TA 57

Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: February 12, 1996
In Reply Refer To: ESH-18/WQ&H:96-0033
Mail Stop: K497
Telephone: (505) 667-7969

Mr. Mark Ashley
Oil Conservation Division
State of New Mexico Energy, Minerals, and
Natural Resources Department
2040 South Pacheco Street
Santa Fe, New Mexico 87505

SUBJECT: WATER AND SOIL SAMPLES FROM MILAGRO PROJECT LAND APPLICATION SITE

Dear Mr. Ashley:

Pursuant to your Division's conditional approval of the Laboratory's Notice of Intent to Discharge (NOI) for the Milagro Project, I am submitting the analytical results for soil and surface water samples collected in accordance with the Milagro Project Sampling Plan previously submitted to your office (current version enclosed). Samples were collected pre-application (5/17/95) and 90-days post-application (10/24/95) as required by your Division's conditional approval.

Enclosed is a table summarizing the analytical data for total arsenic (As), the analyte of prime concern due to its elevated concentrations in the pond water. As expected, post-application arsenic concentrations in the surface soils within the application site (sampling locations: SS4 and SS5) increased over their pre-application, background, values. However, as the post-application data indicates, there does not appear to be any migration of arsenic off of the application site (SS1,SS2,SS3) or down-gradient to lower soil horizons(SBS4,SBS5). Laboratory soil scientist Phillip Fresquez (ESH-20) has visited the application site and reported that the site's calcareous and highly alkaline soils have enhanced the adsorption of arsenic to the surface soils thereby retarding migration (personnel communication, 1/12/96).

Another round of comprehensive soil and surface water monitoring at the land application site will be conducted in the late spring of 1996. As in the past, all analytical results will be forwarded to your Division. Should the monitoring results in 1996 continue to demonstrate that there is no migration of potential contaminants, the Laboratory may request from your Division a waiver from future monitoring.

I appreciate the time and effort which you have provided the Laboratory on Milagro Project activities. If you have any questions regarding the enclosed analytical results please feel free to contact me at 667-7969 or Alex Puglisi at 667-4882. Thank you.

Sincerely,

Bob Beers

Bob Beers
Water Quality and Hydrology Group

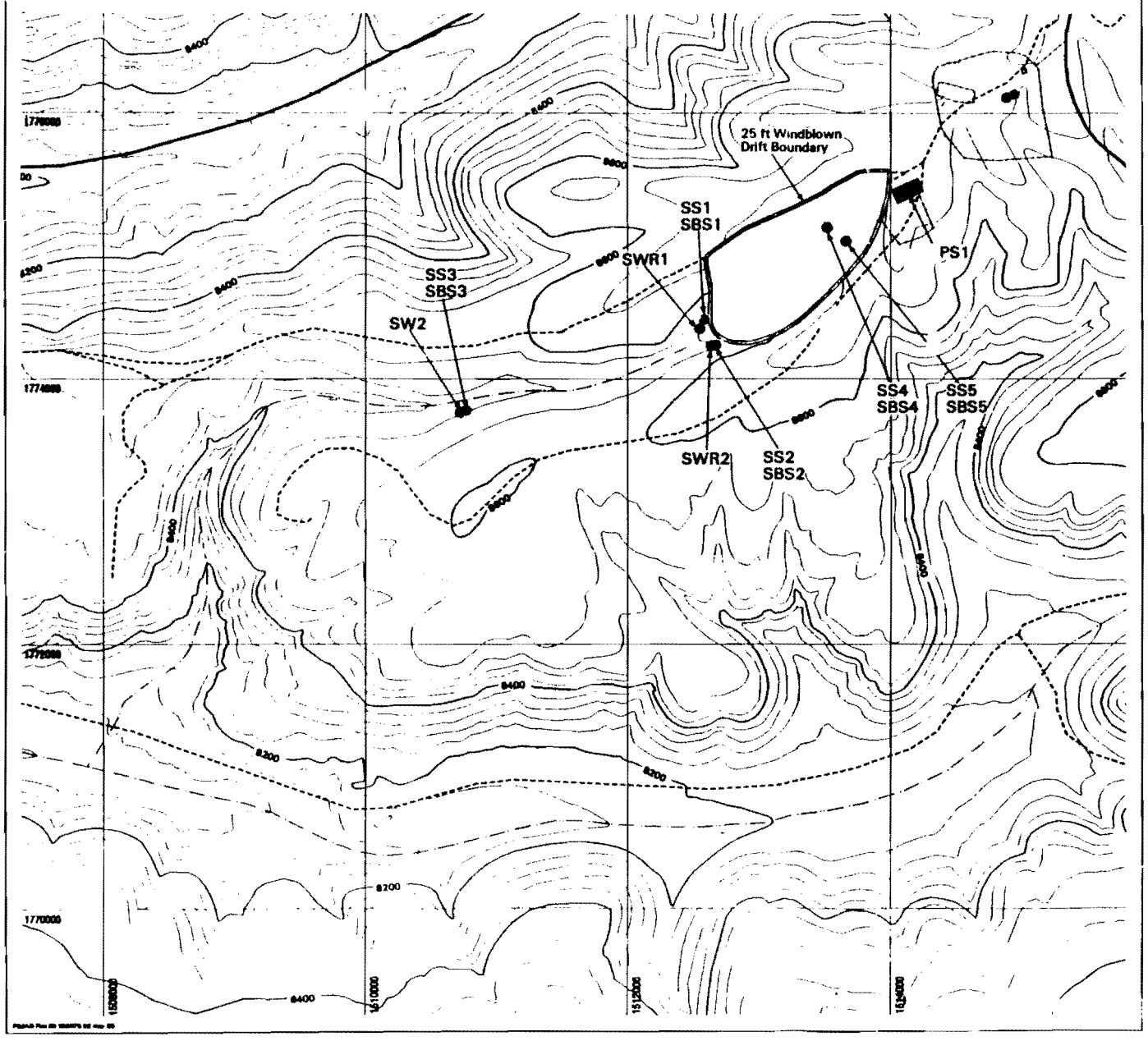
3698

RB/vc

Enclosures: a/s

Cy: A. Puglisi, ESH-18, w/o enc., MS K497
M. Saladen, ESH-18, w/o enc., MS K497
N. Williams, ESH-18, w/o enc., MS K497
K. Zamora, DOE/LAAAO, w/enc., MS A316
G. Sinnis, P-23, w/o enc., MS H803
J. Thompson, EES-4, w/o enc., MS D443
WQ&H File, w/enc., MS K497
CRM-4, w/enc., MS A150

Fenton Hill (TA-57) Milagro Project Sampling Plan



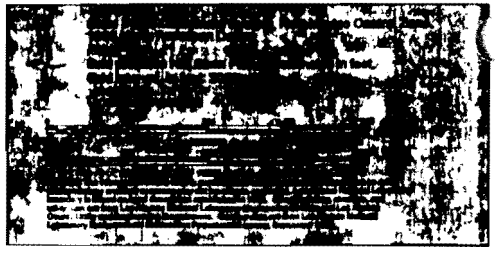
Fenton Hill (TA-57) Milagro Project Sampling Plan

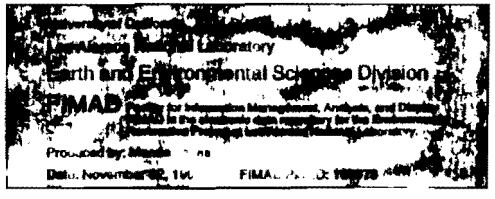
- Drainage
- Fence, Industrial
- Road, Dirt
- Road, Paved
- Silt Fence
- Application Area (22.327 acres)
- Application Area Buffer (25 ft)
- Sample Location

MILAGRO PROJECT SAMPLING PLAN

ANALYTES: Metals

OBJECTIVE	TYPE	LOCATION
Background Sampling		
pond sludge quality	sludge	PS1
soil-application area	soil: surface	SS4, SS5
soil-application area	soil: sub-surface	SBS4, SBS5
soil-adjacent down gradient	soil: surface	SS2, SS1
soil adjacent down gradient	soil: sub-surface	SBS2, SBS1
soil-distant down gradient	soil: surface	SS3
soil-distant down gradient	soil: sub-surface	SBS3
surface water-distant down gradient	surface water	SW2
surface water-Lake Fork Canyon and Rio Caballo (not on map)	surface water	SW3
Sampling During Application		
stormwater runoff-down gradient	stormwater runoff	SWR1, SWR2
Post-Application Sampling		
soil-application area	soil: surface	SS4, SS5
soil-application area	soil: sub-surface	SBS4, SBS5
soil-adjacent down gradient	soil: surface	SS2, SS1
soil-adjacent down gradient	soil: sub-surface	SBS2, SBS1
soil-distant down gradient	soil: surface	SS3
soil-distant down gradient	soil: sub-surface	SBS3
surface water-distant down gradient	surface water	SW2





MILARGO PROJECT LAND APPLICATION SITE
WATER and SOIL MONITORING DATA

Total Arsenic (As) Concentrations: Pre and Post Land Application

Project Name: Milagro Project
Project Location: Fenton Hill Geothermal Facility

			Pre-Application Sampling		Post-Application Sampling	
Location	**Sample Type**	**Collected by**	**Date**	**Arsenic Values**	**Date**	**Arsenic Values**
SW2	surface water	ESH-18	5/17/95	<0.003 ppm	None available	
SW3	surface water	ESH-18	5/17/95	<0.003 ppm	None available	
SS-1	soil, surface	ESH-19	5/17/95	3. µg/g	10/24/95	3. µg/g
SBS-1	soil, sub-surface	ESH-19	5/17/95	1. µg/g	10/24/95	2. µg/g
SS-2	soil, surface	ESH-19	5/17/95	3. µg/g	10/24/95	3. µg/g
SBS-2	soil, sub-surface	ESH-19	5/17/95	2. µg/g	10/24/95	3. µg/g
SS-3	soil, surface	ESH-19	5/17/95	2. µg/g	10/24/95	3. µg/g
SBS-3	soil, sub-surface	ESH-19	5/17/95	2. µg/g	10/24/95	4. µg/g
SS-4	soil, surface	ESH-19	5/17/95	3. µg/g	10/24/95	24. µg/g
SBS-4	soil, sub-surface	ESH-19	5/17/95	4. µg/g	10/24/95	4. µg/g
SS-5	soil, surface	ESH-19	5/17/95	2. µg/g	10/24/95	18. µg/g
SBS-5	soil, sub-surface	ESH-19	5/17/95	2. µg/g	10/24/95	3. µg/g
SWR-1	stormwater	ESH-18	8/21/95	0.0006 ppm		

LOS ALAMOS NATIONAL LABORATORY

MILAGRO PROJECT @ FENTON HILL

LAND APPLICATION SITE MONITORING

WATER & SOIL ANALYTICAL RESULTS

PRE-APPLICATION MONITORING RESULTS

SAMPLE COLLECTION DATE: 5/17/95

REPORT NUMBER: 35532

********** CST ANALYTICAL REPORT **********

Prepared by: PEC on 12-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: AAS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: CST9002 PAGE: 58

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	AS	ETVAA	3.	0.6	UG/G	6/01/95	
57-SS1	95.09076	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SS1	95.09076	SE	ETVAA	0.5	0.1	UG/G	6/01/95	
57-SBS1	95.09077	AS	ETVAA	1.	0.2	UG/G	6/01/95	
57-SBS1	95.09077	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS1	95.09077	SE	ETVAA	0.3	0.1	UG/G	6/01/95	
57-SS2	95.09078	AS	ETVAA	3.	0.6	UG/G	6/01/95	
57-SS2	95.09078	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SS2	95.09078	SE	ETVAA	0.6	0.1	UG/G	6/01/95	
57-SBS2	95.09079	AS	ETVAA	2.	0.4	UG/G	6/01/95	
57-SBS2	95.09079	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS2	95.09079	SE	ETVAA	0.5	0.1	UG/G	6/01/95	
57-SS3	95.09080	AS	ETVAA	2.	0.4	UG/G	6/01/95	
57-SS3	95.09080	HG	CVAA	0.01	0.01	UG/G	6/01/95	
57-SS3	95.09080	SE	ETVAA	0.6	0.1	UG/G	6/01/95	
57-SBS3	95.09081	AS	ETVAA	2.	0.4	UG/G	6/01/95	
57-SBS3	95.09081	HG	CVAA	0.03	0.01	UG/G	6/01/95	
57-SBS3	95.09081	SE	ETVAA	0.4	0.1	UG/G	6/01/95	
57-SS4	95.09082	AS	ETVAA	3.	0.6	UG/G	6/01/95	
57-SS4	95.09082	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SS4	95.09082	SE	ETVAA	0.6	0.1	UG/G	6/01/95	
57-SBS4	95.09083	AS	ETVAA	4.	0.8	UG/G	6/01/95	
57-SBS4	95.09083	HG	CVAA	0.05	0.01	UG/G	6/01/95	
57-SBS4	95.09083	SE	ETVAA	0.6	0.1	UG/G	6/01/95	
57-SS5	95.09084	AS	ETVAA	2.	0.4	UG/G	6/01/95	
57-SS5	95.09084	HG	CVAA	0.04	0.01	UG/G	6/01/95	
57-SS5	95.09084	SE	ETVAA	0.5	0.1	UG/G	6/01/95	
57-SBS5	95.09085	AS	ETVAA	2.	0.4	UG/G	6/01/95	
57-SBS5	95.09085	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SBS5	95.09085	SE	ETVAA	0.3	0.1	UG/G	6/01/95	
SS2DUPLICATE	95.09095	AS	ETVAA	2.	0.4	UG/G	6/01/95	
SS2DUPLICATE	95.09095	HG	CVAA	0.01	0.01	UG/G	6/01/95	
SS2DUPLICATE	95.09095	SE	ETVAA	0.5	0.1	UG/G	6/01/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALY	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	AS	ETVAA	10.	9.	UG/G	6/01/95	
57-SS1	95.09076	AS	ETVAA	3.	0.6	UG/G	6/01/95	
57-SS1	95.09076	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SS1	95.09076	HG	CVAA	0.04	0.01	UG/G	6/01/95	
57-SS1	95.09076	SE	ETVAA	0.5	0.1	UG/G	6/01/95	
57-SBS1	95.09077	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS1	95.09077	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SS2	95.09078	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SS2	95.09078	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS2	95.09079	HG	CVAA	0.04	0.01	UG/G	6/01/95	
57-SBS2	95.09079	HG	CVAA	0.04	0.01	UG/G	6/01/95	
57-SS3	95.09080	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SS3	95.09080	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS3	95.09081	HG	CVAA	0.06	0.01	UG/G	6/01/95	
57-SBS3	95.09081	HG	CVAA	0.03	0.01	UG/G	6/01/95	
57-SS4	95.09082	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SS4	95.09082	HG	CVAA	< 0.01		UG/G	6/01/95	
57-SBS4	95.09083	HG	CVAA	0.07	0.01	UG/G	6/01/95	
57-SBS4	95.09083	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SS5	95.09084	HG	CVAA	0.02	0.01	UG/G	6/01/95	
57-SS5	95.09084	HG	CVAA	0.04	0.01	UG/G	6/01/95	
57-SBS5	95.09085	HG	CVAA	0.03	0.01	UG/G	6/01/95	
57-SBS5	95.09085	HG	CVAA	0.01	0.01	UG/G	6/01/95	
SS2DUPLICATE	95.09095	HG	CVAA	0.02	0.01	UG/G	6/01/95	
SS2DUPLICATE	95.09095	HG	CVAA	0.02	0.01	UG/G	6/01/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	HG	CVAA	2.	2.	UG/G	6/01/95	
57-SS1	95.09076	SE	ETVAA	10.	9.	UG/G	6/01/95	

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********** CST QUALITY ASSURANCE REPORT *********

Prepared by: PEC on 12-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: AAS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: CST9002 PAGE: 58

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	AS	112.	22.	MG/KG	128.	71.	6/01/95	UNDER CONTROL
00.30469	HG	4.	0.4	MG/KG	4.85	2.4	6/01/95	UNDER CONTROL
00.30469	SE	75.	15.	MG/KG	101.	55.	6/01/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.09086	AS	596.	119.	UG/G	575.	25.	6/06/95	UNDER CONTROL
95.09086	SE	13.	3.	UG/G	2.4	2.2	6/01/95	WARNING 2-3 SIG
95.09087	HG	80.	10.	MG/G	140.	40.	6/01/95	UNDER CONTROL

REPORT NUMBER: 35532

Analyst	Reviewer	Team Leader	QA Officer
PEC	PEC	[illegible]	mag
6/12/95	6/12/95	6/12/95	6/13/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

REPORT NUMBER: 35280

********** CST ANALYTICAL REPORT **********

Prepared by: MKOBY on 5-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: IMS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	SB	ICPMS	0.25	0.25	UG/G	6/05/95	
57-SS1	95.09076	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SBS1	95.09077	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SBS1	95.09077	TL	ICPMS	0.25	0.25	UG/G	6/05/95	
57-SS2	95.09078	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SS2	95.09078	TL	ICPMS	0.25	0.25	UG/G	6/05/95	
57-SBS2	95.09079	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SBS2	95.09079	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SS3	95.09080	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SS3	95.09080	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SBS3	95.09081	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SBS3	95.09081	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SS4	95.09082	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SS4	95.09082	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SBS4	95.09083	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SBS4	95.09083	TL	ICPMS	0.37	0.25	UG/G	6/05/95	
57-SS5	95.09084	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SS5	95.09084	TL	ICPMS	0.25	0.25	UG/G	6/05/95	
57-SBS5	95.09085	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SBS5	95.09085	TL	ICPMS	< 0.25		UG/G	6/05/95	
SS2DUPLICATE	95.09095	SB	ICPMS	< 0.25		UG/G	6/05/95	
SS2DUPLICATE	95.09095	TL	ICPMS	0.25	0.25	UG/G	6/05/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	SB	ICPMS	< 0.25		UG/G	6/05/95	
57-SS1	95.09076	TL	ICPMS	0.25	0.25	UG/G	6/05/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT

57-SS1	95.09076 SB	ICPMS	6.25	0.25	UG/G	6/05/95
57-SS1	95.09076 TL	ICPMS	6.25	4.75	UG/G	6/05/95

REPORT NUMBER: 35280 (continued

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: MKOBY on 5-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: IMS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: PAGE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	SB	3.13	0.63	MG/KG	43.9	93.5	6/05/95	UNDER CONTROL
00.30469	TL	77.	5.	MG/KG	102.	50.5	6/05/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.09086	SB	0.25	0.25	UG/G	6.4	2.6	6/05/95	WARNING 2-3 SIG
95.09086	TL	0.5	0.3	UG/G	1.	1.	6/05/95	UNDER CONTROL

REPORT NUMBER: 35280

Analyst	Reviewer	Team Leader	QA Officer
6/6/95	6/6/95	6/12/95	6/12/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

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REPORT NUMBER: 35215

********** CST ANALYTICAL REPORT **********

Prepared by: M. KOZUBAL on 2-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: OES PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: EMP0126 PAGE: 28

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	AG	ICPES	< 1.		UG/G	6/01/95	
57-SS1	95.09076	AL	ICPES	7500.	750.	UG/G	6/01/95	
57-SS1	95.09076	BA	ICPES	180.	18.	UG/G	6/01/95	
57-SS1	95.09076	BE	ICPES	0.45	0.05	UG/G	6/01/95	
57-SS1	95.09076	CA	ICPES	3300.	330.	UG/G	6/01/95	
57-SS1	95.09076	CD	ICPES	< 0.4		UG/G	6/01/95	
57-SS1	95.09076	CO	ICPES	3.1	1.5	UG/G	6/01/95	
57-SS1	95.09076	CR	ICPES	5.9	1.	UG/G	6/01/95	
57-SS1	95.09076	CU	ICPES	7.	0.7	UG/G	6/01/95	
57-SS1	95.09076	FE	ICPES	8500.	850.	UG/G	6/01/95	
57-SS1	95.09076	K	ICPES	1300.	130.	UG/G	6/01/95	
57-SS1	95.09076	MG	ICPES	1200.	120.	UG/G	6/01/95	
57-SS1	95.09076	MN	ICPES	1100.	110.	UG/G	6/01/95	
57-SS1	95.09076	NA	ICPES	110.	11.	UG/G	6/01/95	
57-SS1	95.09076	NI	ICPES	3.9	2.5	UG/G	6/01/95	
57-SS1	95.09076	PB	ICPES	18.	8.	UG/G	6/01/95	
57-SS1	95.09076	V	ICPES	11.	1.	UG/G	6/01/95	
57-SS1	95.09076	ZN	ICPES	67.	7.	UG/G	6/01/95	
57-SBS1	95.09077	AG	ICPES	< 1.		UG/G	6/01/95	
57-SBS1	95.09077	AL	ICPES	3700.	370.	UG/G	6/02/95	
57-SBS1	95.09077	BA	ICPES	38.	4.	UG/G	6/02/95	
57-SBS1	95.09077	BE	ICPES	0.42	0.08	UG/G	6/02/95	
57-SBS1	95.09077	CA	ICPES	790.	79.	UG/G	6/02/95	
57-SBS1	95.09077	CD	ICPES	< 0.4		UG/G	6/02/95	
57-SBS1	95.09077	CO	ICPES	1.7	0.5	UG/G	6/02/95	
57-SBS1	95.09077	CR	ICPES	3.2	0.5	UG/G	6/02/95	
57-SBS1	95.09077	CU	ICPES	2.5	0.5	UG/G	6/02/95	
57-SBS1	95.09077	FE	ICPES	6800.	680.	UG/G	6/02/95	
57-SBS1	95.09077	K	ICPES	440.	200.	UG/G	6/02/95	
57-SBS1	95.09077	MG	ICPES	570.	57.	UG/G	6/02/95	
57-SBS1	95.09077	MN	ICPES	300.	30.	UG/G	6/02/95	
57-SBS1	95.09077	NA	ICPES	91.	9.	UG/G	6/02/95	
57-SBS1	95.09077	NI	ICPES	4.8	3.	UG/G	6/02/95	
57-SBS1	95.09077	PB	ICPES	9.1	4.6	UG/G	6/02/95	
57-SBS1	95.09077	V	ICPES	6.9	0.7	UG/G	6/02/95	
57-SBS1	95.09077	ZN	ICPES	32.	3.	UG/G	6/02/95	
57-SS2	95.09078	AG	ICPES	< 1.		UG/G	6/02/95	

57-SS2	95.09078	AL	ICPES	8100.	810.	G	6/02/95
57-SS2	95.09078	BA	ICPES	180.	18.	UG/G	6/02/95
57-SS2	95.09078	BE	ICPES	0.51	0.05	UG/G	6/02/95
57-SS2	95.09078	CA	ICPES	3300.	330.	UG/G	6/02/95
57-SS2	95.09078	CD	ICPES	< 0.4		UG/G	6/02/95
57-SS2	95.09078	CO	ICPES	3.6	0.7	UG/G	6/02/95
57-SS2	95.09078	CR	ICPES	7.2	1.6	UG/G	6/02/95
57-SS2	95.09078	CU	ICPES	7.2	1.6	UG/G	6/02/95
57-SS2	95.09078	FE	ICPES	8500.	850.	UG/G	6/02/95
57-SS2	95.09078	K	ICPES	1600.	160.	UG/G	6/02/95
57-SS2	95.09078	MG	ICPES	1300.	130.	UG/G	6/02/95
57-SS2	95.09078	MN	ICPES	980.	98.	UG/G	6/02/95
57-SS2	95.09078	NA	ICPES	100.	10.	UG/G	6/02/95
57-SS2	95.09078	NI	ICPES	6.2	1.4	UG/G	6/02/95
57-SS2	95.09078	PB	ICPES	18.	4.	UG/G	6/02/95
57-SS2	95.09078	V	ICPES	12.	2.	UG/G	6/02/95
57-SS2	95.09078	ZN	ICPES	60.	6.	UG/G	6/02/95
57-SBS2	95.09079	AG	ICPES	< 1.		UG/G	6/02/95
57-SBS2	95.09079	AL	ICPES	10000.	1000.	UG/G	6/02/95
57-SBS2	95.09079	BA	ICPES	110.	11.	UG/G	6/02/95
57-SBS2	95.09079	BE	ICPES	0.74	0.08	UG/G	6/02/95
57-SBS2	95.09079	CA	ICPES	1400.	140.	UG/G	6/02/95
57-SBS2	95.09079	CD	ICPES	< 0.4		UG/G	6/02/95
57-SBS2	95.09079	CO	ICPES	3.9	0.8	UG/G	6/02/95
57-SBS2	95.09079	CR	ICPES	8.3	0.8	UG/G	6/02/95
57-SBS2	95.09079	CU	ICPES	5.4	0.7	UG/G	6/02/95
57-SBS2	95.09079	FE	ICPES	10000.	1000.	UG/G	6/02/95
57-SBS2	95.09079	K	ICPES	1200.	120.	UG/G	6/02/95
57-SBS2	95.09079	MG	ICPES	1200.	120.	UG/G	6/02/95
57-SBS2	95.09079	MN	ICPES	810.	81.	UG/G	6/02/95
57-SBS2	95.09079	NA	ICPES	150.	18.	UG/G	6/02/95
57-SBS2	95.09079	NI	ICPES	8.	4.	UG/G	6/02/95
57-SBS2	95.09079	PB	ICPES	11.	4.	UG/G	6/02/95
57-SBS2	95.09079	V	ICPES	13.	1.	UG/G	6/02/95
57-SBS2	95.09079	ZN	ICPES	54.	5.	UG/G	6/02/95
57-SS3	95.09080	AG	ICPES	< 1.		UG/G	6/02/95
57-SS3	95.09080	AL	ICPES	7300.	730.	UG/G	6/02/95
57-SS3	95.09080	BA	ICPES	130.	13.	UG/G	6/02/95
57-SS3	95.09080	BE	ICPES	0.59	0.08	UG/G	6/02/95
57-SS3	95.09080	CA	ICPES	2700.	270.	UG/G	6/02/95
57-SS3	95.09080	CD	ICPES	< 0.4		UG/G	6/02/95
57-SS3	95.09080	CO	ICPES	2.7	0.7	UG/G	6/02/95
57-SS3	95.09080	CR	ICPES	6.4	0.7	UG/G	6/02/95
57-SS3	95.09080	CU	ICPES	6.4	0.7	UG/G	6/02/95
57-SS3	95.09080	FE	ICPES	7700.	770.	UG/G	6/02/95
57-SS3	95.09080	K	ICPES	1100.	200.	UG/G	6/02/95
57-SS3	95.09080	MG	ICPES	1100.	110.	UG/G	6/02/95
57-SS3	95.09080	MN	ICPES	650.	65.	UG/G	6/02/95
57-SS3	95.09080	NA	ICPES	120.	12.	UG/G	6/02/95
57-SS3	95.09080	NI	ICPES	4.8	1.6	UG/G	6/02/95
57-SS3	95.09080	PB	ICPES	< 20.		UG/G	6/02/95
57-SS3	95.09080	V	ICPES	10.	2.	UG/G	6/02/95
57-SS3	95.09080	ZN	ICPES	51.	5.	UG/G	6/02/95
57-SBS3	95.09081	AG	ICPES	< 1.		UG/G	6/02/95
57-SBS3	95.09081	AL	ICPES	7600.	760.	UG/G	6/02/95
57-SBS3	95.09081	BA	ICPES	82.	8.	UG/G	6/02/95
57-SBS3	95.09081	BE	ICPES	0.79	0.08	UG/G	6/02/95
57-SBS3	95.09081	CA	ICPES	1400.	140.	UG/G	6/02/95
57-SBS3	95.09081	CD	ICPES	< 0.4		UG/G	6/02/95
57-SBS3	95.09081	CO	ICPES	3.3	0.6	UG/G	6/02/95

57-SBS3	95.09081	CR	ICPES	7.6	0.9	UG/G	6/02/95
57-SBS3	95.09081	CU	ICPES	3.6	0.7	UG/G	6/02/95
57-SBS3	95.09081	FE	ICPES	9700.	970.	UG/G	6/02/95
57-SBS3	95.09081	K	ICPES	820.	130.	UG/G	6/02/95
57-SBS3	95.09081	MG	ICPES	930.	93.	UG/G	6/02/95
57-SBS3	95.09081	MN	ICPES	600.	60.	UG/G	6/02/95
57-SBS3	95.09081	NA	ICPES	130.	13.	UG/G	6/02/95
57-SBS3	95.09081	NI	ICPES	4.8	3.6	UG/G	6/02/95
57-SBS3	95.09081	PB	ICPES	< 17.		UG/G	6/02/95
57-SBS3	95.09081	V	ICPES	11.	1.	UG/G	6/02/95
57-SBS3	95.09081	ZN	ICPES	43.	4.	UG/G	6/02/95
57-SS4	95.09082	AG	ICPES	< 1.		UG/G	6/02/95
57-SS4	95.09082	AL	ICPES	9900.	990.	UG/G	6/02/95
57-SS4	95.09082	BA	ICPES	190.	19.	UG/G	6/02/95
57-SS4	95.09082	BE	ICPES	0.84	0.08	UG/G	6/02/95
57-SS4	95.09082	CA	ICPES	2700.	270.	UG/G	6/02/95
57-SS4	95.09082	CD	ICPES	< 0.4		UG/G	6/02/95
57-SS4	95.09082	CO	ICPES	6.2	1.	UG/G	6/02/95
57-SS4	95.09082	CR	ICPES	9.3	1.1	UG/G	6/02/95
57-SS4	95.09082	CU	ICPES	6.4	0.6	UG/G	6/02/95
57-SS4	95.09082	FE	ICPES	11000.	1100.	UG/G	6/02/95
57-SS4	95.09082	K	ICPES	1300.	130.	UG/G	6/02/95
57-SS4	95.09082	MG	ICPES	1400.	140.	UG/G	6/02/95
57-SS4	95.09082	MN	ICPES	1300.	130.	UG/G	6/02/95
57-SS4	95.09082	NA	ICPES	140.	14.	UG/G	6/02/95
57-SS4	95.09082	NI	ICPES	9.1	2.	UG/G	6/02/95
57-SS4	95.09082	PB	ICPES	15.	12.	UG/G	6/02/95
57-SS4	95.09082	V	ICPES	18.	2.	UG/G	6/02/95
57-SS4	95.09082	ZN	ICPES	45.	5.	UG/G	6/02/95
57-SBS4	95.09083	AG	ICPES	< 1.		UG/G	6/02/95
57-SBS4	95.09083	AL	ICPES	15000.	1500.	UG/G	6/02/95
57-SBS4	95.09083	BA	ICPES	78.	8.	UG/G	6/02/95
57-SBS4	95.09083	BE	ICPES	1.2	0.1	UG/G	6/02/95
57-SBS4	95.09083	CA	ICPES	1800.	180.	UG/G	6/02/95
57-SBS4	95.09083	CD	ICPES	< 0.4		UG/G	6/02/95
57-SBS4	95.09083	CO	ICPES	4.5	2.	UG/G	6/02/95
57-SBS4	95.09083	CR	ICPES	9.4	0.9	UG/G	6/02/95
57-SBS4	95.09083	CU	ICPES	4.9	1.3	UG/G	6/02/95
57-SBS4	95.09083	FE	ICPES	14000.	1400.	UG/G	6/02/95
57-SBS4	95.09083	K	ICPES	1100.	110.	UG/G	6/02/95
57-SBS4	95.09083	MG	ICPES	1600.	160.	UG/G	6/02/95
57-SBS4	95.09083	MN	ICPES	380.	38.	UG/G	6/02/95
57-SBS4	95.09083	NA	ICPES	260.	26.	UG/G	6/02/95
57-SBS4	95.09083	NI	ICPES	7.	3.	UG/G	6/02/95
57-SBS4	95.09083	PB	ICPES	18.	10.	UG/G	6/02/95
57-SBS4	95.09083	V	ICPES	15.	2.	UG/G	6/02/95
57-SBS4	95.09083	ZN	ICPES	52.	5.	UG/G	6/02/95
57-SS5	95.09084	AG	ICPES	< 1.		UG/G	6/02/95
57-SS5	95.09084	AL	ICPES	7100.	710.	UG/G	6/02/95
57-SS5	95.09084	BA	ICPES	120.	12.	UG/G	6/02/95
57-SS5	95.09084	BE	ICPES	0.33	0.1	UG/G	6/02/95
57-SS5	95.09084	CA	ICPES	2000.	200.	UG/G	6/02/95
57-SS5	95.09084	CD	ICPES	< 0.4		UG/G	6/02/95
57-SS5	95.09084	CO	ICPES	2.6	1.4	UG/G	6/02/95
57-SS5	95.09084	CR	ICPES	6.5	1.2	UG/G	6/02/95
57-SS5	95.09084	CU	ICPES	7.4	0.8	UG/G	6/02/95
57-SS5	95.09084	FE	ICPES	8100.	810.	UG/G	6/02/95
57-SS5	95.09084	K	ICPES	1100.	150.	UG/G	6/02/95
57-SS5	95.09084	MG	ICPES	1100.	110.	UG/G	6/02/95
57-SS5	95.09084	MN	ICPES	510.	51.	UG/G	6/02/95

57-SS5	95.09084	NA	ICPES	140.	14.	UG/G	6/02/95
57-SS5	95.09084	NI	ICPES	6.8	4.3	UG/G	6/02/95
57-SS5	95.09084	PB	ICPES	14.	12.	UG/G	6/02/95
57-SS5	95.09084	V	ICPES	12.	1.	UG/G	6/02/95
57-SS5	95.09084	ZN	ICPES	45.	5.	UG/G	6/02/95
57-SBS5	95.09085	AG	ICPES	< 1.		UG/G	6/02/95
57-SBS5	95.09085	AL	ICPES	4100.	410.	UG/G	6/02/95
57-SBS5	95.09085	BA	ICPES	51.	5.	UG/G	6/02/95
57-SBS5	95.09085	BE	ICPES	0.18	0.08	UG/G	6/02/95
57-SBS5	95.09085	CA	ICPES	940.	94.	UG/G	6/02/95
57-SBS5	95.09085	CD	ICPES	< 0.4		UG/G	6/02/95
57-SBS5	95.09085	CO	ICPES	1.6	0.7	UG/G	6/02/95
57-SBS5	95.09085	CR	ICPES	3.7	0.4	UG/G	6/02/95
57-SBS5	95.09085	CU	ICPES	2.8	0.5	UG/G	6/02/95
57-SBS5	95.09085	FE	ICPES	5700.	570.	UG/G	6/02/95
57-SBS5	95.09085	K	ICPES	470.	47.	UG/G	6/02/95
57-SBS5	95.09085	MG	ICPES	550.	55.	UG/G	6/02/95
57-SBS5	95.09085	MN	ICPES	190.	19.	UG/G	6/02/95
57-SBS5	95.09085	NA	ICPES	120.	12.	UG/G	6/02/95
57-SBS5	95.09085	NI	ICPES	< 4.		UG/G	6/02/95
57-SBS5	95.09085	PB	ICPES	< 13.		UG/G	6/02/95
57-SBS5	95.09085	V	ICPES	7.2	0.7	UG/G	6/02/95
57-SBS5	95.09085	ZN	ICPES	24.	2.	UG/G	6/02/95
SS2DUPLICATE	95.09095	AG	ICPES	< 1.		UG/G	6/02/95
SS2DUPLICATE	95.09095	AL	ICPES	6400.	640.	UG/G	6/02/95
SS2DUPLICATE	95.09095	BA	ICPES	130.	13.	UG/G	6/02/95
SS2DUPLICATE	95.09095	BE	ICPES	0.39	0.08	UG/G	6/02/95
SS2DUPLICATE	95.09095	CA	ICPES	2200.	220.	UG/G	6/02/95
SS2DUPLICATE	95.09095	CD	ICPES	< 0.4		UG/G	6/02/95
SS2DUPLICATE	95.09095	CO	ICPES	2.6	1.2	UG/G	6/02/95
SS2DUPLICATE	95.09095	CR	ICPES	5.5	1.6	UG/G	6/02/95
SS2DUPLICATE	95.09095	CU	ICPES	5.2	0.9	UG/G	6/02/95
SS2DUPLICATE	95.09095	FE	ICPES	7100.	710.	UG/G	6/02/95
SS2DUPLICATE	95.09095	K	ICPES	1300.	130.	UG/G	6/02/95
SS2DUPLICATE	95.09095	MG	ICPES	1000.	100.	UG/G	6/02/95
SS2DUPLICATE	95.09095	MN	ICPES	710.	71.	UG/G	6/02/95
SS2DUPLICATE	95.09095	NA	ICPES	88.	9.	UG/G	6/02/95
SS2DUPLICATE	95.09095	NI	ICPES	5.4	2.2	UG/G	6/02/95
SS2DUPLICATE	95.09095	PB	ICPES	4.3	4.	UG/G	6/02/95
SS2DUPLICATE	95.09095	V	ICPES	9.2	0.9	UG/G	6/02/95
SS2DUPLICATE	95.09095	ZN	ICPES	47.	5.	UG/G	6/02/95

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SS1	95.09076	AG	ICPES	< 1.		UG/G	6/01/95	
57-SS1	95.09076	AL	ICPES	5600.	560.	UG/G	6/01/95	
57-SS1	95.09076	BA	ICPES	170.	17.	UG/G	6/01/95	
57-SS1	95.09076	BE	ICPES	0.37	0.04	UG/G	6/01/95	
57-SS1	95.09076	CA	ICPES	3000.	300.	UG/G	6/01/95	
57-SS1	95.09076	CD	ICPES	< 0.4		UG/G	6/01/95	
57-SS1	95.09076	CO	ICPES	2.7	0.7	UG/G	6/01/95	
57-SS1	95.09076	CR	ICPES	4.7	1.1	UG/G	6/01/95	
57-SS1	95.09076	CU	ICPES	6.4	0.6	UG/G	6/01/95	
57-SS1	95.09076	FE	ICPES	6800.	680.	UG/G	6/01/95	
57-SS1	95.09076	K	ICPES	960.	96.	UG/G	6/01/95	
57-SS1	95.09076	MG	ICPES	1000.	100.	UG/G	6/01/95	

57-SS1	95.09076 MN	ICPES	1100.	110.		6/01/95
57-SS1	95.09076 NA	ICPES	100.	10.	UG/G	6/01/95
57-SS1	95.09076 NI	ICPES	4.9	4.4	UG/G	6/01/95
57-SS1	95.09076 PB	ICPES	< 25.		UG/G	6/01/95
57-SS1	95.09076 V	ICPES	8.8	0.9	UG/G	6/01/95
57-SS1	95.09076 ZN	ICPES	65.	7.	UG/G	6/01/95

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********** CST QUALITY ASSURANCE REPORT *********

Prepared by: M. KOZUBAL on 2-Jun-1995

REQUEST NUMBER: 21968 MATRIX: SS ANALYST: OES PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: EMP0126 PAGE: 28

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	AG	19.	2.	MG/KG	92.5	49.5	6/02/95	UNDER CONTROL
00.30469	AL	5300.	530.	MG/KG	4800.	2400.	6/02/95	UNDER CONTROL
00.30469	BA	250.	25.	MG/KG	276.	82.5	6/02/95	UNDER CONTROL
00.30469	BE	85.	9.	MG/KG	95.1	43.	6/02/95	UNDER CONTROL
00.30469	CA	3400.	340.	MG/KG	3680.	1285.	6/02/95	UNDER CONTROL
00.30469	CD	91.	9.	MG/KG	102.	56.5	6/02/95	UNDER CONTROL
00.30469	CO	88.	9.	MG/KG	95.8	45.5	6/02/95	UNDER CONTROL
00.30469	CR	150.	15.	MG/KG	154.	73.	6/02/95	UNDER CONTROL
00.30469	CU	100.	10.	MG/KG	119.	59.5	6/02/95	UNDER CONTROL
00.30469	FE	8300.	830.	MG/KG	8640.	3460.	6/02/95	UNDER CONTROL
00.30469	K	2100.	210.	MG/KG	2200.	805.	6/02/95	UNDER CONTROL
00.30469	MG	1700.	170.	MG/KG	1830.	870.	6/02/95	UNDER CONTROL
00.30469	MN	180.	18.	MG/KG	191.	66.5	6/02/95	UNDER CONTROL
00.30469	NA	500.	50.	MG/KG	594.	282.	6/02/95	UNDER CONTROL
00.30469	NI	140.	14.	MG/KG	163.	85.5	6/02/95	UNDER CONTROL
00.30469	PB	140.	14.	MG/KG	147.	73.5	6/02/95	UNDER CONTROL
00.30469	V	74.	8.	MG/KG	81.8	29.	6/02/95	UNDER CONTROL
00.30469	ZN	100.	10.	MG/KG	120.	63.	6/02/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.09086	AG	24.	2.	UG/G	28.9	7.3	6/02/95	UNDER CONTROL
95.09086	AL	18.	1.8	MG/G	19.	4.	6/02/95	UNDER CONTROL
95.09086	BA	300.	30.	UG/G	340.	60.	6/02/95	UNDER CONTROL
95.09086	BE	1.2	0.1	UG/G	1.13	0.12	6/02/95	UNDER CONTROL
95.09086	CA	4.4	0.44	MG/G	4.05	0.45	6/02/95	UNDER CONTROL
95.09086	CD	17.	2.	UG/G	17.9	3.9	6/02/95	UNDER CONTROL

95.09086 CO	8.3	1.4	UG/G	8.	2.	6/02/95	UNDER CONTROL
95.09086 CR	18.	2.	UG/G	18.	2.	6/02/95	UNDER CONTROL
95.09086 CU	2600.	260.	UG/G	2900.	500.	6/02/95	UNDER CONTROL
95.09086 FE	26.	2.6	MG/G	27.5	3.5	6/02/95	UNDER CONTROL
95.09086 K	4.3	0.43	MG/G	4.5	0.5	6/02/95	UNDER CONTROL
95.09086 MG	4.9	0.49	MG/G	5.5	0.6	6/02/95	UNDER CONTROL
95.09086 MN	8100.	810.	UG/G	7750.	1150.	6/02/95	UNDER CONTROL
95.09086 NA	0.58	0.058	MG/G	0.53	0.03	6/02/95	UNDER CONTROL
95.09086 NI	12.	2.	UG/G	11.	2.	6/02/95	UNDER CONTROL
95.09086 PB	5500.	550.	UG/G	5150.	350.	6/02/95	UNDER CONTROL
95.09086 V	40.	4.	UG/G	45.	5.	6/02/95	UNDER CONTROL
95.09086 ZN	6000.	600.	UG/G	6100.	500.	6/02/95	UNDER CONTROL

REPORT NUMBER: 35215

Analyst	Reviewer	Team Leader	QA Officer
6-5-95	6-5-95	6/12/95	6/13/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

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REPORT NUMBER: 35217

********** CST ANALYTICAL REPORT **********

Prepared by: MBG on 2-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: OES PROGRAM CODE: WE3E

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: Y3725 PAGE: 142

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AG	ICPES	< 0.01		MG/L	6/02/95	
57-SW2	95.09140	AL	ICPES	0.2	0.1	MG/L	6/02/95	
57-SW2	95.09140	BA	ICPES	0.06	0.006	MG/L	6/02/95	
57-SW2	95.09140	BE	ICPES	< 0.001		MG/L	6/02/95	
57-SW2	95.09140	CA	ICPES	16.	1.6	MG/L	6/02/95	
57-SW2	95.09140	CD	ICPES	< 0.003		MG/L	6/02/95	
57-SW2	95.09140	CO	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	CR	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	CU	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	FE	ICPES	0.1	0.1	MG/L	6/02/95	
57-SW2	95.09140	K	ICPES	2.4	0.6	MG/L	6/02/95	
57-SW2	95.09140	MG	ICPES	3.2	0.32	MG/L	6/02/95	
57-SW2	95.09140	MN	ICPES	0.11	0.011	MG/L	6/02/95	
57-SW2	95.09140	NA	ICPES	2.8	0.3	MG/L	6/02/95	
57-SW2	95.09140	NI	ICPES	< 0.01		MG/L	6/02/95	
57-SW2	95.09140	PB	ICPES	< 0.03		MG/L	6/02/95	
57-SW2	95.09140	V	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	ZN	ICPES	< 0.02		MG/L	6/02/95	
57-SW3	95.09141	AG	ICPES	< 0.01		MG/L	6/02/95	
57-SW3	95.09141	AL	ICPES	0.4	0.1	MG/L	6/02/95	
57-SW3	95.09141	BA	ICPES	0.038	0.004	MG/L	6/02/95	
57-SW3	95.09141	BE	ICPES	0.001	0.001	MG/L	6/02/95	
57-SW3	95.09141	CA	ICPES	12.	1.2	MG/L	6/02/95	
57-SW3	95.09141	CD	ICPES	< 0.003		MG/L	6/02/95	
57-SW3	95.09141	CO	ICPES	< 0.004		MG/L	6/02/95	
57-SW3	95.09141	CR	ICPES	0.004	0.006	MG/L	6/02/95	
57-SW3	95.09141	CU	ICPES	< 0.004		MG/L	6/02/95	
57-SW3	95.09141	FE	ICPES	0.6	0.1	MG/L	6/02/95	
57-SW3	95.09141	K	ICPES	2.5	0.6	MG/L	6/02/95	
57-SW3	95.09141	MG	ICPES	1.7	0.2	MG/L	6/02/95	
57-SW3	95.09141	MN	ICPES	0.15	0.015	MG/L	6/02/95	
57-SW3	95.09141	NA	ICPES	6.9	0.7	MG/L	6/02/95	
57-SW3	95.09141	NI	ICPES	< 0.01		MG/L	6/02/95	
57-SW3	95.09141	PB	ICPES	< 0.03		MG/L	6/02/95	
57-SW3	95.09141	V	ICPES	< 0.004		MG/L	6/02/95	
57-SW3	95.09141	ZN	ICPES	0.02	0.02	MG/L	6/02/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AG	ICPES	< 0.01		MG/L	6/02/95	
57-SW2	95.09140	AL	ICPES	0.2	0.1	MG/L	6/02/95	
57-SW2	95.09140	BA	ICPES	0.06	0.006	MG/L	6/02/95	
57-SW2	95.09140	BE	ICPES	< 0.001		MG/L	6/02/95	
57-SW2	95.09140	CA	ICPES	16.	1.6	MG/L	6/02/95	
57-SW2	95.09140	CD	ICPES	< 0.003		MG/L	6/02/95	
57-SW2	95.09140	CO	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	CR	ICPES	0.005	0.004	MG/L	6/02/95	
57-SW2	95.09140	CU	ICPES	0.005	0.004	MG/L	6/02/95	
57-SW2	95.09140	FE	ICPES	0.1	0.1	MG/L	6/02/95	
57-SW2	95.09140	K	ICPES	2.4	0.6	MG/L	6/02/95	
57-SW2	95.09140	MG	ICPES	3.2	0.32	MG/L	6/02/95	
57-SW2	95.09140	MN	ICPES	0.11	0.011	MG/L	6/02/95	
57-SW2	95.09140	NA	ICPES	2.8	0.3	MG/L	6/02/95	
57-SW2	95.09140	NI	ICPES	< 0.01		MG/L	6/02/95	
57-SW2	95.09140	PB	ICPES	< 0.03		MG/L	6/02/95	
57-SW2	95.09140	V	ICPES	< 0.004		MG/L	6/02/95	
57-SW2	95.09140	ZN	ICPES	< 0.02		MG/L	6/02/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AG	ICPES	1.	0.9	MG/L	6/02/95	
57-SW2	95.09140	AL	ICPES	2.	2.3	MG/L	6/02/95	
57-SW2	95.09140	BA	ICPES	1.	1.1	MG/L	6/02/95	
57-SW2	95.09140	BE	ICPES	1.	1.2	MG/L	6/02/95	
57-SW2	95.09140	CA	ICPES	2.	3.	MG/L	6/02/95	
57-SW2	95.09140	CD	ICPES	1.	1.	MG/L	6/02/95	
57-SW2	95.09140	CO	ICPES	1.	1.	MG/L	6/02/95	
57-SW2	95.09140	CR	ICPES	1.	1.2	MG/L	6/02/95	
57-SW2	95.09140	CU	ICPES	1.	1.1	MG/L	6/02/95	
57-SW2	95.09140	FE	ICPES	2.	2.2	MG/L	6/02/95	
57-SW2	95.09140	K	ICPES	2.	2.3	MG/L	6/02/95	
57-SW2	95.09140	MG	ICPES	2.	2.3	MG/L	6/02/95	
57-SW2	95.09140	MN	ICPES	1.	1.	MG/L	6/02/95	
57-SW2	95.09140	NA	ICPES	2.	2.4	MG/L	6/02/95	
57-SW2	95.09140	NI	ICPES	1.	1.1	MG/L	6/02/95	
57-SW2	95.09140	PB	ICPES	1.	1.	MG/L	6/02/95	
57-SW2	95.09140	V	ICPES	1.	1.2	MG/L	6/02/95	
57-SW2	95.09140	ZN	ICPES	1.	1.1	MG/L	6/02/95	

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REPORT NUMBER: 35217 (continued)

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: MBG on 2-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: OES PROGRAM CODE: WE3E

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: Y3725 PAGE: 142

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.29417	AL	8.5	0.9	MG/L	10.	0.4	6/02/95	UNDER CONTROL
00.29417	BA	460.	46.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	BE	430.	43.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	CA	8.1	10.	MG/L	10.	0.4	6/02/95	UNDER CONTROL
00.29417	CD	380.	42.	UG/L	498.	21.	6/02/95	WARNING 2-3 SIG
00.29417	CO	420.	42.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	CR	430.	43.	UG/L	499.	21.	6/02/95	UNDER CONTROL
00.29417	CU	430.	43.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	FE	940.	94.	UG/L	999.	43.	6/02/95	UNDER CONTROL
00.29417	K	8.7	0.9	MG/L	10.	0.4	6/02/95	UNDER CONTROL
00.29417	MG	8.7	0.9	MG/L	10.	0.4	6/02/95	UNDER CONTROL
00.29417	MN	430.	43.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	NA	9.3	0.9	MG/L	10.	0.4	6/02/95	UNDER CONTROL
00.29417	NI	400.	40.	UG/L	500.	22.	6/02/95	WARNING 2-3 SIG
00.29417	PB	25.	2.5	UG/L	25.	1.	6/02/95	UNDER CONTROL
00.29417	V	430.	43.	UG/L	500.	22.	6/02/95	UNDER CONTROL
00.29417	ZN	410.	41.	UG/L	500.	22.	6/02/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within CST

REPORT NUMBER: 35217

Analyst	Reviewer	Team Leader	QA Officer
6-8-95	6-8-95	6/9/95	6/9/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

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REPORT NUMBER: 35416

********** CST ANALYTICAL REPORT **********

Prepared by: PEC on 8-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: AAS PROGRAM CODE: WE3E

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AS	ETVAA	< 3.		UG/L	6/02/95	
57-SW2	95.09140	HG	CVAA	< 0.2		UG/L	6/01/95	
57-SW2	95.09140	SE	ETVAA	< 2.		UG/L	6/02/95	
57-SW3	95.09141	AS	ETVAA	< 3.		UG/L	6/02/95	
57-SW3	95.09141	HG	CVAA	< 0.2		UG/L	6/01/95	
57-SW3	95.09141	SE	ETVAA	< 2.		UG/L	6/02/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AS	ETVAA	< 3.		UG/L	6/02/95	
57-SW2	95.09140	SE	ETVAA	< 2.		UG/L	6/02/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	AS	ETVAA	10.	9.9	UG/L	6/02/95	
57-SW2	95.09140	SE	ETVAA	10.	9.3	UG/L	6/02/95	

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REPORT NUMBER: 35416 (continued)

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: PEC on 8-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: AAS PROGRAM CODE: WEIE

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: PAGE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.29417	AS	26.	5.	UG/L	25.	1.	6/07/95	UNDER CONTROL
00.29417	SE	26.	5.	UG/L	25.	1.	6/07/95	UNDER CONTROL
00.30468	HG	4.	0.4	UG/L	5.06	1.05	6/01/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within CST

REPORT NUMBER: 35416	PEC	PEC	[signature]	mag
	Analyst	Reviewer	Team Leader	QA Officer
	6/8/95	6/8/95	6/8/95	6/9/95
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

REPORT NUMBER: 35281

********** CST ANALYTICAL REPORT **********

Prepared by: MKOBY on 5-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: IMS PROGRAM CODE: WE3E

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	SB	ICPMS	< 2.		UG/L	6/05/95	
57-SW2	95.09140	TL	ICPMS	< 2.		UG/L	6/05/95	
57-SW3	95.09141	SB	ICPMS	< 2.		UG/L	6/05/95	
57-SW3	95.09141	TL	ICPMS	< 2.		UG/L	6/05/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	SB	ICPMS	< 2.		UG/L	6/05/95	
57-SW2	95.09140	TL	ICPMS	< 2.		UG/L	6/05/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
57-SW2	95.09140	SB	ICPMS	11.	10.	UG/L	6/05/95	
57-SW2	95.09140	TL	ICPMS	11.	11.	UG/L	6/05/95	

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REPORT NUMBER: 35281 (continued)

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: MKOBY on 5-Jun-1995

REQUEST NUMBER: 21972 MATRIX: W ANALYST: IMS PROGRAM CODE: WEIE

OWNER: Alex Puglisi GROUP: ESH-18 MAIL-STOP: K497 PHONE: 7-4882

NOTEBOOK: PAGE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.29417	SB	27.	2.	UG/L	25.	1.	6/05/95	UNDER CONTROL
00.29417	TL	28.	2.	UG/L	25.	1.	6/05/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within CST

REPORT NUMBER: 35281			
Analyst	Reviewed	Team Leader	QA Officer
6/6/95	6/6/95	6/6/95	6/9/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

LOS ALAMOS NATIONAL LABORATORY

MILAGRO PROJECT @ FENTON HILL

LAND APPLICATION SITE MONITORING

WATER & SOIL ANALYTICAL RESULTS

POST-APPLICATION MONITORING RESULTS

SAMPLE COLLECTION DATE: 10/24/95

REPORT NUMBER: 39168

********** CST ANALYTICAL REPORT **********

Prepared by: BRL on 5-Dec-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: AAS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: eSH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: CST9002 PAGE: 83

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	AS	ETVAA	3.	0.6	UG/G	11/29/95	
95-SS1	95.16636	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SS1	95.16636	SE	ETVAA	0.6	0.3	UG/G	11/29/95	
95-SBS1	95.16637	AS	ETVAA	2.	0.5	UG/G	11/29/95	
95-SBS1	95.16637	HG	CVAA	0.01	0.01	UG/G	11/08/95	
95-SBS1	95.16637	SE	ETVAA	0.3	0.3	UG/G	11/29/95	
95-SS2	95.16638	AS	ETVAA	3.	0.6	UG/G	11/29/95	
95-SS2	95.16638	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SS2	95.16638	SE	ETVAA	0.4	0.3	UG/G	11/29/95	
95-SBS2	95.16639	AS	ETVAA	3.	0.6	UG/G	11/29/95	
95-SBS2	95.16639	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SBS2	95.16639	SE	ETVAA	< 0.3		UG/G	11/29/95	
95-SS3	95.16640	AS	ETVAA	3.	0.6	UG/G	11/29/95	
95-SS3	95.16640	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SS3	95.16640	SE	ETVAA	0.5	0.3	UG/G	11/29/95	
95-SBS3	95.16641	AS	ETVAA	4.	0.8	UG/G	11/29/95	
95-SBS3	95.16641	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SBS3	95.16641	SE	ETVAA	0.4	0.3	UG/G	11/29/95	
95-SS4	95.16642	AS	ETVAA	24.	5.	UG/G	11/30/95	
95-SS4	95.16642	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SS4	95.16642	SE	ETVAA	0.5	0.3	UG/G	11/29/95	
95-SBS4	95.16643	AS	ETVAA	4.	0.8	UG/G	11/29/95	
95-SBS4	95.16643	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SBS4	95.16643	SE	ETVAA	0.3	0.3	UG/G	11/29/95	
95-SS5	95.16644	AS	ETVAA	18.	4.	UG/G	11/30/95	
95-SS5	95.16644	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SS5	95.16644	SE	ETVAA	0.3	0.3	UG/G	11/29/95	
95-SBS5	95.16645	AS	ETVAA	3.	0.6	UG/G	11/29/95	
95-SBS5	95.16645	HG	CVAA	0.03	0.01	UG/G	11/08/95	
95-SBS5	95.16645	SE	ETVAA	< 0.3		UG/G	11/29/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT

95-SS1	95.16636	AS	ETVAA	3.	0.6	UG/G	11/29/95
95-SS1	95.16636	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SS1	95.16636	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SS1	95.16636	SE	ETVAA	0.6	0.3	UG/G	11/29/95
95-SBS1	95.16637	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SBS1	95.16637	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS2	95.16638	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS2	95.16638	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SBS2	95.16639	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SBS2	95.16639	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS3	95.16640	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS3	95.16640	HG	CVAA	0.05	0.01	UG/G	11/08/95
95-SBS3	95.16641	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SBS3	95.16641	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SS4	95.16642	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SS4	95.16642	HG	CVAA	0.04	0.01	UG/G	11/08/95
95-SBS4	95.16643	HG	CVAA	0.05	0.01	UG/G	11/08/95
95-SBS4	95.16643	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS5	95.16644	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SS5	95.16644	HG	CVAA	0.03	0.01	UG/G	11/08/95
95-SBS5	95.16645	HG	CVAA	0.02	0.01	UG/G	11/08/95

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	AS	ETVAA	10.	8.	UG/G	11/29/95	
95-SS1	95.16636	HG	CVAA	2.	1.9	UG/G	11/08/95	
95-SS1	95.16636	SE	ETVAA	10.	10.	UG/G	11/29/95	

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REPORT NUMBER: 39168 (continued)

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: BRL on 5-Dec-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: AAS PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: CST9002 PAGE: 83

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	AS	155.	31.	MG/KG	128.	71.	11/30/95	UNDER CONTROL
00.30469	SE	111.	22.	MG/KG	101.	55.	11/29/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.16646	AS	640.	128.	UG/G	575.	25.	11/30/95	UNDER CONTROL
95.16646	SE	0.9	0.3	UG/G	2.4	2.2	11/29/95	UNDER CONTROL
95.16647	HG	100.	10.	NG/G	165.		11/08/95	OUT OF CONTROL

REPORT NUMBER: 39168

Analyst	Reviewer	Team Leader	QA Officer
12/5/95		12/13/95	12/13/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

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REPORT NUMBER: 39257

********** CST ANALYTICAL REPORT **********

Prepared by: MKOBY on 12-Dec-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: IMS PROGRAM CODE: 8303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS1	95.16636	TL	ICPMS	0.37	0.25	UG/G	12/12/95	
95-SBS1	95.16637	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS1	95.16637	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SS2	95.16638	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS2	95.16638	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS2	95.16639	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS2	95.16639	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SS3	95.16640	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS3	95.16640	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS3	95.16641	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS3	95.16641	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SS4	95.16642	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS4	95.16642	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS4	95.16643	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS4	95.16643	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SS5	95.16644	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS5	95.16644	TL	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS5	95.16645	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SBS5	95.16645	TL	ICPMS	< 0.25		UG/G	12/12/95	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	SB	ICPMS	< 0.25		UG/G	12/12/95	
95-SS1	95.16636	TL	ICPMS	< 0.25		UG/G	12/12/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	SB	ICPMS	6.25		UG/G	12/12/95	

95-551	95.16636	[illegible]	IDPMS	6.25	6.3	[illegible]	[illegible]

REPORT NUMBER: 39257 (continued)

********** CST QUALITY ASSURANCE REPORT **********

Prepared by: MKOBY on 12-Dec-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: IMS PROGRAM CODE: EC03

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: PAGE:

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	SB	9.5	0.5	MG/KG	43.9	93.5	12/12/95	UNDER CONTROL
00.30469	TL	107.	6.	MG/KG	102.	50.5	12/12/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.16646	SB	< 0.25		UG/G	6.5	2.2	12/12/95	WARNING 2-3 SIG
95.16646	TL	1.	0.25	UG/G	1.	1.	12/12/95	UNDER CONTROL

REPORT NUMBER: 39257

Analyst	Reviewer	Team Leader	QA Officer
12/13/95	12/13/95	12/13/95	12/15/95
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1992,' LA-12790-MS, Vol. I, pp. 19-20.

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REPORT NUMBER: 39042

********** CST ANALYTICAL REPORT **********

Prepared by: C FEDERICI on 17-Nov-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: OES PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: EM90126 PAGE: 81

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SS1	95.16636	BA	ICPES	170.	17.	UG/G	11/17/95	
95-SS1	95.16636	BE	ICPES	0.78	0.75	UG/G	11/17/95	
95-SS1	95.16636	CD	ICPES	3.6	2.3	UG/G	11/17/95	
95-SS1	95.16636	CR	ICPES	8.5	1.	UG/G	11/17/95	
95-SS1	95.16636	NI	ICPES	12.	4.9	UG/G	11/17/95	
95-SS1	95.16636	PB	ICPES	8.7	7.5	UG/G	11/17/95	
95-SBS1	95.16637	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SBS1	95.16637	BA	ICPES	44.	4.4	UG/G	11/17/95	
95-SBS1	95.16637	BE	ICPES	< 0.75		UG/G	11/17/95	
95-SBS1	95.16637	CD	ICPES	4.7	2.3	UG/G	11/17/95	
95-SBS1	95.16637	CR	ICPES	4.9	1.	UG/G	11/17/95	
95-SBS1	95.16637	NI	ICPES	8.6	4.9	UG/G	11/17/95	
95-SBS1	95.16637	PB	ICPES	9.9	7.5	UG/G	11/17/95	
95-SS2	95.16638	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SS2	95.16638	BA	ICPES	150.	15.	UG/G	11/17/95	
95-SS2	95.16638	BE	ICPES	0.81	0.74	UG/G	11/17/95	
95-SS2	95.16638	CD	ICPES	4.3	2.3	UG/G	11/17/95	
95-SS2	95.16638	CR	ICPES	7.2	1.	UG/G	11/17/95	
95-SS2	95.16638	NI	ICPES	9.6	4.9	UG/G	11/17/95	
95-SS2	95.16638	PB	ICPES	9.8	7.4	UG/G	11/17/95	
95-SBS2	95.16639	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SBS2	95.16639	BA	ICPES	57.	5.7	UG/G	11/17/95	
95-SBS2	95.16639	BE	ICPES	1.3	0.74	UG/G	11/17/95	
95-SBS2	95.16639	CD	ICPES	4.9	2.3	UG/G	11/17/95	
95-SBS2	95.16639	CR	ICPES	7.7	0.99	UG/G	11/17/95	
95-SBS2	95.16639	NI	ICPES	< 12.	4.9	UG/G	11/17/95	
95-SBS2	95.16639	PB	ICPES	< 7.4		UG/G	11/17/95	
95-SS3	95.16640	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SS3	95.16640	BA	ICPES	170.	17.	UG/G	11/17/95	
95-SS3	95.16640	BE	ICPES	0.93	0.75	UG/G	11/17/95	
95-SS3	95.16640	CD	ICPES	4.	2.3	UG/G	11/17/95	
95-SS3	95.16640	CR	ICPES	5.2	1.	UG/G	11/17/95	
95-SS3	95.16640	NI	ICPES	13.	4.9	UG/G	11/17/95	
95-SS3	95.16640	PB	ICPES	13.	7.5	UG/G	11/17/95	
95-SBS3	95.16641	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SBS3	95.16641	BA	ICPES	83.	8.3	UG/G	11/17/95	

95-SBS3	95.16641	BE	ICPES	1.1	0.74	UG/G	11/17/95
95-SBS3	95.16641	CD	ICPES	3.6	2.3	UG/G	11/17/95
95-SBS3	95.16641	CR	ICPES	8.8	0.99	UG/G	11/17/95
95-SBS3	95.16641	NI	ICPES	13.	4.9	UG/G	11/17/95
95-SBS3	95.16641	PB	ICPES	< 7.4		UG/G	11/17/95
95-SS4	95.16642	AG	ICPES	< 2.5		UG/G	11/17/95
95-SS4	95.16642	BA	ICPES	160.	16.	UG/G	11/17/95
95-SS4	95.16642	BE	ICPES	1.1	0.74	UG/G	11/17/95
95-SS4	95.16642	CD	ICPES	4.	2.3	UG/G	11/17/95
95-SS4	95.16642	CR	ICPES	10.	1.	UG/G	11/17/95
95-SS4	95.16642	NI	ICPES	14.	4.9	UG/G	11/17/95
95-SS4	95.16642	PB	ICPES	< 7.4		UG/G	11/17/95
95-SBS4	95.16643	AG	ICPES	< 2.5		UG/G	11/17/95
95-SBS4	95.16643	BA	ICPES	56.	5.6	UG/G	11/17/95
95-SBS4	95.16643	BE	ICPES	0.98	0.74	UG/G	11/17/95
95-SBS4	95.16643	CD	ICPES	4.1	2.3	UG/G	11/17/95
95-SBS4	95.16643	CR	ICPES	6.3	0.98	UG/G	11/17/95
95-SBS4	95.16643	NI	ICPES	8.4	4.9	UG/G	11/17/95
95-SBS4	95.16643	PB	ICPES	8.7	7.4	UG/G	11/17/95
95-SS5	95.16644	AG	ICPES	< 2.5		UG/G	11/17/95
95-SS5	95.16644	BA	ICPES	100.	10.	UG/G	11/17/95
95-SS5	95.16644	BE	ICPES	< 0.75		UG/G	11/17/95
95-SS5	95.16644	CD	ICPES	3.8	2.3	UG/G	11/17/95
95-SS5	95.16644	CR	ICPES	4.9	1.	UG/G	11/17/95
95-SS5	95.16644	NI	ICPES	11.	4.9	UG/G	11/17/95
95-SS5	95.16644	PB	ICPES	9.6	7.5	UG/G	11/17/95
95-SBS5	95.16645	AG	ICPES	< 2.5		UG/G	11/17/95
95-SBS5	95.16645	BA	ICPES	32.	3.2	UG/G	11/17/95
95-SBS5	95.16645	BE	ICPES	< 0.74		UG/G	11/17/95
95-SBS5	95.16645	CD	ICPES	3.8	2.3	UG/G	11/17/95
95-SBS5	95.16645	CR	ICPES	4.9	0.99	UG/G	11/17/95
95-SBS5	95.16645	NI	ICPES	11.	4.9	UG/G	11/17/95
95-SBS5	95.16645	PB	ICPES	< 7.4		UG/G	11/17/95

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	AG	ICPES	< 2.5		UG/G	11/17/95	
95-SS1	95.16636	BA	ICPES	160.	16.	UG/G	11/17/95	
95-SS1	95.16636	BE	ICPES	< 0.75		UG/G	11/17/95	
95-SS1	95.16636	CD	ICPES	4.	2.3	UG/G	11/17/95	
95-SS1	95.16636	CR	ICPES	5.9	1.	UG/G	11/17/95	
95-SS1	95.16636	NI	ICPES	9.7	4.9	UG/G	11/17/95	
95-SS1	95.16636	PB	ICPES	< 7.5		UG/G	11/17/95	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
95-SS1	95.16636	AG	ICPES	1.	0.32	MG/L	11/17/95	
95-SS1	95.16636	BA	ICPES	8.	3.4	MG/L	11/17/95	
95-SS1	95.16636	BE	ICPES	8.	3.6	MG/L	11/17/95	
95-SS1	95.16636	CD	ICPES	8.	3.5	MG/L	11/17/95	
95-SS1	95.16636	CR	ICPES	8.	3.6	MG/L	11/17/95	
95-SS1	95.16636	NI	ICPES	8.	3.5	MG/L	11/17/95	

95-551	95.16636 PB	ICPES	8.	0.66	MG/L	11/17/95

REPORT NUMBER: 39042 (continued)

********** CST QUALITY ASSURANCE REPORT *********

Prepared by: C FEDERICI on 17-Nov-1995

REQUEST NUMBER: 22763 MATRIX: SS ANALYST: OES PROGRAM CODE: E303

OWNER: Ron C. Conrad GROUP: ESH-19 MAIL-STOP: K490 PHONE: 7-0950

NOTEBOOK: EM90126 PAGE: 81

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.30469	AG	74.	22.	MG/KG	92.5	49.5	11/17/95	UNDER CONTROL
00.30469	BA	270.	27.	MG/KG	276.	82.5	11/17/95	UNDER CONTROL
00.30469	BE	88.	8.8	MG/KG	95.1	43.	11/17/95	UNDER CONTROL
00.30469	CD	96.	9.6	MG/KG	102.	56.5	11/17/95	UNDER CONTROL
00.30469	CR	150.	15.	MG/KG	154.	73.	11/17/95	UNDER CONTROL
00.30469	NI	150.	15.	MG/KG	163.	85.5	11/17/95	UNDER CONTROL
00.30469	PB	130.	13.	MG/KG	147.	73.5	11/17/95	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
95.16646	AG	3.9	2.5	UG/G	28.9	7.3	11/17/95	OUT OF CONTROL
95.16646	BA	280.	28.	UG/G	340.	60.	11/17/95	UNDER CONTROL
95.16646	BE	1.2	0.74	UG/G	1.13	0.12	11/17/95	UNDER CONTROL
95.16646	CD	12.	2.3	UG/G	17.9	3.9	11/17/95	UNDER CONTROL
95.16646	CR	16.	1.6	UG/G	18.	2.	11/17/95	UNDER CONTROL
95.16646	NI	16.	4.9	UG/G	11.	2.	11/17/95	UNDER CONTROL
95.16646	PB	4500.	450.	UG/G	5150.	350.	11/17/95	UNDER CONTROL

REPORT NUMBER: 39042

Analyst	Reviewer	Team Leader	QA Officer
11-17-95	11/20/95	12/13/95	12/15/95
Date	Date	Date	Date