



Marine Laboratories, Inc.

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

April 23, 2010

Occidental College
1600 Campus Road
Los Angeles, CA 90041

Re: CRG Marine Laboratories
Occidental College

Project ID: OCC001-10d
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 4/9/2010. 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: **OCC001-10d**

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>
96264	S1		09-Apr-10	Seawater
96265	S3		09-Apr-10	Seawater
96266	S5		09-Apr-10	Seawater
96267	RW1		09-Apr-10	Seawater
96268	RW3		09-Apr-10	Seawater
96269	RW5		09-Apr-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#: 96264

Sample S1

Date Sampled: 09-Apr-10 12:05

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96264 R1

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#: 96265

Sample S3

Date Sampled: 09-Apr-10 11:59

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96265 R1

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#: 96266

Sample S5

Date Sampled: 09-Apr-10 11:54

Replicate #: R1

Description: Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96266 R1

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#: 96267

Sample

RW1

Date Sampled: 09-Apr-10 09:51

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96267 R1

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#: 96268

Sample

RW3

Date Sampled: 09-Apr-10 09:47

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96268 R1

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#: 96269

Sample

RW5

Date Sampled: 09-Apr-10 09:43

Replicate #: R1

Description:

Chevron Outfall Bacteria Sampling

Date Received: 09-Apr-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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	80	MPN/100mL	20	15:00	09-Apr-10	0409

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
96269 R1

QUALITY CONTROL REPORT

REAGENT BLANK RESULTS

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#: 96270

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	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	< 20	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	< 20	MPN/100mL	20	15:00	09-Apr-10	0409

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
96270 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#: 96271

Sample

QAQC

Positive Control

Date Sampled:

Replicate #: PC1

Description:

Chevron Outfall Bacteria Sampling

Date Received:

DILUTION FACTOR:

Matrix:

Culture

CONSTITUENT	METHOD	RESULT	UNITS	MDL	TIME ANALYZED	DATE ANALYZED	BATCH ID
Enterococci / MF 10	EPA 1600	PASS	CFU/100mL	10	15:00	09-Apr-10	0409
Fecal Coliform / MTF 20	SM 9221E	PASS	MPN/100mL	20	15:00	09-Apr-10	0409
Total Coliform / MTF 20	SM 9221B	PASS	MPN/100mL	20	15:00	09-Apr-10	0409

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
96271 PC1

CHAIN-OF-CUSTODY



CRG Marine Laboratories, Inc

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

CHAIN-OF-CUSTODY RECORD

PID: 1875-09

Client Name Vantuna Research Group - Occidental College 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@oxy.edu Project Name/Number Chevron Outfall Bacteria Sampling P.O. Number					REQUESTED ANALYSIS												
					Total Coliform (SM 9221B)	Fecal Coliform (SM 9221E)	Enterococci (EPA 1600)										
Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container	Quantity	Type											
1 96264 S1	4/9/10	12:05	SW	1	Sterile Plastic	✓	✓	✓									
2 96265 S3	4/9/10	11:59	SW	1	Sterile Plastic	✓	✓	✓									
3 96266 S5	4/9/10	11:59	SW	1	Sterile Plastic	✓	✓	✓									
4 96267 RW1	4/9/10	10:45	SW	1	Sterile Plastic	✓	✓	✓									
5 96268 RW3	4/9/10	9:47	SW	1	Sterile Plastic	✓	✓	✓									
6 96269 RW5	4/9/10	9:43	SW	1	Sterile Plastic	✓	✓	✓									
7																	
8																	
9																	
10																	
Correct Containers: Yes No Sample Temperature: Ambient Cold Warm Sample Preservative: Yes No Turnaround Time: STD Specify: Report Format: pdf EDD hardcopy					RELINQUISHED BY Signature: [Signature] Print: Jonathan Williams Company: VRG - Occidental DATE: 4-9-2010 TIME: 12:28 RECEIVED BY Signature: [Signature] Print: Geoff Gusseth Company: crg DATE: 4.9.10 TIME: 12:38												
Comments: CRG Project ID: _____ (lab use only) CRG Sample ID: _____ (lab use only)																	

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



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

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 Fax (310) 533-5003 www.crglabs.com

SAMPLE RECEIPT FORM

CRG PID

CRG RID
1875-09

CLIENT: Occidental College

Date Received: 4.9.10

Total # of Samples: 6

COURIER INFORMATION

☐ CRG

☐ OTHER

☐ FEDEX

☒ CLIENT

☐ UPS

tracking #

TEMPERATURE

☐ °C ☒ WET ICE ☐ BLUE ICE ☐ NO ICE

☒ LIQUID

SAMPLE MATRIX

☐ TISSUE

☐ Composite at CRG, equal

☐ Homogenized

☐ Composite at CRG, flow-weighted

☐ Unhomogenized

CLIENT COC

☒ INCLUDED

☒ SIGNED

☐ NOT INCLUDED

☐ NOT SIGNED

☐ SOLID

☐ OTHER

Received By: 99

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All samples listed on COC(s) are present.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All sample IDs on containers are consistent with sample IDs on COC(s).....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers used for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All samples received within method holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Samples verified by: 99

NOTES

o No sample times on samples

o Sample date on container is "4.5.10" & it's "4.9.10" on COC

Print Form