

US EPA ARCHIVE DOCUMENT

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February 19, 1997

FACSIMILE TRANSMISSION

Saskia Mooney, Esq.
Weinberg, Bergeson & Neuman
1300 Eye Street, NW, Suite 1000 West
Washington, DC 20005

**Re: Land Disposal Restrictions (LDR)
QA/QC for GNB Slag Samples**

Dear Saskia:

In response to Anita Cummings of EPA's request, enclosed is the QA/QC data for the TCLP and assay analysis performed on the GNB Frisco, Texas, slag samples. The actual analyses were submitted to the Agency last fall. If Anita has any questions or comments, please do not hesitate to call us.

Sincerely,

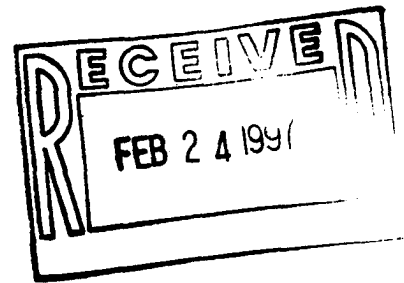
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Jack E. Waggener, P.E.
President/Principal

JW/dpm

Enclosure

cc: Susan Panzik—Swidler & Berlin (representing ABR)
Steve Emmons—GNB Technologies
Larry Eagan—GNB Frisco, Texas



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CASE NARRATIVE

QC for RCI Lab Sample Nos. 242360-242371

There were a total of six TCLP's performed. Presented below is the following data:

1. The ICP Initial and Continuing Calibration Verification Data which shows that the ICP maintained calibration for all TCLP metals throughout the ICP run. (3 sheets)
2. A TCLP Extract QC Sheet (1 sheet) containing the following information:
 - a. The TCLP method blank extracted at the time of the samples.
Although slight contamination was noted for barium and lead, probably cross-contamination from the high samples, this was not regarded as impacting the overall results.
 - b. Percent recovery from a laboratory control sample, digested at the same time as the TCLP extracts.
All recoveries were within range.
 - c. Analytical RPD data on duplicate samples.
All RPD's were within limits.
 - d. RPD data for a duplicate TCLP extract of sample 242363.
RPD limits for TCLP extracts are not calculated, due to the wide range of the matrices involved. RCI does use this data to evaluate the variability of individual matrices. The RPD's calculated here indicate no particular problem with this matrix in obtaining relatively reproducible TCLP data. ND values indicate no analyte was detected in either duplicate for that particular metal.
 - e. TCLP spike data on sample 242363.
All data presented meets normal acceptance criteria. The lead and barium spikes were not evaluated, as the initial sample concentration was too high when compared to the spiking concentration to extract viable data.

Overall, the QC for this group of samples validated the data as presented.



U.S. EPA - CLF

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name RCI

Contract _____

Lab Code: _____

Case No.: _____

SAS No. _____

SDG No. _____

Initial Calibration Source: SPEX QC 19+7

Continuing Calibration Source: SPEX QC 19+7

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found ICV	%R(1)	True	Found CCV1	%R(1)	Found CCV2	%R(1)	M
Aluminum	1.0	1.02100	102.1	1.0	1.05070	105.1	1.02970	103.0	
Antimony	1.0	0.94455	94.5	1.0	0.92856	92.9	0.95213	95.2	
Arsenic	1.0	0.99734	99.7	1.0	0.97431	97.4	0.97658	97.7	
Barium	1.0	0.98377	98.4	1.0	0.97046	97.0	0.98925	98.9	
Beryllium	1.0	0.96883	96.9	1.0	0.96516	96.5	0.97088	97.1	
Cadmium	1.0	0.98723	98.7	1.0	0.97513	97.5	0.98953	99.0	
Calcium	1.0	1.06900	106.9	1.0	1.09300	109.3	1.07750	107.8	
Chromium	1.0	0.99818	99.8	1.0	0.98463	98.5	0.99723	99.7	
Cobalt	1.0	0.99753	99.8	1.0	0.98009	98.0	0.98871	98.9	
Copper	1.0	1.00070	100.1	1.0	0.98373	98.4	0.99486	99.5	
Iron	1.0	0.99458	99.5	1.0	0.99006	99.0	0.98620	98.6	
Lead	1.0	0.99272	99.3	1.0	0.97347	97.3	0.98659	98.7	
Magnesium	1.0	1.02100	102.1	1.0	1.04400	104.4	1.02350	102.4	
Manganese	1.0	0.99147	99.1	1.0	0.97164	97.2	0.97430	97.4	
Molybdenum	1.0	1.00020	100.0	1.0	0.96722	96.7	0.97848	97.8	
Nickel	1.0	0.99041	99.0	1.0	0.97656	97.7	0.99017	99.0	
Potassium	10.0	9.37910	93.8	10.0	9.38660	93.9	9.53400	95.3	
Selenium	1.0	0.99272	99.3	1.0	0.98328	98.3	0.99629	99.6	
Silver	0.5	0.49203	98.4	0.5	0.48292	96.6	0.48808	97.6	
Sodium	10.0			10.0					
Thallium	1.0	1.01890	101.9	1.0	0.98303	98.3	1.00140	100.1	
Vanadium	1.0	0.99556	99.6	1.0	0.98107	98.1	0.99054	99.1	
Zinc	1.0	0.98596	98.6	1.0	0.97503	97.5	0.98393	98.4	
Tin	1.0	0.93335	93.3	1.0	0.91785	91.8	0.92197	92.2	

U.S. EPA - CLP
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name RCI

Contract: _____

Lab Code: _____

Case No.: _____

SAS No. _____

SDG No. _____

Initial Calibration Source: SPEX QC 19+7

Continuing Calibration Source: SPEX QC 19+7

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found CCV3	%R(1)	True	Found CCV4	%R(1)	Found CCV5	%R(1)	M
Aluminum	1.0	1.02610	102.6	1.0	1.01360	101.4	1.03250	103.3	
Antimony	1.0	0.95776	95.8	1.0	0.95140	95.1	0.97370	97.4	
Arsenic	1.0	0.97724	97.7	1.0	0.97318	97.3	0.99603	99.6	
Barium	1.0	1.00110	100.1	1.0	1.01100	101.1	1.02490	102.5	
Beryllium	1.0	0.96626	96.6	1.0	0.96907	96.9	0.97630	97.6	
Cadmium	1.0	0.98587	98.6	1.0	0.99320	99.3	1.00210	100.2	
Calcium	1.0	1.06450	106.5	1.0	1.08230	108.2	1.11400	111.4	
Chromium	1.0	0.99352	99.4	1.0	0.99528	99.5	1.00880	100.9	
Cobalt	1.0	0.98362	98.4	1.0	0.98623	98.6	0.99625	99.6	
Copper	1.0	0.99491	99.5	1.0	0.98084	98.1	0.99819	99.8	
Iron	1.0	1.00210	100.2	1.0	1.00360	100.4	1.50210	150.2	
Lead	1.0	0.99726	99.7	1.0	0.98805	98.8	1.05160	105.2	
Magnesium	1.0	1.01190	101.2	1.0	1.02780	102.8	1.03310	103.3	
Manganese	1.0	0.96956	97.0	1.0	0.97160	97.2	0.97975	98.0	
Molybdenum	1.0	0.97558	97.6	1.0	0.98290	98.3	0.98607	98.6	
Nickel	1.0	0.98902	98.9	1.0	0.99433	99.4	1.00440	100.4	
Potassium	10.0	9.50760	95.1	10.0	9.53180	95.3	9.65100	96.5	
Selenium	1.0	0.98911	98.9	1.0	0.99810	99.8	1.00590	100.6	
Silver	0.5	0.48571	97.1	0.5	0.48283	96.6	0.48828	97.8	
Sodium	10.0			10.0	10.49500	105.0	10.57600	105.8	
Thallium	1.0	0.99177	99.2	1.0	0.99289	99.3	1.01060	101.1	
Vanadium	1.0	0.98727	98.7	1.0	0.98593	98.6	0.99525	99.5	
Zinc	1.0	0.98424	98.4	1.0	0.99492	99.5	1.00430	100.4	
Tin	1.0	0.91520	91.5	1.0	0.92187	92.2	0.95551	95.6	

Control Limits ICV, CCV 90-110%

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RCI -

Contract: _____

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Initial Calibration Source: SPEX QC 19+7

Continuing Calibration Source: SPEX QC 19+7

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration				
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)
		CCV6						
Aluminum	1.0	1.07180	107.2	1.0				
Antimony	1.0	0.97278	97.3	1.0				
Arsenic	1.0	0.98504	98.5	1.0				
Barium	1.0	1.01910	101.9	1.0				
Beryllium	1.0	0.96668	96.7	1.0				
Cadmium	1.0	0.99771	99.8	1.0				
Calcium	10.0	11.36100	113.6	1.0				
Chromium	1.0	1.00080	100.1	1.0				
Cobalt	1.0	0.98904	98.9	1.0				
Copper	1.0	0.98911	98.9	1.0				
Iron	1.0	1.02130	102.1	1.0				
Lead	1.0	0.98822	98.8	1.0				
Magnesium	1.0	1.08150	108.2	1.0				
Manganese	1.0	0.97397	97.4	1.0				
Molybdenum	1.0	0.98221	98.2	1.0				
Nickel	1.0	1.00100	100.1	1.0				
Potassium	10.0	9.57030	95.7	10.0				
Selenium	1.0	0.99886	99.9	1.0				
Silver	0.5	0.48483	97.0	0.5				
Sodium	10.0	10.72500	107.3	10.0				
Thallium	1.0	0.99972	100.0	1.0				
Vanadium	1.0	0.98796	98.8	1.0				
Zinc	1.0	0.99914	99.9	1.0				
Tin	1.0	0.92562	92.6	1.0				

Control Limits: CV, CCV 90-110%

TCLP EXTRACT QC SHEET

RCI Sample Numbers 242360-242371

Parameter	SW-846 Method	Method Blank (mg/l)	LCS % Recovery	LCS % Recovery Limits	Relative % Difference (RPD) on Analytical Run	Analytical RPD Maximum	TCLP Spike Data Sample No. 242363 Percent Recovery	TCLP RPD Sample 242363	Analysis Date	Analysts Initials
TCLP Extraction	1311								9/27/96	TKD
TCLP Metals										
Arsenic	6010A	<0.005	97.3	88.0-120.0	2.0	8.3	114.5	4.4	9/28/96	JLH
Barium	6010A	0.1	101.1	87.0-119.0	1.5	8.5	*	9.0	9/28/96	JLH
Cadmium	6010A	<0.005	99.3	87.0-120.0	2.1	9.7	116.3	13.7	9/28/96	JLH
Chromium	6010A	<0.02	99.5	84.0-115.0	2.1	9.7	103.4	ND	9/28/96	JLH
Lead	6010A	0.2	98.8	90.0-113.0	2.1	9.2	*	0.4	9/28/96	JLH
Selenium	6010A	<0.05	99.8	87.0-118.0	1.8	10.2	117.0	3.0	9/28/96	JLH
Silver	6010A	<0.01	96.6	85.0-118.0	2.0	14.5	85.2	ND	9/28/96	JLH
Mercury	7470A	<0.002	91.1	82.8-119.0	4.1	12.6	98.0	ND	9/30/96	JLH

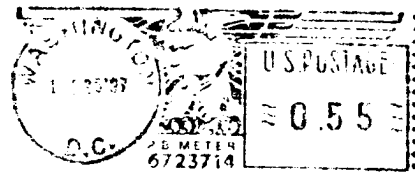
*Sample concentration too high for spike concentration

ND: Not Detected

LCS: Laboratory Control Sample



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