

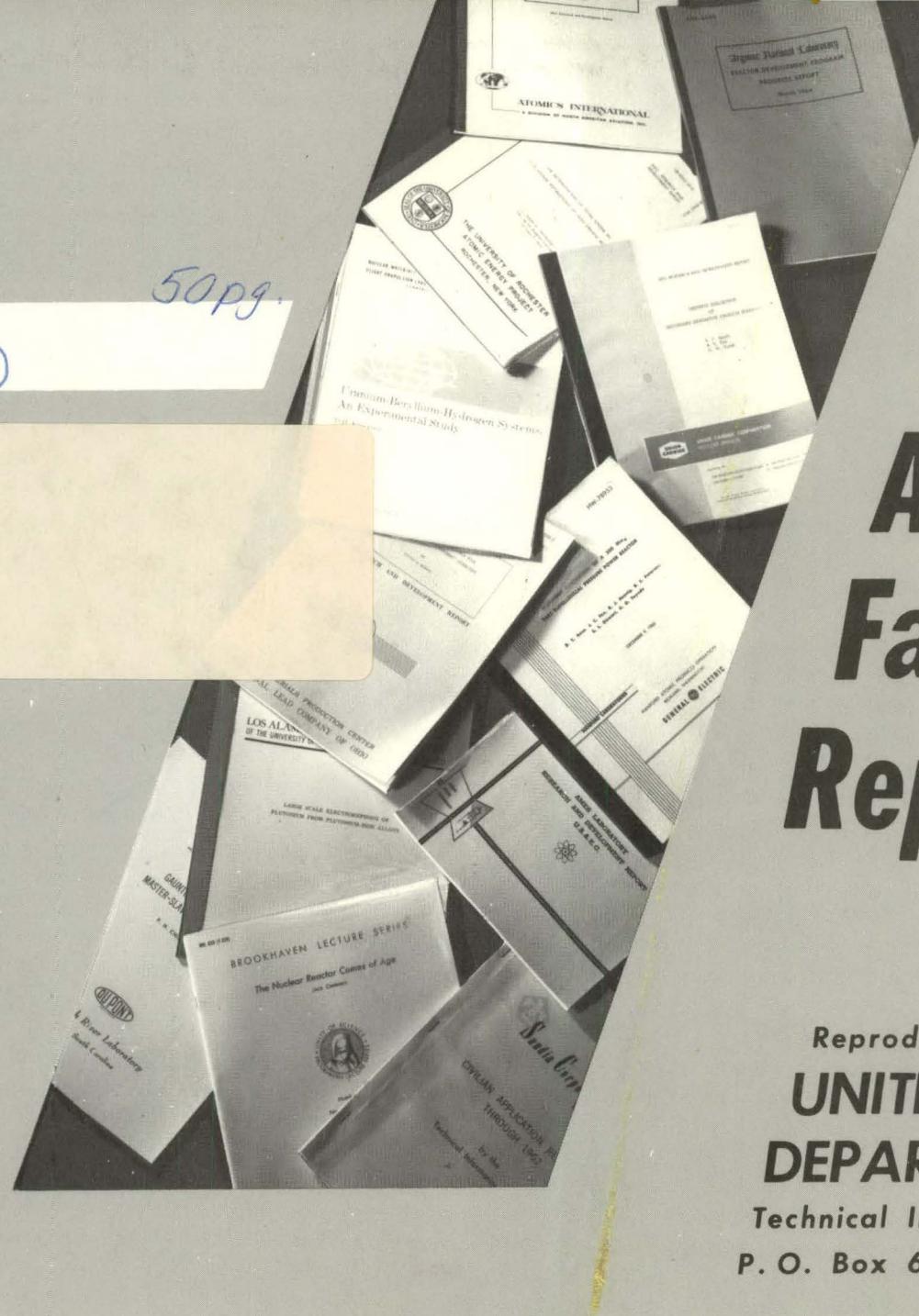
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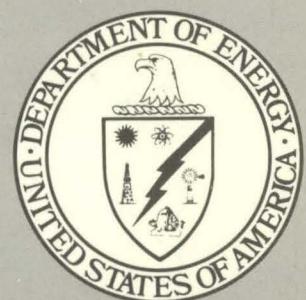
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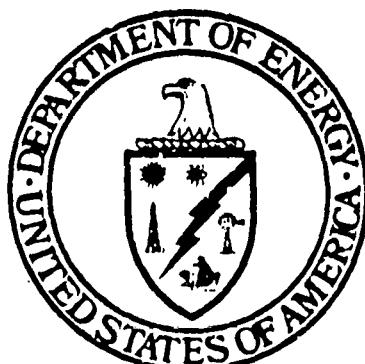
URANIUM HYDROGEOCHEMICAL AND STREAM-SEDIMENT RECONNAISSANCE OF THE POINT HOPE NTMS QUADRANGLE, ALASKA

Data Compiled by
Bendix Field Engineering Corporation
Grand Junction, Colorado

Data Collection and Chemical Analysis by
Los Alamos National Laboratory
Los Alamos, New Mexico

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April 1982



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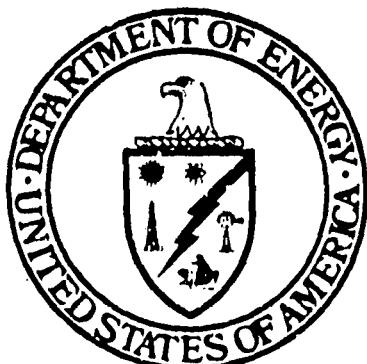
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This report is a result of work performed by Bendix Field Engineering Corporation, Operating Contractor for the U.S. Department of Energy, as part of the National Uranium-Resource Evaluation. NURE was a program of the U.S. Department of Energy's Grand Junction, Colorado, Office to acquire and compile geologic and other information with which to assess the magnitude and distribution of uranium resources and to determine areas favorable for the occurrence of uranium in the United States.

GJBX-91(82)

URANIUM HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE
OF THE
POINT HOPE NTMS QUADRANGLE, ALASKA

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March 1982

PREPARED FOR THE U.S. DEPARTMENT OF ENERGY
Assistant Secretary for Nuclear Energy
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INTRODUCTION

This report presents results of a Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) of the Point Hope NTMS quadrangle, Alaska. In addition to this abbreviated data release, more complete data are available to the public in machine-readable form. These machine-readable data, as well as quarterly or semiannual program progress reports containing further information on the HSSR program in general, or on the Los Alamos National Laboratory (LANL) portion of the program in particular, are available from DOE's Technical Library at its Grand Junction Area Office. Inquiries should be directed to:

Technical Library
Bendix Field Engineering Corporation
P.O. Box 1569
Grand Junction, CO 81502-1569
(303) 242-8621, Ext. 279

Presented in this data release are location data, field analyses, and laboratory analyses of several different sample media. For the sake of brevity, many field site observations have not been included in this volume; these data are, however, available on the magnetic tape. Appendix A describes the sample media and summarizes the analytical results for each medium. The data have been subdivided by one of the Los Alamos National Laboratory sorting programs of Zinkl and others (1981a) into stream-sediment samples. For each group which contains a sufficient number of observations, statistical tables, tables of raw data, and 1:1,000,000 scale maps of pertinent elements have been included in this report. Also included are maps showing results of multivariate statistical analyses.

The Point Hope NTMS quadrangle hydrogeochemical reconnaissance was performed by the Los Alamos National Laboratory, under contract to the Grand Junction Area Office of the United States Department of Energy (DOE), as part of the National Uranium Resource Evaluation (NURE) program. Los Alamos National Laboratory was responsible for conducting the HSSR program in the states of New Mexico, Colorado, Wyoming, Montana, and Alaska. This data release was prepared by Bendix Field Engineering Corporation in order to make the data available to members of the public wishing to use the information but having no access to computing facilities.

Information on the field and analytical procedures used by the Los Alamos National Laboratory during sample collection and analysis may be found in any HSSR data release prepared by the Laboratory (see, for example, Planner and others, 1981) and will not be included in this report.

RESULTS

Population statistics for stream sediments are given in Table 1. This table contains statistics such as mean, standard deviation, skewness, and kurtosis for two different populations: the total population and a population consisting of only those analyses that are above the detection limit (ADL) for each element. In addition, data are provided for each variable for the total number of samples possessing analyses, the number of analyses above the detection limit (NADL), the number of analyses below the detection limit (NBDL), and the number of missing analyses (MISS). Also tabulated for each variable are the maximum value, the minimum value considered above detection limit, and the maximum detection limit. Variable detection limits account for the fact that the maximum value of the detection limit is occasionally greater than the minimum value considered above the detection limit.

Maps of elemental concentrations, ratios, factor scores, and residuals were prepared by a computer program which represents data values in their correct latitude-longitude positions by symbols which vary in size and intensity in proportion to the value being plotted (Zinkl and others, 1981b). A map of uranium concentrations in stream sediment is presented as Plate 1. Thorium concentrations in stream sediment samples and thorium-to-uranium ratios of stream sediment samples are plotted in Plates 2 and 3. Locations of stream sediment samples are shown in Plate 4.

In addition to the full-sized plates, several page-sized maps and figures are included to assist in interpretation of the data. A scatter plot of uranium versus thorium in stream sediments is shown in Figure 1. This plot may be used to identify groups of samples which differ significantly from normal crustal Th/U ratios. Deviations from normal ratios may indicate areas showing uranium enrichment or depletion.

When multielement data are provided by LANL, maps of elements considered useful in uranium exploration are included in the data release. Figures 2 and 3 show vanadium in stream sediments and copper in stream sediments, respectively.

Chemical analysis and field data for water samples from this quadrangle were open filed by the DOE Grand Junction Area Office as GJBX-245(81).

POINT HOPE STREAM SEDIMENT

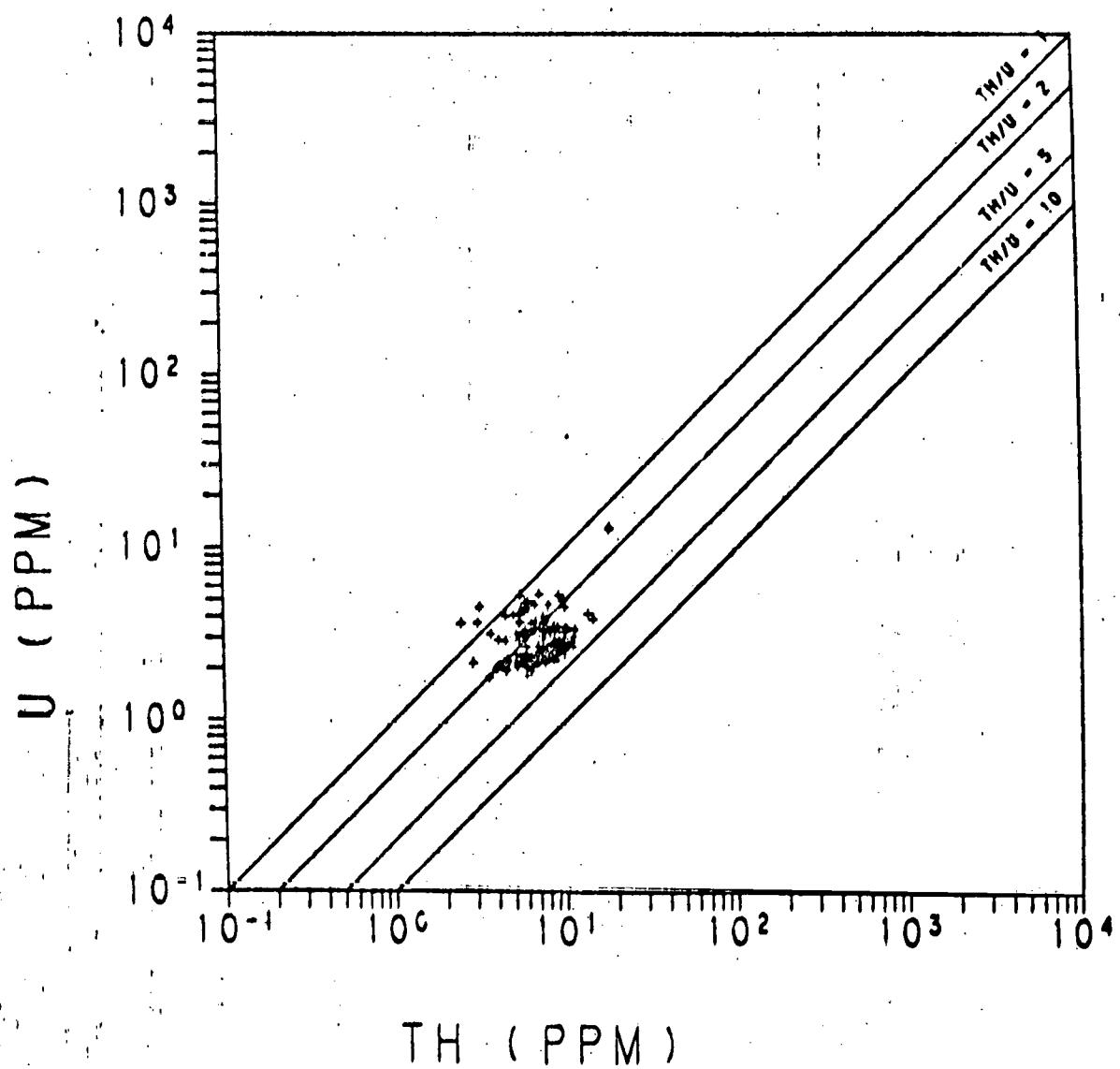
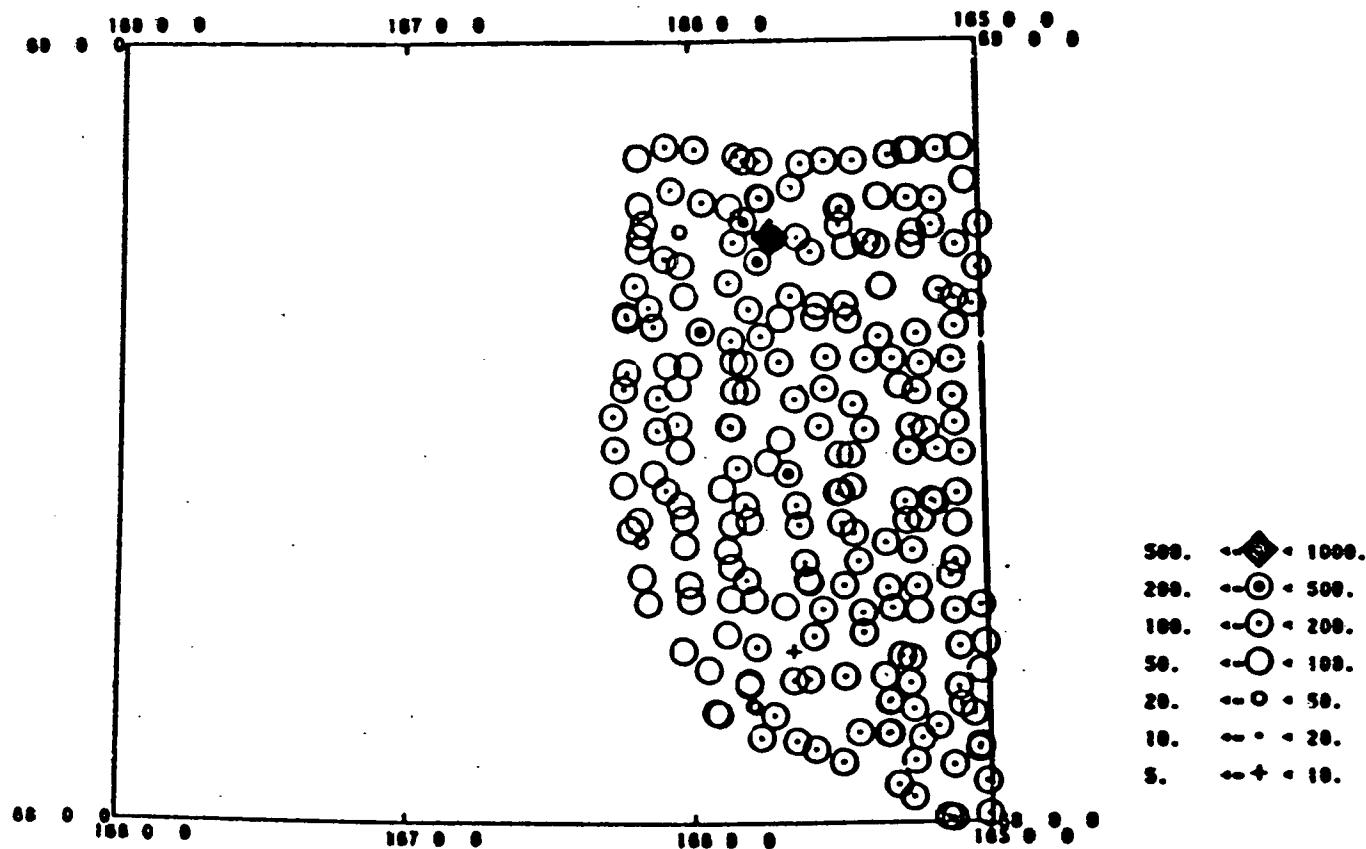


Figure 1. Uranium versus Thorium, Stream Sediments

POINT HOPE STREAM SEDIMENT - VANADIUM (PPM)



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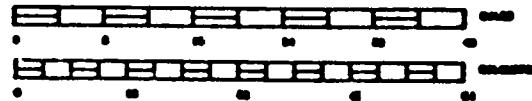


Figure 2. Vanadium (ppm) in Stream Sediments

POINT HOPE STREAM SEDIMENT - COPPER (PPM)

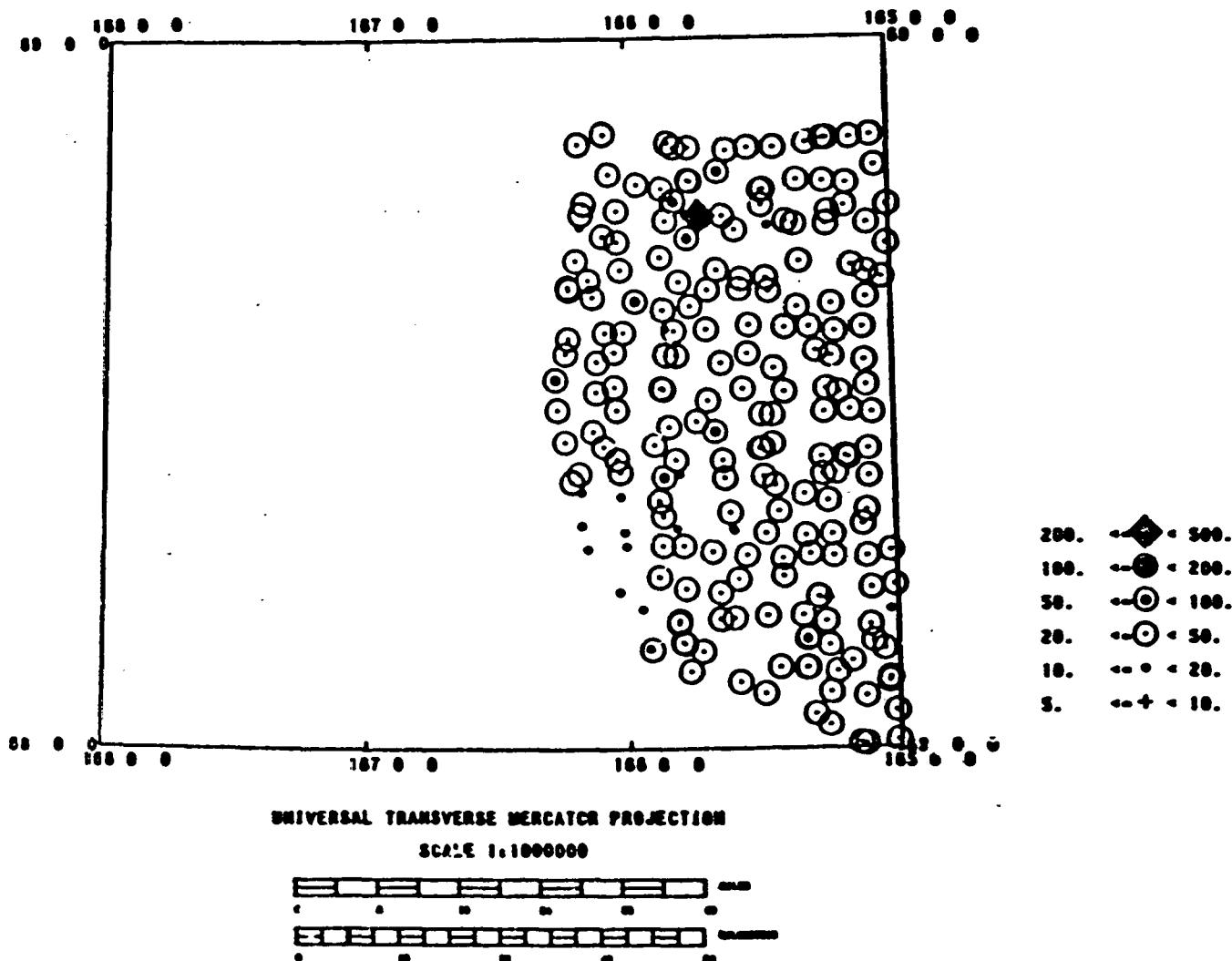


Figure 3. Copper (ppm) in Stream Sediments

MULTIVARIATE STATISTICAL ANALYSES

Stream-sediment analyses were edited by the FACET computer program (Shettell and others, 1980) in preparation for multivariate statistical analyses, by eliminating samples and variables with insufficient data. Information contained in the stream-sediment and lake-sediment data sets before and after editing is shown in Tables 2 and 3. The edited data sets are logarithmically transformed prior to the application of statistical methods.

R-mode factor analysis (Table 4) was performed on the transformed edited sediment data. R-mode compares variables over the range of samples; Q-mode compares samples using the variables. Factor analysis attempts to show the geochemical relationships that exist in the data by reducing the dimensionality of the multivariate observations (i.e., by grouping variables that are highly correlated into "factors"). In the sediment data, uranium typically loads with Ce, La, Fe, Mn, V, and Sc, which is characteristic of monazite, zircon, the magnetite-ilmenite suite, and the iron-manganese oxides families of minerals. Results of factor analysis of ground-water data usually show uranium loading with the major ions, confirming the relationship between uranium, um and specific conductance.

Because of the high degree of correlation between uranium and those elements associated with resistate minerals, step-wise multiple regression (Table 5) was employed to "correct" the raw uranium value for that which is present in heavy or resistate minerals. A map of the regression residuals shows those areas where uranium cannot be explained by the occurrence of resistate or heavy minerals (high positive residuals). This technique enhances anomalous samples by suppressing background populations resulting from resistate or heavy minerals. Factor score and residual maps are shown in Figures 4 through 7.

Table 2. Stream Sediment Data Before Editing

VAR	# MISSING %	# BOL %	MEAN	STD DEV
1 PH	4	1.81	0	0.00
2 MU	5	2.26	0	0.00
3 UR	3	1.36	0	0.00
4 U	0	0.00	0	0.00
5 AG	3	1.36	218	98.64
6 BI	3	1.36	215	97.29
7 CO	3	1.36	215	97.29
8 CU	3	1.36	1	.45
9 NA	3	1.36	218	98.64
10 NI	3	1.36	0	0.00
11 PB	3	1.36	30	13.57
12 SN	3	1.36	213	96.38
13 W	3	1.36	207	93.67
14 AS	3	1.36	5	2.71
15 SE	3	1.36	213	96.38
16 ZR	3	1.36	0	0.00
17 MO	221	100.00	0	0.00
18 GE	221	100.00	0	0.00
19 LI	221	100.00	0	0.00
20 AL	0	0.00	0	0.00
21 AU	0	0.00	221	100.00
22 BA	0	0.00	7	3.17
23 CA	0	0.00	47	21.27
24 CE	0	0.00	1	.45
25 CL	0	0.00	207	93.67
26 CO	0	0.00	0	0.00
27 CR	0	0.00	1	.45
28 CS	0	0.00	5	2.26
29 DY	0	0.00	1	.45
30 EU	0	0.00	1	.45
31 FE	0	0.00	0	0.00
32 HF	0	0.00	1	.45
33 K	0	0.00	10	4.52
34 LA	0	0.00	3	1.36
35 LU	0	0.00	4	1.81
36 MG	0	0.03	4	1.91
37 MN	0	0.00	0	0.00
38 VA	0	0.00	0	0.00
39 RB	0	0.00	77	34.84
40 SB	0	0.00	205	92.76
41 SC	0	0.00	0	0.00
42 SH	0	0.00	1	.45
43 SR	0	0.00	219	99.10
44 TA	3	1.36	206	93.21
45 TB	29	11.31	175	79.19
46 TH	0	0.00	1	.45
47 TI	3	1.36	0	0.00
48 V	0	0.00	1	.45
49 YA	0	0.00	27	12.22
50 ZH	0	0.00	86	38.91
51 TU	1	.45	0	0.00

TOTAL NUMBER OF SAMPLES = 221

Table 3. Stream Sediment Data After Editing

POINT HOPE STREAM SEDIMENT						
VAR	# MISSING	% BDL	% ?	MEAN	STD DEV	
1 PH	0	0.00	0	0.00	7.16	.95
2 MU	0	0.00	0	0.00	109.71	75.47
3 UR	0	0.00	0	0.00	5.66	4.29
4 U	0	0.00	0	0.00	2.99	1.04
5 CII	0	0.00	1	.48	32.30	26.17
6 NI	0	0.00	0	0.00	39.32	12.53
7 PB	0	0.00	26	12.50	8.95	4.81
8 AS	0	0.30	3	1.44	18.29	19.86
9 ZR	0	0.00	0	0.00	179.32	46.43
10 AL	0	0.00	0	0.00	58462.84	13610.89
11 BA	0	0.00	4	1.92	950.90	1761.91
12 CA	0	0.00	43	20.67	14641.68	23967.19
13 CE	0	0.00	0	0.00	53.65	13.72
14 CO	0	0.00	0	0.00	22.10	8.57
15 CR	0	0.00	0	0.00	90.43	34.22
16 CS	0	0.00	3	1.44	4.35	1.82
17 DY	0	0.00	0	0.00	4.48	.88
18 EU	0	0.00	0	0.00	1.07	.30
19 FE	0	0.00	0	0.00	33448.65	8664.49
20 HF	0	0.00	0	0.00	6.62	2.06
21 K	0	0.00	6	2.66	13221.04	4121.75
22 LA	0	0.00	1	.48	27.96	6.40
23 LU	0	0.00	1	.48	.34	.08
24 MG	0	0.00	2	.96	9222.09	7484.09
25 MN	0	0.00	0	0.00	667.15	400.66
26 NA	0	0.00	0	0.00	10855.05	4463.57
27 R9	0	0.00	68	32.69	52.26	29.08
28 SC	0	0.00	0	0.00	11.11	2.86
29 SM	0	0.00	0	0.00	3.69	.87
30 TH	0	0.00	0	0.00	7.36	1.97
31 TI	0	0.00	0	0.00	3776.39	845.59
32 V	0	0.00	0	0.00	123.85	56.91
33 YR	0	0.00	22	10.58	3.54	1.21
34 ?N	0	0.00	82	39.42	90.00	72.21
35 TU	0	0.00	0	0.00	2.68	.73

TOTAL NUMBER OF SAMPLES = 208

FACTOR ANALYSIS (CASE 2)
 POINT HOPE STREAM SEDIMENT
 NUMBER OF SAMPLES 200
 NUMBER OF VARIABLES 39

Table 4. R-mode Factor Analysis of Stream Sediment Data

CORRELATION COEFFICIENTS

	PH	RH	DR	V	CU	WI	PB	AS	ZB	AS	BB	CA	CE	CG	CO
PH	1.000														
RH	-.003	1.000													
DR	-.386	.004	1.000												
V	.122	.197	-.085	1.000											
CU	.063	.049	-.050	.580	1.000										
WI	-.061	.211	-.032	.486	.443	1.000									
PB	-.003	.107	.224	.264	.346	.269	1.000								
AS	-.062	-.006	.141	.140	.950	.192	.149	1.000							
ZB	-.006	-.156	-.157	-.293	-.082	-.275	-.045	.282	1.000						
AL	-.120	-.128	.197	-.192	.298	.009	.391	.659	.457	1.000					
BA	.139	.269	-.067	.580	.910	.438	.209	.121	-.161	-.123	1.000				
CA	.156	.407	-.122	.467	.066	.262	.022	-.400	-.475	-.611	.401	1.000			
CE	-.108	-.059	.198	.162	.431	.110	.425	.356	.395	.774	.050	-.331	1.000		
CO	-.046	-.012	.173	.043	.209	.137	.160	.371	-.067	.198	.076	-.163	.257	1.000	
CR	-.046	-.091	.090	-.061	.212	.172	.057	.370	.462	.001	.057	-.186	.315	.102	1.000
CS	.002	.166	.130	.422	.398	.358	.515	.136	-.101	.173	.339	.262	.432	.159	-.029
DY	.009	.149	.097	.481	.394	.258	.268	.311	.103	.394	.234	-.006	.359	.18	.147
EU	.010	.171	.043	.477	.600	.322	.404	.435	.103	.335	.624	.027	.540	.350	.269
FE	-.072	-.092	.206	-.143	.314	.110	.298	.739	.394	.065	-.143	-.560	.722	.240	-.392
HF	-.035	-.123	.096	-.204	-.009	-.268	-.052	.199	.917	.241	-.055	-.345	.329	.009	.472
K	-.187	.023	.213	.094	.293	.192	.491	.487	.279	.743	.122	-.274	.670	.076	.296
LA	.004	.113	.090	.573	.685	.319	.494	.339	.083	.614	.370	.053	.667	.217	-.169
LU	-.091	.006	.073	.426	.372	.310	.249	.214	.130	.224	.232	-.005	.413	.163	.209
RG	.078	.208	-.096	.336	.038	.179	.033	-.261	-.385	-.392	.258	.622	-.143	.071	-.139
AN	.108	.167	.117	.209	.189	.462	.270	.071	-.080	.039	.245	.159	.350	.193	-.064
HA	-.052	-.170	.021	-.608	-.098	-.256	-.081	.377	.530	.573	-.287	-.628	.134	.007	.411
RB	.050	-.009	.110	-.153	.291	.203	.367	.364	.073	.496	.847	-.126	.435	-.029	.190
SC	-.039	-.012	.129	.263	.571	.304	.496	.674	.172	.824	.200	-.292	.944	.303	.422
SM	-.050	.036	.162	.384	.505	.217	.476	.507	.171	.613	.199	.143	.820	.330	.208
TH	-.098	-.033	.234	.227	.423	.102	.477	.361	.266	.760	.053	-.280	.871	.303	.278
TI	-.121	-.178	.157	-.197	.192	-.063	.201	.511	.499	.042	-.395	-.950	.688	.238	.498
V	-.001	.010	.030	.419	.649	.381	.472	.604	.060	.670	.404	-.152	.657	.170	.423
VB	.098	-.003	.036	-.197	.127	.191	.193	.102	.161	.100	.027	.032	.264	-.091	.112
ZH	-.102	.087	-.054	.249	.009	.225	-.045	-.259	-.318	-.370	.348	.253	-.203	.311	-.283
TU	-.177	-.181	-.259	-.596	-.103	-.293	.187	.394	.649	.777	-.411	-.597	.592	.216	.277
CS	1.000														
DS	.931	1.000													
EU	.396	.429	1.000												
FE	.088	.344	.340	1.000											
HA	-.141	.096	.224	.215	1.000										
K	.411	.437	.411	.630	.198	1.000									
LA	.503	.604	.644	.383	.135	.596	1.000								
LU	.294	.436	.468	-.293	.161	.347	.620	1.000							
RG	.227	.073	.051	-.309	-.322	.061	.138	.116	1.000						
AN	.236	.317	.201	.197	-.195	.159	.296	.266	.191	1.000					
HA	-.553	-.219	-.048	.494	.425	.184	-.200	-.114	-.067	-.200	1.000				

Table 4. R-mode Factor Analysis of Stream Sediment Data
(continued)

RH	.404	.400	.213	.444	.041	.931	.414	.261	.002	.126	-.030	1.000		
SC	.454	.589	.622	.805	.152	.749	.699	.486	-.067	.192	.204	.575	1.000	
SM	.615	.642	.505	.554	.179	.641	.750	.520	.005	.108	-.057	.460	.601	1.000
TH	.526	.609	.931	.701	.240	.709	.685	.462	-.067	.118	.065	.951	.861	.447
TI	.092	.354	.271	.750	.419	.599	.396	.265	-.331	-.011	.511	.410	.705	.544
V	.427	.497	.668	.637	.050	.658	.639	.438	.013	.148	.160	.491	.842	.647
YB	.297	.279	.138	.213	.138	.209	.311	.323	.111	.335	-.115	.261	.276	.314
ZN	.130	-.015	.063	-.351	-.243	-.253	.012	-.024	.167	.096	-.343	-.270	-.243	-.057
TU	-.053	.126	.069	.691	.357	.508	.117	.047	-.318	-.066	.530	.335	.505	.398

	TJ	V	YB	ZN	TU
TJ	1.000				
V	.525	1.000			
YB	.155	.151	1.000		
ZN	-.287	-.176	-.126	1.000	
TU	.709	.210	.095	-.364	1.000

Table 4. R-mode Factor Analysis of Stream Sediment Data
(continued)

EIGENVALUES	FACTOR				
	1	2	3	4	5
CPTV	11.20026	6.26970	2.03894	1.74237	1.57993
ELEMENTS	.32001	.49914	.55740	.60718	.65232
PH	-.08443	-.12672	-.35279	.22569	.39057
MU	-.01457	-.36209	-.03149	-.02217	-.00832
UR	.21982	.11122	.38010	-.02413	-.42052
U	.24874	-.84110	-.20319	.07118	.00183
CU	.55102	-.44075	-.33874	-.29370	.08875
NI	.25945	-.56962	-.10291	-.29841	.02210
PB	.52476	-.27439	.28275	-.02402	.02362
AS	.70038	.14847	-.23655	-.35157	.13804
ZR	.34531	.59342	-.38736	.41929	-.29490
AL	.84890	.43195	.09119	-.09358	.13251
SA	.18617	-.64403	-.44948	-.13039	-.05943
CA	-.34824	-.72454	-.03037	.18217	.04309
CE	.89166	.05979	.11011	.08342	-.07659
CO	.28764	-.09164	.13663	-.39689	-.53300
CR	.43926	.25711	-.45199	.00480	-.06124
CS	.47904	-.60560	.28557	.18280	-.00836
DY	.62331	-.32309	.03036	.23907	-.02752
EU	.64562	-.37658	-.32837	-.12707	-.24641
FE	.80663	.35533	.07008	-.21239	.14272
HF	.31313	.47376	-.47870	.44789	-.38826
K	.79149	.04199	.19020	.08334	.10974
LA	.73865	-.42640	-.00196	.19276	-.10934
LU	.53113	-.29661	-.13478	.23101	-.20487
MG	-.13665	-.56672	.13726	.19294	.09172
MN	.21444	-.36102	.10383	-.01741	-.06798
NA	.21540	.78562	-.28454	-.25755	.05748
RB	.58836	-.06326	.20708	.14818	.40168
SC	.95843	-.05144	.01293	-.12167	.12457
SM	.85186	-.20856	.13586	.10628	-.10694
TH	.90714	-.00126	.21376	.10937	-.03373
TI	.74473	.46061	.04745	-.00070	-.02805
V	.83078	-.26799	-.18981	-.24736	.22320
YB	.31962	-.14651	.03130	.49206	.05807
ZN	-.29253	-.40820	.11978	-.26143	-.50955
TU	.55367	.65762	.33588	.03348	-.02932

Table 5. Regression Analysis Results, Stream Sediment

MULTIPLE REGRESSION ANALYSIS

PROBLEM POINT HOPE STREAM SEDIMENT
 OBSERVATIONS 208

PROBLEM POINT HOPE STREAM SEDIMENT

STEPWISE REGRESSION CASE 1

DEPENDENT VARIABLE 4

F-LEVEL TO ENTER 5.00000

F-LEVEL TO REMOVE 5.00000

STANDARD ERROR OF Y .26167

STEP NO. 1

ENTERED VARIABLE 16

F-LEVEL 129.84372

STANDARD ERROR OF Y .20544

MULTIPLE CORRELATION .62179

R-SQUARED .38662

DEGREES OF FREEDOM 206

CONSTANT TERM .44489

VARIABLE	BETA PRIME	BETA	SE(BETA)
16	.62179E+00	.41487E+00	.36408E-01

STEP NO. 2

ENTERED VARIABLE 11

F-LEVEL 48.55070

STANDARD ERROR OF Y .17929

MULTIPLE CORRELATION .73507

R-SQUARED .54033

DEGREES OF FREEDOM 205

CONSTANT TERM -.31593

VARIABLE	BETA PRIME	BETA	SE(BETA)
11	.41576E+00	.14002E+00	.16911E-01
19	.48045E+00	.32055E+00	.33595E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 3

ENTERED VARIABLE 26

F-LEVEL	38.32026
STANDARD ERROR OF Y	.16397
MULTIPLE CORRELATION	.78296
R-SQUARED	.61302
DEGREES OF FREEDOM	204

CONSTANT TERM	1.27752
---------------	---------

VARIABLE	BETA PRIME	BETA	SE(BETA)
11	.38001E+00	.12767E+00	.15682E-01
16	.31251E+00	.20851E+00	.35804E-01
26	-.32624E+00	-.14830E+00	.23957E-01

STEP NO. 4

ENTERED VARIABLE 32

F-LEVEL	56.17977
STANDARD ERROR OF Y	.14547
MULTIPLE CORRELATION	.83481
R-SQUARED	.69690
DEGREES OF FREEDOM	203
CONSTANT TERM	1.03050

VARIABLE	BETA PRIME	BETA	SE(BETA)
11	.22773E+00	.76509E-01	.15497E-01
16	.40627E-01	.20851E+00	.35804E-01
26	-.98751E+00	-.26712E+00	.26515E-01
32	.41944E+00	.34896E+00	.46557E-01

STEP NO. 5

ENTERED VARIABLE 10

F-LEVEL	61.03481
STANDARD ERROR OF Y	.12780
MULTIPLE CORRELATION	.87592
R-SQUARED	.76723
DEGREES OF FREEDOM	202
CONSTANT TERM	4.91713

VARIABLE	BETA PRIME	BETA	SE(BETA)
10	-.60696E+00	-.57706E+00	.73864E-01
11	.54706E-01	.18379E-01	.15515E-01
16	.28200E+00	.18816E+00	.40690E-01
26	-.20527E+00	-.93765E-01	.32170E-01
32	.73205E+00	.60904E+00	.92734E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 6

REMOVED VARIABLE 11

F-LEVEL	1.41032
STANDARD ERROR OF Y	.12793
MULTIPLE CORRELATION	.87500
R-SQUARED	.76562
DEGREES OF FREEDOM	203
CONSTANT TERM	5.26649

VARIABLE	BETA PRIME	BETA	SE(BETA)
10	-.65110E+00	-.61902E+00	.64879E-01
16	.29378E+00	.19602E+00	.40186E-01
26	-.19744E+00	-.89751E-01	.32023E-01
32	.77730E+00	.64668E+00	.42131E-01

STEP NO. 7

ENTERED VARIABLE 22

F-LEVEL	40.94565
STANDARD ERROR OF Y	.11694
MULTIPLE CORRELATION	.99728
R-SQUARED	.80512
DEGREES OF FREEDOM	202
CONSTANT TERM	5.20818

VARIABLE	BETA PRIME	BETA	SE(BETA)
10	-.74456E+00	-.70788E+00	.60911E-01
16	.24534E+00	.16369E+00	.37079E-01
22	.30151E+00	.34103E+00	.53295E-01
26	-.88915E-01	-.40420E-01	.30270E-01
32	.69053E+00	.54122E+00	.41890E-01

STEP NO. 8

REMOVED VARIABLE 26

F-LEVEL	1.79180
STANDARD ERROR OF Y	.11716
MULTIPLE CORRELATION	.89633
R-SQUARED	.80340
DEGREES OF FREEDOM	203
CONSTANT TERM	5.41069

Table 5. Regression Analysis Results, Stream Sediment
(continued)

VARIABLE	BETA PRIME	BETA	SE(BETA)
10	-0.80854E+00	-0.76870E+00	.40518E-01
16	.29781E+00	.19970E+00	.26270E-01
22	.31753E+00	.35916E+00	.51639E-01
32	.64653E+00	.53789E+00	.41896E-01

STEP NO. 9

ENTERED VARIABLE 5

F-LEVEL	
STANDARD ERROR OF Y	20.47496
MULTIPLE CORRELATION	.11192
R-SQUARED	.90636
DEGREES OF FREEDOM	.82149
CONSTANT TERM	202

VARIABLE	BETA PRIME	BETA	SE(BETA)
5	.18842E+00	.12772E+00	.28225E-01
10	-.75110E+00	-.71410E+00	.40542E-01
16	.28299E+00	.18975E+00	.25190E-01
22	.30471E+00	.34465E+00	.49430E-01
32	.50021E+00	.41615E+00	.48222E-01

STEP NO. 10

ENTERED VARIABLE 17

F-LEVEL	
STANDARD ERROR OF Y	17.06656
MULTIPLE CORRELATION	.10772
R-SQUARED	.91404
DEGREES OF FREEDOM	.83546
CONSTANT TERM	201

CONSTANT TERM 5.21257

VARIABLE	BETA PRIME	BETA	SE(BETA)
5	.17824E+00	.12082E+00	.27217E-01
10	-.77034E+00	-.73239E+00	.39271E-01
15	.24144E+00	.15110E+00	.25152E-01
17	.15772E+00	.20361E+00	.49295E-01
22	.25035E+00	.28317E+00	.49848E-01
32	.49375E+00	.41079E+00	.46430E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 11

ENTERED VARIABLE 8

F-LEVEL	6.63158
STANDARD ERROR OF Y	.10624
MULTIPLE CORRELATION	.91692
R-SQUARED	.84074
DEGREES OF FREEDOM	200
CONSTANT TERM	5.76673

VARIABLE	BETA PRIME	BETA	SE(BETA)
5	.13502E+00	.91519E-01	.29155E-01
8	.11976E+00	.60120E-01	.23345E-01
10	-.82370E+00	-.78312E+00	.43454E-01
16	.25812E+00	.17222E+00	.25180E-01
17	.15455E+00	.19952E+00	.49635E-01
22	.26587E+00	.30185E+00	.49596E-01
32	.45935E+00	.38216E+00	.47122E-01

STEP NO. 12

ENTERED VARIABLE 14

F-LEVEL	7.42820
STANDARD ERROR OF Y	.10457
MULTIPLE CORRELATION	.92004
R-SQUARED	.84647
DEGREES OF FREEDOM	199
CONSTANT TERM	5.81383

VARIABLE	BETA PRIME	BETA	SE(BETA)
5	.14767E+00	.10009E+00	.28849E-01
8	.12774E+00	.64127E-01	.23027E-01
10	-.81396E+00	-.77386E+00	.42906E-01
14	-.79074E-01	-.57152E-01	.20970E-01
16	.26600E+00	.17748E+00	.24860E-01
17	.14666E+00	.18924E+00	.48017E-01
22	.28096E+00	.31779E+00	.49254E-01
32	.44416E+00	.36953E+00	.46614E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 13

ENTERED VARIABLE. 15

F-LEVEL	9.24487
STANDARD ERROR OF Y	.10347
MULTIPLE CORRELATION	.92219
R-SQUARED	.85044
DEGREES OF FREEDOM	199
CONSTANT TERM	5.91209

VARIABLE	BETA PRIME	BETA	SE(BETA)
3	.14571E+00	.98767E-01	.28572E-01
8	.12914E+00	.64825E-01	.22797E-01
10	-.80343E+00	-.76385E+00	.42680E-01
14	-.75107E-01	-.54285E-01	.20787E-01
15	-.72785E-01	-.70128E-01	.30621E-01
16	.24991E+00	.16675E+00	.25042E-01
17	.14908E+00	.19245E+00	.47533E-01
22	.27601E+00	.31219E+00	.48808E-01
32	.47639E+00	.29634E+00	.47587E-01

STEP NO. 14

ENTERED VARIABLE 9

F-LEVEL	9.79036
STANDARD ERROR OF Y	.10125
MULTIPLE CORRELATION	.92602
R-SQUARED	.85751
DEGREES OF FREEDOM	197
CONSTANT TERM	5.96034

VARIABLE	BETA PRIME	BETA	SE(BETA)
3	.14683E+00	.99525E-01	.27060E-01
9	.10397E+00	.52142E-01	.22664E-01
9	.12463E+00	.12917E+00	.41304E-01
10	-.87440E+00	-.83132E+00	.47008E-01
14	-.56949E-01	-.41089E-01	.20774E-01
15	-.12690E+00	-.12225E+00	.34299E-01
16	.26983E+00	.18003E+00	.24870E-01
17	.13711E+00	.17701E+00	.44774E-01
22	.24300E+00	.27486E+00	.44923E-01
32	.97139E+00	.47539E+00	.92992E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 15

REMOVED VARIABLE 14

F-LEVEL	
STANDARD ERROR OF Y	3.93186
MULTIPLE CORRELATION	.10199
R-SQUARED	.92449
DEGREES OF FREEDOM	.85468
CONSTANT TERM	199
	5.93909

VARIABLE	BETA PRIME	BETA	SE(BETA)
9	.13819E+00	.93670E-01	.28006E-01
8	.95214E-01	.47705E-01	.22722E-01
9	.14064E+00	.14576E+00	.40730E-01
10	-.88968E+00	-.94525E+00	.46771E-01
15	-.13748E+00	-.13246E+00	.34149E-01
16	.26617E+00	.17760E+00	.25021E-01
17	.14111E+00	.19217E+00	.47043E-01
22	.22994E+00	.25884E+00	.48915E-01
32	.59563E+00	.49555E+00	.52373E-01

STEP NO. 16

REMOVED VARIABLE 9

F-LEVEL	
STANDARD ERROR OF Y	4.44718
MULTIPLE CORRELATION	.10287
R-SQUARED	.92273
DEGREES OF FREEDOM	.85143
CONSTANT TERM	199
	5.51510

VARIABLE	BETA PRIME	BETA	SE(BETA)
9	.17208E+00	.11664E+00	.26010E-01
9	.19415E+00	.19977E+00	.40536E-01
10	-.89604E+00	-.91377E+00	.44610E-01
15	-.14209E+00	-.13600E+00	.34375E-01
16	.25590E+00	.17074E+00	.25020E-01
17	.14204E+00	.18326E+00	.47443E-01
22	.21201E+00	.24082E+00	.48572E-01
32	.63162E+00	.52949E+00	.50833E-01

Table 5. Regression Analysis Results, Stream Sediment
(continued)

STEP NO. 17

ENTERED VARIABLE 20

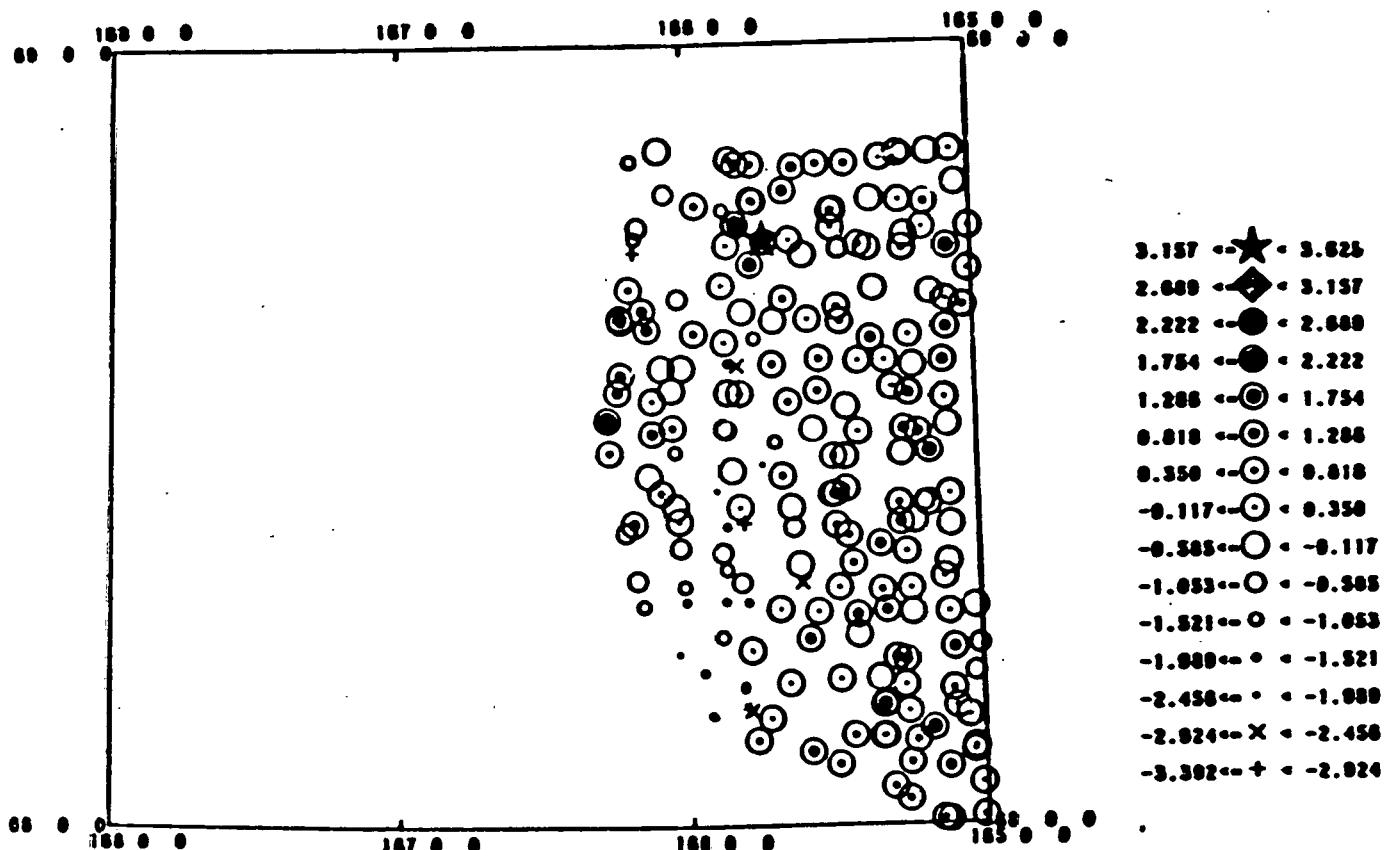
F-LEVEL	5.36627
STANDARD ERROR OF Y	.10176
MULTIPLE CORRELATION	.92485
R-SQUARED	.95535
DEGREES OF FREEDOM	198
CONSTANT TERM	5.06800

VARIABLE	BETA PRIME	BETA	SE(BETA)
9	.18990E+00	.12601E+00	.26045E-01
9	.31959E+00	.33122E+00	.94178E-01
10	-.88132E+00	-.83790E+00	.45331E-01
15	-.12741E+00	-.12276E+00	.34548E-01
16	.25870E+00	.17261E+00	.24754E-01
17	.13396E+00	.17294E+00	.47146E-01
20	-.17363E+00	-.15901E+00	.68644E-01
22	.23349E+00	.26409E+00	.49087E-01
32	.62177E+00	.91729E+00	.50409E-01

ANALYSIS OF VARIANCE

TERM	SS	DF	MS
TOTAL	.14174E+02	207	
REG	.12124E+02	9	.13471E+01
ERR	.20502E+01	198	.10395E-01

POINT HOPE STREAM SEDIMENT FACTOR SCORE 1



UNIVERSAL TRANSVERSE MERCATOR PROJECTION

SCALE 1:1000000

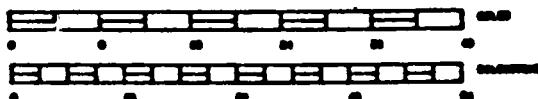
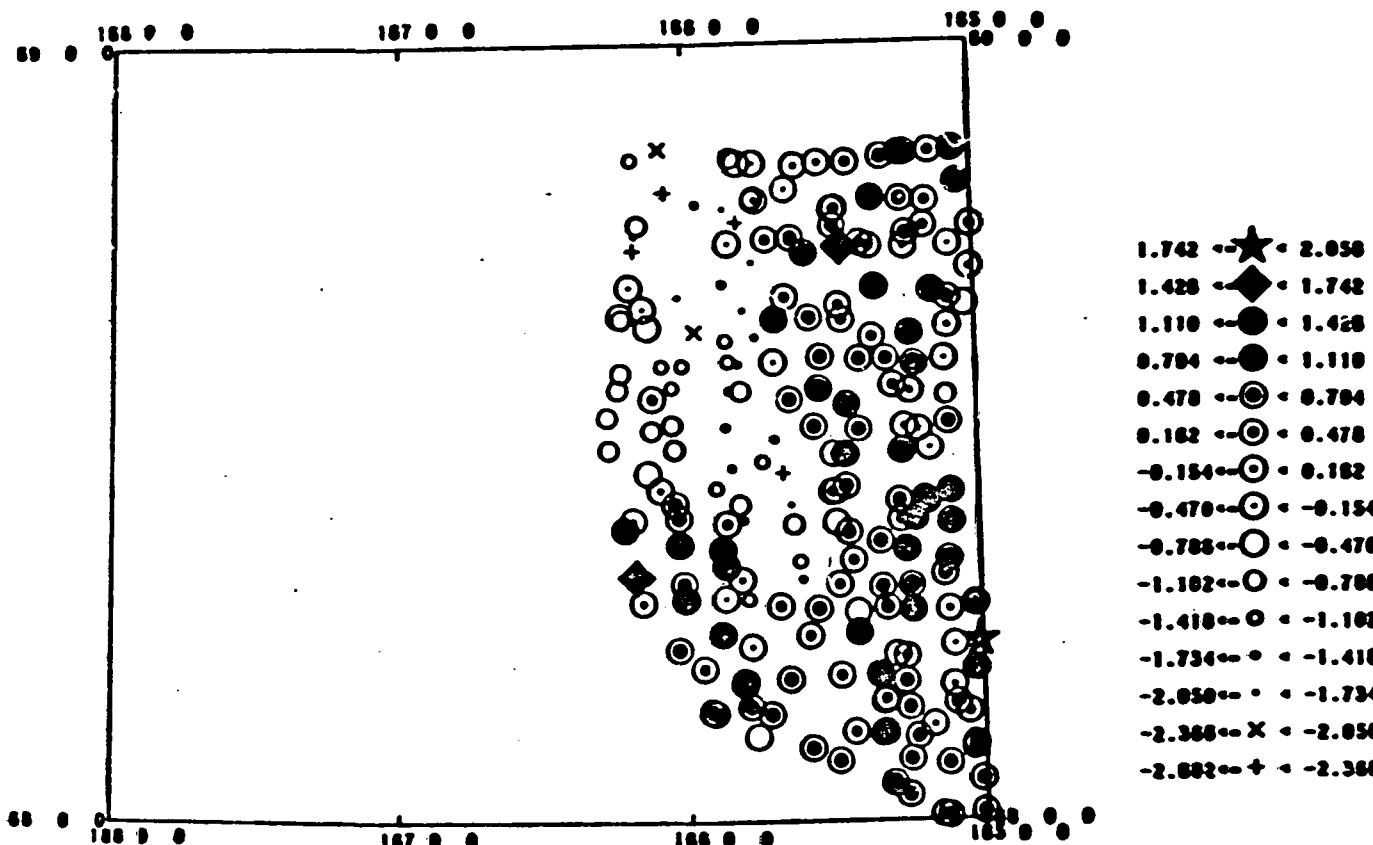


Figure 4. Stream Sediment Factor Score 1

POINT HOPE STREAM SEDIMENT FACTOR SCORE 2



UNIVERSAL TRANSVERSE MERCATOR PROJECTION
SCALE 1:1000000

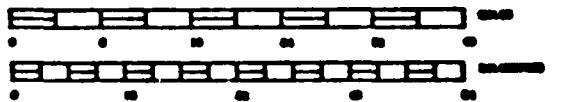


Figure 5. Stream Sediment Factor Score 2

POINT HOPE STREAM SEDIMENT FACTOR SCORE 3

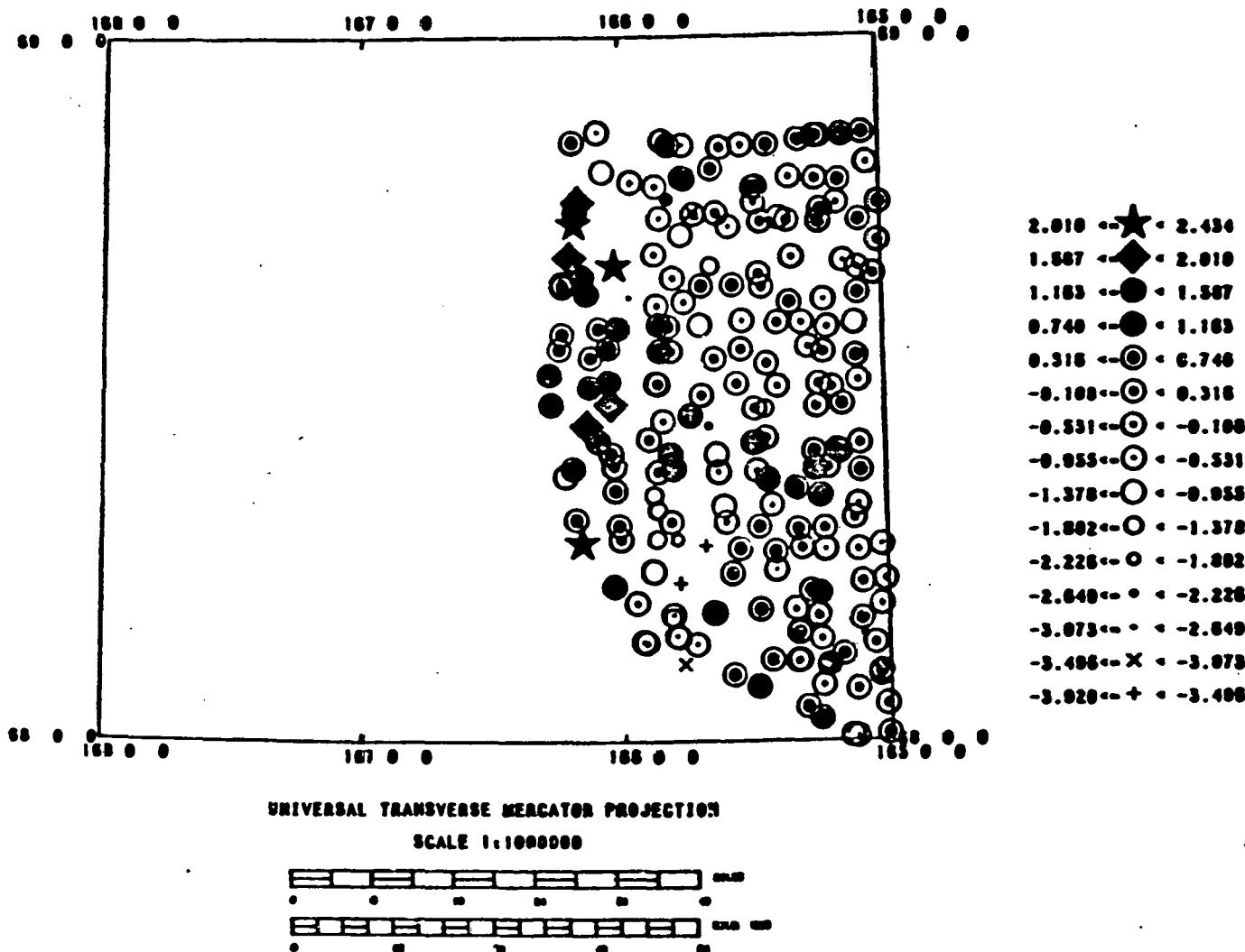


Figure 6. Stream Sediment Factor Score 3

POINT HOPE STREAM SEDIMENT RESIDUALS

26

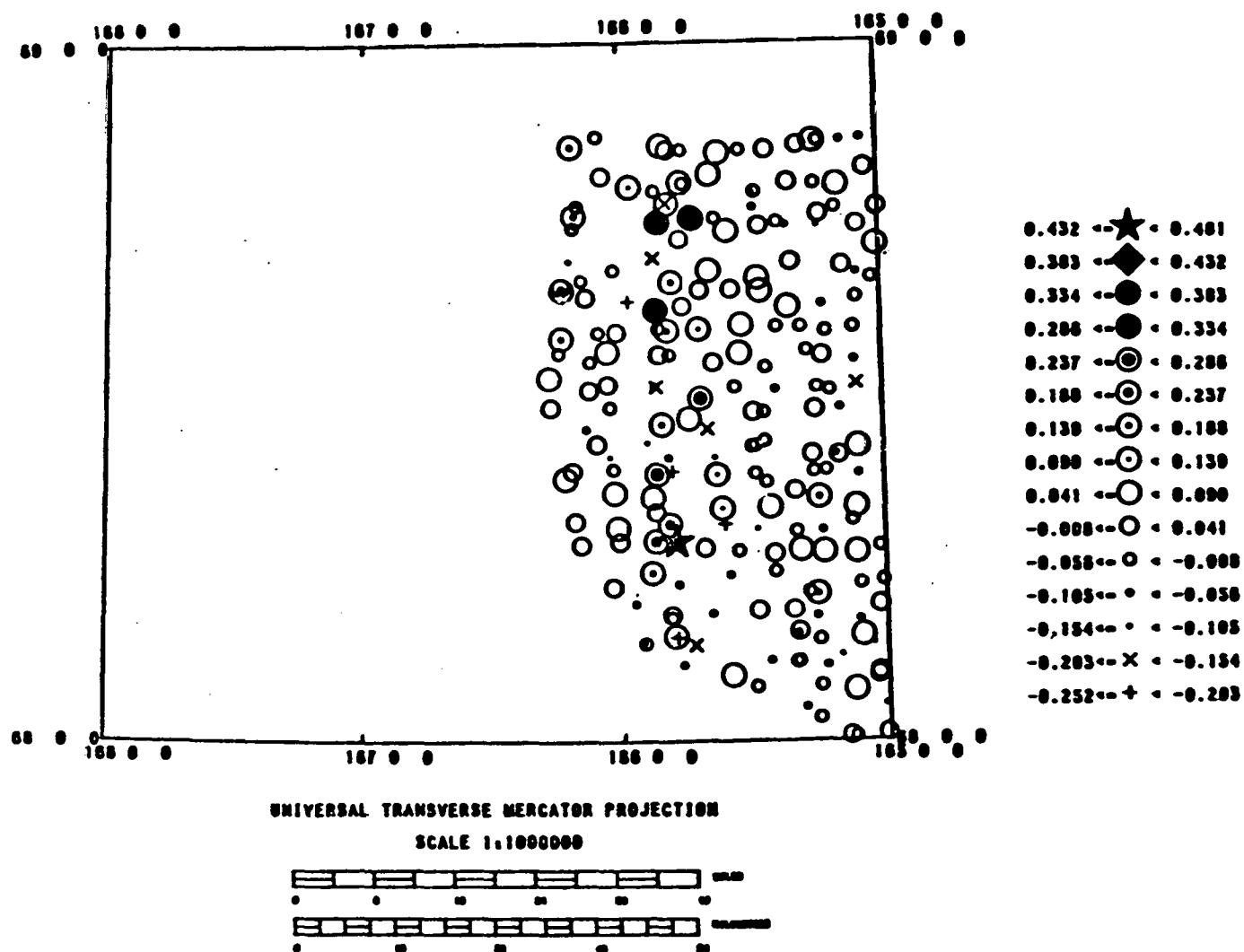


Figure 7. Stream Sediment Residuals

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- 1981b, Symbolic Plotting of Geochemical Exploration Data: U.S. Department of Energy Open-File Report (in preparation).

Appendix A. Stream Sediment Data

JINT MOPE STREAM SEDIMENT

PG. FOUR - SAMPLE SET 4

SAMPLE NO.	SR PPM	SC PPM	SM PPM	SR PPM	TA PPM	TB PPM	TH PPM	TI PPM	V PPM	VB PPM	ZN PPM	TG/U RATIO
456639	-3.00	9.40	3.00	-241.00	-1.00	-1.00	5.70	3197.00	93.00	2.00	194.00	2.74200
456640	-1.00	4.60	1.60	-236.00	-1.00	-9499.00	3.20	1926.00	56.00	1.60	64.00	2.63400
456641	-2.00	7.90	3.50	-120.00	-1.00	-1.00	6.00	2518.00	??.00	4.30	156.00	2.00400
456642	-2.00	10.70	3.50	-246.00	-1.00	-1.00	5.40	2719.00	122.00	3.10	-103.00	2.43300
456643	-1.00	9.40	2.70	-168.00	-1.00	-9999.00	5.50	2250.00	102.00	3.10	-51.00	2.29900
456644	-1.00	12.30	3.90	-296.00	-1.00	-1.00	7.70	3662.00	144.00	4.60	177.00	2.44900
456645	-2.00	13.10	4.30	-298.00	-1.00	-1.00	9.20	3660.00	161.00	3.60	134.00	2.26700
456646	-2.00	13.00	3.40	-280.00	-2.00	-1.00	7.40	3116.00	155.00	4.10	134.00	2.48100
456647	-1.00	14.40	4.00	-108.00	-1.00	1.00	9.20	~167.00	173.00	4.50	-30.00	2.81700
456648	-2.00	12.30	4.20	-192.00	-2.00	-1.00	7.90	4044.00	116.00	4.70	-126.00	2.89900
456649	-2.00	11.60	3.80	-201.00	-2.00	-1.00	8.10	4781.00	130.00	2.90	87.00	2.96500
456650	-2.00	10.60	3.90	-239.00	-1.00	-1.00	6.80	3494.00	104.00	3.70	-42.00	2.55900
456651	-1.00	8.10	2.70	-116.00	-1.00	-1.00	6.10	3818.00	75.00	2.80	-42.00	2.63200
456652	-2.00	10.20	3.70	-170.00	-1.00	-1.00	8.00	3759.00	92.00	3.00	-43.00	2.49700
456653	-2.00	9.80	3.50	-184.00	-1.00	-1.00	6.90	3047.00	104.00	3.10	-101.00	2.96700
456654	-2.00	9.70	3.50	-217.30	-1.00	-1.00	7.80	3703.00	98.00	-1.90	94.00	2.28900
456655	-1.00	9.40	3.00	-138.00	-1.00	-1.00	6.60	3599.00	92.00	3.80	-20.00	2.87400
456656	-2.00	11.20	4.10	-134.00	-2.00	-1.00	8.40	3876.00	106.00	6.30	112.00	3.06700
456657	-2.00	11.00	4.60	-106.00	-1.00	-1.00	7.40	7899.00	124.00	3.40	176.00	1.84900
456658	-2.00	9.10	3.50	-10.00	-1.00	-1.00	7.2.	238.00	98.00	4.20	-106.00	2.22600
456659	-1.00	10.3	-1.30	-1.00	-1.00	-1.00	7.20	3205.00	103.00	3.60	66.00	2.34600
456660	2.00	12.10	3.90	-176.~	-2.00	-1.00	8.60	4111.00	139.00	3.00	156.00	3.30000
456661	3.00	13.80	4.90	-216.6	-2.00	-1.00	8.30	3584.00	188.00	3.40	232.00	2.41000
456662	-2.00	12.20	4.90	-305.00	-1.00	-1.00	8.20	3413.00	195.00	3.40	143.00	3.20500
456663	-1.00	13.80	3.80	-164.00	-1.00	-1.00	8.70	4065.00	254.00	4.40	111.00	2.61100
456664	-2.00	8.50	3.00	-199.00	-1.00	-1.00	9.50	2537.00	99.00	-2.20	212.00	1.30700
456665	-2.00	10.80	4.50	-160.00	-2.00	1.00	8.00	3276.00	126.00	3.80	186.00	1.68400
456666	-2.00	8.10	3.40	-333.00	-2.00	-1.00	9.00	2624.00	110.00	4.10	316.00	1.23300
456667	-1.00	3.40	1.60	-127.00	-1.00	1.00	2.20	1066.00	37.00	1.80	117.00	.66400
456668	4.00	9.30	2.10	-382.00	-3.00	-1.00	3.50	2049.00	104.00	-2.10	399.30	.60600
456669	-1.00	4.90	2.00	-193.00	-1.00	-9999.00	2.30	1391.00	75.00	-1.00	103.00	.64100
456670	-2.00	13.60	3.30	-290.00	-1.00	-1.00	10.00	4099.00	138.00	4.80	-45.00	2.86500
456671	3.00	11.60	4.10	-138.00	-1.00	-1.00	9.10	4234.00	121.00	3.30	91.00	2.57100
456672	-2.00	7.80	2.80	-196.00	-2.00	-1.00	5.90	2575.00	72.00	4.60	107.00	2.20300
456673	-2.00	9.80	4.00	-199.00	-2.00	-1.00	7.20	3298.00	97.00	3.10	191.00	3.01200
456674	-3.00	12.50	4.60	-324.00	-2.00	-1.00	8.00	4577.00	104.00	4.60	-101.00	3.02100
456675	-1.00	9.40	3.00	-141.00	-1.00	-1.00	7.20	4331.00	99.00	3.30	-29.00	2.94100
456676	-2.00	11.00	3.30	-211.00	-2.00	-1.00	8.20	4187.00	93.00	4.10	174.00	3.09600
456677	-1.00	7.60	3.00	-201.00	-1.00	-1.00	8.10	3139.00	74.00	-1.50	-27.00	2.66700
456678	-2.00	7.70	2.90	-185.00	-1.00	-1.00	4.60	2932.00	96.00	2.40	110.00	2.02F00
456679	-1.00	6.80	2.30	-123.00	-1.00	-1.00	4.40	3287.00	80.00	3.40	93.00	2.00000
456680	-2.00	10.30	3.50	-175.00	-1.00	-1.00	8.90	4146.00	113.00	4.10	-61.00	2.91500
456681	-2.00	11.90	4.20	-293.00	-2.00	-1.00	7.10	2940.00	129.00	4.10	-24.00	3.11500
456682	-7.00	3.90	-2.40	-843.00	-3.00	-3.00	-5.10	-9999.00	-19.00	-7.40	-181.00	0.00000
456683	-1.00	13.80	4.00	-169.00	-1.00	-1.00	9.90	4751.00	157.00	4.90	-36.00	3.70F00
456684	-2.00	10.60	3.20	-181.00	-1.00	-1.00	6.60	4481.00	118.00	3.90	134.00	2.95000
456685	-2.00	11.30	3.90	-235.00	-2.00	-1.00	7.40	4043.00	193.00	4.00	123.00	3.01200
456686	-2.00	12.40	4.90	-302.00	-1.00	-1.00	8.90	4487.00	125.00	5.20	117.02	3.31100
456687	-1.00	12.90	3.70	-129.00	-1.00	-1.00	9.00	4563.00	146.00	3.00	-30.00	3.67400
456688	-2.00	11.20	4.40	-177.00	-1.00	-1.00	5.60	3663.00	149.00	-1.70	152.00	2.09700

ENTIT HOPE STREAM SEDIMENT

PG. ONE - SAMPLE SET 9

SAMPLE N#.	LAT. °N.	LONG. °E.	PH CONC.	SCINT. %	URANIUM PPM	SILVER PPM	BISMUTH PPM	CADMIUM PPM	COPPER PPM	NICKEL PPM	LEAD PPM	TIN PPM	TUNGSTEN PPM		
456689	68.4236	165.9019	6.	127.0	14.	2.41	-9.00	-9.00	-9.00	30.00	-20.00	39.00	10.00	-10.00	19.00
456690	68.4244	165.9008	6.	125.0	14.	2.04	-9.00	-9.00	-9.00	35.00	-20.00	68.00	12.00	-12.00	-15.00
456691	68.4306	165.4936	6.	73.0	7.	2.94	-9.00	-9.00	-9.00	34.00	-20.00	42.00	11.00	-10.00	-15.00
456692	68.4111	165.2714	6.	97.0	9.	2.36	-9.00	-9.00	-9.00	29.00	-20.00	32.00	10.00	-10.00	-15.00
456693	68.3867	165.2675	6.	44.0	9.	2.77	-9.00	-9.00	-9.00	31.00	-20.00	53.00	10.00	-10.00	-15.00
456694	68.3594	165.3403	6.	17.0	15.	2.67	-9.00	-9.00	-9.00	34.00	-20.00	38.00	19.00	-10.00	-15.00
456695	68.3492	165.2506	6.	2.0	3.	2.23	-9.00	-9.00	-9.00	23.00	-20.00	32.00	8.00	-10.00	-15.00
456696	68.3883	165.2208	5.	24.0	12.	2.20	-9.00	-9.00	-9.00	21.00	-20.00	26.00	7.00	-10.00	-15.00
456697	68.4100	165.1711	5.	67.0	9.	2.10	-9.00	-9.00	-9.00	26.00	-20.00	42.00	-9.00	-10.00	-15.00
456698	68.4125	165.1836	5.	63.0	9.	2.07	-9.00	-9.00	-9.00	23.00	-20.00	31.00	-9.00	-10.00	-15.00
456699	68.3831	165.0969	5.	123.0	7.	2.03	-9.00	-9.00	-9.00	24.00	-20.00	29.00	9.00	-10.00	-15.00
456700	68.4217	165.0964	5.	203.0	9.	2.31	-9.00	-9.00	-9.00	23.00	-20.00	33.00	9.00	-10.00	-15.00
456701	68.3342	165.6164	5.	167.0	9.	3.79	-9.00	-9.00	-9.00	30.00	-20.00	66.00	-9.00	-10.00	-15.00
456703	68.3822	165.6353	5.	153.0	6.	3.36	-9.00	-9.00	-9.00	29.00	-20.00	37.00	6.00	-10.00	15.00
456704	68.4075	165.6419	6.	231.0	6.	3.87	-9.00	-9.00	-9.00	49.00	-20.00	34.00	8.00	-10.00	-15.00
456705	68.4481	165.6702	5.	177.0	2.	4.76	-9.00	-9.00	-9.00	63.00	-20.00	69.00	10.00	-10.00	32.00
456706	68.4917	165.6947	5.	93.0	4.	3.39	-9.00	-9.00	-9.00	21.00	-20.00	28.00	9.00	-10.00	-15.00
456707	68.4620	165.7394	5.	178.0	4.	2.91	-9.00	-9.00	-9.00	21.00	-20.00	38.00	9.00	-10.00	-15.00
456708	68.4550	165.8431	6.	235.0	4.	4.31	-9.00	-9.00	-9.00	32.00	-20.00	49.00	11.00	-10.00	-15.00
456709	68.5094	165.8606	7.	147.0	4.	3.72	-9.00	-9.00	-9.00	33.00	-20.00	57.00	11.00	-10.00	-15.00
456710	68.5083	165.8622	7.	131.0	4.	3.72	-9.00	-9.00	-9.00	38.00	-20.00	49.00	9.00	-10.00	-15.00

POINT MOPE STREAM SEDIMENT

PG. TWO - SAMPLE SET S

SAMPLE NO.	AS PPM	SE PPM	Zn PPM	Mn PPM	BF PPM	LI PPM	AL PPM	AW PPM	BS PPM	CA PPM	CE PPM	CL PPM	CO PPM
456690	17.00	-9.00	186.00	-9999.00	-9999.00	-9999.00	64320.00	-.06	503.00	3946.00	59.00	-107.00	22.40
456690	26.00	-9.00	167.00	-9999.00	-9999.00	-9999.00	73040.00	-.07	493.00	3301.00	71.00	-127.00	38.70
456691	17.00	-9.00	182.00	-9999.00	-9999.00	-9999.00	67210.00	-.03	400.00	-881.00	53.00	-86.00	16.90
456692	17.00	-9.00	190.00	-9999.00	-9999.00	-9999.00	68310.00	-.07	417.00	2553.00	56.00	-98.00	34.60
456693	23.00	-9.00	172.00	-9999.00	-9999.00	-9999.00	81940.00	-.06	467.00	-971.00	67.00	-91.00	24.10
456694	26.00	-9.00	171.00	-9999.00	-9999.00	-9999.00	77920.00	-.04	373.00	-1019.00	58.00	-90.00	23.20
456695	6.00	-9.00	149.00	-9999.00	-9999.00	-9999.00	65190.00	-.11	-176.00	-1248.00	65.00	-112.00	44.70
456696	12.00	-9.00	228.00	-9999.00	-9999.00	-9999.00	59080.00	-.05	278.00	2160.00	52.00	-43.00	16.50
456697	17.00	-9.00	162.00	-9999.00	-9999.00	-9999.00	63230.00	-.06	264.00	-1006.00	55.00	-108.00	15.60
456698	10.00	-9.00	186.00	-9999.00	-9999.00	-9999.00	59260.00	-.03	421.00	-850.00	37.00	-91.00	19.50
456699	12.00	-9.00	196.00	-9999.00	-9999.00	-9999.00	55590.00	-.06	398.00	2428.00	55.00	-94.00	30.00
456700	13.00	-9.00	200.00	-9999.00	-9999.00	-9999.00	66700.00	-.05	376.00	-892.00	52.00	-104.00	18.10
456701	17.00	-9.00	127.00	-9999.00	-9999.00	-9999.00	34800.00	-.10	1681.00	24670.00	48.00	-229.00	26.70
456703	19.00	-9.00	114.00	-9999.00	-9999.00	-9999.00	46300.00	-.06	2273.00	31420.00	41.00	-87.00	30.10
456704	13.00	-9.00	134.00	-9999.00	-9999.00	-9999.00	449.00	-.07	5561.00	23430.00	47.00	107.00	18.60
456705	29.00	6.00	113.00	-9999.00	-9999.00	-9999.00	32910.00	-.09	6200.00	31190.00	55.00	-94.00	14.70
456706	8.00	-9.00	129.00	-9999.00	-9999.00	-9999.00	33130.00	-.04	597.00	79900.00	35.00	-78.00	10.80
456707	6.00	-9.00	99.00	-9999.00	-9999.00	-9999.00	31870.00	-.07	448.00	75410.00	35.00	-79.00	32.50
456708	9.00	-9.00	146.00	-9999.00	-9999.00	-9999.00	46450.00	-.07	392.00	29580.00	52.00	-95.00	19.90
456709	10.00	-9.00	125.00	-9999.00	-9999.00	-9999.00	41440.00	-.07	1439.00	68110.00	47.00	-76.00	11.50
456710	11.00	-9.00	130.00	-9999.00	-9999.00	-9999.00	38520.00	-.03	1450.00	66120.00	37.00	-71.00	10.60

POINT MOPE STREAM SEDIMENT

PC. THREE - SAMPLE SET 3

SAMPLE NO.	CR PPM	CS PPM	DT PPM	EC PPM	FE PPM	HF PPM	K PPM	LB PPM	LU PPM	RB PPM	RW PPM	WA PPM	WB PPM
456689	91.00	3.80	3.00	1.00	39450.00	7.30	19930.00	38.00	.30	7106.00	680.00	14260.00	57.00
456690	109.00	4.60	3.00	1.00	50660.00	4.50	13820.00	26.00	.40	8051.00	1604.00	11990.00	-40.00
456691	87.00	4.00	3.00	1.00	38060.00	6.00	14330.00	21.00	.40	6301.00	439.00	13210.00	55.00
456692	77.00	2.80	4.00	1.10	36900.00	7.20	14200.00	27.00	.30	8286.00	309.00	14720.00	-46.00
456693	88.00	4.60	3.00	1.00	49500.00	4.80	17010.00	33.00	.30	8261.00	530.00	11040.00	100.00
456694	90.00	3.60	3.00	1.00	44720.00	3.30	16650.00	27.00	.40	6922.00	720.00	10840.00	81.00
456695	80.00	-3.00	3.00	1.00	26680.00	6.90	11650.00	29.00	.30	6624.00	152.00	11700.00	-70.00
456696	88.00	2.80	4.00	1.00	31310.00	8.70	12130.00	27.00	.30	4608.00	383.00	14870.00	-30.00
456697	74.00	2.90	4.00	1.00	34370.00	6.40	15900.00	22.00	.30	6913.00	466.00	16940.00	-36.00
456698	73.00	2.30	4.00	.80	31630.00	5.00	10570.00	23.00	.30	5273.00	413.00	19150.00	48.00
456699	76.00	2.40	4.00	.90	32090.00	6.70	10430.00	23.00	.30	5351.00	403.00	17120.00	-35.00
456700	69.00	3.20	4.00	1.10	31350.00	6.90	17320.00	19.00	.30	4964.00	401.00	16770.00	77.00
456701	85.00	-2.40	4.00	1.60	45730.00	4.90	-11670.00	38.00	.40	10450.00	4683.00	5047.00	-52.00
456703	74.00	4.10	3.00	1.60	26880.00	5.00	12270.00	22.00	.30	23010.00	364.00	9668.00	-37.00
456704	77.00	4.90	3.00	2.00	24790.00	3.90	10510.00	27.00	.40	13360.00	452.00	5632.00	-38.00
456705	104.00	5.50	3.00	1.80	31320.00	5.10	17320.00	34.00	.40	9255.00	975.00	5670.00	107.00
456706	68.00	3.60	3.00	.90	20800.00	4.20	9211.00	38.00	.30	25470.00	508.00	3183.00	51.00
456707	64.00	4.00	3.00	.80	15810.00	3.90	8334.00	22.00	.20	31110.00	394.00	3875.00	-43.00
456708	65.00	3.90	6.00	1.30	23160.00	5.70	6621.00	37.00	.40	9908.00	694.00	6433.00	-41.00
456709	75.00	5.60	3.00	1.10	25220.00	4.40	10970.00	28.00	.30	29428.00	431.00	4354.00	-35.00
456710	74.00	6.10	3.00	.70	23540.00	4.20	10770.00	26.00	.30	26128.00	467.00	4040.00	48.00

POINT WIPF STREAM SEDIMENT

PG. FOUR - SAMPLE SET 3

SAMPLE NO.	SB PPM	SC PPM	SR PPM	SB PPM	TB PPM	TB PPM	TH PPM	TI PPM	V PPP	VB PPP	ZN PPM	TH/U RATIO
456689	-2.00	10.90	4.10	-225.00	-1.00	-1.00	6.90	3448.00	112.00	-1.80	159.00	2.86500
456690	-2.00	13.90	3.90	-387.00	-1.00	-1.00	6.30	4470.00	149.00	3.30	151.00	3.14500
456691	-1.00	12.00	3.40	-128.00	-1.00	-1.00	7.40	4283.00	120.00	4.10	-20.00	3.03000
456692	-2.00	13.00	3.50	-197.00	-2.00	-1.00	7.90	4111.00	131.00	3.70	130.00	3.34400
456693	-2.00	14.60	4.40	-199.00	-2.00	-1.00	9.70	4319.00	167.00	3.50	165.00	3.49700
456694	-1.00	14.40	3.60	-190.00	-1.00	-1.00	9.40	4462.00	161.00	4.10	-85.00	3.92100
456695	-3.00	11.90	3.70	-220.00	-4.00	-1.00	8.50	5118.00	125.00	-2.90	153.00	3.81700
456696	-2.00	9.30	3.00	-181.00	-1.00	-1.00	6.10	3599.00	103.00	-1.70	-72.00	2.67400
456697	-2.00	10.20	3.10	-257.00	-2.00	-1.00	5.90	4130.00	103.00	3.40	128.00	2.80900
456698	-1.00	9.50	2.30	-130.00	-1.00	-1.00	6.50	3987.00	108.00	2.50	-28.00	3.14500
456699	-2.00	9.90	3.10	-172.00	-2.00	-1.00	5.30	4346.00	99.00	-1.50	164.00	2.58400
456700	-2.00	10.30	3.60	-195.00	-2.00	-1.00	7.00	3683.00	117.00	-1.90	-36.00	3.03000
456701	-3.00	11.30	3.00	-489.00	-3.00	-1.00	6.80	3349.00	124.00	4.90	256.00	1.79500
456703	-2.00	9.90	2.70	-186.00	-2.00	-1.00	6.40	3246.00	144.00	-1.60	-113.00	1.90500
456704	-2.00	10.70	3.60	-213.00	-2.00	-1.00	7.80	2208.00	156.00	-2.10	186.00	2.01600
456705	3.00	16.20	3.90	-333.00	-1.00	-1.00	6.70	2671.00	303.00	3.40	174.00	1.40400
456706	-1.00	7.90	3.10	-149.00	-1.00	-1.00	5.90	2750.00	94.00	4.50	-68.00	1.02800
456707	-2.00	6.80	2.70	-202.00	-2.00	-1.00	4.90	2424.00	69.00	2.90	291.00	1.54600
456708	-2.00	10.00	3.60	-257.00	-2.00	-1.00	5.80	2898.00	107.00	4.10	216.00	1.34600
456709	-2.00	18.00	2.80	-233.00	-2.00	-1.00	5.50	2469.00	124.00	4.10	-98.00	1.47900
456710	-1.00	9.30	2.90	-129.00	-1.00	-1.00	6.40	2519.00	122.00	3.80	159.00	1.72100

END