAHO NATIONAL ENGINEERING LABORATORY, IDAHO

by

Roy C. Bartholomay, LeRoy L. Knobel and Linda C. Davis

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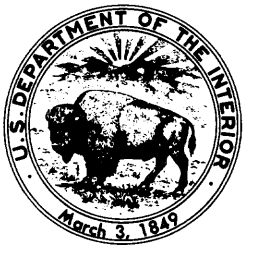

Idaho Falls, Idaho
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DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. Geological Survey

Dallas L. Peck, Director

For additional information
write to:

Project Office
U.S. Geological Survey
INEL, MS 4148
P.O. Box 2230
Idaho Falls, ID 83403

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FACTORS FOR CONVERTING INCH-POUND UNITS TO METRIC (SI) UNITS

For readers who prefer to use International System (SI) units, rather than inch-pound units, the following conversion factors may be used.

Multiply inch-pound units	By	To obtain SI units
foot (ft)	0.3048	meter
inch (in.)	25.4	millimeter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer
acre-foot (acre-ft)	1,233	cubic meter

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Sea Level Datum of 1929."

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ABSTRACT

The U.S. Geological Survey's project office at the Idaho National Engineering Laboratory, in cooperation with the U.S. Department of Energy, collected 35 samples of surficial sediment from the Big Lost River drainage and vicinity from July 1987 through August 1988 for analysis of grain-size distribution, bulk mineralogy, and clay mineralogy. Samples were collected from 11 sites in the channel and 5 sites in overbank deposits of the Big Lost River, 6 sites in the spreading areas that receive excess flow from the Big Lost River during peak flow conditions, 7 sites in the natural sinks and playas of the Big Lost River, 1 site in the Little Lost River Sinks, and 5 sites from other small, isolated closed basins.

Eleven samples from the Big Lost River channel deposits had a mean of 1.9 and median of 0.8 weight percent in the less than 0.062 millimeter fraction. The other 24 samples had a mean of 63.3 and median of 63.7 weight percent for the same size fraction. Mineralogy data are consistent with grain-size data. The Big Lost River channel deposits had mean and median percent mineral abundances of total clays and detrital mica of 10 and 10 percent, respectively, whereas the remaining 24 samples had mean and median values of 24 and 22.5 percent, respectively.

INTRODUCTION

The INEL (Idaho National Engineering Laboratory) covers about 890 mi^2 of the eastern Snake River Plain in southeastern Idaho (fig. 1). The INEL was established in 1949 and is used by the U.S. Department of Energy to test different types of nuclear reactors. The INEL is one of the main centers in

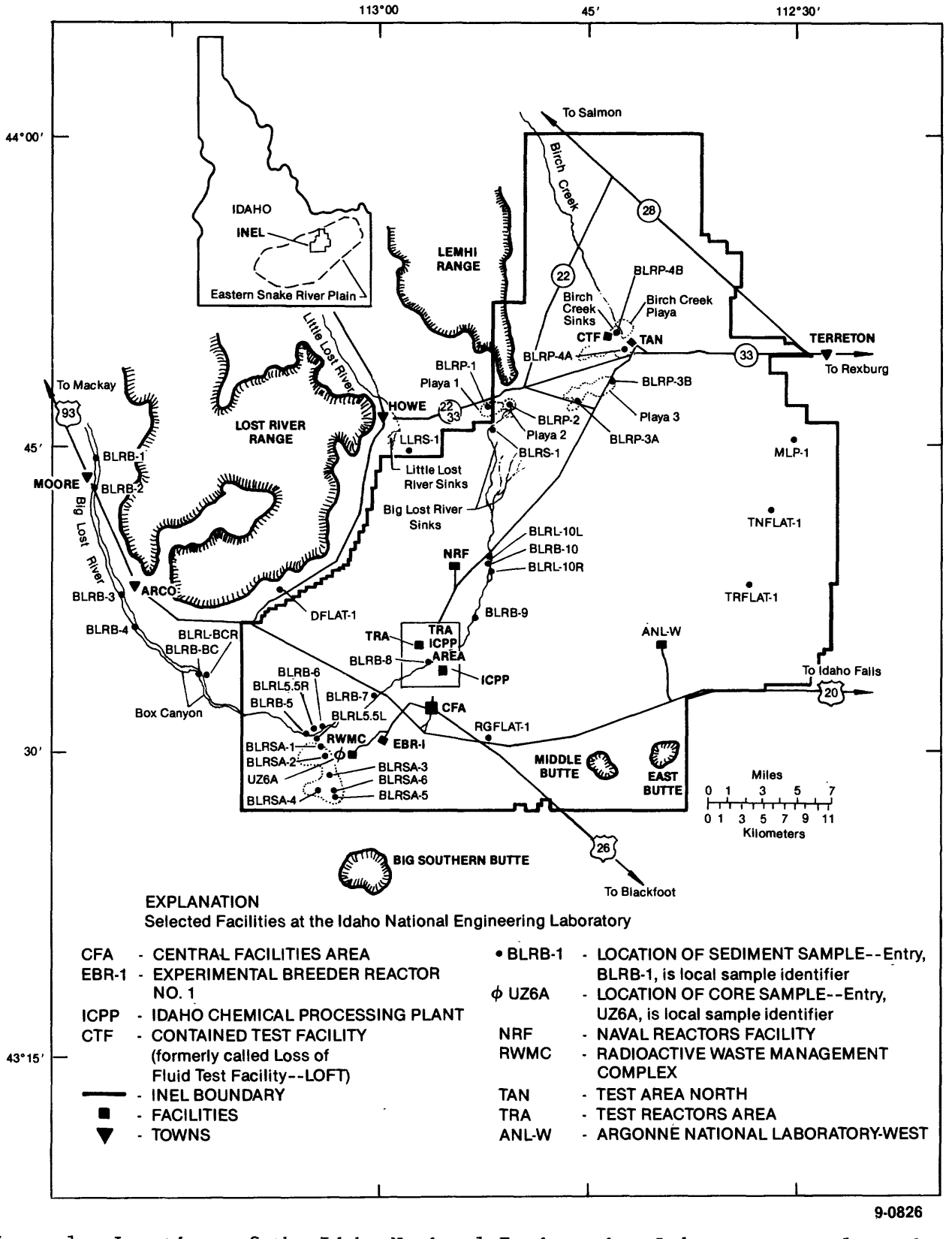

Figure 1.--Locations of the Idaho National Engineering Laboratory, selected facilities, sampling sites for surficial sediment, and selected test holes.

the United States for developing the peacetime use of atomic energy, nuclear safety research, defense programs, and advanced energy concepts.

Aqueous chemical and radioactive wastes generated at the INEL were discharged to ponds and wells from 1952 to 1983. Since 1983, most of the aqueous wastes have been discharged to unlined infiltration ponds. Many of the waste constituents enter the Snake River Plain aquifer indirectly following percolation through the unsaturated zone (Pittman and others, 1988, p. 2); however, the movement of some constituents--including some radionuclides--may be retarded by minerals in the unsaturated zone.

A sampling program was conducted to document the mineralogy and grain-size distribution of surficial sediment at selected sites on or near the INEL from July 1987 through August 1988. Samples were collected from 11 sites in the channel of the Big Lost River, 5 sites in overbank deposits of the Big Lost River, 6 sites in the spreading areas that receive excess flow from the Big Lost River during peak flow conditions, 7 sites in the natural sinks and playas of the Big Lost River, 1 site in the Little Lost River Sinks, and 5 sites from other small, isolated closed basins (fig. 1). This report describes the methods used to collect, prepare, and analyze surficial sediment samples and summarizes their mineralogy and grain-size distribution. The sampling program was conducted by the U.S. Geological Survey in cooperation with the U.S. Department of Energy.

Hydrologic Setting

The eastern Snake River Plain is a northeast-trending structural basin about 200 mi long and 50 to 70 mi wide. The plain is underlain by a layered sequence of basaltic lava flows and cinder beds intercalated with alluvium and lakebed sedimentary deposits. Individual flows range from 10 to 50 ft in thickness, although the average thickness may be from 20 to 25 ft (Mundorff and others, 1964, p. 143). The sedimentary deposits consist mainly of beds of sand, silt, and clay with lesser amounts of gravel.

Locally, rhyolitic lava flows and tuffs are exposed at the land surface or occur at depth. The basaltic lava flows and intercalated sedimentary deposits combine to form the Snake River Plain aquifer, which is the main source of ground water on the plain. The altitude--relative to sea level--of the water table for the Snake River Plain aquifer in July 1985 and July 1978 ranged from about 4,580 ft in the northern part of the INEL, to about 4,430 ft in the southern part (Pittman and others, 1988, fig. 9; Barraclough and others, 1981, fig. 7). The corresponding depths to water below land surface ranged from about 200 ft in the northern end to as much as 1,000 ft in the southern end (Barraclough and others, 1981, fig. 8). The INEL obtains its entire water supply from the Snake River Plain aquifer.

Much of the northern part of the INEL is contained in a topographically closed depression that includes the Big Lost River Sinks, Little Lost River Sinks, Birch Creek Sinks, the Big Lost River playas--playa 1, playa 2, and playa 3--and the Birch Creek playa. The Big Lost River, Little Lost River, and Birch Creek terminate in the Birch Creek playa (Robertson and others, 1974, p. 8) (fig. 1). The INEL also contains several other small, isolated closed basins. Except for years with above normal runoff, flow from the Little Lost River and Birch Creek is diverted for irrigation and power generation and does not reach the INEL playas. The Big Lost River is the primary source of surface water to the INEL, most of which subsequently recharges the Snake River Plain aquifer. Data from May and November 1985 seepage runs on the Big Lost River near the ICPP (Idaho Chemical Processing Plant) (fig. 1) indicate that the river loses from 1.1 to 3.8 (acre-ft/day)/mi depending on the amount of flow in the channel (Mann and others, 1988, p. 17).

Previous Investigations

The U.S. Geological Survey has conducted geologic, hydrologic and water-quality investigations at the INEL since it was selected as a reactor testing area in 1949. Twenty of the reports generated by these investigations contain data on the physical and chemical characteristics of Snake River Plain aquifer materials. The types of data and the number of

analyses for each are summarized in table 1. The data published by Nace, Deutsch, and Voegeli (1956) were republished by Nace and others (1975). The information published in the 20 reports listed in table 1 is discussed subsequently in this report.

The U.S. Department of Energy's RESL (Radiological and Environmental Sciences Laboratory) conducted a study of nutrient and trace elements in soil and desert vegetation of southern Idaho (Rope and others, 1988). Rope and others (1988, p. 7-12) report some physical characteristics--including cation exchange capacity--and elemental concentrations of soil. The elemental concentrations were measured in nitric-perchloric acid and sodium bicarbonate-DTPA (diethylenetriaminepentaacetic acid) extracts.

The U.S. Atomic Energy Commission's Health and Safety Division conducted a study at the INEL to compare two methods of sampling gravel. The results of that study--including data on grain-size--are summarized by Hawkins and Foster (1963).

Acknowledgments

The authors gratefully acknowledge the ISU (Idaho State University) Department of Geology--Dr. Paul K. Link, Chairman--for providing X-ray diffraction equipment, laboratory space, and computer support. Several professors from the Department of Geology deserve special thanks for providing assistance as follows: Dr. H. Thomas Ore provided helpful discussions on grain-size analysis and selection of sampling locations; Dr. Charles W. Blount demonstrated the proper use of the X-ray equipment and helped with computer software; and Dr. William R. Hackett helped to modify the sample preparation techniques for the semiquantitative X-ray method used to identify bulk mineralogy and provided useful discussions on applying the theory of X-ray diffraction to unknown mineral identification.

Table 1.--Type of data and number of analyses for chemical and physical characteristics of Snake River Plain aquifer materials in U.S. Geological Survey reports

[CEC: cation exchange capacity. Reference: full bibliographic citation is given in the section of this report on references cited]

Grain size	Mineralogy: Bulk	Clay	Silt	CEC	Other	Reference
5	--	--	--	--	--	Jones and Voegeli, 1951a
5	--	--	--	--	--	Jones and Voegeli, 1951b
8	--	--	--	--	--	Jones and others, 1951
1	--	--	--	--	--	Nace and Voegeli, 1951
4	--	--	--	--	--	Nace and others, 1951
7	--	--	--	--	--	Deutsch, Nace, and Voegeli, 1952
[1]7	--	--	--	--	--	Deutsch, Voegeli, Nace, and Jones, 1952
[1]6	--	--	--	[2]--	--	Deutsch, 1953
[1]7	--	11	11	37	--	Voegeli and Deutsch, 1953
[1]6	--	--	--	--	--	Deutsch and others, 1954
[1]49	--	57	45	[3]20	[4]6	Nace, Deutsch, and Voegeli, 1956
--	--	--	--	158	--	Nace, Deutsch, Voegeli, and Jones, 1956
--	--	--	--	7	--	Nace, 1961
--	--	--	--	--	[5]1	Jones, 1961
9	--	--	--	--	[6]9	Morris and others, 1963
22	--	--	--	--	[6]22	Morris and others, 1964
33	--	--	--	--	[6]33	Morris and others, 1965
46	57	[7]57	--	56	--	Barraclough and others, 1976
40	44	46	--	46	[6]37	Rightmire, 1984
4	16	33	--	4	--	Rightmire and Lewis, 1987

[1]Analyses not republished in this report because of insufficient data.
[2]Gives ranges of data for various size fractions from an unknown number of samples.
[3]Twenty basalt analyses from 2 sites and a summary of sediment analyses. Exact locations of basalt samples are unknown.
[4]Bulk chemistry analyses for two sediments, two samples of secondary cement, and two samples of basalt.
[5]Average bulk chemistry analysis for 38 samples.
[6]Specific gravity analyses.
[7]Listed as clay minerals in table 17 of this report. See Barraclough and others, 1976, table A-V for additional information.

METHODS

Sample Collection

Sediment samples were collected from 35 sites for mineralogical and grain-size analysis from July 1987 through August 1988. Sampling sites (fig. 1) were selected on the basis of accessibility and topographic setting. Samples from 11 sites along the Big Lost River channel were collected from point bars and transverse braid bars (BLRB-1 to BLRB-10 and BLRB-BC), which may contain finer grained material than the rest of the channel deposits (Davis, 1983, p. 254; Smith, 1970, p. 2995). The 11 samples were collected at intervals of about 1 to 8 river mi between Moore, ID and the NRF (Naval Reactors Facility) (fig. 1). Overbank deposits of the Big Lost River were collected from five sites at three locations (fig. 1): one from Box Canyon (BLRL-BCR), two immediately north of the INEL spreading area (BLRL5.5R and BLRL5.5L), and two from near the NRF (BLRL-10R and BLRL-10L). Seven samples were collected from the natural sinks and playas of the Big Lost River (fig. 1) as follows: one from Big Lost River Sinks (BLRS-1), one each from playas 1 and 2 (BLRP-1 and BLRP-2), two from playa 3 (BLRP-3A and BLRP-3B), and two from Birch Creek playa (BLRP-4A and BLRP-4B). Samples were collected from six sites (BLRSA-1 to BLRSA-6) in the INEL spreading area (fig. 1). One sample (LLRS-1) was collected from Little Lost River Sinks (fig. 1) and five samples (MLP-1, DFLAT-1, TRFLAT-1, RGFLAT-1, and TNFLAT-1) were collected from other small, isolated closed basins (fig. 1).

The samples were collected by digging a hole approximately 1 to 2 ft deep and filling each of four plastic vials with about 150 g (grams) of sediment from the bottom of the hole. The samples were then labeled and transported to the analyzing laboratory.

Sample Preparation and Analysis

Three of the four vials of sample from each of the 35 sites were used for grain-size analysis. The fourth vial was used for X-ray diffraction analysis.

Grain-size samples.--The 450 g of sample from the three vials for grain-size analysis was uniformly mixed and passed through standard sieves to determine the distribution of sand-sized and larger material--greater than 0.062 mm (millimeter). Finer-grained samples were split one or two times prior to sieving. The size fractions (0.062-0.125 mm, 0.125-0.25mm, 0.25-0.50mm, 0.50-1.00 mm, 1.00-2.00 mm, 2.00-4.00 mm, and greater than 4.00 mm) were collected and weighed. The distribution of the clay- and silt-sized fractions--less than 0.062 mm--was determined using pipette analysis.

The pipette method of analysis (Folk, 1974, p. 37-39) is based on settling velocity of spherical particles in a fluid; an aliquot of sample was collected from the settling cylinder at predetermined times--derived from Wadell's modification of Stoke's law (Krumbein and Pettijohn, 1938, p. 105-107)--dried and weighed. Correction factors were applied to the raw data to account for weight changes resulting from adding the dispersing agent--sodium hexametaphosphate--and to adjust the weights to account for the larger volume of the settling cylinder.

The size fractions (less than 0.002 mm, 0.002-0.004 mm, 0.004-0.008 mm, 0.008-0.016 mm, 0.016-0.031 mm, and 0.031-0.062 mm) were collected and weighed. The weights of the various fractions were converted to weight percents of the bulk samples.

X-ray diffraction samples.--X-ray diffraction analysis was used to determine bulk mineralogy of all particles in a sample less than 0.5 mm in diameter and clay mineralogy of particles less than 0.004 mm in diameter. Clay mineralogy was only determined on samples that had clay present in the bulk analysis. For bulk mineralogy, the 150 g of sample from the vial for X-ray diffraction analysis was passed through a 0.5 mm sieve. A representative sample--approximately 2 g of sediment that passed through the 0.5 mm sieve--was ground for 8 minutes in a ball-and-mill device to reduce grain size and to homogenize the sample. The sample was subsequently ground with a mortar and pestle until all of the sample passed through a 0.062 mm sieve. The powdered sample was packed into an aluminum holder and scanned with a diffractometer using copper Kα (wavelength of the characteristic line) radiation at a rotation rate of 1 degree 2 theta per minute. The

generator was operated at 35 kilovolts and 15 milliamps. Diffractograms were prepared at a scale factor of 4, a multiplier of 1, and a time constant of 4.

Semiquantitative analysis was used to determine the relative abundances of minerals in the samples. A modification of the method described by Diebold and others (1963) and Schultz (1964) was used to obtain the relative mineral percentages. The raw percentage of each mineral was determined by dividing the intensity of each mineral peak height by the intensity of its pure standard. The raw percentages were normalized to 100 percent. The intensities of the pure standards were calculated from standard minerals provided by the ISU Department of Geology. Because peaks of the detrital micas, such as muscovite and biotite, overlap with the clay mineral illite, detrital mica and total clays were reported together when both types of minerals were present in a sample. Schultz (1964, p. C1) reported uncertainties of ±10 percent for minerals that make up at least 15 percent of the sample. Diebold and others (1963, table 5, p. 130) calculated weight percents within ±8 percent of the true concentrations using a 95-percent confidence interval.

For samples that had total clay present in the bulk mineralogy analyses, a qualitative identification of individual clay minerals was undertaken. Approximately 1 g of the sample material less than 0.5 mm in diameter was added to a 500 mL (milliliter) beaker of deionized water along with about 0.2 g of sodium hexametaphosphate--a dispersing agent--and stirred for 1 to 2 minutes. Equal volumes of the suspension were placed in 2 centrifuge tubes and centrifuged at 600 revolutions per minute for 2 minutes. After centrifugation, only particles less than 0.004 mm in diameter remained in suspension. The liquid containing the suspended particles was transferred to a glass thin-section slide and dried at room temperature.

The slides were scanned with a diffractometer using copper Kα radiation at a rotation rate of 1 degree 2 theta per minute. The generator was operated at 35 kilovolts and 15 milliamps. Diffractograms were prepared at a scale factor of 2, a multiplier of 1, and a time constant of 4. The

samples were glycolated and rescanned to differentiate between smectite and chlorite clays. Smectite expands from 14 to 17 A (angstrom units) when ethylene glycol replaces water in the mineral lattice. The expansion was achieved by exposing the clay slides to an ethylene glycol atmosphere for 24 hours.

The results reported by the ISU X-ray diffraction laboratory for the 27 samples analyzed for clay mineralogy give qualitative estimates of the abundance of clay minerals in the samples. The estimates were based on the relative heights of the clay-mineral peaks on the X-ray diffractograms. Five categories were designated in order of decreasing abundance: dominant, major, minor, trace, and possibly present.

GRAIN-SIZE DISTRIBUTION OF SURFICIAL SEDIMENT

The distribution of grain size for 35 samples from the Big Lost River drainage and vicinity is given as weight percents in tables 2-6. A statistical summary of the data by selected type of geomorphic feature--including the minimum, maximum, median and mean values for all size fractions--is given in table 7. Big Lost River channel deposits are coarser than other types of deposits. For example, 11 samples from the channel of the Big Lost River had mean and median weight percents of 1.9 and 0.8, respectively, for the size fraction smaller than 0.062 mm (table 7). Conversely, 24 samples of other types of deposits had mean and median weight percents of 63.3 and 63.7, respectively, for the same size fraction (table 7). For this report, size fractions of <0.002 mm (tables 2-7) were reported because clay minerals are probably the predominant constituent.

The distribution of grain size in the 24 samples from locations outside of the Big Lost River channel differed. Samples from five overbank deposits had larger weight percents of the less than 0.062 mm size fraction--mean of 48.1 and median of 51.3 (table 7)--than the channel deposits. The respective mean and median weight percents of the less than 0.062 mm size fraction for other samples are as follows (table 7): 69.1 and 75.0 for six samples from the INEL spreading area; 62.8 and 66.5 for seven samples from

the sinks and playas of the Big Lost River; and, 70.6 and 72.45 for six samples from miscellaneous small basins and playas. Curves showing the cumulative percentages by weight for each of the 35 samples are shown in figures 2-8.

Table 2.--Grain-size distribution for upstream channel and overbank deposits from the Big Lost River, in weight percent

[Symbols: < indicates values less than indicated number; > indicates values greater than indicated number. Grade name: Categories modified from the Wentworth scale (Dietrich and others, 1982, p. 17.1).]

Sample identifier			BLRB-1	BLRB-2	BLRB-3	BLRB-4	BLRB-BC	BLRL-BCR	BLRB-5	BLRB-6
Date sampled			07/10/87	07/10/87	07/10/87	07/10/87	08/11/88	08/11/88	07/09/87	07/09/87
Grade limits										
Millimeters	Phi	Grade name	Weight percent							
>4.0	<-2	Other gravels	34.7	57.6	48.5	65.8	9.6	19.0	62.9	58.6
2.0-4.0	-1 to -2	Very fine gravel	14.6	9.6	12.9	6.1	6.4	0.8	10.2	7.7
1.0-2.0	0 to -1	Very coarse sand	14.4	9.1	7.7	3.9	18.1	0.5	5.8	5.7
0.5-1.0	1 to 0	Coarse sand	13.0	9.8	10.9	1.9	33.9	1.7	3.4	7.0
0.25-0.5	2 to 1	Medium sand	18.6	11.3	17.3	7.2	21.8	11.9	7.2	9.5
0.125-0.25	3 to 2	Fine sand	4.4	2.3	2.4	11.9	3.6	23.0	8.0	5.1
0.062-0.125	4 to 3	Very fine sand	0.2	0.2	0.2	2.0	5.5	24.7	1.7	2.6
0.031-0.062	5 to 4	Coarse silt	Pipette	Pipette	Pipette	Pipette	Pipette	10.6	Pipette	1.5
0.016-0.031	6 to 5	Medium silt	analysis	analysis	analysis	analysis	analysis	1.9	analysis	0.3
0.008-0.016	7 to 6	Fine silt	not	not	not	not	not	1.3	not	0.3
0.004-0.008	8 to 7	Very fine silt	done,	done,	done,	done	done,	1.3	done,	0.2
0.002-0.004	9 to 8	Coarse clay	total	total	total	total	total	0.6	total	0.3
<0.002	>9	Clay	= 0.1	= 0.2	= 0.1	= 1.2	= 1.2	2.8	= 0.7	1.1

Table 3.--Grain-size distribution for downstream channel and overbank deposits from the Big Lost River, in weight percent

[Symbols: < indicates value is less than indicated number; > indicates value is greater than indicated number. Grade name: Categories modified from the Wentworth scale (Dietrich and others, 1982, p.17.1).]

Sample identifier			BLRB-7	BLRB-8	BLRB-9	BLRB-10	BLRL-10L	BLRL-10R
Date sampled			07/09/87	07/22/87	07/22/87	07/22/87	08/10/88	08/10/88
Grade limits								
Millimeters	Phi	Grade name	Weight percent					
>4.0	<-2	Other gravels	55.6	59.4	46.8	48.3	0.5	8.4
2.0-4.0	-1 to -2	Very fine gravel	10.0	8.8	9.2	5.6	0.1	1.6
1.0-2.0	0 to -1	Very coarse sand	4.1	7.5	8.9	2.7	0.2	0.8
0.5-1.0	1 to 0	Coarse sand	2.5	5.3	14.3	5.0	1.7	1.5
0.25-0.5	2 to 1	Medium sand	12.5	10.3	14.4	15.5	11.1	7.8
0.125-0.25	3 to 2	Fine sand	13.3	6.5	4.9	9.3	21.4	15.1
0.062-0.125	4 to 3	Very fine sand	1.4	1.1	0.9	2.9	15.4	13.5
0.031-0.062	5 to 4	Coarse silt	Pipette	Pipette	Pipette	1.9	19.6	19.3
0.016-0.031	6 to 5	Medium silt	analysis	analysis	analysis	1.6	9.8	8.9
0.008-0.016	7 to 6	Fine silt	not	not	not	1.2	7.0	7.4
0.004-0.008	8 to 7	Very fine silt	done,	done,	done,	1.2	1.4	3.0
0.002-0.004	9 to 8	Coarse clay	total	total	total	1.2	5.6	4.5
<0.002	>9	Clay	= 0.8	= 1.1	= 0.6	3.7	6.3	8.2

Table 4.--Grain-size distribution for Idaho National Engineering Laboratory spreading area deposits and overbank deposits from the Big Lost River, in weight percent

[Symbols: < indicates value less than indicated number; > indicates value greater than indicated number. Grade name: Categories modified from the Wentworth scale (Dietrich and others, 1982, p.17.1).]

Sample identifier			BLRL5.5L	BLRL5.5R	BLRSA-1	BLRSA-2	BLRSA-3	BLRSA-4	BLRSA-5	BLRSA-6
Date sampled			08/11/88	08/11/88	07/10/87	07/10/87	07/10/87	08/10/87	08/10/87	08/10/87
Grade limits										
Millimeters	Phi	Grade name	Weight percent							
>4.0	<-2	Other gravels	0.1	0	1.0	5.1	0	0	0	0
2.0-4.0	-1 to -2	Very fine gravel	0.2	0	1.3	0.1	0	0	0	0.2
1.0-2.0	0 to -1	Very coarse sand	0.2	0.04	1.3	0.03	0	0.2	0.04	0.4
0.5-1.0	1 to 0	Coarse sand	0.8	0.1	3.2	0.1	0	0.5	0.1	0.9
0.25-0.5	2 to 1	Medium sand	3.5	1.9	12.5	1.2	0.1	1.0	0.7	1.8
0.125-0.25	3 to 2	Fine sand	12.6	7.4	22.3	5.9	7.3	3.2	3.3	4.2
0.062-0.125	4 to 3	Very fine sand	21.3	30.8	28.4	26.6	21.9	6.2	11.3	13.1
0.031-0.062	5 to 4	Coarse silt	29.2	30.4	10.2	17.9	10.6	17.5	21.5	27.8
0.016-0.031	6 to 5	Medium silt	9.7	6.1	1.9	13.0	8.4	8.8	8.0	8.4
0.008-0.016	7 to 6	Fine silt	3.9	6.1	4.6	1.6	8.4	5.8	10.7	8.4
0.004-0.008	8 to 7	Very fine silt	3.9	2.0	2.8	4.9	4.2	5.8	5.4	2.8
0.002-0.004	9 to 8	Coarse clay	3.9	2.0	1.9	6.5	6.3	14.6	8.0	8.4
<0.002	>9	Clay	10.7	13.2	8.8	17.1	32.7	36.4	30.8	23.6

Table 5.--Grain-size distribution for sink and playa deposits of the Big Lost River, in weight percent

[Symbols: < indicates value less than indicated number; > indicates value greater than indicated number. Grade name: Categories modified from the Wentworth scale (Dietrich and others, 1982, p.17.1).]

Sample identifier			BLRS-1	BLRP-1	BLRP-2	BLRP-3A	BLRP-3B	BLRP-4A	BLRP-4B
Date sampled			07/22/87	07/22/87	07/22/87	07/24/87	07/22/87	07/24/87	07/24/87
Grade limits									
Millimeters	Phi	Grade name	Weight percent						
>4.0	<-2	Other gravels	0	0	0.2	1.5	0	0	4.4
2.0-4.0	-1 to -2	Very fine gravel	0	0	0.4	0.1	0	0	0.3
1.0-2.0	0 to -1	Very coarse sand	0	0.1	2.5	0.2	0.04	0.1	0.1
0.5-1.0	1 to 0	Coarse sand	0	0.2	7.6	1.0	0.1	0.1	0.2
0.25-0.5	2 to 1	Medium sand	0.2	1.2	36.9	6.8	1.6	2.8	2.8
0.125-0.25	3 to 2	Fine sand	16.1	3.8	26.3	18.8	5.7	12.7	9.6
0.062-0.125	4 to 3	Very fine sand	17.2	3.8	10.0	18.6	14.2	19.4	12.4
0.031-0.062	5 to 4	Coarse silt	3.4	13.2	1.8	2.8	9.4	7.8	2.0
0.016-0.031	6 to 5	Medium silt	1.7	10.5	1.3	5.6	4.7	1.9	7.9
0.008-0.016	7 to 6	Fine silt	5.0	7.9	2.2	8.5	14.0	7.8	5.9
0.004-0.008	8 to 7	Very fine silt	10.1	7.9	2.2	9.9	14.0	9.7	7.9
0.002-0.004	9 to 8	Coarse clay	11.8	15.8	2.7	9.9	14.0	13.6	13.9
<0.002	>9	Clay	34.5	35.6	5.5	16.2	22.2	24.2	32.7

Table 6.--Grain-size distribution for miscellaneous small basin and playa deposits from the Idaho National Engineering Laboratory, in weight percent

[Symbols: < indicates values less than indicated number; > indicates values greater than indicated number. Grade name: Categories modified from the Wentworth scale (Dietrich and others, 1982, p.17.1).]

Sample identifier			LLRS-1	MLP-1	DFLAT-1	RGFLAT-1	TNFLAT-1	TRFLAT-1
Date sampled			07/22/87	07/27/87	08/10/87	08/10/87	08/10/87	08/10/87
Grade limits								
Millimeters	Phi	Grade name	Weight percent					
>4.0	<-2	Other gravels	0	0	0	0	0.2	0
2.0-4.0	-1 to -2	Very fine gravel	0	0	0.1	0.2	0.1	0.03
1.0-2.0	0 to -1	Very coarse sand	0.2	0	0.1	0.8	0.03	0.01
0.5-1.0	1 to 0	Coarse sand	0.7	0.3	0.4	2.1	0.1	0.1
0.25-0.5	2 to 1	Medium sand	1.8	17.4	4.2	7.3	1.0	0.5
0.125-0.25	3 to 2	Fine sand	5.1	35.5	15.2	10.2	4.1	4.0
0.062-0.125	4 to 3	Very fine sand	5.1	6.5	17.6	17.3	7.1	13.0
0.031-0.062	5 to 4	Coarse silt	9.6	1.1	15.9	13.8	9.6	26.9
0.016-0.031	6 to 5	Medium silt	2.4	2.2	13.6	5.9	4.8	20.2
0.008-0.016	7 to 6	Fine silt	7.2	3.2	9.1	7.9	16.8	3.4
0.004-0.008	8 to 7	Very fine silt	7.2	4.3	6.8	9.9	16.8	3.4
0.002-0.004	9 to 8	Coarse clay	9.6	4.3	4.5	7.9	16.8	6.7
<0.002	>9	Clay	51.3	26.3	12.5	16.8	22.8	21.9

Table 7.--Summary of statistical parameters for grain-size data of surficial sediment, by selected geomorphic features

[Units are weight percents and are derived from tables 2-6. Grade limits: >4.0 indicates the sum of all sizes larger than 4.0 millimeters; <0.062 indicates the sum of all sizes smaller than 0.062 millimeters; <0.002 indicates the sum of all sizes smaller than 0.002 millimeters.]

Grade limits (millimeters)	Statistical parameter				
	Minimum	Maximum	Median	Mean	Sample size
		[Big Lost River channel deposits]			
>4.0	9.6	65.8	55.6	49.8	11
2.0-4.0	5.6	14.6	9.2	9.2	11
1.0-2.0	2.7	18.1	7.5	8.0	11
0.5-1.0	1.9	33.9	7.0	9.7	11
0.25-0.5	7.2	21.8	12.5	13.2	11
0.125-0.25	2.3	13.3	5.1	6.5	11
0.062-0.125	0.2	5.5	1.4	1.7	11
<0.062	0.1	10.8	0.8	1.9	11
		[Big Lost River overbank deposits]			
>4.0	0	19.0	0.5	5.6	5
2.0-4.0	0	1.6	0.2	0.5	5
1.0-2.0	0.04	0.8	0.2	0.3	5
0.5-1.0	0.1	1.7	1.5	1.2	5
0.25-0.5	1.9	11.9	7.8	7.2	5
0.125-0.25	7.4	23.0	15.1	15.9	5
0.062-0.125	13.5	30.8	21.3	21.1	5
0.031-0.062	10.6	30.4	19.6	21.8	5
0.016-0.031	1.9	9.8	8.9	7.3	5
0.008-0.016	1.3	7.4	6.1	5.1	5
0.004-0.008	1.3	3.9	2.0	2.3	5
0.002-0.004	0.6	5.6	3.9	3.3	5
<0.002	2.8	13.2	8.2	8.2	5
<0.062	18.5	61.3	51.3	48.1	5
		[INEL spreading area deposits]			
>4.0	0	5.1	0	1.0	6
2.0-4.0	0	1.3	0.05	0.3	6
1.0-2.0	0	1.3	0.12	0.3	6
0.5-1.0	0	3.2	0.3	0.8	6
0.25-0.5	0.1	12.5	1.1	2.9	6
0.125-0.25	3.2	22.3	5.05	7.7	6
0.062-0.125	6.2	28.4	17.5	17.9	6
0.031-0.062	10.2	27.8	17.7	17.6	6
0.016-0.031	1.9	13.0	8.4	8.1	6
0.008-0.016	1.6	10.5	7.1	6.6	6
0.004-0.008	2.5	5.8	4.55	4.3	6
0.002-0.004	1.9	14.65	7.25	7.6	6
<0.002	8.8	36.4	27.2	24.9	6
<0.062	30.2	88.9	75.0	69.1	6

Table 7.--Summary of statistical parameters for grain-size data of surficial sediment, by selected geomorphic features-Continued

Grade limits (millimeters)	Statistical parameter				
	Minimum	Maximum	Median	Mean	Sample size
			[Big Lost River sinks and playas]		
>4.0	0	4.4	0	0.9	7
2.0-4.0	0	0.4	0	0.1	7
1.0-2.0	0	2.5	0.1	0.4	7
0.5-1.0	0	7.6	0.2	1.3	7
0.25-0.5	0.2	36.9	2.8	7.5	7
0.125-0.25	3.8	26.3	12.7	13.3	7
0.062-0.125	3.8	19.4	14.2	13.7	7
0.031-0.062	1.8	13.2	3.4	5.8	7
0.016-0.031	1.3	10.5	4.7	4.8	7
0.008-0.016	2.2	14.0	7.8	7.3	7
0.004-0.008	2.2	14.0	9.7	8.8	7
0.002-0.004	2.7	15.8	13.6	11.7	7
<0.002	5.5	35.6	24.2	24.4	7
<0.062	15.7	90.9	66.5	62.8	7
			[Miscellaneous small basin and playa deposits]		
>4.0	0	0.2	0	0	6
2.0-4.0	0	0.2	0.065	0.1	6
1.0-2.0	0	0.8	0.065	0.2	6
0.5-1.0	0.1	2.1	0.35	0.6	6
0.25-0.5	0.5	17.4	3.0	5.4	6
0.125-0.25	4.0	35.5	7.65	12.4	6
0.062-0.125	5.1	17.6	10.05	11.1	6
0.031-0.062	1.1	26.9	11.7	12.8	6
0.016-0.031	2.2	20.2	5.35	8.2	6
0.008-0.016	3.2	16.8	7.55	7.9	6
0.004-0.008	3.4	16.8	7.0	8.1	6
0.002-0.004	4.3	51.3	7.3	8.3	6
<0.002	12.5	44.1	22.35	25.3	6
<0.062	41.4	87.65	72.45	70.6	6
			[All samples except Big Lost River channel deposits]		
>4.0	0	19.0	0	1.7	24
2.0-4.0	0	1.6	0.1	0.2	24
1.0-2.0	0	2.5	0.1	0.3	24
0.5-1.0	0	7.6	0.35	1.0	24
0.25-0.5	0.1	36.9	2.35	5.75	24
0.125-0.25	3.2	35.5	9.9	12.2	24
0.062-0.125	3.8	30.8	14.8	15.6	24
0.031-0.062	1.1	30.4	11.9	13.8	24
0.016-0.031	1.3	20.2	7.0	7.0	24
0.008-0.016	1.3	16.8	7.1	6.8	24
0.004-0.008	1.3	16.8	5.15	6.2	24
0.002-0.004	0.6	16.8	7.3	8.1	24
<0.002	2.8	51.3	22.05	21.4	24
<0.062	15.7	90.9	63.7	63.3	24

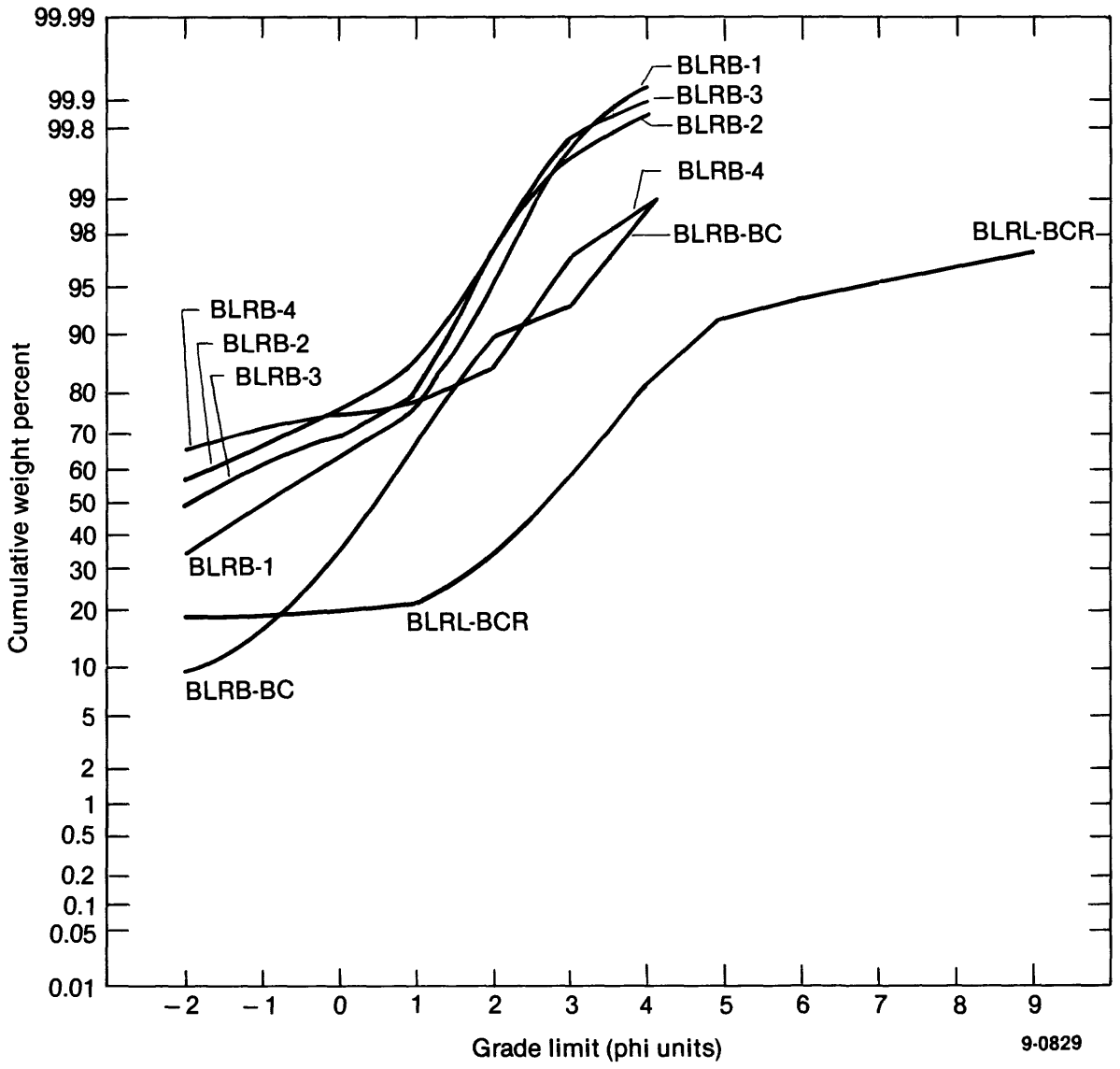

Figure 2.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites BLRB-1 to BLRB-4, BLRB-BC, and BLRL-BCR (locations are shown in fig. 1).

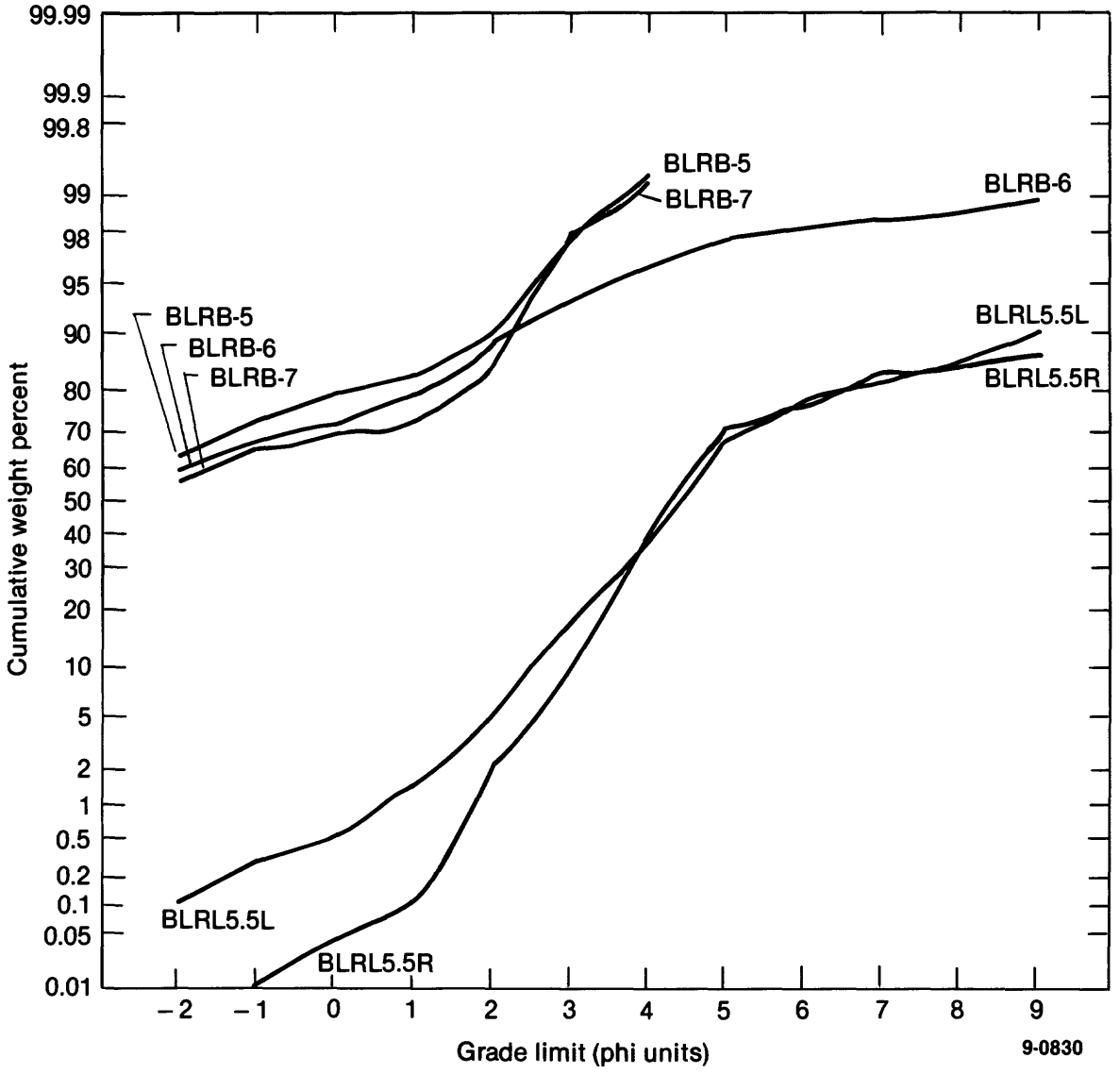

Figure 3.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites BLRB-5 to BLRB-7, BLRL5.5L, and BLRB5.5R (locations are shown in fig. 1).

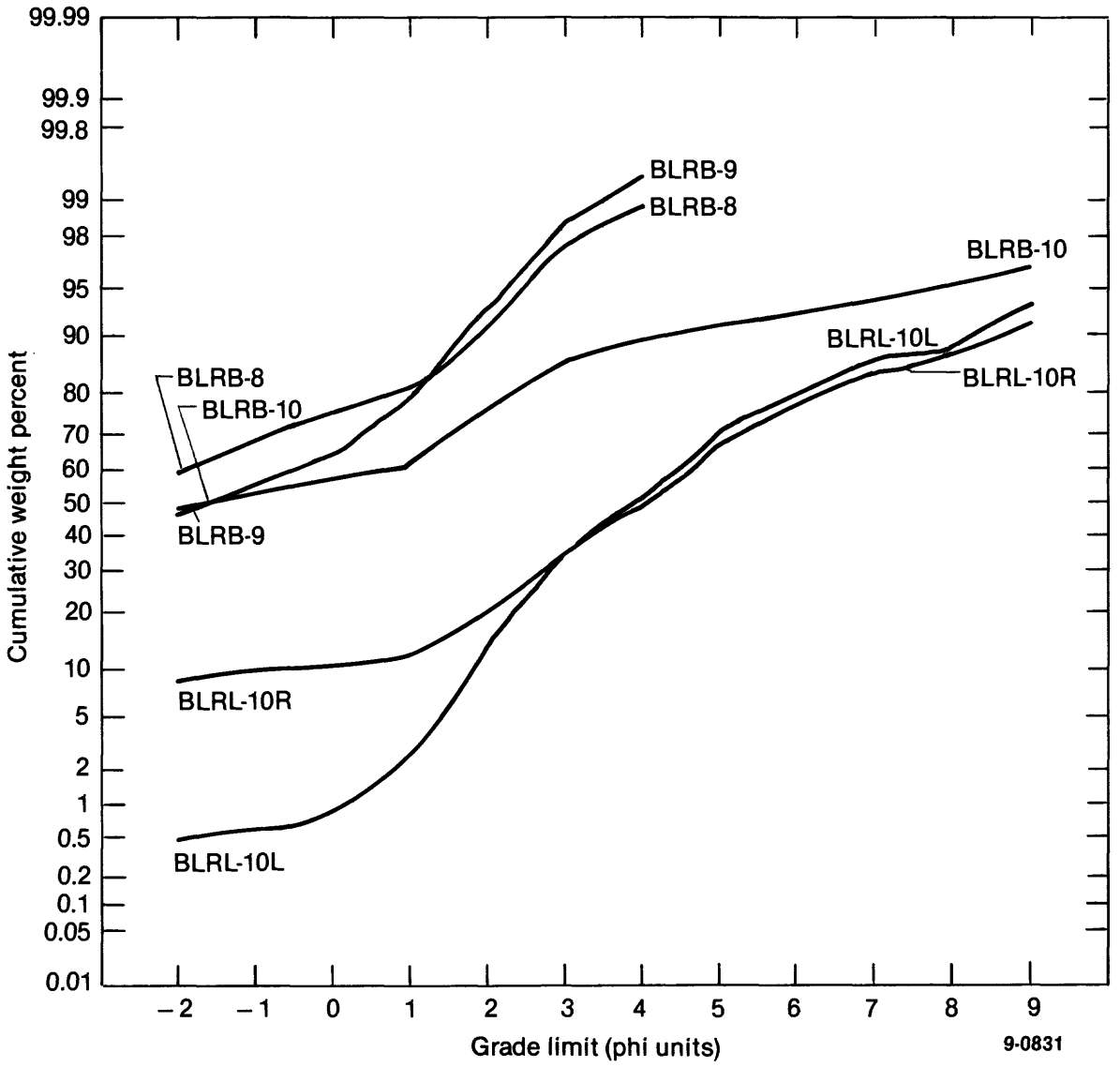

Figure 4.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites BLRB-8 to BLRB-10, BLRL-10L, and BLRL-10R (locations are shown in fig. 1).

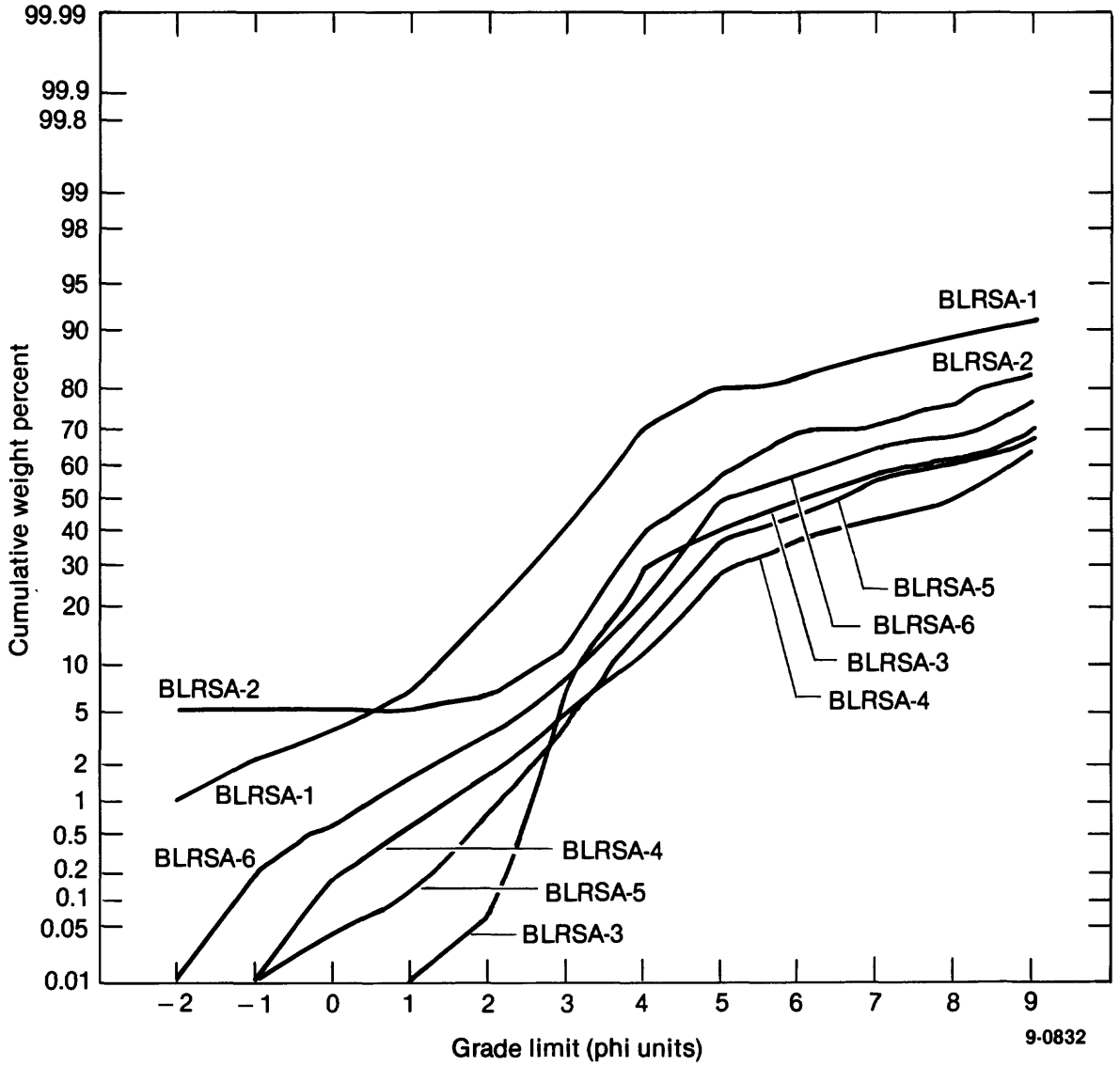

Figure 5.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites BLRSA-1 to BLRSA-6 (locations are shown in fig. 1).

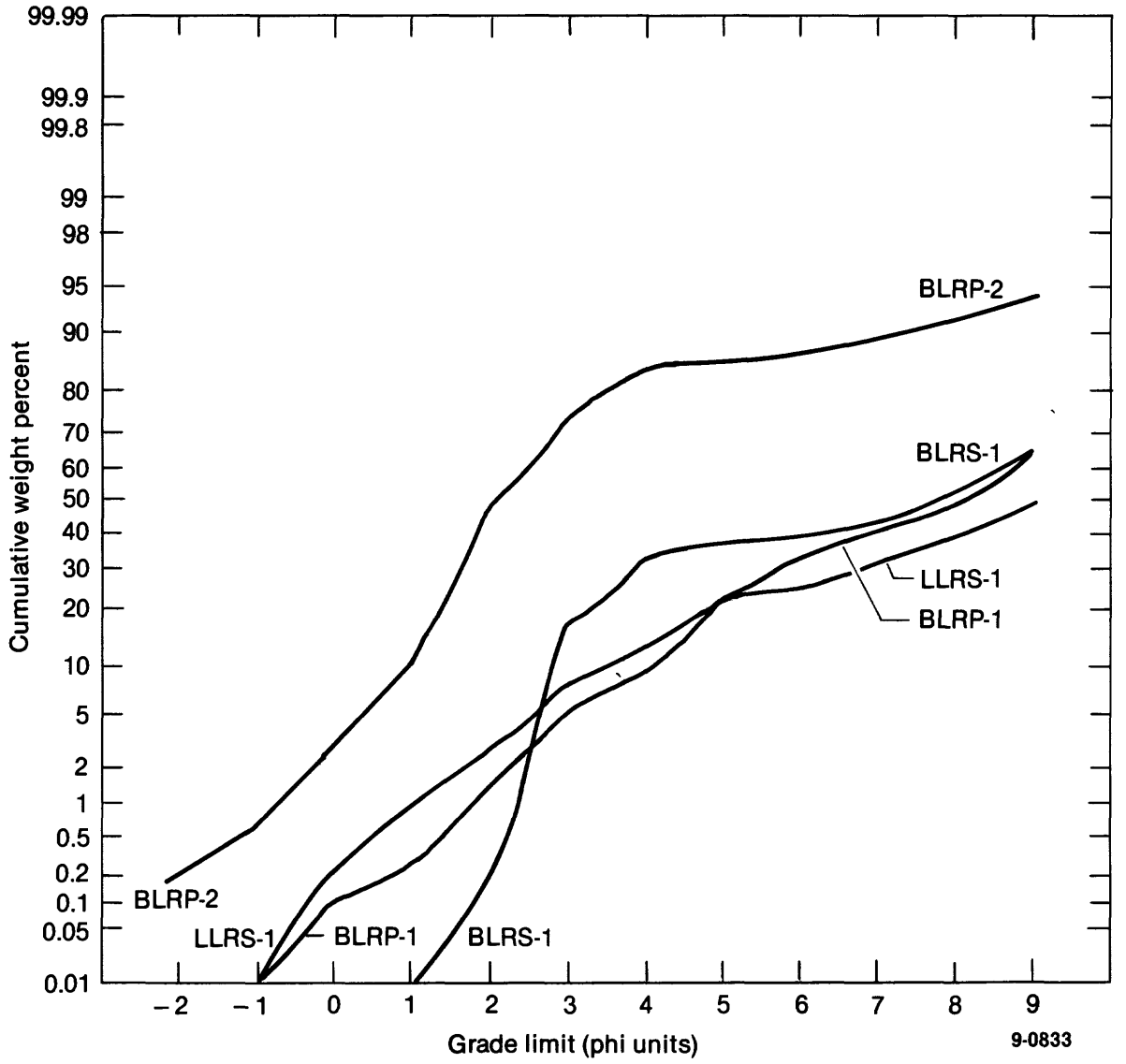

Figure 6.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites LLRS-1, BLRS-1, BLRP-1, and BLRP-2 (locations are shown in fig. 1).

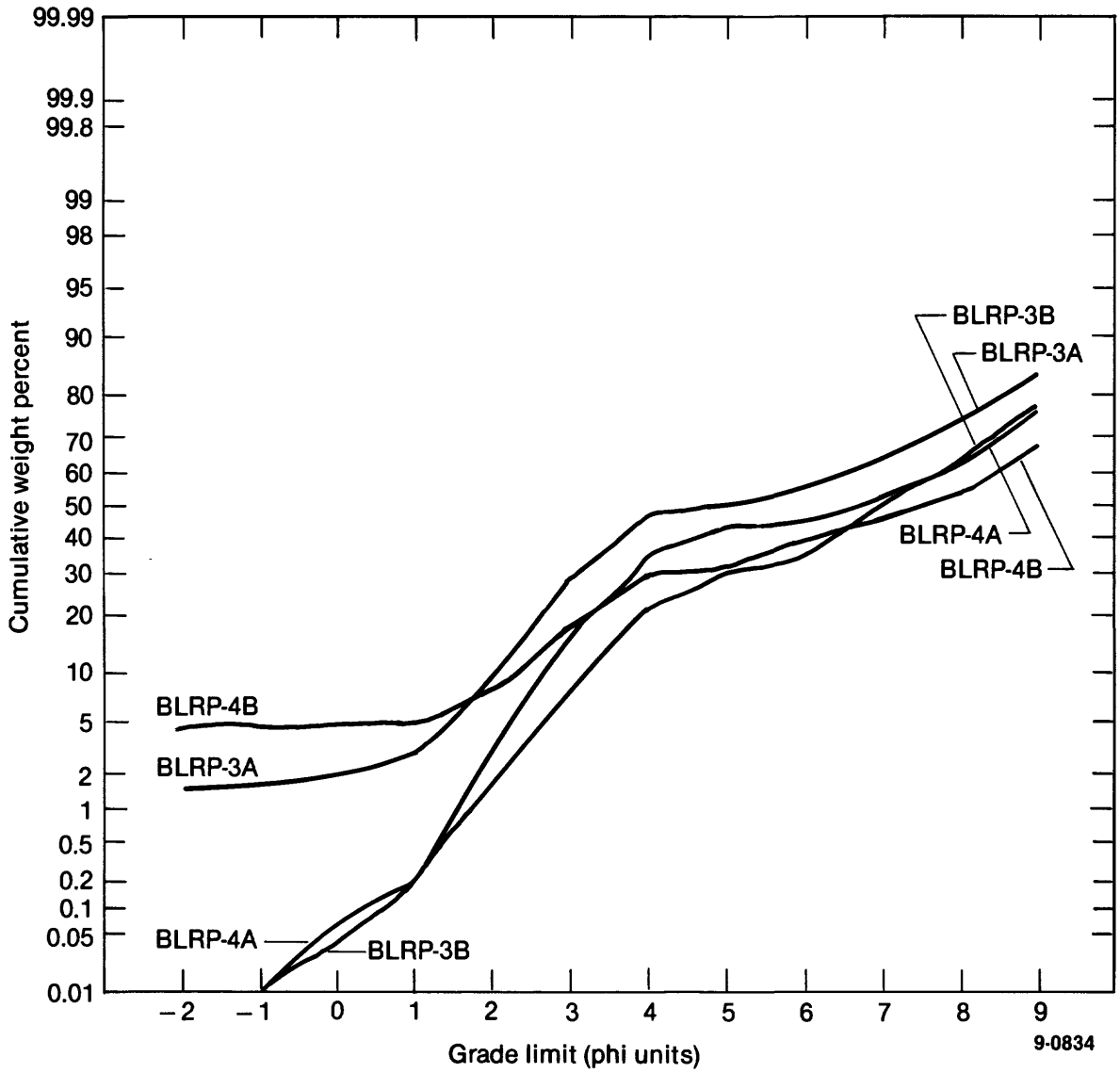

Figure 7.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites BLRP-3A, BLRP-3B, BLRP-4A, and BLRP-4B (locations are shown in fig. 1).

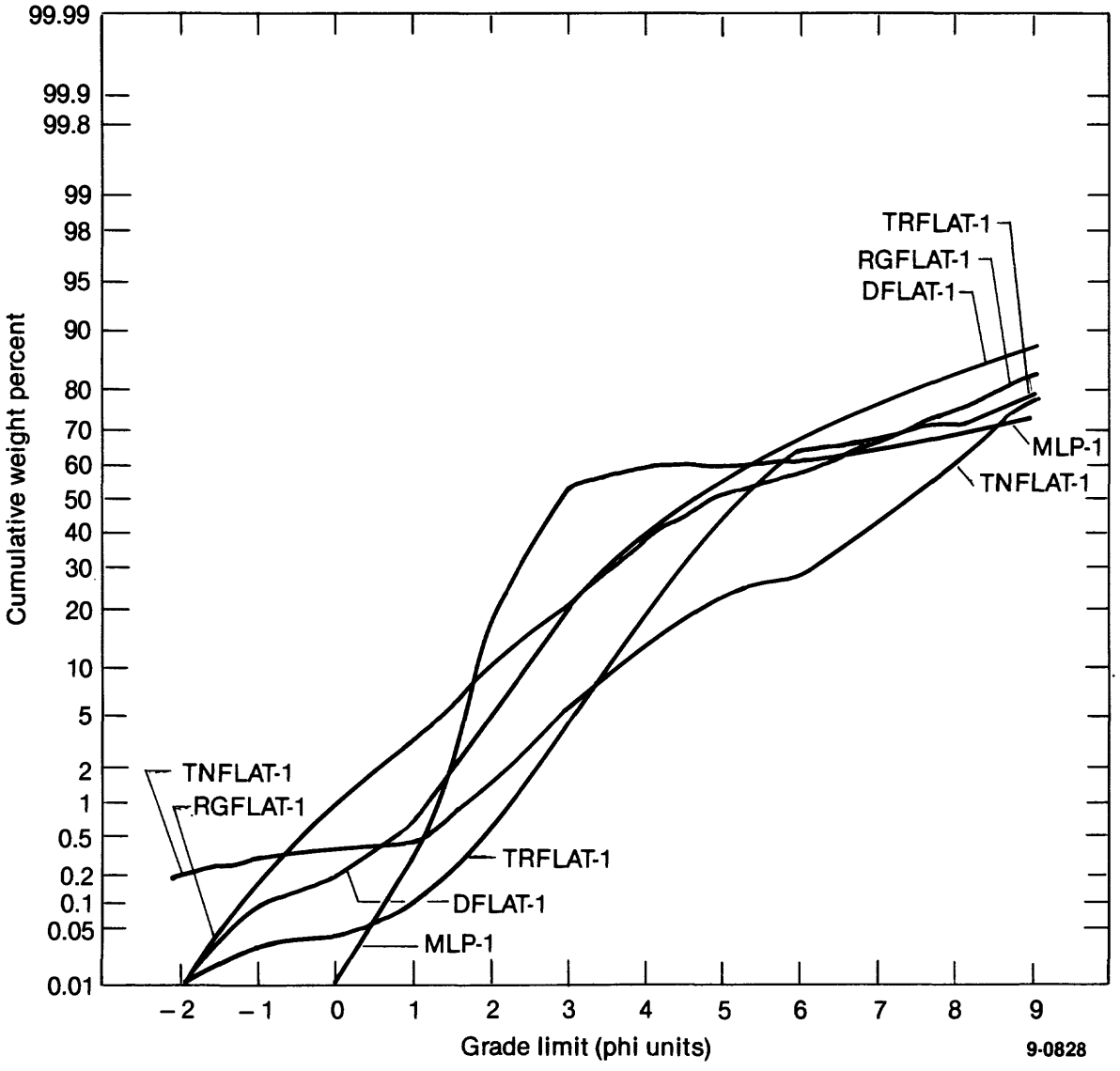

Figure 8.--Cumulative weight percent versus grade limits for grain-size analyses of surficial sediment from sites MLP-1, DFLAT-1, RGFLAT-1, TNFLAT-1, and TRFLAT-1 (locations are shown in fig. 1).

MINERALOGY OF SURFICIAL SEDIMENT

The bulk mineralogy of 35 samples for the Big Lost River and vicinity is listed in table 8 as percent mineral abundances. A statistical summary of the bulk mineralogy data by selected types of geomorphic features is given in table 9. Clay mineralogy for 27 of these samples is listed in table 10. X-ray slides were not prepared for eight of the samples because they did not contain clay minerals.

Table 8.--Mineralogy of bulk samples by semiquantitative X-ray diffraction analysis for the Big Lost River drainage and vicinity

[Symbols: -----11----- number is the sum of percents for detrital mica and total clays.]

Sample identifier	Date sampled	Bulk analyses (in percent mineral abundance)							
		Quartz	Plagioclase feldspar	Potassium feldspar	Calcite	Pyroxene	Dolomite	Detrital mica	Total clays
BLRB-1	07/10/87	45	28	11	0	8	0	8	0
BLRB-2	07/10/87	32	29	18	0	12	0	9	0
BLRB-3	07/10/87	37	30	12	0	12	0	9	0
BLRB-4	07/10/87	41	23	12	1	12	0	10	0
BLRB-BC	08/11/88	37	28	6	6	8	3	-----12-----	
BLRB-5	07/09/87	38	23	14	3	11	0	11	0
BLRB-6	07/09/87	39	23	11	6	11	0	-----11-----	
BLRB-7	07/09/87	32	23	14	6	14	0	11	0
BLRB-8	07/22/87	45	23	11	2	11	0	8	0
BLRB-9	07/22/87	38	22	14	3	14	0	9	0
BLRB-10	07/22/87	36	16	16	4	13	1	-----14-----	
BLRL-BCR	08/11/88	34	19	9	7	7	3	-----22-----	
BLRL5.5R	08/11/88	27	13	15	12	8	6	-----19-----	
BLRL5.5L	08/11/88	37	16	12	3	5	7	-----19-----	
BLRL-10R	08/10/88	32	11	9	9	9	4	-----27-----	
BLRL-10L	08/10/88	33	19	12	6	10	6	-----14-----	
BLRSA-1	07/10/87	44	14	16	2	8	2	0	14
BLRSA-2	07/10/87	34	15	16	4	10	3	0	18
BLRSA-3	07/10/87	29	13	14	4	12	1	0	26
BLRSA-4	08/10/87	44	16	12	0	0	0	0	27
BLRSA-5	08/10/87	34	16	11	0	11	0	0	28
BLRSA-6	08/10/87	23	10	12	21	10	0	0	25
BLRS-1	07/22/87	25	8	6	15	11	5	0	31
BLRP-1	07/22/87	29	14	11	6	6	3	0	31
BLRP-2	07/22/87	28	16	19	12	0	4	-----21-----	
BLRP-3A	07/24/87	38	14	8	18	0	6	0	16
BLRP-3B	07/22/87	21	6	18	28	0	9	0	18
BLRP-4A	07/24/87	26	7	11	30	0	5	0	21
BLRP-4B	07/24/87	23	10	13	16	0	3	-----35-----	
LLRS-1	07/22/87	27	21	10	0	0	0	0	42
MLP-1	07/27/87	39	23	14	0	0	0	0	24
DFLAT-1	08/10/87	31	14	13	13	0	10	0	20
TRFLAT-1	08/10/87	38	8	11	17	8	4	0	14
RGFLAT-1	08/10/87	28	15	6	15	10	3	0	23
TNFLAT-1	08/10/87	25	22	7	5	0	4	0	36

Table 9.--Summary of statistical parameters for bulk mineralogy of surficial sediment, by selected geomorphic features

[Units are percent mineral abundance and are derived from table 8.]

Mineral	Statistical parameter				
	Minimum	Maximum	Median	Mean	Sample size
[Big Lost River channel deposits]					
Quartz	32	45	38	38	11
Plagioclase feldspar	16	30	23	24	11
Potassium feldspar	6	18	12	13	11
Calcite	0	6	3	3	11
Pyroxene	8	14	12	11	11
Dolomite	0	3	0	0	11
Detrital mica and total clays[1]	8	14	10	10	11
[Big Lost River overbank deposits]					
Quartz	27	37	33	33	5
Plagioclase feldspar	11	19	16	16	5
Potassium feldspar	9	15	12	11	5
Calcite	3	12	7	7	5
Pyroxene	5	10	8	8	5
Dolomite	3	7	6	5	5
Detrital mica and total clays	14	27	19	20	5
[INEL spreading area deposits]					
Quartz	23	44	34	35	6
Plagioclase feldspar	10	16	14.5	14	6
Potassium feldspar	11	16	13	14	6
Calcite	0	21	3	5	6
Pyroxene	0	12	10	8	6
Dolomite	0	3	0.5	1	6
Detrital mica and total clays	14	28	25.5	23	6

Table 9.--Summary of statistical parameters for bulk mineralogy of surficial sediment, by selected geomorphic features-Continued

Mineral	Statistical parameter				
	Minimum	Maximum	Median	Mean	Sample size
[Big Lost River Sinks and playas]					
Quartz	21	38	26	27	7
Plagioclase feldspar	6	16	10	11	7
Potassium feldspar	6	19	11	12	7
Calcite	6	30	16	18	7
Pyroxene[2]	0	11	0	2	7
Dolomite	3	9	5	5	7
Detrital mica and total clays[3]	16	35	21	25	7
[Miscellaneous small basin and playa deposits]					
Quartz	25	39	29.5	31	6
Plagioclase feldspar	8	23	18	17	6
Potassium feldspar	6	14	10.5	10	6
Calcite	0	17	9	8	6
Pyroxene[2]	0	10	0	3	6
Dolomite	0	10	3.5	4	6
Detrital mica and total clays	14	42	23.5	26	6
[All samples except Big Lost River channel deposits]					
Quartz	21	44	30	31	24
Plagioclase feldspar	6	23	14	14	24
Potassium feldspar	6	19	12	12	24
Calcite	0	30	8	10	24
Pyroxene	0	12	6.5	5	24
Dolomite	0	10	3.5	4	24
Total clays and detrital mica[4]	14	42	22.5	24	24

[1]Only 3 samples contained detectable clay minerals.
[2]Only 2 samples contained detectable pyroxene.
[3]Only 2 samples contained detectable detrital mica.
[4]Only 7 samples contained detectable detrital mica.

Table 10.--Mineralogy of the particle fraction less than 0.004 millimeters by X-ray diffraction analysis for the Big Lost River drainage and vicinity

[Clay analyses: dom indicates mineral is dominant; maj indicates mineral is major in abundance; min indicates a minor amount; tr indicates mineral is present in a trace amount; poss indicates mineral is possibly present; ND indicates not detected.]

Sample identifier	Date sampled	Clay analyses (by abundance category)					Other minerals		
		Mixed layer	Smectite	Kaolinite	Illite	Chlorite	Quartz	Feldspar	Calcite
BLRB-BC	08/11/88	ND	ND	ND	maj	ND	min	tr	tr
BLRB-6	07/09/87	min	maj	tr	dom	poss	tr	ND	ND
BLRB-10	07/22/87	min	maj	min	maj	ND	tr	ND	ND
BLRL-BCR	08/11/88	maj	min	min	dom	ND	tr	tr	tr
BLRL5.5R	08/11/88	tr	poss	tr	dom	ND	ND	ND	ND
BLRL5.5L	08/11/88	ND	ND	ND	dom	ND	ND	ND	ND
BLRL-10R	08/10/88	ND	ND	min	dom	ND	ND	ND	ND
BLRL-10L	08/10/88	tr	poss	min	dom	ND	ND	ND	ND
BLRSA-1	07/10/87	min	min	min	dom	poss	tr	poss	ND
BLRSA-2	07/10/87	min	maj	min	dom	poss	tr	tr	ND
BLRSA-3	07/10/87	min	dom	min	dom	ND	tr	tr	ND
BLRSA-4	08/10/87	maj	dom	tr	dom	ND	tr	ND	ND
BLRSA-5	08/10/87	maj	dom	tr	dom	ND	tr	tr	ND
BLRSA-6	08/10/87	tr	maj	tr	ND	ND	tr	poss	tr
BLRS-1	07/22/87	maj	dom	min	dom	poss	tr	tr	ND
BLRP-1	07/22/87	min	dom	min	dom	poss	tr	tr	ND
BLRP-2	07/22/87	min	maj	min	maj	poss	tr	poss	tr
BLRP-3A	07/24/87	min	dom	min	dom	poss	tr	poss	tr
BLRP-3B	07/22/87	ND	dom	min	dom	ND	min	tr	min
BLRP-4A	07/24/87	min	dom	min	dom	tr	tr	poss	min
BLRP-4B	07/24/87	maj	dom	min	dom	poss	tr	ND	tr
LLRS-1	07/22/87	min	dom	tr	dom	tr	tr	tr	ND
MLP-1	07/27/87	min	maj	tr	dom	ND	tr	poss	ND
DFLAT-1	08/10/87	maj	tr	tr	dom	ND	tr	ND	tr
TRFLAT-1	08/10/87	min	min	tr	maj	ND	tr	ND	min
RGFLAT-1	08/10/87	min	maj	tr	maj	ND	tr	tr	tr
TNFLAT-1	08/10/87	tr	ND	tr	dom	ND	tr	tr	ND

The mean and median percent mineral abundances of total clays and detrital mica for the 11 samples from the Big Lost River channel deposits (BLRB-1 to BLRB-10 and BLRB-BC) were 10 and 10 percent, respectively (table 9). For the remaining 24 samples, the mean and median percent mineral abundances of total clays and detrital mica were 24 and 22.5 percent, respectively (table 9). These data are consistent with the larger grain size of the Big Lost River channel deposits as summarized in table 7.

The median mineral abundances and ranges of data for the remaining minerals in the 11 Big Lost River channel deposits were as follows: quartz--38 percent, ranging from 32 to 45 percent; plagioclase feldspar--23 percent, ranging from 16 to 30 percent; potassium feldspar--12 percent, ranging from 6 to 18 percent; calcite--3 percent, ranging from 0 to 6 percent; pyroxene--12 percent, ranging from 8 to 14 percent; and, dolomite--0 percent, ranging from 0 to 3 percent. The median mineral abundances and ranges of data for the remaining minerals in the other 24 samples were as follows: quartz--30 percent, ranging from 21 to 44 percent; plagioclase feldspar--14 percent, ranging from 6 to 23 percent; potassium feldspar--12 percent, ranging from 6 to 19 percent; calcite--8 percent, ranging from 0 to 30 percent; pyroxene--6.5 percent, ranging from 0 to 12 percent; and, dolomite--3.5 percent, ranging from 0 to 10 percent. The minimum, maximum, median, and mean values for the minerals identified in the surficial sediment (table 8) are listed in table 9 for selected types of geomorphic features.

For the 27 samples with sufficient clay minerals to make X-ray slides for analyses of clay mineralogy, the clay minerals present in the samples were--in order of decreasing abundance--illite, smectite, mixed-layer clays, kaolinite, and chlorite. Some of the samples had traces of quartz, feldspar, and calcite in the less than 0.004 mm fraction. The qualitative determinations of clay mineralogy are listed in table 10.

MINERALOGY OF SUBSURFACE CORES FROM SELECTED WELLS

The bulk mineralogy of samples collected from cores from eight selected wells in the Snake River Plain aquifer was determined by X-ray diffraction analysis. Seven of the wells tap the perched water bodies of either the TRA (Test Reactors Area) or the ICPP. Locations of the seven perched-water wells--PW1-PW4 and PW6-PW8--are shown in figure 9. Well UZ6A was completed as a gas sampling well in the unsaturated zone and is located near the RWMC (Radioactive Waste Management Complex) (fig. 1). Twenty-five samples were collected from selected materials comprising the cores: 9 were from basalt flows; 2 were from vesicle fillings in basalt flows; 1 was from a fracture filling in a basalt flow; and, 13 were from sedimentary interbeds between basalt flows. The results of the bulk mineralogical analyses are listed in table 11. The minimum, maximum, median, and mean values for the minerals identified in the core samples are given in table 12 for selected types of geologic materials.

The median mineral abundances and the ranges of data for nine basalt samples were as follows: total feldspars--40 percent, ranging from 31 to 55 percent; pyroxene--30 percent, ranging from 20 to 36 percent; olivine--24 percent, ranging from 11 to 39 percent; and, hematite--0 percent, ranging from 0 to 25 percent. Quartz, calcite, and total clays were not detected in the nine basalt samples. The presence of abundant iron in samples may cause X-ray adsorption and bias the results (Rightmire, 1984, p. 20).

The median mineral abundances and the ranges of data for 13 sedimentary interbed samples were as follows: quartz--29 percent, ranging from 18 to 43 percent; total feldspars--30 percent, ranging from 20 to 42 percent; calcite--6 percent, ranging from 0 to 28 percent; pyroxene--8 percent, ranging from 0 to 41 percent; and, total clays--17 percent, ranging from 0 to 42 percent. One interbed sample contained 10 percent olivine and 26 percent hematite. This sample, PW3-S, is subject to the same iron interference described by Rightmire (1984, p.20).

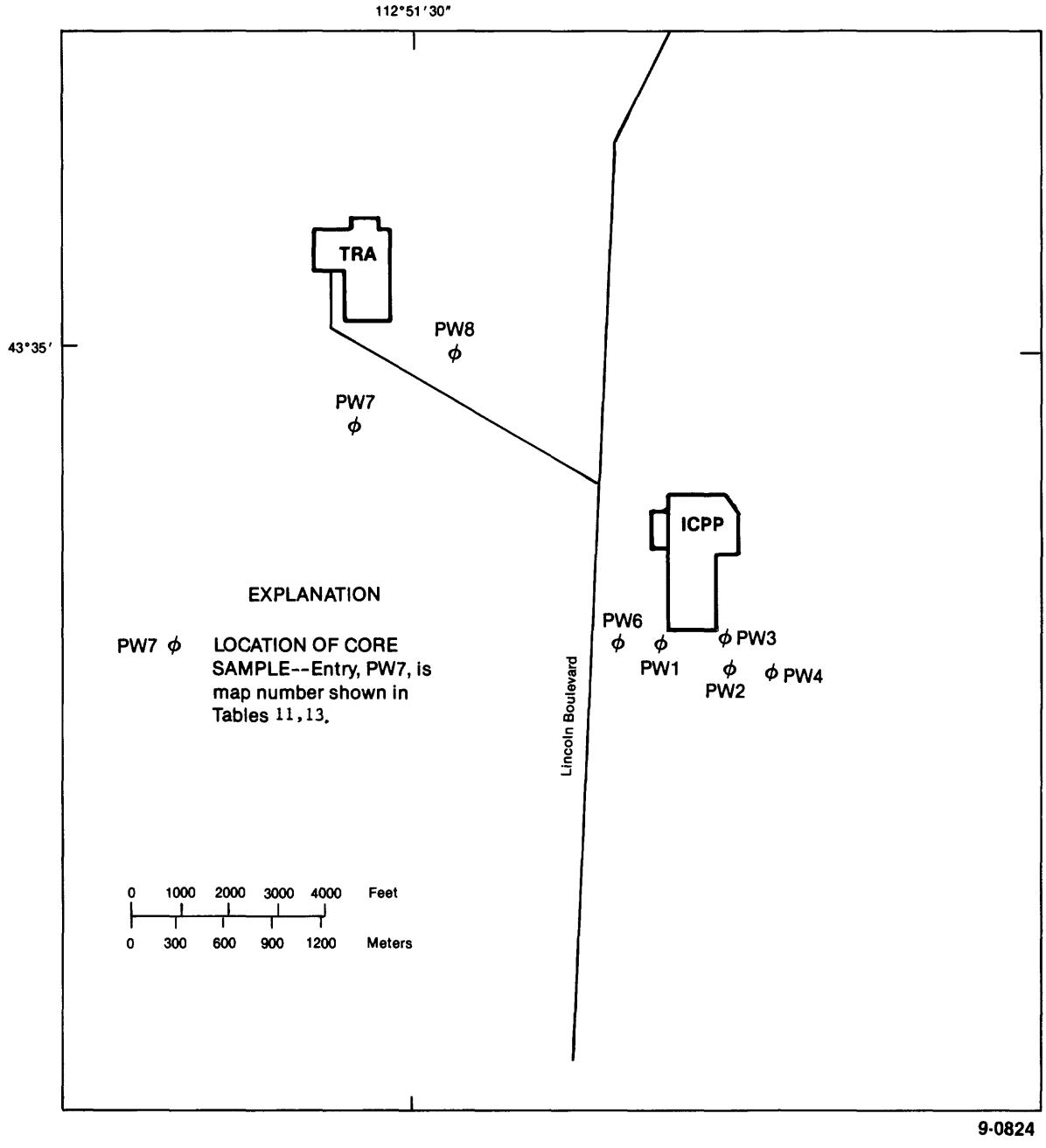

Figure 9.--Locations of wells in the perched-water zone in the TRA-ICPP area that had core samples analyzed for bulk and clay mineralogy (location of TRA-ICPP area is shown in figure 1).

Table 11.--Mineralogy of bulk samples by semiquantitative X-ray diffraction analysis for the PW wells and well UZ6A

[Sample identifier: -I indicates vesicle filling in basalt; -S indicates a sedimentary sample; -B indicates a basalt sample; -F indicates fracture filling in basalt.]

Sample identifier	Interval sampled (ft below land surface)	Date received	Bulk analyses (in percent mineral abundance)							
			Quartz	Plagioclase feldspar	Potassium feldspar	Calcite	Pyroxene	Olivine	Total clays	Hematite
UZ6A-B	106.0	07/02/87	0	24	11	0	24	27	0	14
UZ6A-S	117.0-119.0	07/02/87	41	20	0	0	17	0	22	0
UZ6A-B	192.0	07/02/87	0	32	0	0	20	28	0	20
UZ6A-F	209.0	07/02/87	21	16	11	0	0	0	52	0
UZ6A-B		07/02/87	0	55	0	0	32	13	0	0
UZ6A-B	230.0	07/02/87	0	38	0	0	25	11	0	25
UZ6A-S	234.5	07/02/87	43	16	12	7	0	0	22	0
	245.0	07/02/87	25	17	13	28	0	0	17	0
PW1-S	110.0	05/26/87	31	21	15	5	0	0	28	0
PW2-S	115.0	05/26/87	25	14	16	16	0	0	29	0
PW2-B	124.0	06/24/87	0	47	0	0	21	32	0	0
PW3-S	105.0	05/26/87	19	23	13	0	8	10	0	26
	110.0	05/26/87	31	22	20	7	20	0	0	0
PW4-S	140.0	05/26/87	21	13	18	6	0	0	42	0
PW4-B	145.0	06/24/87	0	20	11	0	30	39	0	0
PW4-I		06/24/87	8	11	0	55	0	0	26	0
PW6-S	110.0	05/26/87	18	15	14	0	41	0	12	0
PW6-B	115.0	06/24/87	0	44	0	0	33	23	0	0
PW6-S	120.0	05/26/87	19	14	12	28	10	0	17	0
PW7-S	220.0	05/26/87	29	21	12	0	4	0	33	0
	235.0	05/26/87	39	27	0	0	20	0	14	0
PW7-B		05/26/87	0	42	0	0	36	22	0	0
PW8-S	153.0	05/26/87	31	16	19	7	12	0	16	0
PW8-B		06/24/87	0	40	0	0	36	24	0	0
PW8-I		06/24/87	31	25	18	0	0	0	26	0

Table 12.--Summary of statistical parameters for bulk mineralogy data of the PW wells and well UZ6A by type of geologic material

[Units are percent mineral abundances and are derived from table 11]

Mineral	Statistical parameter				
	Minimum	Maximum	Median	Mean	Sample size
		[Basalt]			
Quartz	0	0	0	0	9
Plagioclase feldspar	20	55	40	38	9
Potassium feldspar	0	11	0	2	9
Total feldspar	31	55	40	40	9
Calcite	0	0	0	0	9
Pyroxene	20	36	30	29	9
Olivine	11	39	24	24	9
Total clays	0	0	0	0	9
Hematite	0	25	0	7	9
		[Sedimentary interbeds]			
Quartz	18	43	29	29	13
Plagioclase feldspar	13	27	17	18	13
Potassium feldspar	0	20	13	13	13
Total feldspar	20	42	30	31	13
Calcite	0	28	6	8	13
Pyroxene	0	41	8	10	13
Olivine	0	10	0	1	13
Total clays	0	42	17	19	13
Hematite	0	26	0	2	13

The two samples of vesicle fillings from basalt cores had variable mineralogy. The mineral abundances were 8 and 31 percent for quartz, 11 and 43 percent for total feldspars, 0 and 55 percent for calcite, and 26 percent in both samples for total clays. The fracture-filling sample had 21 percent quartz, 27 percent total feldspar and 52 percent total clays.

For 14 samples in table 11 that contained clays and one additional vesicle-filling sample, individual minerals in the less than 0.004 mm fraction were identified and qualitative mineral abundances were estimated from diffractogram peak heights by the ISU X-ray laboratory. The results of the analyses are listed in table 13.

Table 13.--Mineralogy of the particle fraction less than 0.004 millimeters by X-ray diffraction analysis of samples from the PW wells and well UZ6A

Sample identifier: -I indicates vesicle filling in basalt; -S indicates a sedimentary sample; -F indicates fracture filling in basalt. Clay analyses: dom indicates mineral is dominant; maj indicates mineral is major in abundance; min indicates mineral is present in a minor amount; tr indicates mineral is present in a trace amount; poss indicates mineral is possibly present; ND indicates not detected.]

Sample identifier	Interval sampled (ft below land surface)	Date received	Clay analyses (by abundance category)					Other minerals		
			Mixed layer	Smectite	Illite	Kaolinite	Chlorite	Quartz	Feldspar	Calcite
UZ6A-S	117.0-119.0	07/02/87	ND	ND	dom	tr	ND	tr	ND	ND
UZ6A-F	209.0	07/02/87	min	dom	dom	min	min	min	tr	ND
UZ6A-S	234.5	07/02/87	ND	ND	dom	poss	ND	poss	ND	ND
	245.0	07/02/87	tr	min	maj	tr	ND	poss	ND	maj
PW1-S	110.0	05/26/87	ND	ND	dom	ND	ND	poss	tr	ND
PW2-S	115.0	05/26/87	ND	ND	dom	ND	ND	poss	ND	tr
PW4-S	140.0	05/26/87	maj	dom	dom	tr	poss	poss	ND	ND
PW4-I		06/24/87	poss	tr	poss	ND	ND	ND	ND	dom
PW6-S	110.0	05/26/87	ND	ND	dom	ND	ND	tr	tr	ND
PW6-I		06/24/87	ND	ND	dom	tr	ND	ND	ND	ND
PW6-S	120.0	05/26/87	maj	maj	dom	min	poss	ND	ND	ND
PW7-S	220.0	05/26/87	maj	dom	maj	min	poss	ND	ND	ND
	235.0	05/26/87	tr	poss	dom	tr	ND	tr	tr	ND
PW8-S	153.0	05/26/87	ND	ND	dom	tr	ND	tr	tr	ND
PW8-I		06/24/87	min	maj	dom	ND	ND	poss	ND	ND

PREVIOUSLY PUBLISHED DATA

The previously published data from the 20 reports listed in table 1 are distributed as follows: 328 CEC (cation exchange capacity) analyses and 2 CEC data summaries are tabulated in 8 reports; bulk chemistry analyses for 2 sediment samples, 2 samples of secondary cement, 2 samples of basalt, and a data summary of 38 basalt samples are tabulated in 2 reports; 101 specific gravity analyses are tabulated in 4 reports; 117 bulk mineralogy, 56 silt mineralogy, and 204 clay mineralogy analyses are tabulated in 5 reports--57 of the 204 clay analyses were summed in this report and are listed with bulk mineralogy; and, 259 grain-size analyses are presented in 17 reports. Because many of the original reports are no longer available, the CEC data, the bulk chemistry data, the specific gravity data, the mineralogy data, and 184 of the 259 grain-size data are republished in this report (tables 14-22). The 75 remaining grain-size analyses were presented graphically in the original reports and data are not available for inclusion in tables 21 and 22. Statistical parameters for 33 of the 40 grain-size analyses published by Rightmire (1984) are listed in table 23. Locations for the data in tables 14 and 16-22 are given in figures 10-14. Figures 10-14 and tables 14-23 are located at the end of this report.

SUMMARY

The U.S. Geological Survey's project office at the INEL, in cooperation with the U.S. Department of Energy, collected 35 samples of surficial sediment from the Big Lost River drainage and vicinity from July 1987 through August 1988 for analysis of grain-size distribution, bulk mineralogy, and clay mineralogy. Samples were collected from 11 sites in the Big Lost River channel, 5 sites in Big Lost River overbank deposits, 6 sites in the spreading areas that receive excess flow from the Big Lost River during peak flow conditions, 7 sites in the natural sinks and playas of the Big Lost River, 1 site in the Little Lost River Sinks, and 5 sites from other small, isolated closed basins.

Semiquantitative X-ray diffraction analysis was used to determine bulk mineralogy. Individual clay minerals were identified in 27 samples. Sieve and pipette analyses were used to determine grain-size distribution.

Eleven samples from the Big Lost River channel deposits had a mean of 1.9 and median of 0.8 weight percent in the less than 0.062 mm fraction. The other 24 samples had a mean of 63.3 and median of 63.7 weight percent for the same size fraction. The mineralogy data are consistent with the grain-size data. The Big Lost River channel deposits had mean and median mineral abundances of total clays and detrital mica of 10 and 10 percent, respectively, whereas the remaining 24 samples had mean and median values of 24 and 22.5 percent, respectively.

An additional 25 core samples from eight wells were analyzed for bulk and clay mineralogy. Nine samples were from basalt flows, 2 were from vesicle fillings in basalt, 1 was from a fracture filling in basalt, and 13 were from sedimentary interbeds between basalt flows.

Data on sediment and core characteristics that were previously published by the U.S. Geological Survey are republished in this report because most of the old reports are out of print and not generally available. The data are distributed as follows: 328 cation-exchange capacities, 6 bulk chemistry analyses and 1 average bulk chemistry of 38 basalt samples, 101 specific gravity analyses, 117 bulk mineralogy analyses, 56 silt mineralogy analyses, 204 clay mineralogy analyses, and 184 grain-size analyses.

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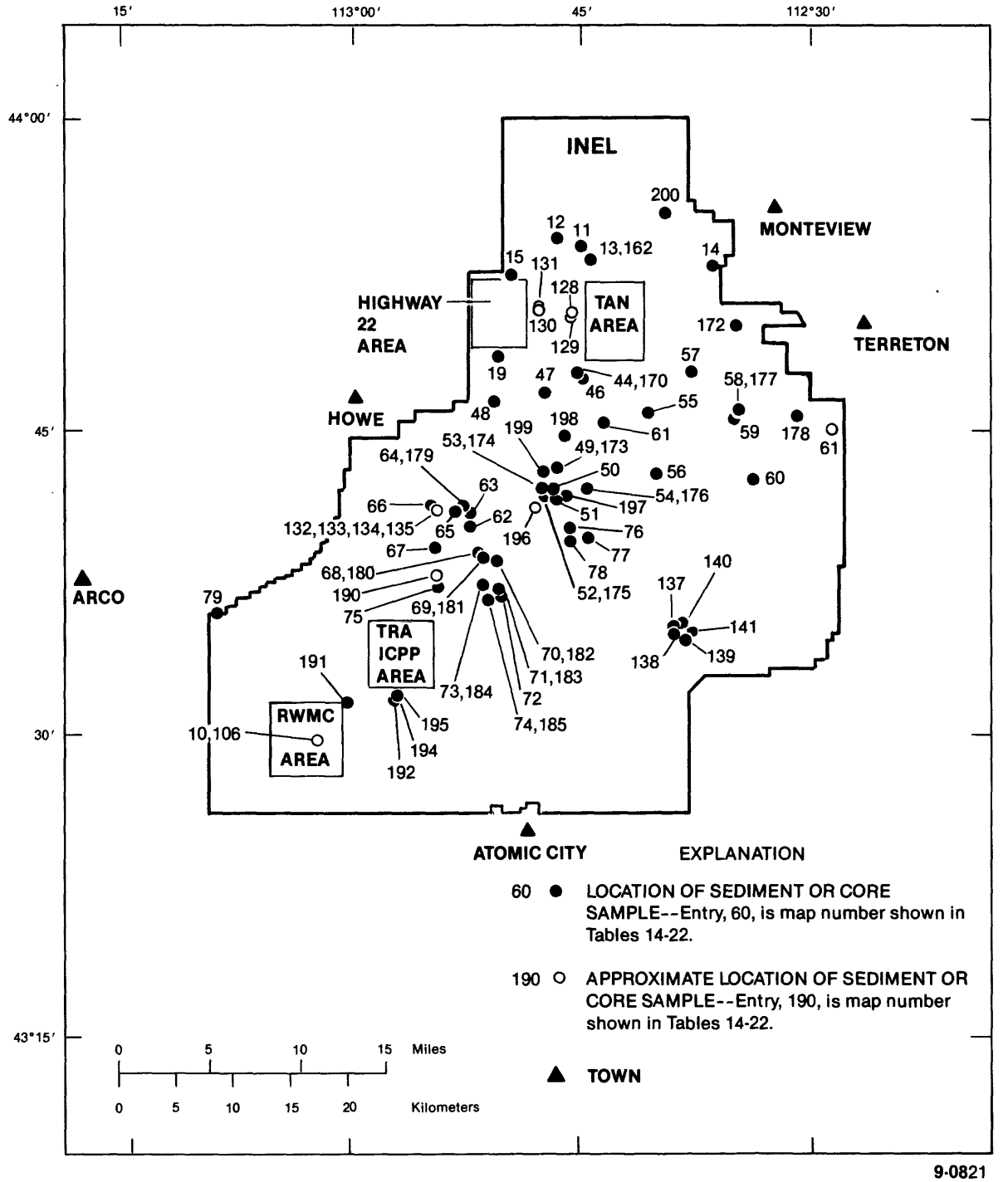

Figure 10.--Locations of sampling sites for previously published U.S. Geological Survey data on sediment and core characteristics.

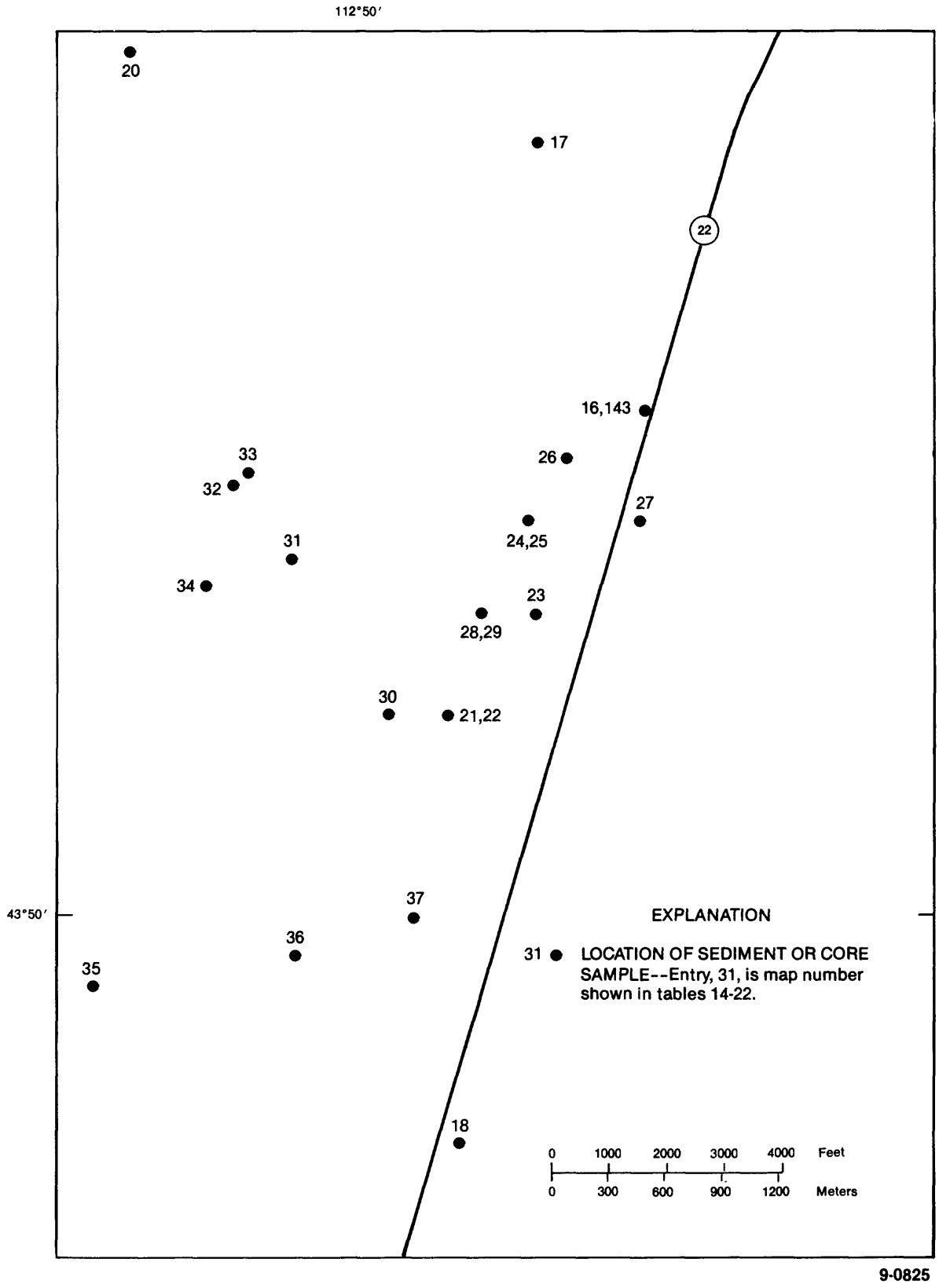

Figure 11.--Locations of sampling sites in the Highway 22 area for previously published U.S. Geological Survey data on sediment and core characteristics (location of the Highway 22 area is shown in figure 10).

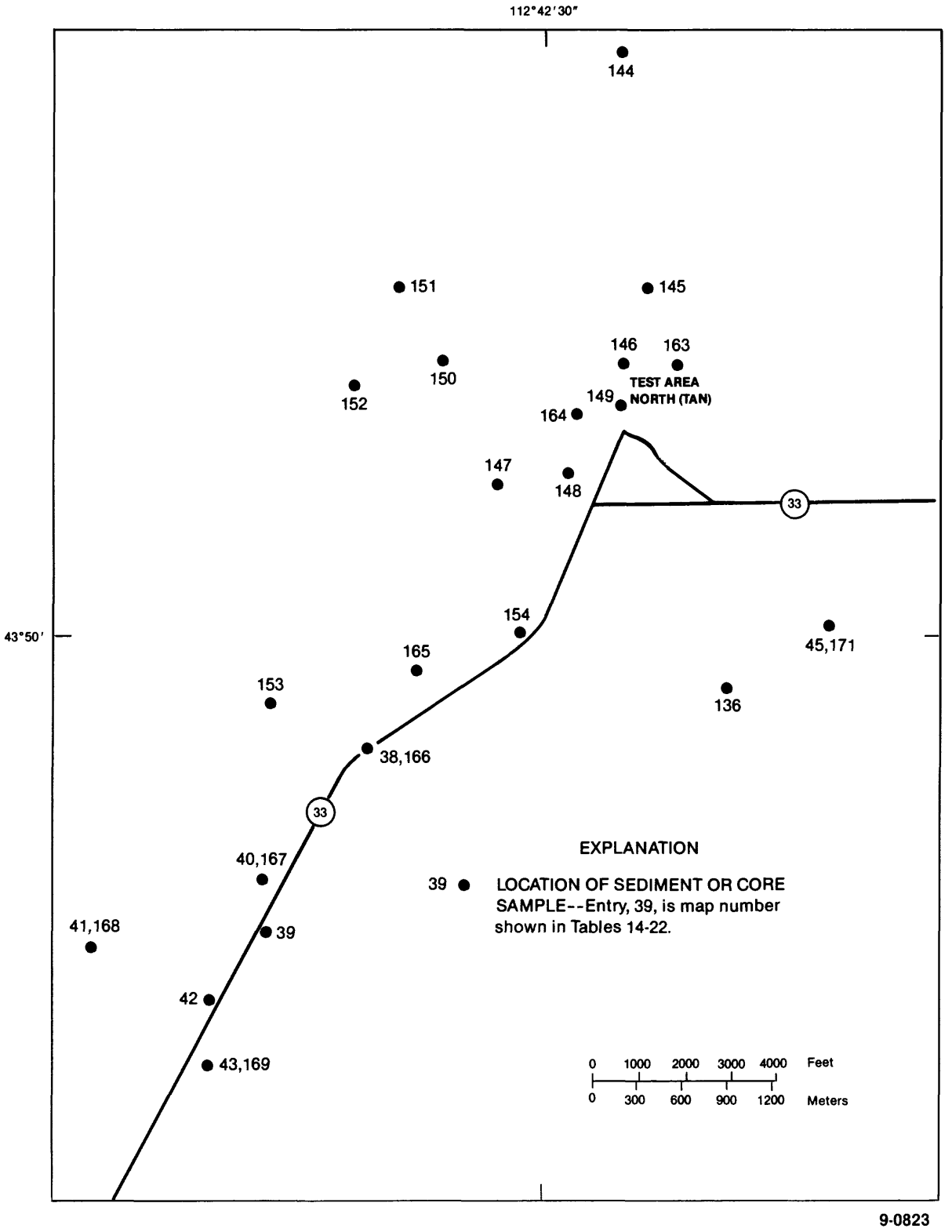

Figure 12.--Locations of sampling sites in the TAN area for previously published U.S. Geological Survey data on sediment and core characteristics (location of the TAN area is shown in figure 10).

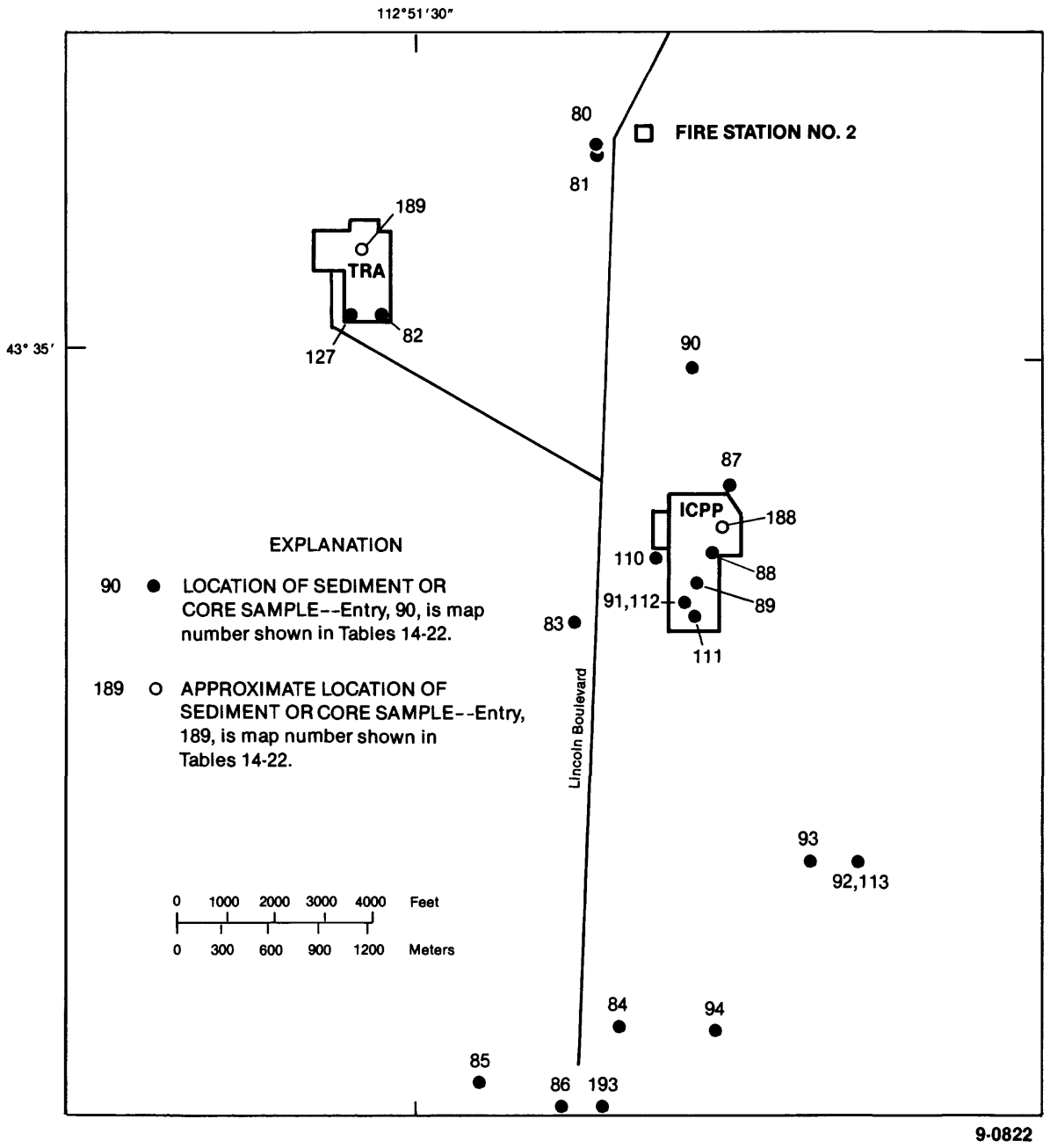

Figure 13.--Locations of sampling sites in the TRA-ICPP area for previously published U.S. Geological Survey data on sediment and core characteristics (location of the TRA-ICPP area is shown in figure 10).

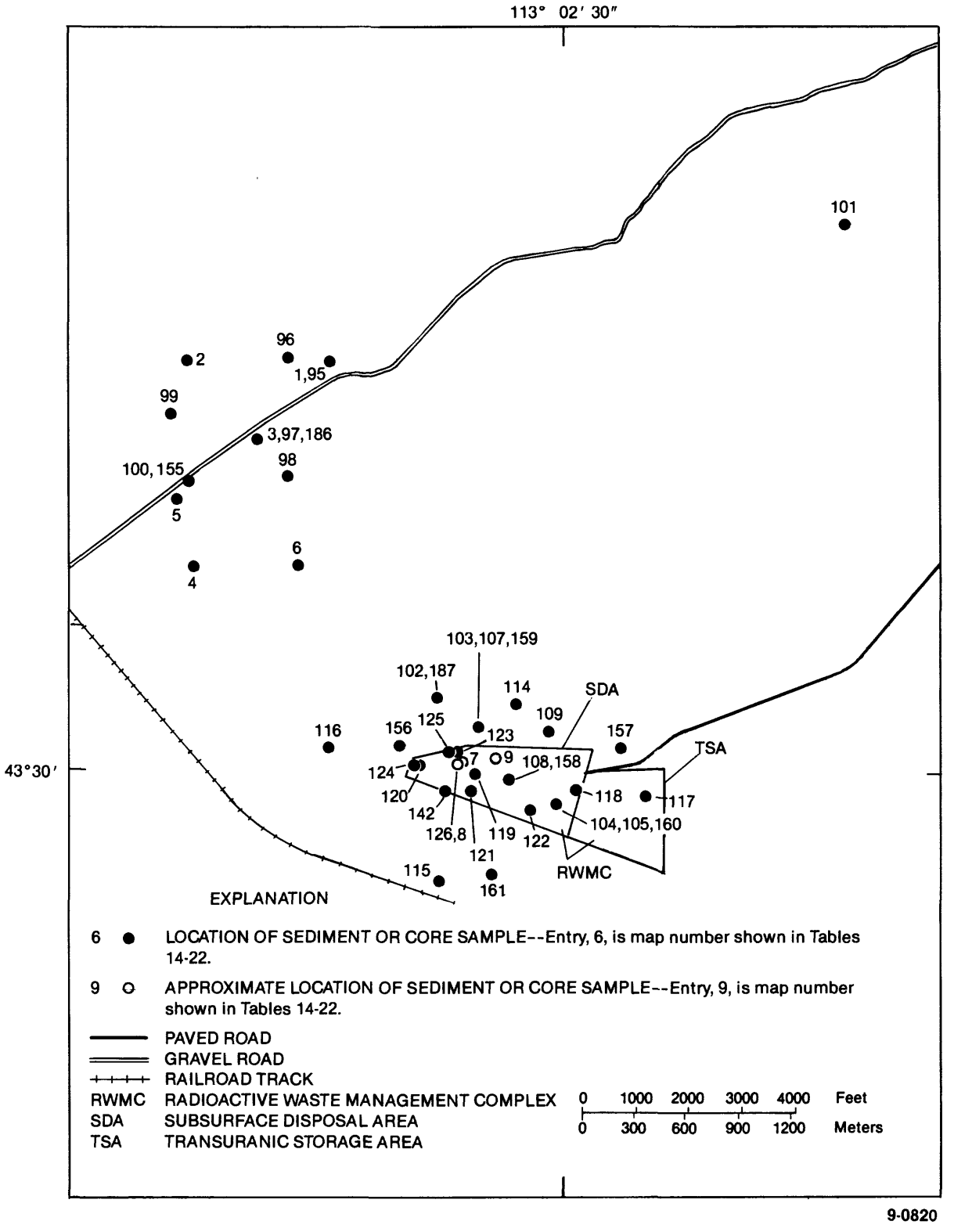

Figure 14.--Locations of sampling sites in the RWMC area for previously published U.S. Geological Survey data on sediment and core characteristics (location of the RWMC area is shown in figure 10).

Table 14.--Cation exchange capacity data from previously published reports of the U. S. Geological Survey at the Idaho National Engineering Laboratory, Idaho.

[Symbols: -- indicates no data available; < indicates less than indicated value; > indicates greater than indicated value. Local sample identifier: For locations and depths that are the same in Nace, Deutsch, and Voegeli, (1956) and Nace, Deutsch, Voegeli, and Jones (1956), samples may be from the same test hole, however, data are inconclusive and unique map numbers were assigned for this report. Map number: Locations shown in figures 10-14. Interval sampled: Depths in meters were converted to feet and all depths were rounded to the nearest tenth for consistency. Cation exchange capacity: Values are in milliequivalents per 100 grams of dry weight; All values rounded to the nearest tenth for consistency.]

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
1103	1	02N-28E-12aaa1	Gravel	13.3-13.8	3.4	Site 11	Voegeli and Deutsch, 1953, p.23.
1104	2	02N-28E-12baa1	Sand and gravel	12.2-12.5	4.0		
1105	3	02N-28E-12aca1	Sand	17.9-19.1	1.9		
1106			--	19.7	5.3		
1107	4	02N-28E-12cda1	Sand	10.3-10.5	1.6		
1108			--	11.8-12.0	3.1		
1109	5	02N-28E-12cab1	Gravel	2.5-2.9	2.4		
1110				4.3-4.7	2.2		
1111				8.6-8.9	2.9		
1112			Sand	9.7-10.4	2.3		
1113			Gravel	11.2-11.6	2.7		
1114				14.4-14.7	1.4		
1115				14.4-14.8	2.9		
1116				17.8-18.2	2.7		
1117				19.8-20.1	1.7		
1118	6	02N-28E-12ddb1	Silt	--	5.0		
1119			Silty sand	--	7.8		
1P	7	02N-29E-18bdc1	Silty sand	2.5	8.9	Pit 1	Voegeli and Deutsch, 1953, p.24.
2P				4.0	11.7		
3P			Gravel	5.5	1.9		
4P			Sand	6.0	2.9		
5P			Clayey silt	9.0	7.5		
6P			Sandy silt	13.0	13.2		
7P	8	02N-29E-18bdc2	Fine sand	3.0	6.4	Pit 2	
8P				5.0	8.0		
9P			Sand	7.0	2.7		
10P			Silty clay	8.0	13.7		
11P	9	02N-29E-18bdd1	Sandy silt	3.0	8.5	Pit 3	
12P			Silty sand	5.0	5.1		
13P			Clayey silt	7.0	11.3		
14P			Silty sand	9.0	15.8		
15P			Sandy silt	11.0	17.8		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
16P	9	02N-29E-18bdd1	Silt	13.0	8.0	Pit 3	Voegeli and Deutsch, 1953, p.24.
17P				15.0	6.2		
18P	10	02N-29E-18	Silty sand	3.0	15.3	Test hole B	
19P		(Exact location		3.0	11.9	Test hole D	
20P		unknown)		2.5	11.7	Test hole Q	
1	11	07N-31E-27cb1	Sandy gravel	2.0-3.0	3.7		Nace, Deutsch, Voegeli, and
2				7.0	1.7		Jones, 1956, p.14.
3				10.0-11.0	3.7		
4				14.0	2.8		
5				23.0	2.4		
6	12	07N-31E-29ab1		3.5-4.5	5.4		
7				3.5-4.5	3.4		
8	13	07N-31E-34bd1		8.0	6.2		
9				10.0	8.9		
10				15.0	8.5		
11				22.0	15.6		
12	14	07N-33E-32add1	Sand and silt	Surface	3.0		
13	15	06N-30E-1bcd1	Sediment	1.0	4.4		
14	16	06N-30E-12ddd1	Sandy gravel	1.0	11.8		
15	17	06N-30E-12abb1		0.7	14.3		
16	18	06N-30E-25bdb1	Silty sand	Surface	3.3		
17	19	06N-30E-35aaa1	Sand and silt		4.7		
18	20	06N-30E-2cca1	Sandy gravel	6.0-6.5	3.6		
19	21	06N-30E-13cdc1	Sandy silt	10.0	10.5		
20	22	06N-30E-13cdc1	Sandy silt	15.0	15.1		Nace, Deutsch, Voegeli, and
21	23	06N-30E-13dbb1		9.7-10.0	7.5		Jones, 1956, p.15.
22				14.4	13.7		
23	24	06N-30E-13acb1		5.0	9.5		
24				10.0	9.8		
25				15.0	11.1		
26	25	06N-30E-13acb2		5.0	17.2		
27				10.0	17.5		
28				15.0	12.2		
29	26	06N-30E-13aba1		5.0-5.5	10.0		
30				10.0	4.7		
31	27	06N-30E-13ada1		21.0	20.0		
32	28	06N-30E-13caa1	Clayey silt	2.0-4.0	30.4		
33	29	06N-30E-13caa2		2.0-4.0	30.0		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
34	30	06N-30E-13ccc1	Clayey silt	Surface	12.2		Nace, Deutsch, Voegeli, and
35				5.0	9.5		Jones, 1956, p.15.
36	31	06N-30E-14adc1		Surface	17.5		
37				5.0	11.5		
38				10.0	12.5		
39	32	06N-30E-14abc1		Surface	13.7		
40	33	06N-30E-14ab1		5.0	13.0		
41				10.0	13.0		
42	34	06N-30E-14Center		Surface	9.8		
43				5.0	8.7		
44	35	06N-30E-23cc1		Surface	11.6		
45				5.0	11.3		
46	36	06N-30E-23d1	Silty sand	2.4-2.9	4.7		
47				4.8-5.8	13.5		
48	37	06N-30E-24cba1	Sandy silt	10.0	8.8		
49	38	06N-31E-26abb1	Silt and sand	3.8-4.5	7.5		Nace, Deutsch, Voegeli, and
50	39	06N-31E-26cc1		5.5-6.5	6.5		Jone, 1956, p.16.
51	40	06N-31E-26cb1	Silty sand	5.2-6.0	7.0		
52	41	06N-31E-27cdd1	Silty sand	--	7.2		
53	42	06N-31E-34aa1		5.0	5.8		
54	43	06N-31E-34ad1		5.2-6.0	7.8		
55	44	06N-31E-34ccc1	Silty sand	0.0-0.5	11.7		
56			Sandy silt	0.5	8.8		
57			Silty sand	1.0	10.5		
58	45	06N-32E-22Center	Clayey sand	Surface	8.3		
59	46	05N-31E-3ba1	Silty sand	5.0-5.5	3.3		
60	47	05N-31E-5cd1	Windblown silt	--	4.2		
61	48	05N-31E-14bc1	Sand	Surface	8.0		
62	49	05N-31E-29b1	Silty sand	--	9.7		
63	50	05N-31E-31dd1		Surface	5.4		
64	51	05N-31E-31ddd1	Silty sand	Surface	4.2		
65	52	05N-31E-31Center	Sand	0.5	9.8		
66	53	05N-31E-31b1	Silty sand	0.5	8.7		
67	54	05N-31E-33db1		--	10.7		
68	55	05N-32E-11ddd1	Sand	Surface	7.2		
69	56	05N-32E-36ad1			8.8		
70	57	05N-33E-5bb1	Sand	1.0	15.2		Nace, Deutsch, Voegeli, and
71	58	05N-33E-10cd1	Silt	1.0-1.5	32.8		Jones, 1956, p.17.

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
72	59	05N-33E-21aa1	Sand	2.0	18.0		Nace, Deutsch, Voegeli, and
73			Silt	1.0	34.8		Jones, 1956, p.17.
74	60	05N-33E-35da1	Sand	Surface-1.0	7.2		
75	61	05N-34E	Silty, clayey	Surface	42.0		
76	62	04N-30E-3ccc1	Sand	1.5-2.0	4.7		
77	63	04N-30E-4aaa1	Sand and gravel	3.5-3.8	5.9		
78	64	04N-30E-4baa1		0.0-0.5	8.3		
79			Sand	3.0-3.4	8.6		
80			Silty sand	5.3-5.6	4.2		
81			Sandy silt	6.7-7.0	8.0		
82	65	04N-30E-4bcd1	Silty sand	0.0-0.5	6.4		
83				1.8-2.3	3.8		
84	66	04N-30E-6aaa1	Sand and gravel	0.0-0.5	4.7		
85				1.3-1.7	1.9		
86				2.0-2.3	2.0		
87	67	04N-30E-18dd1	Silty sand	Surface	2.7		
88	68	04N-30E-22bb1	Sandy silt	1.0	38.0		
89	69	04N-30E-22bd1			38.0		
90	70	04N-30E-23ca1	Fine sand	1.5	24.4		
91	71	04N-30E-26acc1	Sandy silt	1.0	36.0		
92	72	04N-30E-26ddd1	Sandy silt	--	7.1		
93	73	04N-30E-27acc1	Sandy silt	1.0	32.0		
94	74	04N-30E-27ddd1	Sand	Surface	3.6		
95	75	04N-30E-30ad1	Sandy gravel	7.0-7.5	2.5		Nace, Deutsch, Voegeli, and
96				12.0-13.0	2.7		Jones, 1956, p.18
97				15.0-16.0	3.0		
98	76	04N-31E-9cc1	Silty sand	Surface	1.8		
99	77	04N-31E-16ad1			3.9		
100	78	04N-31E-16bb1	Sand		8.8		
101	79	03N-28E-6cc1	Gravel	2.0-2.5	1.0		
102	80	03N-29E-13aba1	Sandy gravel	5.0-5.5	3.1		
103			Gravel	10.0-10.5	2.9		
104	81	03N-29E-13dba1	Sandy gravel	3.0-3.5	3.6		
105	82	03N-29E-14db1		12.0	3.4		
106				14.0	2.3		
107	83	03N-29E-24dcc1		8.0	1.8		
108	84	03N-29E-36adc1		5.0	2.5		
109	85	03N-29E-36cca1		5.0	3.7		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
110	86	03N-29E-36dcb1	Sandy gravel	5.0	3.9		Nace, Deutsch, Voegeli, and Jones, 1956, p.18.
111	87	03N-30E-19bc1		12.0	2.2		
112	88	03N-30E-19cb1		--	3.4		
113	89	03N-30E-19cbc1		43.0-44.0	2.7		
114	90	03N-30E-19bbb1		6.0-7.0	2.9		Nace, Deutsch, Voegeli, and Jones, 1956, p.19.
115	91	03N-30E-19ccb1		10.0	2.0		
116				12.0	4.5		
117	92	03N-30E-30dcd1		4.0-5.0	3.7		
118	93	03N-30E-30dcc1		1.0-2.0	3.2		
119	94	03N-30E-31bcd1		5.0	2.1		
120	95	02N-28E-12aaa1	Gravelly sand	13.3-13.8	3.4		
121	96	02N-28E-12aab1		12.2-12.5	4.0		
122	97	02N-28E-12aca1	Sand	17.9-19.1	1.9		
123			Sandy silt	19.7	5.3		
124	98	02N-28E-12adc1	Sand	10.3-10.5	1.6		
125				11.8-12.0	3.1		
126	99	02N-28E-12bac1	Sandy gravel	2.5-2.9	2.4		
127				4.3-4.7	2.2		
128				8.6-8.9	2.9		
129			Sand	9.7-10.4	2.3		
130			Sandy gravel	11.2-11.6	2.7		
131			Gravelly sand	14.4-14.7	1.4		
132				14.4-14.8	2.9		
133			Gravel and sand	17.8-18.2	2.7		
134			Sandy gravel	19.8-20.1	1.7		
135	100	02N-28E-12bdd1	Silty sand	21.7-21.9	5.0		
136				21.0-21.4	7.8		
137	101	02N-29E-5db1	Sandy gravel	3.5	2.7		Nace, Deutsch, Voegeli, and Jones, 1956, p.20.
138	102	02N-29E-18b1	Silty sand	3.9	23.6		
139	103	02N-29E-18bd1		2.5	8.9		
140				4.0	11.7		
141			Sandy gravel	5.0-5.5	1.9		
142			Sand	6.0	2.9		
143			Clayey silt	9.0	7.5		
144			Sandy silt	13.0	13.2		
145	104	02N-29E-18db1	Fine sand	3.0	6.4		
146				5.0	8.0		
147	105	02N-29E-18db2	Sand	7.0	2.7		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
148	105	02N-29E-18db2	Silty clay	8.0	13.7		Nace, Deutsch, Voegeli, and Jones, 1956, p.20
149	106	02N-29E-18	Sandy silt	3.0	8.5		
150		(Exact location	Silty sand	5.0	5.1		
151		unknown)	Clayey sand	7.0	11.3		
152			Silty sand	9.0	15.8		
153			Sandy silt	11.0	17.8		
154			Silt	13.0	8.0		
155				15.0	6.2		
156	107	02N-29E-18bd1	Silty sand	3.0	15.3		
157	108	02N-29E-18Center		3.0	11.9		
158	109	02N-29E-18ac1		2.5	11.7		
1		Location unknown	Basalt	--	1.0	Size 4 mm	Nace, Deutsch, and Voegeli, 1956, p.157.
				--	0.9	Size 2 mm	
				--	0.7	Size 1 mm	
				--	0.6	Size 0.5 mm	
				--	0.9	Size 0.25 mm	
				--	1.3	Size 0.125 mm	
				--	2.8	Size 0.062 mm	
				--	2.3	Size<230 mesh	
2			Rock	--	0.4	Size 4 mm	
				--	0.6	Size 2 mm	
				--	1.4	Size 1 mm	
				--	2.2	Size 0.5 mm	
				--	3.8	Size 0.25 mm	
				--	7.7	Size 0.125 mm	
				--	12.2	Size 0.062 mm	
				--	22.6	Size<230 mesh	
2			Glassy selvage	--	0.5	Size > 0.25 in	
				--	0.6	Size 4 mm	
				--	0.6	Size 2 mm	
				--	1.3	Size 1 mm	
1-LP	110	03N-29E-24da1	Sediment	--	19.5	Size <.0736mm	Nace, 1961, p.121.
2-LP				--	15.6		
3-LP				--	19.8		
53-1128Z	111	03N-30E-19bbb1		--	2.9	Size < 2 mm	
53-1129Z	112	03N-30E-19ccb1		--	2.0		
53-1130Z				--	4.5		
53-1131Z	113	03N-30E-30dcd1		--	3.7		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
BG-87	114	RWMC	Sediment	236.0-237.5	3.9		Barraclough and others, 1976, p.123.
				242.0-243.5	3.9		
				559.0-561.0	19.0		
BG-88	115			108.5-111.0	1.3		
				112.5-113.5	1.1		
				237.0-238.5	5.8		
				247.5-249.0	24.0		
				265.5-267.0	31.0		
				519.0-521.0	32.0		
BG-89	116			110.0-115.0	4.3		
				241.0-241.6	18.0		
				243.5-245.5	23.0		
				250.9-252.2	22.0		
				295.0-296.3	9.3		
				365.0-371.0	3.7		
				545.0-550.0	5.9		
				565.0-575.0	4.3		
				600.0-605.0	7.7		
				640.0-645.0	5.8		
BG-90	117			108.0-113.0	4.8		
				249.0-250.0	7.6		
				250.0-251.5	30.0		
				386.0-387.0	9.2		
				610.0-612.0	21.0		
BG-91	118			26.0-32.0	15.0		
				74.0-92.0	24.0		
				105.0-107.0	28.0		
				233.8-236.2	4.7		
				236.2-238.8	5.1		
				243.2-245.1	30.0		
BG-92	119			2.6-5.0	14.0		
				225.5-228.0	22.0		
				233.5-236.0	9.1		Barraclough and others, 1976, p.124.
				244.6-246.2	24.0		
BG-93	120			12.1-14.0	28.0		
				88.2-90.3	3.1		
				103.0-105.0	9.0		
				105.0-110.0	7.6		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
BG-93	120	RWMC	Sediment	228.8-229.8	8.3		Barraclough and others, 1976, p.124.
BG-94	121			6.5-8.2	23.0		
				8.2-8.7	30.0		
				110.0-112.5	4.2		
				228.8-231.2	14.0		
				236.2-238.8	15.0		
				244.8-247.8	24.0		
				270.2-272.3	31.0		
BG-95	122			10.0-12.5	17.0		
				17.5-20.0	19.0		
				106.0-107.0	12.0		
				109.5-112.0	19.0		
				229.2-231.8	19.0		
				231.8-233.2	19.0		
BG-96	123			12.8-15.0	27.0		
				101.9-103.0	5.3		
				116.6-119.1	45.0		
				224.1-226.6	21.0		
93A-1	124	RWMC	Fracture fill	18.1-18.3	17.0		Rightmire, 1984, p.18.
93A-2				46.8	12.0		
93A-3				63.3	11.0		
93A-4				65.1	9.6		
93A-5				66.6	15.0		
93A-6			Interbed	71.1	27.0		
93A-7			Fracture fill	72.4	18.0		
93A-8				74.4	17.0		
93A-9				75.4	19.0		
93A-10				77.8	17.0		
93A-11			Interbed	80.0	13.0		
93A-12				84.0-84.5	25.0		
93A-13				89.0-89.5	21.0		
93A-14			Fracture fill	93.0-97.6	32.0		
93A-15			Interbed	100.5	4.2		
93A-16				102.2	5.2		
93A-17				103.2	4.9		
93A-18				103.2	6.9		
93A-19				106.2	6.5		
93A-20				108.2	5.6		

Table 14.--Cation exchange capacity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Local identifier	Sample type	Interval sampled (ft below land surface)	Cation exchange capacity	Remarks	Reference
93A-21	124	RWMC	Interbed	109.1	14.0		Rightmire, 1984, p.18.
93A-22			Fracture fill	123.2	3.5		
93A-23				158.6	3.5		
93A-24				180.5	30.0		
93A-25				187.4	36.0		
93A-26			Interbed	226.4	7.5		
93A-27				227.8	8.6		
93A-28				229.2	16.0		
93A-29				231.8	21.0		
93A-30				233.1	36.0		
96B-1	125	RWMC	Interbed	35.6	18.0		Rightmire, 1984, p.19.
96B-2				38.4	0.9		
96B-3				40.0	8.8		
96B-4				40.3	8.2		
96B-6				101.5	2.3		
96B-7				116.5	18.0		
96B-8				122.5	6.3		
96B-9				127.2	10.0		
96B-10			Fracture fill	129.8	17.0		
96B-11				146.7-148.0	13.0		
96B-12				148.7	13.0		
96B-13				181.5-183.5	13.0		
96B-14			Interbed	213.6	9.7		
96B-15				221.2	13.0		
96B-16				224.7	11.0		
96B-17				229.6	16.0		
EWR-1-4	126	RWMC	Sediment	3.0	27.0		Rightmire and Lewis, 1987, p.21.
EWR-1-3				4.0	27.0		
EWR-1-2				5.0	11.0		
EWR-1-1				6.0	11.0		

Table 15.--Bulk chemistry data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho[1]

[Symbols: --indicates no data are available; Tr indicates a trace is present. Sample number: 1 and 2--Terreton Lake sediments from depths of 3 and 7 ft, respectively (Nace, Deutsch, and Voegeli, 1956, p. 121); 3 and 4--secondary mineral cement (caliche) scraped from gravel collected from the Big Lost River flood plain (Nace, Deutsch, and Voegeli, 1956, p. 137); 5 and 6--basalt and nephelite basalt samples from Craters of the Moon National Monument and Fort Hall Indian Reservation, respectively (Nace, Deutsch, and Voegeli, 1956, p. 105); 7--average of 38 analyses of basalt samples from the Snake River Plain (Jones, 1961, p. 25).]

Constituent	Sample number						
	1	2	3	4	5	6	7
SiO_2	53.75	47.58	46.68	47.60	51.14	45.17	46.75
TiO_2	0.08	0.08	--	--	2.41	0.54	2.97
Al_2O_3	12.14	13.78	4.84	4.26	13.95	10.02	14.75
Fe_2O_3	5.26	5.48	4.90	5.32	2.15	3.55	2.74
FeO	--	--	--	--	12.97	5.03	10.29
MnO	--	--	--	--	0.44	0.13	0.20
MgO	2.36	2.78	3.18	2.11	2.21	19.84	7.59
CaO	9.62	11.84	22.18	21.48	6.56	8.57	9.87
Na_2O	1.61	1.08	--	--	3.59	3.11	2.44
K_2O	2.41	2.17	--	--	2.33	1.61	0.62
H_2O	--	--	--	--	0.34	2.27	1.06
P_2O_5	0.25	Tr	--	--	1.59	0.28	0.68
BaO	--	--	--	--	0.25	0.07	--
SrO	--	--	--	--	Tr	0.06	--
CO_2	--	--	21.40	18.40	--	0	0.04
ZrO_2	--	--	--	--	0.12	--	--
FeS_2	--	--	--	--	0.15	--	--
Cr_2O_3	--	--	--	--	--	0.11	--
NiO	--	--	--	--	Tr	--	--
N	0.07	0.05	--	--	--	--	--
Moisture	--	--	0.42	0.50	--	--	--
Loss on ignition	13.32	15.27	--	--	--	--	--
Other	[2]535.20	[3]1252.15	--	--	[4]0.10	[5]0.06	--
Sum	100.87	100.11	103.6	99.67	100.30	100.42	[6]100.00

[1]Values are weight percent unless otherwise indicated.
[2]Sum--in ppm (parts per million)--of boron (0.2), chloride (10), and bicarbonate (525).
[3]Sum--in ppm--of boron (0.15), chloride (461), bicarbonate (455), and sulfate (336).
[4]Fluorine as weight percent.
[5]Sulfur as weight percent.
[6]Recalculated to 100 percent in Jones (1961, p. 25).

Table 16.--Specific gravity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho

[Map number: Locations are given in figures 10-14. Specific gravity: g/cm^3 indicates grams per cubic centimeter.]

Sample identifier	Map number	Sample type	Interval sampled (ft below land surface)	Specific gravity (g/cm^3)	Remarks	Reference
A-10	127	Alluvium	12.5	2.70	TRA	Morris and others, 1963, p. 43b
			17.5	2.69		
			20.0	2.69		
			22.5	2.69		
			30.0	2.70		
			32.5	2.68		
			35.0	2.71		
			37.5	2.70		
			45.0	2.69		
LOFT D-3	128		6.0-6.2	2.73	LOFT	Morris and others, 1964, p. 79
			10.0-10.2	2.73		
			12.0-12.2	2.74		
			16.0-16.2	2.73		
			18.5-18.7	2.72		
LOFT D-4	129		5.0-5.2	2.75		
			9.0-9.2	2.73		
			13.0-13.2	2.73		
			17.0-17.2	2.74		
SET D-3	130	Alluvium	3.0-3.2	2.74	SET Test auger site	Morris and others, 1964, p. 80
			4.5-4.7	2.74		
			6.5-7.5	2.73		
			12.5-18.0	2.73		
			20.0-20.2	2.73		
			22.0-22.2	2.73		
			22.0-25.0	2.72		
			29.0-29.2	2.71		
SET E-2	131		10.0-15.0	2.70		
			15.0-20.0	2.73		
			22.0-22.2	2.72		
			25.0-25.2	2.73		
			30.0-30.2	2.72		

Table 16.--Specific gravity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Sample type	Interval sampled (ft below land surface)	Specific gravity (g/cm^3)	Remarks	Reference
D-1	132	Eolian deposits	3.3-3.5	2.73	NRF Gas injection site	Morris and others, 1965, table 10
D-2			5.1-5.2	2.77		
D-3			6.4-6.6	2.72		
D-4			7.8-8.0	2.73		
D-5			10.4-10.5	2.75		
A-1	133		2.5-2.7	2.73		
A-2			4.5-4.7	2.71		
A-3			6.3-6.5	2.74		
A-4			8.3-8.5	2.73		
A-5			10.3-10.5	2.73		
B-1	134	Eolian deposits	0.8-0.9	2.69	NRF Gas injection site	Morris and others, 1965, table 10
B-2			2.3-2.5	2.72		
B-3			4.3-4.5	2.74		
B-4			6.0-6.2	2.76		
B-5			8.4-8.6	2.77		
B-6			10.4-10.6	2.70		
C-1	135		2.2-2.4	2.75		
C-2			4.6-4.8	2.76		
C-3			6.1-6.3	2.69		
C-4			8.2-8.4	2.70		
C-5			10.2-10.3	2.71		
EBOR A-1	136	Eolian or lacustrine deposits	5.0-5.2	2.74	EBOR (GIN) area	Morris and others, 1965, table 11
			10.0-10.2	2.74		
			15.0-15.2	2.74		
			20.0-20.2	2.73		
			25.0-25.2	2.74		
			32.0-32.2	2.70		
			35.0-35.2	2.75		
EBR 2	137	Lacustrine deposits	5.2-5.4	2.72	EBR II area	Morris and others, 1965, table 11
EBR 4	138		6.2-6.4	2.72		
EBR 7	139		5.2-5.4	2.72		
EBR 9	140		5.2-5.4	2.74		
EBR 12	141		5.2-5.4	2.71		
93A-1	124	Fracture fill	18.1-18.3	2.77	RWMC	Rightmire, 1984, table 4
93A-4			65.1	2.72		
93A-5			66.6	2.69		
93A-6			71.1	2.72		
93A-9			75.4	2.68		

Table 16.--Specific gravity data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map number	Sample type	Interval sampled (ft below land surface)	Specific gravity (g/cm^3)	Remarks	Reference
93A-11		Interbed	80.0	2.72	RWMC	Rightmire, 1984, table 4
93A-12			84.0-84.5	2.72		
93A-13			89.0-89.5	2.79		
93A-15			100.5	2.68		
93A-16			102.2	2.72		
93A-17			103.2	2.68		
93A-19			106.2	2.67		
93A-20			108.2	2.76		
93A-21			109.1	2.68		
93A-22		Fracture fill	123.2	3.01		
93A-24			180.5	2.69		
93A-25			187.4	2.74		
93A-26		Interbed	226.4	2.79		
93A-27			227.8	2.85		
93A-28			229.2	2.69		
93A-29			231.8	2.76		
93A-30			233.1	2.84		
96B-1	125	Interbed	35.6	2.66	RWMC	Rightmire, 1984, table 4
96B-2			38.4	2.71		
96B-3			40.0	2.69		
96B-4			40.3	2.66		
96B-6			101.5	2.77		
96B-7			116.5	2.60		
96B-9			127.2	2.70		
96B-10		Fracture fill	129.8	2.66		
96B-11			146.7-148.0	2.82		
96B-12			148.7	2.80		
96B-13			181.5-183.5	2.67		
96B-14		Interbed	213.6	2.99		
96B-15			221.2	2.68		
96B-16			224.7	2.71		
96B-17			229.6	2.73		

Table 17.--Bulk mineralogy of samples from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho.

[Symbols: -- indicates no data available; < indicates less than indicated value; <= indicates less than or equal to indicated value. Sample identifier: F indicates only fraction finer than 0.42 mm used for X-ray analysis of bulk sediment sample. Map no.: Locations shown in figures 10-14. Interval sampled: Depths in meters were converted to feet and all intervals were rounded to the nearest tenth for consistency. Minerals present: pres. indicates mineral is present; ? indicates possibly present. Pyroxene: includes augite or diopside. Remarks: Sum indicates that chlorite, kaolinite, illite, montmorillonite, and mixed-layer clays were added to get total clays; hem. indicates hematite may also be present; sid. indicates siderite may also be present.]

Sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)									Remarks
			Calcite	Quartz	Plagioclase	Potassium feldspar	Pyroxene	Olivine	Dolomite	Clay minerals	Layered silicates	
BG-87	114	236.0-237.5	0	32	29	--	11	--	--	10	--	Sum; Barraclough and others, 1976, p.123.
		242.0-243.5	4	26	20	--	11	--	--	10	--	
		559.0-561.0	0	30	26	--	11	--	--	20	--	
BG-88	115	108.5-111.0	0	6	32	--	23	12	--	0	--	
		112.5-113.5	0	8	34	--	26	12	--	0	--	
		237.0-238.5	0	24	29	--	23	--	--	10	--	
		247.5-249.0	10	32	20	--	9	--	--	30	--	
		265.5-267.0	0	28	17	--	6	--	--	40	--	
BG-88F		519.0-521.0	0	28	28	--	9	--	--	20	--	
BG-89	116	110.0-115.0	6	16	31	--	20	--	--	11	--	
		241.0-241.6	10	26	22	--	14	--	--	20	--	
		243.5-245.5	8	30	15	--	9	--	--	30	--	
		250.9-252.2	32	18	18	--	0	--	--	20	--	
BG-89F		295.0-296.3	6	16	29	--	23	--	--	15	--	
		365.0-371.0	0	2	40	--	29	18	--	10	--	
		545.0-550.0	0	6	29	--	29	12	--	10	--	
		565.0-575.0	0	2	34	--	29	13	--	15	--	
		600.0-605.0	0	6	32	--	26	15	--	16	--	
		640.0-645.0	0	16	29	--	14	--	--	15	--	
BG-90F	117	108.0-113.5	0	28	35	--	14	--	--	15	--	
BG-90		249.0-250.0	0	30	26	--	9	--	--	10	--	
		250.0-251.5	54	14	12	--	0	--	--	15	--	
		250.0-251.5	16	0	31	--	29	15	--	0	--	
BG-90F		386.0-387.0	0	8	34	--	23	12	--	17	--	
		610.0-612.0	0	32	26	--	9	--	--	29	--	
BG-91	118	26.0-32.0	36	32	14	--	11	--	--	10	--	
		74.0-92.0	12	28	20	--	9	--	--	25	--	
		105.0-107.0	5	30	20	--	6	--	--	34	--	
		233.8-236.2	0	34	31	--	11	--	--	10	--	
		236.2-238.8	0	34	32	--	14	--	--	11	--	
		243.2-245.1	0	30	20	--	9	--	--	35	--	

Table 17.--Bulk mineralogy of samples from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)									Remarks
			Calcite	Quartz	Plagioclase	Potassium feldspar	Pyroxene	Olivine	Dolomite	Clay minerals	Layered silicates	
BG-92	119	2.6-5.0	21	34	18	--	14	--	--	15	--	Sum; Barraclough and others, 1976, p.123.
		225.5-228.0	9	22	18	--	9	--	--	26	--	
		233.5-236.0	0	24	26	--	14	--	--	15	--	Sum; Barraclough and others, 1976, p.124.
		244.6-246.2	0	30	22	--	6	--	--	36	--	
BG-93	120	12.1-14.0	0	34	18	--	9	--	--	35	--	
BG-93F		88.2-90.3	0	2	28	--	20	12	--	0	--	
BG-93		103.0-105.0	9	14	29	--	14	13	--	10	--	
		105.0-110.0	8	16	26	--	14	10	--	11	--	
		228.8-229.9	0	26	26	--	17	--	--	15	--	
BG-94	121	6.5-8.2	6	32	22	--	9	--	--	25	--	
BG-94F		8.2-8.7	5	32	17	--	9	--	--	36	--	
BG-94		110.0-112.5	0	40	28	--	11	--	--	10	--	
		228.8-231.2	5	32	23	--	11	--	--	21	--	
		236.2-238.8	4	34	25	--	11	--	--	20	--	
		244.8-247.9	0	32	23	--	9	--	--	35	--	
		270.2-272.3	0	28	22	--	6	--	--	36	--	
BG-95	122	10.0-12.5	35	28	14	--	6	--	--	15	--	
		17.5-20.0	0	42	26	--	9	--	--	26	--	
		106.0-107.0	0	46	26	--	11	--	--	16	--	
		109.5-112.0	0	36	23	--	9	--	--	25	--	
		229.2-231.8	9	30	22	--	9	--	--	30	--	
		231.8-233.2	4	32	22	--	9	--	--	31	--	
BG-96F	123	12.9-15.0	0	42	22	--	9	--	--	28	--	
BG-96		101.9-103.0	5	46	29	--	14	--	--	0	--	
		116.6-119.1	0	22	11	--	6	--	--	44	--	
		224.1-226.6	19	28	22	--	9	--	--	17	--	
93A-1	124	18.1-18.4	7	21	13	<=6	<11	--	--	35	--	Rightmire, 1984, p.17.
93A-2		46.8	15	12	9	<=3	<13	--	--	25	--	
93A-3		63.3	6	30	10	4	13	--	--	30	--	
93A-4		65.1	7	19	11	<=4	9	--	--	30	--	
93A-5		66.6	0	17	12	3	11	--	--	40	--	
93A-6		71.1	0	19	11	<=3	11	--	--	40	--	
93A-7		72.4	0	22	11	5	9	--	--	45	--	
93A-8		74.4	0	24	13	5	17	--	--	40	--	
93A-9		75.4	0	19	8	<=3	11	--	--	50	--	
93A-10		77.8	0	26	10	5	9	--	--	50	--	
93A-11		80.0	0	32	13	9	9	--	--	30	--	

Table 17.--Bulk mineralogy of samples from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)									Remarks
			Calcite	Quartz	Plagioclase	Potassium feldspar	Pyroxene	Olivine	Dolomite	Clay minerals	Layered silicates	
93A-12	124	84.0-84.5	0	21	7	3	9	--	--	60	--	Rightmire, 1984, p.17.
93A-13		89.0-89.5	0	16	7	5	9	--	--	60	--	
93A-14		93.0-97.6	0	10	5	<=2	4	--	--	70	--	
93A-15		100.5	2	35	14	<=6	11	--	--	15	--	
93A-16		102.2	4	33	13	<=5	9	--	--	15	--	
93A-17		103.2	<=3	18	14	<7	16	--	--	25	--	
93A-18		103.2	0	30	14	<5	13	--	--	10	--	
93A-19		106.2	0	32	17	<8	16	--	--	25	--	
93A-20		108.2	0	32	17	<7	16	--	--	25	--	
93A-21		109.1	13	10	10	<5	<=18	--	--	20	--	
93A-22		123.2	0	0	19	<=5	24	--	--	0	--	
93A-23		158.6	0	6	15	<3	18	--	--	30	--	
93A-24		180.5	0	9	9	3	9	--	--	60	--	
93A-25		187.4	3	7	8	3	12	--	--	65	--	
93A-26		226.4	<=2	17	11	<=7	18	--	--	10	--	
93A-27		227.8	<=2	18	13	<=6	20	--	--	15	--	
93A-28		229.2	0	19	10	<4	7	--	--	30	--	
93A-29		231.8	35	11	8	<4	<11	--	--	10	--	
93A-30		233.1	13	6	13	<=3	20	--	--	15	--	
96B-1	125	35.6	0	29	12	<=4	4	--	--	30	--	
96B-2		38.4	0	26	11	<5	<=7	--	--	5	--	
96B-3		40.0	0	37	13	7	9	--	--	25	--	
96B-4		40.3	0	37	15	7	11	--	--	30	--	
96B-6		101.5	0	28	13	<6	13	--	--	5	--	
96B-9		127.2	0	24	15	<=8	11	--	--	30	--	
96B-10		129.8	0	27	12	<=5	9	--	--	30	--	
96B-11		146.7-148.0	0	17	16	<6	16	--	--	25	--	
96B-12		148.7	0	20	13	<5	13	--	--	30	--	
96B-13		181.5-183.5	0	19	13	<6	11	--	--	20	--	
96B-14		213.6	0	4	15	<=4	20	--	--	40	--	
96B-15		221.2	0	28	12	9	11	--	--	10	--	
96B-16		224.7	3	24	12	<6	9	--	--	30	--	
96B-17		229.6	0	26	11	<=4	9	--	--	40	--	
EWR-1-4	126	3.0	1	27	11	<=5	4	--	--	70	--	Rightmire and Lewis, 1987, p.20.
EWR-1-3		4.0	0	29	10	<=6	9	--	--	55	--	
EWR-1-2		5.0	41	15	6	<=3	<=9	--	--	25	--	
EWR-1-1		6.0	13	29	12	5	<=9	--	--	40	--	

Table 17.--Bulk mineralogy of samples from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)									Remarks
			Calcite	Quartz	Plagioclase	Potassium feldspar	Pyroxene	Olivine	Dolomite	Clay minerals	Layered silicates	
76-3-2	142	24.2-24.8	--	45	44	--	--	pres.	2	--	10	hem.; Rightmire and Lewis, 1987, p.35.
76-3-2		24.2-24.8	--	54	28	--	--	pres.	2	--	18	Rightmire and Lewis, 1987, p.35.
76-3-3		25.8-26.8	20	32	26	?	--	pres.	2	--	20	
76-3-13A		95.6-96.5	--	24	57	7	--	pres.	--	--	12	
76-3-14		97.8	--	49	27	?	--	pres.	?	--	24	
76-3-14		97.8	--	48	32	4	--	pres.	?	--	20	
76-3-16		104.5	3	60	23	5	--	pres.	--	--	7	
76-3-19		116.0	--	38	43	2	--	pres.	--	--	17	
76-3-24		225.9	--	51	49	?	--	pres.	?	--	<1	sid.; Rightmire and Lewis, 1987, p.35.
76-3-24		225.9	--	46	49	?	--	pres.	?	--	5	Rightmire and Lewis, 1987, p.35
76-3-27		240.3	--	43	11	--	--	pres.	--	--	46	
76-2-27		240.3	--	45	18	--	--	pres.	--	--	37	

Table 18.--Mineralogy of silt fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho.

[Symbols: -- indicates no data available; tr. indicates only a trace is present. Local sample identifier: For locations and depths that are the same in Nace, Deutsch, and Voegeli, (1956) and Nace, Deutsch, Voegeli, and Jones (1956), samples may be from the same test hole, however, data are inconclusive and unique map numbers were assigned for this report. Map no.: Locations shown on figures 10-14. Interval sampled: All intervals rounded to the nearest tenth for consistency.]

Local sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)							Reference
			Montmorillonite	Hydrous mica	Kaolinite	Quartz	Calcite	Feldspar	Dolomite	
Pit-1	7	4.0	10	--	--	55	15	10	10	Voegeli and Deutsch, 1953, p.24.
		13.0	--	--	--	90	10	--	--	
Pit-2	8	5.0	--	--	--	60	15	15	10	
		8.0	--	--	--	70	30	--	--	
Pit-3	9	3.0	--	--	--	50	10	20	15	
		7.0	10	15	--	50	5	15	5	
		11.0	--	--	--	75	10	15	--	
		13.0	--	--	--	75	15	10	--	
Test hole-B	10	3.0	10	--	--	75	--	15	--	
Test hole-D		3.0	tr.	--	--	70	10	10	10	
Test hole-Q		2.5	5	tr.	--	60	15	10	10	
06N-30E-12ddd1	143	1.0	--	--	--	50	30	10	10	Nace, Deutsch, and Voegeli, 1956, p.149
06N-31E-12abb1	144	0.7	--	--	--	70	10	10	10	
06N-31E-13aba1	145	5.0-5.5	10	5	--	45	30	5	5	
06N-31E-13ac1	146	15.0	--	tr.	--	45	20	25	10	
06N-31E-13ac2		10.0	5	5	--	45	35	10	5	
06N-31E-13ccc1	147	5.0	--	--	--	55	25	10	10	
06N-31E-13cd1	148	10.0	--	--	--	60	25	5	10	
06N-31E-13dbb1	149	14.4	--	10	--	45	20	5	20	
06N-31E-14ad1	150	10.0	--	--	--	60	10	20	10	
06N-31E-14ab1	151	5.0	--	5	--	50	25	10	10	
06N-31E-14Center1	152	0.0	--	--	--	60	25	5	5	
06N-31E-14Center2		5.0	--	--	--	65	20	5	10	
06N-31E-23cc1	153	5.0	--	--	--	60	20	10	10	
06N-31E-24cba1	154	10.0	10	10	--	40	30	5	5	Nace, Deutsch, and Voegeli, 1956, p.150
02N-28E-12bdd1	155	--	--	--	--	60	5	25	10	Nace, Deutsch, and Voegeli, 1956, p.151
02N-29E-18bc1	156	2.5	5	tr.	--	60	15	10	10	
02N-29E-18ad1	157	3.0	--	--	--	50	10	20	15	
02N-29E-18ad2		7.0	10	15	--	50	5	15	5	
02N-29E-18ad3		11.0	--	--	--	75	10	15	--	
02N-29E-18ad4		13.0	--	--	--	75	15	10	--	
02N-29E-18Center1	158	3.0	tr.	--	--	70	10	10	10	
02N-29E-18bd1	159	3.0	10	--	--	75	--	15	--	

Table 18.--Mineralogy of silt fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Local sample identifier	Map no.	Interval sampled (ft below land surface)	Minerals present (percent of each fraction)							Reference
			Montmorillonite	Hydrous mica	Kaolinite	Quartz	Calcite	Feldspar	Dolomite	
02N-29E-18db1	160	5.0	--	--	--	60	15	15	10	Nace, Deutsch, and Voegeli, 1956, P.152
02N-29E-18db2		8.0	--	--	--	70	--	30	--	
02N-29E-18cd1	161	4.0	10	--	--	55	15	10	10	
02N-29E-18cd2		13.0	--	--	--	90	--	10	--	

Table 19.--Mineralogy of clay fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho.

[Symbols: -- indicates no data available; tr. indicates only a trace is present; < indicates less than indicated value; -----16----- number is the sum of percents for kaolinite and chlorite. Local sample identifier: F equals fracture fill sample; I equals interbed sample. For locations and depths that are the same in Nace, Deutsch, and Voegeli, (1956) and Nace, Deutsch, Voegeli, and Jones (1956), samples may be from the same test hole, however, data are inconclusive and unique map numbers were assigned for this report. Map no.: Locations shown in figures 10-14. Interval Sampled: Depths in meters were converted to feet and all intervals were rounded to the nearest tenth for consistency. Minerals present: / separates percent of total clay minerals from percent of original bulk sample; All percentages were rounded to the nearest whole number for consistency.]

Local sample identifier	Map no.	Interval Sampled (ft below land surface)	Minerals present (percent of each fraction)								Reference
			Mont-moril-lonite	Illite	Kaolin-ite	Chlorite	Mixed layer clays	Quartz	Calcite	Feldspar	
Pit-1	7	4.0	35	25	15	--	--	5	15	tr.	Voegeli and Deutsch, 1953, p.24.
		13.0	40	45	10	--	--	5	--	--	
Pit-2	8	5.0	35	20	15	--	--	15	10	5	
		8.0	45	40	10	--	--	5	--	--	
Pit-3	9	3.0	35	25	5	--	--	10	20	tr.	
		7.0	30	45	10	--	--	10	5	tr.	
		11.0	10	60	5	--	--	tr.	20	--	
		13.0	30	35	10	--	--	5	20	--	
Test hole-B	10	3.0	65	20	10	--	--	5	--	tr.	
Test hole-D		3.0	70	15	5	--	--	5	5	tr.	
Test hole-Q		2.5	35	20	10	--	--	5	25	tr.	
06N-30E-12ddd1	143	1.0	15	30	10	--	--	5	35	5	Nace, Deutsch, and Voegeli, 1956, p.149
06N-31E-12abb1	144	0.7	25	25	20	--	--	5	25	tr.	
06N-31E-13aba1	145	5.0-5.5	45	15	5	--	--	15	10	tr.	
06N-31E-13ac1	146	15.0	35	25	15	--	--	15	10	--	
06N-31E-13ac2		10.0	40	20	10	--	--	15	15	--	
06N-31E-13ccc1	147	5.0	35	20	20	--	--	15	10	tr.	
06N-31E-13cd1	148	10.0	35	20	15	--	--	15	15	tr.	
06N-31E-13dbb1	149	14.4	45	15	10	--	--	15	15	--	
06N-31E-14ad1	150	10.0	30	20	15	--	--	15	15	5	
06N-31E-14ab1	151	5.0	30	25	10	--	--	20	15	tr.	
06N-31E-14Center1	152	0.0	35	20	15	--	--	20	10	tr.	
06N-31E-14Center2		5.0	30	20	15	--	--	20	15	tr.	
06N-31E-23cc1	153	5.0	40	20	10	--	--	15	15	tr.	
06N-31E-24cba1	154	10.0	40	15	10	--	--	20	15	tr.	Nace, Deutsch, and Voegeli, 1956, p.150
02N-29E-18bc1	156	2.5	35	20	10	--	--	5	25	tr.	Nace, Deutsch, and Voegeli, 1956, p.151
02N-29E-18ad1	157	3.0	35	25	5	--	--	10	20	tr.	
02N-29E-18ad2		7.0	30	45	10	--	--	10	5	tr.	
02N-29E-18ad3		11.0	10	60	5	--	--	tr.	20	--	
02N-29E-18ad4		13.0	30	35	10	--	--	5	20	--	

Table 19.--Mineralogy of clay fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Local sample identifier	Map no.	Interval Sampled (ft below land surface)	Minerals present (percent of each fraction)								Reference
			Montmorillonite	Illite	Kaolinite	Chlorite	Mixed layer clays	Quartz	Calcite	Feldspar	
02N-29E-18Center1	158	3.0	70	15	5	--	--	5	5	tr.	Nace, Deutsch, and Voegeli, 1956, p.151
02N-29E-18bd1	159	3.0	65	20	10	--	--	5	--	tr.	
02N-29E-18db1	160	5.0	35	20	15	--	--	15	10	5	Nace, Deutsch, and Voegeli, 1956, p.152
02N-29E-18db2		8.0	45	40	10	--	--	5	--	--	
02N-29E-18cd1	161	4.0	35	25	15	--	--	5	15	tr.	
02N-29E-18cd2		13.0	40	45	10	--	--	5	--	--	
93A-1F	124	18.1-18.3	36/13	28/10	11/4	0/0	25/9	--	--	--	Rightmire, 1984, p.18.
93A-2F		46.8	10/2	38/10	19/5	0/0	33/8	--	--	--	
93A-3F		63.3	16/5	45/14	12/4	2/<1	25/8	--	--	--	
93A-4F		65.1	11/3	60/18	14/4	2/<1	13/4	--	--	--	
93A-5F		66.6	12/5	48/19	10/4	4/2	26/10	--	--	--	
93A-6I		71.1	13/5	50/20	15/6	0/0	22/9	--	--	--	
93A-7F		72.4	9/4	49/22	17/8	3/1	22/10	--	--	--	
93A-8F		74.4	12/5	50/20	11/4	0/0	27/11	--	--	--	
93A-9F		75.4	11/6	60/30	17/8	0/0	12/6	--	--	--	
93A-10F		77.8	13/6	47/24	12/6	0/0	28/14	--	--	--	
93A-11I		80.0	25/8	38/11	12/4	0/0	25/8	--	--	--	
93A-12I		84.0-84.5	11/7	48/29	9/5	0/0	32/19	--	--	--	
93A-13I		89.0-89.5	16/10	42/25	10/6	0/0	32/19	--	--	--	
93A-14F		93.0-97.6	12/8	42/29	19/13	0/0	27/19	--	--	--	
93A-15I		100.5	0/0	62/9	4/<1	11/2	23/3	--	--	--	
93A-16I		102.2	11/2	60/9	18/3	15/2	0/0	--	--	--	
93A-17I		103.2	22/6	43/11	17/4	2/<1	16/4	--	--	--	
93A-18I		103.2	38/4	19/2	5/<1	1/<1	37/4	--	--	--	
93A-19I		106.2	12/3	47/12	16/4	0/0	25/6	--	--	--	
93A-20I		108.2	12/3	33/8	14/4	3/<1	38/10	--	--	--	
93A-21I		109.1	36/7	16/3	11/2	0/0	37/7	--	--	--	
93A-22F		123.2	0/0	0/0	0/0	0/0	0/0	--	--	--	
93A-23F		158.6	28/8	62/19	12/4	0/0	0/0	--	--	--	
93A-24F		180.5	18/11	26/16	10/6	1/<1	45/27	--	--	--	
93A-25F		187.4	20/13	33/21	17/11	0/0	30/20	--	--	--	
93A-26I		226.4	0/0	100/10	0/0	0/0	0/0	--	--	--	
93A-27I		227.8	0/0	86/13	0/0	0/0	14/2	--	--	--	
93A-28I		229.2	0/0	97/29	0/0	0/0	3/1	--	--	--	
93A-29I		231.8	0/1	58/6	0/0	0/0	32/3	--	--	--	
93A-30I		233.1	4/<1	44/7	0/0	0/0	52/8	--	--	--	
96B-1I	125	35.6	0/0	77/23	0/0	0/0	23/7	--	--	--	Rightmire, 1984, p.19.

Table 19.--Mineralogy of clay fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Local sample identifier	Map no.	Interval Sampled (ft below land surface)	Minerals present (percent of each fraction)								Reference
			Mont-moril-lonite	Illite	Kaolin-ite	Chlorite	Mixed layer clays	Quartz	Calcite	Feldspar	
96B-2I	125	38.4	0/0	100/5	0/0	0/0	0/0	--	--	--	Rightmire, 1984, p.19.
96B-3I		40.0	4/1	60/15	0/0	0/0	36/9	--	--	--	
96B-4I		40.3	0/0	56/17	0/0	0/0	44/13	--	--	--	
96B-6I		101.5	0/0	100/5	0/0	0/0	0/0	--	--	--	
96B-7I		116.5	39/27	14/10	6/4	0/0	41/29	--	--	--	
96B-8I		122.5	27/7	23/6	5/1	2/<1	43/11	--	--	--	
96B-9I		127.2	22/7	27/8	8/2	2/<1	41/12	--	--	--	
96B-10F		129.8	19/6	14/4	9/3	3/1	55/16	--	--	--	
96B-11F		146.7-148.0	0/0	29/7	19/5	0/0	52/13	--	--	--	
96B-12F		148.7	18/5	52/16	14/4	0/0	16/5	--	--	--	
96B-13F		181.5-183.5	24/5	54/11	12/2	0/0	8/2	--	--	--	
96B-14I		213.6	21/8	44/18	13/5	2/<1	20/8	--	--	--	
96B-15I		221.2	0/0	100/10	0/0	0/0	0/0	--	--	--	
96B-16I		224.7	13/4	37/11	5/1	0/0	45/14	--	--	--	
96B-17I		229.6	28/11	20/8	7/3	1/<1	43/17	--	--	--	
EWR-1-4	126	3.0	13/9	36/25	6/4	0/0	45/32	--	--	--	Rightmire and Lewis, 1987, p.21.
EWR-1-3		4.0	16/9	30/16	6/3	0/0	48/26	--	--	--	
EWR-1-2		5.0	24/6	36/9	9/2	0/0	31/8	--	--	--	
EWR-1-1		6.0	26/10	32/12	12/5	0/0	30/12	--	--	--	
76-3-2I	142	24.2-24.8	0	22	-----16-----		63	--	--	--	Rightmire and Lewis, 1987, p.39.
76-3-3F		25.8-26.8	0	10	-----15-----		76	--	--	--	
76-3-5aF		32.2-33.0	0	31	------8-----		61	--	--	--	
76-3-5bF		34.2-34.6	0	89	-----11-----		0	--	--	--	
76-3-5cF		36.2-37.2	0	72	-----10-----		18	--	--	--	
76-3-6F		43.3-43.9	0	73	-----13-----		14	--	--	--	
76-3-7F		65.1	5	69	-----26-----		0	--	--	--	
76-3-8F		65.8-68.3	0	79	-----21-----		0	--	--	--	
76-3-9F		72.3-74.4	2	67	-----15-----		16	--	--	--	
76-3-11bF		83.0	0	69	-----31-----		0	--	--	--	
76-3-12F		91.2-94.5	0	52	-----38-----		10	--	--	--	
76-3-13bI		96.5-96.8	7	81	-----12-----		0	--	--	--	
76-3-14I		97.8	0	100	0	0	0	--	--	--	
76-3-15I		99.3	0	31	0	0	69	--	--	--	
76-3-16I		104.5	0	59	-----33-----		8	--	--	--	
76-3-17I		108.2	0	50	-----14-----		37	--	--	--	
76-3-18I		112.7	0	42	-----11-----		46	--	--	--	
76-3-19I		116.0	0	76	-----12-----		13	--	--	--	

Table 19.--Mineralogy of clay fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Local sample identifier	Map no.	Interval Sampled (ft below land surface)	Minerals present (percent of each fraction)								Reference
			Montmorillonite	Illite	Kaolinite	Chlorite	Mixed layer clays	Quartz	Calcite	Feldspar	
76-3-20I	142	119.3-119.4	0	26	-----13-----		62	--	--	--	Rightmire and Lewis, 1987, p.39.
76-3-21F		120.5-121.0	0	59	-----14-----		27	--	--	--	
76-3-22aF		124.8-125.0	11	34	------4-----		52	--	--	--	
76-3-24I		225.9	0	100	0	0	0	--	--	--	
76-3-25I		231.1	0	100	0	0	0	--	--	--	
76-3-26I		236.1	10	49	0	0	39	--	--	--	
76-3-27I		240.3	17	32	-----14-----		37	--	--	--	

Table 20.--Miscellaneous mineralogical data for clay and silt fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho.

[Symbols: -- indicates no data available; P indicates predominant in amount, S indicates subordinate in amount, tr indicates trace amount (Nace, Deutsch, and Voegeli, 1956); xxx indicates dominant amount, xx indicates mineral is present, x indicates present in minor amount (Rightmire and Lewis, 1987). Local sample identifier: For locations and depths that are the same in Nace, Deutsch, and Voegeli, (1956), and Nace, Deutsch, Voegeli, and Jones (1956), samples may be from the same test hole, however, data are inconclusive and unique map numbers were assigned for this report. Map no.: Locations shown in figures 10-14. Interval Sampled: Depths in meters were converted to feet and all intervals were rounded to the nearest tenth for consistency. Kaolinite: Samples marked with x have both kaolinite and chlorite present.]

Local sample identifier	Map no.	Size fraction	Interval sampled (ft below land surface)	Minerals present (approximate amount for each fraction)								Reference
				Mixed layer clays	Montmorillonite	Illite	Kaolinite	Quartz	Calcite	Feldspar	Dolomite	
07N-31E-34bd1	162	Clay	10.0	--	P	S	--	5	20	--	--	Nace, Deutsch, and Voegeli, 1956, p.149.
		Silt		--	S	S	S	30	30	5	10	
07N-31E-34bd2		Clay	22.0	--	P	S	--	tr	10	--	--	
		Silt		--	S	S	S	40	15	tr	5	
06N-31E-13ad1	163	Clay	21.0	--	P	P	S	S	--	--	--	
06N-31E-13ca1	164	Clay	2.0-4.0	--	S	P	P	S	--	--	--	
06N-31E-13ca2		Clay	2.0-4.0	--	S	P	P	S	--	--	--	
06N-31E-23d1	165	Clay	4.8-5.8	--	P	S	--	10	10	--	--	Nace, Deutsch, and Voegeli, 1956, p.150.
		Silt		--	S	--	--	30	15	tr	5	
06N-31E-26abb1	166	Clay	3.8-4.5	--	P	--	--	10	10	--	--	
		Silt		--	S	S	S	50	10	5	5	
06N-31E-26cb1	167	Clay	5.2-6.0	--	P	P	--	15	5	tr	--	
		Silt		--	S	--	S	50	10	5	15	
06N-31E-27cdd1	168	Clay	--	--	P	P	S	10	10	--	--	
		Silt		--	S	S	--	40	15	10	15	
06N-31E-34ad1	169	Clay	5.2-6.0	--	P	P	S	15	10	--	--	
		Silt		--	S	S	S	45	25	tr	10	
06N-31E-34ccc1	170	Clay	0.0-5.0	--	P	P	--	10	10	--	--	
		Silt		--	S	--	--	40	15	5	tr	
06N-31E-34ccc2		Clay	0.5	--	P	P	S	15	5	--	--	
		Silt		--	S	--	--	50	10	10	10	
06N-31E-34ccc3		Clay	1.0	--	P	P	--	15	tr	tr	--	
		Silt		--	S	--	--	45	5	10	5	
06N-32E-22Center1	171	Clay	0.0	--	P	P	S	10	10	tr	--	
		Silt		--	S	--	--	35	15	5	5	
06N-33E-21aa1	172	Clay	1.0	--	P	P	S	S	--	--	--	
05N-31E-29b1	173	Clay	--	--	P	P	S	15	--	--	--	
		Silt		--	S	--	S	45	--	20	--	
05N-31E-31b1	174	Clay	0.5	--	S	P	S	15	--	--	--	
		Silt		--	S	S	S	40	--	15	--	

Table 20.--Miscellaneous mineralogical data for clay and silt fractions from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho--Continued

Local sample identifier	Map no.	Size fraction	Interval sampled (ft below land surface)	Minerals present (approximate amount for each fraction)								Reference
				Mixed layer clays	Montmorillonite	Illite	Kaolinite	Quartz	Calcite	Feldspar	Dolomite	
05N-31E-31Center1	175	Clay	0.5	--	P	--	S	15	--	--	--	Nace, Deutsch, and Voegeli, 1956, p.150.
		Silt		--	S	S	S	40	--	15	--	
05N-31E-33db1	176	Clay	--	--	--	P	S	10	--	tr	--	
		Silt		--	--	S	--	50	--	5	--	
05N-33E-10cd1	177	Clay	1.0-1.5	--	P	P	S	S	--	--	--	
05N-34E-18da1	178	Clay	0.0	--	P	P	tr	tr	--	--	--	Nace, Deutsch, and Voegeli, 1956, p.151.
04N-30E-4baa1	179	Clay	3.0-3.4	--	P	--	S	15	5	--	--	
		Silt		--	S	--	S	50	5	5	10	
04N-30E-22bb1	180	Clay	1.0	--	P	P	S	S	--	--	--	
04N-30E-22bd1	181	Clay	1.0	--	P	P	S	tr	--	--	--	
04N-30E-23ca1	182	Clay	1.5	--	tr	P	P	S	--	--	--	
04N-30E-26acc1	183	Clay	1.0	--	P	P	S	S	--	--	--	
04N-30E-27acc1	184	Clay	1.0	--	P	P	S	S	--	--	--	
04N-30E-27ddd1	185	Clay	--	--	P	P	--	15	5	--	--	
		Silt		--	S	--	--	50	--	25	5	
02N-28E-12aca1	186	Clay	19.7	--	P	P	S	10	10	--	--	
		Silt		--	S	--	--	60	tr	25	--	
02N-28E-12bdd1	155	Clay	--	--	P	S	--	5	15	--	--	
02N-28E-12bdd2		Clay	--	--	P	P	S	15	5	tr	--	
		Silt		--	S	S	--	55	5	15	20	
02N-29E-18b1	187	Clay	3.9	--	P	S	--	S	--	--	--	
76-3-4	142	Clay	29.8-30.5	xxx	0	xxx	--	--	--	--	--	Rightmire and Lewis, 1987, p.39.
76-3-10		Clay	81.3	xxx	0	xxx	x	--	--	--	--	
76-3-11a		Clay	82.5	xxx	x	xxx	x	--	--	--	--	
76-3-13a		Clay	95.6-96.5	xxx	x	xxx	--	--	--	--	--	

Table 21.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1951-1952.

[Symbols: -- indicates no data available; > indicates greater than indicated value; < indicates less than indicated value. All fraction sizes were rounded to the nearest thousandth and the other numbers were rounded to the nearest tenth for consistency. Sample identifier: MTR is now known as Test Reactor Area (TRA); STR is now known as Naval Reactor Facility (NRF); Site 7 is now known as Idaho Chemical Processing Plant (ICPP); Site 1 is now known as EBR-1; BLRG equals Big Lost River Gravel; BCG equals Birch Creek Gravel. Map no.: Location shown on figures 10-14.]

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (in.) <0.003	0.003-0.006	0.006-0.012	0.012-0.023	0.023-0.046	0.046-0.093	0.093-0.185	0.185-0.371	0.371-0.742	>0.742	Reference and date
4E-SITE7	188	5.7-7.5	1.8	0.9	2.8	3.5	3.5	5.5	10.3	17.4	20.0	33.6	Jones and Voegeli, 1951a, p.17.
X-3-SITE7		30.0-30.5	13.3	1.2	2.7	4.8	5.5	7.4	10.3	14.2	14.7	25.6	Jones and Voegeli, 1951a, p.18.
WB-8-SITE7		51.0-51.5	29.7	7.1	7.5	2.3	1.5	3.3	5.2	8.2	4.0	30.7	Jones and Voegeli, 1951a, p.19.
A-13-SITE7		14.5-15.1	25.1	6.0	8.6	7.8	8.8	9.9	8.3	7.4	10.3	7.6	Jones and Voegeli, 1951a, p.20.
4S-4E-SITE7		0.6-1.5	59.8	9.3	11.6	4.8	1.2	0.5	0.8	2.6	6.4	2.8	Jones and Voegeli, 1951a, p.21.
B-5-MTR-1	189	5.0-10.0	2.9	5.5	9.8	8.3	6.6	7.1	8.2	9.9	22.0	19.7	Jones and Voegeli, 1951b, p.23.
B-6-MTR-2		45.0-50.0	8.1	12.8	24.8	26.0	9.9	4.2	4.1	4.9	4.3	0.0	Jones and Voegeli, 1951b, p.24.
D-6-MTR-3		10.0-15.0	3.4	2.4	5.2	6.1	6.5	7.6	9.7	9.5	21.3	28.0	Jones and Voegeli, 1951b, p.25.
E-3-MTR-4		10.0-15.0	5.4	3.6	9.2	9.9	5.7	6.6	10.4	17.1	22.7	8.7	Jones and Voegeli, 1951b, p.26.
B-5-MTR-5		40.0-45.0	56.4	12.0	22.8	5.2	1.0	0.3	0.4	1.2	--	--	Jones and Voegeli, 1951b, p.27.
STR-1	190	2.5-2.75	0.9	1.2	5.7	9.8	5.1	6.3	10.4	15.2	27.1	15.8	Jones and others, 1951, p.21.
STR-2		7.0-7.25	0.2	0.4	4.1	14.3	7.4	8.6	14.2	19.3	17.1	13.8	Jones and others, 1951, p.22.
STR-3		11.0-11.5	0.1	0.2	2.0	14.3	9.4	4.6	7.5	15.9	34.7	10.5	Jones and others, 1951, p.23.
STR-4		7.0-7.5	0.5	1.3	5.8	6.5	1.9	2.7	6.3	12.0	22.5	40.4	Jones and others, 1951, p.24.
STR-5		10.5-11.0	0.4	1.4	6.7	5.6	2.9	5.0	8.4	12.8	13.0	43.6	Jones and others, 1951, p.25.
STR-6		15.0-16.0	0.5	1.3	11.4	17.7	4.8	2.9	4.2	8.8	16.6	31.5	Jones and others, 1951, p.26.
STR-7		14.0-14.5	0.3	0.3	0.6	0.5	0.5	1.0	9.6	30.0	43.9	13.1	Jones and others, 1951, p.27.
G2-42-STR-8		36.5-37.0	49.0	23.4	21.4	5.0	0.6	--	--	--	--	--	Jones and others, 1951, p.28.
BLRG-SITE1	191	3.0-3.5	1.1	1.0	5.2	4.3	4.1	5.5	9.0	15.1	17.8	35.9	Nace and Voegeli, 1951, p.15.
8-CFA-1	192	4.0	0.6	0.7	3.4	3.8	2.2	3.7	10.1	19.1	23.9	32.8	Nace and others, 1951, p.41.
11-CFA-2	193	15.0	0.2	0.8	6.3	7.7	4.5	5.8	9.1	16.3	23.2	26.0	Nace and others, 1951, p.42.
8-B-CFA-3	194	4.0	0.4	1.3	8.7	11.5	5.3	5.1	9.8	19.1	22.5	16.3	Nace and others, 1951, p.43.
S-7-CRA-4	195	6.2	0.3	0.9	7.8	12.8	5.0	4.8	8.5	17.4	21.2	20.6	Nace and others, 1951, p.44.
S14-1	196	0.0	23.3	15.4	34.2	19.7	4.2	1.4	1.1	0.8	--	--	Deutsch, Nace, and Voegeli, 1952, p.56.
S14-4	197	0.0	18.2	14.5	33.8	27.7	5.9	0.4	--	--	--	--	Deutsch, Nace, and Voegeli, 1952, p.57.
S14-8	198	0.0	16.1	21.6	50.7	9.2	2.5	0.2	--	--	--	--	Deutsch, Nace, and Voegeli, 1952, p.57.
S14-40N	199	44.5-45.5	9.7	13.4	29.2	23.2	7.2	4.4	4.9	4.4	3.5	--	Deutsch, Nace, and Voegeli, 1952, p.58.
BCG-11	200	1.0-1.5	1.2	3.0	11.3	5.4	2.3	3.4	8.3	19.5	16.4	19.5	Deutsch, Nace, and Voegeli, 1952, p.59.
BCG-12		3.0-3.5	1.0	1.9	11.5	10.1	2.7	2.8	8.1	17.2	22.9	21.9	Deutsch, Nace, and Voegeli, 1952, p.60.
BCG-13		6.0	0.8	1.4	6.7	5.3	2.2	4.8	9.5	18.7	22.7	28.5	Deutsch, Nace, and Voegeli, 1952, p.61.

Table 22.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1963-1987

[Symbols: -- indicates no data available; < indicates less than indicated value; ---1.2----- number is the sum of the size fractions <0.062 mm. Sample identifier: F equals fracture-fill sample, and I equals interbed sample. Map no.: Locations shown on figures 10-14. Interval sampled: Depths in meters were converted to feet and all intervals rounded to the nearest tenth for consistency.]

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (mm) <0.004	0.004-0.062	0.062-0.125	0.125-0.25	0.25-0.50	0.5-1	1-2	2-4	4-8	8-16	16-32	32-64	Reference and date
A-10	127	12.5	4.0	2.8	1.7	4.8	9.6	6.2	5.1	7.1	11.1	22.1	25.5	--	Morris and others, 1963, p.43a.
		17.5	2.3	2.6	1.1	2.6	5.2	4.0	3.7	6.7	13.2	28.5	30.1	--	
		20.0	4.0	4.4	1.8	4.0	6.6	4.4	4.0	7.5	12.5	26.3	20.4	4.1	
		22.5	3.4	3.2	1.5	3.2	5.5	4.0	4.0	6.0	14.8	22.7	31.7	--	
		30.0	1.2	2.0	0.8	1.4	2.0	1.3	0.9	0.3	1.5	14.4	66.3	7.9	
		32.5	1.2	2.0	0.7	1.5	1.7	1.2	0.9	0.5	0.7	11.4	31.9	46.3	
		35.0	1.8	2.8	1.1	1.8	2.3	1.5	1.3	1.3	2.2	21.8	62.1	--	
		37.5	2.4	2.9	1.2	2.3	2.9	2.1	2.3	3.8	4.9	24.3	40.8	10.1	
		45.0	2.0	3.0	1.2	1.8	1.7	0.9	1.1	0.9	1.0	6.9	62.6	16.9	
LOFT D-3	128	6.0-6.2	23.7	23.3	47.0	5.4	0.6	--	--	--	--	--	--	--	Morris and others, 1964.
		10.0-10.2	27.0	12.1	24.7	23.2	7.7	1.7	1.4	1.3	0.9	--	--	--	
		12.0-12.2	21.5	26.2	21.3	21.7	7.3	1.0	0.4	0.5	0.1	--	--	--	
		16.0-16.2	15.8	14.3	21.5	35.3	11.5	1.0	0.2	0.1	0.3	--	--	--	
		18.5-18.7	23.9	59.5	6.8	3.3	1.5	0.4	0.2	0.2	2.1	2.1	--	--	
LOFT D-4	129	5.0-5.2	37.6	24.5	27.0	8.4	2.2	0.2	0.0	0.1	--	--	--	--	
		9.0-9.2	33.8	17.6	22.4	20.6	5.2	0.4	--	--	--	--	--	--	
		13.0-13.2	22.3	18.9	18.1	24.9	10.8	2.3	0.8	0.7	1.2	--	--	--	
		17.0-17.2	7.9	14.0	18.9	32.6	19.8	4.6	1.6	0.4	0.2	--	--	--	
SET D-3	130	3.0-3.2	63.8	29.5	4.4	1.0	0.2	0.2	0.2	0.3	0.4	--	--	--	
		4.5-4.7	42.7	19.7	9.6	6.6	3.6	1.7	2.8	6.6	3.8	2.9	--	--	
		6.5-7.5	17.0	9.6	4.1	5.1	5.1	3.0	6.3	18.4	23.9	5.8	1.7	--	
		12.5-18.0	17.3	18.3	8.5	6.0	3.1	1.3	1.2	2.2	6.4	27.8	7.9	--	
		20.0-20.2	28.4	34.9	27.2	8.0	1.2	0.2	0.0	0.1	--	--	--	--	
		22.0-22.2	18.0	17.5	32.1	20.7	6.4	0.9	0.4	2.8	1.2	--	--	--	
		22.0-25.0	28.4	23.0	20.7	16.1	6.4	0.5	0.8	2.2	1.5	0.4	--	--	
		29.0-29.2	18.7	22.5	16.6	26.1	13.7	1.6	0.4	0.2	0.2	--	--	--	
SET E-2	131	10.0-15.0	10.0	7.7	4.6	5.4	4.0	1.8	2.7	6.6	17.4	31.3	8.5	--	
		15.0-20.0	19.9	16.9	8.4	6.4	4.1	1.7	2.1	5.2	14.3	21.0	--	--	
		22.0-22.2	26.8	33.3	25.1	9.0	2.7	0.4	0.2	0.7	0.6	1.2	--	--	
SET D-3		25.0-25.2	7.9	9.7	26.5	34.2	12.6	3.3	1.7	3.0	1.1	--	--	--	
SET E-2		30.0-30.2	14.3	26.8	22.5	23.7	11.6	0.6	0.2	0.3	--	--	--	--	
NRF D-1	132	3.3-3.5	30.5	43.5	11.6	11.0	3.2	0.2	--	--	--	--	--	--	Morris and others, 1965.
NRF D-2		5.1-5.2	37.3	59.1	1.4	1.4	0.8	--	--	--	--	--	--	--	
NRF D-3		6.4-6.6	16.2	30.0	22.2	22.0	9.4	0.2	--	--	--	--	--	--	

Table 22.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1963-1987--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (mm) <0.004	0.004-0.062	0.062-0.125	0.125-0.25	0.25-0.50	0.5-1	1-2	2-4	4-8	8-16	16-32	32-64	Reference and date
NRF D-4	132	7.9-8.0	8.2	38.4	48.6	4.8	--	--	--	--	--	--	--	--	Morris and others, 1965.
NRF D-5		10.4-10.5	67.9	27.9	3.4	0.6	0.2	--	--	--	--	--	--	--	
NRF A-1	133	2.5-2.7	37.4	39.6	11.4	9.2	2.2	0.2	--	--	--	--	--	--	
NRF A-2		4.5-4.7	24.4	24.2	14.4	25.8	10.4	0.8	--	--	--	--	--	--	
NRF A-3		6.3-6.5	33.8	45.2	13.4	6.6	1.0	--	--	--	--	--	--	--	
NRF A-4		8.3-8.5	40.0	33.0	10.2	11.2	5.4	0.2	--	--	--	--	--	--	
NRF A-5		10.3-10.5	25.5	39.7	17.4	12.0	4.8	0.6	--	--	--	--	--	--	
NRF B-1	134	0.8-0.9	5.0	21.8	43.0	24.6	5.4	0.2	--	--	--	--	--	--	
NRF B-2		2.3-2.5	26.4	30.0	11.0	21.3	8.6	1.2	1.2	0.3	--	--	--	--	
NRF B-3		4.3-4.5	24.8	53.6	10.2	8.4	2.6	0.2	0.2	--	--	--	--	--	
NRF B-4		6.0-6.2	31.6	32.0	11.8	14.8	9.2	0.6	--	--	--	--	--	--	
NRF B-5		8.4-8.6	37.4	60.0	2.2	0.2	0.2	--	--	--	--	--	--	--	
NRF B-6		10.4-10.6	12.0	19.4	3.0	20.8	38.0	5.4	1.4	--	--	--	--	--	
NRF C-1	135	2.2-2.4	20.0	46.0	18.4	13.2	2.4	--	--	--	--	--	--	--	
NRF C-2		4.6-4.8	64.3	29.1	2.6	2.8	1.2	--	--	--	--	--	--	--	
NRF C-3		6.1-6.3	8.0	15.0	19.8	37.4	18.2	1.6	--	--	--	--	--	--	
NRF C-4		8.2-8.4	9.5	29.3	47.6	13.0	0.6	--	--	--	--	--	--	--	
NRF C-5		10.1-10.3	12.0	22.9	12.4	24.8	23.3	3.6	0.8	0.2	--	--	--	--	
EBOR A-1	136	5.0-5.2	37.5	18.1	28.6	14.6	1.2	--	--	--	--	--	--	--	
		10.0-10.2	41.5	43.5	14.2	0.8	--	--	--	--	--	--	--	--	
		15.0-15.2	41.5	52.9	5.4	0.2	--	--	--	--	--	--	--	--	
		20.0-20.2	10.0	5.4	31.4	27.0	21.0	5.2	--	--	--	--	--	--	
		25.0-25.2	39.5	46.7	10.4	3.2	0.2	--	--	--	--	--	--	--	
		32.0-32.2	50.0	12.8	9.4	17.6	8.8	1.4	--	--	--	--	--	--	
		35.0-35.2	37.0	10.3	7.8	11.5	6.7	3.2	3.4	4.1	6.1	5.4	4.5	--	
EBR-2	137	5.2-5.4	13.8	61.2	19.2	5.0	0.8	--	--	--	--	--	--	--	
EBR-4	138	6.2-6.4	23.0	41.2	6.0	5.2	2.3	0.3	0.5	0.5	1.0	0.7	19.3	--	
EBR-7	139	5.2-5.4	16.0	58.0	19.0	5.8	1.2	--	--	--	--	--	--	--	
EBR-9	140	5.2-5.4	16.0	57.2	17.0	7.6	2.0	0.2	--	--	--	--	--	--	
EBR-12	141	5.2-5.4	10.2	31.4	25.0	22.8	10.2	0.4	--	--	--	--	--	--	
BG-87	114	236.0-237.5	10.1	57.1	0	8.7	0.7	5.1	7.3	4.7	2.8	3.5	0	0	Barraclough and others, 1976, p.119.
		242.0-243.5	5.0	34.0	0.2	17.0	12.7	10.5	9.9	5.2	3.8	1.8	0	0	
		559.0-561.0	9.2	55.1	14.8	12.6	0.2	0.6	0	0.7	2.1	4.8	0	0	
BG-88	115	108.5-111.5	8.0	31.8	10.5	14.4	12.9	12.9	2.4	4.6	2.5	0	0	0	
		112.5-113.5	6.6	34.0	11.1	14.7	12.9	10.7	3.6	4.3	2.1	0	0	0	
		237.0-238.5	16.0	80.0	2.3	1.0	0.4	0.2	0.2	0	0	0	0	0	
		247.5-249.0	40.9	53.5	1.4	3.2	1.0	0	0	0	0	0	0	0	

Table 22.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1963-1987--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (mm) <0.004	0.004-0.062	0.062-0.125	0.125-0.25	0.25-0.50	0.5-1	1-2	2-4	4-8	8-16	16-32	32-64	Reference and date
BG-88	115	265.5-267.0	37.9	61.1	0.2	0.6	0	0.2	0	0	0	0	0	0	Barraclough and others, 1976, p.119.
		519.0-521.0	7.3	57.0	0.4	21.2	2.4	1.8	0.4	3.9	3.6	2.1	0	0	
BG-89	116	241.0-241.6	23.3	63.3	6.7	5.3	0.6	0.8	0	0	0	0	0	0	
		243.5-245.5	38.3	54.6	0	6.5	0.6	0	0	0	0	0	0	0	
		250.9-252.2	7.0	58.3	1.2	14.2	3.4	4.1	1.8	3.5	4.8	1.7	0	0	
BG-90	117	249.0-250.0	8.5	57.9	12.5	14.6	1.3	1.3	0	2.4	1.5	0	0	0	
		250.0-251.5	10.4	43.1	7.4	14.3	0.7	0.9	0.9	0.9	3.2	11.1	7.3	0	
BG-91	118	26.0-32.0	32.2	64.8	0.5	2.3	0.2	0	0	0	0	0	0	0	
		74.0-92.0	34.5	38.7	0.2	2.3	1.6	2.8	2.6	3.7	2.2	11.4	0	0	
		105.0-107.0	44.8	47.9	0.5	2.7	1.2	1.0	0.2	0.6	1.2	0	0	0	
		233.8-236.2	5.8	13.6	11.6	40.6	22.6	4.3	0.4	1.1	0.1	0	0	0	
		236.2-238.8	9.8	75.6	13.0	1.6	0	0	0	0	0	0	0	0	
		243.2-245.1	23.1	55.7	9.2	11.8	0.2	0	0	0	0	0	0	0	
BG-92	119	2.6-5.0	21.1	48.8	22.4	6.7	0.6	0.4	0	0	0	0	0	0	
		225.5-228.0	10.0	77.6	10.4	2.0	0	0	0	0	0	0	0	0	
		233.5-236.0	17.8	33.2	10.6	20.6	13.8	4.0	0	0	0	0	0	0	
		244.6-246.2	24.0	74.6	0.8	0.6	0	0	0	0	0	0	0	0	
BG-93	120	12.1-14.0	49.1	45.1	4.2	1.2	0.2	0.2	0	0	0	0	0	0	
		88.2-90.3	19.1	65.5	0.4	6.2	1.1	0.4	0	0.2	0.2	0	6.8	0.1	
		103.0-105.0	14.9	41.3	0.2	11.2	7.8	10.4	5.5	3.3	3.3	2.2	0	0	
		105.0-110.0	16.3	30.6	7.4	11.0	11.0	10.8	3.4	3.2	3.0	3.3	0	0	
		228.8-229.9	14.2	33.9	4.5	11.1	22.1	11.7	2.5	0	0	0	0	0	
BG-94	121	6.5-8.2	38.7	56.5	3.2	1.6	0	0	0	0	0	0	0	0	
		8.2-8.7	38.2	50.9	9.1	1.8	0	0	0	0	0	0	0	0	
		110.0-112.5	5.1	13.4	13.9	20.7	15.5	11.2	5.1	5.3	5.5	4.2	0	0	
		228.8-231.2	15.6	60.3	12.4	5.7	5.9	0.2	0	0	0	0	0	0	Barraclough and others, 1976, p.120.
		236.2-238.8	17.5	49.5	8.8	11.8	9.8	2.6	0	0	0	0	0	0	
		244.8-247.9	23.6	64.4	4.8	1.7	0.2	0.4	0	1.1	1.4	2.4	0	0	
		270.2-272.3	27.5	56.5	2.3	0.6	0.2	0	0	0.7	0.9	0	11.3	0	
BG-95	122	10.0-12.5	38.5	55.6	3.6	2.3	0	0	0	0	0	0	0	0	
		17.5-20.0	9.9	73.0	8.6	6.4	1.8	0.2	0.2	0	0	0	0	0	
		106.0-107.0	24.2	18.2	8.5	17.4	24.6	6.9	0.2	0	0	0	0	0	
		109.5-112.0	36.1	28.0	16.5	12.0	4.7	2.4	0.4	0	0	0	0	0	
		229.2-231.8	7.1	72.7	11.6	8.6	0	0	0	0	0	0	0	0	
		231.8-233.2	22.0	70.6	4.4	3.0	0	0	0	0	0	0	0	0	
BG-96	123	12.9-15.0	33.6	57.7	7.1	1.6	0	0	0	0	0	0	0	0	
		101.9-103.0	---0.8-----		0.8	5.3	16.4	25.6	13.6	25.0	12.4	0	0	0	

Table 22.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1963-1987--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (mm) <0.004	0.004-0.062	0.062-0.125	0.125-0.25	0.25-0.50	0.5-1	1-2	2-4	4-8	8-16	16-32	32-64	Reference and date
BG-96	123	116.6-119.1	52.4	37.7	3.0	6.0	0.2	0.8	0	0	0	0	0	0	Barraclough and others, 1976, p.120.
		224.1-226.6	30.0	62.6	6.6	0.8	0	0	0	0	0	0	0	0	
93A-1F	124	18.1-18.3	16.1	41.8	14.5	11.2	8.1	5.0	2.3	0.9	0.1	0	0	0	Rightmire, 1984, p.15.
93A-4F		65.1	25.9	17.8	6.6	2.2	2.3	2.5	2.5	4.4	17.2	18.8	0	0	
93A-5F		66.6	29.8	14.5	1.5	1.9	1.7	0.9	2.9	0.4	13.6	12.9	20.0	0	
93A-6F		71.1	20.2	7.6	0.3	0.6	0.9	1.8	0.1	2.0	3.1	12.9	50.5	0	
93A-9F		75.4	51.7	19.4	0.6	0.4	0.4	0.6	0.7	2.1	3.5	20.6	0	0	
93A-10F		77.8	---71.7-----		1.6	0.5	0.1	0.4	0.7	2.5	3.6	19.0	0	0	
93A-11I		80.0	23.6	58.7	9.0	5.0	3.1	0.5	0.1	0	0	0	0	0	
93A-12I		84.0-84.5	62.0	7.1	0.4	0.8	0.2	0.4	0.4	0.6	1.6	2.7	0	23.7	
93A-13I		89.0-89.5	44.0	14.0	1.9	1.8	1.8	2.2	2.8	9.4	13.8	8.3	0	0	
93A-15I		100.5	15.7	18.0	6.1	10.8	16.8	12.4	6.4	5.4	4.6	3.8	0	0	
93A-16I		102.2	12.7	12.4	4.8	6.4	8.9	15.9	10.5	12.5	11.7	4.1	0	0	
93A-17I		103.2	17.5	16.0	5.9	8.1	11.5	9.6	8.1	9.8	7.7	5.6	0	0	
93A-18I		103.2	---0.8-----		5.4	8.0	23.7	8.6	2.9	0.2	4.2	15.2	30.9	0	
93A-19I		106.2	13.9	19.7	6.3	13.0	10.4	7.9	3.8	8.6	7.1	5.2	4.1	0	
93A-20I		108.2	11.1	5.1	3.6	8.0	10.7	4.8	4.4	20.4	18.0	13.8	0	0	
93A-21I		109.1	7.7	48.9	8.0	6.5	3.1	4.3	3.6	11.3	3.6	3.1	0	0	
93A-22F		123.2	15.6	49.0	4.1	2.0	1.8	2.5	4.0	3.8	10.5	6.7	0	0	
93A-24F		180.5	65.5	8.3	3.2	3.8	2.4	2.1	2.6	1.1	5.1	5.9	0	0	
93A-25F		187.4	61.3	21.8	0.8	1.4	1.9	2.7	3.5	2.0	2.7	2.0	0	0	
93A-26I		226.4	18.2	13.4	2.9	5.2	9.1	26.0	25.1	0	0	0	0	0	
93A-27I		227.8	45.1	24.2	6.8	12.0	11.9	0	0.1	0	0	0	0	0	
93A-28I		229.2	13.8	42.8	9.1	6.5	7.3	5.2	3.0	8.0	3.3	0.9	0	0	
93A-29I		231.8	26.8	47.1	6.7	8.1	6.5	2.7	0.1	1.1	0.9	0	0	0	
93A-30I		233.1	23.3	43.0	7.5	7.8	6.9	4.8	3.8	0.5	2.0	0.4	0	0	
96B-1I	125	35.6	7.9	31.6	6.2	5.4	5.9	8.4	1.5	2.8	7.1	16.9	6.3	0	
96B-2I		38.4	8.7	46.8	18.3	14.8	11.3	0.1	0	0	0	0	0	0	
96B-3I		40.0	4.0	11.1	26.1	38.0	18.7	2.3	0	0	0	0	0	0	
96B-4I		40.3	4.1	17.9	26.2	36.8	13.7	1.2	0.1	0	0	0	0	0	
96B-6I		101.5	3.6	4.9	2.4	3.1	4.5	11.6	6.8	12.4	16.7	28.1	5.9	0	
96B-7I		116.5	72.0	8.7	6.4	7.1	3.2	1.2	1.5	0	0	0	0	0	
96B-8I		122.5	---1.2-----		19.4	66.6	12.6	0.1	0.2	0	0	0	0	0	
96B-9I		127.2	7.7	10.8	20.9	27.5	23.9	6.5	0.5	0.1	0.6	1.5	0	0	
96B-10F		129.8	9.9	39.2	19.6	10.2	2.8	1.5	1.8	1.7	7.8	5.5	0	0	
96B-11F		146.7-148.0	15.3	46.0	18.2	7.7	2.9	6.1	3.9	0	0	0	0	0	
96B-12F		148.7	13.2	23.3	9.3	4.6	4.0	4.6	3.4	9.9	20.8	7.0	0	0	

Table 22.--Grain-size data from previously published reports of the U.S. Geological Survey at the Idaho National Engineering Laboratory, Idaho, 1963-1987--Continued

Sample identifier	Map no.	Interval sampled (ft below land surface)	Grain-size distribution in weight percent: Fraction size (mm) <0.004	0.004-0.062	0.062-0.125	0.125-0.25	0.25-0.50	0.5-1	1-2	2-4	4-8	8-16	16-32	32-64	Reference and date
96B-13F		181.5-183.5	9.3	7.1	42.5	20.4	1.5	2.0	1.3	5.7	4.6	5.5	0	0	Rightmire, 1984, p.15.
96B-14I		213.6	9.8	1.5	1.6	2.0	3.7	6.5	13.0	22.1	25.9	14.0	0	0	
96B-15I		221.2	6.9	40.9	26.3	15.2	9.8	0.8	0	0	0	0	0	0	
96B-16I		224.7	8.8	43.4	40.8	5.6	0.9	0.5	0.1	0	0	0	0	0	
96B-17I		229.6	10.0	68.1	17.6	3.3	0.8	0.1	0	0	0	0	0	0	
EWR-1-4	126	3.0	53.3	38.5	4.8	2.3	0.9	0.1	--	--	--	--	--	--	Rightmire and Lewis, 1987, p.19.
EWR-1-3		4.0	41.0	30.1	11.0	17.7	0.2	0	--	--	--	--	--	--	
EWR-1-2		5.0	54.7	40.1	4.1	0.7	0.2	0.1	--	--	--	--	--	--	
EWR-1-1		6.0	23.5	69.8	6.0	0.6	0	0.1	--	--	--	--	--	--	

Table 23.--Statistical parameters for grain-size analyses for samples from two wells at the Radioactive Waste Management Complex, Idaho National Engineering Laboratory, Idaho[1]

Sample identifier	Interval sampled (ft below land surface)[2]	Median size (mm)	Sorting coefficient	Skewness	Kurtosis	Uniformity coefficient
93A-1	18.1-18.3	0.04	3.0	1.6	0.15	55.0
-4	65.1	0.12	41.0	1.7	--	--
-5	66.6	0.88	67.0	0.05	--	--
-6	71.1	16.0	50.0	--	--	--
-11	80.0	0.02	3.1	0.83	--	--
-15	100.5	0.24	6.0	0.30	--	--
-16	102.2	0.65	6.4	0.37	--	--
-17	103.2	0.30	11.0	0.28	--	--
-18	103.2	4.3	7.2	0.37	0.35	0.61
-19	106.2	0.22	8.7	1.1	--	--
-20	108.2	2.2	5.2	0.23	0.26	1229.0
-21	109.1	0.04	10.0	2.7	0.26	22.0
-22	123.2	0.02	12.0	14.0	0.07	25.0
-26	226.4	0.52	6.9	0.08	0.31	518.0
-27	227.8	0.01	9.5	5.2	--	--
-28	229.2	0.05	4.2	2.5	0.06	34.0
-29	231.8	0.02	5.0	0.52	--	--
-30	233.1	0.019	6.0	1.5	--	--
96B-1	35.6	0.22	18.0	3.0	0.24	140.0
-2	38.4	0.05	2.8	1.0	0.21	17.0
-3	40.0	0.15	1.7	0.86	0.21	6.2
-4	40.3	0.13	1.8	0.87	0.23	7.5
-6	101.5	4.2	4.6	0.30	0.34	65.0
-8	122.5	0.18	1.3	0.93	0.22	2.2
-9	127.2	0.17	2.0	0.91	0.26	32.0
-10	129.8	0.07	3.0	1.1	0.02	24.0
-11	146.7-148.0	0.04	2.8	1.1	0.10	47.0
-12	148.7	0.24	13.0	2.1	--	--
-13	181.5-183.5	0.11	1.7	1.3	0.018	25.0
-14	213.6	2.9	2.5	0.70	0.26	251.0
-15	221.2	0.066	2.4	0.68	0.21	7.6
-16	224.7	0.06	1.9	0.67	0.29	17.0
-17	229.6	0.026	3.0	0.57	--	--

[1]Republished with modifications from Rightmire, 1984, table 4.
[2]Depth in meters were converted to feet and all depths were rounded to the nearest tenth for consistency.