



GENCHEM

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: LB86092

SDG No.: LB86092

Contract: _____ Lab Code: CHEM

Case No.: LB86092

SAS No.: LB86092

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result mg/L	True Value	% Recovery	% RSD	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV1	Cyanide	0.24	0.25	96	0	90 - 110		02/28/2017	16:46	LB86092
CCV2	Cyanide	0.24	0.25	96	0	90 - 110		02/28/2017	16:54	LB86092
CCV3	Cyanide	0.26	0.25	104	0	90 - 110		02/28/2017	17:33	LB86092



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB86092 **SDG No.:** LB86092
Contract: **Lab Code:** CHEM **Case No.:** LB86092 **SAS No.:** LB86092

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB1	Cyanide	-0.0000189	+/-0.005	U		0.005		02/28/2017	16:46	LB86092



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB86092

SDG No.: LB86092

Contract:

Lab Code: CHEM

Case No.: LB86092

SAS No.: LB86092

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB1	Cyanide	0.00065	+/-0.005	U		0.005		02/28/2017	16:46	LB86092
CCB2	Cyanide	0.00075	+/-0.005	U		0.005		02/28/2017	16:54	LB86092
CCB3	Cyanide	0.00098	+/-0.005	U		0.005		02/28/2017	17:33	LB86092



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB86092

SDG No.: LB86092

Contract:

Lab Code: CHEM

Case No.: LB86092

SAS No.: LB86092

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
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Report of Analysis

Client:		Date Collected:	2/24/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/24/2017 12:00:00 AM
Client Sample ID:	SP-NORTH(0-2)	SDG No.:	LB86092
Lab Sample ID:	I2000-02	Matrix:	Solid
Level (low/med):	low	% Solid:	83.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.19	J	1	0.037		0.28	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/24/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/24/2017 12:00:00 AM
Client Sample ID:	SP-SOUTH(0-2)	SDG No.:	LB86092
Lab Sample ID:	I2000-05	Matrix:	Solid
Level (low/med):	low	% Solid:	81.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.073	J	1	0.04		0.3	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/24/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/25/2017 12:00:00 AM
Client Sample ID:	MH-6	SDG No.:	LB86092
Lab Sample ID:	I2005-02	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.00055	U	1	0.003		0.005	mg/L	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	FRAC-TANK-A155	SDG No.:	LB86092
Lab Sample ID:	I2011-01	Matrix:	WATER
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.0064		1	0.003		0.005	mg/L	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-8	SDG No.:	LB86092
Lab Sample ID:	I2012-01	Matrix:	Solid
Level (low/med):	low	% Solid:	94.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.13	J	1	0.033		0.25	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-9	SDG No.:	LB86092
Lab Sample ID:	I2012-03	Matrix:	Solid
Level (low/med):	low	% Solid:	94.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.38		1	0.033		0.25	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-10	SDG No.:	LB86092
Lab Sample ID:	I2012-05	Matrix:	Solid
Level (low/med):	low	% Solid:	92.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.2	J	1	0.033		0.25	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-11	SDG No.:	LB86092
Lab Sample ID:	I2012-07	Matrix:	Solid
Level (low/med):	low	% Solid:	93.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.48		1	0.034		0.26	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-12	SDG No.:	LB86092
Lab Sample ID:	I2012-09	Matrix:	Solid
Level (low/med):	low	% Solid:	93.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.098	J	1	0.034		0.26	mg/Kg	02/28/2017	02/28/2017	9012B



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Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-13	SDG No.:	LB86092
Lab Sample ID:	I2012-11	Matrix:	Solid
Level (low/med):	low	% Solid:	93.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.37		1	0.033		0.25	mg/Kg	02/28/2017	02/28/2017	9012B



Report of Analysis

Client:		Date Collected:	2/27/2017 12:00:00 AM
Project:	LB86092	Date Received:	2/27/2017 12:00:00 AM
Client Sample ID:	P-13	SDG No.:	LB86092
Lab Sample ID:	I2012-11	Matrix:	Solid
Level (low/med):	low	% Solid:	93.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
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Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits.

E = Indicates the reported value is estimated because of the presence of interference.

OR = Over Range

N = Spiked sample recovery not within control limits



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PREPARATION BLANK SUMMARY

Client: LB86092

SDG No.: LB86092

Instrument: Konelab 20

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	LOD mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB97245BL	SOLID		Batch Number:		PB97245		Prep Date:		02/28/2017	
	Cyanide	0.018	<0.25	U		0.25		02/28/2017	16:46	LB86092
Sample ID	Analyte	Result (mg/L)	Acceptance Limit	Conc Qual	LOD mg/L	CRQL mg/L	M	Analysis Date	Analysis Time	Run
PB97246BL	WATER		Batch Number:		PB97246		Prep Date:		02/28/2017	
	Cyanide	0.00021	<0.005	U		0.005		02/28/2017	16:54	LB86092



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MATRIX SPIKE SUMMARY

client: LB86092 level: low sdg no.: LB86092
contract: lab code: CHEM case no.: LB86092 sas no.: LB86092
matrix: Solid sample id: I2000-02 client id: SP-NORTH(0-2)MS
Percent Solids for Sample: 83.9 Spiked ID: I2000-02MS Percent Solids for Spike Sample: 83.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125	2.2		0.19	J	2.3	87		



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MATRIX SPIKE DUPLICATE SUMMARY

client: LB86092 level: low sdg no.: LB86092
contract: lab code: CHEM case no.: LB86092 sas no.: LB86092
matrix: Solid sample id: I2000-02 client id: SP-NORTH(0-2)MSD
Percent Solids for Sample: 83.9 Spiked ID: I2000-02MSD Percent Solids for Spike Sample: 83.9

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125	2.2		0.19	J	2.2	91		



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MATRIX SPIKE SUMMARY

client: LB86092 level: low sdg no.: LB86092
contract: lab code: CHEM case no.: LB86092 sas no.: LB86092
matrix: WATER sample id: I2005-02 client id: MH-6MS
Percent Solids for Sample: 0 Spiked ID: I2005-02MS Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/L	75 - 125	0.029		0.003	U	0.04	72.5	*	



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MATRIX SPIKE DUPLICATE SUMMARY

client: LB86092 level: low sdg no.: LB86092
contract: lab code: CHEM case no.: LB86092 sas no.: LB86092
matrix: WATER sample id: I2005-02 client id: MH-6MSD
Percent Solids for Sample: 0 Spiked ID: I2005-02MSD Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/L	75 - 125	0.03		0.003	U	0.04	75		

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DUPLICATE SAMPLE SUMMARY

Client: LB86092 **Level:** LOW **SDG No.:** LB86092
Contract: **Lab Code:** CHEM **Case No.:** LB86092 **SAS No.:** LB86092
Matrix: Solid **Sample ID:** I2000-02 **Client ID:** SP-NORTH(0-2)DUP
Percent Solids for Sample: 83.9 **Duplicate ID** I2000-02DUP **Percent Solids for Spike Sample:** 83.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	0.19	J	0.18	J	5		

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DUPLICATE SAMPLE SUMMARY

Client: LB86092 **Level:** LOW **SDG No.:** LB86092
Contract: **Lab Code:** CHEM **Case No.:** LB86092 **SAS No.:** LB86092
Matrix: Solid **Sample ID:** I2000-02MS **Client ID:** SP-NORTH(0-2)MSD
Percent Solids for Sample: 83.9 **Duplicate ID** I2000-02MSD **Percent Solids for Spike Sample:** 83.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	2.2		2.2		0		

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DUPLICATE SAMPLE SUMMARY

Client: LB86092 **Level:** LOW **SDG No.:** LB86092
Contract: **Lab Code:** CHEM **Case No.:** LB86092 **SAS No.:** LB86092
Matrix: WATER **Sample ID:** I2005-02 **Client ID:** MH-6DUP
Percent Solids for Sample: 0 **Duplicate ID** I2005-02DUP **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/L	20	0.003	U	-0.00097	U			

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DUPLICATE SAMPLE SUMMARY

Client: LB86092 **Level:** LOW **SDG No.:** LB86092
Contract: **Lab Code:** CHEM **Case No.:** LB86092 **SAS No.:** LB86092
Matrix: WATER **Sample ID:** I2005-02MS **Client ID:** MH-6MSD
Percent Solids for Sample: 0 **Duplicate ID** I2005-02MSD **Percent Solids for Spike Sample:** 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/L	20	0.029		0.03		3		



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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB86092

SDG No.: LB86092

Contract:

Lab Code: CHEM

Case No.: LB86092

SAS No.: LB86092

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB97245BS Cyanide	mg/Kg	5	4.9		98	85 - 115	



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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB86092

SDG No.: LB86092

Contract:

Lab Code: CHEM

Case No.: LB86092

SAS No.: LB86092

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB97246BS Cyanide	mg/L	0.1	0.1		100	85 - 115	