Reference 20

9532581

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

RECEIVED
JUN 30 2000
SITE ASSESSMENT & MANAGEMENT SECTION

MEMORANDUM

Date: June 28, 2000

Subject: Contract Laboratory Program Data Review

From: Marvelyn Humphrey, Alternate ESAT RPO, 6MD-HC

To: B. Rhotenberry, 6SF-RA

Site : FALCON REFINING

Case#: 28064

SDG# : MF00N4

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments
cc: R. Flores, Region 6 CLP/TPO
M. El-Feky, Region 6 Data Coordinator
Files (2)

LOCKHEED MARTIN SERVICES GROUP
ESAT REGION VI
10101 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074

MEMORANDUM

DATE: June 27, 2000

TO: Melvin Ritter/Marvelyn Humphrey, ESAT RPO/Alternate RPO, Region VI

FROM: Tom Chiang, ESAT Team Manager, Region VI

SUBJECT: CLP Data Review

REF: TDF #6-0387A ESAT File No. I2438
ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case # 28064
SDG # MF00N4
Site Falcon Refining

COMMENTS:

I. CONTRACTUAL ASSESSMENT OF DATA PACKAGE:

Hard copy review could not confirm the noncompliant items noted by CCS but detected the following contractually noncompliant item.

The laboratory analyzed the continuing calibration verification (CCV) standards for antimony at the same concentration as the initial calibration verification (ICV) standard. The SOW requires the analyte concentrations in the CCV to be different than the concentration used for the ICV (ILM04.0, Exhibit E, E-17, b). The sample results were not technically affected because other QC analyses such as the ICSAB with different concentrations from the ICV provided the missing QC information.

II. TECHNICAL/USABILITY ASSESSMENT OF DATA PACKAGE:

A total of 480 results were reviewed for this data package. Some results have been qualified because of technical problems. The significant problems are addressed below.

A. Blank concentrations affected some beryllium, cadmium, chromium, lead, mercury, and thallium results.

B. The matrix spike recoveries for arsenic, chromium, and thallium were above the QC limits.

C. Three arsenic and two selenium analyses had inconsistent instrument readings.

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MEMORANDUM, continued

Attached is the data review summary for Case # 28064
SDG # MF00N4
Site Falcon Refining

III. OTHER AREAS OF CONCERN:

The cooler containing the samples associated with Airbill 2952377433 was not at the required 4°C for soil samples.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 28064 SITE Falcon Refining
LABORATORY LIBRTY NO. OF SAMPLES 20
CONTRACT# 68-W0-0082 MATRIX Soil
SDG# MF00N4 REVIEWER (IF NOT ESD) ESAT
SOW# ILM04.1 REVIEWER'S NAME L. Hoffman
ACCT# 050102DJN73 SF# 50102DZZ COMPLETION DATE June 27, 2000

SAMPLE NO.					
	MF0-0MY	MF0-0N3	MF0-0N7	MF0-0NB	MF0-0NS
	MF0-0N0	MF0-0N4	MF0-0N8	MF0-0NJ	MF0-0NZ
	MF0-0N1	MF0-0N5	MF0-0N9	MF0-0NN	MF0-0PJ
	MF0-0N2	MF0-0N6	MF0-0NA	MF0-0NQ	MF0-0PY

DATA ASSESSMENT SUMMARY

	ICP	HG	CYANIDE
1. HOLDING TIMES	O	O	O
2. CALIBRATIONS	O	O	O
3. BLANKS	M	O	O
4. MATRIX SPIKES	M	O	O
5. DUPLICATE ANALYSIS	O	O	O
6. ICP QC	M		
7. FAA QC			
8. LCS	O	O	O
9. SAMPLE VERIFICATION	O	O	O
10. OTHER QC	O	O	O
11. OVERALL ASSESSMENT	M	O	O

O = Data had no problems.
M = Data qualified because of major or minor problems.
Z = Data unacceptable.
N/A= Not applicable

ACTION ITEMS:

AREAS OF CONCERN: The laboratory failed to analyze the antimony CCV's at contract-required concentrations. Laboratory blank concentrations affected some beryllium, cadmium, chromium, lead, mercury, sodium, thallium, and zinc results. The arsenic, chromium, copper, manganese, thallium, and zinc matrix spike recoveries were above 125 percent. Three arsenic and two selenium analyses had coefficients of variation greater than 20 percent.

NOTABLE PERFORMANCE: The laboratory submitted the data package two calendar days early.

COMMENTS/CLARIFICATIONS
REGION 6 CLP QA REVIEW

Case 28064 SDG MF00N4 Site Falcon Refining Lab LIBRTY

COMMENTS: The SDG consisted of 20 soil samples for total metals and cyanide analyses by ILM04.1. The sampler designated sample MF0-0MY as the QC sample and samples MF0-0N0/MF0-0N1 and MF0-0N8/MF0-0N9 as field duplicate pairs. The RSCC personnel confirmed MF0-0PY was the field duplicate of MF0-0NZ. The laboratory met the 14-day data package turnaround time requirement. The reviewer noted the following contractually noncompliant item.

- The CCV concentrations for antimony were not contractually compliant.

Sample MF0-0NJ was not listed on the traffic report but was received with the other samples in this SDG. The laboratory was instructed by CLASS to analyze this sample (see Record of Communication in the data package).

Forty-one percent of the reported results were above the CRDL's. Some results were qualified because of problems with laboratory blank concentrations, matrix spike recoveries, and inconsistent instrument readings. The technical usability of all reported results is indicated in the Data Summary Table (DST). An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the results were recorded in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

Acceptable = No results were qualified for any problems associated with this QC parameter.

Provisional = Some results were qualified because of problems associated with this QC parameter.

Unusable = All results are unusable because of major problems associated with this QC parameter.

1. **Holding Times:** Acceptable. All samples met contractual holding time criteria. Technical holding time criteria have not yet been established for soil samples. The laboratory reported a cooler temperature of 8°C, which is above the required 4°C (± 2°C). Since the temperature was not excessive, the sample results were not affected.

2. **Calibrations:** Acceptable. All calibrations met contractual requirements. The CRDL standard recoveries indicated acceptable instrument performance near the CRDL's.

Case 28064 SDG MF00N4 Site Falcon Refining Lab LIBRTY

3. **Blanks:** Provisional. Preparation and calibration blanks met contractual requirements although the laboratory reported 16 analytes in the blanks. The reviewer qualified the following results as indicated because of laboratory blank concentrations.

   The beryllium result for sample MF0-0NQ, the cadmium result for sample MF0-0NS, and the chromium result for sample MF0-0NZ are considered undetected.

   The lead results for samples MF0-0NN and MF0-0N7 are considered undetected, and the lead results for samples MF0-0N0, MF0-0N2, MF0-0N3, and MF0-0N6 are high biased.

   The mercury results for samples MF0-0MY, MF0-0NZ, MF0-0N8, and MF0-0PY are considered undetected.

   The sodium results for samples MF0-0NZ, MF0-0PJ, and MF0-0PY are considered undetected.

   The thallium results for samples MF0-0NA and MF0-0N8 are considered undetected.

   The perceived effect on the zinc result for sample MF0-0NN is a low bias. However, the reviewer did not indicate a bias for this zinc result on the DST because of a conflicting bias indicated by the matrix spike analysis (see Section 4).

4. **Pre-digestion/Pre-distillation Matrix Spike Recovery:** Provisional. The laboratory reported matrix spike recoveries above the QC limits for arsenic, chromium, copper, manganese, thallium, and zinc. The reviewer qualified as estimated and high biased the detected results for these analytes because of the high associated matrix spike recoveries. The zinc result for sample MF0-0NN was flagged "J" without a bias flag on the DST because of a conflicting bias indicated by the laboratory blank concentrations (see Section 3).

5. **Duplicate Analysis:** Acceptable. Laboratory duplicates met technical QC criteria.

6. **ICP Quality Control:**

   Serial Dilution: Acceptable. The laboratory reported acceptable serial dilution differences.

   Interference Check Sample (ICS): Acceptable. The reported ICS results indicated satisfactory interelement and background corrections.

INORGANIC QA REVIEW
CONTINUATION PAGE

Case 28064 SDG MF00N4 Site Falcon Refining Lab LIBRTY

6. **ICP Quality Control, continued:**

Coefficient of Variation: Provisional. The reviewer qualified the arsenic results for samples MF0-0NB, MF0-0N4, and MF0-0N5 and the selenium results for samples MF0-0NS and MF0-0N5 as estimated because replicate instrument readings were inconsistent.

7. **Furnace Atomic Absorption Quality Control:** Not Applicable.

8. **Laboratory Control Sample (LCS):** Acceptable. The laboratory reported acceptable LCS recoveries, indicating satisfactory sample preparation and analysis.

9. **Sample Verification:** Acceptable. The reviewer detected a few reporting errors that did not affect sample results. The laboratory was contacted for corrections (see FAX Record Log).

10. **Other QC:**

Field Duplicates: Acceptable. Field duplicate results were consistent.

11. **Overall Assessment:** Sample result qualifications are summarized below.

The reviewer qualified one beryllium, one cadmium, one chromium, six lead, four mercury, three sodium, one zinc, and two thallium results because of laboratory blank effects.

The reviewer qualified 14 arsenic, 20 chromium, 20 copper, 20 manganese, 2 thallium, and 20 zinc results because of matrix related problems.

The reviewer qualified three arsenic and two selenium results because of inconsistent instrument readings.

INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the inorganic data review process.

U Undetected at the laboratory reported detection limit (IDL).

L Reported concentration is between the IDL and the CRDL.

J Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.

R Result is unusable.

F A possibility of a false negative exists.

UC Reported concentration should be used as a raised detection limit because of apparent blank contamination.

^ High bias. Actual concentration may be lower than the concentration reported.

v Low bias. Actual concentration may be higher than the concentration reported.

INORGANIC DATA SUMMARY

Case No.: 28064 SDG: MF00N4 Reviewer: L. Hoffman

Laboratory: LIBRTY Matrix: Soil Units: mg/Kg

EPA Sample #=>	MF0-0MY	FLAG	MF0-0NA	FLAG	MF0-0NB	FLAG	MF0-0NJ	FLAG	MF0-0NN	FLAG	MF0-0NQ	FLAG	MF0-0NS	FLAG
ALUMINUM	543		5690		5620		7110		828		4950		6780	
ANTIMONY	0.50	U	0.57	U	0.59	U	0.55	U	0.50	U	0.57	U	0.55	U
ARSENIC	0.76	LJ^	2.5	LJ^	2.5	LJ^	1.8	LJ^	0.54	U	2.6	LJ^	2.5	LJ^
BARIUM	109		88.0		162		169		38.7	L	1940		140	
BERYLLIUM	0.05	L	0.27	L	0.29	L	0.33	L	0.047	U	0.24	LUC	0.29	L
CADMIUM	0.077	LJv	0.054	U	0.056	U	0.052	U	0.047	U	0.054	U	0.17	LUC
CALCIUM	43600		19700		27500		26600		3680		34500		47100	
CHROMIUM	3.0	J^	5.6	J^	6.2	J^	6.9	J^	1.1	LJ^	5.1	J^	10.2	J^
COBALT	0.44	L	1.9	L	2.2	L	2.1	L	0.31	L	5.8	L	2.4	L
COPPER	7.6	J^	5.6	LJ^	6.8	LJ^	4.3	LJ^	1.2	LJ^	3.3	LJ^	30.2	J^
IRON	2940		4850		5210		5740		783		4400		7200	
LEAD	4.6		7.3		11.0		11.6		2.0	UC	5.5		13.3	
MAGNESIUM	912	L	11900		9860		10600		1880		8790		11300	
MANGANESE	57.4	J^	216	J^	267	J^	186	J^	87.6	J^	1190	J^	354	J^
MERCURY	0.15	UC	0.070	U	0.27		0.062	U	0.059	U	0.053	U	0.054	U
NICKEL	1.2	L	4.0	L	4.4	L	4.2	L	0.37	LJv	4.8	L	11.6	
POTASSIUM	307	L	1760		1910		2140		268	L	1340	L	2650	
SELENIUM	0.52	U	0.59	U	0.69	L	0.58	U	0.52	U	0.59	U	1.4	J
SILVER	0.14	U	0.16	U	0.17	U	0.16	U	0.14	U	0.16	U	0.17	L
SODIUM	3100		4930		5330		6090		2570		2280		24600	
THALLIUM	0.76	U	0.92	LUCJ^	0.89	U	0.84	U	0.76	U	0.86	U	0.84	U
VANADIUM	2.3	L	9.5	L	10.3	L	11.1	L	1.8	L	8.9	L	11.0	L
ZINC	209	J^	97.3	J^	123	J^	49.6	J^	5.7	J	17.3	J^	408	J^
CYANIDE	0.054	U	0.063	U	0.065	U	0.058	U	0.056	U	0.064	U	0.060	U
% Solids:	83.9		71.8		68.2		76.2		80.3		69.8		73.7	

INORGANIC DATA SUMMARY

Case No.: 28064 SDG: MF00N4 Reviewer: L. Hoffman

Laboratory: LIBRTY Matrix: Soil Units: mg/Kg

EPA Sample #=>	MF0-0NZ	FLAG	MF0-0N0	FLAG	MF0-0N1	FLAG	MF0-0N2	FLAG	MF0-0N3	FLAG	MF0-0N4	FLAG	MF0-0N5	FLAG
ALUMINUM	561		3760		5060		1380		2200		6090		8160	
ANTIMONY	0.44	U	0.55	U	0.55	U	0.50	U	0.52	U	0.58	U	0.61	U
ARSENIC	0.48	U	1.9	LJ^	3.6	J^	1.1	LJ^	2.0	LJ^	2.4	LJ^	4.0	J^
BARIUM	44.9		26.3	L	26.1	L	160		68.5		58.0		104	
BERYLLIUM	0.042	U	0.15	L	0.21	L	0.078	L	0.11	L	0.32	L	0.46	L
CADMIUM	0.042	U	0.052	U	0.052	U	0.048	U	0.049	U	0.055	U	0.11	LJv
CALCIUM	2120		14100		17400		61500		51400		24200		33700	
CHROMIUM	0.86	LUCJ^	3.8	J^	4.9	J^	1.7	LJ^	2.8	J^	6.1	J^	8.8	J^
COBALT	0.10	U	1.1	L	1.4	L	0.62	L	0.82	L	2.1	L	3.0	L
COPPER	1.2	LJ^	2.2	LJ^	2.8	LJ^	2.2	LJ^	78.3	J^	4.1	LJ^	9.9	J^
IRON	460		3150		4050		1320		2040		5360		7810	
LEAD	5.6		3.0	J^	3.6		2.6	J^	2.7	J^	5.5		16.6	
MAGNESIUM	198	L	14800		17000		1400		5800		10800		14900	
MANGANESE	22.3	J^	178	J^	259	J^	37.3	J^	172	J^	250	J^	240	J^
MERCURY	0.059	LUC	0.065	U	0.066	U	0.058	U	0.059	U	0.070	U	0.070	U
NICKEL	0.27	LJv	2.7	L	3.8	L	1.3	L	23.2		4.0	L	6.8	L
POTASSIUM	143	L	1160	L	1530		634	L	828	L	1970		2680	
SELENIUM	0.46	U	0.69	L	0.57	U	0.53	U	0.54	U	0.61	U	0.64	U J
SILVER	0.13	U	0.16	U	0.16	U	0.14	U	0.15	U	0.16	U	0.18	U
SODIUM	204	LUC	4070		4820		4680		4370		7300		10200	
THALLIUM	0.67	U	0.84	U	0.83	U	0.77	U	0.79	U	0.88	U	0.93	U
VANADIUM	0.84	L	8.2	L	11.6	L	5.5	L	5.2	L	10.0	L	13.9	L
ZINC	32.7	J^	10.3	J^	10.9	J^	14.2	J^	16.0	J^	47.1	J^	321	J^
CYANIDE	0.046	U	0.061	U	0.057	U	0.055	U	0.057	U	0.063	U	0.090	L
% Solids:	94.1		73.3		75.4		78.4		77.0		71.0		68.5	

INORGANIC DATA SUMMARY

Case No.: 28064 SDG: MF00N4 Reviewer: L. Hoffman

Laboratory: LIBRTY Matrix: Soil Units: mg/Kg

EPA Sample #=>	MF0-0N6	FLAG	MF0-0N7	FLAG	MF0-0N8	FLAG	MF0-0N9	FLAG	MF0-0PJ	FLAG	MF0-0PY	FLAG		FLAG
ALUMINUM	625		635		10600		9940		372		519			
ANTIMONY	0.48	U	0.52	U	0.62	U	0.65	U	0.42	U	0.44	U		
ARSENIC	0.53	U	0.56	U	4.0	J^	4.4	J^	0.46	U	0.49	U		
BARIUM	10.6	L	10.0	L	124		92.5		32.9	L	38.9	L		
BERYLLIUM	0.046	U	0.049	U	0.54	L	0.52	L	0.04	U	0.042	U		
CADMIUM	0.046	U	0.049	U	0.059	U	0.073	LJv	0.04	U	0.042	U		
CALCIUM	19200		17500		29100		33000		667	L	2020			
CHROMIUM	1.2	LJ^	1.2	LJ^	9.2	J^	8.3	J^	0.74	LJ^	0.71	LJ^		
COBALT	0.30	L	0.24	L	3.6	L	3.5	L	0.10	U	0.10	U		
COPPER	1.1	LJ^	1.3	LJ^	7.6	J^	6.8	LJ^	1.1	LJ^	1.1	LJ^		
IRON	758		804		8590		8080		301		412			
LEAD	2.1	J^	2.0	UC	12.0		9.8		3.5		5.0			
MAGNESIUM	690	L	729	L	11400		11200		83.0	L	181	L		
MANGANESE	21.8	J^	18.5	J^	231	J^	234	J^	21.0	J^	20.1	J^		
MERCURY	0.061	U	0.052	U	0.076	LUC	0.079	L	0.050	U	0.065	LUC		
NICKEL	0.38	LJv	0.41	LJ^	6.8	L	6.4	L	0.14	U	0.15	U		
POTASSIUM	230	L	251	L	2860		2610		97.2	L	131	L		
SELENIUM	0.51	U	0.54	U	0.65	U	0.68	U	0.57	L	0.46	U		
SILVER	0.14	U	0.15	U	0.18	U	0.19	U	0.12	U	0.13	U		
SODIUM	2780		2880		6320		6460		170	LUC	191	LUC		
THALLIUM	0.74	U	0.79	U	1.4	LUCJ^	0.99	U	0.64	U	0.68	U		
VANADIUM	1.5	L	1.5	L	15.8		14.8	L	0.48	L	0.70	L		
ZINC	13.7	J^	11.8	J^	89.0	J^	62.3	J^	9.0	J^	27.7	J^		
CYANIDE	0.055	U	0.055	U	0.065	U	0.069	U	0.046	U	0.047	U		
% Solids:	81.6		80.6		66.1		63.8		95.6		94.6			

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. 28064 SDG No. MF00N4 SDG Nos. To Follow _____ SAS No. _____ Date Rec 05/31/00

EPA Lab ID: LIBRTY

Lab Location: Cary, NC

Region: 6 Audit No.: 28064/MF00N4

Re_Submitted CSF? Yes _____ No X

Box No(s): 1

COMMENTS:

4. The laboratory did not record the sample tags on Form DC-2 and was notified about this omission.

Over for additional comments.

ORIGINALS	YES	NO	N/A
CUSTODY SEALS			
1. Present on package?	X		
2. Intact upon receipt?	X		
FORM DC-2			
3. Numbering scheme accurate?	X		
4. Are enclosed documents listed?		X	
5. Are listed documents enclosed?	X		
FORM DC-1			
6. Present?	X		
7. Complete?	X		
8. Accurate?	X		
CHAIN-OF-CUSTODY RECORD(s)			
9. Signed?	X		
10. Dated?	X		
TRAFFIC REPORT(s) PACKING LIST(s)			
11. Signed?	X		
12. Dated?	X		
AIRBILLS/AIRBILL STICKER			
13. Present?	X		
14. Signed?			X
15. Dated?			X
SAMPLE TAGS			
16. Does DC-1 list tags as being included?	X		
17. Present?	X		
OTHER DOCUMENTS			
18. Complete?	X		
19. Legible?	X		
20. Original?		X	
20a.If "NO", does the copy indicate where original documents are located?	X		

Audited by: Linda Hoffman / ESAT Data Reviewer Date 06/25/00

Audited by: _____ Date _____

Audited by: _____ Date _____

Signature Printed Name/Title

TO BE COMPLETED BY CEAT

Date Recvd by CEAT: _____ Date Entered: _____ Date Reviewed: _____

Entered by: _____

Reviewed by: _____

Signature Printed Name/Title

DC-2__

In Reference to Case No(s):
28064 SDG: MF00N4 (I2438)

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
FAX Record Log

Laboratory Name: LIBRTY
Lab Contact: Bob Meierer

Region: 6
Regional Contact: Mahmoud El-Feky - EPA
ESAT Data Reviewer: Linda Hoffman

FAX initiated by: _____ Laboratory ___X___ Region

In reference to data for the following fractions:

CSF Deliverables Metals

Summary of Questions/Issues:

A. CSF Deliverables

1. The SOW requires that all items/pages in the CSF be paginated (ILM04.0, Exhibit F, F-7, 2.7.11). However, this was not done for the bag containing the sample tags. In the future please paginate the sample tag bag and report the page number on Form DC-2-1, #28, 3rd item.

2. The "Time Received" recorded on the airbill on page 171 and the traffic reports on pages 175 and 176 does not agree with the "Time Received" recorded on the Form DC-1 on page 187. Please resolve this discrepancy and resubmit the necessary pages.

B. Metals

The SOW requires that the CCV concentration be different than the concentration used for the ICV (ILM04.0, Exhibit E, E-17, b, last sentence in 1st paragraph). However, this requirement was not met for the antimony CCV's. Please explain this contractual noncompliance.

NOTE: Any laboratory resubmission should be submitted either as an addendum to the original CSF with a revised Form DC-2 or submitted as a new CSF with a new Form DC-2 (ILM04.0, B-14), except those containing only replacement pages. Custody seals are required for all CSF resubmission shipments.

FAX COMMUNICATION LOG

Continuation Page 2
Laboratory/Contact Bob Meierer/LIBRTY
In Reference To Case No.: 28064 **SDG:** MF00N4

Please respond to the above items. Region 6 resubmissions may be included with CCS response or sent separately **within 4 days** (Summary of Changes ILM04.1, Page 1-5 of 12, Exhibit B, Section II) to:

Mr. Mahmoud El-Feky
U.S. EPA Region 6 Laboratory
10625 Fallstone Road
Houston, TX 77099

If you have any questions, please contact me at (713) 988-2128.

M. El-Feky
Signature

6-27-00
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) ESAT Copy

EPA United States Environmental Protection Agency Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

28064

20015

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		6	TNRCC	5/17/00	Airborne Express

Regional Information

Sampler (Name): Wesley Newberry

Airbill Number: 2952378531 29537 MAC

Non-Superfund Program

Sampler Signature:

5. Ship To: Liberty Analytical, 501 Madison Ave, Cary, NC 27513, ATTN: Cathy Dorer

Site Name: Falcon Refining

City, State: Ingleside, TX

Site Spill ID

3. Purpose*: Lead: SF, PRP, ST, FED. Early Action: CLEM, PA, REM, RI, SI, ESI. Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MF00MY	5	Low	Comp	6		X	X					6-188507-08	SE-1	5/16/00 1640	F02HD	WN	—
MF00NO	5	Low	Comp	6		X	X					6-188619-20	SE-3	5/16/00 1602	F02HF	WN	—
MF00N1	5	Low	Comp	6		X	X					6-188675-76	SE-4	5/16/00 1612	F02HG	WN	D(MF00NO)
MF00N2	5	Low	Comp	6		X	X					6-188757-58	SE-5	5/16/00 1628	F02HH	WN	—
MF00N3	5	Low	Comp	6		X	X					6-188715-16	SE-6	5/16/00 1621	F02HJ	WN	—
MF00NH	5	Low	Comp	6		X	X					6-188699-700	SE-20	5/17/00 1000	F02J0	MC	—
MF00NN	5	Low	Comp	6		X	X					6-188789-90	SE-25	5/16/00 1520	F02J5	MC	—
MF00NQ	5	Low	Grab	6		X	X					6-188555-56	SE-27	5/16/00 1545	F02J7	MC	—
MF00NR	5	Low	Comp	6		X	X					6-188595-96	SE-28	5/16/00 1606	F02J8	MC	—
MF00NT	5	Low	Comp	6		X	X					6-188659-60	SE-30	5/16/00 1555	F02JA	WN	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 2	MF00MY; MF00NH		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	5-17-00 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-13 REV.

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369628

EPA - United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 28064

20016

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		6	TNRCC	5/16/00	Airborne Express

Regional Information

Sampler (Name): Marshall Ledilote

Airbill Number: 295 2377433

Non-Superfund Program

Sampler Signature: Marshall Ledilote

5. Ship To: Liberty Analytical, 501 Madison Ave., Cary, NC 27513

ATTN: Cathy Dover

Site Name: Falcon Refining

City, State: Ingleside, TX

Site Spill ID

3. Purpose*
Load: SF, PRP, ST, [X] FED
Early Action: CLEM, PA, REM, RI, SI, [X] ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MF00N4	5	L	G	6		X	X					6-188773-774	SE-07	5/15/00/1710	F02HK	MC	—
MF00N5	5	L	G	6		X	X					6-188866-867	SE-08	5/15/00/1726	F02HL	MC	—
MF00N6	5	L	G	6		X	X					6-188890-891	SE-09	5/16/00/0751	F02HM	MC	—
MF00N7	5	L	G	6		X	X					6-188914-915	SE-10	5/16/00/1011	F02HN	MC	—
MF00N9	5	L	G	6		X	X					6-188797-798	SE-12	5/15/00/1538	F02HQ	MC	D (MF00N8)
MF00NA	5	L	G	6		X	X					6-188743-745	SE-13	5/16/00/0825	F02HR	MC	—
MF00NB	5	L	G	6		X	X					6-188834-835	SE-14	5/16/00/0910	F02HS	MC	—
MF00NS	5	L	G	6		X	X					6-188635-636	SE-29	5/16/00/0815	F02J9	MC	—
MF00NZ	5	L	G	6		X	X					6-188547-548	SO-01	5/15/00/1831	F02JE	WN	—
MF00PY	5	L	G	6		X	X					6-188970-971	SO-32	5/15/00/1836	F02KD	WN	D (MF00PY)

Shipment for Case Complete? (Y/N) Y

Page 1 of 2

Sample(s) to be Used for Laboratory QC

Additional Sampler Signatures

Chain of Custody Seal Number(s)

Page 15 of 16

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	5/16/00/1900				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

A21-012-13 REV.

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EPA Form 9110-1

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

369784

EPA United States Environmental Protection Agency Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 28064

20017

1. Project Code	Account Code	2. Region No. 6	Sampling Co. TNRCC	4. Date Shipped 5/16/00	Carrier Airborne Express
Regional Information		Sampler (Name) Marshall Cedilote		Airbill Number 2952377433	
Non-Superfund Program		Sampler Signature Marshall Cedilote		5. Ship To Liberty Analytical 501 Madison Ave. Cary, NC 27513 ATTN: Cathy Dover	
Site Name Falcon Refining		3. Purpose* Lead: [ ] SF [ ] PRP [ ] ST [X] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [X] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State. Ingleside, TX	Site Spill ID				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
MF00MJ	4	L	G	2,3		X	X					6-188491-992	FB-01	5/15/00/	F02H1	MC	B
MF00MK	4	L	G	2,3		X	X					6-188728-729	FB-02	5/16/00/1015	F02H2	WN	B
MF00PJ	5	L	G	6		X	X					6-188874-875	SO-20	5/15/00/1428	F02K1	MC	—
MF00N8	5	L	G	6		X	X					6-188707-708	SE-11	5/15/00/1535	F02HP	MC	—

Shipment for Case Complete? (Y/N)	Page 2 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	5/16/00/1900				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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A21-012-13 REV.

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EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

369627

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00MY

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-13

Level (low/med): LOW Date Received: 05/19/00

% Solids: 83.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	543			P
7440-36-0	Antimony	0.50	U		P
7440-38-2	Arsenic	0.76	B	N	P
7440-39-3	Barium	109			P
7440-41-7	Beryllium	0.05	B		P
7440-43-9	Cadmium	0.077	B		P
7440-70-2	Calcium	43600		*	P
7440-47-3	Chromium	3.0		N	P
7440-48-4	Cobalt	0.44	B		P
7440-50-8	Copper	7.6		N	P
7439-89-6	Iron	2940		*	P
7439-92-1	Lead	4.6			P
7439-95-4	Magnesium	912	B		P
7439-96-5	Manganese	57.4		N	P
7439-97-6	Mercury	0.15			CV
7440-02-0	Nickel	1.2	B		P
7440-09-7	Potassium	307	B		P
7782-49-2	Selenium	0.52	U		P
7440-22-4	Silver	0.14	U		P
7440-23-5	Sodium	3100			P
7440-28-0	Thallium	0.76	U	N	P
7440-62-2	Vanadium	2.3	B		P
7440-66-6	Zinc	209		N	P
	Cyanide	0.054	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N0

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-14

Level (low/med): LOW Date Received: 05/19/00

% Solids: 73.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3760			P
7440-36-0	Antimony	0.55	U		P
7440-38-2	Arsenic	1.9	B	N	P
7440-39-3	Barium	26.3	B		P
7440-41-7	Beryllium	0.15	B		P
7440-43-9	Cadmium	0.052	U		P
7440-70-2	Calcium	14100		*	P
7440-47-3	Chromium	3.8		N	P
7440-48-4	Cobalt	1.1	B		P
7440-50-8	Copper	2.2	B	N	P
7439-89-6	Iron	3150		*	P
7439-92-1	Lead	3.0			P
7439-95-4	Magnesium	14800			P
7439-96-5	Manganese	178		N	P
7439-97-6	Mercury	0.065	U		CV
7440-02-0	Nickel	2.7	B		P
7440-09-7	Potassium	1160	B		P
7782-49-2	Selenium	0.69	B		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	4070			P
7440-28-0	Thallium	0.84	U	N	P
7440-62-2	Vanadium	8.2	B		P
7440-66-6	Zinc	10.3		N	P
	Cyanide	0.061	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N1

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-15

Level (low/med): LOW Date Received: 05/19/00

% Solids: 75.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5060			P
7440-36-0	Antimony	0.55	U		P
7440-38-2	Arsenic	3.6		N	P
7440-39-3	Barium	26.1	B		P
7440-41-7	Beryllium	0.21	B		P
7440-43-9	Cadmium	0.052	U		P
7440-70-2	Calcium	17400		*	P
7440-47-3	Chromium	4.9		N	P
7440-48-4	Cobalt	1.4	B		P
7440-50-8	Copper	2.8	B	N	P
7439-89-6	Iron	4050		*	P
7439-92-1	Lead	3.6			P
7439-95-4	Magnesium	17000			P
7439-96-5	Manganese	259		N	P
7439-97-6	Mercury	0.066	U		CV
7440-02-0	Nickel	3.8	B		P
7440-09-7	Potassium	1530			P
7782-49-2	Selenium	0.57	U		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	4820			P
7440-28-0	Thallium	0.83	U	N	P
7440-62-2	Vanadium	11.6	B		P
7440-66-6	Zinc	10.9		N	P
	Cyanide	0.057	U		CA

Color Before: GREY Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N2

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-16

Level (low/med): LOW Date Received: 05/19/00

% Solids: 78.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1380			P
7440-36-0	Antimony	0.50	U		P
7440-38-2	Arsenic	1.1	B	N	P
7440-39-3	Barium	160			P
7440-41-7	Beryllium	0.078	B		P
7440-43-9	Cadmium	0.048	U		P
7440-70-2	Calcium	61500		*	P
7440-47-3	Chromium	1.7	B	N	P
7440-48-4	Cobalt	0.62	B		P
7440-50-8	Copper	2.2	B	N	P
7439-89-6	Iron	1320		*	P
7439-92-1	Lead	2.6			P
7439-95-4	Magnesium	1400			P
7439-96-5	Manganese	37.3		N	P
7439-97-6	Mercury	0.058	U		CV
7440-02-0	Nickel	1.3	B		P
7440-09-7	Potassium	634	B		P
7782-49-2	Selenium	0.53	U		P
7440-22-4	Silver	0.14	U		P
7440-23-5	Sodium	4680			P
7440-28-0	Thallium	0.77	U	N	P
7440-62-2	Vanadium	5.5	B		P
7440-66-6	Zinc	14.2		N	P
	Cyanide	0.055	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N3

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-17

Level (low/med): LOW Date Received: 05/19/00

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2200			P
7440-36-0	Antimony	0.52	U		P
7440-38-2	Arsenic	2.0	B	N	P
7440-39-3	Barium	68.5			P
7440-41-7	Beryllium	0.11	B		P
7440-43-9	Cadmium	0.049	U		P
7440-70-2	Calcium	51400		*	P
7440-47-3	Chromium	2.8		N	P
7440-48-4	Cobalt	0.82	B		P
7440-50-8	Copper	78.3		N	P
7439-89-6	Iron	2040		*	P
7439-92-1	Lead	2.7			P
7439-95-4	Magnesium	5800			P
7439-96-5	Manganese	172		N	P
7439-97-6	Mercury	0.059	U		CV
7440-02-0	Nickel	23.2			P
7440-09-7	Potassium	828	B		P
7782-49-2	Selenium	0.54	U		P
7440-22-4	Silver	0.15	U		P
7440-23-5	Sodium	4370			P
7440-28-0	Thallium	0.79	U	N	P
7440-62-2	Vanadium	5.2	B		P
7440-66-6	Zinc	16.0		N	P
	Cyanide	0.057	U		CA

Color Before: GREY Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N4

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: _____ SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-1

Level (low/med): LOW Date Received: 05/17/00

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6090			P
7440-36-0	Antimony	0.58	U		P
7440-38-2	Arsenic	2.4	B	N	P
7440-39-3	Barium	58.0			P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	0.055	U		P
7440-70-2	Calcium	24200		*	P
7440-47-3	Chromium	6.1		N	P
7440-48-4	Cobalt	2.1	B		P
7440-50-8	Copper	4.1	B	N	P
7439-89-6	Iron	5360		*	P
7439-92-1	Lead	5.5			P
7439-95-4	Magnesium	10800			P
7439-96-5	Manganese	250		N	P
7439-97-6	Mercury	0.070	U		CV
7440-02-0	Nickel	4.0	B		P
7440-09-7	Potassium	1970			P
7782-49-2	Selenium	0.61	U		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	7300			P
7440-28-0	Thallium	0.88	U	N	P
7440-62-2	Vanadium	10.0	B		P
7440-66-6	Zinc	47.1		N	P
	Cyanide	0.063	U		CA

Color Before: GREY Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N5

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-2

Level (low/med): LOW Date Received: 05/17/00

% Solids: 68.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8160			P
7440-36-0	Antimony	0.61	U		P
7440-38-2	Arsenic	4.0		N	P
7440-39-3	Barium	104			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	0.11	B		P
7440-70-2	Calcium	33700		*	P
7440-47-3	Chromium	8.8		N	P
7440-48-4	Cobalt	3.0	B		P
7440-50-8	Copper	9.9		N	P
7439-89-6	Iron	7810		*	P
7439-92-1	Lead	16.6			P
7439-95-4	Magnesium	14900			P
7439-96-5	Manganese	240		N	P
7439-97-6	Mercury	0.070	U		CV
7440-02-0	Nickel	6.8	B		P
7440-09-7	Potassium	2680			P
7782-49-2	Selenium	0.64	U		P
7440-22-4	Silver	0.18	U		P
7440-23-5	Sodium	10200			P
7440-28-0	Thallium	0.93	U	N	P
7440-62-2	Vanadium	13.9	B		P
7440-66-6	Zinc	321		N	P
	Cyanide	0.090	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N6

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-3

Level (low/med): LOW Date Received: 05/17/00

% Solids: 81.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	625			P
7440-36-0	Antimony	0.48	U		P
7440-38-2	Arsenic	0.53	U	N	P
7440-39-3	Barium	10.6	B		P
7440-41-7	Beryllium	0.046	U		P
7440-43-9	Cadmium	0.046	U		P
7440-70-2	Calcium	19200		*	P
7440-47-3	Chromium	1.2	B	N	P
7440-48-4	Cobalt	0.30	B		P
7440-50-8	Copper	1.1	B	N	P
7439-89-6	Iron	758		*	P
7439-92-1	Lead	2.1			P
7439-95-4	Magnesium	690	B		P
7439-96-5	Manganese	21.8		N	P
7439-97-6	Mercury	0.061	U		CV
7440-02-0	Nickel	0.38	B		P
7440-09-7	Potassium	230	B		P
7782-49-2	Selenium	0.51	U		P
7440-22-4	Silver	0.14	U		P
7440-23-5	Sodium	2780			P
7440-28-0	Thallium	0.74	U	N	P
7440-62-2	Vanadium	1.5	B		P
7440-66-6	Zinc	13.7		N	P
	Cyanide	0.055	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N7

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-4

Level (low/med): LOW Date Received: 05/17/00

% Solids: 80.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	635			P
7440-36-0	Antimony	0.52	U		P
7440-38-2	Arsenic	0.56	U	N	P
7440-39-3	Barium	10.0	B		P
7440-41-7	Beryllium	0.049	U		P
7440-43-9	Cadmium	0.049	U		P
7440-70-2	Calcium	17500		*	P
7440-47-3	Chromium	1.2	B	N	P
7440-48-4	Cobalt	0.24	B		P
7440-50-8	Copper	1.3	B	N	P
7439-89-6	Iron	804		*	P
7439-92-1	Lead	2.0			P
7439-95-4	Magnesium	729	B		P
7439-96-5	Manganese	18.5		N	P
7439-97-6	Mercury	0.052	U		CV
7440-02-0	Nickel	0.41	B		P
7440-09-7	Potassium	251	B		P
7782-49-2	Selenium	0.54	U		P
7440-22-4	Silver	0.15	U		P
7440-23-5	Sodium	2880			P
7440-28-0	Thallium	0.79	U	N	P
7440-62-2	Vanadium	1.5	B		P
7440-66-6	Zinc	11.8		N	P
	Cyanide	0.055	U		CA

Color Before: GREY Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N8

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-5

Level (low/med): LOW Date Received: 05/17/00

% Solids: 66.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10600			P
7440-36-0	Antimony	0.62	U		P
7440-38-2	Arsenic	4.0		N	P
7440-39-3	Barium	124			P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	0.059	U		P
7440-70-2	Calcium	29100		*	P
7440-47-3	Chromium	9.2		N	P
7440-48-4	Cobalt	3.6	B		P
7440-50-8	Copper	7.6		N	P
7439-89-6	Iron	8590		*	P
7439-92-1	Lead	12.0			P
7439-95-4	Magnesium	11400			P
7439-96-5	Manganese	231		N	P
7439-97-6	Mercury	0.076	B		CV
7440-02-0	Nickel	6.8	B		P
7440-09-7	Potassium	2860			P
7782-49-2	Selenium	0.65	U		P
7440-22-4	Silver	0.18	U		P
7440-23-5	Sodium	6320			P
7440-28-0	Thallium	1.4	B	N	P
7440-62-2	Vanadium	15.8			P
7440-66-6	Zinc	89.0		N	P
	Cyanide	0.065	U		CA

Color Before: GREY Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00N9

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-6

Level (low/med): LOW Date Received: 05/17/00

% Solids: 63.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9940			P
7440-36-0	Antimony	0.65	U		P
7440-38-2	Arsenic	4.4		N	P
7440-39-3	Barium	92.5			P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	0.073	B		P
7440-70-2	Calcium	33000		*	P
7440-47-3	Chromium	8.3		N	P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	6.8	B	N	P
7439-89-6	Iron	8080		*	P
7439-92-1	Lead	9.8			P
7439-95-4	Magnesium	11200			P
7439-96-5	Manganese	234		N	P
7439-97-6	Mercury	0.079	B		CV
7440-02-0	Nickel	6.4	B		P
7440-09-7	Potassium	2610			P
7782-49-2	Selenium	0.68	U		P
7440-22-4	Silver	0.19	U		P
7440-23-5	Sodium	6460			P
7440-28-0	Thallium	0.99	U	N	P
7440-62-2	Vanadium	14.8	B		P
7440-66-6	Zinc	62.3		N	P
	Cyanide	0.069	U		CA

Color Before: GREY Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NA

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-7

Level (low/med): LOW Date Received: 05/17/00

% Solids: 71.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5690			P
7440-36-0	Antimony	0.57	U		P
7440-38-2	Arsenic	2.5	B	N	P
7440-39-3	Barium	88.0			P
7440-41-7	Beryllium	0.27	B		P
7440-43-9	Cadmium	0.054	U		P
7440-70-2	Calcium	19700		*	P
7440-47-3	Chromium	5.6		N	P
7440-48-4	Cobalt	1.9	B		P
7440-50-8	Copper	5.6	B	N	P
7439-89-6	Iron	4850		*	P
7439-92-1	Lead	7.3			P
7439-95-4	Magnesium	11900			P
7439-96-5	Manganese	216		N	P
7439-97-6	Mercury	0.070	U		CV
7440-02-0	Nickel	4.0	B		P
7440-09-7	Potassium	1760			P
7782-49-2	Selenium	0.59	U		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	4930			P
7440-28-0	Thallium	0.92	B	N	P
7440-62-2	Vanadium	9.5	B		P
7440-66-6	Zinc	97.3		N	P
	Cyanide	0.063	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NB

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-8

Level (low/med): LOW Date Received: 05/17/00

% Solids: 68.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5620			P
7440-36-0	Antimony	0.59	U		P
7440-38-2	Arsenic	2.5	B	N	P
7440-39-3	Barium	162			P
7440-41-7	Beryllium	0.29	B		P
7440-43-9	Cadmium	0.056	U		P
7440-70-2	Calcium	27500		*	P
7440-47-3	Chromium	6.2		N	P
7440-48-4	Cobalt	2.2	B		P
7440-50-8	Copper	6.8	B	N	P
7439-89-6	Iron	5210		*	P
7439-92-1	Lead	11.0			P
7439-95-4	Magnesium	9860			P
7439-96-5	Manganese	267		N	P
7439-97-6	Mercury	0.27			CV
7440-02-0	Nickel	4.4	B		P
7440-09-7	Potassium	1910			P
7782-49-2	Selenium	0.69	B		P
7440-22-4	Silver	0.17	U		P
7440-23-5	Sodium	5330			P
7440-28-0	Thallium	0.89	U	N	P
7440-62-2	Vanadium	10.3	B		P
7440-66-6	Zinc	123		N	P
	Cyanide	0.065	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NJ

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-18

Level (low/med): LOW Date Received: 05/19/00

% Solids: 76.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7110			P
7440-36-0	Antimony	0.55	U		P
7440-38-2	Arsenic	1.8	B	N	P
7440-39-3	Barium	169			P
7440-41-7	Beryllium	0.33	B		P
7440-43-9	Cadmium	0.052	U		P
7440-70-2	Calcium	26600		*	P
7440-47-3	Chromium	6.9		N	P
7440-48-4	Cobalt	2.1	B		P
7440-50-8	Copper	4.3	B	N	P
7439-89-6	Iron	5740		*	P
7439-92-1	Lead	11.6			P
7439-95-4	Magnesium	10600			P
7439-96-5	Manganese	186		N	P
7439-97-6	Mercury	0.062	U		CV
7440-02-0	Nickel	4.2	B		P
7440-09-7	Potassium	2140			P
7782-49-2	Selenium	0.58	U		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	6090			P
7440-28-0	Thallium	0.84	U	N	P
7440-62-2	Vanadium	11.1	B		P
7440-66-6	Zinc	49.6		N	P
	Cyanide	0.058	U		CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NN

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-19

Level (low/med): LOW Date Received: 05/19/00

% Solids: 80.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	828			P
7440-36-0	Antimony	0.50	U		P
7440-38-2	Arsenic	0.54	U	N	P
7440-39-3	Barium	38.7	B		P
7440-41-7	Beryllium	0.047	U		P
7440-43-9	Cadmium	0.047	U		P
7440-70-2	Calcium	3680		*	P
7440-47-3	Chromium	1.1	B	N	P
7440-48-4	Cobalt	0.31	B		P
7440-50-8	Copper	1.2	B	N	P
7439-89-6	Iron	783		*	P
7439-92-1	Lead	2.0			P
7439-95-4	Magnesium	1880			P
7439-96-5	Manganese	87.6		N	P
7439-97-6	Mercury	0.059	U		CV
7440-02-0	Nickel	0.37	B		P
7440-09-7	Potassium	268	B		P
7782-49-2	Selenium	0.52	U		P
7440-22-4	Silver	0.14	U		P
7440-23-5	Sodium	2570			P
7440-28-0	Thallium	0.76	U	N	P
7440-62-2	Vanadium	1.8	B		P
7440-66-6	Zinc	5.7		N	P
	Cyanide	0.056	U		CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NQ

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: _____ SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-20

Level (low/med): LOW Date Received: 05/19/00

% Solids: 69.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4950			P
7440-36-0	Antimony	0.57	U		P
7440-38-2	Arsenic	2.6	B	N	P
7440-39-3	Barium	1940			P
7440-41-7	Beryllium	0.24	B		P
7440-43-9	Cadmium	0.054	U		P
7440-70-2	Calcium	34500		*	P
7440-47-3	Chromium	5.1		N	P
7440-48-4	Cobalt	5.8	B		P
7440-50-8	Copper	3.3	B	N	P
7439-89-6	Iron	4400		*	P
7439-92-1	Lead	5.5			P
7439-95-4	Magnesium	8790			P
7439-96-5	Manganese	1190		N	P
7439-97-6	Mercury	0.053	U		CV
7440-02-0	Nickel	4.8	B		P
7440-09-7	Potassium	1340	B		P
7782-49-2	Selenium	0.59	U		P
7440-22-4	Silver	0.16	U		P
7440-23-5	Sodium	2280			P
7440-28-0	Thallium	0.86	U	N	P
7440-62-2	Vanadium	8.9	B		P
7440-66-6	Zinc	17.3		N	P
	Cyanide	0.064	U		CA

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NS

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-9

Level (low/med): LOW Date Received: 05/17/00

% Solids: 73.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6780			P
7440-36-0	Antimony	0.55	U		P
7440-38-2	Arsenic	2.5	B	N	P
7440-39-3	Barium	140			P
7440-41-7	Beryllium	0.29	B		P
7440-43-9	Cadmium	0.17	B		P
7440-70-2	Calcium	47100		*	P
7440-47-3	Chromium	10.2		N	P
7440-48-4	Cobalt	2.4	B		P
7440-50-8	Copper	30.2		N	P
7439-89-6	Iron	7200		*	P
7439-92-1	Lead	13.3			P
7439-95-4	Magnesium	11300			P
7439-96-5	Manganese	354		N	P
7439-97-6	Mercury	0.054	U		CV
7440-02-0	Nickel	11.6			P
7440-09-7	Potassium	2650			P
7782-49-2	Selenium	1.4			P
7440-22-4	Silver	0.17	B		P
7440-23-5	Sodium	24600			P
7440-28-0	Thallium	0.84	U	N	P
7440-62-2	Vanadium	11.0	B		P
7440-66-6	Zinc	408		N	P
	Cyanide	0.060	U		CA

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00NZ

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: _____ SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-10

Level (low/med): LOW Date Received: 05/17/00

% Solids: 94.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	561			P
7440-36-0	Antimony	0.44	U		P
7440-38-2	Arsenic	0.48	U	N	P
7440-39-3	Barium	44.9			P
7440-41-7	Beryllium	0.042	U		P
7440-43-9	Cadmium	0.042	U		P
7440-70-2	Calcium	2120		*	P
7440-47-3	Chromium	0.86	B	N	P
7440-48-4	Cobalt	0.10	U		P
7440-50-8	Copper	1.2	B	N	P
7439-89-6	Iron	460		*	P
7439-92-1	Lead	5.6			P
7439-95-4	Magnesium	198	B		P
7439-96-5	Manganese	22.3		N	P
7439-97-6	Mercury	0.059	B		CV
7440-02-0	Nickel	0.27	B		P
7440-09-7	Potassium	143	B		P
7782-49-2	Selenium	0.46	U		P
7440-22-4	Silver	0.13	U		P
7440-23-5	Sodium	204	B		P
7440-28-0	Thallium	0.67	U	N	P
7440-62-2	Vanadium	0.84	B		P
7440-66-6	Zinc	32.7		N	P
	Cyanide	0.046	U		CA

Color Before: BROWN Clarity Before: _____ Texture: FINE

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00PJ

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-11

Level (low/med): LOW Date Received: 05/17/00

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	372			P
7440-36-0	Antimony	0.42	U		P
7440-38-2	Arsenic	0.46	U	N	P
7440-39-3	Barium	32.9	B		P
7440-41-7	Beryllium	0.04	U		P
7440-43-9	Cadmium	0.04	U		P
7440-70-2	Calcium	667	B	*	P
7440-47-3	Chromium	0.74	B	N	P
7440-48-4	Cobalt	0.10	U		P
7440-50-8	Copper	1.1	B	N	P
7439-89-6	Iron	301		*	P
7439-92-1	Lead	3.5			P
7439-95-4	Magnesium	83.0	B		P
7439-96-5	Manganese	21.0		N	P
7439-97-6	Mercury	0.050	U		CV
7440-02-0	Nickel	0.14	U		P
7440-09-7	Potassium	97.2	B		P
7782-49-2	Selenium	0.57	B		P
7440-22-4	Silver	0.12	U		P
7440-23-5	Sodium	170	B		P
7440-28-0	Thallium	0.64	U	N	P
7440-62-2	Vanadium	0.48	B		P
7440-66-6	Zinc	9.0		N	P
	Cyanide	0.046	U		CA

Color Before: BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

U. S. EPA- CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MF00PY

Lab Name: CompuChem Contract: 68W00082

Lab Code: LIBRTY Case No.: 28064 SAS No.: SDG No.: MF00N4

Matrix (soil/water): SOIL Lab Sample ID: MF00N4-12

Level (low/med): LOW Date Received: 05/17/00

% Solids: 94.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	519			P
7440-36-0	Antimony	0.44	U		P
7440-38-2	Arsenic	0.49	U	N	P
7440-39-3	Barium	38.9	B		P
7440-41-7	Beryllium	0.042	U		P
7440-43-9	Cadmium	0.042	U		P
7440-70-2	Calcium	2020		*	P
7440-47-3	Chromium	0.71	B	N	P
7440-48-4	Cobalt	0.10	U		P
7440-50-8	Copper	1.1	B	N	P
7439-89-6	Iron	412		*	P
7439-92-1	Lead	5.0			P
7439-95-4	Magnesium	181	B		P
7439-96-5	Manganese	20.1		N	P
7439-97-6	Mercury	0.065	B		CV
7440-02-0	Nickel	0.15	U		P
7440-09-7	Potassium	131	B		P
7782-49-2	Selenium	0.46	U		P
7440-22-4	Silver	0.13	U		P
7440-23-5	Sodium	191	B		P
7440-28-0	Thallium	0.68	U	N	P
7440-62-2	Vanadium	0.70	B		P
7440-66-6	Zinc	27.7		N	P
	Cyanide	0.047	U		CA

Color Before: BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: Artifacts:

Comments:

FORM I - IN