



Marine Laboratories, Inc.

"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

May 26, 2010

Occidental College
1600 Campus Road
Los Angeles, CA 90041

Re: CRG Marine Laboratories
Occidental College

Project ID: OCC001-10e
Project ID: Chevron Outfall Bacteria Sampling

ATTN: Jonathan Williams

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Chevron Outfall Bacteria Sampling project. According to the chain-of-custody, 6 samples were received intact at CRG on 5/13/2010. Per your instructions, the samples were analyzed for:

- Enterococci / MF 10 Using Method EPA 1600
- Fecal Coliform / MTF 20 Using Method SM 9221E
- Total Coliform / MTF 20 Using Method SM 9221B

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,
Antony Basil

Reviewed and Approved _____

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes (MS/MSD), surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

TOTAL/DISSOLVED: In some instances, the results for the "Dissolved" fraction can be higher than the "Total" fraction for a particular parameter. This is typically caused by the analytical variation for each result and indicates that the target parameter is primarily in the dissolved phase.

GLOSSARY OF TERMS

<u>Qualifier</u>	<u>Definition</u>
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the MS and/or MSD compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.
M5	Recovery of the MS and/or MSD compound was out of control due to an unknown compound(s) in the sample that interferes with the known target compound causing an increased response.
M6	Recovery of the MS and/or MSD compound was out of control due to unknown heavy hydrocarbons detected in the sample which elevates the baseline.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
Q4	Due to the sample rate of the instrument, the peak area was underestimated because the apex of the peak was missed. This random error has caused this compound to fail for the spike and/or precision. This failure does not indicate any significant problems with the analysis of this sample and the data passes CRG's QAPP requirements.

Project Sample List

Occidental College

CRG Project ID: **OCC001-10e**

Project Officer: Jonathan Williams

Project Description: Chevron Outfall Bacteria Sampling

<i>CRG Sample ID#</i>	<i>Client Sample ID</i>	<i>Sample Description</i>	<i>Date Sampled</i>	<i>Matrix</i>
96939	S1		13-May-10	Seawater
96940	S3		13-May-10	Seawater
96941	S5		13-May-10	Seawater
96942	RW1		13-May-10	Seawater
96943	RW3		13-May-10	Seawater
96944	RW5		13-May-10	Seawater

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96939

Sample S1

Date Sampled: 13-May-10 14:16

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix: Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96939 R1

CRG Marine Laboratories, Inc.

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96940

Sample S3

Date Sampled: 13-May-10 14:24

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix: Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

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96940 R1

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96941

Sample S5

Date Sampled: 13-May-10 14:28

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix: Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96941 R1

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96942

Sample

RW1

Date Sampled: 13-May-10 12:04

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix:

Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96942 R1

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96943

Sample

RW3

Date Sampled: 13-May-10 12:01

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix:

Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

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California ELAP Certificate # 2261
96943 R1

CRG Marine Laboratories, Inc.

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96944

Sample

RW5

Date Sampled: 13-May-10 11:57

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 13-May-10

DILUTION FACTOR:

Matrix:

Seawater

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96944 R1

QUALITY CONTROL REPORT

REAGENT BLANK RESULTS

CRG Marine Laboratories, Inc.

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Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96945

Sample

QAQC

Reagent Blank

Date Sampled:

Replicate #: B1

Description:

Chevron Outfall Bacteria Sampling

Date Received:

DILUTION FACTOR:

Matrix:

Reagent

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	< 10	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96945 B1

ACCURACY DATA

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Microbiology

Client: *Occidental College*

CRG Project ID: *OCC001-10*

CRG ID#: 96946

Sample

QAQC

Positive Control

Date Sampled:

Replicate #: PC1

Description:

Chevron Outfall Bacteria Sampling

Date Received:

DILUTION FACTOR:

Matrix:

Water

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	PASS	CFU/100mL	10	16:30	13-May-10	0513
Fecal Coliform / MTF 20	SM 9221E	PASS	MPN/100mL	20	16:30	13-May-10	0513
Total Coliform / MTF 20	SM 9221B	PASS	MPN/100mL	20	16:30	13-May-10	0513

MDL= Method Detection Limit (CFR 40 Part 136); RL= Reporting Limit; J= Estimated Value below the RL and above the MDL; ND= Not Detected; NA= Not Applicable; MI= Matrix Interference

California ELAP Certificate # 2261
96946 PC1

CHAIN-OF-CUSTODY

CHAIN-OF-CUSTODY RECORD

RID: 1967-09

Client Information						REQUESTED ANALYSIS									
Client Name	Vantuna Research Group - Occidental College					Total Coliform (SM 9221B)	Fecal Coliform (SM 9221E)	Enterococci (EPA 1600)							
Address	1600 Campus Road Los Angeles, CA 90041														
Sampled By	Jonathan Williams, Dr. Daniel Pondella II														
Project Manager															
Phone	323-259-2891 (JW), 323-259-2955 (DP)														
FAX	323-259-2887														
Email	jonwilliams@oxv.edu														
Project Name/Number	Chevron Outfall Bacteria Sampling														
P.O. Number															
Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Quantity	Type										
S1	5/13/10	14:10	SW	1	Sterile Plastic	✓	✓	✓							
S3	5/13/10	14:24	SW	1	Sterile Plastic	✓	✓	✓							
S5	5/13/10	14:28	SW	1	Sterile Plastic	✓	✓	✓							
RW1	5/13/10	12:04	SW	1	Sterile Plastic	✓	✓	✓							
RW3	5/13/10	12:01	SW	1	Sterile Plastic	✓	✓	✓							
RW5	5/13/10	11:57	SW	1	Sterile Plastic	✓	✓	✓							
Correct Containers:	Yes	No				RELINQUISHED BY									
Sample Temperature:	Ambient	Cold	Warm			Signature:									
Sample Preservative:	Yes	No				Print:	Jonathan Williams								
Turnaround Time:	STD	Specify:				Company:	VRG								
Report Format:	pdf	EDD	hardcopy			DATE:	5-13-2010	TIME:	15:50						
Comments:						RECEIVED BY									
						Signature:									
						Print:	Sherilana								
						Company:	CRG								
CRG Project ID: _____ (lab use only)						DATE:	05-13-10	TIME:	1550						
CRG Sample ID: _____ (lab use only)															

*MATRIX CODES: (SED = Sediment); (TISS = Tissue); (SW = Seawater, Saltwater); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

CRG PID

CRG RID
 1967-09

SAMPLE RECEIPT FORM

CLIENT: Occidental College

Date Received: 05/30

Total # of Samples: 6

COURIER INFORMATION

☐ CRG

☐ OTHER

☐ FEDEX

☒ CLIENT

tracking # _____

☐ UPS

TEMPERATURE

6.3°C ☐ WET ICE ☐ BLUE ICE ☐ NO ICE

CLIENT COC

☒ INCLUDED

☐ NOT INCLUDED

☒ SIGNED

☐ NOT SIGNED

SAMPLE MATRIX

☒ LIQUID

☐ Composite at CRG, equal

☐ Composite at CRG, flow-weighted

☐ SOLID

☐ OTHER _____

☐ TISSUE

☐ Homogenized

☐ Unhomogenized

Received By: [Signature]

CONDITION OF SAMPLES UPON VERIFICATION

All sample containers received intact and in good condition.....
 All samples listed on COC(s) are present.....
 All sample IDs on containers are consistent with sample IDs on COC(s).....
 Correct containers used for analyses requested.....
 All samples received within method holding time.....

Yes

No

NA

☒
☒
☒
☒
☒

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☐
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☐

Samples verified by: [Signature]

NOTES

Print Form