



United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 973
DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Branch of Geochemistry

C.R.M.O.

December 8, 1987

DEC 13 '87

Mr. Robert E. Scott, Superintendent
Craters of the Moon National Monument
P.O. Box 29
Arco, Idaho 83213

	SUPERINTENDENT	
	ADMIN CLERK	
	PARK RANGER	✓
	PARK INTERPRETER	
	MAINTENANCE	
✓	FILES	

Dear Mr. Scott:

You'll find enclosed my Investigator's Annual Report which summarizes the results of our brief sampling in the Monument last July as part of a larger effort to understand the mineral potential of the Lava Creek district, based on a reconnaissance-scale survey, and using sagebrush and panned concentrate samples from drainage basins. Dr. Moyer and I thank you for the chance to sample below the Martin Mine because its setting is unique among all the mines in the district; the mineralization is more of a pure precious-metal (Ag-Au) type hosted in a granite porphyry stock. The metal anomalies in the concentrate sample are clearly extreme compared to most other sites that drain now-abandoned mines. Except for Zn (which reflects sphalerite in the ore body), the relatively poor response in the samples of sagebrush from this "test" area make the highly anomalous element concentrations in sagebrush from several of the other sites in the district that lie well beyond the influence of previous mining all the more interesting.

Sincerely yours,

James A. Erdman
Botanist

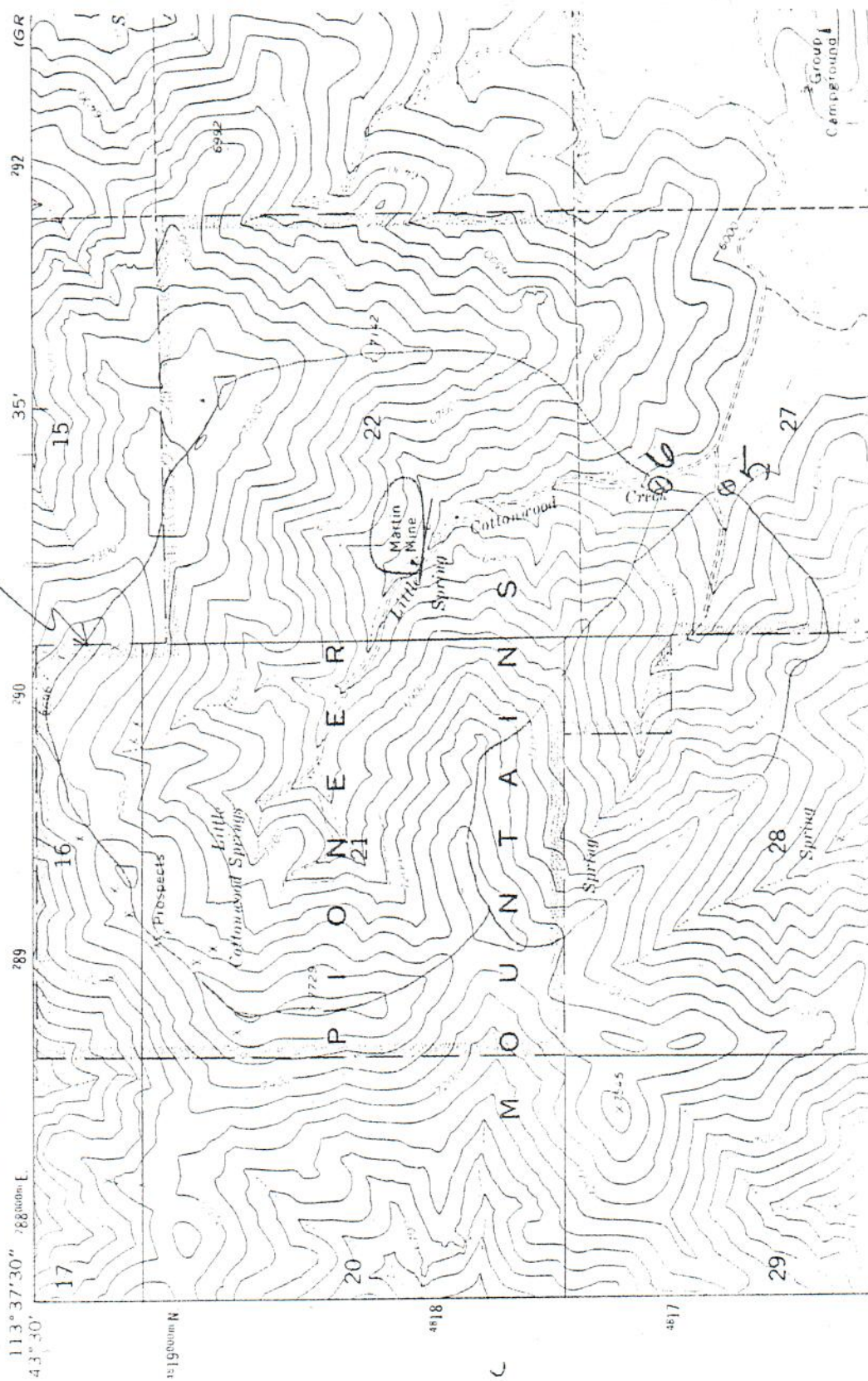
Enclosures

cc: Dr. Falma Moyer
Betty Skipp
Paul Theobald
Ron Worl

327111
(GROUSE 1.62 500)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

~ limit of drainage basin



Neil King
P.O. Box 29
Nat. Canon.
Ranger
Indian Mine
Ariz.

*Note - this report has analyses of 3 rock samples
from the Martin Mine locality, one highly
anomalous*

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analyses of samples from the Lava Creek mining district,
Blaine and Butte Counties, Idaho

By

Barbara M. Hillier, D. J. Grimes, Robert Vaughan,
Belinda Arbogast, and Christine McDougal

Denver, Colo. 80225

Open-File Report 83-705

1983

NUCLEAR ACTIVATION SERVICES INCORPORATED

2301 BONISTEEL BOULEVARD, ANN ARBOR, MICHIGAN, 48109

PHONE (800) 232-4130

CERTIFICATE OF ANALYSIS

*Sagebrush samples
(current year's growth)*

U. S. GEOLOGICAL SURVEY
ATTN: JAMES A ERDMAN
IDAHO STATE UNIVERSITY
PURCHASING DEPARTMENT, BOX 8110
POCATELLO, IDAHO
83209

CUSTOMER NO. 104/02/02

DATE SUBMITTED
09-OCT-87

REPORT: 343

FILE NUMBER: 343

41 SAMPLES

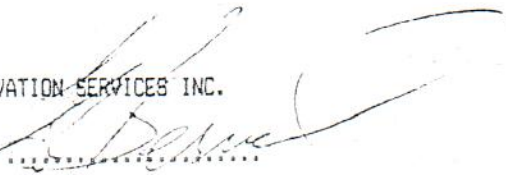
WERE ANALYZED AS FOLLOWS:

DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
0.3000	PPM	HMNA	SB	0.0100	PPM	HMNA
0.0100	PPM	HMNA	SE	0.5000	PPM	HMNA
0.1000	PPB	HMNA	TA	0.2000	PPM	HMNA
20.0000	PPM	HMNA	TH	0.1000	PPM	HMNA
0.0100	PPM	HMNA	U	0.0200	PPM	HMNA
0.3000	PPM	HMNA	W	0.0100	PPM	HMNA
0.3000	PPM	HMNA	ZN	2.0000	PPM	HMNA
0.0050	%	HMNA	HG	50.0000	PPB	HMNA
0.0500	PPM	HMNA				

... PPM. results are in the s
... in parentheses.

E 09-OCT-87

NUCLEAR ACTIVATION SERVICES INC.

CERTIFIED BY 

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

NUCLEAR ACTIVATION SERVICES INCORPORATED

09-OCT-87 REPORT: 343 FILE NUMBER: 343 PAGE: 1

SAMPLE NUMBERS

T	**	**	**	**	**	**
S	V372486**	LVD 1 S**	LVD 2 S**	LVD 3 S**	LVD 4 S**	LVD 5 S**
PFM	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PFM	0.11	0.13	0.03	<0.01	<0.02	0.03
PB	1.1	<0.4	<0.2	0.3	0.4	0.3
PFM	30	<20	<20	<20	<20	20
PFM	3.3	14	2.6	3.9	11	2.8
PFM	0.6	0.6	<0.3	<0.3	0.4	<0.3
PFM	1.1	0.3	<0.3	<0.3	<0.3	<0.3
PFM	0.052	0.020	0.009	0.006	0.006	0.010
PFM	0.21	0.33	0.60	0.28	0.17	0.22
PFM	0.09	0.05	0.06	0.08	0.06	0.05
PFM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PFM	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
PFM	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PFM	0.04	0.03	<0.02	<0.02	<0.02	<0.02
PFM	<0.07	<0.07	<0.05	<0.05	<0.06	<0.04
PFM	14	35	42	27	29	45
PB	<50	<50	<50	<50	<50	<50

Zinc levels anomalous
in both samples

NUCLEAR ACTIVATION SERVICES INCORPORATED

09-OCT-87 REPORT: 343 FILE NUMBER: 343 PAGE: 2

SAMPLE NUMBERS

Below
Martin
Mine

IT	!!	!!	!!	!!	!!	!!
TS	LVD 6 S**	LVD 7 S**	LVD 8 S**	LVD 9 S**	LV 10 S**	LV 11 S**
PPM	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
PPM	0.04	0.10	0.03	0.09	0.05	0.10
PPB	<0.2	0.2	<0.2	0.4	0.8	0.5
PPM	20	<20	20	20	<20	20
PPM	2.6	1.5	3.5	5.5	17	4.1
PPM	<0.3	<0.3	<0.3	0.3	0.5	0.3
PPM	<0.3	<0.3	0.3	0.3	<0.3	0.5
%	0.009	0.011	0.009	0.023	0.011	0.017
PPM	0.36	0.25	0.40	<0.09	0.06	0.32
PPM	0.04	0.05	0.05	0.06	0.06	0.07
PPM	<0.5	<0.5	<0.5	<0.5	<0.5	1.8
PPM	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
PPM	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PPM	<0.02	<0.02	<0.02	<0.02	0.05	0.03
PPM	<0.04	<0.04	<0.04	<0.05	<0.07	<0.05
PPM	39	27	26	32	31	38
PPB	<50	<50	<50	<50	<50	60



GEOCHEMICAL ANALYSIS REPORT

to: Mr. James A Erdman
U.S.Geological Survey
Box 25046 MS 973
Denver, CO 80225 tel:(303)236-5512

Lot Identity: IDA-70925F

PROJECT: FALMA MOYE

Digest: 30 gram

Total number of samples: 36

Hotel ash from 30.9 sample

=====

This report has been reviewed and approved by:

E. B. Henderson Date: *10/22/87*

William B. Henderson, Lab Director/Chemist



GEOCHEMICAL ANALYSIS REPORT

PAGE 1

LOT 10: 10A-70925F

concentrations on dry-wt. basis

SAMPLE ID

#

Ag

As

Au

Cd

Cu

Ga

Mo

Pb

Pd

Pt

Sb

Sn

Tl

Zn

ppb

ppb

ppb

ppb

ppb

ppb

ppb

ppb

V372436

LVO 1 S

LVO 2 S

LVO 3 S

LVO 4 S

LVO 5 S

LVO 6 S - Martine

LVO 7 S

LVO 8 S

LVO 9 S

LVO 10 S

LVO 11 S

LVO 12 S

LVO 13 S

LVO 14 S

LVO 15 S

LVO 16 S

LVO 17 S

LVO 18 S

V372486

LVO 19 S

LVO 20 S

LVO 21 S

LVO 22 S

LVO 23 S

LVO 24 S

LVO 25 S

LVO 26 S

LVO 27 S

LVO 28 S

10.2K

28.8K

36.7K

20.4K

23.8K

37.7K

32.8K

22.9K

22.1K

27.0K

27.7

25.5K

31.1K

16.4K

33.3K

33.3K

21.5K

29.4K

33.5K

38.0K

10.0K

53.5K

19.7K

29.9K

34.1K

24.4K

21.2K

24.3K

19.8K

20.1K

17.5K

2741 Toledo Street Suite 211 • Torrance, California 90503 • Telephone 213/320-3680

55 Glen Carran Circle • Sparks, Nevada 89431 • Telephone 702/359-6500

REMARKS: Fe,

... in %; all other elements reported in ppm. Results are in the s

No. 30-47-C1

I NO. 38827

SEMI-QUANTITATIVE SPECTROGRAPHIC ANALYSIS--BRANCH OF EXPLORATION RESEARCH
Heavy-Mineral Concentrates (Non-magnetic) 6-Step D.C. Arc

Requested by

Eichman

Date 11-1-11

Sheet 1

Field No.	Tag No.	(.1) Fe %	(.05) Mg %	(.1) Ca %	(.005) Ti %	(20) Mn	(1) Ag	(500) As	(20) Au	(20) B	(50) Ba	(2) Be	(20) Bi	(50) Cd	(40) Co	(20) Cr	(10) Cu	(50) La	(10) Mo	(50) Nb	(1) N
1111111111	71-78	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	57-63	64-70	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	57-63	64
6XR-6	11111111	5	5	L	5	1500	L	L	N	L	2000	2	N	N	L	100	150	N	N	N	20
LV01H	ES5- 161	.5	.3	10	2	500	200	N	150	50	5000	L			N	70	2000	500		70	20
2	162	.3	.2	30	.5	700	N		N	20		2				50	20	1000		N	L
3	163	.5	.3	30	.1	700				L		L				L	10	500			L
4	164	.2	.1	3	.15	300				20		L				L	150	150			L
5	165	.5	.5	50	.7	2000				7000		N	30			L	1500	1500			L
6	166	7	.2	10	1.5	500	500				10000		N	L	80	P	30	300			L
7	167	.5	.5	50	.5	1000	N	N			5000	L			N	20	L	1500			N
8	168	.5	.3	20	.15	700					3000	L			N	20	L	300			N
9	169	.3	.2	7	.7	300					5000	N				L	N	200			N
10	170	.5	.3	15	1.5	500	200		10			L				30	20	500			L
11	171	.3	.1	20	.15	300	N		N			N				20	L	300			L
12	172	.3	.2	10	.5	300				30		5		L		30	15	500			N
13	173	.5	.3	20	.3	500				20	2000	L		N		L	N	500			N
14	174	.5	.3	5	.7	150	N	N	N	70	5000	L		N	N	70	20	150	N		L
15	175	.2	.2	30	.2	700	N	N	N	L		L		N	N	L	L	1500	N		L

REMARKS: Fe, Mg, Ca, and Ti reported in %; all other elements reported in ppm. Results are in the series 1, 1.5, 2, 3, 5, 7, 10, etc.
Lower limits of determination are in parentheses

20-47101

IN. 38827

(50)

14

ANALYST Betty Adams

CE

Sheet #2

eld No.	Tag No.	(20) Pb	(200) Sb	(10) Sc	(20) Sn	(200) Sr	(20) V	(400) W	(20) Y	(500) Zn	(20) Zr	(200) Th	(10) Ga	(20) Ge	(0.5%) Na	(0.5%) P	Pr	Rt
1111111111	71-78	1-7	22-28	29-35	36-42	43-49	64-70	1-7	8-14	15-21	22-28							
EXR-6	11111111	150	N	20	N	N	200	N	L	L	100	N	70	N	L	N		
LV0111	ES-161	100			70	700	100		200	N	(4200)		20		L	10		
2	162	30			L	5000	50		700				20		.7	15		
3	163	20			N	5000	50		500				30		.7	15		
4	164	20			20	10000	20		300				15		.7	2		
5	165	100			N	700	50		1000				15		.5	(500)		
6	166	3000			15	300	50		500	2000			20		.5	10		
7	167	70	300	15	70	5000	70		700	N			N		L	20		
8	168	20	N	N	N	7000	20		200				50		5	10		
9	169	30			N	10000	20		70		200		20		N	5		
10	170	700			30	7000	70		300		(4200)		30		L	15		
11	171	1500			N		70		300				L		N	10		
12	172	70			L		50		1000				20		L	10		
13	173	30			N	2000	30		300				50		2	10		
14	174	150	N		N	1000	150	N	150	N	(5200)	N	20	N	.5	7		
15	175	20	N		N	10000	30	N	700	N	2	N	N	N	L	20		

Greater than value shown. N = Not detected at limit of detection, or at value shown. L = Detected, but below limit of determination, or below value shown.