

ANALYSIS NARRATIVE
Inorganic Chemistry

Date: November 24, 1992
SAS No: 7585-A-03
SDG No: SA5875

1. This report contains analytical results for a batch of 3 sediment samples which were received at GP Environmental Services on October 24, 1992. The samples were analyzed for acid volatile sulfides (AVS) and simultaneously extracted metals (SEM) by the method supplied by EPA in the SAS solicitation.
2. The solicitation specified that samples were to be analyzed for acid volatile sulfides, but did not specifically indicate that SEM determination was also required. Since the chain of custody indicated that SEM determination was required, the laboratory contacted SMO for guidance, and was told that SEM was in fact required. By the time this issue was resolved, however, the AVS determination had been completed and the extracts had been discarded. The laboratory, region, and SMO all agreed that the holding time specified in the SAS applied only to AVS, and not to the metals. For this reason, it was agreed that the laboratory would perform a second extraction and analyze this extract only for SEM. For this reason, reviewers will note that the extraction dates for AVS and SEM are different, even though the method indicates that both analytes are determined on the same extract.
3. No significant analytical problems were encountered, and all analyses proceeded routinely. All calibration and QA criteria were met. In accordance with the method, the laboratory has reported AVS and total SEM in $\mu\text{mole per gram}$, dry weight basis. The AVS/SEM ratio has also been calculated and reported. Concentrations of specific metals have not been reported, but can be found in the supporting raw data if needed.
4. I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Kenneth M. Ives
Laboratory Manager

**GP ENVIRONMENTAL SERVICES
ANALYTICAL RESULTS**

Project: SAS#7585-A-03

Viar & Co/SMO USEPA Region 1
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Atten: Bruce Lane

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Atten: Client Services
Phone: (301) 926-6802

Certified by:  _____

SAMPLE IDENTIFICATION

<u>GP ID</u>			<u>Client ID</u>
9210230	-01	A	SA5875
9210230	-02	A	SA5876
9210230	-03	A	SA5877

**GP ENVIRONMENTAL SERVICES
WET CHEMISTRY ANALYSIS RESULTS**

GP ID: 9210230-01
Client ID: SA5875

Matrix: SOIL
Collected: 10/22/92

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Acid Volatile Sulfides		252.0	0.1	u mole/g	AVS	10/24/92	10/24/92 VHM
Simultaneously Extracted Metals		1.58		u mole/g	SEM	11/02/92	**
Ratio of Metals/AVS		0.006					
Percent Solids	MCAW 160.3	44.5		%			10/24/92 VHM

GP ID: 9210230-02
Client ID: SA5876

Matrix: SOIL
Collected: 10/22/92

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Acid Volatile Sulfides		6.35	0.1	u mole/g	AVS	10/24/92	10/24/92 VHM
Simultaneously Extracted Metals		0.419		u mole/g	SEM	11/02/92	**
Ratio of Metals/AVS		0.066					
Percent Solids	MCAW 160.3	67.2		%			10/24/92 VHM

GP ID: 9210230-03
Client ID: SA5877

Matrix: SOIL
Collected: 10/22/92

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Acid Volatile Sulfides		6.34	0.1	u mole/g	AVS	10/24/92	10/24/92 VHM
Simultaneously Extracted Metals		0.398		u mole/g	SEM	11/02/92	**
Ratio of Metals/AVS		0.063					
Percent Solids	MCAW 160.3	66.3		%			10/24/92 VHM

** ICP 11/16/92 MB ; Hg 11/1892 CK

GP ENVIRONMENTAL SERVICES REPORT
 Quality Control Summary
 GP Work Order 92-10-230

<u>PARAMETER</u>	<u>BLANK</u>		<u>DUPLICATE (u mole/g)</u>			
	<u>RESULT</u>	<u>UNITS</u>	<u>SAMPLE ID</u>	<u>SAMPLE RESULT</u>	<u>DUP RESULT</u>	<u>% RPD</u>
AVS	<0.1	u mole/g	SA5875	252.0	250.0	0.8
Mercury	BQL	u mole/g	SA5877	BQL	BQL	NA
Zinc	BQL	u mole/g	SA5877	0.012	0.11	8.7
Cadmium	BQL	u mole/g	SA5877	BQL	BQL	NA
Lead	BQL	u mole/g	SA5877	0.035	0.037	5.5
Nickel	BQL	u mole/g	SA5877	BQL	BQL	NA
Copper	BQL	u mole/g	SA5877	BQL	BQL	NA

<u>PARAMETER</u>	<u>SPIKE</u>						
	<u>SAMPLE ID</u>	<u>UNITS</u>	<u>SAMPLE RESULT</u>	<u>SPIKE RESULT</u>	<u>FOUND VALUE</u>	<u>TRUE VALUE</u>	<u>% RECOVERY</u>
AVS	SA5875	u mole/g	252.0	296.0	44.0	43.6	101

NA = Not Applicable

PROJ: _____
DASH SAMPLE IDENTIFICATION JOB
01A SAS875 _____
02A SAS876 _____
03A SAS877 _____

UNIT
SAMPLE FRACTIONS
DASH SAMPLE IDENTIFICATION JOB

RCVD: 10/24/92 DUE: 11/18/92
STAT: TRANSMITTED 10/28/92

ZN	AV	0.7339	ppm	SD	.02450	CV	3.3
CD	AV	0.0059	ppm	SD	.00016	CV	2.7
Pb220.353	AV	0.270	ppm	SD	0.0221	CV	8.2
NI	AV	0.0642	ppm	SD	.00817	CV	4.9
CU	AV	0.0590	ppm	SD	.00100	CV	1.7

230-02g

Replicate 1

ZN	0.1152	ppm
CD	0.0012	ppm
Pb220.353	0.117	ppm
NI	0.0162	ppm
CU	0.0112	ppm

230-02a

Replicate 2

ZN	0.1144	ppm
CD	0.0024	ppm
Pb220.353	0.069	ppm
NI	0.0125	ppm
CU	0.0059	ppm

ZN	AV	0.1148	ppm	SD	.00052	CV	0.4
CD	AV	0.0018	ppm	SD	.00087	CV	47.2
Pb220.353	AV	0.093	ppm	SD	0.0336	CV	36.0
NI	AV	0.0144	ppm	SD	.00261	CV	18.1
CU	AV	0.0085	ppm	SD	.00373	CV	43.6

230-03a

Replicate 1

ZN	0.1075	ppm
CD	0.0002	ppm
Pb220.353	0.099	ppm
NI	0.0090	ppm
CU	-0.0021	ppm

230-03a

Replicate 2

ZN	0.1027	ppm
CD	0.0028	ppm
Pb220.353	0.093	ppm
NI	0.0195	ppm
CU	-0.0059	ppm

ZN	AV	0.1051	ppm	SD	.00332	CV	3.1
CD	AV	0.0015	ppm	SD	.00186	CV	118.0
Pb220.353	AV	0.097	ppm	SD	0.0026	CV	2.7
NI	AV	0.0142	ppm	SD	.00744	CV	52.1
CU	AV	-0.0040	ppm	SD	.00270	CV	66.0

230-03a0up

Replicate 1

ZN	0.0967	ppm
CD	0.0004	ppm
Pb220.353	0.077	ppm
NI	0.0213	ppm
CU	0.0059	ppm

230-03a0up

Replicate 2

ZN	0.0975	ppm
CD	-0.0002	ppm
Pb220.353	0.129	ppm
NI	0.0056	ppm
CU	-0.0041	ppm

Peak Offset

ZN	AV	0.0971	ppm	SD	00057	CV	0.5
CD	AV	0.0031	ppm	SD	00048	CV	425.5
Pb220.353	AV	0.103	ppm	SD	0.0369	CV	35.5
NI	AV	0.0135	ppm	SD	0.1104	CV	81.8
CU	AV	0.0008	ppm	SD	.00714	CV	315.0

230-03a

Replicate 1

icsabi

Replicate 2

ZN		1.0109	ppm
CD		0.8561	ppm
Pb220.353		4.027	ppm
NI		0.8926	ppm
CU		0.5104	ppm

ZN	AV	1.0193	ppm	SD	.01191	CV	1.1
CD	AV	0.8518	ppm	SD	.00606	CV	0.7
Pb220.353	AV	4.027	ppm	SD	0.0018	CV	0.0
NI	AV	0.8408	ppm	SD	.01161	CV	1.3
CU	AV	0.5049	ppm	SD	.00782	CV	1.5

crii

Replicate 1

ZN		0.0419	ppm
CD		0.0084	ppm
Pb220.353		-0.014	ppm
NI		0.0748	ppm
CU		0.0530	ppm

crii

Replicate 2

ZN		0.0362	ppm
CD		0.0068	ppm
Pb220.353		-0.006	ppm
NI		0.0800	ppm
CU		0.0440	ppm

ZN	AV	0.0390	ppm	SD	.00403	CV	10.3
CD	AV	0.0076	ppm	SD	.00110	CV	14.3
Pb220.353	AV	-0.010	ppm	SD	0.0052	CV	49.1
NI	AV	0.0774	ppm	SD	.00372	CV	4.8
CU	AV	0.0485	ppm	SD	.00636	CV	13.0

blank

Replicate 1

ZN		-0.0021	ppm				
CD		-0.0030	ppm				
Pb220.353		0.027	ppm				Peak Offset
NI		0.0061	ppm				
CU		-0.0106	ppm				

blank

Replicate 2

ZN		-0.0041	ppm				
CD		-0.0006	ppm				
Pb220.353		-0.056	ppm				Peak Offset
NI		-0.0061	ppm				Peak Offset
CU		-0.0048	ppm				

ZN	AV	-0.0031	ppm	SD	.00146	CV	46.3
CD	AV	-0.0018	ppm	SD	.00171	CV	93.8
Pb220.353	AV	-0.014	ppm	SD	0.0598	CV	411.9
NI	AV	-0.0000	ppm	SD	.00873	CV	999
CU	AV	-0.0077	ppm	SD	.00406	CV	52.5

230-01a

Replicate 1

ZN		0.7165	ppm
CD		0.0057	ppm
Pb220.353		0.254	ppm
NI		0.0620	ppm
CU		0.0583	ppm

230-01a

Replicate 2

ZN		0.7512	ppm
CD		0.0060	ppm
Pb220.353		0.285	ppm
NI		0.0665	ppm
CU		0.0597	ppm