ATTACHMENT F



Lehigh Hanson HEIDELBERGCEMENTGroup

Gregory Knapp Director Environmental Affairs, Region West 12667 Alcosta Blvd , San Ramon, CA 94583 (925) 244-6570

January 15, 2015

Mr. Rob Eastwood Principal Planner, County of Santa Clara Santa Clara County Planning Department

RE: Pond 30 December Stormwater Results

Dear Mr. Eastwood

Attached are the lab sheets for the December 2014 stormwater analysis results from discharges out of Pond 30. We have included a summary of the results below, as you requested. Note that the sampling results show a general increase in recorded total recoverable selenium in comparison to the past two seasons. We are analyzing the causes for this, which may include the large storm flows associated with December storms and reclamation grading during the fall which was anticipated to generate a temporary increase in selenium in runoff. We intend to meet in short order to discuss the results in more detail.

Sample Date December 2

Total Recoverable Selenium: 26 micrograms/liter (ug/L or parts per billion) Mercury: 2.47 ug/L Oil & Grease: Non Detect (ND) Settleable Solids: 80 milliliters per liter/hour (ml/L-hr) Total Suspended Solids (TSS): 7100 milligrams/liter (mg/L) Hexavalent chromium ("Chromium 6"): 1.5 ug/L Total Recoverable Nickel: 890 ug/L Thallium: 3.2 ug/L

Sample Date December 12

Total Recoverable Selenium: 65 ug/L Mercury: ND Total Dissolved Solids (TDS): 170 mg/L Total Recoverable Nickel: 14 ug/L Total Recoverable Thallium: 0.24 ug/L Total Recoverable Antimony: 1.1 ug/L Total Recoverable Arsenic 3.4 ug/L Total Recoverable Beryllium: ND Total Recoverable Beryllium: 0.26 ug/L Total Recoverable Cadmium: 0.26 ug/L Total Recoverable Chromium: 3.9 ug/L Total Recoverable Copper: 9.6 ug/L Total Recoverable Lead: 0.15 ug/L Total Recoverable Silver: ND Total Recoverable Zinc: 67 ug/L

Sample Date December 22

Total Recoverable Selenium: 81 ug/L Mercury: ND Total Dissolved Solids (TDS): 2800 mg/L Total Recoverable Nickel: 21 ug/L Total Recoverable Thallium: ND Total Recoverable Antimony: ND Total Recoverable Arsenic 3.9 ug/L Total Recoverable Beryllium: ND Total Recoverable Cadmium: 0.31 ug/L Total Recoverable Chromium: 3.3 ug/L Total Recoverable Copper: 8.3 ug/L Total Recoverable Lead: 0.25 ug/L Total Recoverable Silver: ND Total Recoverable Zinc: 60 ug/L

Any page labeled "Quality Control" indicates reported laboratory method tests using spiked samples to assure actual result accuracy. These results are not actual samples from Pond 30. Any page labeled "Chain of Custody" indicates the transfer of samples from the field through the various laboratories.

Please contact me with any questions.

Dugory almuss

Gregory Knapp Director Environmental Affairs Lehigh Hanson Region West



Date of Report: 01/08/2015

George Wegmann

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Client Project:	063-7109-916
BCL Project:	Lehigh Pond
BCL Work Order:	1430607
Invoice ID:	B192974

Enclosed are the results of analyses for samples received by the laboratory on 12/22/2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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 Page



Table of Contents

Sample Information	97 - C
Chain of Custody and Cooler Receipt form	
Chain of Custody and Cooler Receipt form Laboratory / Client Sample Cross Reference	
Sample Results	
1430607-01 - Pond 30	
Water Analysis (General Chemistry)	6
Metals Analysis	
Quality Control Reports	
Water Analysis (General Chemistry)	
Method Blank Analysis	8
Laboratory Control Sample Precision and Accuracy	
Precision and Accuracy	10
Metals Analysis	
Method Blank Analysis	11
Laboratory Control Sample	12
Precision and Accuracy	13
Notes	
Notes and Definitions	

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on. Page 3 of 15

Laboratories, Inc.

B

Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1430607 Page 2 of 2

Submission #: 14 - 3060 SHIPPING INFO Federal Express □ UPS □ BC Lab Field Service Ø Other	RMATION	vl livery □ y)		SHIPPING CONTAINER FREE LIQUID Ice Chest I None Box I YES I NO YES I Other I (Specify) YES I							
Refrigerant: lice 🕅 Blue lice		ne 🛛 🚥	Other 🗆	Com	nents:						
Custody Seals Ice Chest C	Contai			Con	iments:	44 F	e		, **** - ;	•	
All samples received? Yes LNo 🗆	All sample	es containe	rs intact?	Yes No		- Descrip	tion(s) mate	ch COC?	(es No	0	
COC Received	missivity:	0.98	Container	15	Thermor	meter ID: /	108_	Date/Tin	ne 12-02	4-2153	
	Temperatu	re: (A)	1.0	°C /	(C) /	*** (<u>*</u> ***	°C	Analyst		-	
SAMPLE CONTAINERS					SAMPLE	NUMBERS					
whether and the second s	Å	2	3	4	5	6	7	8	9	10	
OT GENERAL MINERAL/ GENERAL									1		
PT PE UNPRESERVED										-	
OT INORGANIC CHEMICAL METALS	n									·	
PT INORGANIC CHEMICAL METALS	B									1	
PT CYANIDE											
PT NITROGEN FORMS					· · ·						
PT TOTAL SULFIDE											
202. NITRATE / NITRITE											
PT TOTAL ORGANIC CARBON											
T TOX									17		
PT CHEMICAL OXYGEN DEMAND											
PLA PHENOLICS											
ODI VOA VIAL TRAVEL BLANK											
Oml VOA VIAL											
2T EPA 413.1, 413.2, 418.1											
TODOR											
ADIOLOGICAL											
ACTERIOLOGICAL											
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T EPA 515.1/8150											
T EPA 515.1/8150											
T EPA 525 TRAVEL BLANK				t	-						
Imi EPA 547			10 T.S	1							
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T EPA 8015M											
r Amber											
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ASTIC BAG							.		·		
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Report ID: 1000313938

BC Laborator Environmental Testing I	
Golder Associates	Reported: 01/08/2015 19:37
25 Lakeside Drive	Project: Lehigh Pond
Sunnyvale, CA 94085	Project Number: 063-7109-916
	Project Manager: George Wegmann

1

430607-01	COC Number:		Receive Date:	12/22/2014 21:45
	Project Number:		Sampling Date:	12/20/2014 14:00
	Sampling Location:	Pond 30	Sample Depth:	
	Sampling Point:	Pond 30	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water

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Golder Associates 425 Lakeside Drive

Sunnyvale, CA 94085

Reported:01/08/201519:37Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

BCL Sample ID:	1430607-01	Client Sampl	Pond 30,	Pond 30, 1	2/20/2014 2:0	0:00PM, David	Walter		
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Dissolved Solid	s @ 180 C	2800	mg/L	100	100	EPA-160.1	ND		1

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-160.1	12/26/14	12/26/14 13:00	CAD	MANUAL	10	BXL2402	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

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Reported:01/08/2015 19:37Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

BCL Sample ID: 1430607-01	Client Sampl	e Name:	Pond 30,	Pond 30, Pond 30, 12/20/2014 2:00:00PM, David Walter							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #			
Total Recoverable Antimony	ND	ug/L	4.0	0.22	EPA-200.8	ND	A07	1			
Total Recoverable Arsenic	3.9	ug/L	4.0	1.4	EPA-200.8	ND	J,A07	1			
Total Recoverable Beryllium	ND	ug/L	2.0	0.46	EPA-200.8	ND	A07	1			
Total Recoverable Cadmium	0.31	ug/L	2.0	0.22	EPA-200.8	ND	J,A07	1			
Total Recoverable Chromium	3.3	ug/L	6.0	1.0	EPA-200.8	ND	J,A07 .	1			
Total Recoverable Copper	8.3	ug/L	4.0	0.44	EPA-200.8	ND	A07	1			
Total Recoverable Lead	0.25	ug/L	2.0	0.20	EPA-200.8	ND	J,A07	1			
Total Recoverable Mercury	ND	ug/L	0.20	0.033	EPA-245.1	ND	-	2			
Total Recoverable Nickel	21	ug/L	4.0	0.38	EPA-200.8	ND	A07	1			
Total Recoverable Selenium	81	ug/L	4.0	0.38	EPA-200.8	ND	A07	- 1			
Total Recoverable Silver	ND	ug/L	2.0	0.20	EPA-200.8	ND	A07	1			
Total Recoverable Thallium	ND	ug/L	2.0	0.20	EPA-200.8	ND	A07	1			
Total Recoverable Zinc	60	ug/L	20	3.4	EPA-200.8	ND	A07	1			

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-200.8	01/07/15	01/08/15 13:27	EAR	PE-EL2	2	BYA0348	
2	EPA-245.1	01/07/15	01/07/15 17:26	MEV	CETAC1	1	BYA0293	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported: 01/08/2015 19:37 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BXL2402			u.	:		* a [*]
Total Dissolved Solids @ 180 C	BXL2402-BLK1	ND	mg/L	6.7	6.7	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported: 01/08/2015 19:37 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

								Control L	imits		
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
QC Batch ID: BXL2402									-		
Total Dissolved Solids @ 180 C	BXL2402-BS1	LCS	565.00	586.00	mg/L	96.4		90 - 110			

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:01/08/201519:37Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Cont	rol Limits		
		Source	Source		Spike		100	Percent		Percent	Lab	
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals	
QC Batch ID: BXL2402	Use	d client samp	le: Y - Des	cription: Poi	nd 30, 12/20	/2014 14:	00			194		
Total Dissolved Solids @ 180 C	DUP	1430607-01	2830.0	2840.0		mg/L	0.4		10			

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Reported:01/08/2015 19:37Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYA0293						
Total Recoverable Mercury	BYA0293-BLK1	ND	ug/L	0.20	0.033	
QC Batch ID: BYA0348						
Total Recoverable Antimony	BYA0348-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	BYA0348-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Beryllium	BYA0348-BLK2	ND	ug/L	1.0	0.23	
Total Recoverable Cadmium	BYA0348-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	BYA0348-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Copper	BYA0348-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	BYA0348-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Nickel	BYA0348-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	BYA0348-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	BYA0348-BLK1	ND	ug/L	1.0	0.10	2
Total Recoverable Thallium	BYA0348-BLK1	ND	ug/L	1.0	0.10	1. 1. m. 1. 1
Total Recoverable Zinc	BYA0348-BLK1	ND	ug/L	10	1.7	

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Reported: 01/08/2015 19:37 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Metals Analysis

Quality Control Report - Laboratory Control Sample

	<i></i>							Control I	_imits		
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	1
QC Batch ID: BYA0293		-	- 2				1				
Total Recoverable Mercury	BYA0293-BS1	LCS	0.99750	1.0000	ug/L	99.8		85 - 115			
QC Batch ID: BYA0348		×	4.5			X is	-			,	
Total Recoverable Antimony	BYA0348-BS1	LCS	41.048	40.000	ug/L	103		85 - 115			
Total Recoverable Arsenic	BYA0348-BS1	LCS	105.54	100.00	ug/L	106		85 - 115			
Total Recoverable Beryllium	BYA0348-BS2	LCS	45.832	40.000	ug/L	115		85 - 115			
Total Recoverable Cadmium	BYA0348-BS1	LCS	42.892	40.000	ug/L	107		85 - 115			
Total Recoverable Chromium	BYA0348-BS1	LCS	43.366	40.000	ug/L	108		85 - 115			
Total Recoverable Copper	BYA0348-BS1	LCS	110.91	100.00	ug/L	111		85 - 115			
Total Recoverable Lead	BYA0348-BS1	LCS	103.18	100.00	ug/L	103		85 - 115			
Total Recoverable Nickel	BYA0348-BS1	LCS	107.54	100.00	ug/L	108		85 - 115			
Total Recoverable Selenium	BYA0348-BS1	LCS	104.66	100.00	ug/L	105		85 - 115	4		
Total Recoverable Silver	BYA0348-BS1	LCS	41.670	40.000	ug/L	104		85 - 115			
Total Recoverable Thallium	BYA0348-BS1	LCS	40.919	40.000	ug/L	102		85 - 115	7		
Total Recoverable Zinc	BYA0348-BS1	LCS	110.65	100.00	ug/L	111		85 - 115			

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Reported: 01/08/2015 19:37 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: BYA0293	Use	d client samp	le: N								
otal Recoverable Mercury	DUP	1430474-04	ND	ND		ug/L			20		
	MS	1430474-04	ND	0.99250	1.0000	ug/L		99.2		70 - 130	
	MSD	1430474-04	ND	1.0125	1.0000	ug/L	2.0	101	20	70 - 130	
QC Batch ID: BYA0348	Use	d client samp	ole: N								
otal Recoverable Antimony	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	40.190	40,000	ug/L		100		70 - 130	
	MSD	1430603-01	ND	41.191	40.000	ug/L	2.5	103	20	70 - 130	
otal Recoverable Arsenic	DUP	1430603-01	ND	ND		ug/L			20		E.
	MS	1430603-01	ND	110.99	100.00	ug/L		111		70 - 130	
	MSD	1430603-01	ND	112.57	100.00	ug/L	1.4	113	20	70 - 130	
Total Recoverable Beryllium	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	40.061	40.000	ug/L		100		70 - 130	
	MSD	1430603-01	ND	40.749	40.000	ug/L	1.7	102	20	70 - 130	
otal Recoverable Cadmium	DUP	1430603-01	ND	ND		ug/L	6		20		
	MS	1430603-01	ND	. 37.127	40.000	ug/L		92.8		70 - 130	
	MSD	1430603-01	ND	37.972	40.000	ug/L	2.3	94.9	20	70 - 130	2
otal Recoverable Chromium	DUP	1430603-01	ND	0.76000		ug/L	2		20		J
	MS	1430603-01	ND	38.752	40.000	ug/L		96.9		70 - 130	
	MSD	1430603-01	ND	39.850	40.000	ug/L	2.8	99.6	20	70 - 130	
otal Recoverable Copper	DUP	1430603-01	3.6450	3.4230		ug/L	6.3	X	20		
	MS	1430603-01	3.6450	103.05	100.00	ug/L	×.	99.4		70 - 130	
	MSD	1430603-01	3.6450	103.38	100.00	ug/L	0.3	99.7	20	70 - 130	
otal Recoverable Lead	DUP	1430603-01	0.15400	ND	1	ug/L	1		20		
	MS	1430603-01	0.15400	112.07	100.00	ug/L		112		70 - 130	
	MSD	1430603-01	0.15400	112.62	100.00	ug/L	0.5	112	20	70 - 130	
otal Recoverable Nickel	DUP	1430603-01	31.888	32.020		ug/L	0.4		20		
	MS	1430603-01	31.888	117.79	100.00	ug/L		85.9		70 - 130	
	MSD	1430603-01	31.888	119.21	100.00	ug/L	1.2	87.3	20	70 - 130	
otal Recoverable Selenium	DUP	1430603-01	0.92400	1.2630		ug/L	31.0		20		J,A02
	MS	1430603-01	0.92400	107.02	100.00	ug/L		106		70 - 130	
	MSD	1430603-01	0.92400	108.35	100.00	ug/L	1.2	107	20	70 - 130	
otal Recoverable Silver	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	38.733	40.000	ug/L		96.8		70 - 130	
	MSD	1430603-01	ND	39.055	40.000	ug/L	0.8	97.6	20	70 - 130	
otal Recoverable Thallium	DUP	1430603-01	ND	ND	0	ug/L			20		
	MS	1430603-01	ND	45.200	40.000	ug/L		113		70 - 130	
	MSD	1430603-01	ND	45.332	40.000	ug/L	0.3	113	20	70 - 130	

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Report ID: 1000313938

Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

BC

Reported:01/08/201519:37Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

2		e.	100					10		Cont	rol Limits	
Constituent		Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recoverv	RPD	Percent Recovery	Lab Quals
Constituent		-			Result	Audeu	onnis	RFD	Recovery	RED	Recovery	Quais
QC Batch ID: BY/	40348	Use	d client samp	ole: N								
Total Recoverable Zinc	S2	DUP	1430603-01	6.4950	5.6730		ug/L	13.5		20		J
		MS	1430603-01	6.4950	102.20	100.00	ug/L		95.7		70 - 130	
		MSD	1430603-01	6.4950	101.66	100.00	ug/L	0.5	95.2	20	70 - 130	

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	L	al	00	ra	to	rie	s,	In	С.	
1	Taken 1			the second second		101 225			Second Second	

Environmental Testing Laboratory Since 1949

425 La	akesi	ociates de Drive CA 94085		Project Number:	01/08/2015 19:37 Lehigh Pond 063-7109-916 George Wegmann	
Notes	And	Definitions				terry pel pices
J		Estimated Value (CLP Flag)				
MDL		Method Detection Limit	- R - 1			
ND	1	Analyte Not Detected at or above the reporting limit				
PQL		Practical Quantitation Limit				weather and the second second
RPD		Relative Percent Difference				
A02		The difference between duplicate readings is less than the PQL.				

PQL's were raised due to sample dilution caused by high analyte concentration or matrix interference. A07



Date of Report: 01/08/2015

George Wegmann

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Client Project:	063-7109-916
BCL Project:	Lehigh Pond
BCL Work Order:	1430608
Invoice ID:	B192975

Enclosed are the results of analyses for samples received by the laboratory on 12/22/2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval **Client Service Rep**

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Report ID: 1000313939

Laboratories, Inc. Environmental Testing Laboratory Since 1949

Table of Contents

Sample Information	
Chain of Custody and Cooler Receipt form	
Chain of Custody and Cooler Receipt form Laboratory / Client Sample Cross Reference	
Sample Results	
1430608-01 - PD30	
Water Analysis (General Chemistry)	
Metals Analysis	
Quality Control Reports	
Water Analysis (General Chemistry)	
Water Analysis (General Chemistry) Method Blank Analysis	
Laboratory Control Sample	
Precision and Accuracy	
Metals Analysis	
Method Blank Analysis	11
Method Blank Analysis Laboratory Control Sample	12
Precision and Accuracy	
Notes	
Notes and Definitions	



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Page 3 of 15

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Laboratories, Inc.	111
Environmental Testing Laboration	

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onmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1430608 Page 2 of 2

SHIPPING INFO Federal Express D UPS D BC Lab Field Service Other	RMATIO Hand D (Specif	elivery D		S Ice Ch Oth	HIPPING est D er 🗆 (Spe	CONTAI None D	NER · Box 🗆	18	FREE LIQ Yes d n	
Refrigerant: Ice 🛱 Blue Ice		ne 🗋 🐳	Other 🗆	Com	nents:	R the	·			
		iners 🗔 . es 🗆 ·No 🖸		Com	ments:	10 11		5	·-··	•
All samples received? Yes No 🗆	All samp	es containe	rs intact?	Vas X No		Descript	tion(s) mate	h COC2 Y	No No	п
, COC Received '	missivity:	0.98		15	_ Thermon	neter ID: 1	08_		e MM	
	T	1000 Control (19)			The state of the s	NUMBERS		Second Second	14	and the second of
SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL	A	1		1						
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS	B									
PT CYANIDE										
PT NITROGEN FORMS	I									
PT TOTAL SULFIDE										
202. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
TTOX										-
T CHEMICAL OXYGEN DEMAND										-
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DT EPA 413.1, 413.2, 418.1		-								
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T EPA 508/608/8080										
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Report ID: 1000313939

Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

BC

Reported:01/08/201519:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Informati	on	15	N 10	
1430608-01	COC Number:	5. U		Receive Date:	12/22/2014 21:45
	Project Number:			Sampling Date:	12/12/2014 17:10
	Sampling Location:	PD30		Sample Depth:	
	Sampling Point:	PD30		Lab Matrix:	Water
	Sampled By:	David Walter		Sample Type:	Water

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Laboratories, Inc. BC Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported: 01/08/2015 19:38 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

BCL Sample ID:	1430608-01	Client Sampl	e Name:	PD30, PD	030, 12/12/	2014 5:10:00PN	I, David Walte	r	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Dissolved Solid	s @ 180 C	170	mg/L	6.7	6.7	EPA-160.1	ND		1

	1		Run		1.5		QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-160.1	12/26/14	12/26/14 13:00	CAD	MANUAL	0.667	BXL2402	11 I.

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive

BC

Sunnyvale, CA 94085

Reported: 01/08/2015 19:38 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Metals Analysis

BCL Sample ID: 1430608-01	Client Sampl	e Name:	PD30, PD	30, 12/12/2	2014 5:10:00PN	0PM, David Walter						
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #				
Total Recoverable Antimony	1.1	ug/L	2.0	0.11	EPA-200.8	ND	J	1				
Total Recoverable Arsenic	3.4	ug/L	2.0	0.70	EPA-200.8	ND		1				
Total Recoverable Beryllium	ND	ug/L	1.0	0.23	EPA-200.8	ND		2				
Total Recoverable Cadmium	0.26	ug/L	1.0	0.11	EPA-200.8	ND	J	1				
Total Recoverable Chromium	3.9	ug/L	3.0	0.50	EPA-200.8	ND	4:	1				
Total Recoverable Copper	9.6	ug/L	2.0	0.22	EPA-200.8	ND		1				
Total Recoverable Lead	0.15	ug/L	1.0	0.10	EPA-200.8	ND	J	1				
Total Recoverable Mercury	ND	ug/L	0.20	0.033	EPA-245.1	ND	2	3				
Total Recoverable Nickel	14	ug/L	2.0	0.19	EPA-200.8	ND		- 1				
Total Recoverable Selenium	65	ug/L	2.0	0.19	EPA-200.8	ND		1				
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		1				
Total Recoverable Thallium	0.24	ug/L	1.0	0.10	EPA-200.8	ND	J	1				
Total Recoverable Zinc	67	ug/L	10	1.7	EPA-200.8	ND		1				

			Run		a		QC			
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	1400 (A)		
1	EPA-200.8	01/07/15	01/07/15 23:45	SRM	PE-EL2	1	BYA0348			
2	EPA-200.8	01/07/15	01/08/15 13:31	EAR	PE-EL2	1	BYA0348	120		
3	EPA-245.1	01/07/15	01/07/15 17:29	MEV	CETAC1	1	BYA0293			

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported: 01/08/2015 19:38 Project: Lehigh Pond Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BXL2402						
Total Dissolved Solids @ 180 C	BXL2402-BLK1	ND	mg/L	6.7	6.7	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:01/08/2015 19:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

							Control I	_imits		
QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
								× 1	ε All in the	
BXL2402-BS1	LCS	565.00	586.00	mg/L	96.4		90 - 110			
				QC Sample ID Type Result Level	QC Sample ID Type Result Level Units	QC Sample ID Type Result Level Units Recovery	QC Sample ID Type Result Level Units Recovery RPD	Spike Percent Percent QC Sample ID Type Result Level Units Recovery RPD Recovery	QC Sample ID Type Result Level Units Recovery RPD Recovery RPD	Spike Percent Percent Lab QC Sample ID Type Result Level Units Recovery RPD Recovery RPD Quals

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Laboratories, Inc. Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:01/08/2015 19:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
Constituent	Туре	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
QC Batch ID: BXL2402	Use	d client samp	ole: Y - Des	cription: Poi	nd 30, 12/20	/2014 14:	00				
Total Dissolved Solids @ 180 C	DUP	1430607-01	2830.0	2840.0		mg/L	0.4		10		

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:01/08/2015 19:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYA0293			8. IL - P	<i>A</i>		
Total Recoverable Mercury	BYA0293-BLK1	ND	ug/L	0.20	0.033	
QC Batch ID: BYA0348	. ¹⁰					
Total Recoverable Antimony	BYA0348-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	BYA0348-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Beryllium	BYA0348-BLK2	ND	ug/L	1.0	0.23	
Total Recoverable Cadmium	BYA0348-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	BYA0348-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Copper	BYA0348-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	BYA0348-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Nickel	BYA0348-BLK1	ND	ug/L	2.0	0.19	8
Total Recoverable Selenium	BYA0348-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	BYA0348-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	BYA0348-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Zinc	BYA0348-BLK1	ND	ug/L	10	1.7	

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:01/08/2015 19:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Laboratory Control Sample

								Control I	imits		
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
QC Batch ID: BYA0293											4
Total Recoverable Mercury	BYA0293-BS1	LCS	0.99750	1.0000	ug/L	99.8	_	85 - 115			
QC Batch ID: BYA0348		,	1.1								
Total Recoverable Antimony	BYA0348-BS1	LCS	41.048	40.000	ug/L	103		85 - 115			
Total Recoverable Arsenic	BYA0348-BS1	LCS	105.54	100.00	ug/L	106		85 - 115			
Total Recoverable Beryllium	BYA0348-BS2	LCS	45.832	40.000	ug/L	115		85 - 115			
Total Recoverable Cadmium	BYA0348-BS1	LCS	42.892	40.000	ug/L	107		85 - 115			
Total Recoverable Chromium	BYA0348-BS1	LCS	43.366	40.000	ug/L	108		85 - 115		1.00	
Total Recoverable Copper	BYA0348-BS1	LCS	110.91	100.00	ug/L	111		85 - 115			
Total Recoverable Lead	BYA0348-BS1	LCS	103.18	100.00	ug/L	103	1	85 - 115			
Total Recoverable Nickel	BYA0348-BS1	LCS	107.54	100.00	ug/L	108		85 - 115		1	
Total Recoverable Selenium	BYA0348-BS1	LCS	104.66	100.00	ug/L	105		85 - 115			
Total Recoverable Silver	BYA0348-BS1	LCS	41.670	40.000	ug/L	104		85 - 115			
Total Recoverable Thallium	BYA0348-BS1	LCS	40.919	40.000	ug/L	102		85 - 115			
Total Recoverable Zinc	BYA0348-BS1	LCS	110.65	100.00	ug/L	111		85 - 115			

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

E)

Reported:01/08/201519:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

									Cont	trol Limits	
		Source	Source		Spike		.38	Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: BYA0293	Use	d client samp	ole: N	7				ж		1	
Total Recoverable Mercury	DUP	1430474-04	ND	- ND		ug/L		12) 	20		
	MS	1430474-04	ND	0.99250	1.0000	ug/L		99.2		70 - 130	
	MSD	1430474-04	ND	1.0125	1.0000	ug/L	2.0	101	20	70 - 130	
QC Batch ID: BYA0348	Use	d client samp	ole: N				1		2		
otal Recoverable Antimony	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	40,190	40.000	ug/L		100		70 - 130	
	MSD	1430603-01	ND	41.191	40.000	ug/L	2.5	103	20	70 - 130	
otal Recoverable Arsenic	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	110.99	100.00	ug/L		111	4	70 - 130	
	MSD	1430603-01	ND	112.57	100.00	ug/L	1.4	113	20	70 - 130	
Total Recoverable Beryllium	DUP	1430603-01	ND	ND		ug/L	a (*	1	20	1	
	MS	1430603-01	ND	40.061	40.000	ug/L		100		70 - 130	
	MSD	1430603-01	ND	40.749	40.000	ug/L	1.7	102	20	70 - 130	
Fotal Recoverable Cadmium	DUP	1430603-01	ND	ND		ug/L	1.1		20 -		
	MS	1430603-01	ND	37.127	40.000	ug/L		92.8		70 - 130	
	MSD	1430603-01	ND	37.972	40.000	ug/L	2.3	94.9	. 20	70 - 130	10
otal Recoverable Chromium	DUP	1430603-01	ND	0.76000		ug/L			20		J
* ÷	MS	1430603-01	ND	38.752	40.000	ug/L		96.9		70 - 130	
*	MSD	1430603-01	ND	39.850	40.000	ug/L	2.8	99.6	20	70 - 130	
otal Recoverable Copper	DUP	1430603-01	3.6450	3.4230		ug/L	6.3		20		
	MS	1430603-01	3.6450	103.05	100.00	ug/L		99.4		70 - 130	
	MSD	1430603-01	3.6450	103.38	100.00	ug/L	0.3	99.7	. 20	70 - 130	
otal Recoverable Lead	DUP	1430603-01	0.15400	ND		ug/L			20		
	MS	1430603-01	0.15400	112.07	100.00	ug/L		112		70 - 130	
	MSD	1430603-01	0.15400	112.62	100.00	ug/L	0.5	112	20	70 - 130	
otal Recoverable Nickel	DUP	1430603-01	31.888	32.020		ug/L	0.4		20		
	MS	1430603-01	31.888	117.79	100.00	ug/L		85.9		70 - 130	
	MSD	1430603-01	31.888	119.21	100.00	ug/L	1.2	87.3	20	70 - 130	
otal Recoverable Selenium	DUP	1430603-01	0.92400	1.2630		ug/L	31.0		20		J,A02
	MS	1430603-01	0.92400	107.02	100.00	ug/L		106		70 - 130	
	MSD	1430603-01	0.92400	108.35	100.00	ug/L	1.2	107	20	70 - 130	
otal Recoverable Silver	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	38.733	40.000	ug/L		96.8		70 - 130	
	MSD	1430603-01	ND	39.055	40.000	ug/L	0.8	97.6	20	70 - 130	
Fotal Recoverable Thallium	DUP	1430603-01	ND	ND		ug/L			20		
	MS	1430603-01	ND	45.200	40.000	ug/L	(K)	113		70 - 130	
	MSD	1430603-01	ND	45.332	40.000	ug/L	0.3	113	20	70 - 130	

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Report ID: 1000313939

Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:01/08/2015 19:38Project:Lehigh PondProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

			and the second second				-		Cont	rol Limits	
Constituent	Туре	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
QC Batch ID: BYA0348	Use	d client samp	ole: N								
Fotal Recoverable Zinc	DUP	1430603-01	6.4950	5.6730		ug/L	13.5		20		J
	MS	1430603-01	6.4950	102.20	100.00	ug/L		95.7		70 - 130	
	MSD	1430603-01	6.4950	101.66	100.00	ug/L	0.5	95.2	20	70 - 130	

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Golder Associates		Reported:	01/08/2015 19:38	
425 Lakeside Drive		Project:	Lehigh Pond	1400
Sunnyvale, CA 94085		Project Number:	063-7109-916	12
	<i>3</i>	Project Manager:	George Wegmann	

- J Estimated Value (CLP Flag) Method Detection Limit MDL ND Analyte Not Detected at or above the reporting limit PQL Practical Quantitation Limit Relative Percent Difference RPD The difference between duplicate readings is less than the PQL. A02

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Date of Report: 12/23/2014

George Wegmann

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Client Project:	063-7109-916
BCL Project:	Lehigh NPDES
BCL Work Order:	1428700
Invoice ID:	B191556

Enclosed are the results of analyses for samples received by the laboratory on 12/3/2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Report ID: 1000308570

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CONTRACT				vid Cillisig Labs dard	nature)	Container Info	·//	Total SCHI	Matter	Sair	Chi.	Hand	k:	1.20	Hard	0+C		EDF r	required?
Sample I.D.	Lab I.D.	Colle	ction Time	Matrix	Depth	Type/Vol. Filter Preserv.	1L N -	N	IL N	SCOM N ZnAc	N	Acoml N	SOOM N HNO	North P Crét	SUDin 1 N HNOX	IL N HCL	Cont. Qty.	R	emarks
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BFF-006	-3		0945				X	X				X	x	X		X	5	1997 (
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Laboratories, Inc.

BC

Chain of Custody and Cooler Receipt Form for 1428700 Page 2 of 3

Submission #: 14-2870	10 1	en set	-8			- 12 -		4 5.14		
SHIPPING INFO Federal Express D UPS D BC Lab Field Service X Other	Hand De	livery D	· · · · · · · · · · · · · · · · · · ·	Ice Cl Otl	SHIPPING nest Å ner:□(Sp	CONTA None D ecify)	INER Box 🗆		FREE LIO	UID IO 🗆 🗠
Refrigerant: Ice A Blue Ice							n			.59
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All samples received? Yes 🕅 , No 🗆	All sample	es containe	rs intact?	Yes DO No		Descrip	otion(s) mate	h COC?	les 1 No	0 33
COC Received	Emissivity: Temperatu	0.98	Container	PE		meter ID:			12/3/14	2200
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SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
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OT INORGANIC CHEMICAL METALS	17		B	B	In	B	ß			
PT INORGANIC CHEMICAL METALS PT-CYANIDE Hg Glass 163	13	A	C	Ĉ	e.	Ĉ	C			
PT NITROGEN FORMS			(*) 		F	E				
T TOTAL SULFIDE	D		10	In	1.0	D	0			
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Chain of Custody	and Cooler	 Receipt Form 	for 1428700	Page 3 of 3
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			1
Parameter	Method	RL	Units
Chromium (VI)	SM 3500	5	µg/L
Mercury	1631	0.002	ng/L
Nickel	249.2	1	μg/L
Selenium	200.8	1	µg/L
Thallium	279.2	1	µg/L
Sulfides	1		
Total Dissolved Solids	SM2540C	10	mg/L
Chloride	EPA 300.0	12	mg/L
Hardness	SM2520B	2	mg/L
TSS	SM2540D	1	mg/L
Oil and Grease	EPA 1664A	1.4	mg/L
TOC	EPA 9060A		mg/L
Settleable Matter	SM2540F	0.10	mL/L-hr

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

E

Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Informati	on		
1428700-01	COC Number:	Na i i i i i i i i i i i i i i i i i i i	Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 07:45
	Sampling Location:	EFF-005	Sample Depth:	
	Sampling Point:	EFF-005	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water
1428700-02				10/00/00111 00 00
1428700-02	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/03/2014 07:45
	Sampling Location:	FB	Sample Depth:	
	Sampling Point:	FB	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water
1428700-03	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 09:45
	Sampling Location:	EFF-006	Sample Depth:	
	Sampling Point:	EFF-006	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water
1428700-04	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 11:00
	Sampling Location:	EFF-003	Sample Depth:	
	Sampling Point:	EFF-003	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water
1428700-05	200 N 1			10/00/0014 00:00
1420700-05	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 10:25
	Sampling Location:	RSW-004	Sample Depth:	
	Sampling Point:	RSW-004	Lab Matrix:	Water
	Sampled By:	David Walter	Sample Type:	Water
1428700-06	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 11:30
	Sampling Location:	RSW-003	Sample Depth:	
	Sampling Point:	RSW-003	Lab Matrix:	Water
2	Sampled By:	David Walter	Sample Type:	Water
1428700-07	COC Number:		Receive Date:	12/03/2014 22:00
	Project Number:		Sampling Date:	12/02/2014 14:00
	Sampling Location:	EFF-001	Sampling Date.	
	10. J	EFF-001	Lab Matrix:	Water
	Sampling Point:	David Walter	Lab Watrix:	vvator

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Laboratori	es, <i>inc.</i>	
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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported: 12/23/2014 14:18 Project: Lehigh NPDES Project Number: 063-7109-916

Project Manager: George Wegmann

EPA Method 1664

BCL Sample ID:	1428700-03	Client Sampl	e Name:	EFF-006,	EFF-006,	12/2/2014 9:45:00	AM, David	Walter		
Constituent	2	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Rur	ו #
Oil and Grease	12	ND	mg/L	5.0	1.2	EPA-1664A HEM	ND		. 1	Ċ.

			Run			4	QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-1664A HEM	12/11/14	12/11/14 07:00	MAM	MAN-SV	1	BXL1387	

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Reported: 12/23/2014 14:18 Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

BCL Sample ID:	1428700-03	Client Samp	e Name:	EFF-006, EFF-006, 12/2/2014 9:45:00AM, David Walter								
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #			
Total Suspended Soli	ds (Glass Fiber)	7100	mg/L	33	33	SM-2540D	ND		1			
Settleable Solids		80	ml/L-hr	0.10	0.10	SM-2540F			2			

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-2540D	12/08/14	12/08/14 11:35	VV1	MANUAL	66.667	BXL0753	
2	SM-2540F	12/04/14	12/04/14 08:00	MSA	MANUAL	1	BXL1520	

Laboratories, Inc. BC

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported: 12/23/2014 14:18 Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

Metals Analysis

BCL Sample ID: 1428700-03	Client Sampl	EFF-006, EFF-006, 12/2/2014 9:45:00AM, David Walter							
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #	
Hexavalent Chromium	1.5	ug/L	0.20	0.055	EPA-218.6	ND		1	
Total Recoverable Nickel	890	ug/L	4.0	0.38	EPA-200.8	ND	A10	2	
Total Recoverable Selenium	26	ug/L	4.0	0.38	EPA-200.8	ND	A10	2	
Total Recoverable Thallium	3.2	ug/L	2.0	0.20	EPA-200.8	ND	A10	2	

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-218.6	12/05/14	12/05/14 15:34	OLH	IC-4	1	BXL0638	
2	EPA-200.8	12/10/14	12/10/14 23:02	EAR	PE-EL2	2	BXL0992	

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EPA Method 1664

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BXL1387				-		
Oil and Grease	BXL1387-BLK1	ND	mg/L	5.0	1.2	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

EPA Method 1664

Quality Control Report - Laboratory Control Sample

								Control L	_imits	
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals
QC Batch ID: BXL1387	2		76	10			4			
Oil and Grease	BXL1387-BS1	LCS	34.450	39.700	mg/L	86.8		78 - 114		

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Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

EPA Method 1664

Quality Control Report - Precision & Accuracy

									Cont	trol Limits	
Constituent	Туре	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
QC Batch ID: BXL1387	Use	d client samp	ole: N			1					
Oil and Grease	DUP	1428224-21	ND	ND		mg/L			18		
	MS	1428224-21	ND	33.700	39.700	mg/L		84.9		78 - 114	
	MSD	1428224-21	ND	32.100	39.700	mg/L	4.9	80.9	18	78 - 114	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

BC

Reported: 12/23/2014 14:18 Project: Lehigh NPDES Project Number: 063-7109-916

Project Manager: George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BXL0471	1			1		
Total Sulfide	BXL0471-BLK1	ND	mg/L	0.10	0.050	
QC Batch ID: BXL0474			0			
Hardness as CaCO3	BXL0474-BLK1	ND	mg/L	0.50	0.10	
QC Batch ID: BXL0723					1	7 11
Total Dissolved Solids @ 180 C	BXL0723-BLK1	ND	mg/L	6.7	6.7	
QC Batch ID: BXL0753	90 90				12	
Total Suspended Solids (Glass Fiber)	BXL0753-BLK1	ND	mg/L	0.50	0.50	18.
QC Batch ID: BXL0754	2 ¹				1	
Total Suspended Solids (Glass Fiber)	BXL0754-BLK1	ND	mg/L	0.50	0.50	
QC Batch ID: BXL0989						
Total Recoverable Calcium	BXL0989-BLK1	ND	mg/L	0.10	0.014	
Total Recoverable Magnesium	BXL0989-BLK1	ND	mg/L	0.050	0.019	
QC Batch ID: BXL1036					20	165 (4)
Chloride	BXL1036-BLK1	ND	mg/L	0.50	0.061	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

								Control I	imits		
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
QC Batch ID: BXL0471					100						
Total Sulfide	BXL0471-BS1	LCS	0.51362	0.50000	mg/L	103		90 - 110		2	
QC Batch ID: BXL0723											
Total Dissolved Solids @ 180 C	BXL0723-BS1	LCS	545.00	586.00	mg/L	93.0		90 - 110			
QC Batch ID: BXL0989											
Total Recoverable Calcium	BXL0989-BS1	LCS	10.301	10.000	mg/L	103		85 - 115			
Total Recoverable Magnesium	BXL0989-BS1	LCS	11.287	10.000	mg/L	113		85 - 115			
QC Batch ID: BXL1036											-
Chloride	BXL1036-BS1	LCS	51.881	50.000	mg/L	104		90 - 110		1.1.1	

Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

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Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Cont	trol Limits	
		Source	Source		Spike	(B)		Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: BXL0471	Use	d client samp	ole: N		v		4				- K.
otal Sulfide	DUP	1428509-11	ND	ND		mg/L			10		
	MS	1428509-11	ND	0.43632	0.50000	mg/L	1	87.3		80 - 120	
- -	MSD	1428509-11	ND	0.44137	0.50000	mg/L	1.2	88.3	10	80 - 120	
QC Batch ID: BXL0723	Use	d client samp	ole: N	Д			ж. Ж				
otal Dissolved Solids @ 180 C	DUP	1428663-01	26000	26300		mg/L	1.1		10		
QC Batch ID: BXL0753	Use	d client samp	ole: N	7. 1.							
otal Suspended Solids (Glass Fiber)	DUP	1428675-02	2900.0	2640.0		mg/L	9.4		10		_
QC Batch ID: BXL0754	Use	d client samp	ole: Y - Des	cription: SV	1-2, 12/02/20)14 08:51			10		
otal Suspended Solids (Glass Fiber)	DUP	1428732-02	921.82	1000.0		mg/L	8.1		10		
QC Batch ID: BXL0989	Use	d client samp	ole: N								
otal Recoverable Calcium	DUP	1429136-01	240.45	235.32		mg/L	2.2		20		
	MS	1429136-01	240.45	241.72	10.000	mg/L		12.7		75 - 125	A03
	MSD	1429136-01	240.45	234.73	10.000	mg/L	2.9	-57.2	20	75 - 125	A03
otal Recoverable Magnesium	DUP	1429136-01	92.274	91.788		mg/L	0.5		20		
	MS	1429136-01	92.274	99.866	10.000	mg/L		75.9		75 - 125	
	MSD	1429136-01	92.274	97.276	10.000	mg/L	2.6	50.0	20	75 - 125	A03
QC Batch ID: BXL1036	Use	d client samp	le: N			2	80.089.000				
hloride	DUP	1429326-01	1.4950	1.5140		mg/L	1.3		10		
	MS	1429326-01	1.4950	53.219	50.505	mg/L		102		80 - 120	
	MSD	1429326-01	1.4950	53.315	50.505	mg/L	0.2	103	10	80 - 120	
QC Batch ID: BXL1520	Use	d client samp	ole: N								
ettleable Solids	DUP	1428677-05	ND	ND		ml/L-hr			10		

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quais
QC Batch ID: BXL0638			100			1
Hexavalent Chromium	BXL0638-BLK1	ND	ug/L	0.20	0.055	
QC Batch ID: BXL0992						
Total Recoverable Nickel	BXL0992-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	BXL0992-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Thallium	BXL0992-BLK1	ND	ug/L	1.0	0.10	9

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Laboratory Control Sample

								Control	Limits	
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals
QC Batch ID: BXL0638	-	-			2		æ			
Hexavalent Chromium	BXL0638-BS1	LCS	20.603	20.000	ug/L	103		90 - 110		
QC Batch ID: BXL0992				121	_					
Total Recoverable Nickel	BXL0992-BS1	LCS	108.75	100.00	ug/L	109	11 No.	85 - 115		
Total Recoverable Selenium	BXL0992-BS1	LCS	105.71	100.00	ug/L	106	-	85 - 115		
Total Recoverable Thallium	BXL0992-BS1	LCS	40.087	40.000	ug/L	100		85 - 115		
			14							

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:12/23/201414:18Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: BXL0638	Use	d client samp	ole: Y - Des	cription: EF	F-005, 12/02	2/2014 07:	45				-
Hexavalent Chromium	DUP	1428700-01	24.608	24.308		ug/L	1.2		10		
	MS	1428700-01	24.608	45.607	20.202	ug/L		104		90 - 110	
	MSD	1428700-01	24.608	45.267	20.202	ug/L	0.7	102	10	90 - 110	
QC Batch ID: BXL0992 Total Recoverable Nickel		d client samp 1428700-07 1428700-07	13.622 13.622	Cription: EF 13.300 116.09	100.00	2/2014 14: ug/L ug/L	2.4	102	20	70 - 130	
	MSD	1428700-07	13.622	113.41	100.00	ug/L	2.3	99.8	20	70 - 130	
fotal Recoverable Selenium	DUP	1428700-07	6.8440	5.8670		ug/L	15.4		20		
	MS	1428700-07	6.8440	107.40	100.00	ug/L		101		70 - 130	
	MSD	1428700-07	6.8440	104.81	100.00	ug/L	2.4	98.0	20	70 - 130	
Total Recoverable Thallium	DUP	1428700-07	ND	ND		ug/L		-	20		
	MS	1428700-07	ND	42.520	40.000	ug/L		106		70 - 130	
	MSD	1428700-07	ND	41.008	40.000	ug/L	3.6	103	20	70 - 130	

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Subcontract Report for 1428700 PDF File Name: WO 1428700 SUB BSCLB.pdf Page 1 of 4

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2218 Railroad Avenue voice 530.243.7234 Redding, California 96001 fax 530.243.7494

3860 Morrow Lane, Suite F Chico, California 95928 voice 530.894.8966 fax 530.894.5143

December 16, 2014

Lab ID: 14L0474

VANESSA SANDOVAL B C LABORATORIES INCORPORATED 4100 ATLAS COURT BAKERSFIELD, CA 93308 RE: HG 1631 TESTING 1428700

Dear VANESSA SANDOVAL,

Enclosed are the analysis results for Work Order number 14L0474. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

Ricky J

Ricky D. Jensen Laboratory Director California ELAP Certification Number 1677

Page 1 of 3

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Report ID: 1000308570



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Subcontract Report for 1428700 PDF File Name: WO_1428700_SUB_BSCLB.pdf Page 2 of 4

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No.	www.basiclab.com										
basic	0010 0-14		500 040 000	s u		1000 10		Dulle F		1 0000	
laboratory	2218 Railroad Aver Redding, California		ce 530.243.7234 530.243.7494			3860 Morro Chico, Cali			voice 530.89 lax 530.894.9		
Report To: B (CLABORATORIES	INCORPORA	TED						Lab No	: 14L047	4
41	00 ATLAS COURT								Reported	: 12/16/1	14
BA	KERSFIELD, CA 93	3308							Phone	: (661) 3	327-4911
	NESSA SANDOVAL								P.O. #	ŧ	
	1631 TESTING										
Metals - Total										-	
Analyte			Results	Qualifie		12/12/2010	10 C	1ethod	Analyzed	Preparec	Batch
1428700-01 Water Mercury	r (14L0474-01)		2/02/14 07:4			9/14 13:	10-10-10-00-00-00-00-00-00-00-00-00-00-0		10/15/14	13/15/14	B4L1066
1428700-02 FIELD	BLANK Blank (ng/l 14L0474-02		QC-08				PA 1631E	12/15/14 Temp (C): 1	12/15/14	D411000
Mercury Field Blank		ng/l	0.25	3				PA 1631E	12/15/14	12/15/14	B4L1066
1428700-03 Water	r (14L0474-03)		2/02/14 09:4			9/14 13:				,,,,	
Mercury		ng/l	2470	QC-08				PA 1631E	12/15/14	12/15/14	B4L1066
1428700-04 Water	r (14L0474-04)		2/02/14 11:0			9/14 13::					
Mercury		ng/l	49.6	QC-08, R-0				PA 1631E	12/15/14	12/15/14	B4L1066
1428700-05 Wate	r (14L0474-05)		2/02/14 10:2	5 Receiv		9/14 13:			10/10/1	1011011	
Mercury 1428700-06 Water	r (14L0474-06)	ng/l	35.5	0				PA 1631E	12/15/14	12/15/14	B4L1066
Mercury	(14LU4/4-00)	ng/l	2/02/14 11:3 94.8			9/14 13: 00 2		(C): 8.9 PA 1631E	12/15/14	12/15/14	B4L1066
1428700-07 Wate	r (14L0474-07)		94.6 2/02/14 14:0	QC-08, R-0					12/13/14	12/13/14	0401000
Mercury	(ng/l	1.26	e needi				PA 1631E	12/15/14	12/15/14	B4L1066
				y Contr							
			Qualit	y cond							
					0.4	· 27 - 5.00			-	000	
Analista		Decult		Linite	Spike	Source	84050	%REC	000	RPD	hundifior
Analyte		Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit Q	lualifier
			M	etals - T	otal						
Batch B4L1066 - BrCl I	Digestion										
Blank						-					
Mercury		ND	0.50	ng/l							%
Blank			April 1 - The								
Mercury		ND	0.50	ng/l							QC-08
Blank		22.00	Sec. 17	112 31 10							
Mercury		ND	0.50	ng/l							QC-08
LCS		- 100 All	a hada a da da						1801 I. I. 189		
Mercury		21.6	0.50	ng/l	20.0		108	84.1-120)		
Matrix Spike Sc	ource: 14L0395-01			1.0							
Mercury		22.8	0.50	ng/l	20.0	1.34	107	74.3-125	5		
Contraction of the second s	ource: 14L0458-01	11									
Mercury		134	2.55	ng/l	100	25.2	109	74.3-125	3		
	ource: 14L0395-01										
Mercury	1	23.5	0.50	ng/l	20.0	1.34	111	74.3-125	3.27	24	
	ource: 14L0458-01	105									
Mercury		137	2.55	ng/l	100	25.2	112	74.3-125	5 2.06	24	25
Keiting Jean	and the second se										
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California ELAP Cert #	\$1677 and #2718									P	age 2 of 3

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Subcontract Report for 1428700 PDF File Name: WO_1428700_SUB_BSCLB.pdf Page 3 of 4

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alles)))	www.basielab.com							
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Das	lory	2218 Railroad Avenue voice 530 Redding, California 96001 fax 530.24	.243.7234 13.7494	-	3860 Morrov Chico, Califo	w Lane, Suite F ornia 95928	voice 530.894 fax 530.894.5		
Report Attent Proj	ion:	B C LABORATORIES INCORPORATED 4100 ATLAS COURT BAKERSFIELD, CA 93308 VANESSA SANDOVAL HG 1631 TESTING 1428700			181		Lab No: Reported: Phone: P.O. #	14L0474 12/16/14 (661) 32	
		No	tes and Defi	nitions					
R-08	The sa	mple was diluted due to sample matrix resulting in	elevated reporting li	mits					
QC-08	An inc analyz	reased concentration of BrCl was necessary to fully ed with the sample.	oxidize this sample,	As required t		CARGE STREET, S	987 MARQADAR CAN BE AND CONTRACTOR OF THE		
	Deteci	ed but below the Reporting Limit: therefore, result i	s an estimated conc	entration (CI	P 1-Flan), The 1	flag is equivalent	to the DND Estimat		
		ed but below the Reporting Limit; therefore, result i e DETECTED	s an estimated conc	entration (CL	.P J-Flag). The J	flag is equivalent	to the DNQ Estimat	ed concentrati	
DET	Analyt	e DETECTED	s an estimated conc	entration (CL	.P J-Flag). The J	flag is equivalent	to the DNQ Estimat	eq concentrati	
DET ND	Analyt Analyt	e DETECTED e NOT DETECTED at or above the detection limit	s an estimated conc	entration (CL	.P J-Flag). The J	flag is equivalent	to the DNQ Estimat	ed concentrati	
DET ND NR	Analyt Analyt Not Re	e DETECTED e NOT DETECTED at or above the detection limit ported	s an estimated conc	entration (CL	.P J-Flag). The J	flag is equivalent	to the DNQ Estimat	ed concentrati	
DET ND NR dry	Analyt Analyt Not Re Sampl	e DETECTED e NOT DETECTED at or above the detection limit	s an estimated conc	entration (CL	.P. J-Flag), The J	flag is equivalent	to the DNQ Estimat	eu concentrati	
DET ND NR NR NPD	Analyt Analyt Not Ro Sampl Relativ	e DETECTED e NOT DETECTED at or above the detection limit ported a results reported on a dry weight basis	s an estimated conc	entration (CL	P J-Flag). The J	flag is equivalent	to the DNQ Estimat	ed concentrati	
i Det ND VR dry RPD < <	Analyt Analyt Not Re Sampl Relativ Less t	e DETECTED e NOT DETECTED at or above the detection limit ported a results reported on a dry weight basis re Percent Difference	s an estimated conc	entration (C	P J-Flag). The J	flag is equivalent	to the DNQ Estimat	eu concentrati	5) 10
DET ND NR dry RPD <	Analyt Analyt Not Re Sampl Relativ Less ti	e DETECTED e NOT DETECTED at or above the detection limit prorted a results reported on a dry weight basis re Percent Difference arr reporting limit	s an estimated conc	entration (C	P J-Flag). The J	flag is equivalent	to the DNQ Estimat	ed concentration	
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DET ND NR thry RPD < < > >	Analyt Analyt Not Re Sampl Relativ Less th Greate Greate Metho	e DETECTED e NOT DETECTED at or above the detection limit sported a results reported on a dry weight basis se Percent Difference han reporting limit nan or equal to reporting fimit r than reporting limit r than or equal to reporting limit	s an estimated conc	entration (C	P J-Flag). The J	nag is equivalent	to the DNQ Estimat	ed concentration	
DET ID IR IR RPD S S A IDL SL/ML	Analyt Analyt Not: Re Sampi Relativ Less ti Greate Greate Metho	e DETECTED e NOT DETECTED at or above the detection limit eported a results reported on a dry weight basis e Percent Difference han reporting limit an or equal to reporting limit r than reporting limit r than or equal to reporting limit d Detection Limit	s an estimated conc	entration (C	P-J-Flag), The J	nag is equivalent	to the DNQ Estimat	ed concentration	
DET ID IR IR IPD CL IDL ICL/AL	Analyt Analyt Not Re Sampl Relativ Less ti Greate Greate Metho Minim	e DETECTED e NOT DETECTED at or above the detection limit eported a results reported on a dry weight basis e Percent Difference han reporting limit an or equal to reporting limit r than reporting limit r than or equal to reporting limit d Detection Limit um Level of Quantitation	s an estimated conc	entration (C	P-J-Flag), The J	nag is equivalent	to the DNQ Estimat	ed concentration	
DET ND NR RPD KPD KL/ML 4CL/AL ng/kg	Analyt Analyt Not: Ro Sampl Relativ Less ti Greate Greate Metho Minim Maxlui Result	e DETECTED e NOT DETECTED at or above the detection limit sported a results reported on a dry weight basis e Percent Difference han reporting limit r than ereporting limit r than ereporting limit r than ereporting limit d Detection Limit um Level of Quantitation in Contaminant Level/Action Level	s an estimated conc	entration (C	P-J-Flag), The J	nag is equivalent	to the DNQ Estimat	ed concentration	
Det ID IR IR IPD S S S IDL S L/ML ICL/AL Ing/kg ITLC	Analyt Analyt Not: Ro Sampi Relativ Less ti Greate Greate Metho Maxim Result Total	e DETECTED e NOT DETECTED at or above the detection limit eported a results reported on a dry weight basis e Percent Difference an reporting limit nan or equal to reporting limit r than reporting limit r than reporting limit r than or equal to reporting limit d Detection Limit um Level of Quantitation m Contaminant Level/Action Level s reported as wet weight	s an estimated conc	entration (C	PJ-Flag), The J	nag is equivalent	to the DNQ Estimat	ed concentration	
Det ID IR IPD S IDL ICL/AL Ing/kg TLC TLC	Analyt Analyt Not: Ro Sampi Relativ Less ti Greate Greate Minim Maxiu Result Total Solubi	e DETECTED e NOT DETECTED at or above the detection limit sported a results reported on a dry weight basis e Percent Difference tan reporting limit in the reporting limit r than reporting limit r than reporting limit d Detection Limit m Level of Quantitation in Contaminant Level/Action Level is reported as wet weight threshold Limit Concentration	s an estimated conc	entration (C	P J-Flag), The J	nag is equivalent	to the DNQ Estimat	ed concentration	
DET ND NR dry RPD <	Analyt Analyt Not Re Sampl Relativ Less ti Greate Greate Metho Maxim Result Total Solubi Toxicil Receive	e DETECTED e NOT DETECTED at or above the detection limit sported a results reported on a dry weight basis e Percent Difference tan reporting limit man or equal to reporting limit r than reporting limit r than reporting limit r than or equal to reporting limit d Detection Limit um Level of Quantitation a Contaminant Level/Action Level s reported as wet weight threshold Limit Concentration a Threshold Limit Concentration	samples for most c	hemistry m	ethods should 1	pe held at ≤6 de	agrees C after coll	lection, includ	

Approved By Basic Laboratory, Inc. California ELAP Cert #1677 and #2718

Page 3 of 3

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		BC L	TRACT ORDER aboratories 428700	14LO47 Due	4
SENDING LABORATORY: BC Laboratories 4100 Atlas Court Bakersfield, CA 93308 Phone: 661-327-4911 FAX: 661-327-1918 Project Manager: Vanessa Sar	ndoval	Ba 22 Re Ja Ph	CEIVING LABORAT sic Laboratory, Inc. 18 Railroad Ave. edding, CA 96001 mes E. Hawley one: 530-243-7234 X:	TORY: 14L0474	BSCLB
Analysis		Due	Expires	Comments	
Sample ID: 1428700-01	Water	Complede	12/02/14 07:45	2 70	
EPA 1631 - Mercury Containers supplied:	mater	12/17/14 17:00	06/01/15 07:45	<u>q.3</u> %	
Sample ID: 1428700-02	Water	Sampled:	12/03/14 07:45	Field Blank	
EPA 1631 - Mercury Containers supplied:		12/17/14 17:00	06/02/15 07:45	10 -	
Sample ID: 1428700-03	Water	Sampled:	12/02/14 09:45	7-4°C	
EPA 1631 - Mercury Containers supplied:		12/17/14 17:00	06/01/15 09:45		
Sample ID: 1428700-04	Water	Sampled:	12/02/14 11:00	8-4 %	
EPA 1631 - Mercury Containers supplied:	1	12/17/14 17:00	06/01/15 11:00	N 15,	
Sample ID: 1428700-05	Water	Sampled:	12/02/14 10:25	8-6 %	
EPA 1631 - Mercury Containers supplied:	C	12/17/14 17:00	06/01/15 10:25		
Sample ID: 1428700-06	Water	Sampled:	12/02/14 11:30	8.94	
EPA 1631 - Mercury Containers supplied:	4	12/17/14 17:00	06/01/15 11:30		
Sample ID: 1428700-07	Water	Sampled:	12/02/14 14:00	8.0°C	
EPA 1631 - Mercury Containers supplied:		12/17/14 17:00	06/01/15 14:00		
Dere	- 12	814	Pollen	- 12 9.14 15	3.1G
Released By	Date	Re	Hala a Khang	Date	3:42
Released By	Date	Ré	ceived By	Date	

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BC Laboratories, Inc.

Golder Associates	Reported: 12/23/2014 14:18
425 Lakeside Drive	Project: Lehigh NPDES
Sunnyvale, CA 94085	Project Number: 063-7109-916
	Project Manager: George Wegmann

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A03	The sample concentration is more than 4 times the spike level.
A10	PQL's and MDL's were raised due to matrix interference.

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Gregory Knapp Director Environmental Affairs, Region West 12667 Alcosta Blvd, San Ramon, CA 94583 (925) 244-6570

March 2, 2015

Mr. Rob Eastwood Principal Planner, County of Santa Clara Santa Clara County Planning Department

RE: Pond 30 February Stormwater Results

Dear Mr. Eastwood

Attached are the lab sheets for the February 2015 stormwater analysis results from discharge out of Pond 30. An explanation of these is as follows:

Sample Date February 7

Total Recoverable Selenium: 31 micrograms/liter (ug/L or parts per billion) Mercury 0.042 ug/L Oil & Grease: Non Detect (ND) Settleable Solids: 0.1 milliliters per liter/hour (ml/L-hr) Total Suspended Solids (TSS): 23 milligrams/liter (mg/L) Hexavalent chromium ("Chromium 6"): 2.5 ug/L Total Recoverable Nickel: 9.0 ug/L Thallium: 0.12 ug/L

Any page labeled "Quality Control" indicates reported laboratory method tests using spiked samples to assure actual result accuracy. These results are not actual samples from Pond 30. Any page labeled "Chain of Custody" indicates the transfer of samples from the field through the various laboratories.

Please contact me with any questions.

Lugary almayor

Gregory Knapp Director Environmental Affairs Lehigh Hanson Region West

BC Laboratories, Inc. Environmental Testing Laboratory Since 1949

Date of Report: 02/26/2015

George Wegmann

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Client Project:	063-7109-916
BCL Project:	Lehigh NPDES
BCL Work Order:	1503204
Invoice ID:	B196722

Enclosed are the results of analyses for samples received by the laboratory on 2/9/2015. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval Client Service Rep

Authorized Signature

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Report ID: 1000328743

Golder		100	IN C)FC	USTO	DY	5-03	204	Qu	Page of otation No	Cust
PROJECT NO.: 063-7/09-916 SAMPLER(S): David printly Valter	SITE NAME: (C) Lehigh NPI David C. Va (signature)	230	Tat Set maker		///	NALYSES			\neg	EDD required? Yes No EDF required?	of Custody and Cooler Receipt Form for 1503204
CONTRACT LABORATORY:	BC Labs Standard	Container Info	145 135	5,0	H3 W; C	7			/	Yes No	r Rece
Sample Lab Colle I.D. I.D. Date	ection Time Matrix Dep	Type/Vol. Filter	N N Ha	Jesni	Sount Sount N N — HNOS				Cont. Qty.	Remarks	Custody and Cooler Receipt Form fi
EFF-005 -1 2-7-15 EFF-006 -2 EFF-003 -3 FB-2-7-15 -4 2-7-15	1040 1130		1 1 1 1 1 1						555-		
							OP (SS				Page 1 of 2
					CHK BY	MANT	RIBUTIO SM JB-OUT				
Relinquished by: (signature) Relinquished by: (signature) Relinquished by: (signature)	Received by (sign	aluro)			Date/Time: Date/Time: Date/Time:	- 100	DO A G 4 S F	END RESUL ttn: <u>500</u> colder Associ 25 Lakeside unnyvale, C hone (408) ax (408) 22	ciates Ind ciates Ind Drive CA 9408 220-922		-

All results listed Report ID: 1000328743

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 Page 3 of 27

Laboratories, Inc.

BC

Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1503204 Page 2 of 2

SHIPPING INFO Federal Express UPS D BC Lab Field Service D Other	Hand De	livery 🗆		SHIPPING CONTAINER FREE LIQUID Ice Chest II None II Box III Other II (Specify) YES III						
Refrigerant: Ice 🗹 Blue Ice	No	ne 🗆	Other 🗆	Com	ments:	1				
Custody Seals Ice Chest 🗆	Contai	ners 🗆 s 🗆 No 🗆	100 per o 100 per	Con	nments:			1		
All samples received? Yes 🗶 No 🗆	All sample	es containe	rs intact?	Yes No	• •	Descrip	tion(s) matc	h COC?	Yes No	0
	Emissivity: Temperatu		Container	: p₹ 					ne <u>2911</u> Init <u>MY</u>	
	1	er vertorikoni vereten o			SAMPLE	NUMBERS	2			
SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/GENERAL PTPE UNPRESERVED 202 CC4-6	AB	AB	B							
QT INORGANIC CHEMICAL METALS				1		1				
PT INORGANIC CHEMICAL METALS	C	C	C					-		
PT CYANIDE	1	1		1						
PT NITROGEN FORMS	1	-					-			
PT TOTAL SULFIDE	1	1	1	1				persona	1	
202. NITRATE / NITRITE	1									
PT TOTAL ORGANIC CARBON				1					1	
PT TOX							1			
T CHEMICAL OXYGEN DEMAND			1			1				
PIA PHENOLICS			1							
10ml VOA VIAL TRAVEL BLANK	1	1			1					
10ml VOA VIAL IRAVEL BLARK							1			
QT EPA 413.1, 413.2, 418.1- 1664	D	D	D			1				
PT ODOR	1	1								
RADIOLOGICAL	1								•••	
BACTERIOLOGICAL										
40 ml VOA VIAL- 504									1	
QT EPA 508/608/8080										
QT EPA 515.1/8150			-						1.4	
OT EPA 525						and a second of				
OT EPA 525 TRAVEL BLANK										-
0ml EPA 547										
0ml EPA 531.1										
oz Amber EPA 548										
)T EPA 549										
PT EPA 632									·	
)T EPA 8015M										
T AMBER .										
OZ. JAR	E	E	E	A						
2 OZ. JAR		-								
OIL SLEEVE										
CB VIAL					-					
LASTIC BAG										
ERROUS IRON			2.00		- and and					
NCORE										
MART KIT										

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Laboratories, Inc.

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:02/26/201510:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information	on				8
1503204-01	COC Number:			Receive Date:	02/09/2015	10:00
	Project Number:			Sampling Date:	02/07/2015	10:00
	Sampling Location:	EFF-005		Sample Depth:		
	Sampling Point:	EFF-005		Lab Matrix:	Water	
	Sampled By:	David Walter		Sample Type:	Water	
1503204-02	COC Number:			Receive Date:	02/09/2015	10:00
	Project Number:			Sampling Date:	02/07/2015	10:40
	Sampling Location:	EFF-006		Sample Depth:		
	Sampling Point:	EFF-006		Lab Matrix:	Water	
	Sampled By:	David Walter		Sample Type:	Water	
1503204-03	COC Number:		3	Receive Date:	02/09/2015	10:00
	Project Number:			Sampling Date:	02/07/2015	11:30
	Sampling Location:	EFF-003		Sample Depth:		
	Sampling Point:	EFF-003		Lab Matrix:	Water	
	Sampled By:	David Walter		Sample Type:	Water	
1503204-04	COC Number:			Receive Date:	02/09/2015	10:00
	Project Number:			Sampling Date:	02/07/2015	10:00
	Sampling Location:	FB-2-7-15		Sample Depth:		
	Sampling Point:	FB-2-7-15		Lab Matrix:	Water	
	Sampled By:	David Walter		Sample Type:	Blank Water	r'

5	Laboratories,	Tino	
7	Luboratories,	Inc.	
27		.	

Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

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Reported:02/26/201510:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

EPA Method 1664

BCL Sample ID:	1503204-02	Client Sampl	e Name:	EFF-006, EFF-006, 2/7/2015 10:40:00AM, David Walter						
Constituent	1	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #	
Oil and Grease		ND	mg/L	5.0	1.2	EPA-1664A HEM	ND		1	

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-1664A HEM	02/11/15	02/11/15 09:45	MAM	MAN-SV	1	BYB1255	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported: 02/26/2015 10:12 Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

BCL Sample ID:	1503204-02	Client Sampl	EFF-006, EFF-006, 2/7/2015 10:40:00AM, David Walter						
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Total Suspended Soli	ids (Glass Fiber)	23	mg/L	0.50	0.50	SM-2540D	ND		1
Settleable Solids		0.10	ml/L-hr	0.10	0.10	SM-2540F		S05	2

			Run			QC				
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID			
1	SM-2540D	02/11/15	02/11/15 15:15	VV1	MANUAL	1.053	BYB1003			
2	SM-2540F	02/10/15	02/10/15 07:15	HPR	KONE-1	1	BYB0911	_		

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported: 02/26/2015 10:12 Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

Metals Analysis

BCL Sample ID:	1503204-02	Client Sampl	EFF-006, EFF-006, 2/7/2015 10:40:00AM, David Walter							
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #	
Hexavalent Chromiun	n	2.5	ug/L	0.20	0.055	EPA-218.6	0.074		- 1	
Total Recoverable Ni	ckel	9.0	ug/L	2.0	0.19	EPA-200.8	ND		2	
Total Recoverable Se	lenium	31	ug/L	2.0	0.19	EPA-200.8	ND		2	
Total Recoverable Tha	allium	0.12	ug/L	1.0	0.10	EPA-200.8	ND	J	2	

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	EPA-218.6	02/09/15	02/09/15 21:14	BMW	IC-4	1	BYB0742	
2	EPA-200.8	02/11/15	02/12/15 05:35	EAR	PE-EL2	1	BYB0967	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:02/26/2015 10:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

EPA Method 1664

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYB1255						
Oil and Grease	BYB1255-BLK1	ND	mg/L	5.0	1.2	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

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Reported: 02/26/2015 10:12 Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

EPA Method 1664

Quality Control Report - Laboratory Control Sample

							Control Limits				
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals	
QC Batch ID: BYB1255						й э.					
Oil and Grease	BYB1255-BS1	LCS	33.950	40.200	mg/L	84.5		78 - 114			

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085

Reported:	02/26/2015 10:12
Project:	Lehigh NPDES
Project Number:	063-7109-916
Project Manager:	George Wegmann

EPA Method 1664

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source	Result	Spike Added	Units		Percent		Percent Recovery	Lab Quals
Constituent	Туре	Sample ID	Result				RPD	Recovery	RPD		
QC Batch ID: BYB1255	Use	d client samp	ole: N					a			
Oil and Grease	DUP	1428224-89	ND	ND		mg/L			18		
	MS	1428224-89	ND	37.950	40.200	mg/L		94.4		78 - 114	
	MSD	1428224-89	ND	37.600	40.200	mg/L	0.9	93.5	18	78 - 114	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:02/26/201510:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYB1003				E		
Total Suspended Solids (Glass Fiber)	BYB1003-BLK1	ND	mg/L	0.50	0.50	

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02/26/2015 10:12 Reported: Project: Lehigh NPDES Project Number: 063-7109-916 Project Manager: George Wegmann

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source	Result	Spike Added	Units		Percent	RPD	Percent Recovery	Lab Quals
Constituent	Туре	Sample ID	Result				RPD	Recovery			
QC Batch ID: BYB0911	Use	d client samp	le: Y - Des	cription: EF	F-005, 02/07	7/2015 10:	00	1.1.1			
Settleable Solids	DUP	1503204-01	5.1000	5.1000		ml/L-hr	0		10		
QC Batch ID: BYB1003	Use	d client samp	le: Y - Des	cription: EF	F-005, 02/07	7/2015 10:	00				
Total Suspended Solids (Glass Fiber)	DUP	1503204-01	1855.0	1854.0		mg/L	0.1		10		

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Reported:02/26/2015 10:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BYB0742			10	1	2	
Hexavalent Chromium	BYB0742-BLK1	0.074000	ug/L	0.20	0.055	J
QC Batch ID: BYB0967						
Total Recoverable Nickel	BYB0967-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	BYB0967-BLK1	ND	ug/L	2.0	0.19	1.0
Total Recoverable Thallium	BYB0967-BLK1	ND	ug/L	1.0	0.10	

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:02/26/2015 10:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Laboratory Control Sample

							Control Limits			3
Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals
QC Batch ID: BYB0742					1.1					
Hexavalent Chromium	BYB0742-BS1	LCS	19.993	20.000	ug/L	100	_	90 - 110		
QC Batch ID: BYB0967						1	1			
Total Recoverable Nickel	BYB0967-BS1	LCS	103.00	100.00	ug/L	103		85 - 115		
Total Recoverable Selenium	BYB0967-BS1	LCS	102.14	100.00	ug/L	102		85 - 115		444
Total Recoverable Thallium	BYB0967-BS1	LCS	39.423	40.000	ug/L	98.6		85 - 115		

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Golder Associates 425 Lakeside Drive Sunnyvale, CA 94085 Reported:02/26/201510:12Project:Lehigh NPDESProject Number:063-7109-916Project Manager:George Wegmann

Metals Analysis

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: BYB0742	Use	d client samp	ole: N							10	
Hexavalent Chromium	DUP	1503198-01	1.2030	1.1140		ug/L	7.7		10		
	MS	1503198-01	1.2030	22.104	20.202	ug/L		103		90 - 110	
*	MSD	1503198-01	1.2030	22.268	20.202	ug/L	0.7	104	10	90 - 110	
QC Batch ID: BYB0967	Use	d client samp	ole: N		10						
Fotal Recoverable Nickel	DUP	1503050-08	1.6810	1.6340		ug/L	2.8		20		J
	MS	1503050-08	1.6810	84.539	100.00	ug/L		82.9		70 - 130	
	MSD	1503050-08	1.6810	82.349	100.00	ug/L	2.6	80.7	20	70 - 130	
otal Recoverable Selenium	DUP	1503050-08	0.41700	ND		ug/L			20		
	MS	1503050-08	0.41700	105.75	100.00	ug/L		105		70 - 130	
	MSD	1503050-08	0.41700	102.74	100.00	ug/L	2.9	102	20	70 - 130	
Total Recoverable Thallium	DUP	1503050-08	ND	ND		ug/L			20		
	MS	1503050-08	ND	43.080	40.000	ug/L		108		70 - 130	
	MSD	1503050-08	ND	41.561	40.000	ug/L	3.6	104	20	70 - 130	

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Subcontract Report for 1503204 PDF File Name: WO 1503204 SUB BSCLB.pdf Page 1 of 4

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2218 Railroad Avenue voice 530.243.7234 Redding, California 96001 fax 530.243.7494

3860 Morrow Lane, Suite F Chico, California 95928 voice 530.894.8966 lax 530.894.5143

February 24, 2015

Lab ID: 15B0501

VANESSA SANDOVAL B C LABORATORIES INCORPORATED 4100 ATLAS COURT BAKERSFIELD, CA 93308 RE: HG 1631 TESTING 1503204

Dear VANESSA SANDOVAL,

Enclosed are the analysis results for Work Order number 15B0501. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

Ricky D. Jensen

Laboratory Director California ELAP Certification Number 1677

Page 1 of 3

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basic	2218 Railroad A	venue	voice 530.243.72	34	$\gamma = 0$	3860 M	arcow Loo	e, Suite F	voice 530.	804 8066	
laboratory			fax 530.243.7494		1		California		fax 530.89		
Report To:	B C LABORATORIES	INCORPOR	ATED						Lab No	: 15B050	01 .
	4100 ATLAS COURT BAKERSFIELD, CA 93	308				0			Reported	100 CAMP (2017)	15 327-4911
Attention:	VANESSA SANDOVAL								P.O. #		SET ISIL
	HG 1631 TESTING			÷					11012		
Metals - Tota	1										
Analyte		Units	Results	Qualifie	er Mi	DL I	RL I	Method	Analyzed	Prepare	d Batch
1503204-01 W	ater (15B0501-01)	Sampled	02/07/15 10:00	0 Recei							
Mercury		ng/l	5170	QC-08	20			PA 1631E	02/18/15	02/18/15	B5B1112
1503204-02 W	ater (15B0501-02)		02/07/15 10:40 42.3	u Recei	ved:02/1				03/10/15	02/10/45	DED1112
1503204-03 W	ater (15B0501-03)	ng/l Sampled	42.3	0 Recei	0.1 ved:02/1			EPA 1631E	02/18/15	02/18/15	B5B1112
Mercury		ng/l	84.9		0.3	20 0	.50 1	PA 1631E	02/18/15	02/18/15	85B1112
1503204-04 W	ater (15B0501-04)		02/07/15 10:00	0 Recei	ved:02/1	0/15 13					
Mercury		ng/l	ND		0.3		.50 1	EPA 1631E	02/18/15	02/18/15	B5B1112
		2 ⁰	Quality	/ Contr	ol Data						
		121 244			Spike	Source	-	%REC	dia.	RPD	
Analyte		Result	RL	Units	Level	Result	%REC	Limits	RPD	Limit Ç	Qualifier
			Me	tals - T	otal						
Batch B5B1112 - B	rCl Digestion		Mod Sec. 10. 4 . 10. 1		and the second second second			1.1			(4)
Blank											
lercury		ND	0.50	ng/l							
Blank											
Mercury		ND ·	0.50	ng/l						-	
Blank						-				_	00.07
Mercury		ND	0.50	ng/l			-				QC-08
LCS Mercury		20.3	0.50	ng/l	20.0		102	84.1-120			
Matrix Spike	Source: 1580501-02	2013	0,00	119/1	20.0		102	0-1.1-120			
Mercury		63.7	0.50	ng/l	20.0	42.3	107	74.3-125			
Matrix Spike	Source: 15B0503-01		***						5		
Vercury	and a strength of the strength	20.4	0.50	ng/l	20.0	1.20	96.2	74.3-125			
Matrix Spike Dup	Source: 15B0501-02		100								
Mercury	Courses (PROPAS A1	62.2	0.50	ng/l	20.0	42.3	99.6	74.3-125	2.40	24	
Matrix Spike Dup	Source: 1580503-01	20.0	0.50	ng/l	20.0	1.20	93.9	74.3-125	2.33	24	
			0104	1.80			-4.5				
			(*								
									21 ar		
- <u>v-1</u> [
Victory James		1									
Approved By										n. K	
Basic Laborato	ry, Inc. rt #1677 and #2718			X						с. 	age 2 of 3

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basi		Railroad Avenue ing, California 96001	voice 530.243.7234 1 fax 530.243.7494		3860 Morrow Lane, Suite F	voice 530.89 fax 530.894.		
ia butaro	ny neuu	ing, canornia 9000	1 148 550.245.7494	1	Chico, California 95928	lax 550.094.	5145	
eport To:	4100 ATLAS BAKERSFIEL	LD, CA 93308	ORATED			Lab No: Reported: Phone: P.O. #	15B0501 02/24/15 (661) 327-4911	
Project:		STING 1503204				P.O. #		
				a finitions				
			Notes and D					
-08 An ana	alyzed with the sam	ation of BrCI was nece ple.	ssary to fully oxidize this san	ple. As required b	y EPA 1631E, a laboratory method	blank containing t	he additional BrCI was	
	alyte DETECTED	• (2004)						
Ana	alyte NOT DETECTE	ED at or above the dete	ection limit					
No	t Reported							
		ed on a dry weight basi	ls					
D Rel	lative Percent Differ	ence						
Les	ss than reporting lim	nit						
Les	ss than or equal to r	reporting limit		3				
Gre	eater than reporting	ı limit						
	eater than or equal i	to reporting limit						
L Me	ethod Detection Lim	lt.						
ML Mir	nimum Level of Qua	intitation						
L/AL Ma	ixium Contaminant L	Level/Action Level						
rkg Res	sults reported as we	et weight						
C Tol	tal Threshold Limit (Concentration						
1947								
.C Sol	luble Threshold Limi	It Concentration						
.C Sol		It Concentration Leachate Procedure						
.C Sol .P Toy .e 1 Rec	xicity Characteristic xeived Temperature	Leachate Procedure - according to EPA			thods should be held at <u><</u> 6 deg nay invalidate results if temperature			1
.C Sol .P Tox re 1 Rec tran	xicity Characteristic xeived Temperature nsportation, unless t	Leachate Procedure - according to EPA the time from sampling	to delivery is <2 hours. Reg	ulating agencies n	thods should be held at ≤6 deq lay invalidate results if temperature hin 15 minutes of sampling: pH, d	e requirements are	e not met.	1
.C Sol .P Tox re 1 Rec tran	xicity Characteristic xeived Temperature nsportation, unless t	Leachate Procedure - according to EPA the time from sampling	to delivery is <2 hours. Reg	ulating agencies n	ay invalidate results if temperature	e requirements are	e not met.	1
C Sol IP Tox e 1 Rec tran	xicity Characteristic xeived Temperature nsportation, unless t	Leachate Procedure - according to EPA the time from sampling	to delivery is <2 hours. Reg	ulating agencies n	ay invalidate results if temperature	e requirements are	e not met.	1
.C Sol .P Tox re 1 Rec tran	xicity Characteristic xeived Temperature nsportation, unless t	Leachate Procedure - according to EPA the time from sampling	to delivery is <2 hours. Reg	ulating agencies n	ay invalidate results if temperature	e requirements are	e not met.	1
.C Sol .P Tox re 1 Rec tran	xicity Characteristic xeived Temperature nsportation, unless t	Leachate Procedure - according to EPA the time from sampling	to delivery is <2 hours. Reg	ulating agencies n	ay invalidate results if temperature	e requirements are	e not met.	1
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BC Laboratories 4100 Atlas Court Bakersfield, CA 93308		Ba 22	isic Laboratory, Inc. 18 Railroad Ave. edding, CA 96001		
Phone: 661-327-4911 FAX: 661-327-1918 Project Manager: Vanessa Sa	indoval	Ja Ph	mes E. Hawley lone: 530-243-7234 X:		
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Analysis		Due	Expires	Comments	
Sample ID: 1503204-01	Water	Sampled:	02/07/15 10:00	Standard TAT	6.80
EPA 1631 - Mercury	1	02/24/15 17:00	08/07/15 10:00		
Containers supplied:					
Sample ID: 1503204-02	Water	Sampled:	02/07/15 10:40	Standard TAT	7-8°C
EPA 1631 - Mercury		02/24/15 17:00	08/07/15 10:40		<u>/-8 C</u>
Containers supplied:					
Sample ID: 1503204-03	Water	Sampled:	02/07/15 11:30	Standard TAT	8.3°C
EPA 1631 - Mercury		02/24/15 17:00	08/07/15 11:30		
Containers supplied:					
Sample ID: 1503204-04	Water	Sampled:	02/07/15 10:00	Standard TAT	9.6*0
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Environmental Testing Laboratory Since 1949

Golder Associates	Reported: 02/26/2015 10:12	
425 Lakeside Drive	Project: Lehigh NPDES	
Sunnyvale, CA 94085	Project Number: 063-7109-916	
	Project Manager: George Wegmann	

J	Estimated Value (CLP Flag)	
MDL	Method Detection Limit	
ND	Analyte Not Detected at or above the reporting limit	
PQL	Practical Quantitation Limit	
RPD	Relative Percent Difference	
A07	PQL's were raised due to sample dilution caused by high analyte concentration or matrix interference.	
S05	The sample holding time was exceeded.	

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TECHNICAL MEMORANDUM

Date:	March 31, 2015	Project No.:	123-81502.08
То:	Alan Sabawi	Company:	Lehigh Southwest Cement Co.
From:	Wes Oehmig, Victor Wirick		
cc:	Kevin Conroy, Tom Rutkowski		
RE:	LEHIGH INTERIM TREATMENT SYSTEM (REPORT (MARCH 31, 2015)	OPERATIONS -	SYSTEM PERFORMANCE

1.0 INTRODUCTION AND PURPOSE

The Lehigh Permanente Cement Plant and Quarry (Site), located at 24001 Stevens Creek Blvd., Cupertino, CA, is owned by Hanson Permanente Cement, Inc. and operated by Lehigh Southwest Cement Company. In accordance with Cease and Desist Order No. R2-2014-0011, issued by the San Francisco Regional Water Quality Control Board, (herein referred to as "CDO"), the Interim Treatment System (ITS) at the Site began treating quarry water prior to discharge via Pond 4A (Discharge Point No. 001 in the permit) in the fall of 2014. Beginning December 1, 2014, the ITS is required to remove total selenium (Se) by 50% from influent water, or achieve an effluent concentration of less than or equal to 10 µg/L Se if the influent is 20 µg/L Se or less.

1.1 Document Scope

Since ITS startup in October 2014, weekly monitoring has been conducted at the inlet and outlet of the ITS for the pollutants listed in the CDO, Table 1, for Discharge Point No. 001. This report is presented in compliance with the CDO, Table 3, Task f., which states: "Provide a report evaluating and describing the effectiveness of the interim treatment system at reducing effluent concentrations of the pollutants listed in Table 1 for Discharge Point No. 001. In the evaluation of treatment effectiveness, compare pollutant concentrations in the interim treatment system effluent to those in the influent and to Permit effluent limitations." The main objective of this report, therefore, is to use the weekly monitoring data to evaluate the performance of the ITS.

1.2 System Description

The ITS is a multiple-component water treatment system designed to treat at least 400 gallons per minute for the removal of total selenium. The system is composed primarily of two parallel bioreactor modules (manufactured and operated by Frontier Water Systems) and an effluent aeration tank. Selenium is reduced and retained in the anaerobic bioreactors through a biologically mediated process. The bioreactors also generate sulfide which precipitates some metals as metal sulfides within the bioreactors. The sulfide is generated through biological sulfate reduction.

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1.3 Sampling and Analysis

The pollutants listed in Table 1 of the CDO for Discharge Point No. 001 include selenium (Se), nickel (Ni), chromium (Cr(VI)), mercury (Hg), settleable matter, and turbidity. These parameters have been monitored with weekly sampling events and analyses. Sampling was carried out as 24-hr composite samples; the same composites were generally used for other parameters tested, except for Hg which was analyzed from grab samples.

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A contracted laboratory, BC Laboratories, conducted all analyses for these parameters, except for Hg, which was subcontracted to another lab. The analytical methods used to quantify each parameter are:

- Se, Ni EPA-200.8
- Cr(VI) EPA-218.6
- Hg EPA-1631E
- Settleable matter EPA-160.5
- Turbidity EPA-180.1

2.0 SYSTEM PERFORMANCE

The following sections detail the performance of the ITS for the treatment of selenium, chromium, nickel, mercury, settleable matter, and turbidity. Table 1 displays the concentrations of these parameters in weekly monitoring samples. Table 2 summarizes the system performance with monthly average concentrations for these parameters.

2.1 Total Selenium

Influent selenium concentrations (Table 1) ranged from 40 to 97 µg/L with an average of 61 µg/L since December 2014. In compliance with the CDO, Table 3, Task e., the ITS has removed selenium at a rate greater than 50% since December 1, 2014. Figure 1 shows influent, effluent, average monthly effluent concentrations, and removal percentage of total selenium. These are compared to the Maximum Daily Effluent Limit (MDEL) and Average Monthly Effluent Limit (AMEL) specified in the Permit (Regional Water Board Order R2-2014-0010).

Selenium removal has been consistently over 90% throughout the operational period, and has therefore met the task e requirement for 50% removal. Effluent concentrations have, with only one exception, met the permit MDEL of 8.2 μ g/L. Average effluent concentration for all sample data has been 5.1 μ g/L. Monthly averages (Table 2) have been at or near the permit AMEL of 4.1 μ g/L since December 2014.

To date, selenium removal has far exceeded the removal goal of 50%, and has produced effluent concentrations consistently meeting the MDEL. Selenium treatment since January 1, 2015 has produced effluent with monthly average concentrations under the AMEL. The system has shown pronounced effectiveness in removing selenium, as supported by this performance data.



2.2 Total Nickel

As shown in Table 1, influent nickel concentrations have averaged 67 μ g/L, and peaked at 110 μ g/L. The removal of nickel has averaged 67% since December 1, 2014, and has been as high as 87%. Effluent concentrations (averaging 18 μ g/L) have not exceeded the MDEL of 160 μ g/L (Figure 2), and flow-weighted monthly averages have consistently been below the AMEL of 82 μ g/L.

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Though the ITS was chiefly designed for the removal of selenium, it has been effective in consistently reducing nickel concentrations as well. Nickel removal is likely occurring due to nickel sulfide precipitation within the bioreactors.

2.3 Hexavalent Chromium

Chromium (VI) has been present in the ITS influent in concentrations averaging 0.49 μ g/L (with a maximum of 1.6 μ g/L) since December 1 (Table 1). Effluent concentrations (Figure 3) have routinely been non-detect, signifying very high removal rates. On average, effluent chromium (VI) has been 0.014 μ g/L, which is three orders of magnitude below the MDEL. Average monthly concentrations have similarly been far below the AMEL.

The removal of chromium (VI) by the ITS may be generally explained by biological reduction. The anaerobic conditions present in the ITS are suitable for the reduction of chromium (VI) to chromium (III) likely followed by precipitation of chromium (III).

2.4 Mercury

Mercury has been present in low concentrations in both the influent (average is 4.0 ng/L) and effluent (average is 1.5 ng/L) of the ITS. The ITS effluent has been below the MDEL and AMEL in all sampling events thus far (Figure 4). Based on these data, the system shows ability to remove mercury, even at very low influent concentrations. Mercury removal is likely occurring due to sulfide precipitation.

2.5 Settleable Matter and Turbidity

Settleable matter in the ITS influent and effluent has been largely non-detect (Table 1). With the exception of one sampling event, the effluent has consistently been below the MDEL of 0.2 mL/L-hr; monthly averages have all been below the AMEL.

The turbidity of influent water has been low, averaging 1.7 NTU (Table 1). Effluent trends show turbidity increasing with treatment (Figure 5) to a magnitude greater than the MDEL or AMEL in the CDO (average effluent concentration is 23 NTU), but well below the CDO interim limit. Organic solids from the bioreactors or precipitates associated with aeration may be possible explanations for this increase in turbidity. The ITS effluent turbidity is currently meeting the numeric interim effluent limitations provided in Table 2 of the permit. Upgrades to the ITS are being considered to meet the permitted discharge turbidity requirements by the stated task i date of March 31, 2016.



3.0 SUMMARY AND CLOSING

The Interim Treatment System has been in operation since October 1, 2014 and is currently meeting all interim and Table 3 task e limits, as identified in the CDO. Influent and effluent concentrations of selenium, nickel, chromium (VI), mercury, and settleable matter are consistently less than the final permit limits identified in the CDO. The bioreactor technology is effective not only for selenium removal, but also nickel, chromium, and mercury removal. Turbidity in the effluent is above final limits, and is seen to increase with treatment. Consideration is being given to improvements to the ITS system to meet the final permit limits for turbidity by the March 2016 task i deadline.

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TABLES

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March 2015

Table 1: Weekly ITS Monitoring Data

		Se (ug/L)		(VI) j/L)	Ni (ug/L)		Hg (ng/L)		Settleable Matter (mL/L-hr)		Turbidity (NTU)	
	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF
MDEL	-	8.2	-	16		160	-	41	-	0.2	-	10
12/3/2014	93	7.0	0.22	ND	21	17	1.3	0.74	ND	ND	1.6	3.8
12/10/2014	97	12	0.28	ND	23	15	1.1	0.82	ND	ND	0.74	3.6
12/17/2014	44	2.0 J	1.6	ND	35	18	31 *	12 *	0.1	ND	3.7	4.7
12/22/2014	-	-	0.12 J	ND	110	37	0.83	0.49 J	ND	0.2	1.3	18
12/23/2014	56	2.1	-	-	-	-	-	-	-	-	-	-
12/29/2014		-	ND	ND	90	20	2.9	0.41 J	ND	0.1	3.2	33
12/30/2014	59	1.2 J	-	-	-	-	-	-	-	-	-	-
1/7/2015	58	1.5 J	0.44	ND	72	16	2.0	0.49 J	ND	ND	0.84	37
1/14/2015	56	1.8 J	0.41	ND	68	14	2.4	0.55	ND	ND	1.6	27
1/21/2015	71	2.8	0.55	ND	54	16	2.0	0.8	ND	ND	0.87	22
1/28/2015	59	3.9	0.14 J	ND	80	15	2.4	0.72	ND	ND	1.6	42
2/4/2015	62	3.7	0.31	0.071 J	58	12	1.6	0.87	ND	ND	1.0	18
2/11/2015	-	-	0.27	0.11 J	-	-	1.1	0.42 J	ND	ND	1.9	39
2/13/2015	44	1.4 J	-	-	99	13	-	-	-	-	-	-
2/19/2015	52	1.4 J	1.0	ND	76	21	1.6	0.47 J	ND	ND	1.7	27
2/25/2015	40	3.9	0.97	ND	90	26	1.5	0.68	ND	ND	2.6	30
Minimum	40	1.2	ND	ND	21	12	0.48	0.39	ND	ND	0.74	3.6
Maximum	97	12	1.6	0.12	110	37	31 *	12 *	0.1	0.2	3.7	42
Average	61	5.1	0.49	0.014	67	18	4.0	1.5	0.0077	0.023	1.7	23

Notes:

MDEL = Maximum Daily Effluent Limit

J = Detected, but not quantified

ND = Not detected

* = Data flagged for having significantly high relative percent difference compared to duplicates



March 2015

Table 2: Monthly Average Concentrations

	Se (ug/L)		Cr(VI) (ug/L)		Ni (ug/L)		Hg (ng/L)		Settleable Matter (mL/L-hr)			oidity TU)
	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF
AMEL	-	4.1	-	8.0	-	82	-	20	-	0.1	- 1	5.0
December	70	4.9	0.49	0.00	63	22	7.4	2.9	0.020	0.060	2.1	13
January	61	2.5	0.38	0.00	69	15	2.2	0.64	0.00	0.00	1.2	32
February	50	2.6	0.64	0.046	81	18	1.5	0.61	0.00	0.00	1.8	29

Notes:

AMEL = Average Monthly Effluent Limit



FIGURES

-945





Figure 2: Nickel (Ni) Monitoring Data



123-81502-08







Figure 4: Mercury (Hg) Monitoring Data





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Figure 5: Turbidity Monitoring Data



