Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority
2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214
Website: www.amafca.org

October 15, 2019

Mr. Robert Houston
Chief, Special Projects Section
U.S. Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, Texas 75270

RE: NPDES Permit No. NMR04A000 Administrative Continuance – Duty to Re-Apply

Dear Mr. Houston:

This correspondence serves as a written notification that the members copied below of the Middle Rio Grande Technical Advisory Group (TAG) will continue to operate and discharge into the Rio Grande under the coverage and the conditions set forth in NPDES Permit No. NMR04A000 (Permit), after December 19, 2019, based on Permit language in Part IV:V and required notification in Part IV:C.

On June 27, 2019 the Middle Rio Grande TAG MS4 permittees met with and were informed by EPA Region 6 staff Brent Larson & Maria Martinez that the Permit, which expires on December 19, 2019, would likely go into administrative continuance. As EPA staff explained during the meeting, EPA is not required to issue a public notice related to the administrative continuance and the current permittees do not need to complete any actions or submit renewal applications to have continued coverage under the current Permit.

This guidance from EPA was confirmed in the Permit, in Part IV:V. CONTINUATION OF THE EXPIRED GENERAL PERMIT. *If this Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued Permit until the earlier of:*

1. *Reissuance or replacement of this Permit, at which time the permittee must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or*
2. *Issuance of an individual permit for your discharges; or*
3. *A formal permit decision by the permitting authority not to reissue this general Permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.*

Closer review of the Permit noted the language in Part IV:C: DUTY TO REAPPLY. *If the permittee wishes to continue an activity regulated by this Permit after the Permit expiration date, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days prior to expiration of this permit. The EPA may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR § 122.6 and any subsequent amendments.* It is unclear from the Permit language in Part IV: C, if this section applies to permits that are administratively continued.

This letter is to inform EPA that, based on the provided guidance from EPA and the MS4 Permit language in Part IV:V, members of the Middle Rio Grande TAG will continue to operate with coverage under the current MS4 Permit when the Permit is administratively continued on December 19, 2019. If these assumptions are incorrect or if an application is required for continued coverage under MS4 Permit NMR04A000, please let us know as soon as possible.

We appreciate your attention to this matter. Please contact me if you have any questions.

Sincerely,
Middle Rio Grande TAG

Patrick Chavez, PE
AMAFCA Storm Water Quality Engineer and TAG Member

TAG Members Included and Copied:

Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
City of Rio Rancho
Sandia National Labs (operated by NTESS for US DOE)
Bernalillo County
Kirtland Air Force Base
Village of Los Ranchos
Eastern Sandoval County Arroyo Flood Control Authority (ESCACA)
Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)
City of Albuquerque
Village of Corrales
Sandoval County
Town of Bernalillo
New Mexico Department of Transportation (NMDOT)
University of New Mexico

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

Courtyard I
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M E M O R A N D U M

DATE: August 10, 2022

TO: Patrick Chavez, PE, AMAFCA

FROM: Sarah Ganley, PE, ENV-SP
Savannah Maynard
Emma Adams, EI

SUBJECT: **CMC Dry Season, Wet Weather Stormwater Monitoring**
Data Verification, Analysis Results Database, and Reporting
FY 2022 Dry Season (November 1, 2021 to June 30, 2022)

Notification of In-Stream Water Quality Exceedances

For downstream notification purposes, the following parameters for in-stream samples taken in the Rio Grande for the FY 2022 dry season had results that exceeded applicable E. coli water quality standards (WQSs) for samples obtained on June 22, 2022. Based on the Compliance Monitoring Cooperative (CMC) review of the storm, it was determined that this was not a qualifying storm event, hence further sampling and testing were not conducted. Table 1 summarizes the samples with E. coli exceedances.

Table 1: E. coli Detected Above Applicable Water Quality Standards
CMC FY 2022 Dry Season Monitoring

Sampling Date Location	**Parameters, Applicable Water Quality Standard (WQS), and Results Exceeding Applicable WQS**
	E. coli
	WQS: 88 MPN (CFU/100 mL) Pueblo of Isleta Primary Contact Ceremonial & Recreational
6/22/2022 Rio Grande North Angostura Diversion Dam	686.7 MPN (CFU/100ml)
6/22/2022 Rio Grande at Alameda Bridge E. coli Only	>2,419.6 MPN (CFU/100ml)

Overview of Stormwater Monitoring Activity

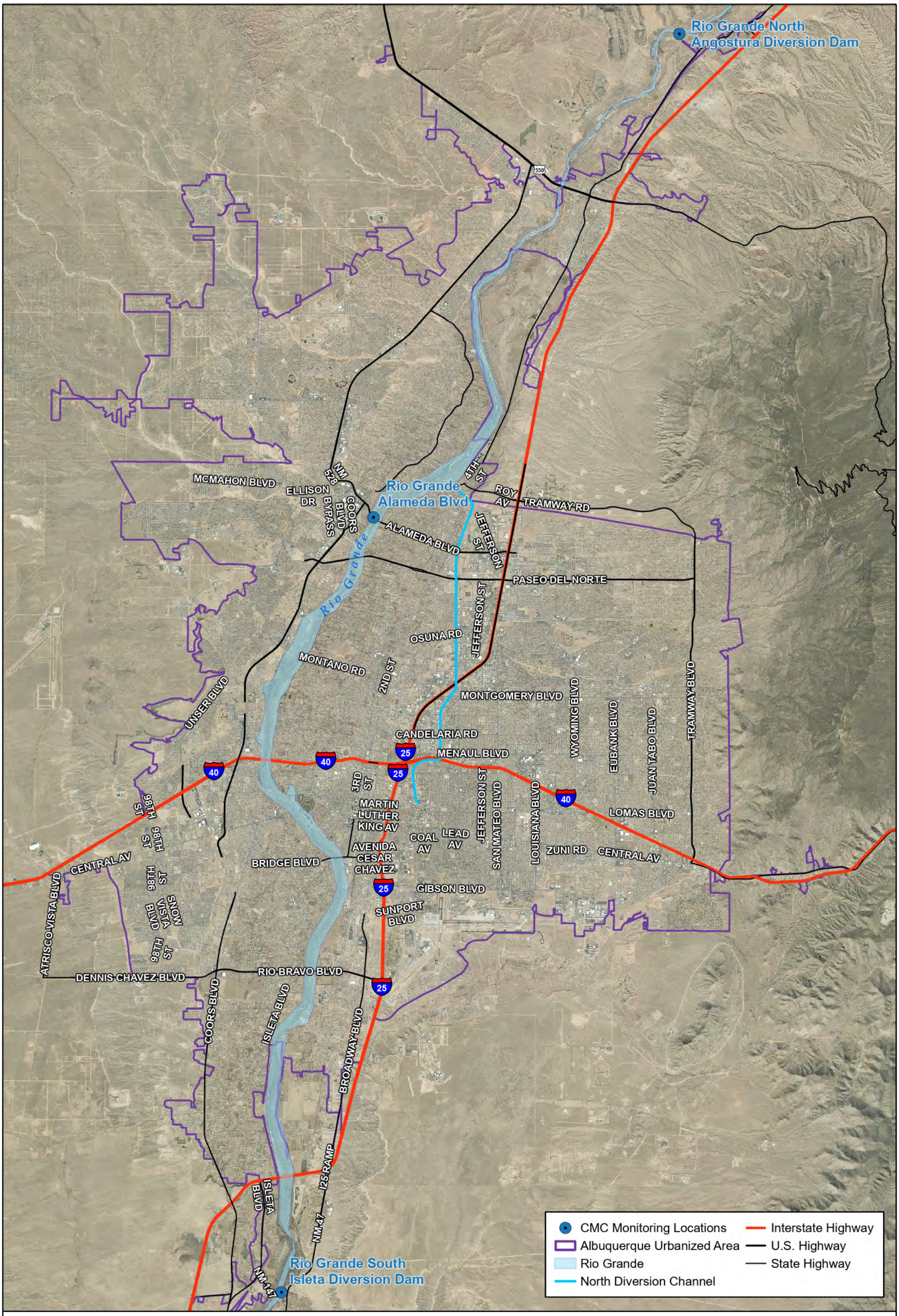
Bohannan Huston, Inc. (BHI) has been tasked to perform water quality services for the CMC Stormwater Data Verification, Database, and Reporting for the Wet Weather Stormwater Quality Monitoring Program for Fiscal Year (FY) 2022 (July 1, 2021 to June 30, 2022). The scope of work for this task includes data verification of the stormwater laboratory analysis results, compiling the analysis results into a database, and calculating the E. coli loading to compare with the Waste Load Allocation (WLA) for the qualifying storm events. The stormwater compliance monitoring is being conducted separately by Daniel B. Stephens & Associates, Inc. (DBS&A) and is not a part of this on-call task. This task is being conducted to assist the CMC members with their comprehensive monitoring and assessment program for compliance under the 2014 Middle Rio Grande (MRG) Watershed Based Municipal Separate Storm Sewer System (MS4) Permit, NPDES Permit No. NMR04A000 ("WSB MS4 Permit").

The WSB MS4 Permit entered Administrative Continuance in December 2019 when U.S. Environmental Protection Agency (EPA) Region 6 did not issue a new MS4 Permit before the current MS4 Permit's expiration date. The MRG Technical Advisory Group (TAG) sent EPA a letter dated October 15, 2019, acknowledging Administrative Continuance after the expiration date of the 5-year Permit term. Until a new MS4 Permit is issued, there are no compliance monitoring requirements for the CMC in the Rio Grande. As identified in the CMC Monitoring Plan, the WSB MS4 Permit required a minimum of seven (7) storm events be sampled at both the Rio Grande North and Rio Grande South locations (refer to Figure 1, page 3). All Permit required samples have been obtained by the CMC, as well as two (2) samples obtained in FY 2021 and the one (1) sample obtained in FY 2022 wet season during Administrative Continuance; all CMC samples are summarized in Table 2 below.

Table 2: CMC Sample Summary
Compared to WSB MS4 Permit Requirements

No. of Storm Events Required to Sample	CMC-WSB MS4 Permit Required Samples per Season	FY (Date) Samples Obtained for CMC
1	#1 Wet Season	FY 2017 (8/10/2016)
2	#2 Wet Season	FY 2017 (9/12/2016)
3	#3 Wet Season	FY 2017 (9/21/2016)
4	#1 Dry Season	FY 2017 (11/21/2016)
5	#2 Dry Season	FY 2019 (3/13/2019)
6	Any Season	FY 2018 (Wet Season - 7/27/2017)
7	Any Season	FY 2018 (Wet Season - 9/27/2017)
Not Required	Wet Season	FY 2021 (10/28/2020)
Not Required	Dry Season	FY 2021 (4/28/2021)
Not Required	Wet Season	FY 2022 (9/1/2021)

During the WSB MS4 Permit Administrative Continuance, the CMC members chose to continue sampling within the Rio Grande to support their MS4 program needs and gather additional data in support of the future MS4 Permit compliance. This memo reports on the wet weather stormwater monitoring activity for the FY 2022 dry season (November 1, 2022 to June 30, 2022).



AMAFCA

Bohannan Huston
www.bhinc.com
800.877.5332

N

0 6,000 12,000 24,000 Feet
1 inch = 12,205 feet

CMC Monitoring

Figure 1
Monitoring Locations

P:\20230125\WR\Reports\Preliminary & Draft\Figures\APRXs\Figure1.aprx
Author: mcrooks

August 2022

Monitoring Activity Summary

The list below provides a summary of the CMC comprehensive monitoring program activities completed for the FY 2022 dry season from November 2021 through June 2022. One (1) non-qualifying storm event was sampled and analyzed during the FY 2022 dry season.

- **June 22, 2022 – Only E. Coli for Rio Grande North and at Alameda Bridge.** A sample was collected at the Rio Grande North location at 2:00 p.m. and at Alameda Bridge at 3:30 p.m. on June 22, 2022, and samples were taken to the laboratory for E. coli only tests. Based on the CMC review of the storm, it was determined this was not a qualifying storm event, hence further sampling or testing was conducted.

Stormwater Quality Database for CMC

As stated previously, there were no qualifying storm events sampled for the CMC during the FY 2022 dry season, wet weather monitoring. However, the June 22, 2022, E. coli samples were added to the CMC Excel database. The Hall Environmental Analysis Laboratory (HEAL) analysis reports for this monitoring season have been received, added to the database, and are provided with this memo (Attachment 1). The lab data entered is marked in the spreadsheet as “V” (verified), and data V&V has been completed (refer to Attachment 2). The updated database is also included with this memo.

Conclusions and Planning

During the FY 2022 dry season (November 1, 2021 to June 30, 2022), one (1) non-qualifying storm event was sampled by the CMC. E. coli samples were collected at the Rio Grande North monitoring location and at Alameda Bridge. The lab reports for these samples have been received, and this data has been entered into the CMC Excel database.

To summarize:

- The WSB MS4 Permit entered Administrative Continuance in December 2019 when U.S. Environmental Protection Agency (EPA) Region 6 did not issue a new MS4 Permit before the current MS4 Permit’s expiration date. Until a new MS4 Permit is issued, there are no compliance monitoring requirements for the CMC in the Rio Grande. All MS4 Permit required samples have been obtained by the CMC, as well several samples collected during Administrative Continuance.
- There was not a qualifying storm event sampled by the CMC during the FY 2022 dry season (November 1, 2021 to June 30, 2022).

SG/ab

Attachments:

Attachment 1 – DBS&A Field Data & Hall Environmental Analysis Laboratory Reports with BHI Notes for FY 2022 Dry Season

Attachment 2 – FY 2022 Dry Season Completed Data Verification and Validation (V&V) Forms

Spreadsheet Included Separately:

Excel CMC Spreadsheet updated with water quality criterion details

ATTACHMENT 1

DBS&A FIELD DATA & HALL ENVIRONMENTAL ANALYSIS LABORATORY REPORTS WITH BHI NOTES FOR FY 2022 DRY SEASON

CMC Water Quality Results Database
FY 2017 -FY 2021
Date: August 10, 2022
Summary of Lab Results for CMC samples

		Rio Grande - North - At Angostura Dam												Rio Grande - Alameda Bridge (E. coli Only Samples)															
Parameter	**Permit Required Units**	Provisional or Verified	**2022 CMC SAMPLE - EXTRA NORTH Collection Date 8/16/2021** Wet Season Sample Non-Qualifying Storm Event	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA NORTH Collection Date 9/01/2021** Wet Season Sample	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA NORTH Collection Date 6/22/2022** Dry Season Sample Non-Qualifying Storm Event	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA SOUTH Collection Date 9/02/2021** Wet Season Sample	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA ALAMEDA Collection Date 9/1/2021** Wet Season Pre-Storm Sample	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA ALAMEDA Collection Date 9/2/2021** Wet Season Sample	Qualifier	Check compared to Water Quality Criterion	Provisional or Verified	**2022 CMC SAMPLE - EXTRA ALAMEDA Collection Date 6/22/2022** Dry Season Sample Non-Qualifying Storm Event	Qualifier	Check compared to Water Quality Criterion
Total Suspended Solids (TSS)	mg/L					V	130		--					V	790	D	--												
Total Dissolved Solids (TDS)	mg/L					V	230	D	OK					V	330	D	OK												
Chemical Oxygen Demand (COD)	mg/L					V	22.2		--					V	54.2		--												
Biochemical Oxygen Demand (BOD_5)	mg/L					V	2.7	RE	--					V	4.9		--												
Dissolved Oxygen (DO)	mg/L	V	6.13		OK	V	6.98		OK	V	7.66		OK	V	6.92		OK	V	7.06		OK	V	6.92		OK	V	7.02		OK
Oil and Grease (N-Hexane Extractable Material)	mg/L					V	ND		OK					V	ND		OK												
E. coli	MPN (CFU/100 mL)	V	6,867		>WQ Standard	V	183		>WQ Standard	V	686.7		>WQ Standard	V	4,884		>WQ Standard	V	20.0		OK	V	554.0		>WQ Standard	V	>2,419.6		>WQ Standard
pH	S.U.	V	7.92		OK	V	8.63		OK	V	8.27		OK	V	8.11		OK	V	8.37		OK	V	7.72		OK	V	7.67		OK
Total Kjedahl Nitrogen (TKN)	mg/L					V	4.1		--					V	2	JD	--												
Nitrate plus Nitrite	mg/L					V	ND		OK					V	1.8		OK												
Dissolved Phosphorous	mg/L					V	0.15	D	--					V	1.4	D	--												
Ammonia (mg/L as N)	mg/L					V	0.42	J	OK					V	ND		OK												
Total Nitrogen	mg/L					V	4.52	J	OK					V	3.80		OK												
Total Phosphorous	mg/L					V	0.29	D	--					V	1.3	D	--												
PCBS - 0.000064 (Method 1668A - sum of all congeners)	pg/L					V	0.00027	J	>WQ Standard					V	0.00172	J	>WQ Standard												
Gross Alpha, Adjusted	pCi/L					v	4.94	Note - Gross Alpha was reported, not adjusted gross alpha. Calculation completed to determine adjusted gross alpha.	OK					V	31.56	Note - Gross Alpha was reported, not adjusted gross alpha. Calculation completed to determine adjusted gross alpha.	>WQ Standard												
Tetrahydrofuran	µg/L					V	ND		--					V	ND		--												
Benzo(a)pyrene	µg/L					V	ND		OK					V	ND		OK												
Benzo(b)fluoranthene (other name: 3,4-Benzofluoranthene)	µg/L					V	ND		OK					V	ND		OK												
Benzo(k)fluoranthene	µg/L					V	ND		OK					V	ND		OK												
Chrysene	µg/L					V	ND		OK					V	ND		OK												
Indeno(1,2,3-cd)Pyrene	µg/L					V	ND		OK					V	ND		OK												
Dieldrin	µg/L					V	ND		OK					V	ND		OK												
Pentachlorophenol	µg/L					V	ND		OK					V	ND		OK												
Benzidine	µg/L					V	ND		OK					V	ND		OK												
Benzo(a)anthracene	µg/L					V	ND		OK					V	ND		OK												
Dibenzofuran	µg/L					V	ND		--					V	ND		--												
Dibenzo(a,h)anthracene	µg/L					V	ND		OK					V	ND		OK												
Chromium VI (Hexavalent)	µg/L					V	ND		OK					V	ND		OK												
Dissolved Copper	µg/L					V	0.84	J	OK					V	1.5		OK												
Dissolved Lead	µg/L					V	0.065	J	OK					V	0.32	J	OK												
Bis (2-ethyhexyl) Phthalate (other names: DI(2-ethylhexly)phthalate, DEHP) - 2.2	µg/L					V	ND		OK					V	ND		OK												
Conductivity	umhos/cm	V	591		--	V	315		--	V	293		--	V	484		--	V	375		--	V	383		--	V	287		--
Temperature	°C	V	21.24		OK	V	21.71		OK	V	18.8		OK	V	21.21		OK	V	23.19		OK	V	22.14		OK	V	22.1		OK
Hardness (as $CaCO_3$)	mg/L					V	160		--					V	290		--												
Mercury	µg/l																												

Data Verification/Validation and Qualifier Notes:
(R) The sample results are unusable because certain criteria were not met. The analyte may or may not be present in the sample.
(H) Sample holding time exceeded.
(J) The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
(D) Sample was diluted by Lab due to matrix
(U) Analyte was analyzed for, but not detected above the specified detection limit.

Notes:
1. Wet Season monitoring period - July 1 to October 31 and Dry Season monitoring period - November 1 to June 30 according to the Watershed Based MS4 Permit NMR04A000.
2. Water Quality Criterion from 20.6.4 NMAC; Rio Grande Basin - section
20.6.4.105; For a mean monthly flow of 100 cfs, monthly average
3. Aquatic life criteria for metals are expressed as a function of total
4. According to NMAC 20.6.4, E. coli bacteria for Primary Contact - monthly
5. Water quality criterion for metals is based on dissolved metals, NMAC
20.6.4.900.J and individual sample results compared to acute toxicity
6. HEAL lab method: SM 9223B Fecal Indicator. Note - lab method for
units of MPN/100 ml, lab report uses units CFU/100 ml, for this analysis

ND - analyte not detected above the laboratory method detection limit
NA - not analyzed
Hatching also indicates that parameter was not analyzed

National recommended WQ criteria Human Health
https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 28, 2022

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX:

RE: CMC OrderNo.: 2206C11

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/22/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Field Parameters
Rio Grande North-
Temp = 18.80 °C
pH = 8.27
Conductivity (uS/cm=umho/cm) = 293
Dissolved Oxygen (mg/L) = 7.66
Rio Grande Alameda-
Temp = 22.10 °C
pH = 7.67
Conductivity (uS/cm=umho/cm) = 287
Dissolved Oxygen (mg/L) = 7.02

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2206C11**
Date Reported: **6/28/2022**

CLIENT: AMAFCA
Client Sample ID: RG - North - 20220622
Project: CMC
Collection Date: 6/22/2022 2:00:00 PM
Lab ID: 2206C11-001 **Matrix:** AQUEOUS **Received Date:** 6/22/2022 4:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **dms**
E. Coli	686.7	1.000		MPN/100	1	6/23/2022 5:28:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2206C11**
Date Reported: **6/28/2022**

CLIENT: AMAFCA
Client Sample ID: RG - Alameda - 20220622
Project: CMC
Collection Date: 6/22/2022 3:30:00 PM
Lab ID: 2206C11-002
Matrix: AQUEOUS
Received Date: 6/22/2022 4:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **dms**
E. Coli	>2419.6	1.000		MPN/100	1	6/23/2022 5:28:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA Work Order Number: 2206C11 RcptNo: 1

Received By: **Andy Freeman** 6/22/2022 4:05:00 PM

Completed By: **Isaiah Ortiz** 6/22/2022 4:20:02 PM

Reviewed By: 6-22-22 @ 16:39

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: KPG 6.22.22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	16.8	Good	Not Present			

Chain-of-Custody Record

Client: AMAFCA

Mailing Address:

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler:
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 16.7+0.1 = 16.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2206C11	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Ecoli enumerated
6-22-22	1400	AQ	RG-North-20220622			001											X
6-22-22	1530	AQ	RG-Alameda-20220622			002											X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6-22-22	1605				6/22/22	1605
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Samplers CMJ, JK

CMC Sampling Data Sheet

Site Identification: RG-North

Notes: onsite ~ 12:50

Full Suite Sample Date and Time:	6/22/22 1400
Full Sample Identification:	RG-North-20220622
QC Samples: Duplicate / None	QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

Full Suite Collection Point : MRGCD Dam structure

Full Suite Sample Volume: 6 gal Collection Time Start: 1315 End: 1408

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)
1	1315	19.27	8.30	295	7.54	81.6
2	1330	19.04	8.20	292	7.97	85.8
3	1345	18.97	8.27	290	8.27	84.8
4	1400	18.91	8.26	288	7.90	83.9
Composite	1402	18.80	8.27	293	7.66	82.1

☒ *Turbid Water* ☒ *Color* Brown ☒ *Solids* ☐ *Oil/Sheen* ☐ *Foam* ☐ *Odor* _____

Analytical - see 2021 COC table

☒ Site Photo ☒ Sample Photo

Chain-of-Custody Record

Client: AMAFCA

Mailing Address:

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler:

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No
6-22-22	1400	AG	RG-North-20220622			
6-22-22	1530	AG	RG-Alameda-20220622			

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Ecoli: enumerated					
										X					
										X					

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-22-22	1605					
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Samplers IS JK

CMC Sampling Data Sheet

Site Identification: RG - Alameda

Notes:

Full Suite Sample Date and Time:	~~RG-Alameda~~ 6/22/22 1530
Full Sample Identification:	RG - Alameda - 20220622
QC Samples: Duplicate / None	QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

Full Suite Collection Point : Bridge

Full Suite Sample Volume: 2 Gallons Collection Time Start: End:

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)
1						
2						
3						
4						
Composite	1530	22.10	7.67	287	7.02	79.6

☒ *Turbid Water* ☐ *Color* Brown ☒ *Solids* ☐ *Oil/Sheen* ☐ *Foam* ☐ *Odor*_____

Analytical - see 2021 COC table

☒ Site Photo ☒ Sample Photo

YSI SONDE CALIBRATION WORKSHEET

Last Revision 01/05/2007

Sonde ID: 06K1697 Date/Time: 6/22/22 1300 Technician: CMJ

Reason for Calibration: CMC Samplings

Battery Voltage: — (6920 & 600 XLM only)

Specific Conductance:
Standard Used (mS) 1413

Calibration Values		
Initial	Post Cal.	Cell Constant:*
1351	1413	

(Range: 5 +/-0.5)

pH

		Calibration Values			
		Initial	Post Cal.	mV	
7 Buffer:	(first)	7.04	7.00	-1.0	(Range: 0 mV +/- 50)
4 Buffer:	(second)	4.03	4.00	165.6	(Range: +177 from pH 7)
10 Buffer:	(third)	10.14	10.00	-173.6	(Range: -177 from pH 7)

Note: Span between pH 7 and pH 4, and pH 7 and pH 10 should be aproximately 165 to 180 mV.

DO % Sat. Membrane Changed? Y/N _____ If yes, run probe at least 15 mins before calibration. Optimally, wait 6 to 8 hrs before calibration / use.

DO Charge _____ (Range: 50 +/- 25)

mm Hg
639.3

Calibration Values %		
Initial	Post Cal.	DO Gain*
76.1	84.1	

(Range: 1 (0.7 to 1.5))

Turbidity Wiper Changed? Y/N _____ Wiper parks ~180 degrees from optic port? Y/N _____

Standards Values (NTUs)	Calibration Values	
	Initial	Post Cal.
Zero (Always First)		

Note: Use longer probe guard with black turb probe; shorter guard with grey probe.

Post Calibration DO Sensor Output Test

Turn off handset (650MDS). Wait 1 minute, turn handset on and enter "Run". DO % Sat. **must** start reading with a high value and descend to the calibration value in 1 to 2 minutes. **If it does not, reject.**
Note: Disregard the first two readings as they may be affected by the warm-up process.

Accept? _____ Reject? _____ See note in comments

Calibration Comments

* Found in: Main Menu --> Sonde Menu --> Advanced --> Calibration Constants

ATTACHMENT 2

FY 2022 DRY SEASON COMPLETED DATA VERIFICATION AND VALIDATION (V&V) FORMS

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (June 2022 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande North – 6/22/22 – E. coli Only Sample – Was Not Qualifying Storm Event
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: 0

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

Step 2: Verify Data Deliverables
A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: 0

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☐ Yes ☒ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken

Total number of occurrences: 0

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		__________
______	______	______	______	______		__________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: <u>0</u>

☒ **Step 5 Completed** ***Initials:*** <u>SJG</u> ***Date:*** <u>8/9/22</u>

- -

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		__________

Total number of occurrences: <u>0</u>

☒ **Step 6 Completed** ***Initials:*** <u>SJG</u> ***Date:*** <u>8/9/22</u>

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
_____	_____	_____	_____	_____	_____		_____
_____	_____	_____	_____	_____	_____		_____

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

Sarah Gomez 8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (June 2022 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Alameda – 6/22/22 – E. coli Only Sample – Was Not Qualifying Storm Event

Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data
A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data
*Note – Not Applicable – no flow data provided with CMC sample collection
A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?

Total number of occurrences: 0 **Not Applicable**

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☐ Yes ☒ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken

Total number of occurrences: 0

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: <u>0</u>

☒ **Step 5 Completed** ***Initials:*** <u>SJG</u> ***Date:*** <u>8/9/22</u>

- -

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

Total number of occurrences: <u>0</u>

☒ **Step 6 Completed** ***Initials:*** <u>SJG</u> ***Date:*** <u>8/9/22</u>

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

Sarah Carney 8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Bohannan Huston

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Spatial Data
Advanced Technologies

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toll free: 800.877.5332

M E M O R A N D U M

DATE: August 10, 2022

TO: Patrick Chavez, PE, AMAFCA

FROM: Sarah Ganley, PE, ENV-SP
Savannah Maynard
Emma Adams, EI

SUBJECT: **CMC Wet Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting Memo FY 2022 Wet Season (July 1, 2021 to October 31, 2021)**

Notification of In-Stream Water Quality Exceedances

For downstream notification purposes, the following parameters for in-stream samples taken in the Rio Grande for the FY 2022 wet season had results that exceeded applicable water quality standards (WQSs) for one or more samples: E. coli, polychlorinated biphenyls (PCBs), and gross alpha, adjusted. Table 1 summarizes the samples with exceedances and the applicable WQS that was exceeded. Additional details on the sampling results are provided in this memo.

Table 1: Parameters Detected Above Applicable Water Quality Standards
CMC FY 2022 Wet Season Monitoring

Sampling Date Location	Parameters, Applicable Water Quality Standard (WQS), and Results Exceeding Applicable WQS		
	E. coli	**PCBs**	**Gross Alpha, Adjusted**
	WQS: 88 MPN (CFU/100 mL) Pueblo of Isleta Primary Contact Ceremonial & Recreational	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only)	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only)
8/16/2021 Rio Grande North Angostura Diversion Dam Pre-Storm Sample – E. coli Only	6,867 MPN (CFU/100mL)	Not Tested	Not Tested

Table 1 (continued).

Sampling Date Location	Parameters, Applicable Water Quality Standard (WQS), and Results Exceeding Applicable WQS		
	E. coli	**PCBs**	**Gross Alpha, Adjusted**
	WQS: 88 MPN (CFU/100 mL) Pueblo of Isleta Primary Contact Ceremonial & Recreational	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only)	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only)
9/1/2021 Rio Grande North Angostura Diversion Dam Pre-Storm Sample	183 MPN (CFU/100mL)	0.00027 ug/L	No Exceedance
9/2/2021 Rio Grande at Alameda Bridge E. coli Only	554 MPN (CFU/100mL)	Not Tested	Not Tested
9/2/2021 Rio Grande South Isleta Diversion Dam	4,884 MPN (CFU/100mL)	0.00172 ug/L	31.56 pCi/L

Overview of Stormwater Monitoring Activity

Bohannan Huston, Inc. (BHI) has been tasked to perform water quality services for the Compliance Monitoring Cooperative (CMC) Stormwater Data Verification, Database, and Reporting for the Wet Weather Stormwater Quality Monitoring Program for Fiscal Year (FY) 2022 (July 1, 2021 to June 30, 2022). The scope of work for this task includes data verification of the stormwater laboratory analysis results, compiling the analysis results into a database, and calculating the E. coli loading to compare with the Waste Load Allocation (WLA) for the qualifying storm events. The stormwater compliance monitoring is conducted separately by Daniel B. Stephens & Associates, Inc. (DBS&A) and is not a part of this task. This task is being conducted to assist the CMC members with their comprehensive monitoring and assessment program for compliance under the 2014 Middle Rio Grande (MRG) Watershed Based Municipal Separate Storm Sewer System (MS4) Permit, NPDES Permit No. NMR04A000 ("WSB MS4 Permit").

The WSB MS4 Permit entered Administrative Continuance in December 2019 when U.S. Environmental Protection Agency (EPA) Region 6 did not issue a new MS4 Permit before the current MS4 Permit's expiration date. The MRG Technical Advisory Group (TAG) sent EPA a letter dated October 15, 2019, acknowledging Administrative Continuance after the expiration date of the 5-year Permit term. Until a new MS4 Permit is issued, there are no compliance monitoring requirements for the CMC in the Rio Grande. As identified in the CMC Monitoring

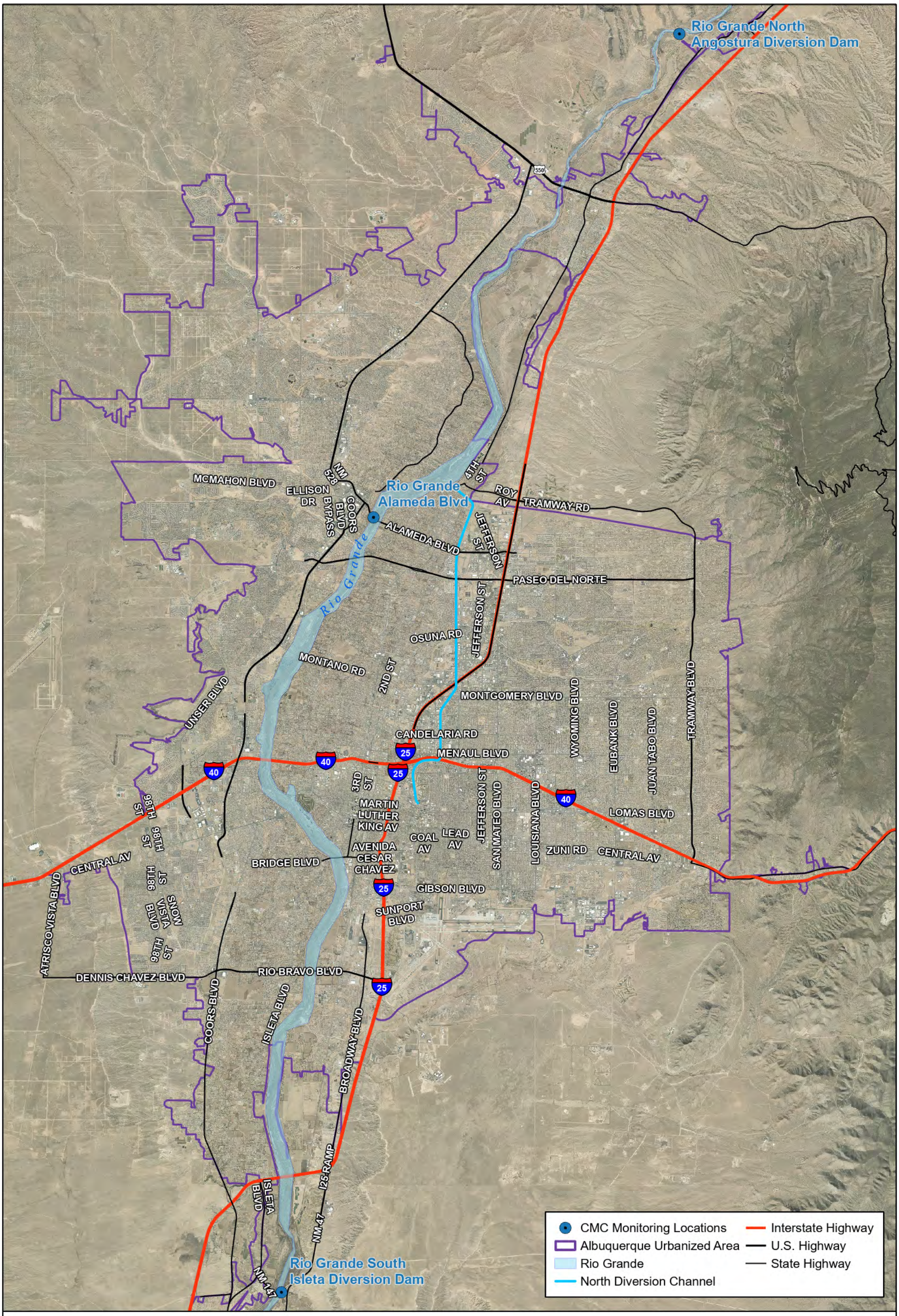
Plan, the WSB MS4 Permit required a minimum of seven (7) storm events be sampled at both the Rio Grande North and Rio Grande South locations (refer to Figure 1, page 4). All Permit required samples have been obtained by the CMC, as well as two (2) samples obtained in FY 2021 and the one (1) sample obtained in FY 2022 wet season during Administrative Continuance; all CMC samples are summarized in Table 2 below.

Table 2: CMC Sample Summary
Compared to WSB MS4 Permit Requirements

No. of Storm Events Required to Sample	CMC-WSB MS4 Permit Required Samples per Season	FY (Date) Samples Obtained for CMC
1	#1 Wet Season	FY 2017 (8/10/2016)
2	#2 Wet Season	FY 2017 (9/12/2016)
3	#3 Wet Season	FY 2017 (9/21/2016)
4	#1 Dry Season	FY 2017 (11/21/2016)
5	#2 Dry Season	FY 2019 (3/13/2019)
6	Any Season	FY 2018 (Wet Season - 7/27/2017)
7	Any Season	FY 2018 (Wet Season - 9/27/2017)
Not Required	Wet Season	FY 2021 (10/28/2020)
Not Required	Dry Season	FY 2021 (4/28/2021)
Not Required	Wet Season	FY 2022 (9/1/2021)

During the WSB MS4 Permit Administrative Continuance, the CMC members chose to continue sampling within the Rio Grande to support their MS4 program needs and gather additional data in support of the future MS4 Permit compliance. This memo reports on the wet weather stormwater monitoring activity for the FY 2022 wet season (July 1, 2021 to October 31, 2021).

The CMC Excel database was updated with the FY 2022 wet season, wet weather monitoring data as results were received. The database contains sample location, sample date, analyses conducted, methods used, applicable surface WQSs, WSB MS4 Permit required Minimum Qualification Levels (MQL) and results. Any unusable data will be identified.



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1 inch = 12,205 feet

CMC Monitoring

Figure 1
Monitoring Locations

P:\20230125\WR\Reports\Preliminary & Draft\Figures\APRXs\Figure1.aprx
Author: mcrooks

August 2022

Summary of the CMC Sampling Plan

Sampling Parameters:

Samples from both the Rio Grande North and Rio Grande South monitoring locations were analyzed for the parameters defined in the EPA approved WSB MS4 CMC Monitoring Plan, May 5, 2016. The parameter list for both locations, which is intended to characterize stormwater discharges into the river, is as follows:

Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Chemical Oxygen Demand (COD)
Biological Oxygen Demand – 5-day (BOD_5)
Dissolved Oxygen (DO)
Oil & grease (N-Hexane Extractable Material)
E. coli
pH
Total Kjeldahl Nitrogen (TKN)
Nitrate plus Nitrite
Dissolved Phosphorus
Ammonia plus Organic Nitrogen (Nitrogen, Ammonia and Nitrogen, Total)
Phosphorous (Total Phosphorous)
Polychlorinated Biphenyls (PCBs - Method 1668A)
Gross Alpha, adjusted
Tetrahydrofuran
Benzo(a)pyrene
Benzo(b)fluoranthene (3, 4 Benzofluoranthene)
Benzo(k)fluoranthene
Chrysene
lndeno (1 ,2,3-cd) Pyrene
Dieldrin
Pentachlorophenol
Benzidine
Benzo(a)anthracene
Dibenzofuran
Dibenzo(a, h)anthracene
Chromium VI (Hexavalent)
Copper – Dissolved
Lead – Dissolved
Bis (2-ethylhexyl) phthalate
Conductivity
Temperature

Hardness (as CaCO3) was added to the parameter list to allow dissolved metal results to be compared to the applicable WQSs. DO, pH, conductivity, and temperature are required by the WSB MS4 Permit to be analyzed in the field during sample collection, which was conducted by DBS&A, within 15 minutes of sample collection. All E. coli samples were submitted to the laboratory within eight (8) hours of collection in order to meet the specified hold time.

Sampling Locations:

The sampling locations are shown in Figure 1, page 4.

Rio Grande North – In-stream sampling within the Rio Grande was performed upstream of the Angostura Diversion Dam at the north end of the watershed. The location is upstream of all inputs from the Urban Area (UA) to the river and provides the background water conditions.

Rio Grande South – In-stream sampling within the Rio Grande was performed at the Isleta Bridge at the south end of the watershed. The location is downstream of all inputs from the UA to the river and provides the downstream water conditions. These locations have been accepted by EPA and the New Mexico Environment Department (NMED) to meet the WSB MS4 Permit requirements in Part III.A.

During this FY 2022 wet season, E. coli samples were collected within the Rio Grande at Alameda Blvd. This is the location of the NMED defined stream segment divide (refer to Figure 6). This sample point was added after discussion with NMED in February 2017 regarding potential refinements to E. coli loading calculations.

Sample Collection:

As mentioned previously, sample collection for the CMC is being conducted by DBS&A (through a separate on-call contract). Since BHI was not involved in the sample collection, this task and memo do not address the details of the methodologies regarding sampling, determining if an event was a qualifying storm event, or determining the timing of the hydrograph at the Rio Grande Alameda and Rio Grande South locations.

DBS&A provided BHI their field notes and field sample data (temperature, DO, specific conductivity, and pH) for the FY 2022 wet season sampling. AMAFCA provided BHI the completed laboratory analysis reports from Hall Environmental Analysis Laboratory (HEAL) for this monitoring season.

Quality Assurance Project Plan (QAPP):

AMAFCA provided BHI with the Draft Quality Assurance Project Plan (QAPP) for the CMC dated June 14, 2016. DBS&A followed this QAPP during sample collection. BHI used this QAPP and the included standard operating procedures (SOPs) for the data verification and validation.

Monitoring Activity & Lab Analysis Summary

The list below provides a summary of the CMC comprehensive monitoring program activities completed for the FY 2022 wet season from July 2021 through October 2021. One (1) qualifying storm event was sampled and analyzed during the FY 2022 wet season.

- **August 16, 2021 – Only E. Coli for Rio Grande North.** A sample was collected at the Rio Grande North location at 10:00 a.m. on August 16, 2021, and was sent to the laboratory for an E. coli only test. Based on the CMC review of the storm, it was determined this was not a qualifying storm event, hence further parameter testing was not conducted for the sample collected at the Rio Grande North location.

- **September 1-2, 2021 – Qualifying Storm Event – Full Analysis of Samples.** A sample was collected at the Rio Grande North location beginning at 9:15 a.m. on September 1 and sent to the laboratory for an E. coli and BOD test. A pre-storm sample was collected at the Rio Grande at Alameda Blvd. location at 11:25 a.m. on September 1 and tested for E. Coli only. The CMC determined that the storm event beginning September 1 was a qualifying storm event. A sample in the Rio Grande at Alameda Blvd. was obtained at 10:30 a.m. on September 2 and sent to the laboratory for E. Coli testing only. A Rio Grande South sample was collected beginning at 8:35 a.m. on September 2. The samples from the North (from September 1) and South (from September 2) locations were taken to HEAL for full parameter testing.

Stormwater Quality Database for CMC

As stated previously, there was one (1) qualifying storm event during the FY 2022 wet season, wet weather monitoring sampled by the CMC, which occurred September 1-2, 2021. DBS&A's field notes containing DO, pH, conductivity, and temperature measurements, as well as sampling comments have been received, and field results have been added to the database. Additionally, the HEAL reports for the corresponding time period have been received, added to the database, and are provided with this memo (Attachment 1). The laboratory reports attached to this memo have BHI added comments including the field parameter measurements and other relevant notes related to the laboratory report.

Database Data Entry:

The CMC Excel database was updated with the FY 2022 wet season, wet weather monitoring data. The database contains sample locations, sample date, analyses conducted, methods used, applicable surface water quality standards (WQS), WSB MS4 Permit required Minimum Quantification Levels (MQL), and analysis results. The database was updated under this Task to include the Rio Grande at Alameda sample location. Applicable surface WQSs found in New Mexico Administrative Code (NMAC) 20.6.4, as well as the Pueblo of Isleta WQSs, are entered in the Excel database for comparison purposes with testing results. There is an indicator in the database to show if the monitoring results exceed the applicable surface WQS. An exceedance is not a violation of the WSB MS4 Permit, as the Permit does not have numeric discharge limitations. These ">WQ Standard" flags simply and quickly show the CMC members where the results of the lab data exceed the applicable WQS.

Water quality data was entered into the database upon receipt of the lab reports. All data entered into the database is initially denoted with a "P" to indicate that it is provisional and has not been through the verification and validation process yet. Full parameter analyses of qualifying storm events for both Rio Grande North and Rio Grande South locations were entered respectively into the database. The E. coli only samples from the Rio Grande Alameda location were also entered into the database.

Data Verification and Validation:

The HEAL analysis reports were provided to BHI by AMAFCA. The lab reports also contain the Chain of Custody for the submitted samples. Field data was requested by and provided to BHI by DBS&A. Data verification and validation (V&V) was conducted by BHI on all field notes, lab reports, and Chain of Custody documents in accordance with the CMC WQS Operating Procedure

(SOP) #2, which is part of the existing CMC QAPP, Draft June 14, 2016. These procedures are based on EPA Guidance for Environmental Data Verification and Validation (EPA, 2008).

As stated in the QAPP, the V&V process was completed by a different person than the one who entered the data into the database. The V&V process included use of the *Data Verification and Validation Worksheet* (provided in the QAPP). For this task, field data was verified first, confirming all field notes were complete. BHI handled field parameter questions directly with DBS&A. Chemical data verification began as soon as the lab reports were received, checking that all parameters were tested and looking for any obvious exceedances of WQS. Other steps listed on the *Data Verification and Validation Worksheet* were completed after all data from the laboratory was received and entered into the database. Sample blank results were reviewed to identify potential contamination during field processing or transport. Replica/duplicate samples were evaluated based on relative percent difference (as described in more detail in the QAPP) to determine the variability of the samples.

All CMC FY 2021 wet season data met the appropriate QA/QC requirements. If there were any data that did not meet the appropriate QA/QC requirements, it would have been assigned an appropriate laboratory qualifier or validation codes. A summary of validation codes is provided in the QAPP.

Once the V&V process was completed, the worksheets were signed. Copies of the V&V worksheets are provided with this memo (Attachment 2). In the database, data that was checked during the V&V process was then changed from being denoted with a “P” for provisional to a “V” for verified, and laboratory qualifiers were added, as needed.

CMC FY 2022 Wet Season Assessment and Evaluation of Monitoring Results

The EPA approved WSB MS4 CMC Monitoring Plan, May 5, 2016, has 33 parameters to monitor at the Rio Grande North and Rio Grande South monitoring locations. Of these 33 parameters, 15 parameters were not detected in the FY 2022 wet season samples at either the Rio Grande North or South locations. Refer to Table 3 for a list of the parameters that were not detected.

Table 3: Parameters Not Detected
CMC FY 2022 Wet Season Monitoring

Parameters Not Detected	
Oil and Grease (N-Hexane Extractable Material)	Pentachlorophenol
Tetrahydrofuran	Benzidine
Benzo(a)pyrene	Benzo(a)anthracene
Benzo(b)fluoranthene (3, 4 Benzofluoranthene)	Dibenzofuran
Benzo(k)fluoranthene	Dibenzo(a,h)anthracene
Chrysene	Chromium VI (Hexavalent)
Indeno (1,2,3-cd) Pyrene	Bis (2-ethyhexyl) Phthalate (other names: Di(2-ethylhexly)phthalate, DEHP)
Dieldrin	

For the remaining 18 parameters on the CMC monitoring parameter list, only three (3) parameters (E. coli, PCBs, and gross alpha, adjusted) had exceedances of the applicable surface WQS found in New Mexico Administrative Code (NMAC) 20.6.4 and the Pueblo of Isleta WQS during the FY 2022 wet season. These exceedances are summarized on Table 1, pages 1-2, and discussed below in further detail.

E. coli:

The E. coli results collected during the FY 2022 wet season are summarized in Table 4.

Table 4: E. coli Results
CMC FY 2022 Wet Season Monitoring

Date – Rio Grande Location	E. coli Results MPN (CFU/100 mL)
August 16, 2021 – North	6,867
September 1, 2021 – North	183
September 1, 2021 – Alameda	20
September 2, 2021 – Alameda	554
September 2, 2021 – South	4,884

At the Rio Grande North location (upstream of the Albuquerque UA, at the Angostura Diversion Dam), two (2) samples were collected and tested for E. coli. Both E. coli results exceeded Pueblo of Isleta and Pueblo of Sandia's primary contact-single sample WQS of 88 CFU/100 mL, and one sample (August 16, 2021) was above and one sample (September 1, 2021) was below NMAC's primary contact-single sample WQS of 410 CFU/100 mL. At the Rio Grande South location (downstream of the MS4 UA), one (1) sample was collected and tested for E. coli. This sample also exceeded the Pueblo of Isleta WQS (88 CFU/100 mL) and the NMAC's WQS (410 CFU/100 mL) for E. coli concentration.

In addition, the CMC collected two (2) E. coli samples in the Rio Grande at Alameda Blvd. during the FY 2022 wet season. The Alameda Blvd. analysis point was based on discussions with NMED in February 2017 on collecting actual E. coli data at the stream segment divide verses using an area percentage (as defined in the TMDL) for E. coli loading calculations. For the FY 2022 wet season storm event, two (2) samples were collected at the Alameda location. One sample was taken before the storm event and one was taken after. The lab results showed that the pre-storm sample had an acceptable E. coli concentration, while the post-storm sample exceeded the primary contact-single sample Pueblo of Isleta WQS (88 CFU/100 mL) and the primary contact-single sample NMAC WQS (410 CFU/100 mL).

As a reminder, in January 2017 the CMC members clarified with NMED that the units MPN/100 mL and CFU/100 mL are considered to be interchangeable for the purposes of this stormwater quality monitoring reporting. The New Mexico and Pueblo WQS for E. coli are currently in units of CFU/100 mL while the lab reports are typically in units of MPN/100mL. The graph presented in this section uses units of CFU/100 mL to be consistent with the WQS units. Refer to Figure 2 for a graphical representation of E. coli results from August and September 2021.

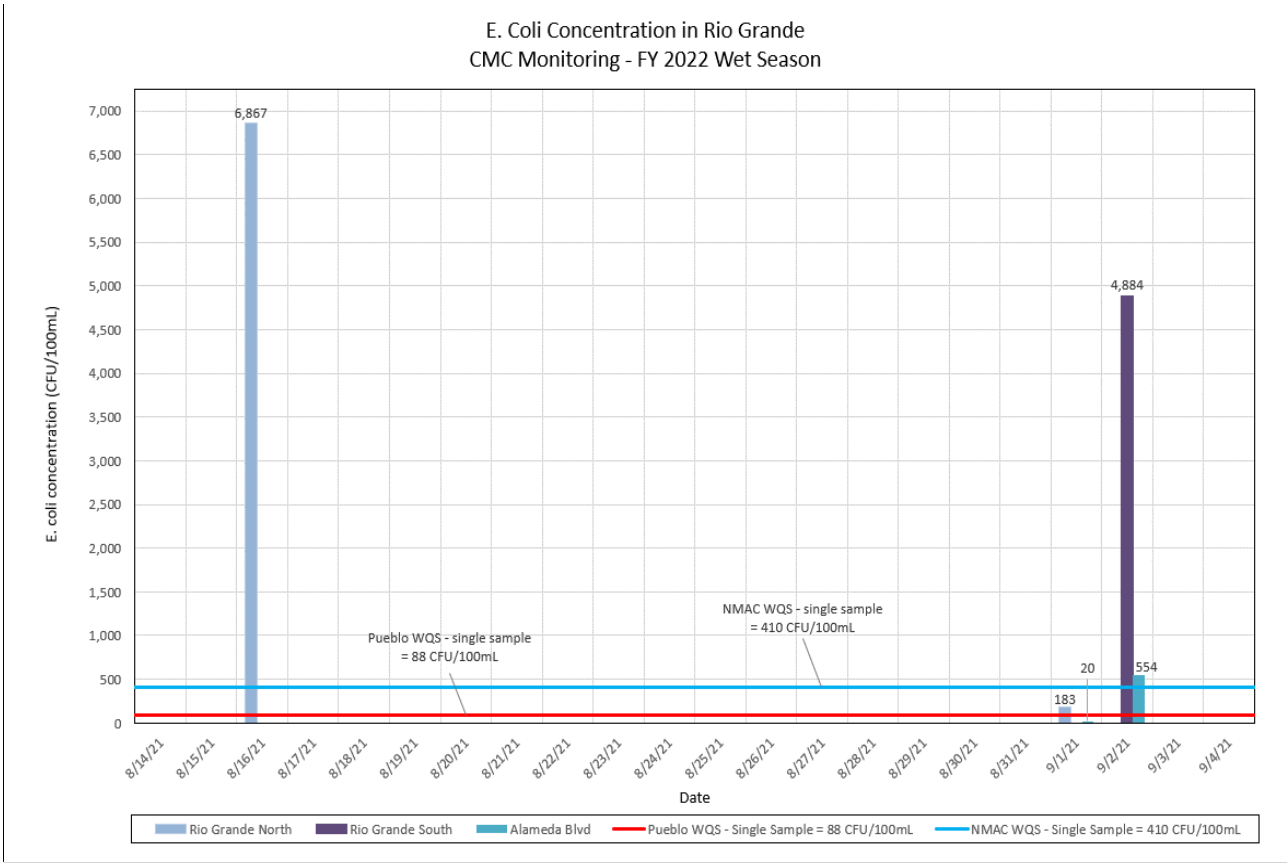


Figure 2: E. coli Results in Rio Grande
CMC Monitoring – FY 2022 Wet Season

PCBs:

There are multiple surface WQS values listed for PCBs in both the Pueblo of Isleta and the State of New Mexico standards for the various designated uses. The PCBs measured in samples collected from the Rio Grande during the FY 2022 wet season stormwater event were all below the minimum quantification level (MQL) established in EPA standards for the MS4 NPDES Permit (Appendix F, 0.2 ug/L for PCBs). The PCB results were also well below the New Mexico Surface WQSs and Pueblo of Isleta Surface WQSs for designated uses including drinking water (0.5 ug/L) and wildlife habitat, acute aquatic life, and chronic aquatic life (0.014 ug/L). However, the CMC sample from the Rio Grande South location was above the Pueblo of Isleta human health criteria (based on fish consumption only) WQS for surface waters. The human health-organism only criterion is based upon human consumption of fish and other aquatic life that bioaccumulate contaminants over time. The PCB results from 2016 through 2021 are shown in Figure 3 relative to several of the WQSs for PCBs.

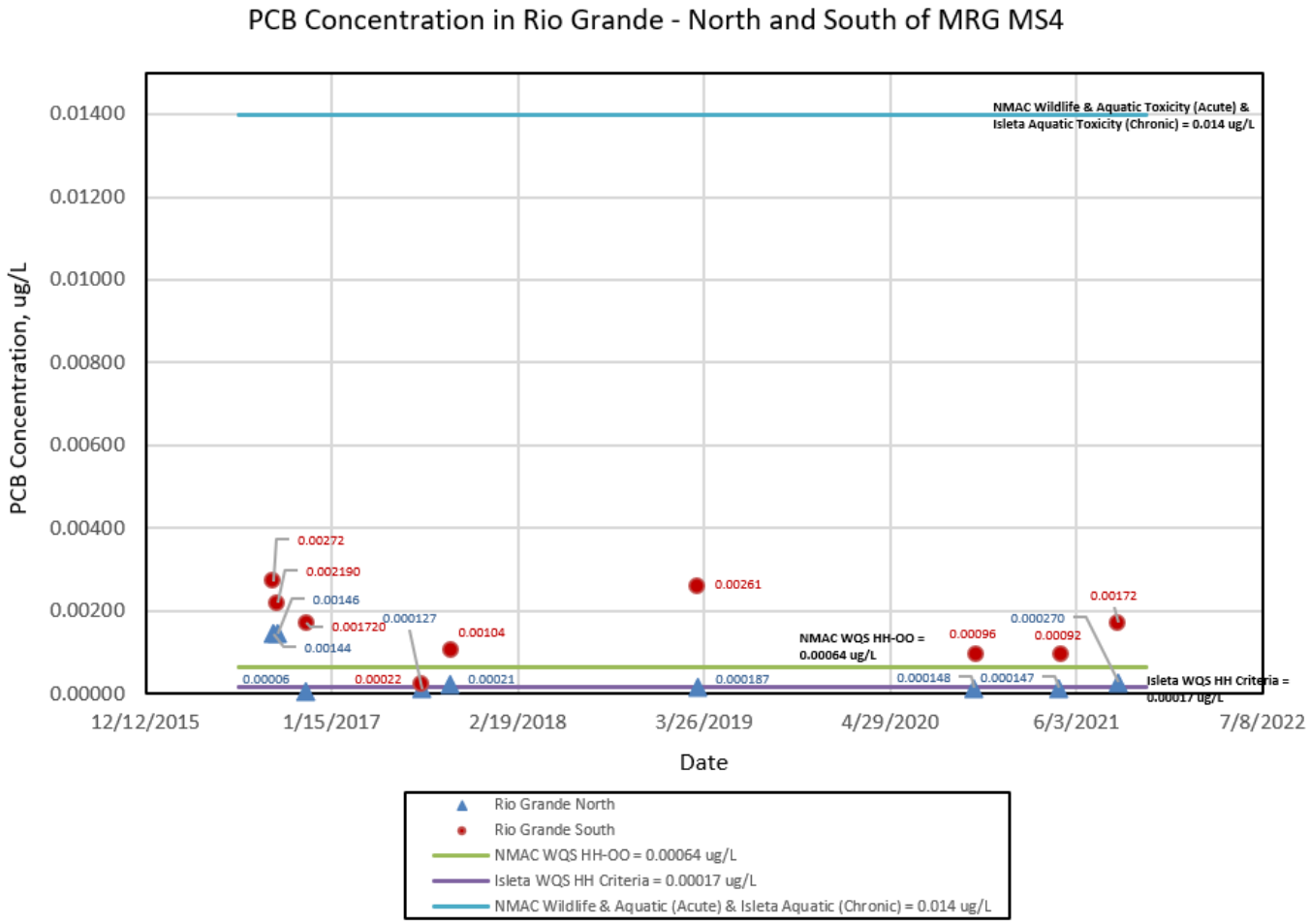


Figure 3: PCB Monitoring Results in Rio Grande
CMC Monitoring – 2016 - 2021

Adjusted Gross Alpha:

The September 2, 2021, Rio Grande South sample results exceeded the New Mexico and Pueblo of Isleta WQS for adjusted gross alpha. The WQS for adjusted gross alpha is the same value for both the NMAC 20.6.4 Water Quality Criterion and Pueblo of Isleta; the WQS of 15 pCi/L ("pCi/L" means picocuries per liter) is a general standard for the Pueblo of Isleta, and for New Mexico it is based on Domestic Water Supply and Livestock Watering designated uses. In surface water, the adjusted gross alpha analyses may be affected by a high content of suspended load, particularly where sediment sources may be derived from granitic terrain; gross alpha results may reflect the radioactivity of the natural elements in the sediment more than the surface water.

The September 2, 2021, Rio Grande South adjusted gross alpha analytical results are detailed below; the units are in pCi/L:

- Rio Grande South CMC sample result for adjusted gross alpha = 31.56 pCi/L
- Adjusted gross alpha WQS at the Rio Grande South location = 15 pCi/L (NMAC 20.6.4 Water Quality Criterion for livestock watering and domestic water supply designated uses and general standard for Pueblo of Isleta)

This is the second time since 2016 that the analytical results from a CMC sample have had an exceedance in adjusted gross alpha. The prior exceedance was reported for the September 28, 2017, Rio Grande South sample. The CMC will continue to closely evaluate this parameter in future samples. If additional exceedances occur, the CMC will discuss the results further and may consult NMED for further guidance.

Dissolved Oxygen and Temperature:

Two (2) of the water quality parameters are specifically worth mentioning in this memo because they are listed in the WSB MS4 Permit, Part I.C.1 – Special Conditions: dissolved oxygen and temperature. These parameters did not have any surface water quality exceedances during the FY 2022 wet season sampling.

Dissolved oxygen is a water quality concern in the Rio Grande if it is below 5 mg/L. None of the samples taken from the Rio Grande during the FY 2022 wet season monitoring had dissolved oxygen values below 5 mg/L. This provides the MS4s with specific monitoring data showing that stormwater did not cause or contribute to exceedances of applicable dissolved oxygen water quality standards in the Rio Grande from any of the CMC samples from 2016 to 2021. Refer to Figure 4 for CMC dissolved oxygen results and comparison to applicable WQSs.

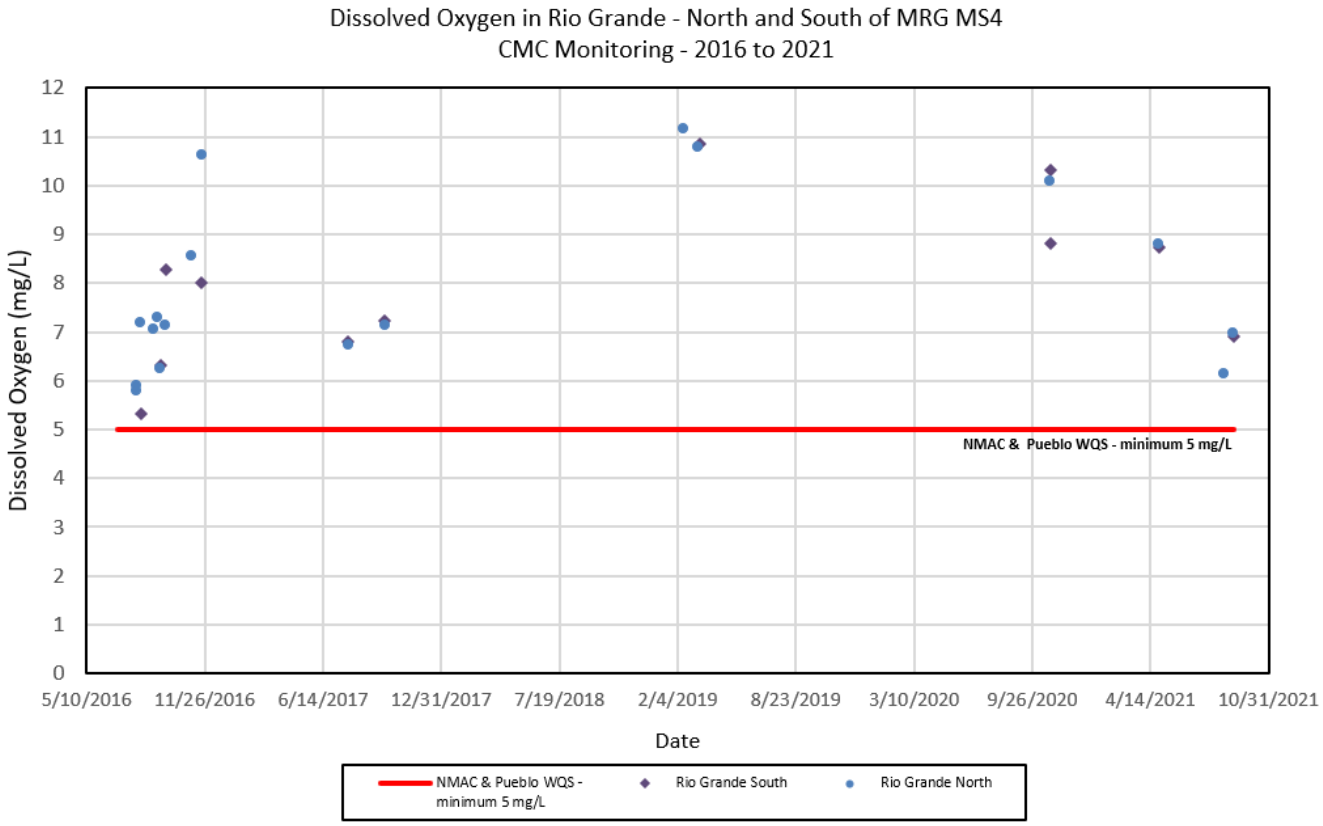


Figure 4: Dissolved Oxygen Results in the Rio Grande
CMC Monitoring – 2016 - 2021

Temperature is listed in the WSB MS4 Permit as a special condition (currently only applicable to the City of Albuquerque and AMAFCA). Past data submitted to EPA and NMED by the MS4 permittees have proven that stormwater discharges into the Rio Grande are not raising the Rio Grande temperature above the WQSs. The data collected during this FY 2022 wet season monitoring also supports this conclusion. All the temperature field readings taken in the Rio Grande during the CMC FY 2022 wet season were below 32.2°C (90°F), which is the WQS for the State of New Mexico and for the Isleta and Sandia Pueblos. Refer to Figure 5 for temperature results and comparison to applicable WQSs for all CMC samples taken upstream and downstream of the MRG MS4 area from 2016 to 2021.

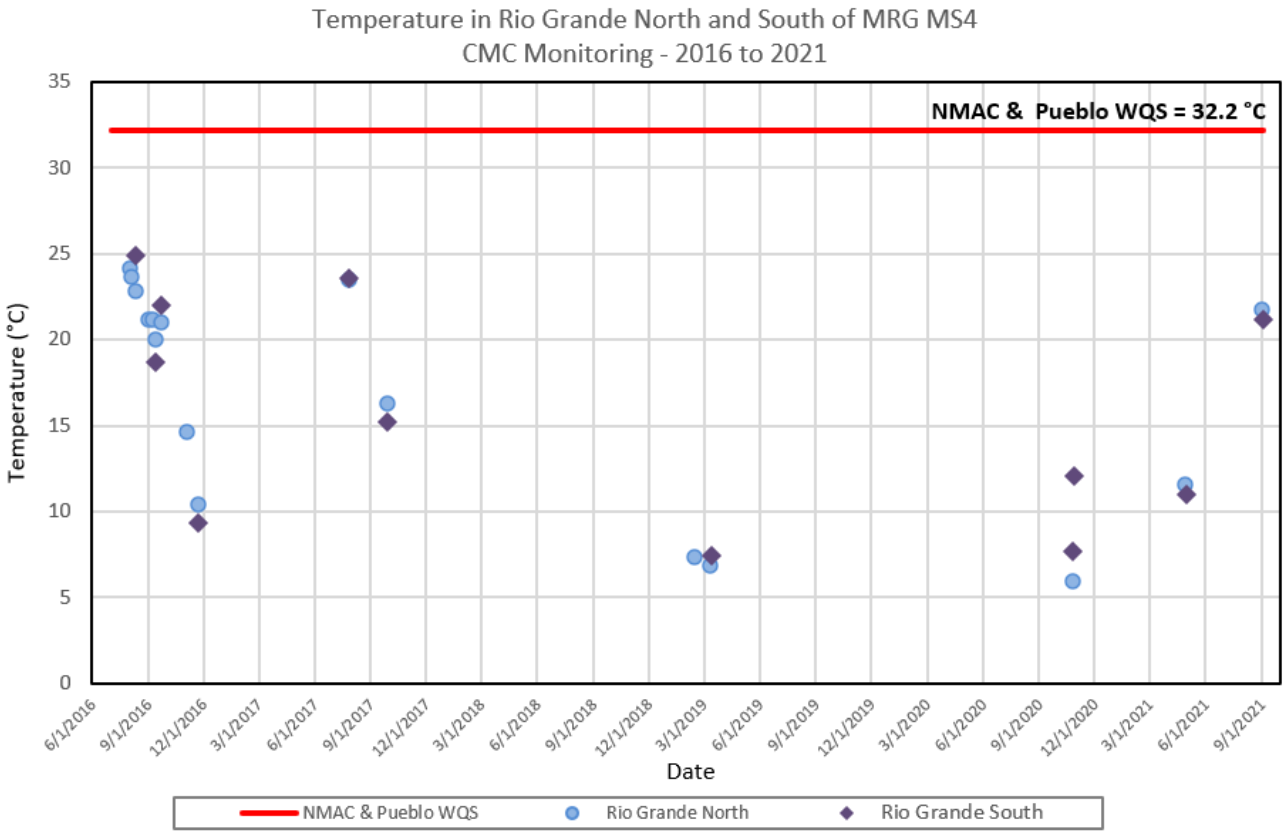


Figure 5: Temperature Monitoring Results in the Rio Grande CMC Monitoring – 2016 - 2021

CMC FY 2022 Wet Season E. coli Loading Calculations and Waste Load Allocation (WLA)

Related to assessing the stormwater results, the E. coli loading was calculated and compared to the aggregate Total Maximum Daily Load (TMDL) Waste Load Allocation (WLA) for the CMC group. A TMDL is the maximum amount of a pollutant (E. coli in this case) that a water body (Rio Grande) can assimilate on a daily basis without violating applicable surface WQSs. The total TMDL for a stream segment consists of the multiple WLA for point sources, non-point sources, and natural sources, plus a margin of safety. The CMC MS4 allotted WLA was determined in the EPA Approved, Total Maximum Daily Load for the Middle Rio Grande Watershed, June 30, 2010, and subsequent communications with NMED. The WLA varies by flow condition in the Rio Grande and by stream segment.

E. coli loading calculations and comparison to the WLA follows the WSB MS4 Permit requirements in "Discharges to Water Quality Impaired Water Bodies with an Approved TMDL", Part I.C.2.b.(i).(c).B, Appendix B-Total Maximum Daily Loads (TMDLs) Tables of the WSB MS4 Permit, and the NMED guidance provided to the CMC. Attached to this memo is the WLA Calculation spreadsheet which steps through the E. coli loading calculations and assumptions comparing the calculated E. coli loading to the CMC aggregate WLA defined by NMED.

There are two (2) stream segments defined in the WSB MS4 Permit (Appendix B): Isleta Pueblo Boundary to Alameda Street Bridge (Stream Segment 2105_50) and Non-Pueblo Alameda Bridge to Angostura Diversion (Stream Segment 2105.1_00). These stream segments differ from NMED's current stream segments defined in the *2020-2022 State of New Mexico Clean Water Act Section 303(d)/Section 305(b) Integrated Report* (NMED, 2020). NMED currently has four (4) stream segments instead of the two (2) WSB MS4 stream segments. These various stream segment designations are shown in Figure 6, page 16.

The *NMED 303(d)/305(b) 2020-2022 Integrated Report* tables show the most recent assessment results, and currently all segments of the Rio Grande (Isleta to Angostura Diversion) are impaired for E. coli and have a TMDL for E. coli.

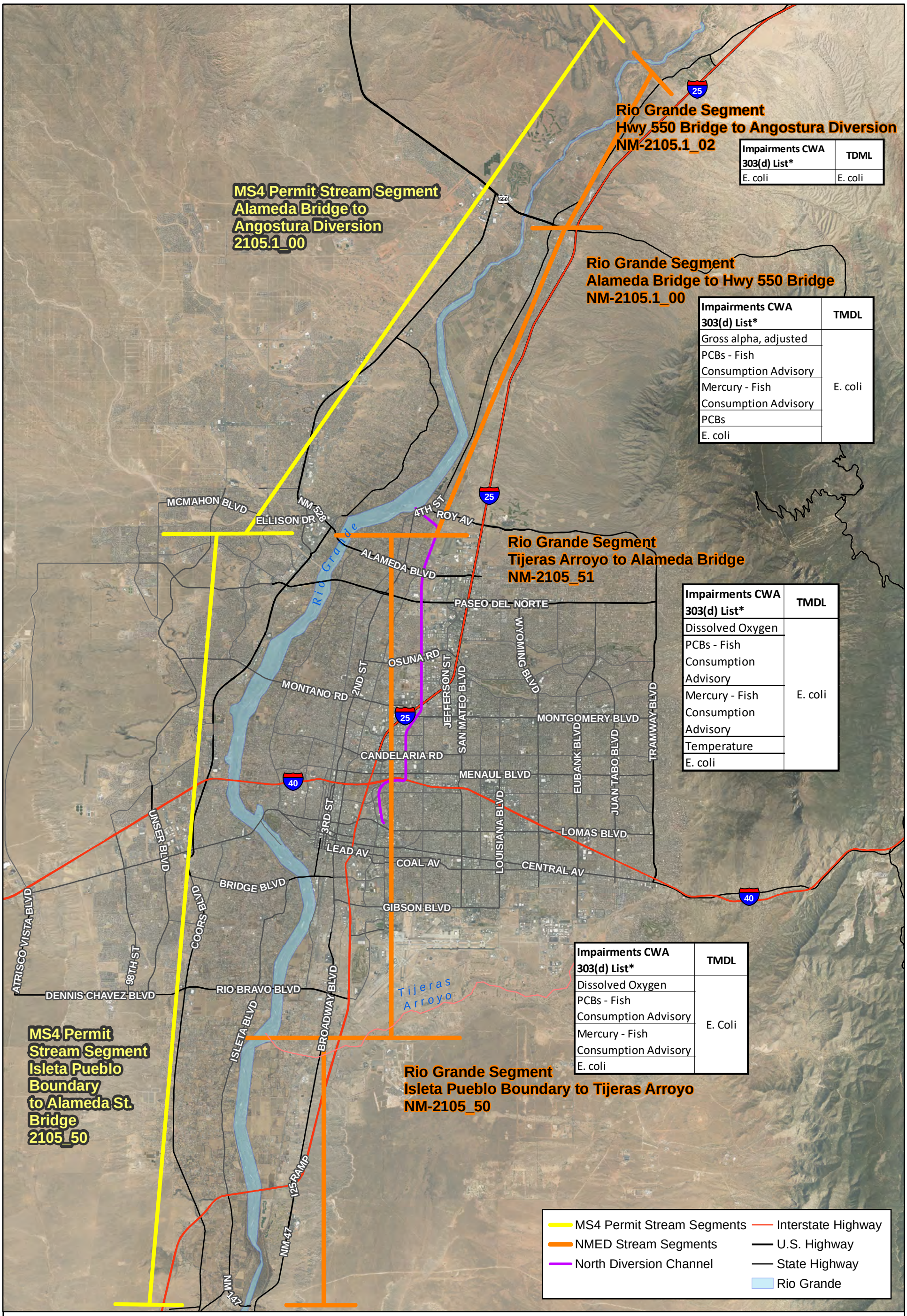
The E. coli daily loading associated with the CMC group and comparison to the NMED WLA was completed for the one (1) qualifying wet season storm event – September 1-2, 2021. For this event, the CMC obtained an E. coli sample in the Rio Grande at Alameda and used this to calculate the E. coli loading for the two (2) river segments. Refer to Table 5 for a summary of the WLA comparison results. A spreadsheet is attached to this memo that provides the detailed WLA calculations.

Table 5: Summary of CMC E. Coli Loading Compared to WLA for the CMC

Date / Stream Segment	**Daily Mean Flow (cfs)**	**Flow Conditions (cfs)** *range defined by NMED*	**CMC Daily E. coli Loading (CFU/day)**	**NMED WLA for CMC for Stream Segment and Flow Conditions**	**Loading Compared to WLA Potential Exceedance or Acceptable**
September 1-2, 2021 – Rio Grande North E. coli Concentration 9/1/2021 = 183 MPN (CFU/100 mL) Rio Grande at Alameda pre-storm E. coli Concentration 9/1/2021 = 20 MPN (CFU/100 mL) Rio Grande at Alameda E. coli Concentration 9/2/2021 = 554 MPN (CFU/100 mL) Rio Grande South E. coli Concentration 9/2/2021 = 4,884 MPN (CFU/100 mL)					
Alameda to Angostura	146	Low	1.02E+12	1.68E+10	WLA Potential Exceedance
Isleta to Alameda	165	Low	3.20E+11	3.42E+09	WLA Potential Exceedance

As Table 5 illustrates, the calculated E. coli loading for the September 1-2, 2021 storm event for the northern segment (Alameda to Angostura) and the southern segment (Isleta to Almeda) of the Rio Grande exceeded the WLA for the CMC MS4s. This analysis used the mid-point E. coli sample result obtained in the Rio Grande at Alameda.

The WSB MS4 Permit implies that the WLA is a measurable goal for the MS4s related to E. coli. Based on extensive review of the EPA Approved, Total Maximum Daily Load (TMDL) for the Middle Rio Grande Watershed, June 30, 2010, this seems to be an unattainable goal for MS4s.



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CMC Monitoring

Figure 6
Rio Grande Impairments & TMDL Information

* Final 2020-2022 State of NM Clean Water Act, Section 303(d)/Section 305(b) Integrated Report

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Author: mcrooks

August 2022

Page 40 of the 2010 TMDL Report states, “It is important to remember that the TMDL is a planning tool to be used to achieve water quality standards…Meeting the calculated TMDL may be a difficult objective.” The TMDL/WLA was calculated by NMED to meet the Pueblo (Sandia and Isleta) geometric mean maximum of 47 CFU/100 ml, which was done to be “protective of downstream waters” and “to provide an implicit margin of safety (MOS)”. A single grab sample E. coli result meeting this very low geometric means WQSs will be very difficult for the MS4s to obtain.

The CMC members discussed the difficulty of using the WLA as a measurable goal with NMED on February 1, 2017. NMED explained that exceeding the WLA does not trigger enforcement. However, NMED strongly encouraged the MS4s to document what they are doing once they realize the WLA is potentially exceeded. The meeting on February 1, 2017, and the CMC discussion with NMED on February 16, 2017, demonstrate CMC members are working toward understanding the WLA. In addition, the CMC members began implementing a refinement to the sampling plan discussed with NMED by obtaining an E. coli sample in the Rio Grande at Alameda effective the FY 2018 wet season, as feasible. This demonstrates that the CMC is continuing to investigate the potential exceedances and make improvements to monitor E. coli in the Rio Grande.

Data Entry for Discharge Monitoring Reports

The WSB MS4 Permit entered Administrative Continuance in December 2019 when EPA Region 6 did not issue a new MS4 Permit before the current MS4 Permit’s expiration date. Until a new MS4 Permit is issued, there are no compliance monitoring requirements for the CMC in the Rio Grande. As identified in the CMC Monitoring Plan, the WSB MS4 Permit required a minimum of seven (7) storm events be sampled at both the Rio Grande North and Rio Grande South locations. All MS4 Permit required samples have been obtained by the CMC and verified stormwater quality data from these required events have been submitted to the EPA using electronic Discharge Monitoring Report (DMR) forms. Data from the DMRs are uploaded to a comprehensive nationwide database that contains discharge data for facilities and other point sources that discharge directly to receiving streams. For this Task, BHI has not completed any data entry related to the EPA DMRs for the FY 2022 wet season.

Conclusions and Planning

During the FY 2022 wet season (July 1 to October 31, 2021), one (1) qualifying stormwater sample was obtained by the CMC. Lab results were received, and this data has been entered into the CMC Excel database. The lab data entered is marked in the spreadsheet as “V” (verified), and data V&V has been completed (refer to Attachment 2).

To summarize, monitoring results and E. coli loading calculations for the FY 2022 wet season show that:

- The WSB MS4 Permit entered Administrative Continuance in December 2019 when U.S. Environmental Protection Agency (EPA) Region 6 did not issue a new MS4 Permit before the current MS4 Permit’s expiration date. Until a new MS4 Permit is issued, there are no compliance monitoring requirements for the CMC in the Rio Grande. All MS4 Permit required samples have been obtained by the CMC, as well several samples collected during Administrative Continuance, including the one (1) sample obtained in the FY 2022 wet season, as reported in this memo.

- For the FY 2022 wet season, 15 of the 33 parameters tested were not detected in any of the Rio Grande North or South samples.
- Several key parameters all met the applicable WQSs, as they have for all the CMC samples to date:
    - All dissolved oxygen results were greater than 5 mg/L (minimum WQS).
    - All temperature results were less than 32.2°C (maximum WQS).
- The PCB results were below the New Mexico Surface WQSs and Pueblo of Isleta Surface WQSs for designated uses including drinking water, wildlife habitat, acute aquatic life, and chronic aquatic life. However, the Rio Grande North and South CMC samples from September 1-2, 2021 were above the Pueblo of Isleta human health criteria (based on fish consumption only) WQS for surface waters.
- The September 2, 2021, Rio Grande South sample result exceeded the New Mexico Surface WQSs and Pueblo of Isleta Surface WQSs (15 pCi/L) for adjusted gross alpha. This is the second time since 2016 that the analytical results from a CMC sample have had an exceedance in adjusted gross alpha. The CMC will continue to closely evaluate this parameter in future samples
- The calculated E. coli loading for the September 1-2, 2021 storm event for the northern segment (Alameda to Angostura) and the southern segment (Isleta to Almeda) of the Rio Grande exceeded the WLA for the CMC MS4s. This analysis used the mid-point E. coli sample result obtained in the Rio Grande at Alameda.
    - Sources for the E. coli loading measured in the river are not solely attributable to the CMC MS4 members; the E. coli loading calculations serve to provide a reasonable estimate of the CMC contribution to the measured E. coli loading.
    - This sampling and calculation approach is only an estimate of the CMC contribution to the E. coli loading which is why the term “potential exceedance” is used.
    - The in-stream data does not provide the concentration of E. coli contributed by only the CMC MS4s or any of the other potential sources. By using this percentage calculation approach, if other contributors are in exceedance of the WLA, then the CMC will likely also be in exceedance since this approach relies on a percentage of a total.

For planning purposes for the CMC members, the FY 2022 dry season CMC monitoring will be summarized by BHI for the CMC in a dry season memo.

SG/ab

Attachments:

Attachment 1 – DBS&A Field Data & Hall Environmental Analysis Laboratory Reports with BHI Notes for FY 2022 Wet Season

Attachment 2 – FY 2022 Wet Season Completed Data Verification and Validation (V&V) Forms

Spreadsheets Included Separately:

E. coli Loading and Comparison to Waste Load Allocation (WLA) Excel Spreadsheet

Excel CMC Spreadsheet with FY 2022 Wet Season Stormwater Quality Monitoring Results

ATTACHMENT 1

DBS&A FIELD DATA & HALL ENVIRONMENTAL ANALYSIS LABORATORY REPORTS WITH BHI NOTES FOR FY 2022 WET SEASON

CMC Water Quality Results Database
FY 2017 -FY 2021
Date: August 10, 2022
Summary of Lab Results for CMC samples

		Rio Grande - North - At Angostura Dam								Rio Grande - Alameda Bridge (E. coli Only Samples)									
Parameter	**Permit Required Units**	**Provisional or Verified**	**2022 CMC SAMPLE - EXTRA NORTH Collection Date 8/16/2021** Wet Season Sample Non Qualifying Storm Event	**Qualifier**	**Check compared to Water Quality Criterion**	**Provisional or Verified**	**2022 CMC SAMPLE - EXTRA NORTH Collection Date 9/01/2021** Wet Season Sample	**Qualifier**	**Check compared to Water Quality Criterion**	**Provisional or Verified**	**2022 CMC SAMPLE - EXTRA SOUTH Collection Date 9/02/2021** Wet Season Sample	**Qualifier**	**Check compared to Water Quality Criterion**	**Provisional or Verified**	**2022 CMC SAMPLE - EXTRA ALAMEDA Collection Date 9/1/2021** Wet Season Pre-Storm Sample	**Qualifier**	**Check compared to Water Quality Criterion**	**Provisional or Verified**	**2022 CMC SAMPLE - EXTRA ALAMEDA Collection Date 9/2/2021** Wet Season Sample	**Qualifier**	**Check compared to Water Quality Criterion**
Total Suspended Solids (TSS)	mg/L					V	130		--	V	790	D	--								
Total Dissolved Solids (TDS)	mg/L					V	230	D	OK	V	330	D	OK								
Chemical Oxygen Demand (COD)	mg/L					V	22.2		--	V	54.2		--								
Biochemical Oxygen Demand (BOD_5)	mg/L					V	2.7	RE	--	V	4.9		--								
Dissolved Oxygen (DO)	mg/L	V	6.13		OK	V	6.98		OK	V	6.92		OK	V	7.06		OK	V	6.92		OK
Oil and Grease (N-Hexane Extractable Material)	mg/L					V	ND		OK	V	ND		OK								
E. coli	MPN (CFU/100 mL)	V	6,867		>WQ Standard	V	183		>WQ Standard	V	4,884		>WQ Standard	V	20.0		OK	V	554.0		>WQ Standard
pH	S.U.	V	7.92		OK	V	8.63		OK	V	8.11		OK	V	8.37		OK	V	7.72		OK
Total Kjedahl Nitrogen (TKN)	mg/L					V	4.1		--	V	2	JD	--								
Nitrate plus Nitrite	mg/L					V	ND		OK	V	1.8		OK								
Dissolved Phosphorous	mg/L					V	0.15	D	--	V	1.4	D	--								
Ammonia (mg/L as N)	mg/L					V	0.42	J	OK	V	ND		OK								
Total Nitrogen	mg/L					V	4.52	J	OK	V	3.80		OK								
Total Phosphorous	mg/L					V	0.29	D	--	V	1.3	D	--								
PCBS - 0.000064 (Method 1668A - sum of all congeners)	µg/L					V	0.00027	J	>WQ Standard	V	0.00172	J	>WQ Standard								
Gross Alpha, Adjusted	pCi/L					v	4.94	Note - Gross Alpha was reported, not adjusted gross alpha. Calculation completed to determine adjusted gross alpha.	OK	V	31.56	Note - Gross Alpha was reported, not adjusted gross alpha. Calculation completed to determine adjusted gross alpha.	>WQ Standard								
Tetrahydrofuran	µg/L					V	ND		--	V	ND		--								
Benzo(a)pyrene	µg/L					V	ND		OK	V	ND		OK								
Benzo[b]fluoranthene (other name: 3,4-Benzofluoranthene)	µg/L					V	ND		OK	V	ND		OK								
Benzo(k)fluoranthene	µg/L					V	ND		OK	V	ND		OK								
Chrysene	µg/L					V	ND		OK	V	ND		OK								
Indeno(1,2,3-cd)Pyrene	µg/L					V	ND		OK	V	ND		OK								
Dieldrin	µg/L					V	ND		OK	V	ND		OK								
Pentachlorophenol	µg/L					V	ND		OK	V	ND		OK								
Benzidine	µg/L					V	ND		OK	V	ND		OK								
Benzo(a)anthracene	µg/L					V	ND		OK	V	ND		OK								
Dibenzofuran	µg/L					V	ND		--	V	ND		--								
Dibenzo(a,h)anthracene	µg/L					V	ND		OK	V	ND		OK								
Chromium VI (Hexavalent)	µg/L					V	ND		OK	V	ND		OK								
Dissolved Copper	µg/L					V	0.84	J	OK	V	1.5		OK								
Dissolved Lead	µg/L					V	0.065	J	OK	V	0.32	J	OK								
Bis (2-ethyhexyl) Phthalate (other names: Di(2-ethylhexly)phthalate, DEHP) - 2.2	µg/L					V	ND		OK	V	ND		OK								
Conductivity	umhos/cm	V	591		--	V	315		--	V	484		--	V	375		--	V	383		--
Temperature	°C	V	21.24		OK	V	21.71		OK	V	21.21		OK	V	23.19		OK	V	22.14		OK
Hardness (as $CaCO_3$)	mg/L					V	160		--	V	290		--								
Mercury	µg/l																				

Data Verification/Validation and Qualifier Notes:
(R) The sample results are unusable because certain criteria were not met. The analyte may or may not be present in the sample.
(H) Sample holding time exceeded.
(J) The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
(D) Sample was diluted by Lab due to matrix
(U) Analyte was analyzed for, but not detected above the specified detection limit.

Notes:
1. Wet Season monitoring period - July 1 to October 31 and Dry Season monitoring period - November 1 to June 30 according to the Watershed Based MS4 Permit NMR04A000.
2. Water Quality Criterion from 20.6.4 NMAC; Rio Grande Basin - section 20.6.4.105; For a mean monthly flow of 100 cfs, monthly average
3. Aquatic life criteria for metals are expressed as a function of total
4. According to NMAC 20.6.4, E. coli bacteria for Primary Contact - monthly
5. Water quality criterion for metals is based on dissolved metals, NMAC 20.6.4.900.I and individual sample results compared to acute toxicity
6. HEAL lab method: SM 9223B Fecal Indicator. Note - lab method for units of MPN/100 ml, lab report uses units CFU/100 ml, for this analysis assuming

ND - analyte not detected above the laboratory method detection limit
NA - not analyzed
Hatching also indicates that parameter was not analyzed

National recommended WQ criteria Human Health
https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table

Samplers S. Williams / M. Zboralek

CMC Sampling Data Sheet

Site Identification: Angastoca Dam

Notes:

Full Suite Sample Date and Time:	8/16/21 1049
Full Sample Identification:	RGNorth-20210816
QC Samples:	Duplicate / ~~None~~ QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

Full Suite Collection Point : Angastoca Dam

Full Suite Sample Volume: ~2.5 gal Collection Time Start: 1000 End: 1045

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)
1						
2						
3	1030	20.92	7.83	591	5.29	58.4
4	1045	20.69	7.89	581	5.37	59.2
Composite	1049	21.24	7.92	591	6.13	68.4

☒ *Turbid Water* ☒ *Color* B/N ☐ *Solids* ☐ *Oil/Sheen* ☐ *Foam* ☐ *Odor* _____

Analytical -see 2020 COC table

☐ Site Photo ☐ Sample Photo

Samplers Amy Ewing + Mike Zbrozek

CMC Sampling Data Sheet

Site Identification: RG North (Angostura Dam)

Notes:

Full Suite Sample Date and Time:	RGNorth-20210901
Full Sample Identification:	9/1/2021 1005
QC Samples: Duplicate / (None)	QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

Full Suite Collection Point : NNE off the end of Angostura Dam

Full Suite Sample Volume: 4 gal Collection Time Start: 0917 End: 1002

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)
1	0917	21.73	8.54	351	6.90	74.8	149.5
2	0932	21.33	8.62	305	7.23	84.1	168.4
3	0947	21.69	8.65	303	6.81	78.6	150.6
4	1002	22.07	8.70	302	6.98	80.7	134.5
Composite	1005	21.71	8.63	315	6.98	79.6	150.7

☑Turbid Water (semi-) ☐Color tan / clear ☐Solids ☐Oil/Sheen ☐Foam ☐Odor_____

Analytical -see 2020 COC table

☑Site Photo ☑Sample Photo

Samplers Amy Ewing + Mike Zbrozek

CMC Sampling Data Sheet

Site Identification: Rio Grande at Alameda

Notes: Sampled per Kali's request

E. coli

~~Full Suite~~ Sample Date and Time: 9/01/2021 1125
Full Sample Identification: RGAlameda-20210901
QC Samples: Duplicate / (None) QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:

E. coli Downstream side of the

~~Full Suite~~ Collection Point : Alameda foot bridge across from USGS gage

Full Suite Sample Volume: — Collection Time Start: 1125 End: 1125 (grab)

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)
1	1125	23.19	8.37	375	7.06	83.7	97.7
2							
3							
4							
Composite							

☑Turbid Water ☑Color Brown ☐Solids ☐Oil/Sheen ☐Foam ☐Odor_____

Analytical - see 2021 COC table

☑Site Photo ☑Sample Photo

Samplers Amy Ewing and Mike Zbrozek

CMC Sampling Data Sheet

Site Identification: Rio Grande at Alameda

Notes:

E. coli

~~Full Suite~~ Sample Date and Time:	9/2/21 1030
~~Full Sample~~ Identification:	RGAlameda-20210902
QC Samples: Duplicate / None	QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

E. coli

~~Full Suite~~ Collection Point : off footbridge, downstream side, across from USGS stream gage

~~Full Suite~~ Sample Volume: — Collection Time Start: — End: —

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)
1	1030	22.14	7.72	383	6.72	77.4
2						
3						
4						
Composite						

☑Turbid Water ☑Color Brown ☐Solids ☐Oil/Sheen ☐Foam ☐Odor_____

Analytical - ~~see 2021 COC table~~

E. coli only

☑Site Photo ☑Sample Photo

Samplers Amy Ewing and Mike Zbrozek

CMC Sampling Data Sheet

Site Identification: Rio Grande at Isleta diversion

Notes:

Full Suite Sample Date and Time:	9/2/21 ~~0905~~ 0920
Full Sample Identification:	RG South - 20210902
QC Samples: Duplicate / (None)	QC Sample ID:
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample time:	

Full Suite Collection Point : off diversion structure, next to bldg.

Full Suite Sample Volume: 5 gallons Collection Time Start: 0835 End: 092

Field Parameters for each 2-gallon grab

Grab	Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)
1	0835	20.05	7.99	495	5.89	64.1
2	0850	20.37	7.93	484	7.93	83.1
3	0905	20.66	7.97	485	6.06	66.6
4	0920	20.68	7.95	477	6.06	67.2
Composite	0928	21.21	8.11	484	6.92	77.6

☑Turbid Water ☑Color Brown ☑Solids minor bits ☐Oil/Sheen ☐Foam ☐Odor_____

Analytical - see 2021 COC table

☑Site Photo ☑Sample Photo

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

August 19, 2021

8/16/2021 CMC Sample at Rio Grande North. E. coli results for the pre-storm. Storm did not become a qualifying event.

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX:

RE: CMC

OrderNo.: 2108836

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/16/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Field Parameters
Rio Grande North-
Temp = 21.24 °C
pH = 7.92
Conductivity (uS/cm=umho/cm) = 591
Dissolved Oxygen (mg/L) = 6.13

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108836**
Date Reported: **8/19/2021**

CLIENT: AMAFCA
Client Sample ID: RG North-20210816
Project: CMC
Collection Date: 8/16/2021 10:49:00 AM
Lab ID: 2108836-001 **Matrix:** AQUEOUS **Received Date:** 8/16/2021 12:49:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **dms**
E. Coli	6867	10.00		MPN/100	10	8/17/2021 5:44:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **AMAFCA** Work Order Number: **2108836** RcptNo: **1**

Received By: **Tracy Casarrubias** **8/16/2021 12:49:00 PM**

Completed By: **Sean Livingston** **8/16/2021 4:14:27 PM** S Livingston

Reviewed By: BOD/Enumeration JR @ 8/16/21 @ 16:40

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by:

BOD/Enumeration: TML 8.16.21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	23.8	Good				

Chain-of-Custody Record

Client: AMAFCA

Mailing Address:

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other_____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush_____

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): 24.0-0.2=23.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108836	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8.16.21	1049	AQ	RGNorth-20210816	bottles		001		See attached								

Date: 8/16/21 Time: 1241 Relinquished by:

Received by: Via: Date Time 8.16.21 12:49

Date: Time: Relinquished by:

Received by: Via: Date Time

Remarks: Per Chad - only analyze for E. coli enumeration. JF 8/17/21

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 07, 2021

9/1/2021 CMC Sample at Rio Grande North and Alameda. E. coli results for the pre-storm. Storm did become a qualifying event.

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX:

RE: CMC

OrderNo.: 2109083

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/1/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Field Parameters
Rio Grande North-
Temp = 21.71 °C
pH = 8.63
Conductivity (uS/cm=umho/cm) = 315
Dissolved Oxygen (mg/L) = 6.98
Alameda-
Temp = 23.19 °C
pH = 8.37
Conductivity (uS/cm=umho/cm) = 375
Dissolved Oxygen (mg/L) = 7.06

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2109083**
Date Reported: **9/7/2021**

CLIENT: AMAFCA
Client Sample ID: RG North- 20210901
Project: CMC
Collection Date: 9/1/2021 10:05:00 AM
Lab ID: 2109083-001 **Matrix:** AQUEOUS **Received Date:** 9/1/2021 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **dms**
E. Coli	183	10.00		MPN/100	10	9/2/2021 5:05:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Client Sample ID: RG Alameda- 20210901
Project: CMC
Collection Date: 9/1/2021 11:25:00 AM
Lab ID: 2109083-002
Matrix: AQUEOUS
Received Date: 9/1/2021 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **dms**
E. Coli	20	10.00		MPN/100	10	9/2/2021 5:05:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA Work Order Number: 2109083 RcptNo: 1

Received By: Sean Livingston 9/1/2021 4:10:00 PM

Completed By: Isaiah Ortiz 9/1/2021 4:18:41 PM

Reviewed By: JRa 9/1/21 @ 16:25

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SPA 9.1.21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Not Present			

Chain-of-Custody Record

Client: AMAFCA

Mailing Address:

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☑ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler: A.Ewing - DBS+A

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.2-0.3=3.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2109083	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	E. coli - enumeration
9/1/21	1005	AQ	RGNorth-20210901	1		001											✓
9/1/21	1125	AQ	RGAlameda-20210901	1		002											✓

Amy Ewing 9/1/21

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/1/21	1610	Amy Ewing	Sa	cno	9/1/21	16:10
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
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Albuquerque, NM 87109
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Website: clients.hallenvironmental.com

9/2/2021 CMC Sample at Rio Grande North, Alameda (only E. coli), and Rio Grand South.

October 13, 2021

Patrick Chavez

AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX

RE: CMC OrderNo.: 2109132

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 6 sample(s) on 9/2/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -

Field Parameters
Rio Grande North-
Temp = 21.71 °C
pH = 8.63
Conductivity (uS/cm=umho/cm) = 315
Dissolved Oxygen (mg/L) = 6.98
Rio Grande South-
Temp = 21.21 °C
pH = 8.11
Conductivity (uS/cm=umho/cm) = 484
Dissolved Oxygen (mg/L) = 6.92
Alameda-
Temp = 22.14 °C
pH = 7.72
Conductivity (uS/cm=umho/cm) = 383
Dissolved Oxygen (mg/L) = 6.72

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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Case Narrative

WO#: **2109132**
Date: **10/13/2021**

CLIENT: AMAFCA
Project: CMC

Analytical Notes Regarding EPA Method 8081:
The method blank and sample RG South-20210902 were not spiked with surrogates. The samples were reextracted, outside of the holding time to confirm the original data. The samples are reported from the original extraction and analysis.

Analytical Notes Regarding BOD:
The method blank(s) had a DO depletion >0.2mg/L.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Client Sample ID: RG North-20210901
Project: CMC
Collection Date: 9/1/2021 10:05:00 AM
Lab ID: 2109132-001
Matrix: AQUEOUS
Received Date: 9/2/2021 12:17:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **LSB**	
Dieldrin	ND	0.040	0.10		µg/L	1	9/17/2021 1:57:29 PM	62459
Surr: Decachlorobiphenyl	89.1	0	41.7-129		%Rec	1	9/17/2021 1:57:29 PM	62459
Surr: Tetrachloro-m-xylene	58.7	0	31.8-88.5		%Rec	1	9/17/2021 1:57:29 PM	62459
EPA METHOD 300.0: ANIONS							Analyst: **LRN**	
Nitrate+Nitrite as N	ND	0.11	1.0		mg/L	5	9/3/2021 4:14:05 PM	R81067
EPA METHOD 200.7: METALS							Analyst: **ELS**	
Calcium	51	0.11	1.0		mg/L	1	9/14/2021 12:30:15 PM	62544
Magnesium	8.7	0.067	1.0		mg/L	1	9/14/2021 12:30:15 PM	62544
EPA 200.8: DISSOLVED METALS							Analyst: **bcv**	
Copper	0.00084	0.00037	0.0010	J	mg/L	1	9/18/2021 6:25:56 PM	A81374
Lead	0.000065	0.000057	0.00050	J	mg/L	1	9/18/2021 6:25:56 PM	A81374
SM2340B: HARDNESS							Analyst: **ELS**	
Hardness as CaCO3	160	2.5	6.6		mg/L	1	9/14/2021 8:50:00 AM	R81263
EPA METHOD 1664B							Analyst: **dms**	
N-Hexane Extractable Material	ND	4.10	10.2		mg/L	1	9/8/2021 12:03:00 PM	62408
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	2.7	2.0	2.0	RE	mg/L	1	9/8/2021 4:15:00 PM	62380

NOTES:
R- RPD between dilutions >30%. E- Estimated value due to final read time exceeding +/-6 hour read time.

SM 4500 NH3: AMMONIA							Analyst: **CJS**	
Nitrogen, Ammonia	0.42	0.42	1.0	J	mg/L	1	9/16/2021 2:40:00 PM	R81339
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	8.54			H*	pH units	1	9/8/2021 9:52:08 PM	R81133
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.29	0.050	0.050	D	mg/L	1	9/15/2021 1:39:00 PM	62548
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	230	100	100	D	mg/L	1	9/10/2021 10:00:00 AM	62453
SM 4500 NORG C: TKN							Analyst: **EKM**	
Nitrogen, Kjeldahl, Total	4.1	0.50	1.0		mg/L	1	9/17/2021 1:45:00 PM	62630
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	130	4.0	4.0		mg/L	1	9/9/2021 1:39:00 PM	62455

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Client Sample ID: RG North-20210901
Project: CMC
Collection Date: 9/1/2021 10:05:00 AM
Lab ID: 2109132-002
Matrix: AQUEOUS
Received Date: 9/2/2021 12:17:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.15	0.050	0.050	D	mg/L	1	9/15/2021 1:40:00 PM	62548

dissolved phosphorous

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Client Sample ID: RG South-20210902
Project: CMC
Collection Date: 9/2/2021 9:20:00 AM
Lab ID: 2109132-003
Matrix: AQUEOUS
Received Date: 9/2/2021 12:17:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **LSB**	
Dieldrin	ND	0.040	0.10		µg/L	1	9/17/2021 2:23:56 PM	62459
Surr: Decachlorobiphenyl	0	0	41.7-129	S	%Rec	1	9/17/2021 2:23:56 PM	62459
Surr: Tetrachloro-m-xylene	0	0	31.8-88.5	S	%Rec	1	9/17/2021 2:23:56 PM	62459
EPA METHOD 300.0: ANIONS							Analyst: **LRN**	
Nitrogen, Nitrite (As N)	ND	0.073	0.50		mg/L	5	9/3/2021 3:48:20 PM	R81067
Nitrogen, Nitrate (As N)	1.8	0.10	0.50		mg/L	5	9/3/2021 3:48:20 PM	R81067
EPA METHOD 200.7: METALS							Analyst: **ELS**	
Calcium	86	0.11	1.0		mg/L	1	9/14/2021 12:33:10 PM	62544
Magnesium	19	0.067	1.0		mg/L	1	9/14/2021 12:33:10 PM	62544
EPA 200.8: DISSOLVED METALS							Analyst: **bcv**	
Copper	0.0015	0.00037	0.0010		mg/L	1	9/18/2021 6:30:41 PM	A81374
Lead	0.00032	0.000057	0.00050	J	mg/L	1	9/18/2021 6:30:41 PM	A81374
SM2340B: HARDNESS							Analyst: **ELS**	
Hardness as CaCO3	290	2.5	6.6		mg/L	1	9/14/2021 8:50:00 AM	R81263
EPA METHOD 1664B							Analyst: **dms**	
N-Hexane Extractable Material	ND	3.99	9.89		mg/L	1	9/8/2021 12:03:00 PM	62408
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	4.9	2.0	2.0		mg/L	1	9/8/2021 4:15:00 PM	62380
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **SMS**	
E. Coli	4884	10.00	10.00		MPN/100	10	9/3/2021 5:45:00 PM	62378
SM 4500 NH3: AMMONIA							Analyst: **CJS**	
Nitrogen, Ammonia	ND	0.42	1.0		mg/L	1	9/16/2021 2:40:00 PM	R81339
SM4500-H+B / 9040C: PH							Analyst: **CAS**	
pH	8.18			H	pH units	1	9/8/2021 9:56:07 PM	R81133
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	1.3	0.050	0.050	D	mg/L	1	9/15/2021 1:42:00 PM	62548
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	330	200	200	D	mg/L	1	9/10/2021 10:00:00 AM	62453
SM 4500 NORG C: TKN							Analyst: **EKM**	
Nitrogen, Kjeldahl, Total	2.0	1.0	2.0	JD	mg/L	1	9/17/2021 1:45:00 PM	62630
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	790	40	40	D	mg/L	1	9/9/2021 1:39:00 PM	62455

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 2109132-004
Matrix: AQUEOUS
Client Sample ID: RG South-20210902
Collection Date: 9/2/2021 9:20:00 AM
Received Date: 9/2/2021 12:17:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	1.4	0.050	0.050	D	mg/L	1	9/15/2021 1:43:00 PM	62548

dissolved phosphorous

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Client Sample ID: RG Alameda-20210902
Project: CMC
Collection Date: 9/2/2021 10:30:00 AM
Lab ID: 2109132-005
Matrix: AQUEOUS
Received Date: 9/2/2021 12:17:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **SMS**	
E. Coli	554	10.00	10.00		MPN/100	10	9/3/2021 5:45:00 PM	62378

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBI0301
Address:	4901 Hawkins NE Suite D	Project:	MDL Projects
	Albuquerque, NM 87109	Reported:	9/21/2021 11:03
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2109132-001A (RG North-20210901)		
Lab/Sample Number:	MBI0301-01	Collect Date:	09/01/21 10:05
Date Received:	09/08/21 12:41	Collected By:	
Matrix:	Water		

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles								
Tetrahydrofuran	ND	ug/L	0.500	2.50	9/10/21 14:05	TEC	EPA 8260D	U
Surrogate: 1,2-Dichlorobenzene-d4	*104%*		*70-130*		*9/10/21 14:05*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*98.8%*		*70-130*		*9/10/21 14:05*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*94.9%*		*70-130*		*9/10/21 14:05*	*TEC*	*EPA 8260D*	

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Analytical Results Report

(Continued)

Sample Location: 2109132-001K (RG North-20210901)
Lab/Sample Number: MBI0301-02 Collect Date: 09/01/21 10:05
Date Received: 09/08/21 12:41 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Semivolatiles								
Benzidine	ND	ug/L	0.833	1.67	9/13/21 23:44	MAH	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Chrysene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Di (2-ethylhexyl) phthalate	ND	ug/L	0.667	1.67	9/13/21 23:44	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Dibenzofuran	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.333	1.67	9/13/21 23:44	MAH	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.667	1.67	9/13/21 23:44	MAH	EPA 8270D	
Surrogate: 2,4,6-Tribromophenol	*94.0%*		*48-120*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	
Surrogate: 2-Fluorobiphenyl	*107%*		*57-120*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	
Surrogate: 2-Fluorophenol	*64.6%*		*37-110*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5	*81.0%*		*65-110*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	
Surrogate: Phenol-2,3,4,5,6-d5	*85.3%*		*51-112*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	
Surrogate: Terphenyl-d14	*102%*		*57-133*		*9/13/21 23:44*	*MAH*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2109132-003A (RG South-20210902)

Lab/Sample Number: MBI0301-03 Collect Date: 09/02/21 09:20

Date Received: 09/08/21 12:41 Collected By:

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles								
Tetrahydrofuran	ND	ug/L	0.500	2.50	9/10/21 14:34	TEC	EPA 8260D	U
Surrogate: 1,2-Dichlorobenzene-d4	*104%*		*70-130*		*9/10/21 14:34*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*99.1%*		*70-130*		*9/10/21 14:34*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*95.2%*		*70-130*		*9/10/21 14:34*	*TEC*	*EPA 8260D*	

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Analytical Results Report

(Continued)

Sample Location: 2109132-003K (RG South-20210902)
Lab/Sample Number: MBI0301-04 Collect Date: 09/02/21 09:20
Date Received: 09/08/21 12:41 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Semivolatiles								
Benzidine	ND	ug/L	1.25	2.50	9/14/21 0:12	MAH	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Chrysene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Di (2-ethylhexyl) phthalate	ND	ug/L	1.00	2.50	9/14/21 0:12	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Dibenzofuran	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.500	2.50	9/14/21 0:12	MAH	EPA 8270D	
Pentachlorophenol	ND	ug/L	1.00	2.50	9/14/21 0:12	MAH	EPA 8270D	
Surrogate: 2,4,6-Tribromophenol	*101%*		*48-120*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	
Surrogate: 2-Fluorobiphenyl	*110%*		*57-120*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	
Surrogate: 2-Fluorophenol	*64.4%*		*37-110*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	
Surrogate: Nitrobenzene-d5	*81.9%*		*65-110*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	
Surrogate: Phenol-2,3,4,5,6-d5	*83.3%*		*51-112*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	
Surrogate: Terphenyl-d14	*96.5%*		*57-133*		*9/14/21 0:12*	*MAH*	*EPA 8270D*	

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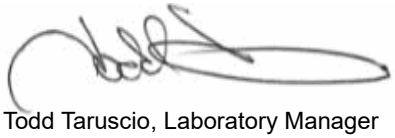
Analytical Results Report

(Continued)

Sample Location: 2109132-006A (Trip Blank)
Lab/Sample Number: MBI0301-05 Collect Date: 09/02/21 00:00
Date Received: 09/08/21 12:41 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Volatiles								
Tetrahydrofuran	ND	ug/L	0.100	0.500	9/10/21 12:03	TEC	EPA 8260D	U
Surrogate: 1,2-Dichlorobenzene-d4	*103%*		*70-130*		*9/10/21 12:03*	*TEC*	*EPA 8260D*	
Surrogate: 4-Bromofluorobenzene	*98.9%*		*70-130*		*9/10/21 12:03*	*TEC*	*EPA 8260D*	
Surrogate: Toluene-d8	*95.1%*		*70-130*		*9/10/21 12:03*	*TEC*	*EPA 8260D*	

Authorized Signature,



Todd Taruscio, Laboratory Manager

U	Compound was analyzed for but not detected
PQL	Practical Quantitation Limit
ND	Not Detected
MDL	Method Detection Limit
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water										
Blank (BBI0298-BLK1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
bis(2-Chloroethyl)ether	ND		0.500	ug/L						
Di-n-octyl phthalate	ND		0.500	ug/L						
Di-n-butyl phthalate	ND		0.500	ug/L						
Dimethyl phthalate	ND		0.500	ug/L						
Dibenzofuran	ND		0.500	ug/L						
Chrysene	ND		0.500	ug/L						
Carbazole	ND		0.500	ug/L						
Benzyl Butyl Phthalate	ND		0.500	ug/L						
Anthracene	ND		0.500	ug/L						
bis(2-chloroisopropyl)ether	ND		0.500	ug/L						
Hexachlorobenzene	ND		0.500	ug/L						
bis(2-Chloroethoxy)methane	ND		0.500	ug/L						
Benzyl alcohol	ND		0.500	ug/L						
Benzo[k]fluoranthene	ND		0.500	ug/L						
Benzo(g,h,i)perylene	ND		0.500	ug/L						
Benzo[b]fluoranthene	ND		0.500	ug/L						
Benzo[a]pyrene	ND		0.500	ug/L						
Benzo[a]anthracene	ND		0.500	ug/L						
Benzidine	ND		0.500	ug/L						
Di (2-ethylhexyl) phthalate	ND		0.500	ug/L						
Pyridine	ND		0.500	ug/L						
Pyrene	ND		0.500	ug/L						
Phenol	ND		0.500	ug/L						
Phenanthrene	ND		0.500	ug/L						
Pentachlorophenol	ND		0.500	ug/L						
n-Nitrosodiphenylamine	ND		0.500	ug/L						
Fluoranthene	ND		0.500	ug/L						
n-nitrosodimethylamine	ND		0.500	ug/L						
Fluorene	ND		0.500	ug/L						
Nitrobenzene	ND		0.500	ug/L						
Naphthalene	ND		0.500	ug/L						
Isophorone	ND		0.500	ug/L						
Indeno(1,2,3-cd)pyrene	ND		0.500	ug/L						
Hexachloroethane	ND		0.500	ug/L						
Hexachlorocyclopentadiene	ND		0.500	ug/L						
Hexachlorobutadiene	ND		0.500	ug/L						
Dibenz(a,h)anthracene	ND		0.500	ug/L						
n-Nitroso-di-n-propylamine	ND		0.500	ug/L						
1-Methylnaphthalene	ND		0.500	ug/L						
2,6-Dinitrotoluene	ND		0.500	ug/L						
2,4-Dinitrotoluene	ND		0.500	ug/L						
2,4-Dinitrophenol	ND		0.500	ug/L						
2,4-Dimethylphenol	ND		0.500	ug/L						

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water (Continued)										
Blank (BBI0298-BLK1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
2,4-Dichlorophenol	ND		0.500	ug/L						
2,4,6-Trichlorophenol	ND		0.500	ug/L						
2,4,5-Trichlorophenol	ND		0.500	ug/L						
2-Chloronaphthalene	ND		0.500	ug/L						
2,3,4,6-Tetrachlorophenol	ND		0.500	ug/L						
1,4-Dichlorobenzene (para-Dichlorobenzene)	ND		0.500	ug/L						
1,4-Dinitrobenzene	ND		0.500	ug/L						
Aniline	ND		0.500	ug/L						
1,3-Dinitrobenzene	ND		0.500	ug/L						
Diethyl phthalate	ND		0.500	ug/L						
1,2-Diphenyl hydrazine	ND		0.500	ug/L						
1,2-Dinitrobenzene	ND		0.500	ug/L						
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	ND		0.500	ug/L						
1,2,4-Trichlorobenzene	ND		0.500	ug/L						
2,3,5,6-Tetrachlorophenol	ND		0.500	ug/L						
4-Nitroaniline	ND		0.500	ug/L						
m-Dichlorobenzene	ND		0.500	ug/L						
2-Chlorophenol	ND		0.500	ug/L						
Acenaphthylene	ND		0.500	ug/L						
4-Nitrophenol	ND		0.500	ug/L						
4-Chlorophenyl-phenylether	ND		0.500	ug/L						
4-Chloroaniline	ND		0.500	ug/L						
4-Chloro-3-methylphenol	ND		0.500	ug/L						
4-Bromophenyl-phenylether	ND		0.500	ug/L						
4,6-Dinitro-2-methylphenol	ND		0.500	ug/L						
3-Nitroaniline	ND		0.500	ug/L						
2-Methylnaphthalene	ND		0.500	ug/L						
3,3'-Dichlorobenzidine	ND		0.500	ug/L						
2-Nitrophenol	ND		0.500	ug/L						
2-Nitroaniline	ND		0.500	ug/L						
2-Methylphenol	ND		0.500	ug/L						
Acenaphthene	ND		0.500	ug/L						
3+4-Methylphenol	ND		0.500	ug/L						
Surrogate: Phenol-2,3,4,5,6-d5			*40.4*	*ug/L*	*50.5*		*79.9*	*51-112*		
Surrogate: Nitrobenzene-d5			*19.8*	*ug/L*	*25.0*		*79.4*	*65-110*		
Surrogate: Terphenyl-d14			*26.1*	*ug/L*	*25.8*		*101*	*57-133*		
Surrogate: 2-Fluorophenol			*29.1*	*ug/L*	*50.0*		*58.1*	*37-110*		
Surrogate: 2-Fluorobiphenyl			*25.7*	*ug/L*	*25.5*		*101*	*57-120*		
Surrogate: 2,4,6-Tribromophenol			*45.2*	*ug/L*	*51.8*		*87.2*	*48-120*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water (Continued)										
LCS (BBI0298-BS1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
2-Methylphenol	4.08		0.500	ug/L	5.00		81.6	66-120		
2-Methylnaphthalene	4.24		0.500	ug/L	5.00		84.8	67-121		
2-Chlorophenol	4.13		0.500	ug/L	5.00		82.6	64-120		
3-Nitroaniline	4.23		0.500	ug/L	5.00		84.6	49-121		
2-Chloronaphthalene	4.34		0.500	ug/L	5.00		86.8	72-120		
2,6-Dinitrotoluene	4.53		0.500	ug/L	5.00		90.6	67-116		
2-Nitroaniline	4.79		0.500	ug/L	5.00		95.8	69-120		
3+4-Methylphenol	4.26		0.500	ug/L	5.00		85.2	68-120		
4,6-Dinitro-2-methylphenol	4.72		0.500	ug/L	5.00		94.4	26-150		
2,4-Dinitrotoluene	4.79		0.500	ug/L	5.00		95.8	74-121		
4-Chloroaniline	3.01		0.500	ug/L	5.00		60.2	30-130		
1,3-Dinitrobenzene	4.70		0.500	ug/L	5.00		94.0	75-123		
4-Bromophenyl-phenylether	4.28		0.500	ug/L	5.00		85.6	71-121		
2-Nitrophenol	4.21		0.500	ug/L	5.00		84.2	69-120		
1-Methylnaphthalene	4.23		0.500	ug/L	5.00		84.6	67-121		
4-Nitroaniline	4.53		0.500	ug/L	5.00		90.6	47-128		
4-Chlorophenyl-phenylether	4.29		0.500	ug/L	5.00		85.8	72-120		
1,2,4-Trichlorobenzene	3.86		0.500	ug/L	5.00		77.2	69-120		
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	3.91		0.500	ug/L	5.00		78.2	67-120		
1,2-Dinitrobenzene	4.38		0.500	ug/L	5.00		87.6	70-120		
1,4-Dinitrobenzene	5.05		0.500	ug/L	5.00		101	71-121		
1,4-Dichlorobenzene (para-Dichlorobenzene)	3.84		0.500	ug/L	5.00		76.8	67-120		
2,4-Dinitrophenol	5.00		0.500	ug/L	5.00		100	21-128		
2,3,4,6-Tetrachlorophenol	4.25		0.500	ug/L	5.00		85.0	66-120		
2,3,5,6-Tetrachlorophenol	4.28		0.500	ug/L	5.00		85.6	52-115		
2,4,5-Trichlorophenol	4.34		0.500	ug/L	5.00		86.8	71-120		
2,4,6-Trichlorophenol	4.37		0.500	ug/L	5.00		87.4	72-120		
2,4-Dichlorophenol	4.28		0.500	ug/L	5.00		85.6	72-120		
m-Dichlorobenzene	3.77		0.500	ug/L	5.00		75.4	67-120		
Di-n-octyl phthalate	4.81		0.500	ug/L	5.00		96.2	45-127		
Fluoranthene	4.56		0.500	ug/L	5.00		91.2	70-121		
Fluorene	4.41		0.500	ug/L	5.00		88.2	74-120		
Hexachlorobenzene	4.21		0.500	ug/L	5.00		84.2	67-118		
Hexachlorobutadiene	3.65		0.500	ug/L	5.00		73.0	68-120		
Hexachloroethane	3.65		0.500	ug/L	5.00		73.0	68-120		
Indeno(1,2,3-cd)pyrene	4.24		0.500	ug/L	5.00		84.8	62-123		
Isophorone	4.61		0.500	ug/L	5.00		92.2	78-120		
Di-n-butyl phthalate	4.63		0.500	ug/L	5.00		92.6	74-124		
Nitrobenzene	4.22		0.500	ug/L	5.00		84.4	71-120		
Phenanthrene	4.45		0.500	ug/L	5.00		89.0	74-120		
n-nitrosodimethylamine	4.11		0.500	ug/L	5.00		82.2	60-120		
n-Nitroso-di-n-propylamine	4.44		0.500	ug/L	5.00		88.8	71-112		
n-Nitrosodiphenylamine	4.36		0.500	ug/L	5.00		87.2	70-121		
Pentachlorophenol	4.36		0.500	ug/L	5.00		87.2	51-118		
Phenol	4.08		0.500	ug/L	5.00		81.6	54-121		
Pyrene	4.65		0.500	ug/L	5.00		93.0	59-130		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water (Continued)										
LCS (BBI0298-BS1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
4-Nitrophenol	4.12		0.500	ug/L	5.00		82.4	52-118		
4-Chloro-3-methylphenol	4.49		0.500	ug/L	5.00		89.8	74-120		
Naphthalene	4.13		0.500	ug/L	5.00		82.6	70-120		
Benzo(g,h,i)perylene	4.23		0.500	ug/L	5.00		84.6	63-129		
Anthracene	4.51		0.500	ug/L	5.00		90.2	76-120		
Acenaphthene	4.11		0.500	ug/L	5.00		82.2	76-120		
Benzo[a]anthracene	4.35		0.500	ug/L	5.00		87.0	80-120		
Dimethyl phthalate	4.50		0.500	ug/L	5.00		90.0	72-122		
Benzo[b]fluoranthene	4.29		0.500	ug/L	5.00		85.8	72-116		
Acenaphthylene	4.36		0.500	ug/L	5.00		87.2	75-120		
Benzo[k]fluoranthene	5.03		0.500	ug/L	5.00		101	71-121		
bis(2-Chloroethoxy)methane	4.42		0.500	ug/L	5.00		88.4	74-120		
Dibenzofuran	4.46		0.500	ug/L	5.00		89.2	75-120		
bis(2-chloroisopropyl)ether	4.18		0.500	ug/L	5.00		83.6	69-120		
Di (2-ethylhexyl) phthalate	4.91		0.500	ug/L	5.00		98.2	60-144		
Benzyl Butyl Phthalate	4.71		0.500	ug/L	5.00		94.2	62-135		
Carbazole	4.92		0.500	ug/L	5.00		98.4	76-123		
Chrysene	4.53		0.500	ug/L	5.00		90.6	74-124		
Dibenz(a,h)anthracene	4.44		0.500	ug/L	5.00		88.8	62-120		
bis(2-Chloroethyl)ether	4.33		0.500	ug/L	5.00		86.6	70-120		
Benzo[a]pyrene	4.14		0.500	ug/L	5.00		82.8	66-116		
Diethyl phthalate	4.52		0.500	ug/L	5.00		90.4	76-121		
Surrogate: Phenol-2,3,4,5,6-d5			*46.5*	*ug/L*	*50.5*		*92.0*	*51-112*		
Surrogate: Nitrobenzene-d5			*22.5*	*ug/L*	*25.0*		*90.0*	*65-110*		
Surrogate: Terphenyl-d14			*26.8*	*ug/L*	*25.8*		*104*	*57-133*		
Surrogate: 2-Fluorophenol			*34.4*	*ug/L*	*50.0*		*68.7*	*37-110*		
Surrogate: 2-Fluorobiphenyl			*29.2*	*ug/L*	*25.5*		*115*	*57-120*		
Surrogate: 2,4,6-Tribromophenol			*50.5*	*ug/L*	*51.8*		*97.6*	*48-120*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water (Continued)										
LCS Dup (BBI0298-BSD1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
Carbazole	4.90		0.500	ug/L	5.00		98.0	76-123	0.407	40
Chrysene	4.48		0.500	ug/L	5.00		89.6	74-124	1.11	25
Dibenz(a,h)anthracene	4.83		0.500	ug/L	5.00		96.6	62-120	8.41	30
Dibenzofuran	4.43		0.500	ug/L	5.00		88.6	75-120	0.675	25
Diethyl phthalate	4.47		0.500	ug/L	5.00		89.4	76-121	1.11	25
Di-n-butyl phthalate	4.75		0.500	ug/L	5.00		95.0	74-124	2.56	25
Dimethyl phthalate	4.51		0.500	ug/L	5.00		90.2	72-122	0.222	25
Benzyl Butyl Phthalate	4.29		0.500	ug/L	5.00		85.8	62-135	9.33	34
Di (2-ethylhexyl) phthalate	4.48		0.500	ug/L	5.00		89.6	60-144	9.16	32
bis(2-chloroisopropyl)ether	4.22		0.500	ug/L	5.00		84.4	69-120	0.952	28
bis(2-Chloroethyl)ether	4.27		0.500	ug/L	5.00		85.4	70-120	1.40	30
bis(2-Chloroethoxy)methane	4.29		0.500	ug/L	5.00		85.8	74-120	2.99	25
Benzo[k]fluoranthene	4.96		0.500	ug/L	5.00		99.2	71-121	1.40	25
Di-n-octyl phthalate	4.01		0.500	ug/L	5.00		80.2	45-127	18.1	32
Benzo[b]fluoranthene	4.10		0.500	ug/L	5.00		82.0	72-116	4.53	25
Benzo[a]pyrene	4.89		0.500	ug/L	5.00		97.8	66-116	16.6	25
Benzo(g,h,i)perylene	4.55		0.500	ug/L	5.00		91.0	63-129	7.29	25
Nitrobenzene	4.14		0.500	ug/L	5.00		82.8	71-120	1.91	25
2,6-Dinitrotoluene	4.48		0.500	ug/L	5.00		89.6	67-116	1.11	35
Benzo[a]anthracene	4.33		0.500	ug/L	5.00		86.6	80-120	0.461	25
Phenol	4.09		0.500	ug/L	5.00		81.8	54-121	0.245	33
Phenanthrene	4.50		0.500	ug/L	5.00		90.0	74-120	1.12	25
Pentachlorophenol	4.29		0.500	ug/L	5.00		85.8	51-118	1.62	25
n-Nitrosodiphenylamine	4.45		0.500	ug/L	5.00		89.0	70-121	2.04	25
Naphthalene	4.22		0.500	ug/L	5.00		84.4	70-120	2.16	25
n-nitrosodimethylamine	4.03		0.500	ug/L	5.00		80.6	60-120	1.97	35
Pyrene	4.33		0.500	ug/L	5.00		86.6	59-130	7.13	35
Isophorone	4.48		0.500	ug/L	5.00		89.6	78-120	2.86	25
Indeno(1,2,3-cd)pyrene	4.63		0.500	ug/L	5.00		92.6	62-123	8.79	25
Hexachloroethane	3.67		0.500	ug/L	5.00		73.4	68-120	0.546	28
Hexachlorobutadiene	3.74		0.500	ug/L	5.00		74.8	68-120	2.44	25
Hexachlorobenzene	4.51		0.500	ug/L	5.00		90.2	67-118	6.88	25
Fluorene	4.38		0.500	ug/L	5.00		87.6	74-120	0.683	25
Fluoranthene	4.70		0.500	ug/L	5.00		94.0	70-121	3.02	25
n-Nitroso-di-n-propylamine	4.37		0.500	ug/L	5.00		87.4	71-112	1.59	25
1,4-Dinitrobenzene	4.84		0.500	ug/L	5.00		96.8	71-121	4.25	25
2,4-Dinitrophenol	4.18		0.500	ug/L	5.00		83.6	21-128	17.9	36
2-Chlorophenol	4.13		0.500	ug/L	5.00		82.6	64-120	0.00	33
2,4,6-Trichlorophenol	4.39		0.500	ug/L	5.00		87.8	72-120	0.457	25
2,4,5-Trichlorophenol	4.39		0.500	ug/L	5.00		87.8	71-120	1.15	25
2,3,5,6-Tetrachlorophenol	4.20		0.500	ug/L	5.00		84.0	52-115	1.89	25
Anthracene	4.50		0.500	ug/L	5.00		90.0	76-120	0.222	25
1-Methylnaphthalene	4.26		0.500	ug/L	5.00		85.2	67-121	0.707	25
2,4-Dinitrotoluene	4.58		0.500	ug/L	5.00		91.6	74-121	4.48	25
1,4-Dichlorobenzene (para-Dichlorobenzene)	3.85		0.500	ug/L	5.00		77.0	67-120	0.260	25
1,3-Dinitrobenzene	4.27		0.500	ug/L	5.00		85.4	75-123	9.59	25

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0298 - SVOC Water (Continued)										
LCS Dup (BBI0298-BSD1)					Prepared: 9/8/2021 Analyzed: 9/13/2021					
m-Dichlorobenzene	3.82		0.500	ug/L	5.00		76.4	67-120	1.32	25
1,2-Dinitrobenzene	3.73		0.500	ug/L	5.00		74.6	70-120	16.0	25
1,2-Dichlorobenzene (ortho-Dichlorobenzene)	3.94		0.500	ug/L	5.00		78.8	67-120	0.764	25
1,2,4-Trichlorobenzene	4.01		0.500	ug/L	5.00		80.2	69-120	3.81	25
2,3,4,6-Tetrachlorophenol	4.03		0.500	ug/L	5.00		80.6	66-120	5.31	25
4-Bromophenyl-phenylether	4.58		0.500	ug/L	5.00		91.6	71-121	6.77	25
Acenaphthylene	4.44		0.500	ug/L	5.00		88.8	75-120	1.82	30
Acenaphthene	4.20		0.500	ug/L	5.00		84.0	76-120	2.17	25
4-Nitrophenol	3.26		0.500	ug/L	5.00		65.2	52-118	23.3	35
4-Nitroaniline	4.12		0.500	ug/L	5.00		82.4	47-128	9.48	32
4-Chlorophenyl-phenylether	4.29		0.500	ug/L	5.00		85.8	72-120	0.00	25
2,4-Dichlorophenol	4.25		0.500	ug/L	5.00		85.0	72-120	0.703	25
4-Chloro-3-methylphenol	4.22		0.500	ug/L	5.00		84.4	74-120	6.20	25
2-Chloronaphthalene	4.39		0.500	ug/L	5.00		87.8	72-120	1.15	25
4,6-Dinitro-2-methylphenol	4.38		0.500	ug/L	5.00		87.6	26-150	7.47	25
3-Nitroaniline	3.96		0.500	ug/L	5.00		79.2	49-121	6.59	39
3+4-Methylphenol	4.20		0.500	ug/L	5.00		84.0	68-120	1.42	25
2-Nitrophenol	4.24		0.500	ug/L	5.00		84.8	69-120	0.710	25
2-Nitroaniline	4.39		0.500	ug/L	5.00		87.8	69-120	8.71	25
2-Methylphenol	4.05		0.500	ug/L	5.00		81.0	66-120	0.738	25
2-Methylnaphthalene	4.27		0.500	ug/L	5.00		85.4	67-121	0.705	25
4-Chloroaniline	3.04		0.500	ug/L	5.00		60.8	30-130	0.992	40
Surrogate: Phenol-2,3,4,5,6-d5			*45.6*	*ug/L*	*50.5*		*90.3*	*51-112*		
Surrogate: Nitrobenzene-d5			*21.8*	*ug/L*	*25.0*		*87.3*	*65-110*		
Surrogate: Terphenyl-d14			*24.7*	*ug/L*	*25.8*		*95.8*	*57-133*		
Surrogate: 2-Fluorophenol			*33.5*	*ug/L*	*50.0*		*67.0*	*37-110*		
Surrogate: 2-Fluorobiphenyl			*29.9*	*ug/L*	*25.5*		*117*	*57-120*		
Surrogate: 2,4,6-Tribromophenol			*51.1*	*ug/L*	*51.8*		*98.7*	*48-120*		

Quality Control Data
(Continued)

Volatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0293 - VOC										
Blank (BBI0293-BLK1)					Prepared & Analyzed: 9/10/2021					
Tetrahydrofuran	ND	U	0.500	ug/L						
LCS (BBI0293-BS1)					Prepared & Analyzed: 9/10/2021					
Tetrahydrofuran	21.9		0.500	ug/L	20.0		109	80-120		
Matrix Spike (BBI0293-MS1)		**Source: MBI0298-01**			Prepared & Analyzed: 9/10/2021					
Tetrahydrofuran	108		2.50	ug/L	100	ND	108	70-130		
Matrix Spike Dup (BBI0293-MSD1)		**Source: MBI0298-01**			Prepared & Analyzed: 9/10/2021					

Anatek Labs, Inc.

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Quality Control Data
(Continued)

Volatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0293 - VOC (Continued)										
Matrix Spike Dup (BBI0293-MSD1)		**Source: MBI0298-01**			Prepared & Analyzed: 9/10/2021					
Tetrahydrofuran	98.4		2.50	ug/L	100	ND	98.4	70-130	9.12	25

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall

MBI0301

Due: 09/22/21

Wel

SUB CONTRATOR:	Anatek ID	COMPANY:	Anatek Labs, Inc.	PHONE: (208) 883-2839	FAX: (208) 882-9246
ADDRESS:	1282 Alturas Dr			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Moscow, ID 83843				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2109132-001A	RG North-20210901	VOAHCL	Aqueous	9/1/2021 10:05:00 AM	3	8260: Tetrahydrofuran
2	2109132-001K	RG North-20210901	1LAMGU	Aqueous	9/1/2021 10:05:00 AM	2	8270 See attached list
3	2109132-003A	RG South-20210902	VOAHCL	Aqueous	9/2/2021 9:20:00 AM	3	8260: Tetrahydrofuran
4	2109132-003K	RG South-20210902	1LAMGU	Aqueous	9/2/2021 9:20:00 AM	2	8270 See attached list
5	2109132-006A	Trip Blank	VOAHCL	Trip Blank		2	8260: Tetrahydrofuran

Sec 9/3/21

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: SEC	Date: 9/2/2021	Time: 2:44 PM	Received By: CS	Date: 09/3/21	Time: 1241
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

MBI0301

Due: 09/22/21

Collaborative Monitoring Cooperative - Analyses Li

Attach to Chain of Custody

Please refer to attached NPDES Permit No. NMR04A00 Appendix F. Methods and minimum (MQL's) will be those approved under 40 CFR 136 and specified in the attached permit

Analyte (Bold Indicates WQS)	CAS #	Fraction	Method #	MDL (µg/L)
Hardness (Ca + Mg)	NA	Total	200.7	2.4
Lead	7439-92-1	Dissolved	200.8	0.09
Copper	7440-50-8	Dissolved	200.8	1.06
Ammonia + organic nitrogen	7664-41-7	Total	350.1	31.32
Total Kjehldal Nitrogen	17778-88-0	Total	351.2	58.78
Nitrate + Nitrite	14797-55-8	Total	353.2	10.17
Polychlorinated biphenyls (PCBs)	1336-36-3	Total	1668	0.014
Tetrahydrofuran (THF)	109-99-9	Total	8260C	7.9
bis(2-Ethylhexyl)phthalate	117-81-7	Total	8270D	0.2
Dibenzofuran	132-64-9	Total	8270D	0.2
Indeno(1,2,3-cd)pyrene	193-39-5	Total	8270D	0.2
Benzo(b)fluoranthene	205-99-2	Total	8270D	0.1
Benzo(k)fluoranthene	207-08-9	Total	8270D	0.1
Chrysene	218-01-9	Total	8270D	0.2
Benzo(a)pyrene	50-32-8	Total	8270D	0.3
Dibenzo(a,h)anthracene	53-70-3	Total	8270D	0.3
Benzo(a)anthracene	56-55-3	Total	8270D	0.2
Dieldrin	60-57-1	Total	8081	0.1
Pentachlorophenol	87-86-5	Total	8270D	0.2
Benzidine	92-87-5	Total	8270D	0.1
Chemical Oxygen Demand	E1641638[2]	Total	HACH	5100
Gross alpha (adjusted)	NA	Total	Method 900	0.1 pCi/L
Total Dissolved Solids	E1642222[2]	Total	SM 2540C	60.4
Total Suspended Solids	NA	Total	SM 2540D	3450
Biological Oxygen Demand	N/A	Total	Standard Methods	930
Oil and Grease		Total	1664A	5000
Ecoli enumeration			SM 9223B	
pH			SM 4500	
Phosphorus		Dissolved	365.1	100
Phosphorus		Total	365.1	100
Chromium IV		Total	3500Cr C-2011	100

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBI0301

Due: 09/22/21

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: (paper)

Cooler Temp As Read (°C): 2.6 Cooler Temp Corrected (°C): — Thermometer Used: DR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	(Yes)	No	N/A	
VOC Vials Free of Headspace (<6mm)?	(Yes)	No	N/A	
VOC Trip Blanks Present?	(Yes)	No	N/A	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 10				

Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

HCl - 8260 - 54441 x.6 + 2TB

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 - 9L x2

Received/Inspected By: _____ Date/Time: 09/08/2021 1241

ANALYTICAL REPORT

September 13, 2021

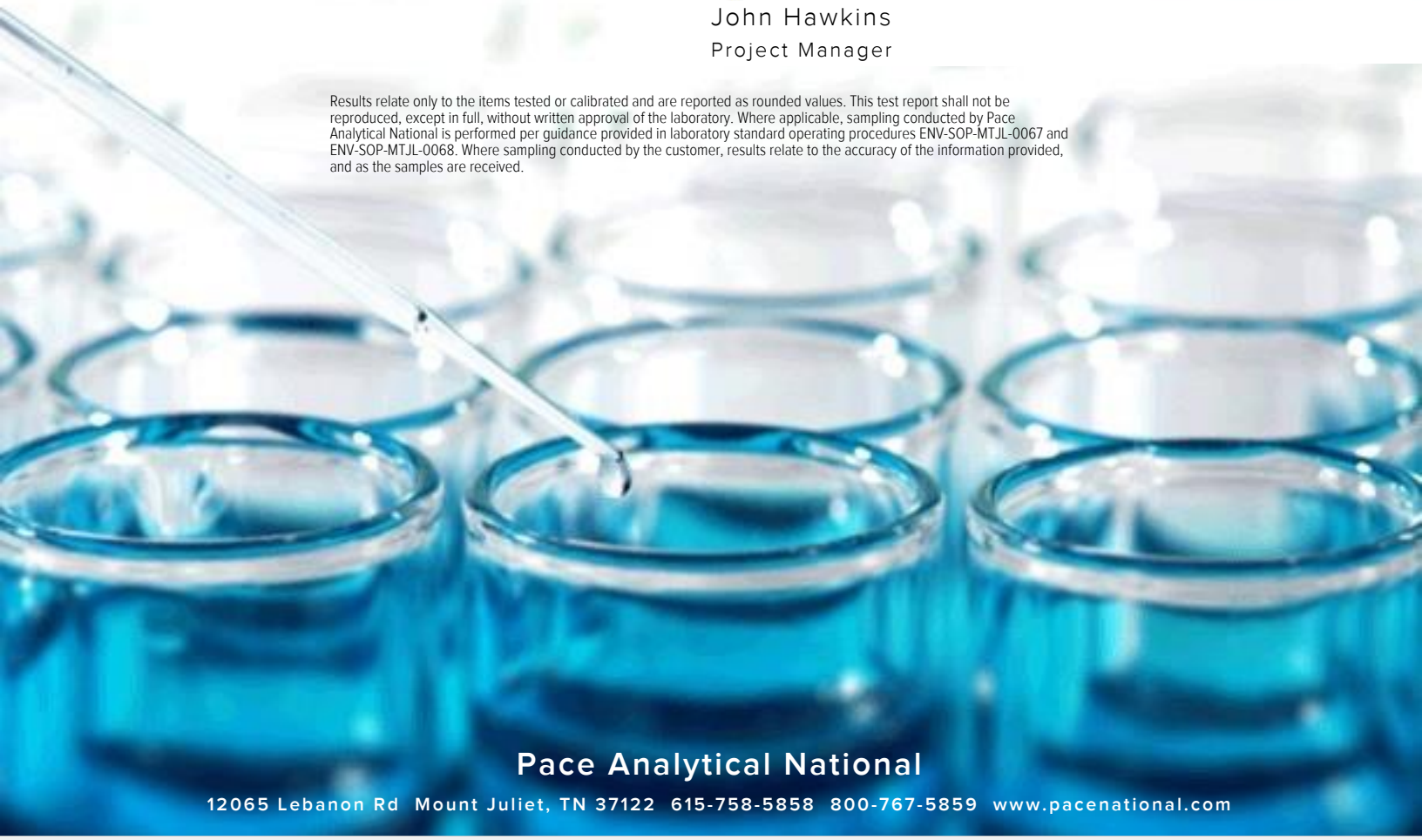
Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1400264
Samples Received:	09/08/2021
Project Number:	
Description:	

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:

John Hawkins
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

2109132-001 RG NORTH-20210901 L1400264-01 WW

Collected by	Collected date/time	Received date/time
	09/01/21 10:05	09/08/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Cr C-2011	WG1737107	1	09/10/21 16:47	09/10/21 16:47	GB	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG1737390	1	09/09/21 20:00	09/09/21 23:09	BFG	Mt. Juliet, TN

2109132-003 RG SOUTH-20210902 L1400264-02 WW

Collected by	Collected date/time	Received date/time
	09/02/21 09:20	09/08/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Cr C-2011	WG1737107	1	09/10/21 17:03	09/10/21 17:03	GB	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG1737390	1	09/09/21 20:00	09/09/21 23:09	BFG	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hexavalent Chromium	ND		0.000500	1	09/10/2021 16:47	WG1737107

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	22.2		20.0	1	09/09/2021 23:09	WG1737390

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hexavalent Chromium	ND		0.000500	1	09/10/2021 17:03	WG1737107

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	54.2		20.0	1	09/09/2021 23:09	WG1737390

Method Blank (MB)

(MB) R3703139-1 09/10/21 11:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1397842-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1397842-03 09/10/21 13:33 • (DUP) R3703139-3 09/10/21 13:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	0.000		20

L1400264-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1400264-02 09/10/21 17:03 • (DUP) R3703139-7 09/10/21 17:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3703139-2 09/10/21 12:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00200	100	90.0-110	

L1397842-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1397842-04 09/10/21 13:51 • (MS) R3703139-4 09/10/21 13:58 • (MSD) R3703139-5 09/10/21 14:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	0.0500	0.109	0.152	0.152	86.1	87.0	1	90.0-110	E J6	E J6	0.294	20

L1400264-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1400264-01 09/10/21 16:47 • (MS) R3703139-6 09/10/21 16:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	ND	0.0492	98.5	1	90.0-110	

Method Blank (MB)

(MB) R3702571-1 09/09/21 23:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		11.7	20.0

L1400084-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1400084-01 09/09/21 23:07 • (DUP) R3702571-3 09/09/21 23:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	ND	ND	1	200	P1	20

L1400373-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1400373-03 09/09/21 23:11 • (DUP) R3702571-6 09/09/21 23:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3702571-2 09/09/21 23:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	500	495	98.9	90.0-110	

L1400264-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1400264-02 09/09/21 23:09 • (MS) R3702571-4 09/09/21 23:10 • (MSD) R3702571-5 09/09/21 23:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
COD	500	54.2	568	570	103	103	1	80.0-120			0.399	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR: **Pace TN**	COMPANY: **PACE TN**		PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS: **12065 Lebanon Rd**			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: **Mt. Juliet, TN 37122**					

L1400264

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	2109132-001H	RG North-20210901	500HDPEH2SO4	Aqueous	9/1/2021 10:05:00 AM	1	COD	-01
~~2~~	~~2109132-001I~~	~~RG North-20210901~~	~~1LHDPEHNO3~~	~~Aqueous~~	~~9/1/2021 10:05:00 AM~~	~~1~~	~~Adjusted Gross Alpha~~	
3	2109132-001J	RG North-20210901	120mL	Aqueous	9/1/2021 10:05:00 AM	1	Cr 6	-01
4	2109132-003H	RG South-20210902	500HDPEH2SO4	Aqueous	9/2/2021 9:20:00 AM	1	COD	-02
~~5~~	~~2109132-003I~~	~~RG South-20210902~~	~~1LHDPEHNO3~~	~~Aqueous~~	~~9/2/2021 9:20:00 AM~~	~~1~~	~~Adjusted Gross Alpha~~	
6	2109132-003J	RG South-20210902	120mL	Aqueous	9/2/2021 9:20:00 AM	1	Cr 6	-02

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen <0.5 mR/hr:	Y N		

B182

SPECIAL INSTRUCTIONS/COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

~~*~~ in separate cooler SGL 9/7/21

Relinquished By: SGL	Date: 9/2/2021	Time: 2:48 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 9/8/21	Time: 9:15

TAT: Standard ✓ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.3+1=1.4 #205 Attempt to Cool ?
Comments

2834/8373660

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

October 01, 2021

Mr. Andy Freeman
Hall Environmental
4901 Hawkins NE
Suite D
Albuquerque, New Mexico 87109

Re: Routine Analysis
Work Order: 18708
SDG: 2109132

Dear Mr. Freeman:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 08, 2021. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Purchase Order: IDIQ Pricing
Enclosures

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

CFA WO#18708

SUB CONTRATOR: **Cape Fear Analytical**	COMPANY: **Cape Fear Analytical**	PHONE: **(910) 795-0421**	FAX:
ADDRESS: **3306 Kitty Hawk Rd Ste 120**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Wilmington, NC 28405**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2109132-001G	RG North-20210901	1LAMGU	Aqueous	9/1/2021 10:05:00 AM	2	PCB Congeners 1668
2	2109132-003G	RG South-20210902	1LAMGU	Aqueous	9/2/2021 9:20:00 AM	2	PCB Congeners 1668

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Ple

Relinquished By: Sea	Date: 9/2/2021	Time: 2:49 PM	Received By:	Date: 9/3/21	Time: 13:20
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 7.7 °C Attempt to Cool ? ✓
Comments:

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: HALL	Work Order: 18708
Shipping Company: FedEx	Date/Time Received: 9/8/21 13:20

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: _____

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Custody seal/s present on cooler?	✓			Seal intact? (Yes) No
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?			✓	Preservation Method: ice bags loose ice (blue ice) dry ice none other (describe) Temperature Blank present: Yes (No) 7.7+0.0=7.7
5	Aqueous samples found to have visible solids?	✓			Sample IDs, containers affected: all - minimal solids
5	Samples requiring chemical preservation at proper pH?	✓			Sample IDs, containers affected and pH observed: all - pH=7 If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?			✓	List type and number of containers / Sample IDs, containers affected: # containers listed on COC = 2 bottles per sample received 2-1 Liter - 1 per sample
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: JP Date: 9/9/21

CF-UD-F-7

Cynde Larkins

From: Andy Freeman <andy@hallenvironmental.com>
Sent: Wednesday, September 8, 2021 3:39 PM
To: Cynde Larkins
Subject: RE: 2109132

Please proceed with the analysis and note the temperature.

CFA WO#18708

Thank you,

Andy Freeman - Hall Environmental, 4901 Hawkins NE, Albuquerque, NM 87109, 505-345-3975, 505-345-4107 fax
www.hallenvironmental.com - andy@hallenvironmental.com - https://www.surveymonkey.com/r/NGVXRBV
For easy access to all of your past reports, setup an account on the Hall Environmental Web Portal. Just visit our website and follow the instructions for setting up an account.
We welcome your feedback. Please visit the survey monkey link to complete a brief survey on your experience with Hall Environmental.

From: Cynde Larkins <Cynde.Larkins@cfanalytical.com>
Sent: Wednesday, September 8, 2021 1:39 PM
To: Andy Freeman <andy@hallenvironmental.com>
Subject: 2109132

Andy,
CFA received these samples today in good condition but out of temperature at 7.7°C. Please advise if the lab can proceed with extraction and analysis.
Thank you,

Cynde Larkins
Project Manager
Cape Fear Analytical, LLC
3306 Kitty Hawk Road, Suite 120
Wilmington, NC 28405
(910) 795-0421

CFA | Cape Fear Analytical

PCB Congeners Analysis

Case Narrative

PCBC Case Narrative
Hall Environmental Analysis Laboratory (HALL)
SDG 2109132
Work Order 18708

Method/Analysis Information

Product: **PCB Congeners by EPA Method 1668A in Liquids**
Analytical Method: EPA Method 1668A
Extraction Method: SW846 3520C
Analytical Batch Number: 47901
Clean Up Batch Number: 47899
Extraction Batch Number: 47898

Sample Analysis

Samples were received at 7.7°C. (18708001,18708002).
The following samples were analyzed using the analytical protocol as established in EPA Method 1668A:

Sample ID	Client ID
12030238	Method Blank (MB)
12030239	Laboratory Control Sample (LCS)
12030240	Laboratory Control Sample Duplicate (LCSD)
18708001	2109132-001G RG North-20210901
18708002	2109132-003G RG South-20210902

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-003 REV# 9.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

Receipt Temperature
Samples were outside of the recommended range of 0-6°C. The client was notified of the temperature exceedance and the laboratory was instructed to proceed with analysis.

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Manual Integrations
Manual integrations were required for data files in this SDG. Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP875_1	PCB Analysis	PCB Analysis	SPB-Octyl	30m x 0.25mm, 0.25um

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Certificate of Analysis Report
for

HALL001 Hall Environmental Analysis Laboratory

Client SDG: 2109132 CFA Work Order: 18708

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:  **Name: Erin Suhrie**

Date: 01 OCT 2021 **Title: Data Validator**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	U	ND	pg/L	1.26	109
2051-61-8	2-MoCB	U	ND	pg/L	1.63	109
2051-62-9	3-MoCB	U	ND	pg/L	1.57	109
13029-08-8	4-DiCB	U	ND	pg/L	8.47	109
16605-91-7	5-DiCB	U	ND	pg/L	6.23	109
25569-80-6	6-DiCB	U	ND	pg/L	5.82	109
33284-50-3	7-DiCB	U	ND	pg/L	5.31	109
34883-43-7	8-DiCB	U	ND	pg/L	5.12	109
34883-39-1	9-DiCB	U	ND	pg/L	6.73	109
33146-45-1	10-DiCB	U	ND	pg/L	5.51	109
2050-67-1	11-DiCB	J	41.6	pg/L	6.47	109
2974-92-7	12-DiCB	CU	ND	pg/L	5.84	218
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	6.27	109
2050-68-2	15-DiCB	U	ND	pg/L	6.49	109
38444-78-9	16-TrCB	U	ND	pg/L	2.83	109
37680-66-3	17-TrCB	U	ND	pg/L	2.74	109
37680-65-2	18-TrCB	CJ	3.85	pg/L	2.31	218
38444-73-4	19-TrCB	U	ND	pg/L	2.83	109
38444-84-7	20-TrCB	CJ	6.60	pg/L	1.85	218
55702-46-0	21-TrCB	CJ	3.20	pg/L	1.89	218
38444-85-8	22-TrCB	J	2.48	pg/L	1.81	109
55720-44-0	23-TrCB	U	ND	pg/L	1.81	109
55702-45-9	24-TrCB	U	ND	pg/L	1.85	109
55712-37-3	25-TrCB	U	ND	pg/L	1.68	109
38444-81-4	26-TrCB	CU	ND	pg/L	1.96	218
38444-76-7	27-TrCB	U	ND	pg/L	2.13	109
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	J	5.10	pg/L	1.92	109
38444-77-8	32-TrCB	U	ND	pg/L	1.89	109

Comments:

B **The target analyte was detected in the associated blank.**
C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**
J **Value is estimated**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	2.20	109
37680-69-6	35-TrCB	U	ND	pg/L	1.83	109
38444-87-0	36-TrCB	U	ND	pg/L	1.59	109
38444-90-5	37-TrCB	U	ND	pg/L	2.53	109
53555-66-1	38-TrCB	U	ND	pg/L	1.81	109
38444-88-1	39-TrCB	U	ND	pg/L	1.50	109
38444-93-8	40-TeCB	CU	ND	pg/L	2.81	218
52663-59-9	41-TeCB	U	ND	pg/L	4.18	109
36559-22-5	42-TeCB	U	ND	pg/L	3.35	109
70362-46-8	43-TeCB	U	ND	pg/L	4.53	109
41464-39-5	44-TeCB	CJ	5.03	pg/L	3.03	327
70362-45-7	45-TeCB	CJ	2.11	pg/L	1.81	218
41464-47-5	46-TeCB	U	ND	pg/L	1.85	109
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	2.96	109
41464-40-8	49-TeCB	CU	ND	pg/L	2.87	218
62796-65-0	50-TeCB	CU	ND	pg/L	1.70	218
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	U	ND	pg/L	5.92	218
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.37	109
74338-24-2	55-TeCB	U	ND	pg/L	1.66	109
41464-43-1	56-TeCB	U	ND	pg/L	1.79	109
70424-67-8	57-TeCB	U	ND	pg/L	1.76	109
41464-49-7	58-TeCB	U	ND	pg/L	1.59	109
74472-33-6	59-TeCB	CU	ND	pg/L	2.42	327
33025-41-1	60-TeCB	U	ND	pg/L	1.59	109
33284-53-6	61-TeCB	BCJ	7.21	pg/L	1.66	436
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.70	109
52663-58-8	64-TeCB	U	ND	pg/L	2.24	109

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	U	ND	pg/L	3.22	109
73575-53-8	67-TeCB	U	ND	pg/L	1.52	109
73575-52-7	68-TeCB	U	ND	pg/L	1.46	109
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.74	109
74338-23-1	73-TeCB	U	ND	pg/L	2.29	109
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	1.83	109
70362-49-1	78-TeCB	U	ND	pg/L	1.98	109
41464-48-6	79-TeCB	U	ND	pg/L	1.63	109
33284-52-5	80-TeCB	U	ND	pg/L	1.48	109
70362-50-4	81-TeCB	U	ND	pg/L	1.72	109
52663-62-4	82-PeCB	U	ND	pg/L	3.14	109
60145-20-2	83-PeCB	U	ND	pg/L	3.22	109
52663-60-2	84-PeCB	U	ND	pg/L	2.70	109
65510-45-4	85-PeCB	CU	ND	pg/L	2.05	327
55312-69-1	86-PeCB	CJ	5.03	pg/L	2.18	653
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CU	ND	pg/L	2.59	218
73575-57-2	89-PeCB	U	ND	pg/L	3.20	109
68194-07-0	90-PeCB	CU	ND	pg/L	6.16	327
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	3.03	109
73575-56-1	93-PeCB	CU	ND	pg/L	2.33	218
73575-55-0	94-PeCB	U	ND	pg/L	2.46	109
38379-99-6	95-PeCB	J	4.97	pg/L	2.98	109
73575-54-9	96-PeCB	U	ND	pg/L	1.79	109

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.59	218
38380-01-7	99-PeCB	U	ND	pg/L	2.05	109
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	2.70	109
56558-16-8	104-PeCB	U	ND	pg/L	1.63	109
32598-14-4	105-PeCB	J	3.85	pg/L	2.59	109
70424-69-0	106-PeCB	U	ND	pg/L	2.81	109
70424-68-9	107-PeCB	U	ND	pg/L	2.00	109
70362-41-3	108-PeCB	CU	ND	pg/L	2.42	218
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	CJ	7.36	pg/L	1.96	218
39635-32-0	111-PeCB	U	ND	pg/L	1.72	109
74472-36-9	112-PeCB	U	ND	pg/L	1.94	109
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	2.44	109
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	J	5.38	pg/L	2.40	109
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	2.05	109
56558-18-0	121-PeCB	U	ND	pg/L	1.76	109
76842-07-4	122-PeCB	U	ND	pg/L	3.29	109
65510-44-3	123-PeCB	U	ND	pg/L	2.40	109
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.83	109
39635-33-1	127-PeCB	U	ND	pg/L	2.66	109
38380-07-3	128-HxCB	CU	ND	pg/L	1.87	218

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CJ	22.1	pg/L	1.94	327
52663-66-8	130-HxCB	U	ND	pg/L	2.37	109
61798-70-7	131-HxCB	U	ND	pg/L	2.33	109
38380-05-1	132-HxCB	J	4.31	pg/L	2.11	109
35694-04-3	133-HxCB	U	ND	pg/L	2.40	109
52704-70-8	134-HxCB	U	ND	pg/L	2.48	109
52744-13-5	135-HxCB	CU	ND	pg/L	6.71	218
38411-22-2	136-HxCB	U	ND	pg/L	2.44	109
35694-06-5	137-HxCB	U	ND	pg/L	1.79	109
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	1.92	218
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	J	4.97	pg/L	2.13	109
41411-61-4	142-HxCB	U	ND	pg/L	2.64	109
68194-15-0	143-HxCB	U	ND	pg/L	2.81	109
68194-14-9	144-HxCB	U	ND	pg/L	1.85	109
74472-40-5	145-HxCB	U	ND	pg/L	1.24	109
51908-16-8	146-HxCB	U	ND	pg/L	2.92	109
68194-13-8	147-HxCB	CJ	14.6	pg/L	2.13	218
74472-41-6	148-HxCB	U	ND	pg/L	1.79	109
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	1.22	109
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	1.42	109
35065-27-1	153-HxCB	BCJ	20.3	pg/L	1.59	218
60145-22-4	154-HxCB	U	ND	pg/L	1.48	109
33979-03-2	155-HxCB	U	ND	pg/L	1.22	109
38380-08-4	156-HxCB	BCJ	3.35	pg/L	2.03	218
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	U	ND	pg/L	1.76	109
39635-35-3	159-HxCB	U	ND	pg/L	1.57	109
41411-62-5	160-HxCB	U	ND	pg/L	1.66	109

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.76	109
39635-34-2	162-HxCB	U	ND	pg/L	1.42	109
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	U	ND	pg/L	1.70	109
74472-46-1	165-HxCB	U	ND	pg/L	1.59	109
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	U	ND	pg/L	1.50	109
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	1.72	109
35065-30-6	170-HpCB	J	10.0	pg/L	2.05	109
52663-71-5	171-HpCB	CU	ND	pg/L	3.14	218
52663-74-8	172-HpCB	U	ND	pg/L	2.16	109
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	J	14.0	pg/L	2.03	109
40186-70-7	175-HpCB	U	ND	pg/L	2.05	109
52663-65-7	176-HpCB	U	ND	pg/L	1.61	109
52663-70-4	177-HpCB	U	ND	pg/L	7.95	109
52663-67-9	178-HpCB	U	ND	pg/L	3.99	109
52663-64-6	179-HpCB	U	ND	pg/L	5.42	109
35065-29-3	180-HpCB	CJ	25.4	pg/L	1.68	218
74472-47-2	181-HpCB	U	ND	pg/L	1.76	109
60145-23-5	182-HpCB	U	ND	pg/L	1.98	109
52663-69-1	183-HpCB	CJ	6.53	pg/L	1.85	218
74472-48-3	184-HpCB	U	ND	pg/L	1.37	109
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	1.48	109
52663-68-0	187-HpCB	J	15.1	pg/L	1.74	109
74487-85-7	188-HpCB	U	ND	pg/L	1.57	109
39635-31-9	189-HpCB	U	ND	pg/L	1.57	109
41411-64-7	190-HpCB	U	ND	pg/L	3.18	109
74472-50-7	191-HpCB	U	ND	pg/L	1.57	109
74472-51-8	192-HpCB	U	ND	pg/L	1.57	109

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	BJ	7.08	pg/L	1.79	109
52663-78-2	195-OcCB	J	3.20	pg/L	1.85	109
42740-50-1	196-OcCB	J	3.35	pg/L	1.70	109
33091-17-7	197-OcCB	CU	ND	pg/L	1.28	218
68194-17-2	198-OcCB	CJ	8.04	pg/L	1.66	218
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	U	ND	pg/L	1.28	109
2136-99-4	202-OcCB	U	ND	pg/L	1.85	109
52663-76-0	203-OcCB	BJ	3.99	pg/L	1.48	109
74472-52-9	204-OcCB	U	ND	pg/L	1.28	109
74472-53-0	205-OcCB	U	ND	pg/L	1.42	109
40186-72-9	206-NoCB	U	ND	pg/L	2.48	109
52663-79-3	207-NoCB	U	ND	pg/L	1.85	109
52663-77-1	208-NoCB	U	ND	pg/L	1.92	109
2051-24-3	209-DeCB	U	ND	pg/L	1.81	109
1336-36-3	Total PCB Congeners	J	270	pg/L		109

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		780	2180	pg/L	35.8	(15%-150%)
13C-3-MoCB		864	2180	pg/L	39.7	(15%-150%)
13C-4-DiCB		1020	2180	pg/L	46.6	(25%-150%)
13C-15-DiCB		1360	2180	pg/L	62.4	(25%-150%)
13C-19-TrCB		1330	2180	pg/L	60.9	(25%-150%)
13C-37-TrCB		1340	2180	pg/L	61.7	(25%-150%)
13C-54-TeCB		1180	2180	pg/L	54.3	(25%-150%)
13C-77-TeCB		1930	2180	pg/L	88.6	(25%-150%)
13C-81-TeCB		1940	2180	pg/L	88.9	(25%-150%)
13C-104-PeCB		1060	2180	pg/L	48.9	(25%-150%)
13C-105-PeCB		1610	2180	pg/L	73.8	(25%-150%)
13C-114-PeCB		1590	2180	pg/L	72.8	(25%-150%)
13C-118-PeCB		1560	2180	pg/L	71.6	(25%-150%)
13C-123-PeCB		1650	2180	pg/L	76.0	(25%-150%)
13C-126-PeCB		1740	2180	pg/L	79.9	(25%-150%)
13C-155-HxCB		1240	2180	pg/L	57.0	(25%-150%)
13C-156-HxCB	C	2620	4360	pg/L	60.2	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1350	2180	pg/L	62.1	(25%-150%)
13C-169-HxCB		1400	2180	pg/L	64.1	(25%-150%)
13C-188-HpCB		1670	2180	pg/L	76.6	(25%-150%)
13C-189-HpCB		1460	2180	pg/L	67.0	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708001**	**Date Collected:**	**09/01/2021 10:05**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-001G RG North-20210901**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 08:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**918.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1540	2180	pg/L	70.6	(25%-150%)
13C-205-OcCB		1750	2180	pg/L	80.1	(25%-150%)
13C-206-NoCB		1840	2180	pg/L	84.6	(25%-150%)
13C-208-NoCB		1550	2180	pg/L	71.3	(25%-150%)
13C-209-DeCB		1640	2180	pg/L	75.4	(25%-150%)
13C-28-TrCB		1610	2180	pg/L	74.1	(30%-135%)
13C-111-PeCB		1830	2180	pg/L	84.0	(30%-135%)
13C-178-HpCB		1920	2180	pg/L	88.3	(30%-135%)

Comments:

B **The target analyte was detected in the associated blank.**
C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**
J **Value is estimated**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	J	2.09	pg/L	0.938	107
2051-61-8	2-MoCB	J	2.03	pg/L	1.24	107
2051-62-9	3-MoCB	J	3.07	pg/L	1.22	107
13029-08-8	4-DiCB	U	ND	pg/L	7.80	107
16605-91-7	5-DiCB	U	ND	pg/L	5.52	107
25569-80-6	6-DiCB	U	ND	pg/L	5.14	107
33284-50-3	7-DiCB	U	ND	pg/L	4.71	107
34883-43-7	8-DiCB	U	ND	pg/L	4.52	107
34883-39-1	9-DiCB	U	ND	pg/L	5.95	107
33146-45-1	10-DiCB	U	ND	pg/L	5.97	107
2050-67-1	11-DiCB	J	95.7	pg/L	5.71	107
2974-92-7	12-DiCB	CU	ND	pg/L	5.16	213
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	5.54	107
2050-68-2	15-DiCB	J	10.4	pg/L	6.25	107
38444-78-9	16-TrCB	J	4.05	pg/L	2.69	107
37680-66-3	17-TrCB	U	ND	pg/L	3.97	107
37680-65-2	18-TrCB	CU	ND	pg/L	8.68	213
38444-73-4	19-TrCB	U	ND	pg/L	2.39	107
38444-84-7	20-TrCB	CU	ND	pg/L	17.0	213
55702-46-0	21-TrCB	CJ	7.08	pg/L	1.79	213
38444-85-8	22-TrCB	J	5.59	pg/L	1.71	107
55720-44-0	23-TrCB	U	ND	pg/L	1.73	107
55702-45-9	24-TrCB	U	ND	pg/L	1.75	107
55712-37-3	25-TrCB	U	ND	pg/L	1.60	107
38444-81-4	26-TrCB	CU	ND	pg/L	3.01	213
38444-76-7	27-TrCB	U	ND	pg/L	2.03	107
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	J	12.5	pg/L	1.81	107
38444-77-8	32-TrCB	J	3.20	pg/L	1.79	107

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	2.09	107
37680-69-6	35-TrCB	U	ND	pg/L	2.07	107
38444-87-0	36-TrCB	U	ND	pg/L	1.79	107
38444-90-5	37-TrCB	J	7.84	pg/L	2.28	107
53555-66-1	38-TrCB	U	ND	pg/L	2.05	107
38444-88-1	39-TrCB	U	ND	pg/L	1.71	107
38444-93-8	40-TeCB	CJ	5.90	pg/L	3.45	213
52663-59-9	41-TeCB	U	ND	pg/L	5.12	107
36559-22-5	42-TeCB	J	4.67	pg/L	4.11	107
70362-46-8	43-TeCB	U	ND	pg/L	5.54	107
41464-39-5	44-TeCB	CJ	19.9	pg/L	3.71	320
70362-45-7	45-TeCB	CJ	3.56	pg/L	1.96	213
41464-47-5	46-TeCB	U	ND	pg/L	2.03	107
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	3.62	107
41464-40-8	49-TeCB	CJ	10.7	pg/L	3.52	213
62796-65-0	50-TeCB	CJ	3.07	pg/L	1.85	213
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	J	35.8	pg/L	4.31	213
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.41	107
74338-24-2	55-TeCB	U	ND	pg/L	2.00	107
41464-43-1	56-TeCB	J	8.16	pg/L	2.17	107
70424-67-8	57-TeCB	U	ND	pg/L	2.15	107
41464-49-7	58-TeCB	U	ND	pg/L	1.92	107
74472-33-6	59-TeCB	CU	ND	pg/L	2.96	320
33025-41-1	60-TeCB	J	3.97	pg/L	1.94	107
33284-53-6	61-TeCB	BCJ	34.4	pg/L	2.00	426
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	2.07	107
52663-58-8	64-TeCB	J	8.16	pg/L	2.75	107

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	J	13.5	pg/L	2.03	107
73575-53-8	67-TeCB	U	ND	pg/L	1.83	107
73575-52-7	68-TeCB	U	ND	pg/L	1.77	107
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	2.11	107
74338-23-1	73-TeCB	U	ND	pg/L	2.79	107
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	J	6.31	pg/L	2.30	107
70362-49-1	78-TeCB	U	ND	pg/L	2.41	107
41464-48-6	79-TeCB	U	ND	pg/L	1.98	107
33284-52-5	80-TeCB	U	ND	pg/L	1.79	107
70362-50-4	81-TeCB	U	ND	pg/L	2.13	107
52663-62-4	82-PeCB	J	9.23	pg/L	5.73	107
60145-20-2	83-PeCB	U	ND	pg/L	5.90	107
52663-60-2	84-PeCB	J	13.1	pg/L	4.97	107
65510-45-4	85-PeCB	CJ	8.25	pg/L	3.75	320
55312-69-1	86-PeCB	CJ	47.1	pg/L	3.99	640
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CJ	7.53	pg/L	4.75	213
73575-57-2	89-PeCB	U	ND	pg/L	5.86	107
68194-07-0	90-PeCB	CJ	63.7	pg/L	4.16	320
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	J	12.4	pg/L	5.52	107
73575-56-1	93-PeCB	CU	ND	pg/L	4.26	213
73575-55-0	94-PeCB	U	ND	pg/L	4.52	107
38379-99-6	95-PeCB	J	47.6	pg/L	5.46	107
73575-54-9	96-PeCB	U	ND	pg/L	1.79	107

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	4.75	213
38380-01-7	99-PeCB	J	19.2	pg/L	3.77	107
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	4.95	107
56558-16-8	104-PeCB	U	ND	pg/L	1.64	107
32598-14-4	105-PeCB	J	32.6	pg/L	2.73	107
70424-69-0	106-PeCB	U	ND	pg/L	2.98	107
70424-68-9	107-PeCB	U	ND	pg/L	4.60	107
70362-41-3	108-PeCB	CU	ND	pg/L	2.56	213
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	CJ	93.9	pg/L	3.58	213
39635-32-0	111-PeCB	U	ND	pg/L	3.13	107
74472-36-9	112-PeCB	U	ND	pg/L	3.54	107
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	2.66	107
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	J	64.2	pg/L	2.56	107
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	3.75	107
56558-18-0	121-PeCB	U	ND	pg/L	3.22	107
76842-07-4	122-PeCB	U	ND	pg/L	3.50	107
65510-44-3	123-PeCB	U	ND	pg/L	2.54	107
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.92	107
39635-33-1	127-PeCB	U	ND	pg/L	2.84	107
38380-07-3	128-HxCB	CJ	20.6	pg/L	2.69	213

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CJ	151	pg/L	2.88	320
52663-66-8	130-HxCB	J	7.74	pg/L	3.56	107
61798-70-7	131-HxCB	U	ND	pg/L	3.50	107
38380-05-1	132-HxCB	J	38.2	pg/L	3.15	107
35694-04-3	133-HxCB	U	ND	pg/L	3.58	107
52704-70-8	134-HxCB	U	ND	pg/L	4.73	107
52744-13-5	135-HxCB	CJ	38.2	pg/L	1.68	213
38411-22-2	136-HxCB	J	13.3	pg/L	1.41	107
35694-06-5	137-HxCB	J	4.73	pg/L	2.66	107
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	2.86	213
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	J	25.4	pg/L	3.20	107
41411-61-4	142-HxCB	U	ND	pg/L	3.92	107
68194-15-0	143-HxCB	U	ND	pg/L	4.20	107
68194-14-9	144-HxCB	J	5.44	pg/L	1.79	107
74472-40-5	145-HxCB	U	ND	pg/L	1.19	107
51908-16-8	146-HxCB	J	16.6	pg/L	2.69	107
68194-13-8	147-HxCB	CJ	83.4	pg/L	3.18	213
74472-41-6	148-HxCB	U	ND	pg/L	1.75	107
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	1.19	107
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	1.39	107
35065-27-1	153-HxCB	CJ	105	pg/L	2.37	213
60145-22-4	154-HxCB	U	ND	pg/L	1.43	107
33979-03-2	155-HxCB	U	ND	pg/L	1.22	107
38380-08-4	156-HxCB	BCJ	16.1	pg/L	2.69	213
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	J	14.0	pg/L	2.17	107
39635-35-3	159-HxCB	U	ND	pg/L	2.11	107
41411-62-5	160-HxCB	U	ND	pg/L	2.45	107

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	2.64	107
39635-34-2	162-HxCB	U	ND	pg/L	1.92	107
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	J	10.3	pg/L	2.54	107
74472-46-1	165-HxCB	U	ND	pg/L	2.37	107
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	J	6.35	pg/L	2.03	107
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	2.26	107
35065-30-6	170-HpCB	J	40.6	pg/L	2.64	107
52663-71-5	171-HpCB	CJ	12.3	pg/L	2.77	213
52663-74-8	172-HpCB	U	ND	pg/L	9.55	107
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	J	42.6	pg/L	2.62	107
40186-70-7	175-HpCB	U	ND	pg/L	1.85	107
52663-65-7	176-HpCB	J	3.90	pg/L	1.47	107
52663-70-4	177-HpCB	J	27.4	pg/L	2.75	107
52663-67-9	178-HpCB	J	9.06	pg/L	2.00	107
52663-64-6	179-HpCB	J	16.2	pg/L	1.43	107
35065-29-3	180-HpCB	CJ	92.0	pg/L	2.15	213
74472-47-2	181-HpCB	U	ND	pg/L	2.28	107
60145-23-5	182-HpCB	U	ND	pg/L	1.79	107
52663-69-1	183-HpCB	CJ	26.5	pg/L	2.39	213
74472-48-3	184-HpCB	U	ND	pg/L	1.24	107
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	1.34	107
52663-68-0	187-HpCB	J	47.2	pg/L	1.58	107
74487-85-7	188-HpCB	U	ND	pg/L	1.49	107
39635-31-9	189-HpCB	U	ND	pg/L	2.34	107
41411-64-7	190-HpCB	J	9.61	pg/L	1.96	107
74472-50-7	191-HpCB	U	ND	pg/L	2.03	107
74472-51-8	192-HpCB	U	ND	pg/L	2.00	107

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	BJ	22.0	pg/L	1.98	107
52663-78-2	195-OcCB	J	8.83	pg/L	2.07	107
42740-50-1	196-OcCB	J	10.4	pg/L	1.88	107
33091-17-7	197-OcCB	CJ	4.01	pg/L	1.43	213
68194-17-2	198-OcCB	CJ	21.9	pg/L	1.83	213
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	J	2.54	pg/L	1.41	107
2136-99-4	202-OcCB	J	5.09	pg/L	1.62	107
52663-76-0	203-OcCB	BJ	13.2	pg/L	1.66	107
74472-52-9	204-OcCB	U	ND	pg/L	1.43	107
74472-53-0	205-OcCB	U	ND	pg/L	1.83	107
40186-72-9	206-NoCB	J	9.64	pg/L	2.98	107
52663-79-3	207-NoCB	U	ND	pg/L	2.22	107
52663-77-1	208-NoCB	U	ND	pg/L	4.22	107
2051-24-3	209-DeCB	J	7.97	pg/L	1.79	107
1336-36-3	Total PCB Congeners	J	1720	pg/L		107

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		909	2130	pg/L	42.6	(15%-150%)
13C-3-MoCB		980	2130	pg/L	46.0	(15%-150%)
13C-4-DiCB		1170	2130	pg/L	55.0	(25%-150%)
13C-15-DiCB		1310	2130	pg/L	61.5	(25%-150%)
13C-19-TrCB		1350	2130	pg/L	63.5	(25%-150%)
13C-37-TrCB		1300	2130	pg/L	61.1	(25%-150%)
13C-54-TeCB		1120	2130	pg/L	52.7	(25%-150%)
13C-77-TeCB		1820	2130	pg/L	85.4	(25%-150%)
13C-81-TeCB		1850	2130	pg/L	86.7	(25%-150%)
13C-104-PeCB		954	2130	pg/L	44.8	(25%-150%)
13C-105-PeCB		1470	2130	pg/L	69.1	(25%-150%)
13C-114-PeCB		1460	2130	pg/L	68.4	(25%-150%)
13C-118-PeCB		1430	2130	pg/L	67.0	(25%-150%)
13C-123-PeCB		1500	2130	pg/L	70.2	(25%-150%)
13C-126-PeCB		1670	2130	pg/L	78.2	(25%-150%)
13C-155-HxCB		1100	2130	pg/L	51.5	(25%-150%)
13C-156-HxCB	C	2420	4260	pg/L	56.6	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1230	2130	pg/L	57.6	(25%-150%)
13C-169-HxCB		1340	2130	pg/L	62.8	(25%-150%)
13C-188-HpCB		1440	2130	pg/L	67.4	(25%-150%)
13C-189-HpCB		1360	2130	pg/L	63.6	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**18708002**	**Date Collected:**	**09/02/2021 09:20**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**09/08/2021 13:20**		
Client ID:	**2109132-003G RG South-20210902**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/23/2021 09:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a_2-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**938.2 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1320	2130	pg/L	61.9	(25%-150%)
13C-205-OcCB		1540	2130	pg/L	72.4	(25%-150%)
13C-206-NoCB		1650	2130	pg/L	77.4	(25%-150%)
13C-208-NoCB		1400	2130	pg/L	65.5	(25%-150%)
13C-209-DeCB		1440	2130	pg/L	67.5	(25%-150%)
13C-28-TrCB		1590	2130	pg/L	74.4	(30%-135%)
13C-111-PeCB		1750	2130	pg/L	82.0	(30%-135%)
13C-178-HpCB		1840	2130	pg/L	86.5	(30%-135%)

Comments:

B **The target analyte was detected in the associated blank.**

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

J **Value is estimated**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

Quality Control Summary

PCB Congeners

Surrogate Recovery Report

SDG Number: 2109132

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12030239	LCS for batch 47898	13C-1-MoCB		53.1	(15%-140%)
		13C-3-MoCB		58.3	(15%-140%)
		13C-4-DiCB		67.2	(30%-140%)
		13C-15-DiCB		80.8	(30%-140%)
		13C-19-TrCB		85.3	(30%-140%)
		13C-37-TrCB		64.0	(30%-140%)
		13C-54-TeCB		57.2	(30%-140%)
		13C-77-TeCB		84.3	(30%-140%)
		13C-81-TeCB		85.6	(30%-140%)
		13C-104-PeCB		55.9	(30%-140%)
		13C-105-PeCB		69.7	(30%-140%)
		13C-114-PeCB		70.5	(30%-140%)
		13C-118-PeCB		68.8	(30%-140%)
		13C-123-PeCB		73.0	(30%-140%)
		13C-126-PeCB		75.6	(30%-140%)
		13C-155-HxCB		65.9	(30%-140%)
		13C-156-HxCB	C	65.4	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		66.8	(30%-140%)
		13C-169-HxCB		67.6	(30%-140%)
		13C-188-HpCB		83.6	(30%-140%)
		13C-189-HpCB		71.4	(30%-140%)
		13C-202-OcCB		77.8	(30%-140%)
		13C-205-OcCB		84.9	(30%-140%)
		13C-206-NoCB		90.1	(30%-140%)
		13C-208-NoCB		77.1	(30%-140%)
		13C-209-DeCB		82.2	(30%-140%)
		13C-28-TrCB		77.2	(40%-125%)
		13C-111-PeCB		87.1	(40%-125%)
		13C-178-HpCB		98.3	(40%-125%)
12030240	LCSD for batch 47898	13C-1-MoCB		51.1	(15%-140%)
		13C-3-MoCB		58.1	(15%-140%)
		13C-4-DiCB		67.8	(30%-140%)
		13C-15-DiCB		83.4	(30%-140%)
		13C-19-TrCB		84.3	(30%-140%)
		13C-37-TrCB		66.1	(30%-140%)
		13C-54-TeCB		58.5	(30%-140%)
		13C-77-TeCB		85.7	(30%-140%)
		13C-81-TeCB		87.1	(30%-140%)
		13C-104-PeCB		54.9	(30%-140%)
		13C-105-PeCB		70.2	(30%-140%)
		13C-114-PeCB		70.1	(30%-140%)
		13C-118-PeCB		68.4	(30%-140%)
		13C-123-PeCB		72.6	(30%-140%)
		13C-126-PeCB		74.8	(30%-140%)
		13C-155-HxCB		63.3	(30%-140%)
		13C-156-HxCB	C	63.6	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		64.4	(30%-140%)
		13C-169-HxCB		66.2	(30%-140%)
		13C-188-HpCB		81.7	(30%-140%)
		13C-189-HpCB		69.5	(30%-140%)

Surrogate Recovery Report

SDG Number: 2109132

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12030240	LCSD for batch 47898	13C-202-OcCB		76.3	(30%-140%)
		13C-205-OcCB		81.2	(30%-140%)
		13C-206-NoCB		84.7	(30%-140%)
		13C-208-NoCB		75.5	(30%-140%)
		13C-209-DeCB		77.0	(30%-140%)
		13C-28-TrCB		71.3	(40%-125%)
		13C-111-PeCB		80.9	(40%-125%)
		13C-178-HpCB		86.5	(40%-125%)
12030238	MB for batch 47898	13C-1-MoCB		36.6	(15%-150%)
		13C-3-MoCB		39.9	(15%-150%)
		13C-4-DiCB		47.9	(25%-150%)
		13C-15-DiCB		60.2	(25%-150%)
		13C-19-TrCB		59.9	(25%-150%)
		13C-37-TrCB		52.5	(25%-150%)
		13C-54-TeCB		47.0	(25%-150%)
		13C-77-TeCB		68.3	(25%-150%)
		13C-81-TeCB		68.5	(25%-150%)
		13C-104-PeCB		44.0	(25%-150%)
		13C-105-PeCB		57.8	(25%-150%)
		13C-114-PeCB		57.7	(25%-150%)
		13C-118-PeCB		56.2	(25%-150%)
		13C-123-PeCB		59.2	(25%-150%)
		13C-126-PeCB		60.9	(25%-150%)
		13C-155-HxCB		50.0	(25%-150%)
		13C-156-HxCB	C	49.2	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		50.2	(25%-150%)
		13C-169-HxCB		51.5	(25%-150%)
		13C-188-HpCB		67.2	(25%-150%)
		13C-189-HpCB		55.8	(25%-150%)
		13C-202-OcCB		59.6	(25%-150%)
		13C-205-OcCB		65.5	(25%-150%)
		13C-206-NoCB		69.3	(25%-150%)
		13C-208-NoCB		61.0	(25%-150%)
		13C-209-DeCB		62.0	(25%-150%)
		13C-28-TrCB		60.1	(30%-135%)
		13C-111-PeCB		69.1	(30%-135%)
		13C-178-HpCB		73.3	(30%-135%)
18708001	2109132-001G RG North-20210901	13C-1-MoCB		35.8	(15%-150%)
		13C-3-MoCB		39.7	(15%-150%)
		13C-4-DiCB		46.6	(25%-150%)
		13C-15-DiCB		62.4	(25%-150%)
		13C-19-TrCB		60.9	(25%-150%)
		13C-37-TrCB		61.7	(25%-150%)
		13C-54-TeCB		54.3	(25%-150%)
		13C-77-TeCB		88.6	(25%-150%)
		13C-81-TeCB		88.9	(25%-150%)
		13C-104-PeCB		48.9	(25%-150%)
		13C-105-PeCB		73.8	(25%-150%)
		13C-114-PeCB		72.8	(25%-150%)
		13C-118-PeCB		71.6	(25%-150%)

PCB Congeners

Surrogate Recovery Report

SDG Number: 2109132

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
18708001	2109132-001G RG North-20210901	13C-123-PeCB		76.0	(25%-150%)
		13C-126-PeCB		79.9	(25%-150%)
		13C-155-HxCB		57.0	(25%-150%)
		13C-156-HxCB	C	60.2	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		62.1	(25%-150%)
		13C-169-HxCB		64.1	(25%-150%)
		13C-188-HpCB		76.6	(25%-150%)
		13C-189-HpCB		67.0	(25%-150%)
		13C-202-OcCB		70.6	(25%-150%)
		13C-205-OcCB		80.1	(25%-150%)
		13C-206-NoCB		84.6	(25%-150%)
		13C-208-NoCB		71.3	(25%-150%)
		13C-209-DeCB		75.4	(25%-150%)
		13C-28-TrCB		74.1	(30%-135%)
		13C-111-PeCB		84.0	(30%-135%)
		13C-178-HpCB		88.3	(30%-135%)
18708002	2109132-003G RG South-20210902	13C-1-MoCB		42.6	(15%-150%)
		13C-3-MoCB		46.0	(15%-150%)
		13C-4-DiCB		55.0	(25%-150%)
		13C-15-DiCB		61.5	(25%-150%)
		13C-19-TrCB		63.5	(25%-150%)
		13C-37-TrCB		61.1	(25%-150%)
		13C-54-TeCB		52.7	(25%-150%)
		13C-77-TeCB		85.4	(25%-150%)
		13C-81-TeCB		86.7	(25%-150%)
		13C-104-PeCB		44.8	(25%-150%)
		13C-105-PeCB		69.1	(25%-150%)
		13C-114-PeCB		68.4	(25%-150%)
		13C-118-PeCB		67.0	(25%-150%)
		13C-123-PeCB		70.2	(25%-150%)
		13C-126-PeCB		78.2	(25%-150%)
		13C-155-HxCB		51.5	(25%-150%)
		13C-156-HxCB	C	56.6	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		57.6	(25%-150%)
		13C-169-HxCB		62.8	(25%-150%)
		13C-188-HpCB		67.4	(25%-150%)
		13C-189-HpCB		63.6	(25%-150%)
		13C-202-OcCB		61.9	(25%-150%)
		13C-205-OcCB		72.4	(25%-150%)
		13C-206-NoCB		77.4	(25%-150%)
		13C-208-NoCB		65.5	(25%-150%)
		13C-209-DeCB		67.5	(25%-150%)
		13C-28-TrCB		74.4	(30%-135%)
		13C-111-PeCB		82.0	(30%-135%)
		13C-178-HpCB		86.5	(30%-135%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 2109132 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 47898 **Matrix:** WATER

Lab Sample ID: 12030239

Instrument: HRP875 **Analysis Date:** 09/22/2021 18:01 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 47898

Batch ID: 47901

CAS No.		Parmname	Amount Added pg/L		Spike Conc. pg/L	Recovery %	Acceptance Limits
2051-60-7	LCS	1-MoCB	500		433	86.7	50-150
2051-62-9	LCS	3-MoCB	500		481	96.1	50-150
13029-08-8	LCS	4-DiCB	500		427	85.5	50-150
2050-68-2	LCS	15-DiCB	500		494	98.8	50-150
38444-73-4	LCS	19-TrCB	500		454	90.9	50-150
38444-90-5	LCS	37-TrCB	500		477	95.4	50-150
15968-05-5	LCS	54-TeCB	1000		1040	104	50-150
32598-13-3	LCS	77-TeCB	1000		928	92.8	50-150
70362-50-4	LCS	81-TeCB	1000		792	79.2	50-150
56558-16-8	LCS	104-PeCB	1000		1080	108	50-150
32598-14-4	LCS	105-PeCB	1000		887	88.7	50-150
74472-37-0	LCS	114-PeCB	1000		1080	108	50-150
31508-00-6	LCS	118-PeCB	1000		1050	105	50-150
65510-44-3	LCS	123-PeCB	1000		989	98.9	50-150
57465-28-8	LCS	126-PeCB	1000		967	96.7	50-150
33979-03-2	LCS	155-HxCB	1000		1040	104	50-150
38380-08-4	LCS	156-HxCB	2000	C	2160	108	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	1000		1020	102	50-150
32774-16-6	LCS	169-HxCB	1000		964	96.4	50-150
74487-85-7	LCS	188-HpCB	1000		954	95.4	50-150
39635-31-9	LCS	189-HpCB	1000		976	97.6	50-150
2136-99-4	LCS	202-OcCB	1500		1600	107	50-150
74472-53-0	LCS	205-OcCB	1500		1380	91.8	50-150
40186-72-9	LCS	206-NoCB	1500		1360	90.8	50-150
52663-77-1	LCS	208-NoCB	1500		1600	107	50-150
2051-24-3	LCS	209-DeCB	1500		1470	97.7	50-150

PCB Congeners

Quality Control Summary
Spike Recovery Report

SDG Number: 2109132 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 47898 **Matrix:** WATER

Lab Sample ID: 12030240

Instrument: HRP875 **Analysis Date:** 09/22/2021 19:11 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 47898

Batch ID: 47901

CAS No.		Parmname	Amount Added pg/L		Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
2051-60-7	LCSD	1-MoCB	500		447	89.4	50-150	3.06	0-20
2051-62-9	LCSD	3-MoCB	500		504	101	50-150	4.68	0-20
13029-08-8	LCSD	4-DiCB	500		434	86.9	50-150	1.62	0-20
2050-68-2	LCSD	15-DiCB	500		507	101	50-150	2.49	0-20
38444-73-4	LCSD	19-TrCB	500		478	95.7	50-150	5.12	0-20
38444-90-5	LCSD	37-TrCB	500		484	96.8	50-150	1.48	0-20
15968-05-5	LCSD	54-TeCB	1000		1040	104	50-150	0.148	0-20
32598-13-3	LCSD	77-TeCB	1000		937	93.7	50-150	0.912	0-20
70362-50-4	LCSD	81-TeCB	1000		808	80.8	50-150	2.01	0-20
56558-16-8	LCSD	104-PeCB	1000		1090	109	50-150	0.877	0-20
32598-14-4	LCSD	105-PeCB	1000		905	90.5	50-150	2.10	0-20
74472-37-0	LCSD	114-PeCB	1000		1110	111	50-150	2.80	0-20
31508-00-6	LCSD	118-PeCB	1000		1070	107	50-150	1.55	0-20
65510-44-3	LCSD	123-PeCB	1000		1000	100	50-150	1.49	0-20
57465-28-8	LCSD	126-PeCB	1000		1010	101	50-150	4.46	0-20
33979-03-2	LCSD	155-HxCB	1000		1050	105	50-150	1.34	0-20
38380-08-4	LCSD	156-HxCB	2000	C	2200	110	50-150	1.40	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	1000		1030	103	50-150	1.29	0-20
32774-16-6	LCSD	169-HxCB	1000		990	99	50-150	2.65	0-20
74487-85-7	LCSD	188-HpCB	1000		980	98	50-150	2.75	0-20
39635-31-9	LCSD	189-HpCB	1000		1000	100	50-150	2.82	0-20
2136-99-4	LCSD	202-OcCB	1500		1610	107	50-150	0.759	0-20
74472-53-0	LCSD	205-OcCB	1500		1390	92.8	50-150	1.12	0-20
40186-72-9	LCSD	206-NoCB	1500		1380	92.3	50-150	1.71	0-20
52663-77-1	LCSD	208-NoCB	1500		1610	107	50-150	0.721	0-20
2051-24-3	LCSD	209-DeCB	1500		1490	99.2	50-150	1.50	0-20

Method Blank Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 47898**	**Instrument ID:**	**HRP875**	**Data File:**	**d22sep21a-5**
Lab Sample ID:	**12030238**	**Prep Date:**	**21-SEP-21**	**Analyzed:**	**09/22/21 20:21**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 47898	12030239	d22sep21a-3	09/22/21	1801
02	LCSD for batch 47898	12030240	d22sep21a-4	09/22/21	1911
03	2109132-001G RG North-20210901	18708001	d22sep21a_2-4	09/23/21	0811
04	2109132-003G RG South-20210902	18708002	d22sep21a_2-5	09/23/21	0921

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	U	ND	pg/L	1.48	100
2051-61-8	2-MoCB	U	ND	pg/L	2.02	100
2051-62-9	3-MoCB	U	ND	pg/L	1.86	100
13029-08-8	4-DiCB	U	ND	pg/L	12.2	100
16605-91-7	5-DiCB	U	ND	pg/L	9.28	100
25569-80-6	6-DiCB	U	ND	pg/L	8.66	100
33284-50-3	7-DiCB	U	ND	pg/L	7.94	100
34883-43-7	8-DiCB	U	ND	pg/L	7.82	100
34883-39-1	9-DiCB	U	ND	pg/L	10.3	100
33146-45-1	10-DiCB	U	ND	pg/L	8.30	100
2050-67-1	11-DiCB	U	ND	pg/L	52.4	100
2974-92-7	12-DiCB	CU	ND	pg/L	8.88	200
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	9.44	100
2050-68-2	15-DiCB	U	ND	pg/L	9.80	100
38444-78-9	16-TrCB	U	ND	pg/L	3.14	100
37680-66-3	17-TrCB	U	ND	pg/L	3.18	100
37680-65-2	18-TrCB	CU	ND	pg/L	2.62	200
38444-73-4	19-TrCB	U	ND	pg/L	3.28	100
38444-84-7	20-TrCB	CU	ND	pg/L	2.08	200
55702-46-0	21-TrCB	CU	ND	pg/L	2.20	200
38444-85-8	22-TrCB	U	ND	pg/L	2.08	100
55720-44-0	23-TrCB	U	ND	pg/L	2.10	100
55702-45-9	24-TrCB	U	ND	pg/L	2.14	100
55712-37-3	25-TrCB	U	ND	pg/L	1.94	100
38444-81-4	26-TrCB	CU	ND	pg/L	2.24	200
38444-76-7	27-TrCB	U	ND	pg/L	2.48	100
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	U	ND	pg/L	2.46	100
38444-77-8	32-TrCB	U	ND	pg/L	2.18	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	2.44	100
37680-69-6	35-TrCB	U	ND	pg/L	2.52	100
38444-87-0	36-TrCB	U	ND	pg/L	2.24	100
38444-90-5	37-TrCB	U	ND	pg/L	2.58	100
53555-66-1	38-TrCB	U	ND	pg/L	2.52	100
38444-88-1	39-TrCB	U	ND	pg/L	2.10	100
38444-93-8	40-TeCB	CU	ND	pg/L	2.56	200
52663-59-9	41-TeCB	U	ND	pg/L	3.92	100
36559-22-5	42-TeCB	U	ND	pg/L	3.08	100
70362-46-8	43-TeCB	U	ND	pg/L	4.04	100
41464-39-5	44-TeCB	CU	ND	pg/L	2.78	300
70362-45-7	45-TeCB	CU	ND	pg/L	2.38	200
41464-47-5	46-TeCB	U	ND	pg/L	2.46	100
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	2.72	100
41464-40-8	49-TeCB	CU	ND	pg/L	2.62	200
62796-65-0	50-TeCB	CU	ND	pg/L	2.24	200
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	U	ND	pg/L	3.36	200
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.80	100
74338-24-2	55-TeCB	U	ND	pg/L	2.46	100
41464-43-1	56-TeCB	U	ND	pg/L	2.64	100
70424-67-8	57-TeCB	U	ND	pg/L	2.60	100
41464-49-7	58-TeCB	U	ND	pg/L	2.30	100
74472-33-6	59-TeCB	CU	ND	pg/L	2.24	300
33025-41-1	60-TeCB	U	ND	pg/L	2.38	100
33284-53-6	61-TeCB	CJ	5.62	pg/L	2.46	400
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	2.56	100
52663-58-8	64-TeCB	U	ND	pg/L	2.10	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	U	ND	pg/L	2.52	100
73575-53-8	67-TeCB	U	ND	pg/L	2.28	100
73575-52-7	68-TeCB	U	ND	pg/L	2.14	100
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	2.56	100
74338-23-1	73-TeCB	U	ND	pg/L	2.12	100
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	2.68	100
70362-49-1	78-TeCB	U	ND	pg/L	3.02	100
41464-48-6	79-TeCB	U	ND	pg/L	2.48	100
33284-52-5	80-TeCB	U	ND	pg/L	2.20	100
70362-50-4	81-TeCB	U	ND	pg/L	2.60	100
52663-62-4	82-PeCB	U	ND	pg/L	4.58	100
60145-20-2	83-PeCB	U	ND	pg/L	4.64	100
52663-60-2	84-PeCB	U	ND	pg/L	3.82	100
65510-45-4	85-PeCB	CU	ND	pg/L	2.96	300
55312-69-1	86-PeCB	CU	ND	pg/L	3.08	600
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CU	ND	pg/L	3.66	200
73575-57-2	89-PeCB	U	ND	pg/L	4.48	100
68194-07-0	90-PeCB	CU	ND	pg/L	3.18	300
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	4.24	100
73575-56-1	93-PeCB	CU	ND	pg/L	3.26	200
73575-55-0	94-PeCB	U	ND	pg/L	3.44	100
38379-99-6	95-PeCB	U	ND	pg/L	4.20	100
73575-54-9	96-PeCB	U	ND	pg/L	2.36	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	3.60	200
38380-01-7	99-PeCB	U	ND	pg/L	2.80	100
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	3.76	100
56558-16-8	104-PeCB	U	ND	pg/L	2.20	100
32598-14-4	105-PeCB	U	ND	pg/L	3.74	100
70424-69-0	106-PeCB	U	ND	pg/L	4.36	100
70424-68-9	107-PeCB	U	ND	pg/L	2.90	100
70362-41-3	108-PeCB	CU	ND	pg/L	3.48	200
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	CU	ND	pg/L	2.86	200
39635-32-0	111-PeCB	U	ND	pg/L	2.50	100
74472-36-9	112-PeCB	U	ND	pg/L	2.90	100
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	3.52	100
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	U	ND	pg/L	3.44	100
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	2.98	100
56558-18-0	121-PeCB	U	ND	pg/L	2.44	100
76842-07-4	122-PeCB	U	ND	pg/L	4.80	100
65510-44-3	123-PeCB	U	ND	pg/L	3.42	100
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	4.22	100
39635-33-1	127-PeCB	U	ND	pg/L	4.00	100
38380-07-3	128-HxCB	CU	ND	pg/L	3.58	200

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CU	ND	pg/L	6.84	300
52663-66-8	130-HxCB	U	ND	pg/L	3.76	100
61798-70-7	131-HxCB	U	ND	pg/L	3.56	100
38380-05-1	132-HxCB	U	ND	pg/L	3.22	100
35694-04-3	133-HxCB	U	ND	pg/L	3.74	100
52704-70-8	134-HxCB	U	ND	pg/L	3.94	100
52744-13-5	135-HxCB	CU	ND	pg/L	1.86	200
38411-22-2	136-HxCB	U	ND	pg/L	1.50	100
35694-06-5	137-HxCB	U	ND	pg/L	2.82	100
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	2.90	200
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	U	ND	pg/L	3.50	100
41411-61-4	142-HxCB	U	ND	pg/L	4.04	100
68194-15-0	143-HxCB	U	ND	pg/L	4.34	100
68194-14-9	144-HxCB	U	ND	pg/L	2.00	100
74472-40-5	145-HxCB	U	ND	pg/L	1.30	100
51908-16-8	146-HxCB	U	ND	pg/L	2.78	100
68194-13-8	147-HxCB	CU	ND	pg/L	3.40	200
74472-41-6	148-HxCB	U	ND	pg/L	1.92	100
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	1.28	100
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	1.50	100
35065-27-1	153-HxCB	CJ	2.90	pg/L	2.46	200
60145-22-4	154-HxCB	U	ND	pg/L	1.56	100
33979-03-2	155-HxCB	U	ND	pg/L	1.28	100
38380-08-4	156-HxCB	CJ	5.02	pg/L	2.68	200
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	U	ND	pg/L	2.32	100
39635-35-3	159-HxCB	U	ND	pg/L	2.06	100
41411-62-5	160-HxCB	U	ND	pg/L	2.64	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	2.74	100
39635-34-2	162-HxCB	U	ND	pg/L	1.84	100
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	U	ND	pg/L	2.68	100
74472-46-1	165-HxCB	U	ND	pg/L	2.44	100
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	U	ND	pg/L	2.46	100
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	2.32	100
35065-30-6	170-HpCB	U	ND	pg/L	2.82	100
52663-71-5	171-HpCB	CU	ND	pg/L	2.84	200
52663-74-8	172-HpCB	U	ND	pg/L	2.88	100
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	U	ND	pg/L	2.66	100
40186-70-7	175-HpCB	U	ND	pg/L	2.04	100
52663-65-7	176-HpCB	U	ND	pg/L	1.58	100
52663-70-4	177-HpCB	U	ND	pg/L	2.78	100
52663-67-9	178-HpCB	U	ND	pg/L	2.20	100
52663-64-6	179-HpCB	U	ND	pg/L	1.56	100
35065-29-3	180-HpCB	CU	ND	pg/L	2.22	200
74472-47-2	181-HpCB	U	ND	pg/L	2.32	100
60145-23-5	182-HpCB	U	ND	pg/L	1.98	100
52663-69-1	183-HpCB	CU	ND	pg/L	2.42	200
74472-48-3	184-HpCB	U	ND	pg/L	1.34	100
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	1.46	100
52663-68-0	187-HpCB	U	ND	pg/L	1.74	100
74487-85-7	188-HpCB	U	ND	pg/L	1.50	100
39635-31-9	189-HpCB	U	ND	pg/L	2.32	100
41411-64-7	190-HpCB	U	ND	pg/L	2.16	100
74472-50-7	191-HpCB	U	ND	pg/L	2.10	100
74472-51-8	192-HpCB	U	ND	pg/L	2.08	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	J	3.38	pg/L	2.26	100
52663-78-2	195-OcCB	U	ND	pg/L	2.38	100
42740-50-1	196-OcCB	U	ND	pg/L	1.98	100
33091-17-7	197-OcCB	CU	ND	pg/L	1.42	200
68194-17-2	198-OcCB	CU	ND	pg/L	1.98	200
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	U	ND	pg/L	1.42	100
2136-99-4	202-OcCB	U	ND	pg/L	1.56	100
52663-76-0	203-OcCB	J	1.88	pg/L	1.74	100
74472-52-9	204-OcCB	U	ND	pg/L	1.44	100
74472-53-0	205-OcCB	U	ND	pg/L	1.78	100
40186-72-9	206-NoCB	U	ND	pg/L	3.08	100
52663-79-3	207-NoCB	U	ND	pg/L	2.30	100
52663-77-1	208-NoCB	U	ND	pg/L	2.30	100
2051-24-3	209-DeCB	U	ND	pg/L	1.94	100
1336-36-3	Total PCB Congeners	J	18.8	pg/L		100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		732	2000	pg/L	36.6	(15%-150%)
13C-3-MoCB		798	2000	pg/L	39.9	(15%-150%)
13C-4-DiCB		959	2000	pg/L	47.9	(25%-150%)
13C-15-DiCB		1200	2000	pg/L	60.2	(25%-150%)
13C-19-TrCB		1200	2000	pg/L	59.9	(25%-150%)
13C-37-TrCB		1050	2000	pg/L	52.5	(25%-150%)
13C-54-TeCB		941	2000	pg/L	47.0	(25%-150%)
13C-77-TeCB		1370	2000	pg/L	68.3	(25%-150%)
13C-81-TeCB		1370	2000	pg/L	68.5	(25%-150%)
13C-104-PeCB		880	2000	pg/L	44.0	(25%-150%)
13C-105-PeCB		1160	2000	pg/L	57.8	(25%-150%)
13C-114-PeCB		1150	2000	pg/L	57.7	(25%-150%)
13C-118-PeCB		1120	2000	pg/L	56.2	(25%-150%)
13C-123-PeCB		1180	2000	pg/L	59.2	(25%-150%)
13C-126-PeCB		1220	2000	pg/L	60.9	(25%-150%)
13C-155-HxCB		1000	2000	pg/L	50.0	(25%-150%)
13C-156-HxCB	C	1970	4000	pg/L	49.2	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1000	2000	pg/L	50.2	(25%-150%)
13C-169-HxCB		1030	2000	pg/L	51.5	(25%-150%)
13C-188-HpCB		1340	2000	pg/L	67.2	(25%-150%)
13C-189-HpCB		1120	2000	pg/L	55.8	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030238**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**MB for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 20:21**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-5**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1190	2000	pg/L	59.6	(25%-150%)
13C-205-OcCB		1310	2000	pg/L	65.5	(25%-150%)
13C-206-NoCB		1390	2000	pg/L	69.3	(25%-150%)
13C-208-NoCB		1220	2000	pg/L	61.0	(25%-150%)
13C-209-DeCB		1240	2000	pg/L	62.0	(25%-150%)
13C-28-TrCB		1200	2000	pg/L	60.1	(30%-135%)
13C-111-PeCB		1380	2000	pg/L	69.1	(30%-135%)
13C-178-HpCB		1470	2000	pg/L	73.3	(30%-135%)

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**
J **Value is estimated**
U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030239**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**LCS for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 18:01**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-3**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB		433	pg/L	2.16	100
2051-62-9	3-MoCB		481	pg/L	2.58	100
13029-08-8	4-DiCB		427	pg/L	13.1	100
2050-68-2	15-DiCB		494	pg/L	9.78	100
38444-73-4	19-TrCB		454	pg/L	3.84	100
38444-90-5	37-TrCB		477	pg/L	7.66	100
15968-05-5	54-TeCB		1040	pg/L	1.68	100
32598-13-3	77-TeCB		928	pg/L	8.20	100
70362-50-4	81-TeCB		792	pg/L	7.64	100
56558-16-8	104-PeCB		1080	pg/L	2.12	100
32598-14-4	105-PeCB		887	pg/L	9.04	100
74472-37-0	114-PeCB		1080	pg/L	8.26	100
31508-00-6	118-PeCB		1050	pg/L	8.16	100
65510-44-3	123-PeCB		989	pg/L	7.86	100
57465-28-8	126-PeCB		967	pg/L	9.82	100
33979-03-2	155-HxCB		1040	pg/L	1.56	100
38380-08-4	156-HxCB	C	2160	pg/L	8.28	200
69782-90-7	157-HxCB	C156				
52663-72-6	167-HxCB		1020	pg/L	6.02	100
32774-16-6	169-HxCB		964	pg/L	7.04	100
74487-85-7	188-HpCB		954	pg/L	2.02	100
39635-31-9	189-HpCB		976	pg/L	3.06	100
2136-99-4	202-OcCB		1600	pg/L	1.94	100
74472-53-0	205-OcCB		1380	pg/L	2.78	100
40186-72-9	206-NoCB		1360	pg/L	3.44	100
52663-77-1	208-NoCB		1600	pg/L	2.68	100
2051-24-3	209-DeCB		1470	pg/L	1.78	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1060	2000	pg/L	53.1	(15%-140%)
13C-3-MoCB		1170	2000	pg/L	58.3	(15%-140%)
13C-4-DiCB		1340	2000	pg/L	67.2	(30%-140%)
13C-15-DiCB		1620	2000	pg/L	80.8	(30%-140%)
13C-19-TrCB		1710	2000	pg/L	85.3	(30%-140%)
13C-37-TrCB		1280	2000	pg/L	64.0	(30%-140%)
13C-54-TeCB		1140	2000	pg/L	57.2	(30%-140%)
13C-77-TeCB		1690	2000	pg/L	84.3	(30%-140%)
13C-81-TeCB		1710	2000	pg/L	85.6	(30%-140%)
13C-104-PeCB		1120	2000	pg/L	55.9	(30%-140%)
13C-105-PeCB		1390	2000	pg/L	69.7	(30%-140%)
13C-114-PeCB		1410	2000	pg/L	70.5	(30%-140%)
13C-118-PeCB		1380	2000	pg/L	68.8	(30%-140%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030239**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**LCS for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 18:01**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-3**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-123-PeCB		1460	2000	pg/L	73.0	(30%-140%)
13C-126-PeCB		1510	2000	pg/L	75.6	(30%-140%)
13C-155-HxCB		1320	2000	pg/L	65.9	(30%-140%)
13C-156-HxCB	C	2610	4000	pg/L	65.4	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		1340	2000	pg/L	66.8	(30%-140%)
13C-169-HxCB		1350	2000	pg/L	67.6	(30%-140%)
13C-188-HpCB		1670	2000	pg/L	83.6	(30%-140%)
13C-189-HpCB		1430	2000	pg/L	71.4	(30%-140%)
13C-202-OcCB		1560	2000	pg/L	77.8	(30%-140%)
13C-205-OcCB		1700	2000	pg/L	84.9	(30%-140%)
13C-206-NoCB		1800	2000	pg/L	90.1	(30%-140%)
13C-208-NoCB		1540	2000	pg/L	77.1	(30%-140%)
13C-209-DeCB		1640	2000	pg/L	82.2	(30%-140%)
13C-28-TrCB		1540	2000	pg/L	77.2	(40%-125%)
13C-111-PeCB		1740	2000	pg/L	87.1	(40%-125%)
13C-178-HpCB		1970	2000	pg/L	98.3	(40%-125%)

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030240**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**LCSD for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 19:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB		447	pg/L	2.22	100
2051-62-9	3-MoCB		504	pg/L	2.60	100
13029-08-8	4-DiCB		434	pg/L	8.98	100
2050-68-2	15-DiCB		507	pg/L	7.66	100
38444-73-4	19-TrCB		478	pg/L	3.56	100
38444-90-5	37-TrCB		484	pg/L	2.84	100
15968-05-5	54-TeCB		1040	pg/L	1.44	100
32598-13-3	77-TeCB		937	pg/L	6.96	100
70362-50-4	81-TeCB		808	pg/L	6.58	100
56558-16-8	104-PeCB		1090	pg/L	1.70	100
32598-14-4	105-PeCB		905	pg/L	7.98	100
74472-37-0	114-PeCB		1110	pg/L	7.72	100
31508-00-6	118-PeCB		1070	pg/L	7.52	100
65510-44-3	123-PeCB		1000	pg/L	7.36	100
57465-28-8	126-PeCB		1010	pg/L	9.14	100
33979-03-2	155-HxCB		1050	pg/L	9.20	100
38380-08-4	156-HxCB	C	2200	pg/L	7.88	200
69782-90-7	157-HxCB	C156				
52663-72-6	167-HxCB		1030	pg/L	5.84	100
32774-16-6	169-HxCB		990	pg/L	6.86	100
74487-85-7	188-HpCB		980	pg/L	1.50	100
39635-31-9	189-HpCB		1000	pg/L	4.86	100
2136-99-4	202-OcCB		1610	pg/L	1.56	100
74472-53-0	205-OcCB		1390	pg/L	4.38	100
40186-72-9	206-NoCB		1380	pg/L	2.54	100
52663-77-1	208-NoCB		1610	pg/L	1.86	100
2051-24-3	209-DeCB		1490	pg/L	1.50	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1020	2000	pg/L	51.1	(15%-140%)
13C-3-MoCB		1160	2000	pg/L	58.1	(15%-140%)
13C-4-DiCB		1360	2000	pg/L	67.8	(30%-140%)
13C-15-DiCB		1670	2000	pg/L	83.4	(30%-140%)
13C-19-TrCB		1690	2000	pg/L	84.3	(30%-140%)
13C-37-TrCB		1320	2000	pg/L	66.1	(30%-140%)
13C-54-TeCB		1170	2000	pg/L	58.5	(30%-140%)
13C-77-TeCB		1710	2000	pg/L	85.7	(30%-140%)
13C-81-TeCB		1740	2000	pg/L	87.1	(30%-140%)
13C-104-PeCB		1100	2000	pg/L	54.9	(30%-140%)
13C-105-PeCB		1400	2000	pg/L	70.2	(30%-140%)
13C-114-PeCB		1400	2000	pg/L	70.1	(30%-140%)
13C-118-PeCB		1370	2000	pg/L	68.4	(30%-140%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**2109132**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12030240**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 47898**				
Client ID:	**LCSD for batch 47898**			**Prep Basis:**	**As Received**
Batch ID:	**47901**	**Method:**	**EPA Method 1668A**		
Run Date:	**09/22/2021 19:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP875**
Data File:	**d22sep21a-4**			**Dilution:**	**1**
Prep Batch:	**47898**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**21-SEP-21**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-123-PeCB		1450	2000	pg/L	72.6	(30%-140%)
13C-126-PeCB		1500	2000	pg/L	74.8	(30%-140%)
13C-155-HxCB		1270	2000	pg/L	63.3	(30%-140%)
13C-156-HxCB	C	2540	4000	pg/L	63.6	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		1290	2000	pg/L	64.4	(30%-140%)
13C-169-HxCB		1320	2000	pg/L	66.2	(30%-140%)
13C-188-HpCB		1630	2000	pg/L	81.7	(30%-140%)
13C-189-HpCB		1390	2000	pg/L	69.5	(30%-140%)
13C-202-OcCB		1530	2000	pg/L	76.3	(30%-140%)
13C-205-OcCB		1620	2000	pg/L	81.2	(30%-140%)
13C-206-NoCB		1690	2000	pg/L	84.7	(30%-140%)
13C-208-NoCB		1510	2000	pg/L	75.5	(30%-140%)
13C-209-DeCB		1540	2000	pg/L	77.0	(30%-140%)
13C-28-TrCB		1430	2000	pg/L	71.3	(40%-125%)
13C-111-PeCB		1620	2000	pg/L	80.9	(40%-125%)
13C-178-HpCB		1730	2000	pg/L	86.5	(40%-125%)

Comments:

C **Congener has coeluters. When Cxxx, refer to congener number xxx for data**

U **Analyte was analyzed for, but not detected above the specified detection limit.**

ANALYTICAL REPORT

September 17, 2021

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1400265
Samples Received:	09/08/2021
Project Number:	
Description:	
Report To:	Andy Freeman

Entire Report Reviewed By:

John Hawkins
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

2109132-001I RG NORTH-20210901 L1400265-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/01/21 10:05	09/08/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG1737547	1	09/13/21 14:07	09/14/21 22:57	JMR	Mt. Juliet, TN
Radiochemistry by Method D5174	WG1739188	1	09/15/21 10:53	09/16/21 12:31	KK	Mt. Juliet, TN

2109132-003I RG SOUTH-20210901 L1400265-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	09/01/21 10:05	09/08/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG1737547	1	09/13/21 14:07	09/14/21 22:57	JMR	Mt. Juliet, TN
Radiochemistry by Method D5174	WG1739188	1	09/15/21 10:53	09/16/21 12:33	KK	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

Radiochemistry by Method 900

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
GROSS ALPHA	7.03		1.76	1.25	09/14/2021 22:57	WG1737547

Radiochemistry by Method D5174

Analyte	Result	Qualifier	Uncertainty	RDL	Analysis Date	Batch
	mg/l		+ / -	mg/l	date / time	
Uranium	0.00312			0.00100	09/16/2021 12:31	WG1739188

Uranium = 0.00312 mg/l = 2.09 pCi/L
milligrams per liter (mg/L) can be converted to pCi/L by multiplying the U (mg/L) by 670

Adjusted Gross Alpha = Gross Alpha minus Uranium.
Adjusted Gross Alpha =7.03 pCi/L - 2.09 = 4.94 pCi/L
* Compliance gross alpha equals the concentration of analytical gross alpha minus the concentration of Uranium
Reference: http://www.eai-labs.com/assets/docs/radioactive_in_water.pdf

Radiochemistry by Method 900

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
GROSS ALPHA	34.4		7.82	5.87	09/14/2021 22:57	WG1737547

Radiochemistry by Method D5174

Analyte	Result	Qualifier	Uncertainty	RDL	Analysis Date	Batch
	mg/l		+ / -	mg/l	date / time	
Uranium	0.00424			0.00100	09/16/2021 12:33	WG1739188

Uranium = 0.00424 mg/l = 2.84 pCi/L
milligrams per liter (mg/L) can be converted to pCi/L by multiplying the U (mg/L) by 670

Adjusted Gross Alpha = Gross Alpha minus Uranium.
Adjusted Gross Alpha =34.4 pCi/L - 2.84 = 31.56 pCi/L
* Compliance gross alpha equals the concentration of analytical gross alpha minus the concentration of Uranium
Reference: http://www.eai-labs.com/assets/docs/radioactive_in_water.pdf

QUALITY CONTROL SUMMARY

L1400265-01,02

Method Blank (MB)

(MB) R3704721-1 09/14/21 22:57

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
GROSS ALPHA	0.0501	U	0.704

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3704721-5 09/14/21 22:57

Analyte	Original Result	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA		3.03	1	64.8	0.900		20	3

Laboratory Control Sample (LCS)

(LCS) R3704721-2 09/14/21 22:57

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	14.3	95.4	80.0-120	

Method Blank (MB)

(MB) R3705183-1 09/16/21 11:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Uranium	U		0.00100	0.00100

L1397565-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1397565-03 09/16/21 12:02 • (DUP) R3705183-5 09/16/21 11:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Uranium	0.00556	0.00559	1	0.427		20

Laboratory Control Sample (LCS)

(LCS) R3705183-2 09/16/21 11:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Uranium	0.0300	0.0287	95.7	80.0-120	

L1397565-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1397565-01 09/16/21 11:59 • (MS) R3705183-3 09/16/21 11:52 • (MSD) R3705183-4 09/16/21 11:54

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Uranium	0.0200	0.0915	0.109	0.110	88.8	93.4	1	75.0-125			0.840	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
U	Below Detectable Limits: Indicates that the analyte was not detected.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

COPY

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

L1400265

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2109132-001H	RG North-20210901	500HDPEH2SO4	Aqueous	9/1/2021 10:05:00 AM	1	COD
2	2109132-001I	RG North-20210901	1LHDPEHNO3	Aqueous	9/1/2021 10:05:00 AM	1	Adjusted Gross Alpha <2 -01
3	2109132-001J	RG North-20210901	120mL	Aqueous	9/1/2021 10:05:00 AM	1	Cr 6
4	2109132-003H	RG South-20210902	500HDPEH2SO4	Aqueous	9/2/2021 9:20:00 AM	1	COD
5	2109132-003I	RG South-20210902	1LHDPEHNO3	Aqueous	9/2/2021 9:20:00 AM	1	Adjusted Gross Alpha <2 -02
6	2109132-003J	RG South-20210902	120mL	Aqueous	9/2/2021 9:20:00 AM	1	Cr 6

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable
COC Signed/Accurate:	Y N	VOA Zero Headspace: Y N
Bottles arrive intact:	Y N	Pres.Correct/Check: Y N
Correct bottles used:	Y N	
Sufficient volume sent:	Y N	
RAD Screen <0.5 mR/hr:	Y N	

B185

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Samples 001I, 003I in this cooler

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
SEL	9/2/2021	2:48 PM			
			[signature]	9/4/21	9:15

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples: 1.9+.1=2.0 A2OT Attempt to Cool ?

Comments:

2834 1886 3777

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62408**	SampType: **MBLK**	TestCode: **EPA Method 1664B**
Client ID: **PBW**	Batch ID: **62408**	RunNo: **81111**
Prep Date: **9/7/2021**	Analysis Date: **9/8/2021**	SeqNo: **2863208** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								

Sample ID: **LCS-62408**	SampType: **LCS**	TestCode: **EPA Method 1664B**
Client ID: **LCSW**	Batch ID: **62408**	RunNo: **81111**
Prep Date: **9/7/2021**	Analysis Date: **9/8/2021**	SeqNo: **2863209** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	32.2	10.0	40.00	0	80.5	78	114			

Sample ID: **LCSD-62408**	SampType: **LCSD**	TestCode: **EPA Method 1664B**
Client ID: **LCSS02**	Batch ID: **62408**	RunNo: **81111**
Prep Date: **9/7/2021**	Analysis Date: **9/8/2021**	SeqNo: **2863210** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	32.8	10.0	40.00	0	82.0	78	114	1.85	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **LCS-62544**	SampType: **LCS**	TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW**	Batch ID: **62544**	RunNo: **81263**
Prep Date: **9/13/2021**	Analysis Date: **9/14/2021**	SeqNo: **2869383** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.9	85	115			
Magnesium	49	1.0	50.00	0	98.0	85	115			

Sample ID: **MB-62544**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW**	Batch ID: **62544**	RunNo: **81263**
Prep Date: **9/13/2021**	Analysis Date: **9/14/2021**	SeqNo: **2869399** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								

Sample ID: **LLLCS-62544**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC**	Batch ID: **62544**	RunNo: **81263**
Prep Date: **9/13/2021**	Analysis Date: **9/14/2021**	SeqNo: **2869401** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.48	1.0	0.5000	0	95.7	50	150			J
Magnesium	0.49	1.0	0.5000	0	97.5	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A81374**	RunNo: **81374**
Prep Date:	Analysis Date: **9/18/2021**	SeqNo: **2873894** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0010								
Lead	ND	0.00050								

Sample ID: **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A81374**	RunNo: **81374**
Prep Date:	Analysis Date: **9/18/2021**	SeqNo: **2873895** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.0010	0.0010	0.001000	0	101	50	150			
Lead	0.00051	0.00050	0.0005001	0	101	50	150			

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A81374**	RunNo: **81374**
Prep Date:	Analysis Date: **9/18/2021**	SeqNo: **2873896** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.024	0.0010	0.02500	0	94.7	85	115			
Lead	0.012	0.00050	0.01250	0	97.7	85	115			

Sample ID: **2109132-003FMSLL**	SampType: **MS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **RG South-20210902**	Batch ID: **A81374**	RunNo: **81374**
Prep Date:	Analysis Date: **9/18/2021**	SeqNo: **2873927** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.026	0.0010	0.02500	0.001481	96.1	70	130			
Lead	0.013	0.00050	0.01250	0.0003243	98.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R81067**	RunNo: **81067**
Prep Date:	Analysis Date: **9/3/2021**	SeqNo: **2861406** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R81067**	RunNo: **81067**
Prep Date:	Analysis Date: **9/3/2021**	SeqNo: **2861407** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62459**	SampType: **MBLK**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **PBW**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896453** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	ND	0.10								
Surr: Decachlorobiphenyl	0		2.500		0	41.7	129			S
Surr: Tetrachloro-m-xylene	0		2.500		0	31.8	88.5			S

Sample ID: **MB-62459**	SampType: **MBLK**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **PBW**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896456** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	ND	0.10								
Surr: Decachlorobiphenyl	0		2.500		0	41.7	129			S
Surr: Tetrachloro-m-xylene	0		2.500		0	31.8	88.5			S

Sample ID: **LCS-62459**	SampType: **LCS**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSW**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896457** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.38	0.10	0.5000	0	76.2	17.4	145			
Surr: Decachlorobiphenyl	2.8		2.500		112	41.7	129			
Surr: Tetrachloro-m-xylene	1.5		2.500		61.1	31.8	88.5			

Sample ID: **LCSD-62459**	SampType: **LCSD**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSS02**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896458** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.42	0.10	0.5000	0	84.4	17.4	145	10.2	20	
Surr: Decachlorobiphenyl	2.9		2.500		116	41.7	129	0	20	
Surr: Tetrachloro-m-xylene	1.6		2.500		63.4	31.8	88.5	0	20	

Sample ID: **LCS-62459**	SampType: **LCS**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSW**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896467** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.36	0.10	0.5000	0	72.7	17.4	145			
Surr: Decachlorobiphenyl	2.7		2.500		108	41.7	129			
Surr: Tetrachloro-m-xylene	1.4		2.500		55.5	31.8	88.5			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **LCSD-62459**	SampType: **LCSD**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSS02**	Batch ID: **62459**	RunNo: **81383**
Prep Date: **9/8/2021**	Analysis Date: **9/17/2021**	SeqNo: **2896468** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.40	0.10	0.5000	0	80.5	17.4	145	10.2	20	
Surr: Decachlorobiphenyl	2.8		2.500		112	41.7	129	0	20	
Surr: Tetrachloro-m-xylene	1.7		2.500		69.2	31.8	88.5	0	20	

Sample ID: **MB-62710**	SampType: **MBLK**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **PBW**	Batch ID: **62710**	RunNo: **81863**
Prep Date: **9/21/2021**	Analysis Date: **9/23/2021**	SeqNo: **2896469** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.5		2.500		100	41.7	129			
Surr: Tetrachloro-m-xylene	1.6		2.500		64.6	31.8	88.5			

Sample ID: **MB-62710**	SampType: **MBLK**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **PBW**	Batch ID: **62710**	RunNo: **81863**
Prep Date: **9/21/2021**	Analysis Date: **9/23/2021**	SeqNo: **2896470** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.5		2.500		98.3	41.7	129			
Surr: Tetrachloro-m-xylene	1.5		2.500		60.0	31.8	88.5			

Sample ID: **LCS-62710**	SampType: **LCS**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSW**	Batch ID: **62710**	RunNo: **81863**
Prep Date: **9/21/2021**	Analysis Date: **9/23/2021**	SeqNo: **2896471** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.5		2.500		102	41.7	129			
Surr: Tetrachloro-m-xylene	1.4		2.500		56.4	31.8	88.5			

Sample ID: **LCS-62710**	SampType: **LCS**	TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSW**	Batch ID: **62710**	RunNo: **81863**
Prep Date: **9/21/2021**	Analysis Date: **9/23/2021**	SeqNo: **2896472** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.5		2.500		99.5	41.7	129			
Surr: Tetrachloro-m-xylene	1.3		2.500		52.5	31.8	88.5			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62380**	SampType: **MBLK**	TestCode: **SM5210B: BOD**
Client ID: **PBW**	Batch ID: **62380**	RunNo: **81139**
Prep Date: **9/3/2021**	Analysis Date: **9/8/2021**	SeqNo: **2864260** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID: **LCS-62380**	SampType: **LCS**	TestCode: **SM5210B: BOD**
Client ID: **LCSW**	Batch ID: **62380**	RunNo: **81139**
Prep Date: **9/3/2021**	Analysis Date: **9/8/2021**	SeqNo: **2864261** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	188	2.0	198.0	0	94.9	84.6	115.4			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62378**	SampType: **MBLK**	TestCode: **SM 9223B Fecal Indicator: E. coli MPN**
Client ID: **PBW**	Batch ID: **62378**	RunNo: **81068**
Prep Date: **9/2/2021**	Analysis Date: **9/3/2021**	SeqNo: **2861458** Units: **MPN/100mL**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
E. Coli	<1	1.000								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB**	SampType: **MBLK**	TestCode: **SM 4500 NH3: Ammonia**
Client ID: **PBW**	Batch ID: **R81339**	RunNo: **81339**
Prep Date:	Analysis Date: **9/16/2021**	SeqNo: **2872464** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **SM 4500 NH3: Ammonia**
Client ID: **LCSW**	Batch ID: **R81339**	RunNo: **81339**
Prep Date:	Analysis Date: **9/16/2021**	SeqNo: **2872465** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10	1.0	10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62548**	SampType: **MBLK**	TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **PBW**	Batch ID: **62548**	RunNo: **81302**
Prep Date: **9/13/2021**	Analysis Date: **9/15/2021**	SeqNo: **2871378** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	ND	0.010								

Sample ID: **LCS-62548**	SampType: **LCS**	TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **LCSW**	Batch ID: **62548**	RunNo: **81302**
Prep Date: **9/13/2021**	Analysis Date: **9/15/2021**	SeqNo: **2871379** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.24	0.010	0.2500	0	97.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62453**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **62453**	RunNo: **81180**
Prep Date: **9/8/2021**	Analysis Date: **9/10/2021**	SeqNo: **2865947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-62453**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **62453**	RunNo: **81180**
Prep Date: **9/8/2021**	Analysis Date: **9/10/2021**	SeqNo: **2865948** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62630**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **62630**	RunNo: **81365**
Prep Date: **9/16/2021**	Analysis Date: **9/17/2021**	SeqNo: **2873549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-62630**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **62630**	RunNo: **81365**
Prep Date: **9/16/2021**	Analysis Date: **9/17/2021**	SeqNo: **2873550** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.9	1.0	10.00	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2109132**

13-Oct-21

Client: AMAFCA

Project: CMC

Sample ID: **MB-62455**	SampType: **MBLK**	TestCode: **SM 2540D: TSS**
Client ID: **PBW**	Batch ID: **62455**	RunNo: **81152**
Prep Date: **9/8/2021**	Analysis Date: **9/9/2021**	SeqNo: **2864535** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0								

Sample ID: **LCS-62455**	SampType: **LCS**	TestCode: **SM 2540D: TSS**
Client ID: **LCSW**	Batch ID: **62455**	RunNo: **81152**
Prep Date: **9/8/2021**	Analysis Date: **9/9/2021**	SeqNo: **2864536** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	97	4.0	92.10	0	105	83.71	119.44			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA Work Order Number: 2109132 RcptNo: 1

Received By: Cheyenne Cason 9/2/2021 12:17:00 PM

Completed By: Sean Livingston 9/2/2021 2:19:27 PM

Reviewed By: JO 9.3.21

UNPRES: SPA 9.2.21 17:01

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 12 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JR 9/3/21

Bod & coliform: JR 9/2/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good				
2	4.9	Good				

Chain-of-Custody Record

Client: AMAFCA

Mailing Address:

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler: A. Ewing, DBS+A

On Ice: ☒ Yes ☐ No

# of Coolers: 2 2.1 - 0.2 = 1.9

Cooler Temp (including CF): 5.1 - 0.2 = 4.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2109132	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See attached CMC list	E. coli enumeration
9/1/21	1005	AQ	RGNorth-20210901			001/002											X	
			Trip blank			006								X				
9/2/21	0920	AQ	RGSouth-20210902			003/004 ~~002~~	5x	9/2/21									X	X
9/2/21	1030	AQ	RGAlameda-20210902			005 ~~003~~												X
							Amy Ewing 9/2/21											

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9/2/21	1125	Amy Ewing		Hand Del OFF	9/2/21	1127
9/2/21	1137		cmc CDO		9/2/21	1217

Remarks: RGNorth-20210901 E. coli sample was dropped off yesterday.

Collaborative Monitoring Cooperative - Analyses List
Attach to Chain of Custody

Please refer to attached NPDES Permit No. NMR04A00 Appendix F. Methods and minimum quantification levels (MQL's) will be those approved under 40 CFR 136 and specified in the attached permit

Analyte (Bold Indicates WQS)	CAS #	Fraction	Method #	MDL (µg/L)
Hardness (Ca + Mg)	NA	Total	200.7	2.4
Lead	7439-92-1	Dissolved	200.8	0.09
Copper	7440-50-8	Dissolved	200.8	1.06
Ammonia + organic nitrogen	7664-41-7	Total	350.1	31.32
Total Kjehldal Nitrogen	17778-88-0	Total	351.2	58.78
Nitrate + Nitrite	14797-55-8	Total	353.2	10.17
Polychlorinated biphenyls (PCBs)	1336-36-3	Total	1668	0.014
Tetrahydrofuran (THF)	109-99-9	Total	8260C	7.9
bis(2-Ethylhexyl)phthalate	117-81-7	Total	8270D	0.2
Dibenzofuran	132-64-9	Total	8270D	0.2
Indeno(1,2,3-cd)pyrene	193-39-5	Total	8270D	0.2
Benzo(b)fluoranthene	205-99-2	Total	8270D	0.1
Benzo(k)fluoranthene	207-08-9	Total	8270D	0.1
Chrysene	218-01-9	Total	8270D	0.2
Benzo(a)pyrene	50-32-8	Total	8270D	0.3
Dibenzo(a,h)anthracene	53-70-3	Total	8270D	0.3
Benzo(a)anthracene	56-55-3	Total	8270D	0.2
Dieldrin	60-57-1	Total	8081	0.1
Pentachlorophenol	87-86-5	Total	8270D	0.2
Benzidine	92-87-5	Total	8270D	0.1
Chemical Oxygen Demand	E1641638[2]	Total	HACH	5100
Gross alpha (adjusted)	NA	Total	Method 900	0.1 pCi/L
Total Dissolved Solids	E1642222[2]	Total	SM 2540C	60.4
Total Suspended Solids	NA	Total	SM 2540D	3450
Biological Oxygen Demand	N/A	Total	Standard Methods	930
Oil and Grease		Total	1664A	5000
Ecoli-enumeration			SM 9223B	
pH			SM 4500	
Phosphorus		Dissolved	365.1	100
Phosphorus		Total	365.1	100
Chromium IV		Total	3500Cr C-2011	100

ATTACHMENT 2

FY 2022 WET SEASON COMPLETED DATA VERIFICATION AND VALIDATION (V&V) FORMS

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (August 2021 – Wet Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande North – 08/16/21 – E. coli Only Sample – Was Not Qualifying Storm Event
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data
A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
_____	_____
_____	_____

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	_____
_____	_____	_____

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
_____	_____	_____	_____
_____	_____	_____	_____

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data
*Note – Not Applicable – no flow data provided with CMC sample collection
A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?

Total number of occurrences: 0

Not Applicable
☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☐ Yes ☒ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken

Total number of occurrences: 0

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?

☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
_____	_____	_____	_____	_____	_____		_____
_____	_____	_____	_____	_____	_____		_____

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (September 2021 – Wet Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande North – 9/1/21
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?

☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

*Note – Lab report identifies "Dissolved Phosphorous" as "Total Phosphorous" on a filtered sample. Also, reports gross alpha and uranium and not adjusted gross alpha. See Section 4.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?

*Note – HEAL Lab report order number 2109132.

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
_____	_____	_____
_____	_____	_____

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
_____	_____	_____	_____
_____	_____	_____	_____

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande North	9/1/2021	Lab report lists Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	BHI added note to the lab report.
Rio Grande North	9/1/2021	Lab report did not report Adjusted gross alpha. Reported gross alpha and uranium values.	AMAFCA and HEAL were informed of this. BHI Added notes to the lab report & calculated adjusted gross alpha (gross alpha minus uranium).

*Note – HEAL Lab report order number 2109132.

Total number of occurrences: 2

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 6: Validate Holding Times Violations

Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time is not applicable.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
______	______	______	______	______	______		_________
______	______	______	______	______	______		_________

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (September 2021 – Wet Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Alameda – 9/1/21 – E. coli Only Sample
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
_____	_____
_____	_____

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	_____
_____	_____	_____

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
_____	_____	_____	_____
_____	_____	_____	_____

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?

☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: 0

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: 0

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☐ Yes ☒ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken

Total number of occurrences: 0

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

Sarah Comey 8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (September 2021 – Wet Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Alameda – 9/2/21 – E. coli Only Sample
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
_____	_____
_____	_____

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	_____
_____	_____	_____

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
_____	_____	_____	_____
_____	_____	_____	_____

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: 0

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: 0

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☐ Yes ☒No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken

Total number of occurrences: 0

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database?*
_____	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

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After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

Sarah Comey 8/9/22

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or "flags" the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as "less than the detection limit."	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2022 (September 2021 – Wet Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande South – 9/2/21
Version of Verification/Validation Procedures: QAPP –AMAFCA SOP #5 (7/2022)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.
*Note – Lab report identifies “Dissolved Phosphorous” as “Total Phosphorous” on a filtered sample. Also, reports gross alpha and uranium and not adjusted gross alpha. See Section 4.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?

*Note – HEAL Lab report order number 2109132.

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
_____	_____	_____
_____	_____	_____

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
_____	_____	_____	_____
_____	_____	_____	_____

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande South	9/2/2021	Lab report lists Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	BHI added note to the lab report.
Rio Grande South	9/2/2021	Lab report did not report Adjusted gross alpha. Reported gross alpha and uranium values.	AMAFCA and HEAL were informed of this. BHI Added notes to the lab report & calculated adjusted gross alpha (gross alpha minus uranium).

*Note – HEAL Lab report order number 2109132.

Total number of occurrences: 2

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 5: Validate Blanks Results
Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 6: Validate Holding Times Violations

Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time is not applicable.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
______	______	______	______	______	______		_________
______	______	______	______	______	______		_________

Total number of occurrences: 0

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 8/9/22

****

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F1	Sample filter time exceeded	
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