



GENCHEM

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: LB87166

SDG No.: LB87166

Contract: _____ Lab Code: CHEM

Case No.: LB87166

SAS No.: LB87166

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	0.096	0.099	97	0	85 - 115		05/01/2017	10:06	LB87166



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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: LB87166

SDG No.: LB87166

Contract: _____ Lab Code: CHEM

Case No.: LB87166

SAS No.: LB87166

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	10:06	LB87166
CCV2	Cyanide	0.24	0.25	96	0	90 - 110		05/01/2017	10:14	LB87166
CCV3	Cyanide	0.26	0.25	104	0	90 - 110		05/01/2017	10:41	LB87166



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB87166 **SDG No.:** LB87166
Contract: **Lab Code:** CHEM **Case No.:** LB87166 **SAS No.:** LB87166

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB1	Cyanide	0.0001	+/-0.005	U		0.005		05/01/2017	10:06	LB87166



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB87166

SDG No.: LB87166

Contract:

Lab Code: CHEM

Case No.: LB87166

SAS No.: LB87166

Sample ID	Analyte	Result mg/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB1	Cyanide	-0.0001	+/-0.005	U		0.005		05/01/2017	10:06	LB87166
CCB2	Cyanide	0.00017	+/-0.005	U		0.005		05/01/2017	10:14	LB87166
CCB3	Cyanide	0.00011	+/-0.005	U		0.005		05/01/2017	10:41	LB87166



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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: LB87166

SDG No.: LB87166

Contract: Lab Code: CHEM

Case No.: LB87166

SAS No.: LB87166

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:	LB87166	Date Received:	
Client Sample ID:	HIGHPB98556	SDG No.:	LB87166
Lab Sample ID:	HIGHPB98556	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:	4/27/2017 12:00:00 AM
Project:	LB87166	Date Received:	4/27/2017 12:00:00 AM
Client Sample ID:	MANHOLE-9-COMP	SDG No.:	LB87166
Lab Sample ID:	I2873-02	Matrix:	Solid
Level (low/med):	low	% Solid:	77.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
57-12-5	Cyanide	0.083	J	1	0.04		0.31	mg/Kg	04/28/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	4/27/2017 12:00:00 AM
Project:	LB87166	Date Received:	4/27/2017 12:00:00 AM
Client Sample ID:	FRAC-TANK-A1841DW	SDG No.:	LB87166
Lab Sample ID:	I2873-08	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	0.00067	U	1	0.003		0.005	mg/L	04/28/2017	05/01/2017	9012B



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Report of Analysis

Client:		Date Collected:	
Project:	LB87166	Date Received:	
Client Sample ID:	LOWPB98556	SDG No.:	LB87166
Lab Sample ID:	LOWPB98556	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:	LB87166	Date Received:	
Client Sample ID:	LOWPB98556	SDG No.:	LB87166
Lab Sample ID:	LOWPB98556	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



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PREPARATION BLANK SUMMARY

Client: LB87166

SDG No.: LB87166

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
PB98555BL	Cyanide	SOLID		Batch Number:		PB98555		Prep Date:	04/28/2017	
		0.063	<0.25	J		0.25		05/01/2017	10:14	LB87166
Sample ID	Analyte	Result (mg/L)	Acceptance Limit	Conc Qual	LOD mg/L	CRQL mg/L	M	Analysis Date	Analysis Time	Run
PB98556BL	Cyanide	WATER		Batch Number:		PB98556		Prep Date:	04/28/2017	
		-0.00028	<0.005	U		0.005		05/01/2017	10:06	LB87166



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MATRIX SPIKE SUMMARY

client: LB87166 level: low sdg no.: LB87166
contract: lab code: CHEM case no.: LB87166 sas no.: LB87166
matrix: Solid sample id: I2873-02 client id: MANHOLE-9-COMPMS
Percent Solids for Sample: 77.9 Spiked ID: I2873-02MS Percent Solids for Spike Sample: 77.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125	2.3		0.083	J	2.5	89		



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MATRIX SPIKE DUPLICATE SUMMARY

client: LB87166 level: low sdg no.: LB87166
contract: lab code: CHEM case no.: LB87166 sas no.: LB87166
matrix: Solid sample id: I2873-02 client id: MANHOLE-9-COMPMSD
Percent Solids for Sample: 77.9 Spiked ID: I2873-02MSD Percent Solids for Spike Sample: 77.9

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cyanide	mg/Kg	75 - 125	2.3		0.083	J	2.5	89		



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MATRIX SPIKE SUMMARY

client: LB87166 level: low sdg no.: LB87166
contract: lab code: CHEM case no.: LB87166 sas no.: LB87166
matrix: WATER sample id: I2873-08 client id: FRAC-TANK-A1841DWMS
Percent Solids for Sample: 0 Spiked ID: I2873-08MS 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	0.031		0.003	U	0.04	77.5		



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MATRIX SPIKE DUPLICATE SUMMARY

client: LB87166 level: low sdg no.: LB87166
contract: lab code: CHEM case no.: LB87166 sas no.: LB87166
matrix: WATER sample id: I2873-08 client id: FRAC-TANK-A1841DWMSD
Percent Solids for Sample: 0 Spiked ID: I2873-08MSD 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	0.031		0.003	U	0.04	77.5		

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DUPLICATE SAMPLE SUMMARY

Client: LB87166 **Level:** LOW **SDG No.:** LB87166
Contract: **Lab Code:** CHEM **Case No.:** LB87166 **SAS No.:** LB87166
Matrix: Solid **Sample ID:** I2873-02 **Client ID:** MANHOLE-9-COMPDUP
Percent Solids for Sample: 77.9 **Duplicate ID** I2873-02DUP **Percent Solids for Spike Sample:** 77.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	0.083	J	0.11	J	28	*	

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DUPLICATE SAMPLE SUMMARY

Client: LB87166 Level: LOW SDG No.: LB87166
Contract: _____ Lab Code: CHEM Case No.: LB87166 SAS No.: LB87166
Matrix: Solid Sample ID: I2873-02MS Client ID: MANHOLE-9-COMPMSD
Percent Solids for Sample: 77.9 Duplicate ID I2873-02MSD Percent Solids for Spike Sample: 77.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/Kg	20	2.3		2.3		0		

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DUPLICATE SAMPLE SUMMARY

Client: LB87166 **Level:** LOW **SDG No.:** LB87166
Contract: **Lab Code:** CHEM **Case No.:** LB87166 **SAS No.:** LB87166
Matrix: WATER **Sample ID:** I2873-08 **Client ID:** FRAC-TANK-A1841DWDUP
Percent Solids for Sample: 0 **Duplicate ID** I2873-08DUP **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	0.0001	U			



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DUPLICATE SAMPLE SUMMARY

Client: LB87166 Level: LOW SDG No.: LB87166
Contract: Lab Code: CHEM Case No.: LB87166 SAS No.: LB87166
Matrix: WATER Sample ID: I2873-08MS Client ID: FRAC-TANK-A1841DWMSD
Percent Solids for Sample: 0 Duplicate ID I2873-08MSD Percent Solids for Spike Sample: 0

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cyanide	mg/L	20	0.031		0.031		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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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB87166 SDG No.: LB87166
Contract: Lab Code: CHEM Case No.: LB87166 SAS No.: LB87166

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB98555BS Cyanide	mg/Kg	5	5		100	85 - 115	



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LABORATORY CONTROL SAMPLE SUMMARY

Client: LB87166

SDG No.: LB87166

Contract:

Lab Code: CHEM

Case No.: LB87166

SAS No.: LB87166

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB98556BS Cyanide	mg/L	0.1	0.099		99	85 - 115	