MASTER

LITTLE ROCK AND EL DORADO 1° × 2° NTMS QUADRANGLES AND ADJACENT AREAS, ARKANSAS

DATA REPORT (ABBREVIATED)

NATIONAL URANIUM RESOURCE EVALUATION PROGRAM

HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE

K. F. STEELE AND J. R. COOK

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ABSTRACT

This abbreviated data report presents results of ground water and stream sediment reconnaissance in the National Topographic Map Series Little Rock 1° x 2° quadrangle (Cleveland, Dallas, and Howard Counties do not have stream sediment analyses); the El Dorado 1° x 2° quadrangle (only Clark County has stream sediment analyses); the western part (Lonoke and Jefferson Counties) of Helena 1° x 2° quadrangle; the southern part (Franklin, Logan, Yell, Perry, Faulkner, and Lonoke Counties) of Russellville 1° x 2° quadrangle; and the southwestern corner (Ashley County) of the Greenwood 1° x 2° quadrangle. Stream samples (surface sediment and, if flowing, water samples) were collected at 943 sites in the Little Rock quadrangle, 806 sites in the El Dorado quadrangle, 121 sites in the Helena area, 292 sites in the Russellville area, and 77 in the Greenwood area. Ground water samples were collected at 1211 sites in the Little Rock quadrangle, 1369 sites in the El Dorado quadrangle, 186 sites in the Helena area, 470 sites in the Russellville area, and 138 sites in the Greenwood area.

Stream sediment and stream water samples were collected from small streams at a nominal density of one site per 21 square kilometers (8 square miles) in rural areas. Ground water samples were collected at a nominal density of one site per 13 square kilometers (five square miles). Neutron activation analysis (NAA) results are given for uranium and 16 other elements in sediments, and for uranium and 8 other elements in ground water. Field measurements and observations are reported for each site.

Data from ground water sites (on microfiche in pocket) include (1) water chemistry measurements (pH, conductivity, and alkalinity), (2) physical measurements where applicable (water temperature, well description, etc.), and (3) elemental analyses (U, Al, Br, Cl, Dy, F, Mn, Na, and V). Area distribution maps, histograms, and cumulative frequency plots for most elements and U x 1000/conductivity ratio are included on the microfiche for the Little Rock and El Dorado quadrangles.

Data from sediment sites (also on microfiche in pocket) include (1) stream water chemistry measurements (pH, conductivity, and alkalinity), and (2) elemental analyses for sediment samples (U, Th, Hf, Al, Ce, Dy, Eu, Fe, La, Lu, Mn, Sc, Sm, Na, Ti, V, and Yb). Sample site descriptors (stream characteristics, vegetation, etc.) are also tabulated. Areal distribution maps, histograms, and cumulative frequency plots for most elements and for U/Th, U/Hf, and U/Th+Hf ratios are included on the microfiche.

Key data from stream water sites (also on microfiche in pocket) include (1) water quality measurements (pH, conductivity, and alkalinity) and (2) elemental analyses (U, Al, Br, Cl, Dy, F, Mg, Mn, Na, and V). An areal distribution map, histograms, cumulative frequency plots for most elements and for $U \times 1000/\text{conductivity ratio}$ are included on the microfiche for the Little Rock quadrangle.

Uranium concentrations in the sediments ranged from less than 0.1 ppm to 23.5 ppm with a mean of 2.7 ppm. The ground water uranium mean concentration is 0.113 ppb, and the uranium concentrations range from less than 0.002 ppb to 15.875 ppb. High ground water uranium values in the Ouachita Mountain region of the Little Rock quadrangle (northern part of the quadrangle) appear to be associated with Ordovician black shale units.

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LITTLE ROCK TABLES

Tabulated reconnaissance data and elemental concentrations in ground water samples, surface sediment samples, and stream water samples (Tables A-1, A-2, B-1, B-2, B-3, and C-1, respectively).

EL DORADO TABLES

Tabulated reconnaissance data and elemental concentrations in ground water samples, surface sediment samples, and stream water samples (Tables A-1, A-2, B-1, B-2, B-3, and C-1, respectively).

RUSSELLVILLE TABLES

Tabulated reconnaissance data and elemental concentrations in ground water samples, surface sediment samples, and stream water samples (Tables A-1, A-2, B-1, B-2, B-3, and C-1, respectively).

HELENA TABLES

Tabulated reconnaissance data and elemental concentrations in ground water samples, surface sediment samples, and stream water samples (Tables A-1, A-2, B-1, B-2, B-3, and C-1, respectively).

GREENWOOD TABLES

Tabulated reconnaissance data and elemental concentrations in ground water samples (Tables A-1 and A-2).

LITTLE ROCK GW PLOTS

Areal distribution maps, histograms, and frequency distribution plots for elemental U, F, Na, Mg, Al, Cl, Mn, Br, Dy, V, and He; for conductivity, alkalinity, and pH; and for U x 1000/conductivity at ground water sampling sites.

EL DORADO GW PLOTS

Areal distribution maps, histograms, and frequency distribution plots for elemental U, F, Na, Mg, Al, Cl, Mn, Br, Dy, V, and He; for conductivity, alkalinity, and pH; and for $U \times 1000/\text{conductivity}$ at ground water sampling sites.

LITTLE ROCK SED PLOTS

Areal distribution maps, histograms, and cumulative frequency plots for elemental U, Th, Hf, La, Ce, Sm, Eu, Dy, Yb, Lu, Al, V, Ti, Mn, Fe, Sc, and Na; for conductivity, alkalinity, and pH; and for $\log(U/Hf)$, $\log(U/Th)$, and $\log(U/Th+Hf)$ ratios at sediment sampling sites.

LITTLE ROCK SW PLOTS

Areal distribution maps, histograms, and frequency distribution plots for elemental U, Cl, F, Na, Mg, Al, Mn, Br, Dy, and V; for conductivity, alkalinity, and pH; and for $U \times 1000/\text{conductivity}$ ratios.

LITTLE ROCK SURFACE SITE LOCATION MAP

LITTLE ROCK GROUND WATER SITE LOCATION MAP

EL DORADO SURFACE SITE LOCATION MAP

EL DORADO GROUND WATER SITE LOCATION MAP

RUSSELLVILLE SURFACE SITE LOCATION MAP

RUSSELLVILLE GROUND WATER SITE LOCATION MAP

HELENA SURFACE SITE LOCATION MAP

HELENA GROUND WATER SITE LOCATION MAP

USER'S GUIDE

**DATA REPORT: LITTLE ROCK AND EL DORADO 1° x 2° NTMS QUADRANGLES AND
ADJACENT AREAS**

INTRODUCTION

The National Uranium Resource Evaluation (NURE) program was established to evaluate domestic uranium resources in the continental United States and to identify areas favorable for uranium exploration. The Grand Junction Office (GJO) of the Department of Energy (DOE) is responsible for administering the program. The Savannah River Laboratory (SRL) is responsible for hydrogeochemical and surface sediment reconnaissance (HSSR) of 3.9 million square kilometers (1.5 million square miles) in 37 eastern and western states.

The data presented here are reconnaissance data intended for use in identifying broad areas for further study. While care has been taken to provide reliable sampling and analyses, verification of individual analyses is beyond the scope of this report. The data should be viewed statistically because "one-point anomalies" may be misleading. Regional trends, however, should be reliable.

This report is one of a series presenting data obtained by SRL reconnaissance. Additional analyses may be released in later **Supplemental Data Reports**. All data will be available on magnetic tape from:

GJOIS Project
UCC-ND Computer Applications Department
4500 North Building
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, TN 37830

Sampling procedures are described in a field manual assembled specifically for this program (Price and Jones, 1979). A summary of the SRL development program in support of the reconnaissance is available in SRL-NURE progress reports (SRL-138). SRL data reports (SRL-146) have been open-filed for other eastern quadrangles (Figure 1).

FIGURE 1. Location Map for the Little Rock, El Dorado, Russellville, Helena, and Greenwood $1^{\circ} \times 2^{\circ}$ NTMS Quadrangles

SRL reports titled **Basic Data Report** or **Data Report** include geologic descriptions and a somewhat more complete description of the HSSR program. These reports and reports titled **Data Report (Abbreviated)** include neutron activation analyses (NAA) done at SRL. Reports titled **Supplemental Data Report** include analyses done by methods other than NAA. Not every quadrangle will be described in both **Data Reports** [or **Data Reports (Abbreviated)**] and **Supplemental Reports**.

FACTORS AFFECTING THE DATA

General

Samples of sediment, surface water, and ground water were collected during the fall and winter of 1978. Scintillometer readings were not recorded for these quadrangles.

Quality Assurance

Sample Collection

Sixteen percent of the sampled sites were checked by a subcontractor for the Little Rock quadrangle. The checking of these sites suggests that about twenty-one percent of the sites in the Little Rock quadrangle were mismapped by 300 meters or more. Several sites could not be located. The quality of site location within the other quadrangles is expected to be no worse than for the Little Rock quadrangle and in the case of the El Dorado quadrangle should be better.

Although these checks show that the quality of field work in the Little Rock (and perhaps the other quadrangles) does not meet SRL standards, these data are released to expedite the assessment of the quadrangles' uranium potential.

Analytical Standards

Sediment Standards SRL 2.2, 3.1, and 4.1 were analyzed along with NURE sediment samples. Analyses of these standards provide routine checks of the analytical equipment and software. Tables 1a, 1b, and 1c contain the results from the standards and are representative of analytical precision.

TABLE 1a

Statistical Summary of Analytical Results for SRL 2.2
Sediment Standard

<u>Element</u>	<u>Number</u>	<u>Mean, ppm</u>	<u>Coefficient of Variation, %</u>	<u>Probable Value, ppm</u>
U	294	21.8	5.8	22.2
Th	295	114	15.2	125
Hf	296	146	18.1	156
Al	289	7000	10.8	6500
Ce	288	534	15.5	614
Fe	273	6600	26.2	6700
Mn	266	275	15.8	300
Sc	297	3.41	26.8	3.9
Na	278	150	36.3	145
Ti	271	12,400	20.6	13,200
V	282	33.7	16.9	34.7
Dy	275	27.3	38.0	<22
Eu	175	2.74	35.4	2.5
La	276	279	17.5	301
Lu	253	2.55	13.2	2.9
Sm	280	47.7	38.2	51.3
Yb	294	15.9	21.3	18.2

TABLE 1b

Statistical Summary of Analytical Results for SRL 3.1
Sediment Standard

<u>Element</u>	<u>Number</u>	<u>Mean, ppm</u>	<u>Coefficient of Variation, %</u>	<u>Probable Value, ppm</u>
U	162	42.0	5.0	41.3
Th	163	166	15.5	162
Hf	44	4.7	39.2	7.2
Al	132	37,000	16.6	30,600
Ce	149	913	17.5	903
Fe	160	16,000	19.3	15,200
Mn	156	283	16.4	289
Sc	169	4.55	36.7	4.19
Na	167	1030	30.6	901
Ti	114	5870	15.9	6100
V	147	50.6	17.0	54.4
Dy	135	71.2	20.9	50*
Eu	151	3.90	29.3	3.86
La	153	470	16.4	443
Lu	152	4.78	17.3	4.4
Sm	159	68.8	36.6	69.2
Yb	161	33.1	18.6	29.9

* Only one laboratory reported a value for dysprosium.

TABLE 1c

**Statistical Summary of Analytical Results for SRL 4.1
Sediment Standard**

<u>Element</u>	<u>Number</u>	<u>Mean, ppm</u>	<u>Coefficient of Variation %</u>	<u>Probable Value, ppm</u>
U	159	0.56	11.8	0.58
Th	93	2.4	42.3	2.1
Hf	122	3.2	46.4	3.3
Al	112	71,000	15.7	66,700
Ce	105	59	22.8	44
Fe	156	85,500	14.6	87,300
Mn	141	1850	16.8	1970
Sc	158	20	34.4	21
Na	153	18,800	15.6	16,100
Ti	91	26,700	14.6	25,200
V	136	259	16.1	273
Dy	16	7.3	29.2	<22
Eu	79	1.47	37.2	1.16
La	157	18.2	18.1	18.6
Lu	129	0.22	31.4	0.28
Sm	152	3.4	24.6	4.2
Yb	60	2.1	47.8	1.6

DESCRIPTION OF DATA TABLES

This section of the report summarizes the type of data tabulated on microfiche. Ground water analyses and site descriptions are tabulated in Tables A-1 and A-2, both of which can be found on the microfiche titled **LITTLE ROCK, EL DORADO, RUSSELLVILLE, HELENA, and GREENWOOD TABLES**. Sediment analyses and site descriptions are tabulated in Tables B-1, B-2, and B-3, and stream water measurements (where collected) and analyses are tabulated in Table C-1 (also on microfiche).

Table A-1 begins with the sample's SRL identification number, which is composed of four letters and a three-digit number. The first two letters give the state (zip code state abbreviation) from which the sample was collected. Map name abbreviations are entered as letters 3 and 4; normally these represent counties. Numbers from 001 to 499 designate surface sites. Numbers from 501 to 999 designate ground water sites.

Other entries on Table A-1 include a DOE identification number; pH, conductivity, alkalinity, and scintillometer readings (where measured); analyses for U, Br, Cl, F, He, Mn, Na, and V; and the ratio of uranium-to-conductivity (multiplied by 1000 for convenience; $U \times 1000/\text{cond.}$). All entries are self-explanatory except those noted below (see also the **USER'S GUIDE**).

DOE ID is a 28-digit number that includes the following parts:

Digit Number

1-2	State (see Table 1 in the USER'S GUIDE)
4-10	Latitude of site
12-18	Longitude of site
20	Laboratory code (4 = SRL)
22-23	Sample type (see Table 2 in the USER'S GUIDE)
25-27	Replication code. Generally only original samples (-000) are reported in the Data Reports.

Table A-2 shows SRL identification number; concentrations of Al and Dy; sampling date; sample collection team number; and the following characteristics of the well or spring that was sampled:

WATERTEM	Water temperature, in °C.*
WELSPR	A well or a spring.*
DEPTHCON	Confidence in depth measurement.*
AGE	Age in years.
AGECON	Confidence of age of well.*
WELLTYPE	Type of well.*
WELLUSE	Use of well.*
WELLFREQ	Frequency of use.*
WELLODOR	Presence of hydrogen sulfide or other odor.
PIPECOMP	Composition of the well pipe.*
WELLOC	Location in the system from which the sample was collected.*
WELCLASS	Classification of well use.*
WELDEPTH	Depth of the well in feet.

Sediment analyses and site descriptions are tabulated in Tables B-1, B-2, and B-3, which are on the microfiche labeled LITTLE ROCK, EL DORADO, RUSSELLVILLE, HELENA, and GREENWOOD TABLES.

Table B-1 includes SRL and DOE identification numbers similar to those described above for ground water sites. Table B-1 also includes pH, conductivity, and alkalinity of stream water, plus elemental concentrations of U, Th, Hf, Ce, Fe, Mn, Na, Sc, Ti, and V.

Table B-2 (Supplementary Data - Sediments) includes the SRL identification number and concentrations of Al, Dy, Eu, La, Sm, Yb, and Lu.

* Definitions of entries under these headings are detailed in the USER'S GUIDE.

Table B-3 (Supplementary Data - Sediments) includes the SRL identification number of the following entries:

SEDTYPE	Type of soil, sediment, etc., sampled (see Table 2 in the USER'S GUIDE).
SEDCOLOR	Color of the sediment.*
STMWIDTH	
STMDEPTH	
STMFLOW	Size and flow rate of stream at sampling site.*
STMLEVEL	
STMCOLOR	
STMCHANL	
VEGTYPE	Dominant type of vegetation at site.*
VEGDENS	Vegetation density at site.*
RELIEF	Local relief at site.*
WEATHER	Weather at time of sampling.*
COMPOSIT	Number of subsamples blended into sample.
CONTAMN1	Activities or contaminants that may affect the material sampled.*
CONTAMN2	
CONTAMN3	
CONTAMN4	
WATERTEM	Water temperature in °C.

Stream water measurements (where collected) and analyses are tabulated in Table C-1 (also on microfiche). Table C-1 includes SRL and DOE identification numbers similar to those of the sediment and ground water sites. Table C-1 also includes pH, conductivity, and alkalinity values plus elemental concentrations of U, Al, Br, Cl, Dy, F, Mg, Mn, Na, V, and the U x 1000/conductivity ratios for stream waters.

Further details of how the field data are recorded can be found in the USER'S GUIDE and in the field manual by Price and Jones (1979).

* Definitions of entries under these headings are detailed in the USER'S GUIDE.

Elemental Analyses

Concentrations of each element are reported in parts per million (ppm) by weight for sediments, and in parts per billion (ppb) for water. Note that elemental (not oxide) concentrations are quoted in this table. Values below detection limits are indicated by a minus (-). For example, -3 means that the sample contains less than 3 ppm of that element. If background is high, a period (.) is used to indicate that the element was not detected, and that the detection limit is not estimated for that element. Missing data are indicated by "M." All analytical results are missing when there was insufficient sample for analysis.

BIBLIOGRAPHY

Price, V., and Jones, P. L., 1979, **Training Manual for Water and Sediment Geochemical Reconnaissance:** SRL Internal Doc.

DPST-79-219, E. I. du Pont de Nemours & Co., Savannah River Laboratory, Aiken, S.C.

SRL-138, **Savannah River Laboratory Quarterly and Semiannual Reports, Hydrogeochemical and Stream Sediment Reconnaissance, National Uranium Resource Evaluation Program:** E. I. du Pont de Nemours & Co., Savannah River Laboratory, Aiken, S.C.

<u>Period</u>	<u>SRL Doc. No.</u>	<u>DOE-GJO Doc. No.*</u>
January-March 1975	DPST-75-138-1	GJBX-5(76)
April-June 1975	DPST-75-138-2	GJBX-6(76)
July-September 1975	DPST-75-138-2	GJBX-7-(76)
October-December 1975	DPST-75-138-4	GJBX-7(76)
January-March 1976	DPST-76-138-1	GJBX-17(76)
April-June 1976	DPST-76-138-2	GJBX-27(76)
July-September 1976	DPST-76-138-2	GJBX-63(76)
October-December 1976	DPST-76-138-4	GJBX-6(77)
January-March 1977	DPST-77-138-1	GJBX-35(77)
April-June 1977	DPST-77-138-2	GJBX-55(77)
July-September 1977	DPST-77-138-3	GJBX-90(77)
October-December 1977	DPST-77-138-4	GJBX-37(78)
January-March 1978	DPST-78-138-1	GJBX-66(78)
April-September 1978	DPST-78-138-2	GJBX-13(79)
October 1978-March 1979	DPST-79-138-1	GJBX-86(79)
April-September 1979	DPST-79-138-2	GJBX-160(79)
October 1979-March 1980	DPST-80-138-1	GJBX-146(80)

* DOE-GJO reports are available on microfiche from the Grand Junction Office, DOE, for \$6.00. Prepaid orders should be sent to: Bendix Field Engineering Corporation, Technical Library, P.O. Box 1569, Grand Junction, CO 81501. Checks or money orders should be made out to Bendix Field Engineering Corporation, the operations contractor for DOE's Grand Junction Office.

SRL-146, SRL-NURE Data Reports, E. I. du Pont de Nemours & Co.,
Savannah River Laboratory, Aiken, S.C.

<u>NTMS 1° x 2° Quadrangle</u>	<u>SRL Doc. No.</u>	<u>DOE-GJO Doc. No.*</u>
Winston-Salem†	DPST-77-146-1	GJBX-6(77)
Spartanburg	DPST-77-146-2	GJBX-09(78)
Charlotte	DPST-78-146-1	GJBX-40(78)
Greenville	DPST-78-146-2	GJBX-47(78)
Winston-Salem††	DPST-78-146-3	GJBX-58(78)
Greensboro	DPST-78-146-4	GJBX-74(78)
Knoxville	DPST-78-146-5	GJBX-75(79)
Scranton	DPST-78-146-6	GJBX-02(79)
Scranton	DPST-78-146-6S	GJBX-74(81)
Athens	DPST-78-146-7	GJBX-20(79)
Harrisburg	DPST-79-146-1	GJBX-31(79)
Portland	DPST-79-146-2	GJBX-28(79)
Portland	DPST-79-146-2S	GJBX-106(81)
Glens Falls	DPST-79-146-3	GJBX-44(79)
Glens Falls	DPST-79-146-3S	GJBX-70(81)
Augusta	DPST-79-146-4	GJBX-45(79)
Dyersburg	DPST-79-146-5	GJBX-58(79)
Poplar Bluff	DPST-79-146-6	GJBX-63(79)
Hartford	DPST-79-146-7	GJBX-94(79)
Williamsport	DPST-79-146-8	GJBX-152(79)
Williamsport	DPST-79-146-8S	(in process)
Newark	DPST-79-146-9	GJBX-128(80)
Newark	DPST-79-146-9S	GJBX-71(81)
Albany	DPST-79-146-10	GJBX-140(79)
Albany	DPST-79-146-10S	GJBX-107(81)
Atlanta	DPST-79-146-11	GJBX-129(79)
Delta, Richfield†††	DPST-79-146-12	GJBX-161(79)
Walker Lake	DPST-79-146-13	GJBX-107(80)
McDermitt, Wells†††	DPST-79-146-14	GJBX-117(80)
Reno	DPST-79-146-15	GJBX-108(80)
Reno	DPST-80-146-15S	(in process)
Death Valley	DPST-79-146-16	GJBX-135(80)
Flagstaff	DPST-80-146-17	GJBX-137(81)
Marble Canyon	DPST-80-146-18	GJBX-138(81)
Grand Canyon	DPST-79-146-19	GJBX-142(80)
Pocatello	DPST-79-146-20	GJBX-161(80)
Mesa	DPST-80-146-1	GJBX-216(80)
Mesa	DPST-80-146-1S	GJBX-81(80)
Salton Sea	DPST-80-146-2	GJBX-217(80)
Salton Sea	DPST-80-146-2S	GJBX-113(80)
Ritzville	DPST-80-146-3	GJBX-162(80)
Elko	DPST-80-146-4	GJBX-163(80)
Challis	DPST-80-146-5	GJBX-91(80)

NTMS 1° x 2° Quadrangle	SRL Doc. No.	DOE-GJO Doc. No.*
Klamath Falls††††	DPST-80-146-6	GJBX-171(80)
Salina††††	DPST-80-146-7	GJBX-218(80)
Escalante††††	DPST-80-146-8	GJBX-209(80)
Price††††	DPST-80-146-9	GJBX-172(80)
McDermitt††††	DPST-80-146-10	GJBX-173(80)
Wellst††††	DPST-80-146-11	GJBX-174(80)
Delta††††	DPST-80-146-12	GJBX-198(80)
Okanogan††††	DPST-80-146-13	GJBX-210(80)
Johnson City††††	DPST-80-146-14	GJBX-26(81)
Spokane††††	DPST-80-146-15	GJBX-211(80)
Spokane	DPST-80-146-15S	GJBX-195(80)
Richfield††††	DPST-80-146-16	GJBX-242(80)
Trona††††	DPST-80-146-17	GJBX-243(80)
Lewiston††††	DPST-80-146-18	GJBX-14(81)
Boston††††	DPST-80-146-19	GJBX-255(80)
Boston	DPST-80-146-19S	GJBX-72(81)
Providence††††	DPST-80-146-20	GJBX-15(81)
Rocky Mount-Manteo††††	DPST-80-146-21	GJBX-16(81)
Beaufort††††	DPST-80-146-22	GJBX-17(81)
Macon††††	DPST-80-146-23	GJBX-40(81)
Richmond		
and Eastville††††	DPST-80-146-24	GJBX-18(81)
Rome††††	DPST-80-146-25	GJBX-25(81)
Dothan, Waycross,		
and Brunswick††††	DPST-80-146-26	GJBX-27(81)
Roanoke††††	DPST-80-146-27	GJBX-73(81)
Gadsden and Tupelo††††	DPST-81-146-1	GJBX-213(81)
Lake Champlain††††	DPST-81-146-2	GJBX-108(81)
Montgomery and		
Parts of Meridian,		
Hattiesburg, and		
Andalusia††††	DPST-81-146-3	GJBX-190(81)
Birmingham and		
West Point††††	DPST-81-146-4	GJBX-191(81)
Charlottesville††††	DPST-81-146-5	GJBX-175(81)
Baker††††	DPST-81-146-6	(in process)
Needles††††	DPST-81-146-7	(in process)
Binghamton††††	DPST-81-146-8S	GJBX-192(81)
Raleigh††††	DPST-81-146-9	(in process)
Norfolk and		
Southern		
Eastville††††	DPST-81-146-10	(in process)
Bluefield††††	DPST-81-146-11	(in process)
Washington††††	DPST-81-146-12	(in process)

<u>NTMS 1° x 2° Quadrangle</u>	<u>SRL Doc. No.</u>	<u>DOE-GJO Doc. No.*</u>
Vya††††	DPST-81-146-13	(in process)
Baltimore††††	DPST-81-146-14	(in process)
Cumberland and Pittsburgh††††	DPST-81-146-15	(in process)
Santa Cruz††††	DPST-81-146-16	(in process)
Little Rock, El Dorado, and Adjacent Areas††††	DPST-81-146-17	(this report)

† Sediment only.
 †† Ground water only.
 ††† SRL analyses of samples collected by Lawrence
 Livermore National Laboratory.
 †††† Abbreviated report; geology, hydrology, and data
 discussion sections are omitted.
 S Supplemental Data Reports.