



GENCHEM

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: LB87177

SDG No.: LB87177

Contract: _____

Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

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
ICV1	Cyanide	0.094	0.099	94.9	0	85 - 115		05/01/2017	13:52	LB87177



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- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: LB87177

SDG No.: LB87177

Contract: _____ Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

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		05/01/2017	13:52	LB87177
CCV2	Cyanide	0.24	0.25	96	0	90 - 110		05/01/2017	13:59	LB87177
CCV3	Cyanide	0.24	0.25	96	0	90 - 110		05/01/2017	14:07	LB87177
CCV4	Cyanide	0.26	0.25	104	0	90 - 110		05/01/2017	14:11	LB87177

GENCHEM

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB87177

SDG No.: LB87177

Contract:

Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB1	Cyanide	0	+/-0.005	U		0.005		05/01/2017	13:52	LB87177

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB1	Cyanide	0.00025	+/-0.005	U		0.005		05/01/2017	13:52	LB87177
CCB2	Cyanide	-0.0001	+/-0.005	U		0.005		05/01/2017	13:59	LB87177
CCB3	Cyanide	0.00035	+/-0.005	U		0.005		05/01/2017	14:07	LB87177
CCB4	Cyanide	-0.00022	+/-0.005	U		0.005		05/01/2017	14:11	LB87177



GENCHEM

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB87177

SDG No.: LB87177

Contract: Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

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:	
Project:	LB87177	Date Received:	
Client Sample ID:	HIGHPB98605	SDG No.:	LB87177
Lab Sample ID:	HIGHPB98605	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	0.49		1	0.003		0.005	mg/L		05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	TEST-PIT-COMP	SDG No.:	LB87177
Lab Sample ID:	I2919-01	Matrix:	Solid
Level (low/med):	low	% Solid:	89.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.022	U	1	0.036		0.27	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	72-11930/72-11937/VNJ-239	SDG No.:	LB87177
Lab Sample ID:	I2920-01	Matrix:	Solid
Level (low/med):	low	% Solid:	91

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.1	J	1	0.035		0.26	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	VNJ-210/72-11940/72-11932	SDG No.:	LB87177
Lab Sample ID:	I2920-06	Matrix:	Solid
Level (low/med):	low	% Solid:	91.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.00049	U	1	0.034		0.26	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	144-159-284-331	SDG No.:	LB87177
Lab Sample ID:	I2920-11	Matrix:	Solid
Level (low/med):	low	% Solid:	92.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.013	U	1	0.033		0.25	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	6TH-ST-SOIL-CUTTINGS(COMP)	SDG No.:	LB87177
Lab Sample ID:	I2923-01	Matrix:	Solid
Level (low/med):	low	% Solid:	62.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	2.5		1	0.05		0.38	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	6TH-ST-PURGE-WATER(COMP)	SDG No.:	LB87177
Lab Sample ID:	I2923-06	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	0.13		1	0.003		0.005	mg/L	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	220-1W-COMP-001	SDG No.:	LB87177
Lab Sample ID:	I2925-01	Matrix:	Solid
Level (low/med):	low	% Solid:	92.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.014	U	1	0.034		0.26	mg/Kg	05/01/2017	05/01/2017	9012B

Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	FK-GF-03-003-A	SDG No.:	LB87177
Lab Sample ID:	I2927-01	Matrix:	Solid
Level (low/med):	low	% Solid:	90.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.057	J	1	0.035		0.27	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	FK-GF-03-003-B	SDG No.:	LB87177
Lab Sample ID:	I2927-03	Matrix:	Solid
Level (low/med):	low	% Solid:	90

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.021	U	1	0.035		0.26	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	SP-1-COMP	SDG No.:	LB87177
Lab Sample ID:	I2928-01	Matrix:	Solid
Level (low/med):	low	% Solid:	89

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.014	U	1	0.035		0.26	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	GF-TEST	SDG No.:	LB87177
Lab Sample ID:	I2929-01	Matrix:	Solid
Level (low/med):	low	% Solid:	87.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.016	U	1	0.035		0.26	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	RO-1-COMP	SDG No.:	LB87177
Lab Sample ID:	I2930-01	Matrix:	Solid
Level (low/med):	low	% Solid:	83.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	-0.0085	U	1	0.037		0.28	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	SP-1-COMP	SDG No.:	LB87177
Lab Sample ID:	I2930-04	Matrix:	Solid
Level (low/med):	low	% Solid:	86.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.032	U	1	0.037		0.28	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/28/2017 12:00:00 AM
Project:	LB87177	Date Received:	4/28/2017 12:00:00 AM
Client Sample ID:	SP-2-COMP	SDG No.:	LB87177
Lab Sample ID:	I2930-12	Matrix:	Solid
Level (low/med):	low	% Solid:	85.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.081	J	1	0.038		0.28	mg/Kg	05/01/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	
Project:	LB87177	Date Received:	
Client Sample ID:	LOWPB98605	SDG No.:	LB87177
Lab Sample ID:	LOWPB98605	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	0.0098		1	0.003		0.005	mg/L		05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	
Project:	LB87177	Date Received:	
Client Sample ID:	LOWPB98605	SDG No.:	LB87177
Lab Sample ID:	LOWPB98605	Matrix:	WATER
Level (low/med):	low	% Solid:	0

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



GENCHEM
- 3b -
PREPARATION BLANK SUMMARY

Client: LB87177

SDG No.: LB87177

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
PB98605BL	Cyanide	SOLID		Batch Number:		PB98605		Prep Date:	05/01/2017	
		-0.0012	<0.25	U		0.25		05/01/2017	13:52	LB87177
Sample ID	Analyte	Result (mg/L)	Acceptance Limit	Conc Qual	LOD mg/L	CRQL mg/L	M	Analysis Date	Analysis Time	Run
PB98610BL	Cyanide	WATER		Batch Number:		PB98610		Prep Date:	05/01/2017	
		0	<0.005	U		0.005		05/01/2017	14:07	LB87177

GENCHEM
- 5a -
MATRIX SPIKE SUMMARY

client: LB87177 level: low sdg no.: LB87177
contract: lab code: CHEM case no.: LB87177 sas no.: LB87177
matrix: Solid sample id: I2919-01 client id: TEST-PIT-COMPMS
Percent Solids for Sample: 89.1 Spiked ID: I2919-01MS Percent Solids for Spike Sample: 89.1

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125	2.2		0.036	U	2.2	100		



GENCHEM
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: LB87177 level: low sdg no.: LB87177
contract: lab code: CHEM case no.: LB87177 sas no.: LB87177
matrix: Solid sample id: I2919-01 client id: TEST-PIT-COMPMSD
Percent Solids for Sample: 89.1 Spiked ID: I2919-01MSD Percent Solids for Spike Sample: 89.1

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125		2	0.036	U	2.2	90.9		



GENCHEM
- 5a -
MATRIX SPIKE SUMMARY

client: LB87177 level: low sdg no.: LB87177
contract: lab code: CHEM case no.: LB87177 sas no.: LB87177
matrix: WATER sample id: I2923-06 client id: 6TH-ST-PURGE-WATER(COMP)MS
Percent Solids for Sample: 0 Spiked ID: I2923-06MS 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	0.19		0.13		0.04	150	*	



GENCHEM
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: LB87177 level: low sdg no.: LB87177
contract: lab code: CHEM case no.: LB87177 sas no.: LB87177
matrix: WATER sample id: I2923-06 client id: 6TH-ST-PURGE-WATER(COMP)MSD
Percent Solids for Sample: 0 Spiked ID: I2923-06MSD 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	0.19		0.13		0.04	150	*	

GENCHEM

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DUPLICATE SAMPLE SUMMARY

Client: LB87177 **Level:** LOW **SDG No.:** LB87177
Contract: **Lab Code:** CHEM **Case No.:** LB87177 **SAS No.:** LB87177
Matrix: Solid **Sample ID:** I2919-01 **Client ID:** TEST-PIT-COMPDU
Percent Solids for Sample: 89.1 **Duplicate ID** I2919-01DUP **Percent Solids for Spike Sample:** 89.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	0.036	U	0.0044	U			

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DUPLICATE SAMPLE SUMMARY

Client: LB87177 **Level:** LOW **SDG No.:** LB87177
Contract: **Lab Code:** CHEM **Case No.:** LB87177 **SAS No.:** LB87177
Matrix: Solid **Sample ID:** I2919-01MS **Client ID:** TEST-PIT-COMPMSD
Percent Solids for Sample: 89.1 **Duplicate ID** I2919-01MSD **Percent Solids for Spike Sample:** 89.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	2.2			2	10		

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DUPLICATE SAMPLE SUMMARY

Client: LB87177 Level: LOW SDG No.: LB87177
Contract: Lab Code: CHEM Case No.: LB87177 SAS No.: LB87177
Matrix: WATER Sample ID: I2923-06 Client ID: 6TH-ST-PURGE-WATER(COMP)DUP
Percent Solids for Sample: 0 Duplicate ID I2923-06DUP Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/L	20	0.13		0.13		0		

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”



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DUPLICATE SAMPLE SUMMARY

Client: LB87177 Level: LOW SDG No.: LB87177
Contract: _____ Lab Code: CHEM Case No.: LB87177 SAS No.: LB87177
Matrix: WATER Sample ID: I2923-06MS Client ID: 6TH-ST-PURGE-WATER(COMP)MSD
Percent Solids for Sample: 0 Duplicate ID I2923-06MSD Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/L	20	0.19		0.19		0		

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”



GENCHEM

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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB87177

SDG No.: LB87177

Contract:

Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB98605BS Cyanide	mg/Kg	4.9	4.8		98	85 - 115	



GENCHEM

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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB87177

SDG No.: LB87177

Contract:

Lab Code: CHEM

Case No.: LB87177

SAS No.: LB87177

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB98610BS Cyanide	mg/L	0.1	0.1		100	85 - 115	