

Public-data File 87-34

ROCK SAMPLE ANALYSES (1987): CIRCLE, FAIRBANKS, HEALY,
AND KANTISHNA AREAS

Compiled by
K.H. Clautice

Alaska Division of
Geological and Geophysical Surveys

December 1987

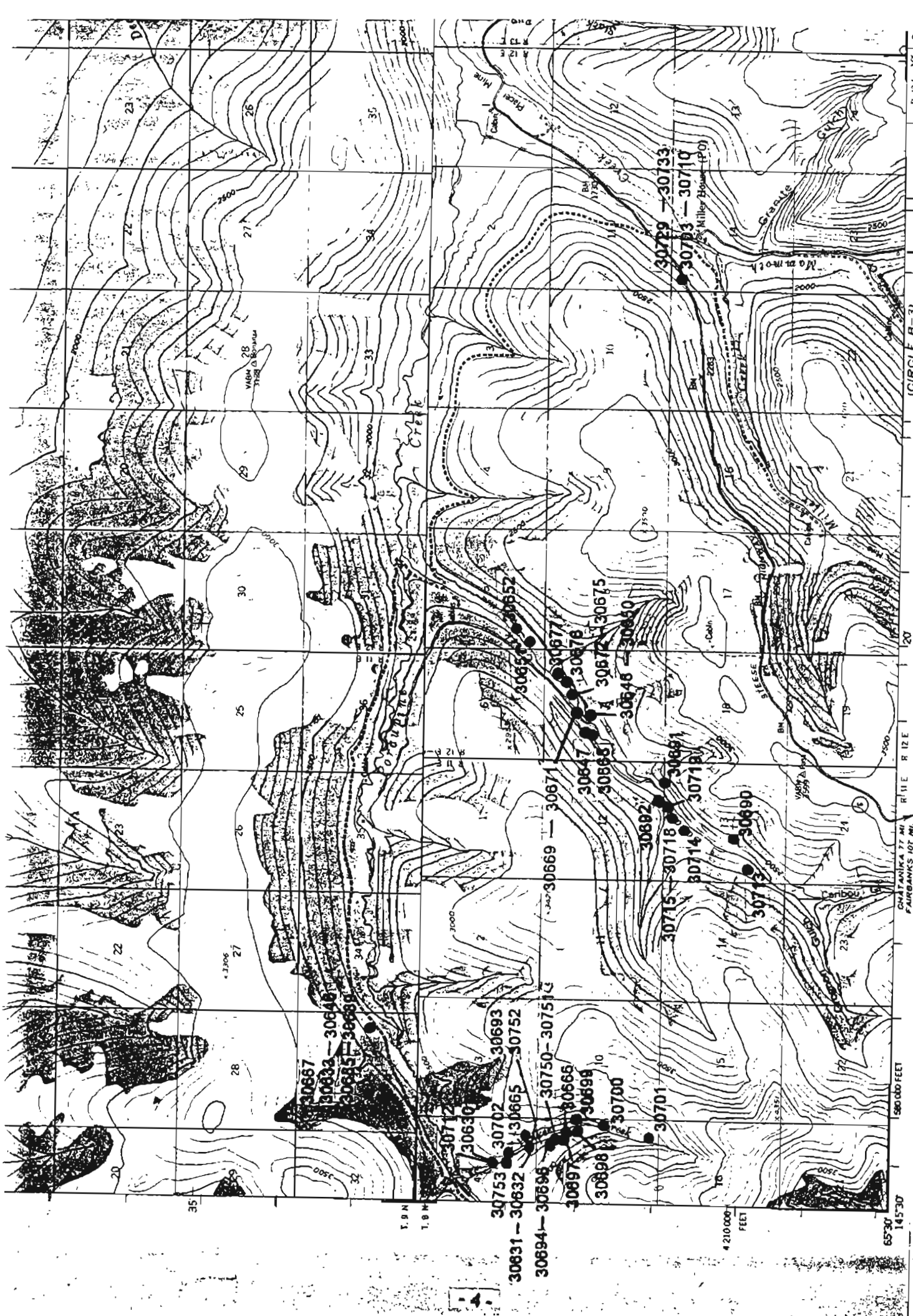
THIS REPORT HAS NOT BEEN REVIEWED FOR
TECHNICAL CONTENT (EXCEPT AS NOTED IN
TEXT) OR FOR CONFORMITY TO THE
EDITORIAL STANDARDS OF DGGS.

794 University Avenue, Suite 200
Fairbanks, Alaska 99709

This report contains rock sample data collected during the summer of 1987 as part of a study of gold and related metals in the Circle, Fairbanks, Healy, and Kantishna areas. The initial geochemical results of this U.S. Bureau of Mines funded study are being released in this format for immediate public use. Additional petrographic and geologic information will be published at a later date.

Circle (Circle C-3,4)

30630	30685	30751
30631	30686	30752
30632	30687	30753
30633	30688	30754
30634	30689	
30635	30690	
30636	30691	
30637	30692	
30638	30693	
30639	30694	
30640	30695	
30641	30696	
30642	30697	
30643	30698	
30644	30699	
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30646	30701	
30647	30702	
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30654	30709	
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30663	30715	
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30680	30732	
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30682	30734	
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30684	30750	

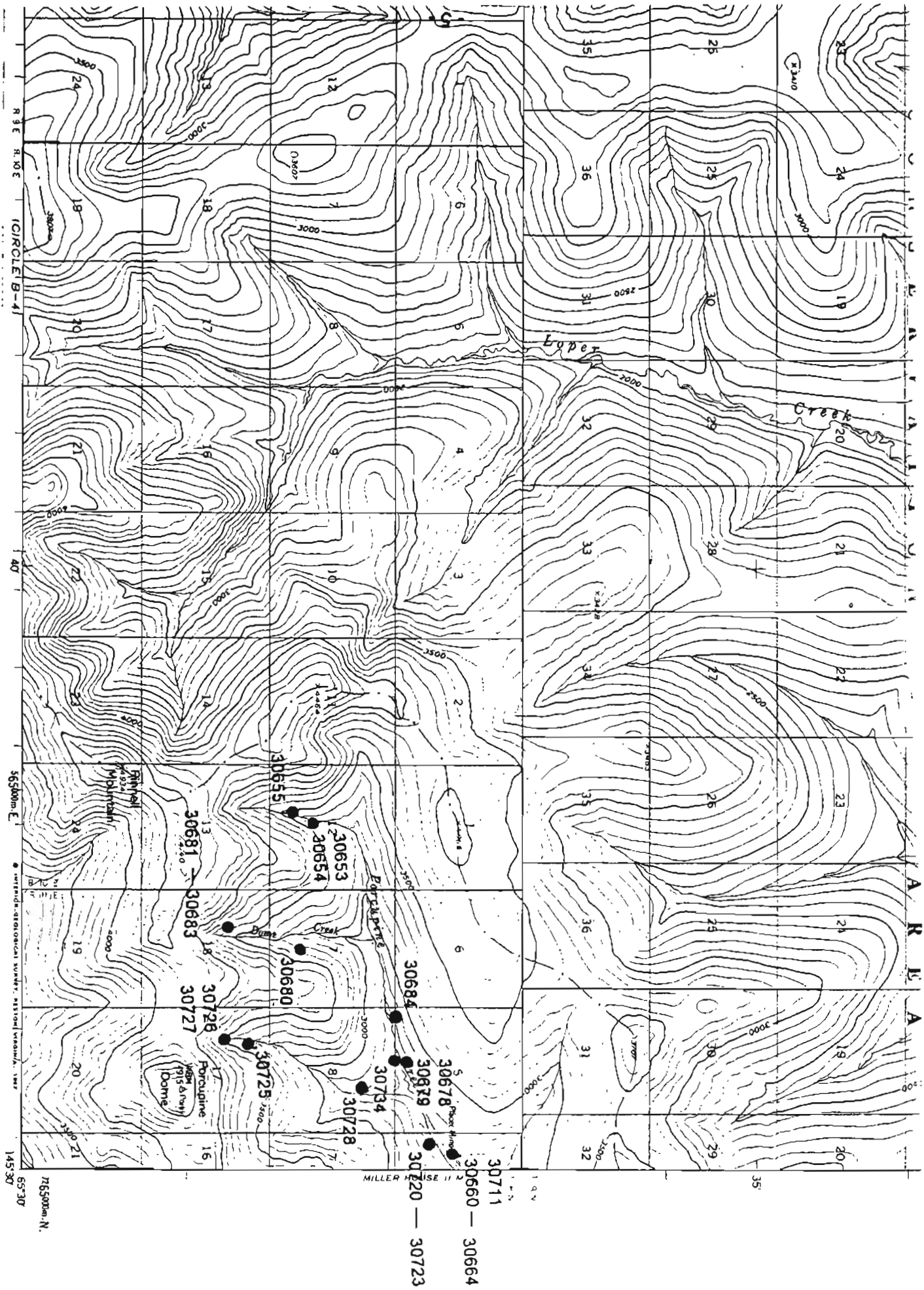


Sample 30754 from outcrop 100m west of road at summit between Independence and North Fork Hamison Creek, Section 13, T7N, R12E.

Circle C-3

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Circle C-4

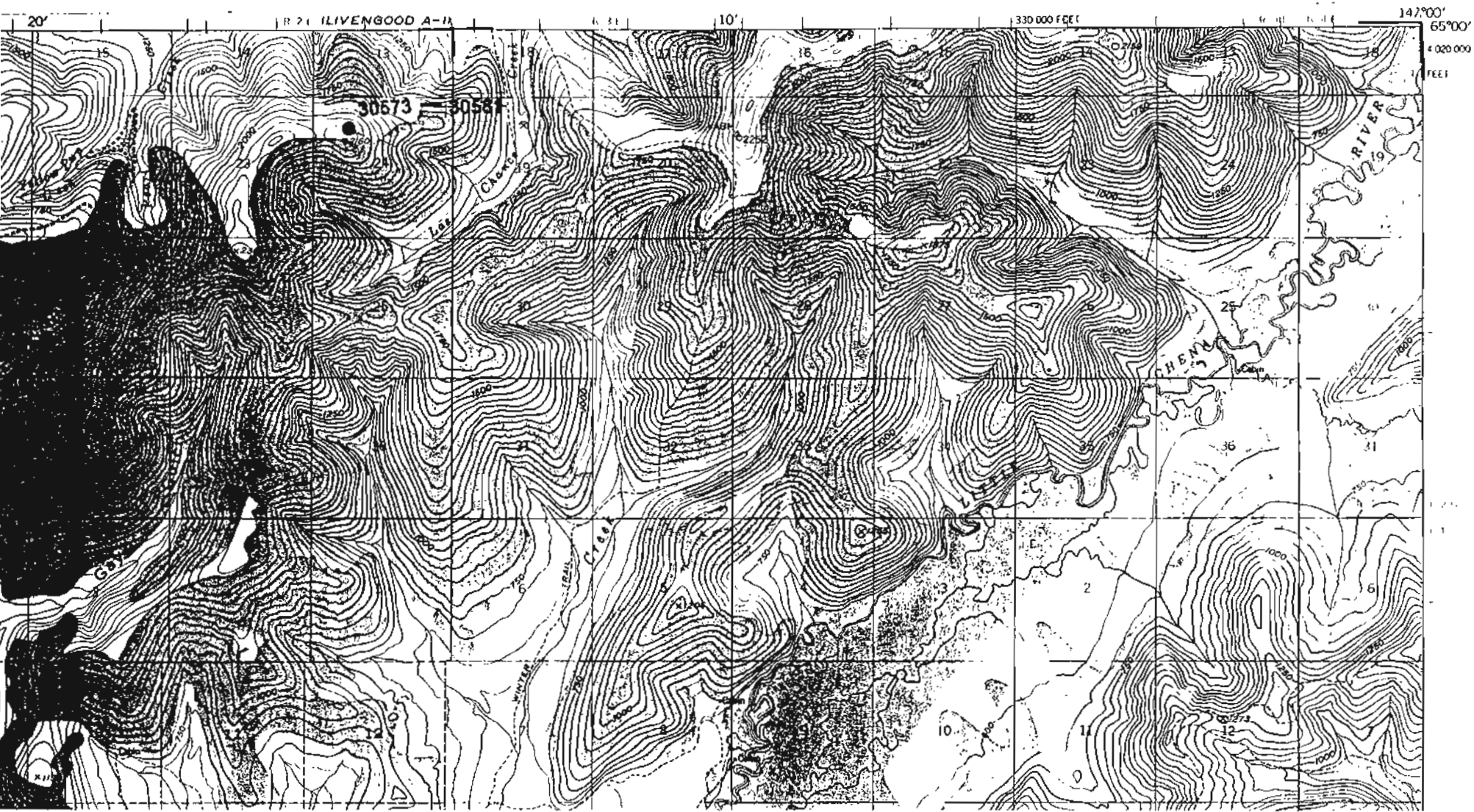


Fairbanks (Fairbanks D-1,3; Livengood A-1)

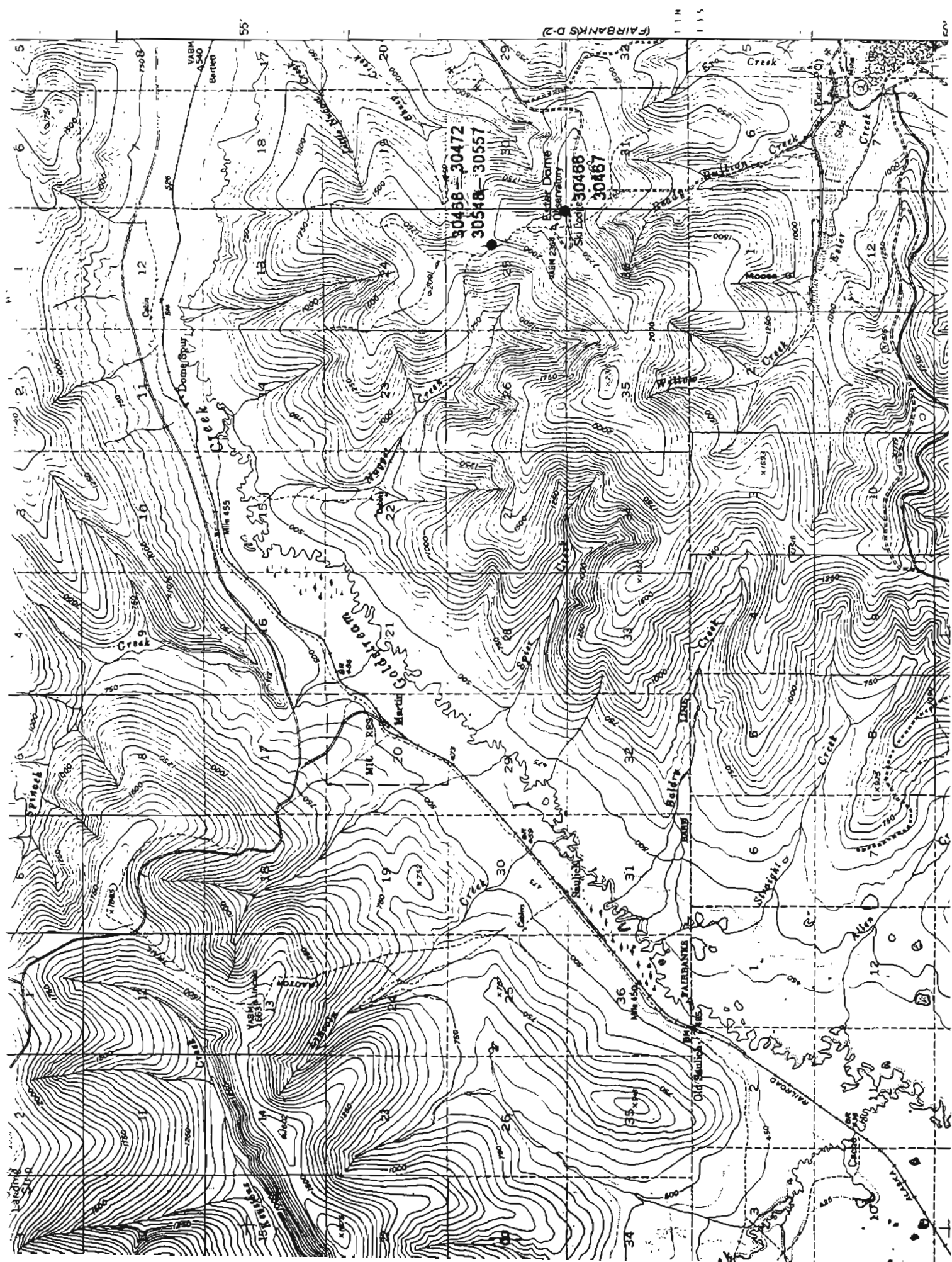
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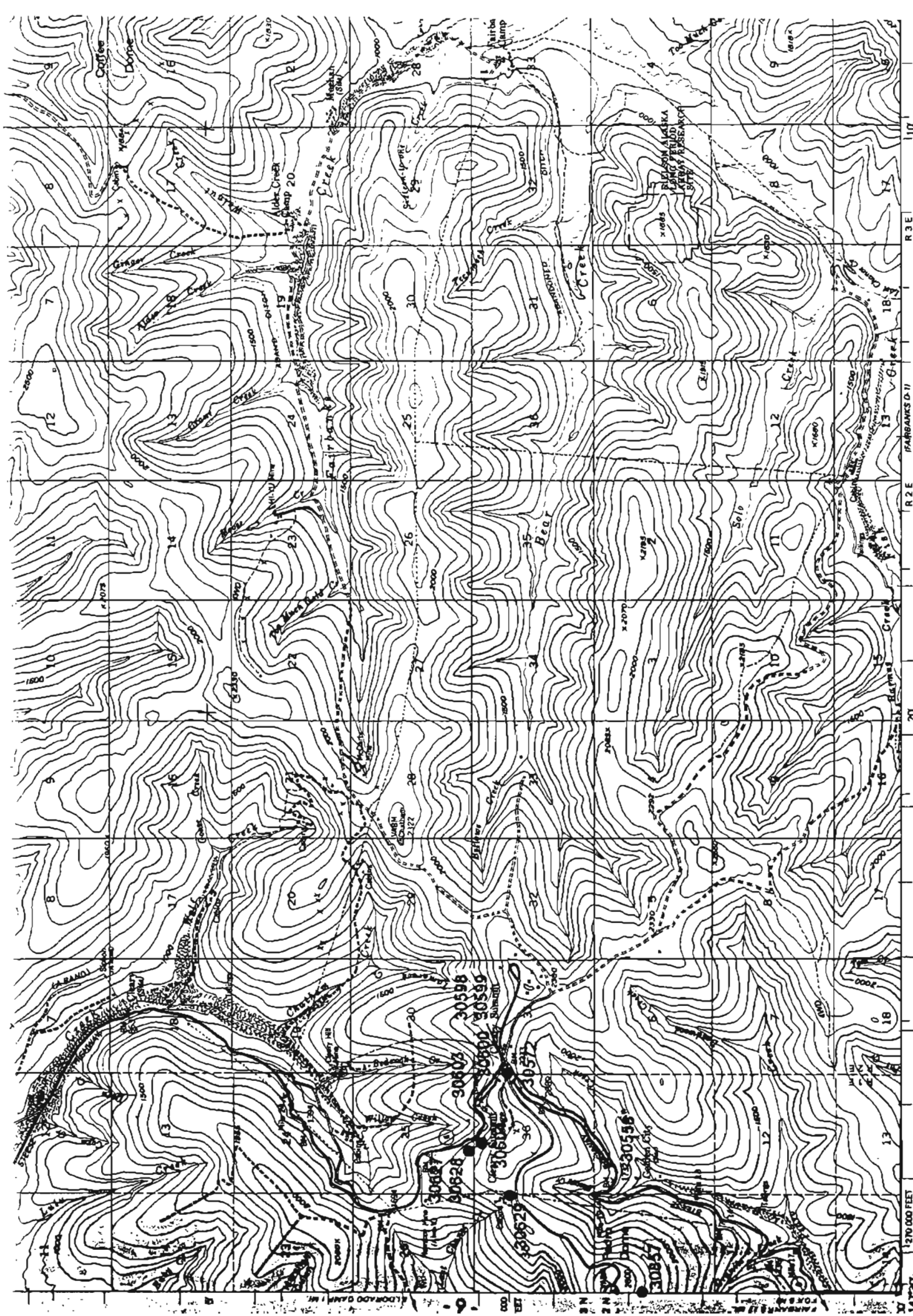
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Fairbanks D-1



Fairbanks D-3.



Livengood A-1

Healy (Healy D-3)

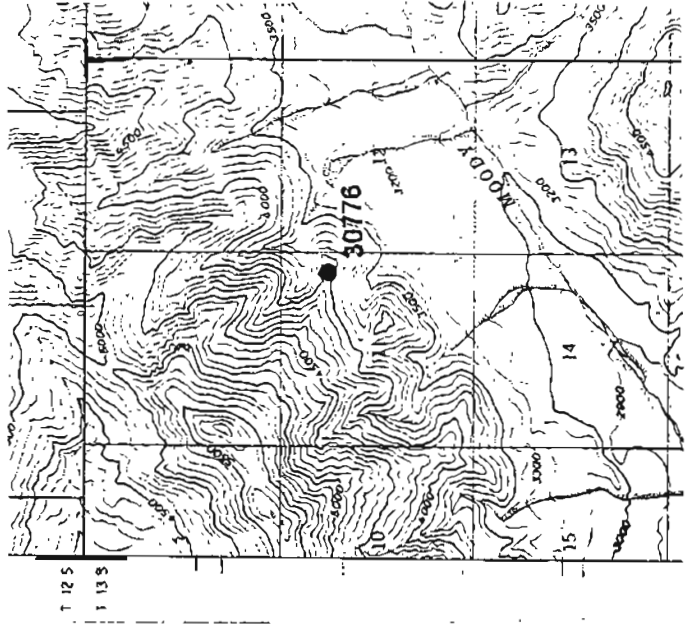
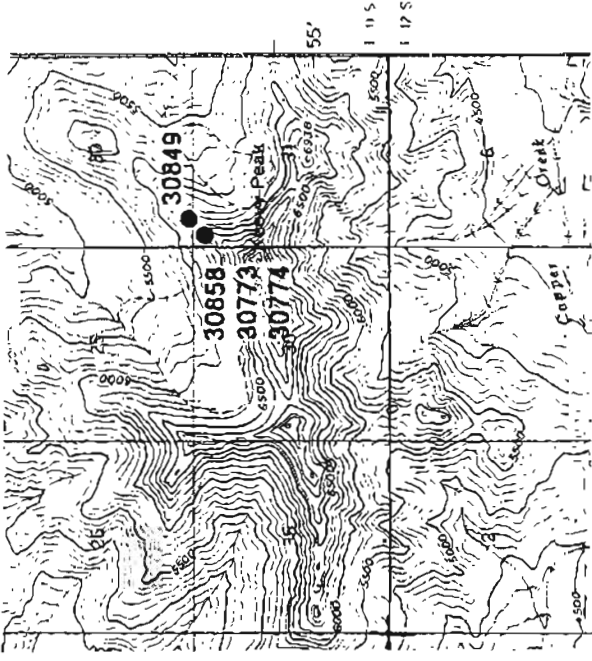
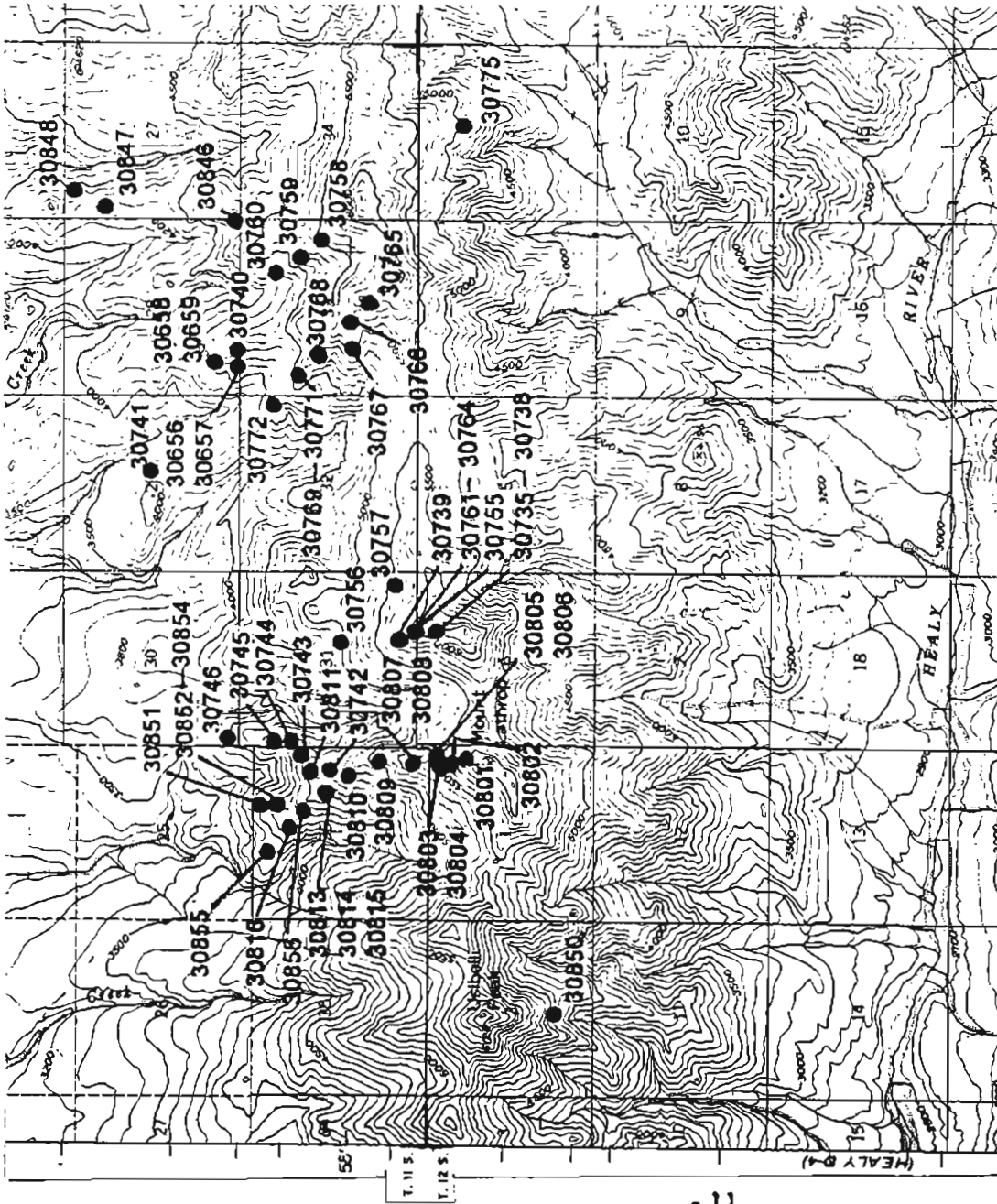
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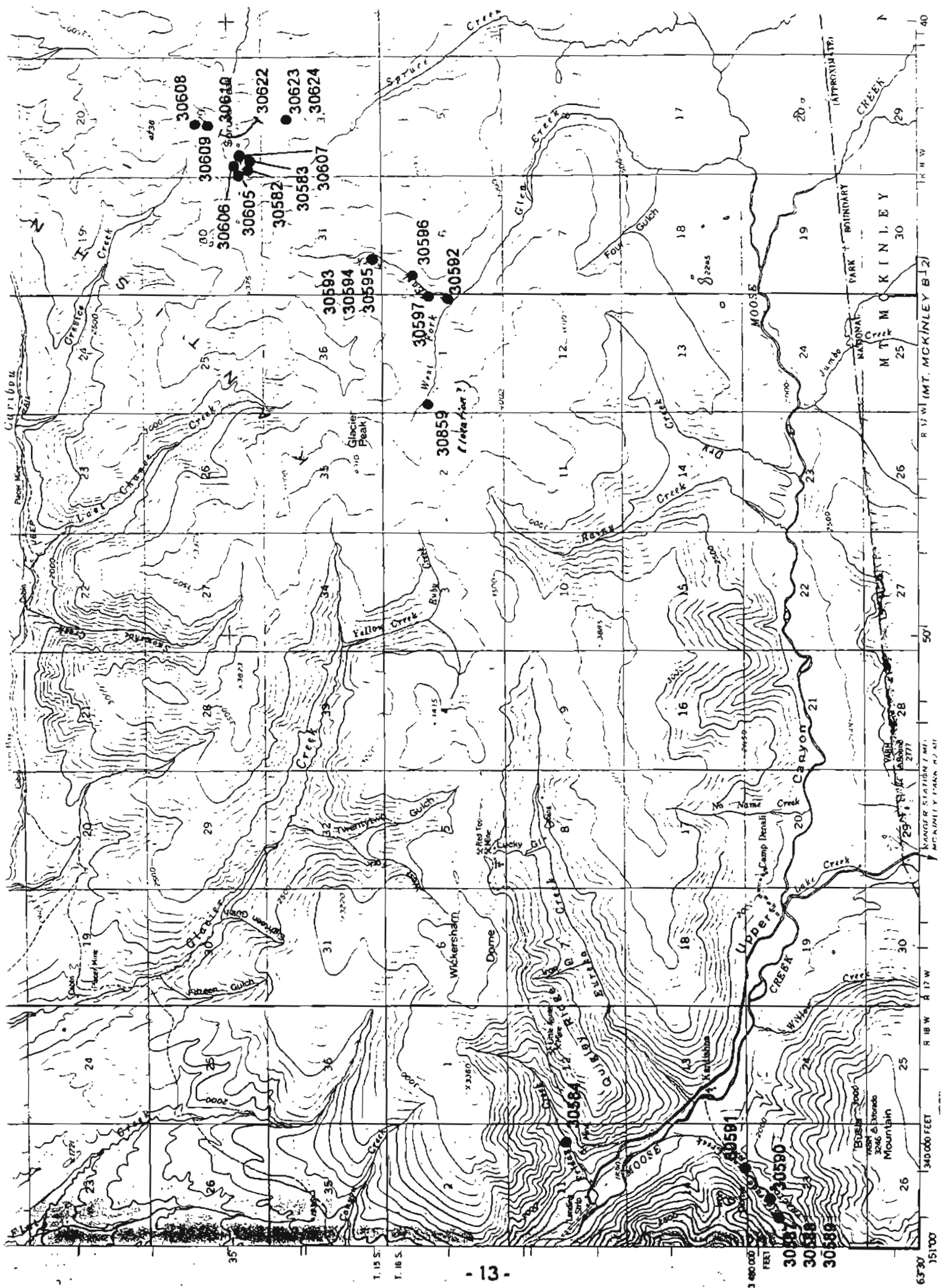
Healy D-3

Xantishna (Mt. McKinley C-2,3)

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Mt McKinley C-2

63°30' 151°00'

34000 FEET

R 18 W R 17 W

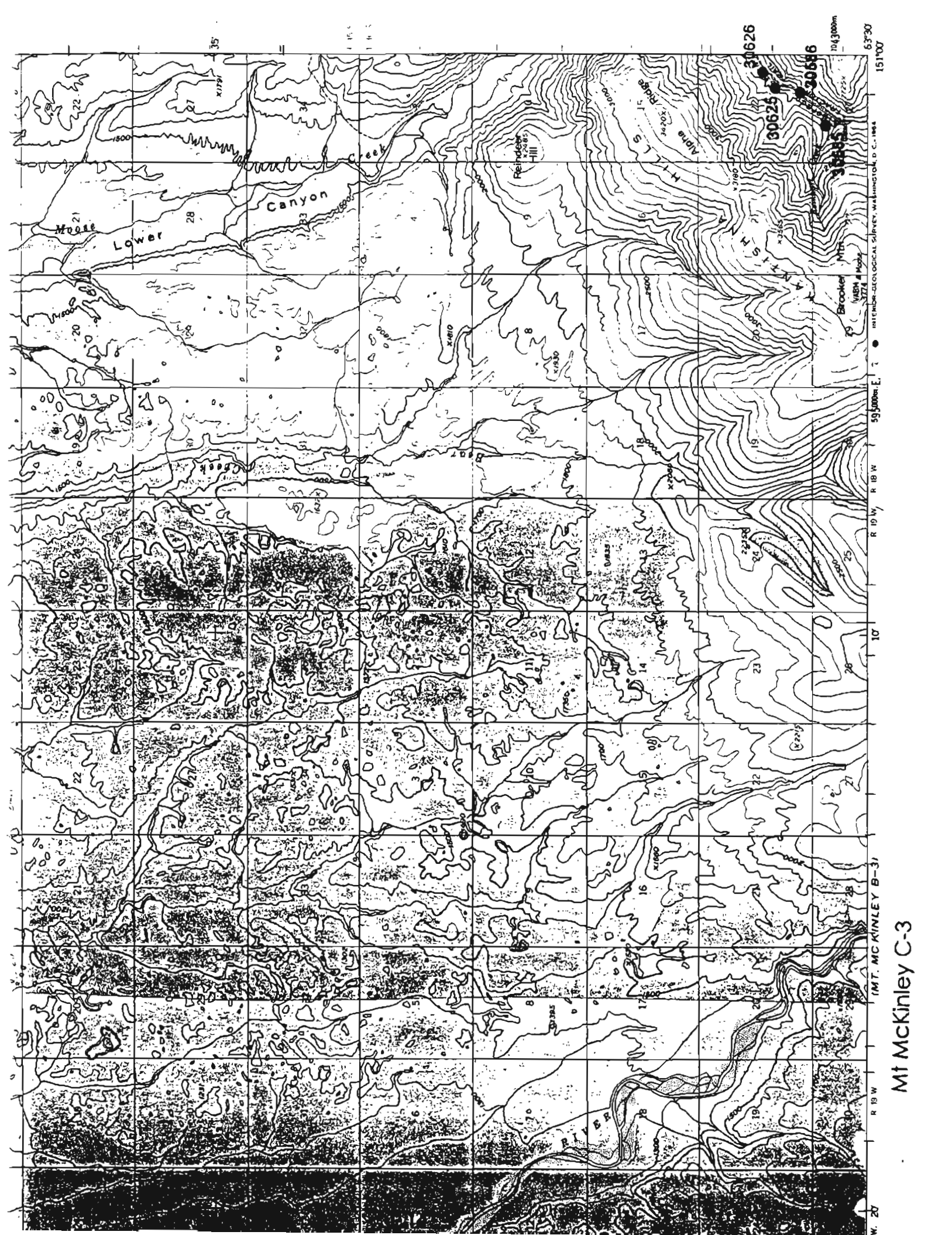
50'

R 13 W (MT. MCKINLEY B-12)

T 40

34000 FEET
 30591
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 30588
 30589

T 15 S
 T 16 S



Mt McKinley C-3

U.S. GEOLOGICAL SURVEY
WASHINGTON, D. C. 20541
59,000 Feet to an Inch
R 18 W R 19 W R 20 W
T 10 N T 11 N T 12 N T 13 N
1943000m
63°30'
151°00'

NUCLEAR ACTIVATION SERVICES LIMITED

1280 MAIN STREET WEST, HAMILTON, ONTARIO, L8S 4X1

PHONE (416) 582-5555

TELEX 05-986947

CERTIFICATE OF ANALYSIS

TO: STATE OF ALASKA - DEPT. OF NATURAL RESOURCES
 ATTN: KAREN H. CLAUTICE
 794 UNIVERSITY AVE., EASTWENT
 FAIRBANKS, ALASKA
 U.S.A.
 99701

CUSTOMER NO. 470711711

DATE SUBMITTED
 03-08-87

REPORT# 9126


FILE NUMBER: 10560

114 UNPREPARED SAMPLES

WAS ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
AL	0.10000	PPM	ICP	BR	0.30000	PPM	ICAA
AS	2.00000	PPM	ICAA	CC	0.10000	PPM	ICAA
BA	5.00000	PPM	ICAA	CF	5.00000	PPM	ICAA
BI	100.00000	PPM	ICAA	CI	1.00000	PPM	ICAA
BO	1.00000	PPM	ICAA	CU	0.50000	PPM	ICAA
BR	5.00000	PPM	ICAA	GA	0.50000	PPM	ICAA
BT	10.00000	PPM	ICAA	GB	4.00000	PPM	ICAA
BU	0.50000	PPM	ICP	GE	0.50000	PPM	ICP
BY	0.10000	PPM	ICAA	HI	1.00000	PPM	ICAA
CA	1.00000	PPM	ICAA	HM	0.00000	PPM	ICAA
CB	5.00000	PPM	ICAA	HN	0.10000	PPM	ICAA
CC	0.05000	%	ICAA	HO	0.20000	PPM	ICAA
CD	100.00000	PPM	ICAA	HR	0.20000	PPM	ICAA
CE	2.00000	PPM	ICP	HS	0.05000	PPM	ICAA
CF	0.00000	PPM	ICAA	HT	10.00000	PPM	ICAA

DATE 03-08-87

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 CERTIFIED BY 

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 1

SAMPLE NUMBERS

ELEMENT !		**	**	**	**	**	**
& UNITS	1	30466**	30467**	30469**	30471**	30472**	30548**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	110	4	19	45	210	330
AU	PPB	1000	11	<6	<8	<8	43
BA	PPM	<100	1100	200	700	900	200
CA	%	<1	<3	<2	<2	<2	<1
CO	PPM	6	<5	<5	5	6	<5
CR	PPM	160	130	140	160	160	150
CU	PPM	10	48	14	22	49	14
FE	%	0.02	2.46	1.43	2.93	4.61	1.56
HF	PPM	1	3	6	3	4	6
MO	PPM	<5	5	<5	<5	5	9
NA	%	<0.05	0.47	0.65	0.51	0.42	0.28
NI	PPM	500	600	<300	<300	<400	<300
PB	PPM	<2	<2	<2	4	<2	<2
RB	PPM	<30	170	<60	200	130	50
SB	PPM	30	16	1.6	2.9	5.6	5.1
SC	PPM	0.1	16.7	5.0	12.9	13.3	5.4
SE	PPM	<5	<40	<5	<6	<7	<6
TA	PPM	<1	<3	<2	<3	<3	<2
TH	PPM	<0.5	21	10	16	17	10
U	PPM	<0.5	4.0	2.9	4.3	3.0	2.5
W	PPM	100	4	<4	<4	<4	6
ZN	PPM	24	19	32	64	79	27
LA	PPM	1	64	23	50	47	23
CE	PPM	<3	97	42	87	74	44
SM	PPM	0.1	9.4	4.4	8.4	7.2	3.8
EU	PPM	<0.2	<1.4	1.2	2.0	<1.2	<0.8
YB	PPM	<0.2	2.1	1.4	1.9	1.7	1.3
LU	PPM	<0.05	0.42	0.28	0.44	0.40	0.22
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88 REPORT: 9126 FILE NUMBER: 10560 PAGE: 2

S A M P L E N U M B E R S

ELEMENT & UNITS	1	**	**	**	**	**	**
		30549**	30552**	30553**	30555**	30556**	30557**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	400	13	67	32	11	37
AU	PPB	93	<8	<9	<5	<5	<5
BA	PPM	500	200	800	100	100	100
CA	%	<2	<2	<2	<1	<1	<1
CO	PPM	<5	<5	<5	<5	<5	<5
CR	PPM	170	170	160	170	160	180
CU	PPM	26	10	24	20	17	4.5
FE	%	3.28	1.67	2.97	1.26	0.70	0.35
HF	PPM	6	8	4	4	4	1
MO	PPM	<5	<5	8	6	<5	<5
NA	%	0.44	0.98	0.50	0.24	<0.05	0.45
NI	PPM	<300	<300	<400	<200	<200	<300
PB	PPM	<2	<2	<2	<2	12	<2
RB	PPM	130	<90	160	<40	<30	<50
SB	PPM	2.9	0.2	5.6	1.3	1.0	1.6
SC	PPM	8.2	4.3	17.1	2.6	1.5	1.2
SE	PPM	<7	<7	<7	<5	<5	<5
TA	PPM	<2	<3	<3	<1	<1	<1
TH	PPM	13	12	20	7.5	5.0	3.7
U	PPM	2.9	2.9	6.7	2.5	2.4	0.9
W	PPM	<4	<4	6	<4	<4	<4
ZN	PPM	51	22	43	23	15	5.0
LA	PPM	33	16	79	10	3	8
CE	PPM	59	24	126	17	5	15
SM	PPM	5.0	2.6	13.5	1.6	0.5	1.5
EU	PPM	<1.1	<1.2	<1.4	<0.5	<0.2	<0.2
YB	PPM	2.1	1.3	3.1	0.7	0.2	0.5
LU	PPM	0.31	0.28	0.75	0.10	0.09	0.09
IR	PPB	<20	<20	<20	<20	<20	<20

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DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 3

SAMPLE NUMBERS

ELEMENT & UNITS		** 30559**	** 30561**	** 30562**	** 30563**	** 30564**	** 30565**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	24	36	140	420	260	79
AU	PPB	<5	<7	<6	<5	10	8
BA	PPM	200	600	300	600	600	200
CA	%	<1	6	<1	<2	<2	<1
CO	PPM	<5	11	<5	11	8	<5
CR	PPM	160	160	160	150	150	230
CU	PPM	6.0	20	13	47	48	14
FE	%	0.94	4.01	1.33	3.85	3.81	1.34
HF	PPM	3	5	4	4	5	2
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	0.53	0.68	0.38	0.18	0.16	0.06
NI	PPM	<200	<300	<200	<200	<300	<200
PB	PPM	<2	10	<2	6	24	4
RB	PPM	<50	110	<50	150	90	40
SB	PPM	0.4	0.8	0.6	8.3	2.5	1.6
SC	PPM	2.5	12.2	3.9	13.8	17.1	6.6
SE	PPM	<5	<6	<5	<5	<6	<8
TA	PPM	<2	<2	<2	<2	<2	<1
TH	PPM	7.0	15	8.2	15	19	6.5
U	PPM	0.8	3.3	1.7	4.9	4.5	1.4
W	PPM	<4	<4	<4	<4	7	<4
ZN	PPM	39	130	67	250	250	66
LA	PPM	13	46	18	56	66	28
CE	PPM	24	75	33	109	101	44
SM	PPM	1.9	7.6	2.6	8.2	9.5	3.9
EU	PPM	1.0	1.4	<0.8	<1.0	1.7	<0.7
YB	PPM	0.5	2.4	0.9	2.4	2.2	1.1
LU	PPM	0.14	0.29	0.19	0.42	0.43	0.19
IR	PPB	<20	<20	<20	<20	<20	<20

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DATE: 11-JAN-88 REPORT: 9126 FILE NUMBER: 10560 PAGE: 4

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30566**	** 30567**	** 30571**	** 30573**	** 30575**	** 30576**
AG	PPM	1.0	1.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	430	390	17	8	<2	<2
AU	PPB	<7	160	<5	9	<5	5
BA	PPM	200	700	700	500	<100	300
CA	%	<1	<2	<2	<2	<1	<1
CO	PPM	<5	6	8	5	<5	<5
CR	PPM	170	170	180	170	<10	180
CU	PPM	13	27	6.0	14	13	4.5
FE	%	0.99	2.91	2.77	1.36	1.00	0.32
HF	PPM	4	3	2	2	3	5
MO	PPM	<5	5	8	10	<5	5
NA	%	<0.05	0.37	0.37	0.50	0.43	0.10
NI	PPM	200	<300	<200	<300	<300	500
PB	PPM	66	130	<2	10	<2	<2
RB	PPM	40	180	<40	120	<50	40
SB	PPM	4.4	4.5	0.9	0.6	<0.2	0.4
SC	PPM	3.4	13.5	5.3	10.9	2.8	8.2
SE	PPM	<6	46	<8	<7	<7	<5
TA	PPM	<1	<2	<2	<3	3	3
TH	PPM	6.9	12	13	11	7.9	5.0
U	PPM	2.0	3.1	2.4	2.9	1.3	2.3
W	PPM	<4	<4	35	7	<4	5
ZN	PPM	48	68	34	16	9.5	3.0
LA	PPM	18	51	30	49	21	20
CE	PPM	32	96	53	81	33	37
SM	PPM	2.5	7.4	4.8	8.1	2.8	4.0
EU	PPM	0.6	1.6	<0.8	2.1	<0.8	<0.6
YB	PPM	1.0	2.1	1.4	2.0	1.0	1.7
LU	PPM	0.11	0.38	0.21	0.43	0.17	0.33
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 5

S A M P L E N U M B E R S

ELEMENT I		**	**	**	**	**	**
& UNITS I		30578**	30581**	30584**	30588**	30589**	30591**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	3	<2	<2	26	3	3
AU	PPB	<7	9	<7	70	<5	<10
BA	PPM	600	500	900	200	100	700
CA	%	4	<2	<2	17	22	<3
CD	PPM	48	20	23	<5	<5	10
CR	PPM	880	130	90	30	10	60
CU	PPM	50	8.0	1.0	6.5	3.0	3.0
FE	%	6.58	4.40	6.68	0.70	0.50	1.54
HF	PPM	<1	3	2	1	<1	4
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	0.45	0.75	0.23	<0.05	<0.05	1.4
NI	PPM	<300	<400	<300	<200	<200	<500
PB	PPM	<2	<2	<2	<2	<2	<2
RB	PPM	<50	<80	180	<30	<30	<120
SB	PPM	0.4	<0.2	0.4	7.7	3.8	1.0
SC	PPM	29.8	14.5	17.3	2.4	1.6	7.8
SE	PPM	<11	<6	<6	<5	<5	<7
TA	PPM	<2	<3	<2	<1	<1	<4
TH	PPM	4.4	16	15	1.9	1.6	8.2
U	PPM	<0.9	1.9	1.5	1.5	1.4	3.2
W	PPM	48	<4	<4	<4	<4	<4
ZN	PPM	33	81	69	11	10	27
LA	PPM	35	54	46	6	6	23
CE	PPM	65	91	96	9	10	39
SM	PPM	5.7	8.7	7.3	1.2	1.1	4.2
EU	PPM	2.2	<1.3	1.3	0.6	0.4	<0.2
YB	PPM	0.8	2.8	2.0	0.5	0.4	2.1
LU	PPM	0.11	0.48	0.38	0.06	0.06	0.35
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 6

SAMPLE NUMBERS

ELEMENT		**	**	**	**	**	**
& UNITS		30597**	30599**	30602**	30604**	30606**	30608**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	2	90	19	16	32	27
AU	PPB	15	11	<11	6	<5	<36
BA	PPM	2900	100	400	800	200	<1300
CA	%	<3	<1	<1	<1	<1	<8
CO	PPM	18	5	35	13	<5	24
CR	PPM	90	220	100	160	40	110
CJ	PPM	5.0	26	38	31	1.5	3.5
FE	%	0.81	1.16	8.88	5.12	0.18	4.54
HF	PPM	5	1	3	4	<1	<5
MO	PPM	<6	<5	<6	9	<5	<16
NA	%	3.0	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<700	<200	<500	<200	<200	<1800
PB	PPM	<2	20	<2	6	<2	2
RB	PPM	<170	<30	250	160	<30	<440
SB	PPM	0.6	12	2.6	6.4	1.3	2.8
SC	PPM	9.0	4.3	28.4	14.7	1.3	14.0
SE	PPM	<12	<5	<11	17	<13	<32
TA	PPM	<4	<1	4	<1	<1	<11
TH	PPM	10	3.2	5.7	15	12	16
U	PPM	2.2	0.6	<1.2	3.7	2.2	7.5
W	PPM	<4	<4	<4	<4	76	<6
ZN	PPM	6.0	12	60	130	3.5	88
LA	PPM	31	8	25	56	31	51
CE	PPM	48	13	35	102	58	16
SM	PPM	3.5	0.9	4.3	5.8	3.9	4.8
EU	PPM	<2.8	<0.3	<1.9	1.9	<0.6	3.7
YB	PPM	3.1	0.6	2.5	2.5	3.2	2.9
LU	PPM	0.53	0.09	0.39	0.33	0.39	0.76
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 7

SAMPLE NUMBERS

ELEMENT I		**	**	**	**	**	**
& UNITS I		30609**	30611**	30614**	30615**	30616**	30617**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	2	3	64	21	2	11
AU	PPB	5	<5	<9	<10	<12	<11
BA	PPM	300	100	1600	800	3000	9700
CA	%	12	<1	<2	<2	<3	5
CO	PPM	13	<5	6	42	10	25
CR	PPM	120	40	100	190	110	230
CU	PPM	19	14	18	190	11	53
FE	%	3.79	1.41	0.59	8.00	1.55	5.11
HF	PPM	2	1	5	2	4	4
MO	PPM	<5	<5	<5	<5	<6	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<200	<400	<500	<600	600
PB	PPM	4	<2	40	<2	10	<2
RB	PPM	140	30	<110	<110	<170	<140
SB	PPM	<0.2	0.8	1.0	1.5	0.4	0.7
SC	PPM	15.4	5.0	7.9	31.8	10.3	37.4
SE	PPM	<5	<5	<9	<9	<11	<10
TA	PPM	<1	<1	<3	<3	<4	<3
TH	PPM	6.9	3.0	8.1	<1.1	8.4	2.5
U	PPM	2.1	1.3	2.7	<1.2	<1.4	3.2
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	44	18	41	57	15	30
LA	PPM	27	12	25	9	29	23
CE	PPM	51	18	40	15	38	35
SM	PPM	4.2	1.6	2.5	2.6	3.5	2.6
EU	PPM	1.0	0.7	<1.7	<0.2	<2.4	<1.9
YB	PPM	3.4	1.1	2.5	1.8	2.9	1.6
LU	PPM	0.45	0.14	0.37	0.20	0.45	0.29
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11 JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 8

SAMPLE NUMBERS

ELEMENT & UNITS		** 30619**	** 30622**	** 30623**	** 30624**	** 30625**	** 30626**
AG	PPM	<0.5	<0.5	<0.5	<0.5	4.0	<0.5
AS	PPM	36	8	76	<2	63	25
AU	PPB	27	7	18	<9	10	<17
BA	PPM	1800	<100	200	700	600	2000
CA	%	<5	<1	<1	<2	<1	<5
CO	PPM	<15	38	<5	9	11	46
CR	PPM	90	430	60	80	440	450
CU	PPM	23	51	7.5	4.0	79	16
FE	%	2.07	10.3	1.55	0.74	4.05	11.3
HF	PPM	4	4	4	3	2	11
MO	PPM	<11	<5	<5	<5	47	<9
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	0.45
NI	PPM	1300	200	200	<400	<300	900
PB	PPM	<2	6	68	<2	100	10
RB	PPM	<320	<30	<30	<110	60	700
SB	PPM	1.5	3.1	1.3	0.6	46	2.5
SC	PPM	11.0	14.8	4.9	6.9	9.8	46.9
SE	PPM	<23	<5	<5	<8	<10	<18
TA	PPM	<8	2	<1	<3	<1	<5
TH	PPM	14	3.4	10	7.7	10	50
U	PPM	4.9	1.6	2.4	2.4	25.7	5.8
W	PPM	<4	<4	<4	<4	<4	10
ZN	PPM	26	7.5	40	9.5	330	82
LA	PPM	34	43	31	23	49	163
CE	PPM	48	76	56	35	93	305
SM	PPM	3.4	5.5	3.7	2.4	10.4	25.3
EU	PPM	<4.5	1.3	1.4	4.1	1.9	3.4
YB	PPM	2.6	1.1	3.2	2.1	7.0	7.1
LU	PPM	0.60	0.09	0.41	0.28	1.23	1.68
IR	PPB	<20	<20	<20	<20	30	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 9

S A M P L E N U M B E R S

ELEMENT		**	**	**	**	**	**
& UNITS		30633**	30634**	30635**	30636**	30637**	30638**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	6	11	5	9	3	9
AU	PPB	<9	9	<10	<11	<5	<10
BA	PPM	800	700	500	1000	300	800
CA	%	<2	<2	<2	<2	<1	<2
CO	PPM	8	<5	7	10	5	11
CR	PPM	100	300	280	280	90	120
CU	PPM	28	25	7.0	37	15	35
FE	%	2.86	3.99	2.55	7.62	1.92	3.78
KF	PPM	3	12	16	10	6	4
MO	PPM	8	<5	<5	<6	<5	10
NA	%	<0.05	<0.05	1.9	<0.05	0.91	<0.05
NI	PPM	<400	<400	<500	<500	<200	<500
PB	PPM	<2	14	4	10	4	<2
RB	PPM	130	130	<110	360	<60	140
SB	PPM	1.4	9.1	3.5	7.0	3.2	1.6
SC	PPM	15.8	12.5	7.8	24.5	5.4	13.8
SE	PPM	<9	<8	<9	<10	<5	<9
TA	PPM	<3	<2	<3	<3	<1	<3
TH	PPM	14	18	16	33	8.8	16
U	PPM	2.9	3.9	4.7	6.0	2.6	3.4
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	62	37	26	64	46	87
LA	PPM	68	51	42	98	26	50
CE	PPM	96	85	73	152	42	74
SM	PPM	6.2	5.5	5.0	10.5	2.9	4.7
EU	PPM	<1.9	2.2	<1.9	2.5	1.5	<1.9
YB	PPM	2.5	2.7	2.3	4.6	1.1	1.6
LU	PPM	0.29	0.35	0.38	0.66	0.17	0.30
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 10

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30639**	** 30641**	** 30642**	** 30643**	** 30645**	** 30649**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	3	2	3	3	2	380
AU	PPB	<7	<10	<13	<6	<7	<7
BA	PPM	<200	500	1800	300	300	900
CA	%	<1	<2	<3	<1	<1	<1
CO	PPM	<5	7	12	6	8	16
CR	PPM	60	180	220	300	240	200
CU	PPM	15	11	66	13	6.0	32
FE	%	1.39	4.00	6.64	3.10	2.72	3.82
HF	PPM	7	15	7	2	12	8
MO	PPM	5	<5	<7	<5	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<300	<500	<600	<300	<300	<200
PB	PPM	<2	<2	<2	<2	<2	<2
RB	PPM	<80	<130	480	120	140	200
SB	PPM	1.7	1.0	1.1	0.8	1.6	0.8
SC	PPM	3.5	9.7	36.2	4.2	6.9	11.5
SE	PPM	<6	38	<13	<5	<7	<7
TA	PPM	<2	<3	<4	<2	<2	<1
TH	PPM	7.0	19	29	7.0	14	11
U	PPM	1.5	4.6	7.1	2.5	3.3	2.1
W	PPM	<4	<4	5	<4	<4	<4
ZN	PPM	36	37	60	29	25	130
LA	PPM	19	47	148	20	29	31
CE	PPM	25	77	239	33	53	55
SM	PPM	2.0	5.6	15.4	1.9	3.2	3.4
EU	PPM	<1.3	<2.1	<0.2	<1.1	<1.3	<0.8
YB	PPM	1.0	2.6	6.1	1.3	2.0	1.8
LU	PPM	0.09	0.51	0.86	0.23	0.34	0.27
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 11

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30653**	** 30654**	** 30665**	** 30675**	** 30681**	** 30683**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	14	2	8	530	19	10
AU	PPB	<5	<5	<5	<7	<6	<5
BA	PPM	500	100	800	600	600	200
CA	%	<1	5	<1	1	<1	<1
CO	PPM	<5	<5	10	5	16	7
CR	PPM	110	80	120	110	100	140
CJ	PPM	29	4.5	19	32	47	11
FE	%	2.98	0.40	2.92	4.41	4.65	1.90
HF	PPM	4	1	3	<1	4	5
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<200	<200	<200	<300	<200
PB	PPM	<2	6	<2	14	18	<2
RB	PPM	120	<30	290	170	130	<30
SB	PPM	0.3	<0.2	0.6	1.5	0.6	0.3
SC	PPM	10.4	0.8	18.1	14.4	13.9	3.5
SE	PPM	<5	<5	<5	<7	7	<5
TA	PPM	<1	<1	<1	<1	<1	<1
TH	PPM	10	3.1	14	11	17	6.2
U	PPM	2.7	<0.5	2.0	1.9	4.1	0.9
W	PPM	<4	<4	<4	10	<4	<4
ZN	PPM	48	5.0	32	150	89	27
LA	PPM	35	6	54	46	49	10
CE	PPM	53	12	87	74	79	21
SM	PPM	3.8	0.9	6.2	5.5	5.4	1.3
EU	PPM	1.3	0.7	1.7	<0.9	1.9	<0.5
YB	PPM	1.8	0.5	2.6	2.3	2.4	0.9
LU	PPM	0.23	0.06	0.34	0.34	0.40	0.15
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 12

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30684**	** 30685**	** 30686**	** 30687**	** 30689**	** 30691**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	10	6	6	7	2	69
AU	PPB	<5	<6	<5	<5	<5	<5
BA	PPM	600	600	200	600	500	400
CA	%	<1	<1	<1	<1	<1	<1
CO	PPM	10	5	<5	7	<5	<5
CR	PPM	100	90	80	100	90	70
CU	PPM	12	32	19	21	24	10
FE	%	3.96	3.91	2.16	3.11	3.29	1.67
HF	PPM	4	3	4	4	4	3
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<300	<200	<200	<200	<200
PB	PPM	<2	10	<2	<2	<2	10
RB	PPM	290	120	50	100	100	130
SB	PPM	0.7	0.9	0.5	0.7	1.1	0.3
SC	PPM	21.0	14.4	5.7	12.8	12.3	6.4
SE	PPM	9	<6	<5	<5	6	<5
TA	PPM	<1	<1	<1	<1	<1	<1
TH	PPM	16	15	8.7	13	13	9.6
U	PPM	3.6	3.5	2.1	3.4	2.8	1.7
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	58	71	41	56	66	43
LA	PPM	63	52	22	50	48	27
CE	PPM	105	79	37	81	73	42
SM	PPM	6.5	5.6	2.4	5.3	5.1	2.6
EU	PPM	1.1	2.1	<0.7	2.1	1.1	<0.2
YB	PPM	3.0	2.4	1.3	2.0	2.0	1.3
LU	PPM	0.47	0.30	0.18	0.34	0.34	0.21
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 13

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30692**	** 30694**	** 30695**	** 30696**	** 30697**	** 30698**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	9	13	6	5	24	3
AU	PPB	<5	<5	<5	<5	<5	<11
BA	PPM	700	400	500	200	200	400
CA	%	<1	<1	<1	<1	<1	<3
CO	PPM	14	21	21	7	15	10
CR	PPM	90	110	90	210	190	170
CU	PPM	27	59	63	16	32	33
FE	%	4.38	4.62	4.19	1.90	3.21	2.65
HF	PPM	3	3	3	1	5	2
MO	PPM	<5	<5	<5	<5	6	<5
NA	%	<0.05	<0.05	<0.05	<0.05	0.24	3.7
NI	PPM	<200	<200	<200	<200	<200	<500
PB	PPM	<2	<2	<2	12	2	<2
RB	PPM	210	170	100	30	<40	<120
SB	PPM	0.3	0.4	0.2	0.3	0.6	0.7
SC	PPM	14.5	16.8	15.5	6.0	8.9	5.8
SE	PPM	<6	6	7	<5	<5	<9
TA	PPM	<1	<1	<1	<1	<1	<4
TH	PPM	14	9.9	9.8	4.4	8.1	5.2
U	PPM	2.8	1.3	1.1	1.0	2.0	1.7
W	PPM	<4	<4	<4	<4	<4	<6
ZN	PPM	77	70	74	22	39	28
LA	PPM	58	36	35	16	20	10
CE	PPM	93	67	64	37	35	16
SM	PPM	6.2	4.6	4.6	2.9	3.2	2.3
EU	PPM	1.8	<0.2	1.4	<0.5	<0.6	<1.7
YB	PPM	2.3	2.5	2.6	1.0	1.3	1.1
LU	PPM	0.28	0.33	0.33	0.17	0.25	0.19
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 14

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30699**	** 30701**	** 30702**	** 30703**	** 30704**	** 30705**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	40	210	3	140	150	790
AU	PPB	<5	<6	<5	<7	<6	<9
BA	PPM	500	400	200	300	200	200
CA	%	<2	<1	<1	<2	<2	<1
CO	PPM	23	21	7	<5	6	<5
CR	PPM	140	170	200	170	140	160
CU	PPM	33	30	7.0	7.0	10	5.0
FE	%	4.80	5.10	1.86	1.71	1.89	1.26
HF	PPM	6	6	5	7	6	4
MO	PPM	6	<5	<5	<5	<5	<5
MA	%	0.40	0.11	0.66	0.82	1.0	0.55
NI	PPM	<300	<200	<200	<300	<300	300
PB	PPM	4	2	<2	12	44	8
RB	PPM	170	150	<60	<70	<70	80
SB	PPM	0.7	1.1	0.4	<0.2	<0.2	<0.3
SC	PPM	17.9	13.3	3.2	4.4	5.2	3.2
SE	PPM	<7	<6	<7	<60	<9	<8
TA	PPM	<2	<1	<2	<2	<2	<2
TH	PPM	17	11	6.8	11	11	8.3
U	PPM	4.0	2.1	1.1	1.9	1.6	2.9
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	84	260	31	41	69	110
LA	PPM	55	32	16	28	24	20
CE	PPM	107	75	25	47	50	43
SH	PPM	9.3	6.2	2.5	3.7	3.7	2.9
EU	PPM	1.6	1.3	<0.8	<1.0	<1.0	0.9
YB	PPM	3.0	2.6	0.9	1.2	1.3	0.8
LU	PPM	0.53	0.40	0.14	0.21	0.22	0.12
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 15

S A M P L E N U M B E R S

ELEMENT I & UNITS I	** 30706**	** 30707**	** 30708**	** 30711**	** 30712**	** 30717**
AG PPM	<0.5	<0.5	1.0	<0.5	<0.5	<0.5
AS PPM	110	190	21000	130	50	19
AU PPB	<5	80	200	<5	<5	<5
BA PPM	<100	400	<2700	100	200	300
CA %	<1	<2	<8	<1	<1	<1
CO PPM	<5	5	17	7	<5	5
CR PPM	180	140	160	190	180	120
CU PPM	12	57	69	16	11	10
FE %	0.56	2.15	4.01	0.79	1.41	1.54
HF PPM	1	5	<7	<1	2	4
MO PPM	<5	<5	<44	<5	<5	<5
NA %	0.08	1.2	3.2	0.09	0.28	0.64
NI PPM	<200	<300	<1900	<200	<200	<200
PB PPM	<2	<2	44	20	8	<2
RB PPM	<30	<70	<330	<30	<40	<50
SB PPM	0.2	<0.2	19	<0.2	0.2	0.2
SC PPM	0.6	5.0	9.9	0.8	3.4	4.1
SE PPM	<5	<6	<80	<5	<5	<5
TA PPM	<1	<2	<13	<1	<1	<2
TH PPM	1.5	9.5	18	2.0	5.5	8.3
U PPM	0.6	2.2	<12.1	0.7	0.6	1.2
W PPM	<4	<4	13	<4	<4	<4
ZN PPM	27	41	54	8.0	18	37
LA PPM	3	20	36	2	12	15
CE PPM	4	37	<3	4	20	24
SM PPM	0.4	3.2	4.7	0.4	2.2	2.3
EU PPM	<0.3	<1.0	<4.9	<0.3	<0.6	1.2
YB PPM	0.9	1.4	7.7	0.3	1.0	0.9
LU PPM	0.11	0.24	<0.05	<0.05	0.15	0.14
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88 REPORT: 9126 FILE NUMBER: 10560 PAGE: 16

S A M P L E N U M B E R S

ELEMENT I & UNITS I	** 30718**	** 30725**	** 30727**	** 30728**	** 30734**	** 30737**
AG PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS PPM	17	42	9	22	5	10
AU PPB	<7	<5	<5	8	<5	<8
BA PPM	800	<100	200	800	400	900
CA %	<2	<1	<1	<2	<1	<2
CO PPM	10	12	6	16	17	7
CR PPM	130	200	180	140	190	150
CU PPM	15	23	10	45	54	22
FE %	4.65	2.67	2.34	4.54	5.33	3.79
HF PPM	4	3	<1	3	6	3
MO PPM	8	<5	<5	<5	10	<5
NA %	0.69	0.50	0.17	0.24	0.19	0.68
NI PPM	<300	<200	<200	<200	<200	<400
PB PPM	<2	<2	20	2	10	2
RB PPM	210	<50	50	150	70	270
SB PPM	<0.2	0.3	0.6	0.4	0.2	1.0
SC PPM	16.9	8.7	3.9	18.1	12.4	26.9
SE PPM	<48	9	<5	<6	<7	<7
TA PPM	<2	<2	<1	<2	<1	3
TH PPM	19	5.0	5.1	15	9.8	21
U PPM	4.0	0.8	1.0	2.7	2.8	5.1
W PPM	<4	<4	<4	<4	<4	<4
ZN PPM	73	45	55	80	89	73
LA PPM	58	16	21	49	22	54
CE PPM	103	29	40	95	52	101
SM PPM	8.6	3.1	3.1	9.0	5.2	10.2
EU PPM	1.3	<0.7	<0.5	<0.9	0.9	1.1
YB PPM	2.4	1.0	1.1	3.1	2.4	3.6
LU PPM	0.42	0.21	0.15	0.53	0.38	0.66
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 17

S A M P L E N U M B E R S

ELEMENT		**	**	**	**	**	**
& UNITS		30738**	30745**	30757**	30758**	30767**	30770**
AG	PPM	<0.5	1.0	<0.5	0.5	<0.5	<0.5
AS	PPM	<2	8	<2	2	6	3
AU	PPB	<5	<5	<5	<5	<5	<5
BA	PPM	<200	800	600	1500	600	900
CA	%	<1	<1	<1	<1	2	<1
CO	PPM	7	<5	5	<5	9	<5
CR	PPM	120	150	130	140	90	110
CU	PPM	17	5.0	27	4.5	16	6.5
FE	%	1.62	0.61	4.21	0.43	4.00	0.60
HF	PPM	3	1	5	1	3	1
MO	PPM	<5	5	5	10	9	12
NA	%	0.59	<0.05	0.24	<0.05	<0.05	<0.05
NI	PPM	<200	<200	300	<200	<200	<200
PB	PPM	10	<2	26	<2	2	6
RB	PPM	<50	70	180	60	50	60
SB	PPM	0.2	2.2	0.6	4.1	0.8	4.1
SC	PPM	3.7	3.7	13.7	5.4	6.8	4.9
SE	PPM	10	<5	<7	<5	<5	<5
TA	PPM	<2	<1	<1	<1	<1	<1
TH	PPM	6.3	2.2	12	2.6	9.4	3.9
U	PPM	1.5	2.8	2.4	3.4	3.5	3.7
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	33	4.0	47	5.0	270	25
LA	PPM	13	11	32	14	28	16
CE	PPM	21	12	63	23	48	23
SM	PPM	2.0	1.3	5.4	2.0	4.4	2.3
EU	PPM	1.2	<0.3	1.0	<0.4	0.5	0.7
YB	PPM	0.7	0.6	2.0	1.0	1.6	1.0
LU	PPM	0.11	0.16	0.43	0.22	0.29	0.19
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 18

S A M P L E N U M B E R S

ELEMENT & UNITS	** 30772**	** 30801**	** 30806**	** 30809**	** 30811**	** 30814**
AG PPM	2.5	<0.5	<0.5	<0.5	<0.5	1.0
AS PPM	11	<2	17	<2	3	67
AU PPB	<5	<5	<5	<6	<6	10
BA PPM	600	300	300	1100	3100	4100
CA %	<1	3	<1	<2	2	<1
CO PPM	<5	8	<5	5	<5	<5
CR PPM	210	110	140	80	60	180
CU PPM	16	7.0	2.0	4.0	4.5	2.0
FE %	0.70	3.23	0.45	1.31	1.39	0.82
HF PPM	1	5	7	3	2	2
MO PPM	18	6	<5	7	<5	43
NA %	<0.05	0.09	0.11	1.0	0.56	<0.05
NI PPM	<200	<200	<200	<300	<200	<200
PB PPM	2	4	8	20	18	12
RB PPM	70	40	70	110	320	190
SB PPM	6.1	0.3	2.1	0.3	0.7	9.5
SC PPM	4.1	5.9	4.2	8.4	8.6	7.8
SE PPM	11	<5	<5	<7	<9	13
TA PPM	<1	<1	<1	3	<2	<1
TH PPM	2.5	9.0	6.9	17	11	6.0
U PPM	5.4	1.6	1.9	4.7	2.2	14.1
W PPM	<4	<4	<4	<4	<4	5
ZN PPM	54	57	7.0	8.5	13	7.0
LA PPM	11	22	22	46	35	23
CE PPM	13	45	38	73	50	32
SM PPM	1.9	4.3	3.2	3.9	3.0	2.4
EU PPM	0.5	<0.5	<0.6	<1.0	1.3	<0.5
YB PPM	1.0	1.3	1.0	2.5	1.0	1.4
LU PPM	0.23	0.20	0.19	0.53	0.20	0.43
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9126

FILE NUMBER: 10560

PAGE: 19

S A M P L E N U M B E R S

ELEMENT		**	**	**	**	**	**
& UNITS		30816**	30851**	30853**	30854**	30855**	30856**
AG	PPM	<0.5	1.0	<0.5	<0.5	<0.5	<0.5
AS	PPM	5	25	4	2	6	<2
AU	PPB	<5	<5	<5	<8	<9	<5
BA	PPM	4700	900	2100	30000	600	340000
CA	%	<1	<1	<1	<2	<2	<1
CO	PPM	<5	<5	<5	5	6	<5
CR	PPM	40	170	70	100	150	<10
CU	PPM	1.0	6.5	1.0	2.5	2.5	1.5
FE	%	2.52	0.40	0.55	1.89	1.06	0.10
HF	PPM	3	<1	2	2	1	<1
MO	PPM	5	<5	<5	<5	<5	<5
NA	%	0.17	<0.05	0.07	1.6	3.4	<0.05
NI	PPM	<200	<200	<200	<400	<400	<200
PB	PPM	<2	<2	<2	<2	4	<2
RB	PPM	250	50	300	110	120	<30
SB	PPM	1.3	5.2	3.0	1.5	1.2	0.5
SC	PPM	18.7	2.6	16.4	12.7	6.8	0.6
SE	PPM	<5	<5	<5	<11	<7	<11
TA	PPM	<1	<1	<1	<3	<4	<1
TH	PPM	16	1.8	10	3.1	5.1	<0.9
U	PPM	2.6	1.5	4.0	2.3	1.8	<0.5
W	PPM	<4	<4	<4	<4	<4	26
ZN	PPM	2.0	41	3.0	46	14	2.5
LA	PPM	30	7	28	3	<1	<1
CE	PPM	51	12	47	4	33	9
SM	PPM	3.1	1.4	5.0	0.3	2.9	0.1
EU	PPM	<0.6	0.4	0.8	1.2	2.0	<0.2
YB	PPM	2.3	0.6	2.0	1.3	1.0	<0.6
LU	PPM	0.36	0.17	0.32	0.20	0.13	<0.07
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED
 1290 MAIN STREET WEST, HAMILTON, ONTARIO, L3S 4K1

PHONE (416) 522-5665 TELEX 06-936947

CERTIFICATE OF ANALYSIS

TO: STATE OF ALASKA - DEPT. OF NATURAL RESOURCES
 ATTN: KAREN H. CLAUTICE
 794 UNIVERSITY AVE., BASEMENT
 FAIRBANKS, ALASKA
 U.S.A.
 99701

CUSTOMER NO. 470/01/04

DATE SUBMITTED
 28-SEP-87

REPORT: 9115

FILE NUMBER: 10561

177 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
AG	0.5000	PPM	DCP	SC	0.1000	PPM	INAA
AS	2.0000	PPM	INAA	SE	5.0000	PPM	INAA
AU	5.0000	PPB	INAA	TA	1.0000	PPM	INAA
BA	100.0000	PPM	INAA	TE	0.0200	PPM	AA
CA	1.0000	%	INAA	TH	0.5000	PPM	INAA
CC	5.0000	PPM	INAA	U	0.5000	PPM	INAA
CR	10.0000	PPM	INAA	W	4.0000	PPM	INAA
CU	0.5000	PPM	DCP	ZN	0.5000	PPM	DCP
FE	0.0200	%	INAA	LA	1.0000	PPM	INAA
HF	1.0000	PPM	INAA	CE	3.0000	PPM	INAA
MC	5.0000	PPM	INAA	SM	0.1000	PPM	INAA
NA	0.0500	%	INAA	EU	0.2000	PPM	INAA
NI	200.0000	PPM	INAA	YS	0.2000	PPM	INAA
PB	2.0000	PPM	DCP	LU	0.0500	PPM	INAA
RB	30.0000	PPM	INAA	IR	20.0000	PPB	INAA
SB	0.2000	PPM	INAA				

DATE 03-DEC-87

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY 

RECORD ALL SAMPLES ***

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 1

S A M P L E N U M B E R S

ELEMENT	**	**	**	**	**	**
& UNITS	30468**	30470**	30551**	30554**	30558**	30568**
AG PPM	<0.5	<0.5	<0.5	0.5	<0.5	1.0
AS PPM	94	690	15	2300	290	290
AU PPB	<6	100	<5	650	31	49
BA PPM	300	200	100	<100	400	300
CA %	<1	<1	<1	<1	<1	<1
CO PPM	<5	<5	<5	<5	27	<5
CR PPM	180	190	190	180	170	190
CU PPM	15	160	7.0	47	49	7.0
FE %	1.96	2.08	0.96	5.54	2.17	0.67
HF PPM	6	6	4	1	6	5
MO PPM	<5	<5	<5	<5	<5	<5
NA %	0.72	0.47	0.38	<0.05	0.07	<0.05
NI PPM	<200	<200	<200	<200	<200	<200
PB PPM	<2	12	<2	10	<2	68
RB PPM	70	60	<30	<30	50	90
SB PPM	4.5	7.0	0.4	14	4.0	5.1
SC PPM	7.3	4.2	2.3	2.5	7.7	3.2
SE PPM	<5	<5	<5	<10	<5	<5
TA PPM	<1	<1	<1	<1	<1	<1
TE PPM	<0.02	0.04	<0.02	<0.02	0.06	0.06
TH PPM	12	10	6.1	2.7	11	7.2
U PPM	3.9	3.2	1.7	2.6	4.3	1.5
W PPM	<4	<4	<4	12	7	5
ZN PPM	30	24	17	31	330	31
LA PPM	26	21	11	8	33	20
CE PPM	44	33	21	17	52	36
SM PPM	4.3	3.0	2.0	2.2	5.2	2.9
EU PPM	<0.2	0.8	<0.2	<0.4	1.1	<0.2
YB PPM	1.6	1.5	0.9	1.3	2.0	1.2
LU PPM	0.32	0.21	0.14	0.12	0.32	0.13
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 2

S A M P L E N U M B E R S

ELEMENT I & UNITS	** 30569**	** 30572**	** 30574**	** 30577**	** 30579**	** 30582**
AG PPM	9.5	1.0	<0.5	<0.5	<0.5	<0.5
AS PPM	3400	10000	59	18	18	110
AU PPB	480	1700	<7	<8	10	1100
BA PPM	<300	<700	600	800	800	<500
CA %	<1	<2	<1	<2	<1	<2
CO PPM	<5	<5	14	17	14	<5
CR PPM	180	160	140	200	150	120
CU PPM	26	30	20	11	6.5	4.5
FE %	1.77	1.72	4.98	7.18	4.60	1.38
HF PPM	1	2	3	5	4	4
MO PPM	<6	<13	<5	<5	<5	<5
NA %	0.06	0.07	1.1	1.2	0.44	7.0
NI PPM	<200	600	<200	<200	<200	<300
PB PPM	130	26	<2	<2	<2	<2
RB PPM	<30	150	230	160	190	<80
SB PPM	12	44	2.5	0.6	3.3	1.3
SC PPM	2.7	10.6	15.0	17.9	16.5	2.2
SE PPM	<7	<25	<5	<5	<7	<9
TA PPM	<1	<2	<1	2	<1	<3
TE PPM	0.20	0.12	<0.02	<0.02	<0.02	<0.02
TH PPM	2.7	11	18	12	17	6.6
U PPM	<7.7	<3.3	1.8	2.1	2.9	1.9
W PPM	4	60	<4	<4	24	42
ZN PPM	86	60	82	95	72	6.5
LA PPM	8	36	54	67	61	33
CE PPM	14	49	99	108	121	50
SM PPM	1.2	5.0	8.9	11.1	10.0	5.5
EU PPM	<0.3	1.6	1.4	2.6	1.4	<0.2
YB PPM	0.5	4.6	2.9	3.1	2.5	2.9
LU PPM	<0.05	0.27	0.49	0.45	0.45	0.45
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 3

S A M P L E N U M B E R S

ELEMENT I & UNITS I	** 30583**	** 30585**	** 30586**	** 30587**	** 30592**	** 30593**
AG PPM	<0.5	<0.5	<0.5	<0.5	16	<0.5
AS PPM	460	20	4	45	3	100
AU PPB	250	14	<5	10	21	30
BA PPM	300	200	200	100	<100	300
CA %	<2	<1	24	5	<1	<1
CO PPM	<5	5	<5	41	38	44
CR PPM	60	190	30	270	180	90
CJ PPM	2.0	14	18	96	4500	63
FE %	2.46	0.86	1.37	8.03	1.87	3.07
KF PPM	6	6	1	10	<1	2
MO PPM	<5	<5	<5	<5	<5	8
NA %	7.4	0.11	0.22	<0.05	<0.05	<0.05
NI PPM	<300	<200	<200	<200	<200	<200
PB PPM	26	<2	<2	<2	1400	24
RB PPM	<70	30	50	<30	<30	<30
SB PPM	2.0	13	2.1	54	3.2	4.5
SC PPM	5.7	2.5	5.8	19.2	0.8	4.0
SE PPM	<10	<5	<5	<5	<5	<5
TA PPM	<2	<1	1	3	<1	<1
TE PPM	0.02	<0.02	0.08	<0.02	1.2	0.06
TH PPM	13	5.4	2.6	4.2	<0.5	2.4
U PPM	2.3	2.0	1.2	8.5	<0.6	2.3
W PPM	42	<4	<4	7	<4	<4
ZN PPM	10	87	35	140	37000	740
LA PPM	35	16	11	51	19	19
CE PPM	73	33	19	93	29	34
SM PPM	6.5	3.2	2.1	8.5	2.5	2.5
EU PPM	<0.2	0.4	<0.2	2.7	0.6	1.2
YB PPM	3.1	1.0	0.8	1.7	0.3	1.5
LU PPM	0.57	0.21	0.12	0.28	<0.05	0.21
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 4

S A M P L E N U M B E R S

ELEMENT & UNITS	I	** 30594**	** 30595**	** 30596**	** 30598**	** 30601**	** 30603**
AG	PPM	<0.5	<0.5	<0.5	<0.5	300	13
AS	PPM	2	<2	<2	29	INTERFER	1000
AU	PPB	<5	<6	<7	27	INTERFER	34
BA	PPM	700	700	500	300	INTERFER	<500
CA	%	<1	3	4	<1	INTERFER	<1
CO	PPM	13	21	20	7	INTERFER	12
CR	PPM	150	170	260	200	INTERFER	160
CJ	PPM	68	72	27	78	3000	100
FE	%	3.00	5.21	4.01	4.31	INTERFER	1.53
HF	PPM	1	4	2	5	INTERFER	4
MO	PPM	<5	<5	<5	<5	INTERFER	<11
NA	%	<0.05	<0.05	<0.05	<0.05	INTERFER	0.53
NI	PPM	<200	<200	<200	<200	INTERFER	<300
PB	PPM	<2	4	<2	100	200000	3000
RB	PPM	<30	140	<50	130	INTERFER	<50
SB	PPM	0.4	0.7	0.3	20	INTERFER	900
SC	PPM	5.1	19.4	27.8	19.1	INTERFER	2.2
SE	PPM	<5	8	<5	<5	INTERFER	<15
TA	PPM	<1	<1	<1	<1	INTERFER	<1
TE	PPM	0.06	0.14	<0.02	0.12	<0.02	<0.02
TH	PPM	2.2	10	4.5	8.8	INTERFER	3.5
U	PPM	1.3	2.8	2.0	1.6	INTERFER	<3.0
W	PPM	<4	<4	<4	6	INTERFER	<4
ZN	PPM	160	130	87	270	3300	63
LA	PPM	13	40	14	31	INTERFER	11
CE	PPM	28	62	23	54	INTERFER	17
SM	PPM	1.8	5.1	1.8	4.0	INTERFER	1.1
EU	PPM	<0.2	1.3	0.9	<0.2	INTERFER	<1.3
YB	PPM	1.4	2.5	1.5	2.2	INTERFER	2.2
LU	PPM	0.23	0.34	0.20	0.32	INTERFER	<0.11
IR	PPB	<20	<20	<20	<20	INTERFER	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 5

S A M P L E N U M B E R S

ELEMENT		**	**	**	**	**	**
& UNITS		30605**	30607**	30612**	30613**	30618**	30621**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	1000	580	690	170	110	98
AU	PPB	6300	69	870	<9	16	<8
BA	PPM	<1000	<100	800	1000	2400	200
CA	%	<1	<1	<2	<1	<1	<1
CO	PPM	7	<5	8	<5	<5	16
CR	PPM	70	210	100	110	160	110
CU	PPM	13	13	29	15	36	55
FE	%	5.34	0.64	3.48	1.69	3.59	6.63
HF	PPM	<1	<1	6	4	6	3
MO	PPM	<10	<5	<8	<5	<5	<5
NA	%	<0.05	0.06	6.0	2.5	0.79	3.2
NI	PPM	<400	<200	<400	<200	<200	<300
PB	PPM	2400	580	400	480	260	200
RB	PPM	<90	<30	<90	60	180	<50
SB	PPM	210	110	140	150	87	63
SC	PPM	6.0	1.7	5.5	9.4	15.1	35.9
SE	PPM	<12	<5	<9	<6	<5	<5
TA	PPM	<2	<1	<2	<1	<1	<1
TE	PPM	0.02	<0.02	0.04	<0.02	0.04	<0.02
TH	PPM	13	0.8	5.4	12	14	3.1
U	PPM	4.3	1.2	2.5	2.3	4.1	1.9
W	PPM	53	<4	29	<4	<4	<4
ZN	PPM	310	25	33	22	62	88
LA	PPM	30	1	20	32	26	15
CE	PPM	43	<3	27	55	37	34
SM	PPM	3.5	0.1	2.4	4.2	2.8	2.9
EU	PPM	<1.5	<0.3	<0.2	<0.8	<0.6	<0.2
YB	PPM	2.8	0.4	2.9	3.3	1.4	3.1
LU	PPM	0.52	<0.05	0.43	0.45	0.23	0.41
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 6

S A M P L E N U M B E R S

ELEMENT)		**	**	**	**	**	**
& UNITS :		30627**	30628**	30629**	30631**	30632**	30644**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	150	91	41	13	7	6
AU	PPB	29	6	5	7	6	<5
BA	PPM	200	200	200	1900	1100	100
CA	%	<1	<1	<1	2	3	<1
CO	PPM	<5	<5	<5	29	22	<5
CR	PPM	160	110	140	110	100	140
CU	PPM	15	3.5	6.0	69	47	11
FE	%	1.06	0.75	0.78	4.59	5.25	1.44
HF	PPM	5	8	6	3	6	7
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<200	<200	<300	<300	<200
PB	PPM	320	58	40	34	40	16
RB	PPM	<30	<30	30	270	<50	<50
SB	PPM	120	34	23	9.7	4.9	3.5
SC	PPM	3.5	2.8	5.9	15.6	9.6	2.9
SE	PPM	<6	5	<5	<6	10	<5
TA	PPM	<1	<1	<1	<1	2	<1
TE	PPM	<0.02	<0.02	<0.02	0.08	0.54	<0.02
TH	PPM	7.2	14	12	16	8.6	6.6
U	PPM	1.5	1.8	2.4	4.0	2.3	1.4
W	PPM	7	10	10	<4	<4	<4
ZN	PPM	27	14	12	73	54	16
LA	PPM	17	16	27	57	28	14
CE	PPM	29	35	50	94	43	26
SH	PPM	2.0	1.6	3.0	6.0	3.6	1.3
EU	PPM	<0.6	<0.5	0.7	1.0	<0.2	<0.8
YB	PPM	0.9	1.4	1.2	2.5	1.8	0.9
LU	PPM	0.09	0.17	0.25	0.42	0.26	0.14
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 7

S A M P L E N U M B E R S

ELEMENT !		**	**	**	**	**	**
& UNITS !		30646**	30647**	30648**	30651**	30652**	30655**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	3	190	400	23	13	1500
AU	PPB	<5	<5	43	<5	<5	230
BA	PPM	200	100	300	200	200	<1100
CA	%	<1	<1	<1	6	<1	<1
CO	PPM	<5	<5	8	5	7	<5
CR	PPM	110	190	140	130	170	130
CU	PPM	8.0	4.0	28	6.5	6.5	6.0
FE	%	1.98	0.67	3.49	1.03	1.66	0.94
HF	PPM	7	4	3	4	6	3
MO	PPM	<5	<5	<5	<5	<5	<6
NA	%	<0.05	<0.05	<0.05	0.56	0.54	<0.05
NI	PPM	<300	<200	<200	<200	<200	<200
PB	PPM	4	22	20	8	20	6
RB	PPM	80	<30	70	<50	<50	<40
SB	PPM	2.6	4.6	1.6	1.9	4.3	2.8
SC	PPM	5.4	1.1	4.6	2.6	4.4	2.4
SE	PPM	<6	<7	<10	<8	<8	<11
TA	PPM	<1	<1	<1	<2	<2	<1
TE	PPM	<0.02	0.02	0.10	<0.02	<0.02	<0.02
TH	PPM	8.8	6.9	6.8	6.8	11	7.4
U	PPM	2.4	0.9	2.2	0.9	1.6	<1.4
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	30	30	80	9.0	21	9.0
LA	PPM	23	16	18	16	22	19
CE	PPM	38	27	29	23	39	28
SM	PPM	2.5	2.5	2.6	2.8	3.8	2.5
EU	PPM	1.7	<0.5	<0.6	0.9	<0.9	<0.7
YB	PPM	1.4	0.7	0.9	1.0	1.3	1.0
LU	PPM	0.20	0.15	0.17	0.15	0.22	0.19
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 8

S A M P L E N U M B E R S

ELEMENT & UNITS	** 30656**	** 30657**	** 30658**	** 30659**	** 30661**	** 30662**
AG PPM	0.5	1.0	<0.5	<0.5	<0.5	<0.5
AS PPM	23	69	51	81	21	3
AU PPB	<5	<5	<6	10	<5	<9
BA PPM	1600	2500	300	300	100	500
CA %	<1	<1	<1	5	<1	<2
CO PPM	<5	<5	<5	<5	<5	15
CR PPM	190	180	140	60	120	90
CU PPM	4.0	4.5	19	58	7.0	37
FE %	0.92	0.46	21.7	25.4	0.59	4.70
HF PPM	<1	<1	1	1	2	7
MO PPM	<5	<5	<5	<5	<5	<6
NA %	<0.05	<0.05	0.22	<0.05	0.06	<0.05
NI PPM	<200	<200	<200	<200	<200	<500
PB PPM	6	130	46	140	14	10
RB PPM	<30	<30	<30	40	<30	<100
SB PPM	4.3	54	7.4	10	2.5	1.2
SC PPM	1.4	1.4	6.8	5.4	1.0	11.4
SE PPM	<5	<5	<6	<5	<5	<10
TA PPM	<1	<1	<1	<1	<1	<3
TE PPM	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
TH PPM	1.2	1.2	3.5	2.3	3.9	16
U PPM	1.0	1.2	1.4	0.9	0.9	3.3
W PPM	<4	<4	<4	<4	<4	<4
ZN PPM	2.0	5.0	12	28	5.5	85
LA PPM	6	7	14	7	10	37
CE PPM	8	8	28	18	12	52
SM PPM	1.0	1.1	2.3	0.8	0.9	3.6
EU PPM	<0.3	<0.4	<0.6	0.4	<0.4	<1.7
YB PPM	0.4	0.7	0.9	0.6	0.4	1.8
LU PPM	0.06	0.07	0.13	0.07	0.05	0.32
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 9

S A M P L E N U M B E R S

ELEMENT		**	**	**	**	**	**
& UNITS		30663**	30664**	30666**	30667**	30668**	30669**
AG	PPM	<0.5	<0.5	<0.5	0.5	<0.5	3.0
AS	PPM	5	4	4	110	74	2100
AU	PPB	<5	<10	<5	<5	<5	83
BA	PPM	<100	500	100	<100	100	<400
CA	%	2	<2	8	<1	<1	<1
CO	PPM	7	19	<5	<5	<5	<5
CR	PPM	100	90	40	120	170	190
CU	PPM	6.5	41	3.5	22	7.0	17
FE	%	1.48	5.45	0.68	0.57	0.56	0.85
HF	PPM	10	12	2	8	3	1
MO	PPM	<5	<6	<5	<5	<5	<5
NA	%	<0.05	1.5	<0.05	0.33	<0.05	<0.05
NI	PPM	<200	<500	<200	<200	PENDING	300
PB	PPM	12	10	<2	260	8	150
RB	PPM	<50	160	<30	<40	40	<30
SB	PPM	1.0	1.1	0.7	52	1.8	3.7
SC	PPM	4.7	9.9	0.8	2.3	1.1	0.9
SE	PPM	<5	<12	<5	<5	<5	<10
TA	PPM	<1	<3	<1	<1	<1	<1
TE	PPM	<0.02	0.02	<0.02	<0.02	<0.02	0.12
TH	PPM	14	19	3.1	5.6	4.5	<1.3
U	PPM	2.1	2.8	0.7	1.1	1.0	<1.4
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	19	86	4.0	13	25	89
LA	PPM	26	33	7	16	11	3
CE	PPM	57	46	15	26	21	<3
SM	PPM	3.7	3.3	0.8	1.4	1.6	0.3
EU	PPM	1.3	<1.8	<0.5	<0.7	0.6	<0.5
YB	PPM	1.8	2.6	0.4	0.8	0.5	0.7
LU	PPM	0.28	0.40	<0.05	0.13	0.09	<0.08
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 10

S A M P L E N U M B E R S

ELEMENT I & UNITS :	**	**	**	**	**	**
	30671**	30672**	30673**	30674**	30676**	30677**
AG PPM	<0.5	<0.5	1.0	1.0	<0.5	<0.5
AS PPM	77	180	490	90	38	23
AU PPB	28	9	130	110	35	46
BA PPM	100	1200	300	500	400	600
CA %	<1	3	<2	<1	<2	7
CO PPM	6	10	6	<5	13	10
CR PPM	170	140	180	140	130	90
CU PPM	9.0	29	37	6.0	50	23
FE %	2.03	4.48	3.22	1.37	4.60	2.02
HF PPM	6	6	7	6	5	3
MO PPM	<5	<5	<5	<5	<5	<5
NA %	0.07	0.68	0.41	0.12	0.60	0.30
NI PPM	<200	<300	<300	<200	<300	<200
PB PPM	22	30	660	30	<2	18
PB PPM	<30	120	80	160	110	130
SB PPM	6.4	6.0	160	4.3	0.8	4.9
SC PPM	3.5	11.5	7.1	7.4	9.3	8.4
SE PPM	<5	<7	<7	<8	<9	11
TA PPM	<1	<3	<2	<2	<2	<2
TE PPM	<0.02	0.02	<0.02	0.04	<0.02	0.08
TH PPM	9.2	14	12	7.9	11	9.8
U PPM	1.7	3.2	2.9	1.4	3.0	2.4
W PPM	<4	<4	5	7	<4	<4
ZN PPM	52	130	160	<50	89	42
LA PPM	18	46	32	33	35	30
CE PPM	33	87	60	55	75	52
SM PPM	3.2	7.6	5.5	5.0	5.8	5.3
EU PPM	0.8	1.0	1.3	<0.9	<1.0	1.5
YB PPM	1.2	2.3	2.2	1.7	2.4	2.2
LU PPM	0.22	0.45	0.33	0.31	0.38	0.36
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 11

S A M P L E N U M B E R S

ELEMENT	UNITS	30678**	30679**	30682**	30688**	30693**	30709**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	9	9	13	5	95	4
AU	PPB	29	23	14	16	6	<5
BA	PPM	100	100	600	300	100	100
CA	%	<1	<1	<1	<1	<1	<1
CO	PPM	<5	<5	13	5	<5	<5
CR	PPM	140	170	110	120	290	120
CU	PPM	27	29	42	30	10	8.0
FE	%	2.05	1.70	4.01	3.24	0.63	0.58
HF	PPM	2	2	4	4	<1	1
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	0.05	<0.05	0.60	0.60	<0.05	0.11
NI	PPM	<200	<200	<200	<200	<200	<200
PB	PPM	8	20	24	<2	40	2
RB	PPM	<30	<30	210	100	<30	<30
SB	PPM	2.2	3.1	1.4	2.3	0.9	0.7
SC	PPM	2.0	1.3	15.4	6.7	1.8	1.1
SE	PPM	<5	<5	<5	<5	<5	<5
TA	PPM	<1	<1	<2	<2	<1	<1
TE	PPM	0.06	0.06	0.08	<0.02	<0.02	<0.02
TH	PPM	3.5	3.4	13	11	1.0	2.3
U	PPM	0.7	0.8	3.6	2.5	<0.5	<0.5
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	20	16	71	61	60	11
LA	PPM	9	6	43	25	2	5
CE	PPM	20	14	82	44	5	9
SM	PPM	2.3	1.7	7.4	4.5	0.5	1.1
EU	PPM	0.7	0.3	<0.8	<0.7	<0.2	<0.3
YB	PPM	0.6	0.2	2.6	1.6	0.2	0.4
LU	PPM	0.08	0.08	0.42	0.33	0.30	0.05
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 12

S A M P L E N U M B E R S

ELEMENT !		**	**	**	**	**	**
& UNITS !		30713**	30714**	30715**	30716**	30719**	30721**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	55	5	5	8	10	39000
AU	PPB	33	<5	<5	<6	<6	1600
BA	PPM	400	200	300	500	500	<4600
CA	%	<1	<1	<1	<1	<1	<8
CO	PPM	6	7	5	14	10	10
CR	PPM	90	100	100	110	110	<160
CU	PPM	26	30	13	31	27	6.0
FE	%	2.34	1.58	1.89	3.82	3.06	4.98
HF	PPM	3	5	3	4	4	<10
MO	PPM	<5	<5	<5	<5	<5	<73
NA	%	0.52	0.54	0.72	0.57	0.71	<0.05
NI	PPM	<200	<200	<200	<200	<200	<2200
PB	PPM	10	<2	<2	<2	<2	150
RB	PPM	100	40	70	50	100	<730
SB	PPM	1.8	0.5	0.2	0.4	0.4	120
SC	PPM	7.2	5.1	4.7	10.2	9.6	2.3
SE	PPM	<5	<5	<5	<5	<7	<120
TA	PPM	<1	<1	<1	<2	<2	<13
TE	PPM	0.02	<0.02	<0.02	0.10	0.04	2.0
TH	PPM	9.8	5.8	7.4	11	11	<15
U	PPM	2.1	1.0	1.8	2.7	2.8	<17.5
W	PPM	<4	<4	<4	<4	<4	<11
ZN	PPM	62	36	39	80	59	15
LA	PPM	30	15	<1	37	35	<13
CE	PPM	50	27	29	63	58	<68
SM	PPM	4.7	2.6	2.3	5.6	5.3	<0.1
EU	PPM	0.9	<0.5	<0.6	1.3	1.3	<4.6
YB	PPM	1.5	1.2	1.1	1.8	1.9	25.7
LU	PPM	0.27	0.18	0.19	0.28	0.34	<0.91
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 13

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30722**	** 30723**	** 30726**	** 30735**	** 30736**	** 30739**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	230	680	27	26	7	37
AU	PPB	9	37	<6	8	<6	21
BA	PPM	100	300	600	100	200	1200
CA	%	<1	<1	<1	3	2	<2
CO	PPM	5	5	5	5	8	7
CR	PPM	100	110	120	160	150	180
CJ	PPM	10	63	28	4.5	18	33
FE	%	1.83	2.71	2.66	1.74	3.34	5.65
HF	PPM	3	3	3	2	6	9
HO	PPM	<5	<5	<5	<5	<5	<5
HA	%	<0.05	<0.05	0.65	0.63	0.99	0.61
HI	PPM	<200	<200	<200	<200	<300	<300
PB	PPM	4	64	4	2	4	76
RB	PPM	30	50	120	50	<60	120
SB	PPM	1.0	2.7	0.5	0.8	0.4	0.9
SC	PPM	2.5	2.8	10.5	2.6	7.3	19.8
SE	PPM	<5	5	<8	<5	7	<6
TA	PPM	<1	<1	<2	<2	<2	<2
TE	PPM	0.04	0.10	<0.02	<0.02	<0.02	0.12
TH	PPM	4.5	5.7	12	3.5	11	24
U	PPM	1.1	1.2	2.7	1.0	1.8	4.4
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	28	37	55	25	59	71
LA	PPM	10	13	35	10	24	104
CE	PPM	19	23	58	19	48	.179
SM	PPM	1.8	2.1	5.8	1.8	3.9	11.9
EU	PPM	<0.3	<0.4	<0.8	<0.2	<0.9	1.7
YB	PPM	0.8	1.1	1.9	1.3	1.5	3.4
LU	PPM	0.09	0.19	0.37	0.23	0.19	0.59
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 14

S A M P L E N U M B E R S

ELEMENT !		**	**	**	**	**	**
& UNITS	I	30740**	30742**	30743**	30744**	30746**	30750**
AG	PPM	<0.5	<0.5	<0.5	1.0	<0.5	<0.5
AS	PPM	21	90	6	5	5	12
AU	PPB	<7	11	<9	<5	<10	<5
BA	PPM	500	2500	1200	3500	6700	200
CA	%	<2	<1	<2	<1	<3	<1
CO	PPM	12	<5	5	<5	6	12
CR	PPM	120	100	70	170	110	180
CU	PPM	6.0	6.0	2.5	6.5	3.0	21
FE	%	3.65	9.36	3.13	0.65	2.14	2.76
HF	PPM	3	2	5	<1	3	<1
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	1.5	0.83	1.7	<0.05	3.6	0.06
NI	PPM	<300	<300	<400	<200	<400	<200
PB	PPM	62	14	18	2	10	62
PB	PPM	<30	120	<90	40	<60	<30
SB	PPM	4.5	3.5	1.7	1.2	0.3	4.8
SC	PPM	12.5	14.0	24.2	5.3	15.1	4.2
SE	PPM	<9	<5	<7	<5	<7	<5
TA	PPM	<2	<2	<3	<1	<4	<1
TE	PPM	<0.02	<0.02	<0.02	0.12	<0.02	0.20
TH	PPM	6.4	4.9	10	1.9	12	1.9
U	PPM	2.3	1.9	4.6	1.4	4.8	0.6
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	8.5	19	53	11	5.0	44
LA	PPM	19	3	4	10	28	7
CE	PPM	30	18	8	16	41	19
SM	PPM	3.1	0.8	0.9	1.8	4.4	1.3
EU	PPM	<1.0	1.1	<1.1	0.6	<1.5	<0.3
YB	PPM	1.6	2.0	2.1	1.0	1.9	1.0
LU	PPM	0.32	0.39	0.52	0.21	0.27	0.17
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 15

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30751**	** 30752**	** 30753**	** 30755**	** 30756**	** 30759**
AG	PPM	1.5	<0.5	<0.5	0.5	<0.5	<0.5
AS	PPM	290	52	14	170	180	3
AU	PPB	23	<5	<6	95	55	<5
BA	PPM	<100	100	500	300	200	6900
CA	%	<1	<1	<1	<1	<1	<1
CO	PPM	<5	<5	14	5	75	<5
CR	PPM	190	160	170	150	130	80
CU	PPM	29	17	30	8.5	27	2.5
FE	%	1.08	2.59	5.10	10.5	24.5	3.17
HF	PPM	<1	2	5	3	<1	3
MO	PPM	<5	<5	<5	<5	<5	<5
NA	%	<0.05	<0.05	0.16	0.45	0.17	0.15
NI	PPM	<200	<200	<200	<200	<300	200
PB	PPM	420	14	20	74	190	<2
RB	PPM	30	40	150	<30	70	50
SB	PPM	1.3	1.4	0.7	18	17	0.4
SC	PPM	1.8	4.0	14.4	1.7	5.4	16.1
SE	PPM	<5	<5	<8	<5	<6	6
TA	PPM	<1	1	<2	<1	<1	<1
TE	PPM	0.08	0.16	0.08	<0.02	0.12	<0.02
TH	PPM	3.1	6.0	12	1.4	6.8	10
U	PPM	0.8	1.8	3.6	<0.7	1.2	3.7
W	PPM	13	<4	<4	<4	<4	<4
ZN	PPM	8.0	25	60	20	46	50
LA	PPM	9	18	41	7	22	19
CE	PPM	16	24	83	14	38	32
SM	PPM	1.8	2.9	6.5	1.0	3.0	3.3
EU	PPM	0.4	<0.4	2.4	<0.2	<0.2	0.9
YB	PPM	0.9	0.9	2.5	0.6	0.5	2.1
LU	PPM	0.15	0.15	0.51	0.09	0.07	0.37
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 16

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30760**	** 30761**	** 30762**	** 30763**	** 30765**	** 30766**
AG	PPM	<0.5	1.0	<0.5	<0.5	<0.5	<0.5
AS	PPM	2	120	20	130	4	<2
AU	PPB	<7	96	5	49	<10	<5
BA	PPM	1500	200	300	500	700	700
CA	%	<1	<1	<1	<1	3	<1
CD	PPM	<5	5	6	8	7	6
CR	PPM	90	150	190	140	70	70
CU	PPM	6.0	26	9.5	7.5	7.5	7.5
FE	%	2.61	10.2	2.15	2.63	1.39	2.72
HF	PPM	3	2	<1	10	2	3
MO	PPM	<5	<5	<5	<5	5	<5
NA	%	<0.05	0.15	<0.05	<0.05	<0.05	<0.05
NI	PPM	<300	<200	<200	<200	<500	<200
PB	PPM	10	50	52	22	18	14
PB	PPM	10	50	52	22	18	14
RB	PPM	90	<30	<40	120	<30	120
SB	PPM	1.0	40	1.7	3.1	<0.3	0.6
SC	PPM	8.4	1.6	3.8	7.0	7.5	15.1
SE	PPM	<6	<5	<5	<6	<10	<5
TA	PPM	<2	2	<1	<1	<3	<1
TE	PPM	<0.02	<0.02	0.10	0.02	<0.02	0.08
TH	PPM	9.2	1.2	2.0	13	14	7.8
U	PPM	3.9	<0.5	0.6	1.9	3.9	2.5
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	60	11	24	4.5	29	84
LA	PPM	27	6	4	36	43	15
CE	PPM	42	14	5	64	63	27
SM	PPM	2.9	0.5	1.0	3.7	3.7	1.8
EU	PPM	2.1	0.7	<0.2	1.0	3.6	1.8
YB	PPM	1.7	0.4	0.6	1.5	2.4	1.7
LU	PPM	0.32	<0.05	0.10	0.24	0.33	0.25
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 17

SAMPLE NUMBERS

ELEMENT & UNITS		** 30768**	** 30769**	** 30771**	** 30773**	** 30775**	** 30776**
AG	PPM	<0.5	<0.5	<0.5	25	<0.5	<0.5
AS	PPM	2	2	70	65	6	4
AU	PPB	<5	<7	<6	92	<5	<5
BA	PPM	2000	1100	900	300	1100	200
CA	%	11	<1	<1	<1	<1	6
CD	PPM	5	7	5	250	24	40
CR	PPM	70	120	130	120	110	280
CU	PPM	5.0	15	4.5	21000	63	180
FE	%	5.88	3.03	6.26	24.9	6.45	6.70
HF	PPM	1	5	3	2	2	2
MO	PPM	<5	<5	6	<5	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<300	<200	<200	<200	<300
PB	PPM	20	<2	50	1500	38	<2
RB	PPM	<30	110	<50	<40	100	70
SB	PPM	0.4	0.7	6.1	9.7	0.9	0.6
SC	PPM	8.5	20.1	15.4	6.4	16.9	16.8
SE	PPM	<5	<7	<5	29	<5	<5
TA	PPM	2	<2	<1	<1	2	1
TE	PPM	<0.02	<0.02	<0.02	2.1	0.04	<0.02
TH	PPM	3.0	11	4.1	1.6	9.2	1.1
U	PPM	0.9	3.2	2.4	<0.8	1.8	<0.6
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	32	75	4.0	1500	140	80
LA	PPM	13	32	21	21	26	6
CE	PPM	25	64	42	54	42	17
SM	PPM	1.7	3.8	2.2	2.6	3.4	2.6
EU	PPM	1.2	2.2	2.2	2.7	<0.2	2.3
YB	PPM	1.3	2.2	1.9	0.8	3.2	1.2
LU	PPM	0.24	0.34	0.26	0.10	0.41	0.15
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 18

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30802**	** 30803**	** 30804**	** 30805**	** 30807**	** 30810**
AG	PPM	<0.5	<0.5	<0.5	<0.5	6.0	<0.5
AS	PPM	8	9	3	150	19	4
AU	PPB	<7	15	5	50	57	<12
BA	PPM	800	800	100	500	1500	1000
CA	%	<1	<1	1	<1	<1	<2
CO	PPM	23	8	10	5	<5	10
CR	PPM	120	110	190	170	210	70
CU	PPM	48	22	19	40	13	5.0
FE	%	6.23	4.75	2.10	7.61	1.36	2.65
HF	PPM	5	4	<1	7	2	4
MO	PPM	<5	<5	<5	<5	8	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<300	<200	<200	<200	<200	<600
PB	PPM	20	30	72	210	16	8
RB	PPM	150	110	<30	90	30	<120
SB	PPM	0.8	0.7	0.5	3.6	24	0.8
SC	PPM	19.0	18.4	4.2	7.8	5.4	13.3
SE	PPM	<6	<5	<5	8	10	<12
TA	PPM	<1	<1	<1	<1	3	<3
TE	PPM	0.02	0.02	0.08	<0.02	0.16	<0.02
TH	PPM	12	12	0.6	9.7	2.3	11
U	PPM	2.9	2.9	<0.5	0.9	3.2	3.4
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	120	99	23	20	15	48
LA	PPM	50	51	4	32	14	35
CE	PPM	79	87	8	69	19	46
SM	PPM	6.2	6.3	1.2	3.1	1.9	3.6
EU	PPM	3.2	2.6	<0.2	2.2	2.9	<0.2
YB	PPM	3.2	3.0	1.0	1.3	1.3	2.3
LU	PPM	0.39	0.46	0.12	0.18	0.16	0.40
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 19

S A M P L E N U M B E R S

ELEMENT I		**	**	**	**	**	**
& UNITS I		30813**	30815**	30846**	30847**	30849**	30850**
AG	PPM	<0.5	<0.5	<0.5	<0.5	0.5	<0.5
AS	PPM	14	8	2	7	140	18
AU	PPB	9	20	<5	<14	72	<8
BA	PPM	7500	25000	100	900	1000	600
CA	%	<1	<1	<1	<3	<1	<1
CO	PPM	<5	<5	<5	<5	31	<5
CR	PPM	70	120	130	80	130	110
CU	PPM	2.5	3.0	5.0	3.5	22	5.5
FE	%	2.06	0.80	2.05	<0.02	9.67	3.31
HF	PPM	7	4	<1	4	3	3
MO	PPM	<5	<5	<5	<8	<5	<5
NA	%	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NI	PPM	<200	<200	<200	<600	<200	<300
PB	PPM	10	6	<2	6	180	34
RB	PPM	670	430	<30	<30	190	120
SB	PPM	5.7	7.8	0.6	1.7	8.8	2.3
SC	PPM	34.0	14.2	3.9	16.3	8.4	16.4
SE	PPM	8	<6	7	<13	<5	<7
TA	PPM	4	4	4	6	11	18
TE	PPM	<0.02	<0.02	<0.02	<0.02	0.06	<0.02
TH	PPM	8.0	11	0.9	6.5	5.4	11
U	PPM	4.3	11.5	0.8	3.4	2.6	2.1
W	PPM	28	8	<4	<4	<4	<4
ZN	PPM	5.5	1.0	31	6.0	28	8.5
LA	PPM	2	29	3	27	3	40
CE	PPM	<3	48	3	34	<3	66
SM	PPM	0.6	2.3	0.6	2.3	0.2	4.3
EU	PPM	2.2	3.1	3.0	5.1	8.0	9.6
YB	PPM	2.5	1.6	0.4	1.7	2.0	2.7
LU	PPM	0.47	0.32	0.09	0.17	0.26	0.39
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9115

FILE NUMBER: 10561

PAGE: 20

S A M P L E N U M B E R S

ELEMENT & UNITS	I	** 30852**	** 30857**	** 30859**	** NO SAMPLE**
AG	PPM	<0.5	13	<0.5	PENDING
AS	PPM	11	13000	26000	PENDING
AU	PPB	33	3700	<410	PENDING
BA	PPM	6200	1500	<3200	PENDING
CA	%	<1	<4	<19	PENDING
CD	PPM	<5	7	28	PENDING
CR	PPM	110	110	<90	PENDING
CU	PPM	6.5	6.5	1000	PENDING
FE	%	23.4	3.28	28.2	PENDING
HF	PPM	1	<6	13	PENDING
MO	PPM	7	<34	<190	PENDING
NA	%	<0.05	<0.05	98	PENDING
NI	PPM	<200	1800	<1500	PENDING
PB	PPM	<2	2300	13000	PENDING
RB	PPM	230	<190	<310	PENDING
SB	PPM	4.6	140	10000	PENDING
SC	PPM	10.5	10.1	1.3	PENDING
SE	PPM	6	<61	<77	PENDING
TA	PPM	9	15	<9	PENDING
TE	PPM	<0.02	<0.02	0.08	PENDING
TH	PPM	4.6	<6.5	<9.5	PENDING
U	PPM	2.2	<8.3	<53.1	PENDING
W	PPM	<4	36	490	PENDING
ZN	PPM	120	9.5	27000	PENDING
LA	PPM	18	25	65	PENDING
CE	PPM	35	37	<41	PENDING
SM	PPM	1.7	2.4	3.7	PENDING
EU	PPM	7.6	8.2	<8.3	PENDING
YB	PPM	1.0	4.6	<15.0	PENDING
LU	PPM	0.16	<0.37	1.30	PENDING
IR	PPB	<20	<20	<20	PENDING

11

NUCLEAR ACTIVATION SERVICES LIMITED

1280 MAIN STREET WEST, HAMILTON, ONTARIO, L8S 4K1

PHONE (416) 522-5606

TELEX 06-936947

CERTIFICATE OF ANALYSIS

TO: STATE OF ALASKA - DEPT. OF NATURAL RESOURCES
ATTN: KAREN H. CLAUTICE
794 UNIVERSITY AVE., BASEMENT
FAIRBANKS, ALASKA
U.S.A.
99701

CUSTOMER NO. 470/01/04

DATE SUBMITTED
28-SEP-87

REPORT: 9034

FILE NUMBER: 10562

15 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
AG	0.5000	PPM	DCP	RB	30.0000	PPM	INAA
AS	2.0000	PPM	INAA	SB	0.2000	PPM	INAA
AU	5.0000	PPB	INAA	SC	0.1000	PPM	INAA
B	0.5000	PPM	BGAMMA	SE	5.0000	PPM	INAA
BA	100.0000	PPM	INAA	TA	1.0000	PPM	INAA
CA	1.0000	%	INAA	TH	0.5000	PPM	INAA
CC	5.0000	PPM	INAA	U	0.5000	PPM	INAA
CR	10.0000	PPM	INAA	W	4.0000	PPM	INAA
CU	0.5000	PPM	DCP	ZN	0.5000	PPM	DCP
FE	0.0200	%	INAA	LA	1.0000	PPM	INAA
HF	1.0000	PPM	INAA	CE	3.0000	PPM	INAA
LI	1.0000	PPM	XRF	SM	0.1000	PPM	INAA
MO	5.0000	PPM	INAA	EU	0.2000	PPM	INAA
NA	0.0500	%	INAA	YS	0.2000	PPM	INAA
NI	200.0000	PPM	INAA	LU	0.0500	PPM	INAA
PS	2.0000	PPM	DCP	IR	20.0000	PPB	INAA

DATE 28-NOV-87

- 55 -

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY *[Signature]*

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
IRRADIATED SAMPLES AFTER 30 DAYS, ANY OTHER MATERIAL AFTER 120 DAYS.

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9084

FILE NUMBER: 10562

PAGE: 1

S A M P L E N U M B E R S

ELEMENT I & UNITS !	** 30550**	** 30560**	** 30570**	** 30580**	** 30590**	** 30600**
AG PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS PPM	25	57	55	2	2	130
AU PPB	<5	200	71	<5	<9	21
B PPM	6.7	5.4	850	19	6.2	50
BA PPM	<100	300	1000	200	400	900
CA %	<1	3	<2	2	4	2
CO PPM	<5	21	<5	<5	39	11
CR PPM	170	190	200	200	280	200
CU PPM	11	310	12	7.0	57	23
FE %	1.62	4.95	1.59	0.90	7.33	2.52
HF PPM	6	6	4	11	3	5
LI PPM	16	22	20	15	20	21
MO PPM	<5	12	<5	<5	<5	<5
NA %	0.77	0.49	0.34	0.80	2.2	0.18
NI PPM	<200	<200	400	<200	<300	<200
PB PPM	<2	6	10	2	<2	12
RB PPM	60	<40	220	<30	<50	170
SB PPM	0.4	0.9	1.6	0.3	0.5	9.4
SC PPM	4.0	9.7	17.8	3.5	18.1	18.1
SE PPM	<5	<7	<6	<5	<5	<8
TA PPM	<1	<1	<2	<1	<2	<1
TH PPM	9.7	15	15	11	2.7	16
U PPM	1.4	3.3	3.9	1.8	2.4	2.4
W PPM	<4	99	5	<4	<4	7
ZN PPM	38	97	31	14	67	150
LA PPM	18	35	73	22	30	47
CE PPM	37	60	115	43	57	59
SM PPM	3.0	5.5	10.1	5.0	7.2	6.7
EU PPM	<0.2	1.6	1.5	<0.2	1.9	0.8
YB PPM	1.2	1.6	2.4	1.8	1.3	3.1
LU PPM	0.24	0.36	0.43	0.31	0.22	0.44
IR PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9084

FILE NUMBER: 10562

PAGE: 2

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30610**	** 30630**	** 30640**	** 30680**	** 30690**	** 30700**
AG	PPM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AS	PPM	17	3	5	180	5	20
AU	PPB	<8	<5	<9	27	9	<5
B	PPM	3.1	17	180	8.9	22	38
BA	PPM	<100	300	800	200	200	200
CA	%	5	1	<2	<1	<1	<1
CO	PPM	33	5	6	<5	17	10
CR	PPM	320	160	170	170	200	130
CU	PPM	57	12	24	5.5	41	25
FE	%	6.66	1.92	3.35	0.68	3.60	2.80
HF	PPM	4	4	5	3	4	3
LI	PPM	63	21	66	19	34	36
MO	PPM	<5	<5	10	<5	<5	<5
NA	%	0.87	0.54	1.5	0.05	0.64	0.09
NI	PPM	300	<200	<300	<200	<200	<200
PB	PPM	<2	6	<2	6	<2	<2
RB	PPM	<40	40	190	30	30	80
SB	PPM	0.3	0.7	1.2	1.6	0.4	0.4
SC	PPM	16.1	4.5	16.7	1.9	14.0	6.6
SE	PPM	<5	<5	<5	<5	<5	<5
TA	PPM	<1	<1	2	<1	<1	<1
TR	PPM	3.7	5.8	17	5.6	5.6	7.1
U	PPM	1.5	1.4	3.1	1.5	1.5	1.9
W	PPM	<4	<4	<4	<4	<4	<4
ZN	PPM	100	30	79	23	58	67
LA	PPM	40	18	87	16	19	22
CE	PPM	68	30	142	26	40	40
SM	PPM	8.5	3.3	13.1	2.5	3.7	3.3
EU	PPM	2.0	<0.2	2.0	<0.3	<0.2	1.0
YB	PPM	1.4	1.3	2.5	0.7	1.7	1.5
LU	PPM	0.18	0.20	0.40	0.12	0.28	0.19
IR	PPB	<20	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9084

FILE NUMBER: 10562

PAGE: 3

S A M P L E N U M B E R S

ELEMENT		**	**	**
& UNITS		30710**	30774**	30808**
AG	PPM	<0.5	<0.5	0.5
AS	PPM	6	25	2
AU	PPB	<5	<7	<5
B	PPM	36	53	29
BA	PPM	300	1700	1400
CA	%	<1	<1	<1
CO	PPM	11	12	<5
CR	PPM	140	200	150
CU	PPM	40	22	5.5
FE	%	3.15	7.15	0.68
HF	PPM	5	5	1
LI	PPM	35	63	14
MO	PPM	<5	<5	<5
NA	%	0.21	0.05	0.11
NI	PPM	<200	<200	<200
PB	PPM	<2	<2	<2
RB	PPM	60	100	50
SB	PPM	0.2	1.1	2.0
SC	PPM	5.5	16.8	4.3
SE	PPM	<5	<5	<5
TA	PPM	1	<1	<1
TH	PPM	6.9	10	1.3
U	PPM	1.5	1.7	1.7
W	PPM	<4	6	<4
ZN	PPM	51	200	17
LA	PPM	18	39	9
CE	PPM	35	68	14
SM	PPM	2.9	6.3	1.5
EU	PPM	0.8	0.7	<0.2
YB	PPM	1.4	2.1	0.7
LU	PPM	0.23	0.39	0.13
IR	PPB	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

1290 MAIN STREET WEST, HAMILTON, ONTARIO, L3S 4K1

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ATTN: KAREN H. CLAUTICE
794 UNIVERSITY AVE., BASEMENT
FAIRBANKS, ALASKA
U.S.A.
99701

CUSTOMER NO. 470/01/04

DATE SUBMITTED
28-SEP-67

REPORT: 9085

FILE NUMBER: 10563

10 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
AG	0.5000	PPM	DCP	SB	0.2000	PPM	INAA
AS	2.0000	PPM	INAA	SC	0.1000	PPM	INAA
AU	5.0000	PPM	INAA	SF	5.0000	PPM	INAA
B	0.5000	PPM	PGAMMA	TA	1.0000	PPM	INAA
BA	100.0000	PPM	INAA	TE	0.0200	PPM	AA
CA	1.0000	%	INAA	TH	0.5000	PPM	INAA
CC	5.0000	PPM	INAA	U	0.5000	PPM	INAA
CR	10.0000	PPM	INAA	W	4.0000	PPM	INAA
CU	0.5000	PPM	DCP	ZN	0.5000	PPM	DCP
FE	0.0200	%	INAA	LA	1.0000	PPM	INAA
HF	1.0000	PPM	INAA	CE	3.0000	PPM	INAA
LI	1.0000	PPM	XRF	DM	0.1000	PPM	INAA
MD	5.0000	PPM	INAA	EU	0.2000	PPM	INAA
NA	0.0500	%	INAA	YB	0.2000	PPM	INAA
NI	200.0000	PPM	INAA	LU	0.0500	PPM	INAA
PB	2.0000	PPM	DCP	IR	20.0000	PPM	INAA

CERTIFICATE OF ANALYSIS

(CONT'D)

REPORT: 9035

FILE NUMBER: 10563

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
RB	30.0000	PPM	INAA				

DATE 28-NOV-87

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY *[Signature]*

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
 IRRADIATED SAMPLES AFTER 30 DAYS. ANY OTHER MATERIAL AFTER 120 DAYS.

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 18-FEB-88

REPORT: 9085

FILE NUMBER: 10563

PAGE: 2

S A M P L E N U M B E R S

ELEMENT & UNITS		** 30754**	** 30764**	** 30848**	** 30858**
AG	PPM	<0.5	<0.5	<0.5	33
AS	PPM	29	71	6	19
AU	PPB	<9	33	<9	41
B	PPM	4.0	32	20	1.8
BA	PPM	200	400	1600	<500
CA	%	7	<1	5	<1
CO	PPM	37	35	14	380
CR	PPM	380	180	300	90
CU	PPM	82	51	24	2600
FE	%	7.74	12.9	2.19	37.5
HF	PPM	6	7	1	<1
LI	PPM	59	11	35	8
MO	PPM	<5	<5	<5	<5
NA	%	0.78	0.80	2.5	<0.05
NI	PPM	<300	<200	<300	<400
PB	PPM	50	190	16	3600
RB	PPM	110	50	100	<60
SB	PPM	0.7	3.9	0.6	12
SC	PPM	18.6	5.5	23.0	1.1
SE	PPM	<6	<7	<5	110
TA	PPM	<2	<1	3	<1
TE	PPM	0.06	0.14	<0.02	1.4
TH	PPM	6.8	12	6.5	<0.7
U	PPM	2.2	1.9	2.9	<0.5
W	PPM	<4	<4	<4	<4
ZN	PPM	97	22	37	36000
LA	PPM	50	21	14	7
CE	PPM	102	37	19	12
SM	PPM	9.7	3.3	2.6	1.5
EU	PPM	2.4	<0.2	<0.8	0.4
YB	PPM	2.0	1.5	1.3	<0.6
LU	PPM	0.24	0.27	0.24	<0.05
IR	PPB	<20	<20	<20	<20

EXPLANATION OF CODES

NUCLEAR ACTIVATION SERVICES LIMITED

1280 MAIN STREET WEST, HAMILTON, ONTARIO, L3S 4K1

PHONE (416) 522-5605 TELEX 06-300947

CERTIFICATE OF ANALYSIS

TO: STATE OF ALASKA - DEPT. OF NATURAL RESOURCES
 ATTN: KAREN H. CLAUTICE
 794 UNIVERSITY AVE., BASEMENT
 FAIRBANKS, ALASKA
 U.S.A.
 99701

CUSTOMER NO. 470/01/04

DATE SUBMITTED
 23-SEP-37

REPORT: 9786

FILE NUMBER: 10564

3 UNPREPARED SAMPLES

WERE ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
AG	0.5000	PPM	BCP	RB	30.0000	PPM	INAA
AS	2.0000	PPM	INAA	SB	0.2000	PPM	INAA
AU	5.0000	PPM	INAA	SC	0.1000	PPM	INAA
B	0.5000	PPM	PGAMMA	SE	0.0000	PPM	INAA
BA	100.0000	PPM	INAA	TA	1.0000	PPM	INAA
CA	1.0000	%	INAA	TE	0.0200	PPM	AA
CD	5.0000	PPM	INAA	TH	0.5000	PPM	INAA
CF	10.0000	PPM	INAA	U	0.5000	PPM	INAA
CU	0.5000	PPM	BCP	V	4.0000	PPM	INAA
FE	0.0200	%	INAA	ZN	0.5000	PPM	BCP
HF	1.0000	PPM	INAA	LA	1.0000	PPM	INAA
HU	5.0000	PPM	XRF	GE	0.5000	PPM	INAA
LI	1.0000	PPM	XRF	SM	0.1000	PPM	INAA
MO	5.0000	PPM	INAA	EU	0.2000	PPM	INAA
NA	0.0500	%	INAA	YS	0.2000	PPM	INAA
NI	200.0000	PPM	INAA	LU	0.0500	PPM	INAA

CERTIFICATE OF ANALYSIS

(CONT'D)

REPORT: 9086

FILE NUMBER: 10564

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
PB	2.0000	PPM	DCP	IR	20.0000	PPB	INAA

DATE 28-NOV-67

NUCLEAR ACTIVATION SERVICES LIMITED

CERTIFIED BY *[Signature]*

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
IRRADIATED SAMPLES AFTER 30 DAYS. ANY OTHER MATERIAL AFTER 120 DAYS.

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 11-JAN-88

REPORT: 9086

FILE NUMBER: 10564

PAGE: 1

S A M P L E N U M B E R S

ELEMENT & UNITS	I	**	**	**	**	**
		30729**	30730**	30731**	30732**	30733**
AG	PPM	<0.5	0.5	<0.5	<0.5	<0.5
AS	PPM	27000	2400	77	130	12000
AU	PPB	690	850	<5	<5	290
B	PPM	3.2	1.1	7.2	<0.5	2.1
BA	PPM	<1700	300	200	<100	<800
CA	%	<5	<1	<1	<1	<2
CO	PPM	9	<5	<5	<5	6
CR	PPM	150	230	190	260	230
CU	PPM	14	46	8.0	7.0	95
FE	%	3.79	1.79	1.70	0.53	3.14
HF	PPM	6	9	5	<1	11
HG	PPB	26	6	<5	5	8
LI	PPM	40	17	41	32	34
MO	PPM	<31	<5	<5	<5	23
NA	%	2.4	0.76	0.82	0.09	1.9
NI	PPM	<1000	<200	<200	<200	<500
PB	PPM	44	66	12	<2	<2
RB	PPM	<160	<30	80	<30	<80
SB	PPM	10	<0.5	<0.2	<0.2	6.1
SC	PPM	5.8	3.8	4.8	0.6	6.9
SE	PPM	<39	<6	<5	<5	<17
TA	PPM	<6	<1	<1	<1	<3
TE	PPM	0.52	0.90	0.03	<0.02	0.65
TH	PPM	15	12	11	1.1	14
U	PPM	11.2	<1.4	1.4	<0.5	<4.7
W	PPM	22	4	<4	<4	30
ZN	PPM	35	72	55	11	310
LA	PPM	46	20	22	6	25
CE	PPM	83	30	39	11	38
SM	PPM	6.0	2.6	3.5	1.1	3.3
EU	PPM	<2.4	0.5	<0.2	<0.2	1.6
YB	PPM	4.8	1.3	1.0	0.2	2.0
LU	PPM	<0.41	0.19	0.17	<0.05	0.37
IR	PPB	<20	<20	<20	<20	<20

NUCLEAR ACTIVATION SERVICES LIMITED

1100 MAIN STREET WEST, HAMILTON, ONTARIO, L8C 4K1

PHONE (416) 922-5536

TELEX 06-936947

CERTIFICATE OF ANALYSIS

FOR STATE OF ALASKA - DEPT. OF NATURAL RESOURCES
ATTN: KAREN H. CLAUTICE
704 UNIVERSITY AVE., BARTON
FAIRBANKS, ALASKA
99701

QUOTA NO. 470/01/01

DATE QUOTED
11-JAN-77

REPORT# 9886

FILE NUMBER: 11098

NO UNDETECTED ELEMENTS

WAS ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD
FE	0.1000	PPM	

NUCLEAR ACTIVATION SERVICES LIMITED

DATE: 18-FEB-88

REPORT: 9368

FILE NUMBER: 11098

PAGE: 1

S A M P L E	TE	PPM
30466		0.02
30554		0.02
30560		1.5
30567		0.06
30569		0.14
30582		<0.02
30601		0.66
30655		<0.02
30673		<0.02
30708		0.46
30857		<0.02
30859		0.66