MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER (MS4) PERMIT

FINAL
2021-2022 ANNUAL REPORT

July 1, 2021 – June 30, 2022

DECEMBER 1, 2022

Development Services Department
3200 Civic Center Circle NE
Rio Rancho, NM 87144

NPDES GENERAL PERMIT NO. NMR04A000
ADMINISTRATIVE CONTINUANCE

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144
(505) 981-5005 • FAX (505) 981-0986

December 1, 2022

U.S. EPA, Region 6
Water Quality Protection Division
Operations Support Services (6WQ-O)
1445 Ross Avenue
Dallas, Texas 75202-2733

Subject: 2021-2022 Annual Report, National Pollution Discharge Elimination System Municipal Separate Storm Sewer (NPDES) Permit No. NMR04A001

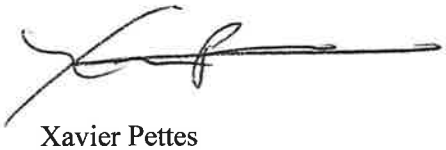
To whom it may concern:

In accordance with Part III.B of the referenced NPDES permit, the City of Rio Rancho is pleased to submit the 2021-2022 Annual Report for your review and comment. The Annual Report summarizes activities conducted from July 1, 2021 to June 30, 2022, such as program compliance and progress, public outreach and education, and future infrastructure improvements.

As outlined in the NPDES permit, City of Rio Rancho has provided public notice and made available for public review a draft copy of the annual report prior to submitting to your office. The comment period closed November 30, 2022. The City of Rio Rancho did not receive comments from individuals or organizations during the 45-day comment period.

Should you need additional information or have questions regarding the Annual Report, please do not hesitate to contact me at (505) 891-5045, or via email at xpettes@rrnm.gov.

Respectfully,



Xavier Pettes
NPDES Project Manager
Engineering Division
Development Services Department

Attachment (1)

Cc: David Serrano, P.E., Development Services / Deputy Director

ANNUAL REPORT REQUIREMENTS

The permittees shall submit an annual report to be submitted by no later than December 1st. See suggested form at http://epa.gov/region6/water/npdes/sw/ms4/index.htm. The report shall cover the previous year from July 1st to June 30rd and include the below separate sections. Additionally, the year one (1) and year four (4) annual report shall include submittal of a complete SWMP revision.

At least forty five (45) days prior to submission of each Annual Report, the permittee must provide public notice of and make available for public review and comment a draft copy of the Annual Report. All public input must be considered in preparation of the final Annual Reports and any changes to the SWMP.

Note: A complete copy of the signed Annual Report should be maintained on site.

1. **SWMP(s) Status of Implementation**: shall include the status of compliance with all schedules established under this permit and the status of actions required in Parts I, III, and VI.

2. **SWMP Revisions**: shall include revisions, if necessary, to the assessments of controls or BMPs reported in the permit application (or NOI for coverage under this permit) under **40 CFR §122.26(d)(2)(v)*** and **§122.34(d)(1)(I)[i]**** are to be included, as well as a cumulative list of all SWMP revisions during the permit term.

3. **Performance Assessment**: shall include:

    a. an assessment of performance in terms of measurable goals, including, but not limited to, a description of the number and nature of enforcement actions and inspections, public education and public involvement efforts;

    b. a summary of the data, including monitoring data, that is accumulated throughout the monitoring year (July 1 to June 30); actual values of representative monitoring results shall be included, if results are above minimum quantification level (MQL); and

    c. identification of water quality improvements or degradation.

4. **Annual Report Responsibilities for Cooperative Programs**: preparation of a system-wide report with cooperative programs may be coordinated among cooperating MS4s and then used as part of individual Annual Reports. The report of a cooperative program element shall indicate which, if any, permittee(s) have failed to provide the required information on the portions of the MS4 for which they are responsible to the cooperation permittees.

    a. joint responsibility for reports covering cooperative programs elements shall be limited to participation in preparation of the overview for the entire system and inclusion of the identity of any permittee who failed to provide input to the annual report.

    b. individual permittees shall be individually responsible for content of the report relating to the portions of the MS4 for which they are responsible and for failure to provide information for the system-wide annual report no later than July 31st of each year.

5. **Public Review and Comment**: a brief summary of any issues raised by the public on the draft Annual Report, along with permittee's responses to the public comments.

6. **Signature on Certification of Annual Reports:** the annual report shall be signed and certified, in accordance with Part IV.H and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been apprised of the content of the Annual Report. Annual report shall be due no later than December 1st of each year. A complete copy of the signed Annual Report should be maintained on site.

***40 CFR §122.26(d)(2)(v)**

(v) *Assessment of controls.* Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.

****40 CFR §122.34(d)(1)(I)[i]**

(d)(1) In your permit application (either a notice of intent for coverage under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information:

(i) The best management practices (BMPs) that you or another entity will implement for each of the storm water minimum control measures at paragraphs **(b)(1)** through **(b)(6)** of this section;

(b)(1)

(b) Minimum control measures—(1) Public education and outreach on storm water impacts.

(i) You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

(ii) Guidance: You may use storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes. EPA recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups. EPA recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

(b)(6)

(6) Pollution prevention/good housekeeping for municipal operations.

(i) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

(ii) Guidance: EPA recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and nonstructural storm water controls to reduce floatables and other pollutants discharged

from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

This page intentionally left blank.

MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER (MS4) PERMIT

DRAFT 2021-2022 ANNUAL REPORT

July 1, 2021 – June 30, 2022

TABLE OF CONTENTS

Section 1	**Municipal Separate Storm Sewer System (MS4) Annual Report** 1.1 FINAL 2021-2022 MS4 Annual Report
Section 2	**Special Conditions** 2.1 FY2021 Infrastructure and Capital Improvement Plan
Section 3	**Stormwater Management Program Status of Implementation** 3.1 City of Rio Rancho MS4 Stormwater Management Program
Section 4	**Stormwater Management Program Revisions** 4.1 NPDES Permit No. NMR04A000 Administrative Continuance – Duty to Reapply
Section 5	**Performance Assessment** 5.1 Illicit Discharge Incident Reporting 5.2 Construction General Permit Compliance Inspection List 5.3 MS4 Outfall Dry Weather Screening 5.4 CMC Monitoring FY2021 Dry Season Memorandum 5.5 CMC Monitoring FY2021 Wet Weather Memorandum
Section 6	**Annual Report Responsibilities for Cooperation Programs** 6.1 Middle Rio Grande Stormwater Quality Team Outcomes Report FY2021-2022 6.2 Middle Rio Grande Stormwater Quality Team Membership 6.2 Middle Rio Grande Municipal Separate Storm Sewer System Technical Advisory Group – Cooperative Monitoring Plan 6.3 Delegation of Authority for Date Entry into NetDMR System
Section 7	**Public Review and Comment** 7.1 Public Comment
Section 8	**Signature on Certification of Annual Reports** 8.1 Letter of Delegation

This page intentionally left blank.

Section 1	Municipal Separate Storm Sewer System (MS4) Annual Report
	1.1 FINAL 2021-2022 MS4 Annual Report

This page intentionally left blank.

Annual Report Format

National Pollutant Discharge Elimination System Stormwater Program
MS4 Annual Report Form

Check box if you are submitting an individual Annual Report with cooperative program elements ☒

Check box if you are submitting an individual Annual Report with individual program elements ☐

Check box if this is a new name, address, etc. ☐

1. MS4(s) Information

City of Rio Rancho
Name of MS4

Xavier | Pettes | NPDES Project Manager
Name of Contact Person (First) | (Last) | (Title)

(505) 891-5045 | xpettes@rrnm.gov
Telephone (including area code) | E-mail

3200 Civic Center Circle NE, Suite 130
Mailing Address

Rio Rancho | New Mexico | 87144
City | State | ZIP code

What size population does your MS4(s) serve? 104,046 NPDES number NMR04A007

What is the reporting period for this report? (mm/dd/yyyy) From 07/01/2021 to 06/30/2022

2. Water Quality Priorities

A. Does your MS4(s) discharge to waters listed as impaired on a state 303(d) list? ☒ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4(s). Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
Rio Grande NM-2105.1_00	E. coli	☒ Yes	☐ No	☒ Yes	☐ No
Rio Grande NM-2105.1_00	PCB in Fish Tissue	☐ Yes	☒ No	☐ Yes	☒ No
Rio Grande NM-2105.1_00	PCB in Water Column	☐ Yes	☒ No	☐ Yes	☒ No
Rio Grande NM-2105.1_00	Gross Alpha	☐ Yes	☒ No	☐ Yes	☒ No

2. B. Continued

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
Rio Grande NM-2105.1_00	Mercury in Fish Tissue	☐ Yes	☒ No	☐ Yes	☒ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

Pet waste, Construction Waste, Illicit Discharge, Household Hazardous Waste, Septic & Sanitary Sewer System, General S

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☒ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☒ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☒ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

General SWP, Construction Waste, Pet Waste, Household Hazardous Waste, Illicit Discharge and Animal Sources

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

See Attached - Section 6. Middle Rio Grande Stormwater Quality Outcomes Report FY 2021-2022

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☒ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

Erosion and sediment control requirements? ☒ Yes ☐ No

Other construction waste control requirements? ☒ Yes ☐ No

Requirement to submit construction plans for review? ☒ Yes ☐ No

MS4 enforcement authority? ☒ Yes ☐ No

B. Do you have written procedures for:

Reviewing construction plans? ☒ Yes ☐ No

Performing inspections? ☒ Yes ☐ No

Responding to violations? ☒ Yes ☐ No

C. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. 93

D. How many of the sites identified in 4.C did you inspect during this reporting period? 93

E. Describe, on average, the frequency with which your program conducts construction site inspections.

Private and public construction project/activities are inspected bi-weekly.

F. Do you prioritize certain construction sites for more frequent inspections? ☒ Yes ☐ No

If Yes, based on what criteria? Activities near or adjacent to watercourse

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☒ Yes	Notice of violation	67	No Authority	☐
☒ Yes	Administrative fines	0	No Authority	☐
☐ Yes	Stop Work Orders		No Authority	☒
☒ Yes	Civil penalties	0	No Authority	☐
☐ Yes	Criminal actions		No Authority	☒
☐ Yes	Administrative orders		No Authority	☒
☐ Yes	Other	N/A		

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☒ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?

CGP/Municipal Code violations: 1) Inadequate perimeter control prior to earth disturbing activities; 2) Construction and

J. How often do municipal employees receive training on the construction program? As needed and/or for new

5. **Illicit Discharge Elimination**

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☒ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☒ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. 7

D. Do you have documented procedures, including frequency, for screening outfalls? ☒ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

7

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? 7

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

Spills near storm drains or outfalls are investigated immediately. Dry Weather Outfall Screening is conducted annually.

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☒ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☒ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? 3

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? 3

L. How often do municipal employees receive training on the illicit discharge program? As needed and/or for n

6. Stormwater Management for Municipal Operations

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces	☒ Yes	☐ No
All municipal construction activities, including those disturbing less than 1 acre	☒ Yes	☐ No
All municipal turf grass/landscape management activities	☒ Yes	☐ No
All municipal vehicle fueling, operation and maintenance activities	☒ Yes	☐ No
All municipal maintenance yards	☒ Yes	☐ No
All municipal waste handling and disposal areas	☒ Yes	☐ No

Other None

B. Are stormwater inspections conducted at these facilities? ☒ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? Quarterly

D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

Construction Site Stormwater Inspection, Dry Weather Discharges Screening, Locating Illicit Discharges, Spill Response

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☒ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? Activities near or adjacent to watercour

G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? ☒ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☒ Yes ☐ No

I. If so, how frequently and/or under what circumstances? As needed and/or for new hires

7. Long-term (Post-Construction) Stormwater Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for stormwater/water quality of all new and re-development projects?	☒ Yes	☐ No
Long-term operation and maintenance of stormwater management controls?	☒ Yes	☐ No
Retrofitting to incorporate long-term stormwater management controls?	☒ Yes	☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

Typically retrofit are conducted in the field

C What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.)?

All construction project/activities cumulatively disturbing one or more acres within the MS4 jurisdiction

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☒ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☒ Yes	☐ No
Peak discharge rates	☒ Yes	☐ No
Discharge frequency	☒ Yes	☐ No
Flow duration	☒ Yes	☐ No

F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

https://www.codepublishing.com/NM/RioRancho/#!/RioRancho150/RioRancho153.html#153

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? 93

H. How many of the plans identified in 7.G were approved? 93

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? 0

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? 0

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? 90 days

L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☒ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? 0

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☐ Yes ☒ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☒ No

P. How often do municipal employees receive training on the post-construction program? As needed

8. **Program Resources**

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? 100,000.00

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? 100,000.00

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source:	General Fund	Amount $		OR %	100
Source:		Amount $		OR %	
Source:		Amount $		OR %	

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? 2

E. Do you share program implementation responsibilities with any other entities? ☒ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
Various	Stormwater Quality Team (SWQT)	Signed Joint Agreement
Various	Technical Advisory Group (TAG)	Signed Joint Agreement
Various	Compliance Monitoring Coop. (CMC)	Signed Joint Agreement

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	**Began Tracking (year)**	**Frequency**	**Number of Locations**
Example: E. coli	2003	Weekly April–September	20
Various (EPA approved analyte list)	2016	Qualifying Event (up to 7)	2
Various (EPA approved analyte list)	2014	Wet Season, annually	8
Please refer to the attached Annual			
Report or AMAFCA web site for			
additional information			

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

Data collected by the Compliance Monitoring Cooperative has been shared with NMED.

10. Additional Information

Please attach any additional information on the performance of your MS4 program, including information required in Parts I.C and III.B. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

☒ Yes ☐ No

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official.

Signature David Serrano, P.E., Deputy Director 11/30/2022

Name of Certifying Official, Title Date (mm/dd/yyyy)

Section 2	Special Conditions
	2.1 FY2022 Infrastructure and Capital Improvement Plan

This page intentionally left blank.

Section 3	Stormwater Management Program Status of Implementation
	3.1 City of Rio Rancho MS4 Stormwater Management Program

This page intentionally left blank.

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	3	**Part I.C - Special Conditions**									
	4	**Compliance with Water Quality Standards – Dissolved Oxygen & Part I.C.1.d and Endangered Species Act (ESA) Requirements - Dissolved Oxygen Strategy - Part I.C.3.a**									
Not Included in NOI	5	According to the requirements in Part I.C.1.d and Part I.C.3.a.(ii), certain permittees shall revise the May 1, 2012 Strategy to continue taking measures to address concerns regarding discharges to the Rio Grande by implementing controls to eliminate conditions that cause or contribute to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. The permittee shall, as part of this revised strategy, complete the following activities [activities are listed in sections below]. Activities listed are a combination of permit activities in Part I.C.1.d - Special Conditions, Compliance with Water Quality Standards, Phase I Dissolved Oxygen Program & Part I.C.3.a - Dissolved Oxygen Strategy in Receiving Waters of the Rio Grande.	**Not Applicable**							
Not Included in NOI	6	Part I.C.1.d.(i) Identify (or continue identifying) structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;	**Not Applicable**								
Not Included in NOI	7	Part I.C.1.d.(ii) Continue implementing controls, and updating/revising as necessary, to eliminate structural elements or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the United States;	**Not Applicable**								
Not Included in NOI	8	Part I.C.1.d.(iii) Continue sampling for DO and temperature in the North Diversion Channel (NDC) Embayment until the data indicate the discharge does not exceed applicable DO water quality standards in waters of the United States. This coincides with the requirements in Part I.C.3.a.(ii).(a), the revised strategy shall include: A. A Monitoring Plan describing all procedures necessary to continue conducting continuous monitoring of DO and temperature in the NDC Embayment and at 1 location in the Rio Grande downstream of the mouth of the NDC within the action area (e.g., Central Bridge). B. A Quality Assurance and Quality Control (QA/QC) Plan describing all standard operating procedures, quality assurance and quality control plans, maintenance and implementation schedules that will assure timely and accurate collection and reporting of water temperature, DO, oxygen saturation, and flow. The QA/QC plan should include all procedures for estimating oxygen data when any oxygen monitoring equipment fail.	**Not Applicable**							

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	9	(iv) Submit a revised strategy to FWS for consultation and EPA for approval within a year of the effective date of the permit and progress reports with the subsequent Annual Reports. Progress reports to include: (a) Summary of data. (b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. Including summary of findings of the assessment required in Part I.C.1.d.(i). (c) Conclusions drawn, including support for any determinations. (d) Activities undertaken to eliminate MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. (e) Account of stakeholder involvement. in addition, to meet Part I.C.3.a.(ii).(b) requirements, an annual incidental take report must be submitted as well as all data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report.	**Not Applicable**								
Not Included in NOI	10	According to the requirements in Part I.C.3.a.(ii), the permittees shall ensure that actions to reduce pollutants or remedial activities selected for the NDC Embayment and its watershed are implemented such that there is a reduction in frequency and magnitude of all low oxygen stormwater discharge events that occur in the Embayment or downstream in the MRG as indicated in Table 1.c. Actions to meet the year 3 measurable goals must be taken within 2 years from the effective date of the permit. Actions to meet the year 5 measurable goals must be taken within 4 years from the effective date of the permit.	**Not Applicable**								
Not Included in NOI	11	According to the requirements in Part I.C.3.b, the permittees (COA and AMAFCA) shall provide: A. An Annual Incidental Take Report to EPA and the Service that includes the following information: beginning and end date of any qualifying stormwater events, DO values and water temperature in the NDC Embayment, DO values and water temperature at a downstream monitoring station in the MRG, flow rate in the NDC, mean daily flow rate in the MRG, evaluation of oxygen and temperature data as either anoxic or hypoxic using Table 2 of the BO, and estimate the number of silvery minnows taken based on Appendix A of the BO. Electronic copy of The Annual Incidental Take Report should be provided with the Annual Report required under Part III.B no later than December 1 for the proceeding calendar year.	**Not Applicable**								

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	12	According to the requirements in Part I.C.3.b, the permittees (COA and AMAFCA) shall provide: B. A summary of data and findings with each Annual Report to EPA and the FWS. All data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report. If additional data is requested by EPA or the FWS, the COA and AMAFCA shall provide such information within two weeks upon request. The revised strategy required under Part I.C.3.a.(ii),the Annual Incidental Take Reports required under Part I.C.3.a.(ii).(b).A, and Annual Reports required under Part III.B can be submitted to FWS via e-mail nmesfo@fws.gov and Joel lusk@fws.gov, or by mail to the New Mexico Ecological Services field office, 2105 Osuna Road NE, Albuquerque, New Mexico 87113.		Not Applicable							

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	13	**Compliance with Water Quality Standards – PCBs - Part I.C.1.e**									
Not Included in NOI	14	According to the requirements in Part I.C.1.e, the permittee shall address concerns regarding PCBs in channel drainage areas specified in Part I.C.1.e.(vi) by developing or continue updating/revising and implementing a strategy to identify and eliminate controllable sources of PCBs that cause or contribute to exceedances of applicable water quality standards in waters of the United States.	**Not Applicable**								
Not Included in NOI	15	The progress reports shall include: (i) Summary of data. (ii) Findings regarding controllable sources of PCBs in the channel drainages area specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the US via the discharge of municipal stormwater. (iii) Conclusions drawn, including supporting information for any determinations. (iv) Activities undertaken to eliminate controllable sources of PCBs in the drainage areas specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the US via the discharge of municipal stormwater including proposed activities that extend beyond the 5 year permit term. (v) Account of stakeholder involvement in the process. (vi) Channel Drainage Areas: The PCB strategy required in Part I.C.1.e is only applicable to: COA and AMAFCA Areas: San Jose Drain & North Diversion Channel Bernalillo Co. Areas: Adobe Acres Drain, Alameda Outfall Channel, Paseo del Norte Outfall Channel, & Sanchez Farm Drainage Area.	**Not Applicable**								
Not Included in NOI	16	A cooperative strategy to address PCBs in the COA, AMAFCA and Bernalillo County's drainage areas may be developed between Bernalillo County, AMAFCA, and the COA. If a cooperative strategy is developed, the cooperative strategy shall be submitted to EPA within 3 years from the effective date of the permit and submit a progress report with the fourth and with subsequent Annual Reports, Note: COA and AMAFCA must continue implementing the existing PCB strategy until a new Cooperative PCB Strategy is submitted to EPA.	**Not Applicable**								

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	17	**Compliance with Water Quality Standards – Temperature - Part I.C.1.f**									
Not Included in NOI	18	According to the requirements in Part I.C.1.f, the permittees must continue assessing the potential effect of stormwater discharges in the Rio Grande by collecting and evaluating additional data. If the data indicates there is a potential of stormwater discharges contributing to exceedances of applicable temperature water quality standards in waters of the United States, within thirty (30) days such as findings, the permittees must develop and implement a strategy to eliminate conditions that cause or contribute to these exceedances.	**Not Applicable**								
Not Included in NOI	19	The strategy must include: (i) Identify structural controls, post construction design standards, or pollutants contributing to raised temperatures in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data; (ii) Develop and implement controls to eliminate structural controls, post construction design standards, or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for temperature in waters of the United States; and	**Not Applicable**								
Not Included in NOI	20	(iii) Provide a progress report with the first and with subsequent Annual Reports. The progress reports shall include: (a) Summary of data. (b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States. (c) Conclusions drawn, including supporting information for any determinations. (d) Activities undertaken to reduce MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States. (e) Accounting of stakeholder involvement.	**Not Applicable**								

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	21	**Discharges to Impaired Waters With Approved TMDLs - Part I.C.2.b.(i) and TABLE 1.a - TMDL Bacteria Program- Part I.C.2.b.(iii)**									
Not Included in NOI	22	According to the requirements in Part I.C.2.b.(i), if the permittee discharges to an impaired water body with an approved TMDL (see MS4 Permit, Appendix B), where stormwater has the potential to cause or contribute to the impairment, the permittee shall include in the SWMP controls targeting the pollutant(s) of concern along with any additional or modified controls required in the TMDL and this section. As stated in the Permit, Appendix B, a bacteria TMDL for the Middle Rio Grande was approved by the New Mexico Water Quality Control Commission on April 13,2010, and by EPA on June 30, 2010. The new TMDL modifies: 1) the indicator parameter for bacteria from fecal coliform to E. coli, and 2) the way the WLAs are assigned The SWMP and required annual reports must include information on implementing any focused controls required to reduce the pollutant(s) of concern as described below:	CORR's measurable goals for compliance with the Permit activities are described in the sections below.					See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	23	(a) Targeted Controls: The SWMP submitted with the first annual report must include a detailed description of all targeted controls to be implemented, such as identifying areas of focused effort or implementing additional BMPs that will be implemented to reduce the pollutant(s) of concern in the impaired waters. As required in Part I.C.2.b.(i).(e),the permittee shall include focused BMPs addressing the five areas below: A. Sanitary Sewer Systems (improve sanitary sewers; fix lift stations; identify and implement O&M procedures; improve violation reporting; and prevent overflows); B. On-site Sewage Facilities (address failing systems and inadequate maintenance of On-Site Sewage Facilities); C. Illicit Discharges and Dumping (effort to reduce waste sources of bacteria; for ex., septic systems, grease traps, and grit traps); D. Animal Sources (management programs to identify and target sources such as zoos, pet waste, and horse stables); E. Residential Education (bacteria from residential sites; fats, oils, and grease clogging sanitary sewer lines and resulting overflows; decorative ponds; and pet waste).	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities where educational materials are distributed. • CORR will address the Illicit Discharge and Dumping through its IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information. • The Utility Operations Section will continue coordination with the NPDES Project Manager; informing CORR and SSCAFCA of any sewer overflows that impact CORR/SSCAFCA facilities.					Address targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and Utility Operation Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	24	(b) Measurable Goals: For each targeted control, the SWMP must include a measurable goal and an implementation schedule describing BMPs to be implemented during each year of the permit term. The value of the measurable goal must be based on one of the options presented in Part (No Suggestions).(i).(c) related to the WLA. Where the impairment is for bacteria, the permittee must, at minimum comply with the activities and schedules described in Table 1.a of Part I.C.2.b.(iii).	• CORR will address the Illicit Discharge and Dumping through its IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information. This IDDE program includes illicit discharge monitoring by CORR staff and contractors, internal coordination of information provided by the public and tracking and documentation procedures. • CORR will continue to participate in MRGSWQT "Scoop the Poop" public information campaign. • CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities related to targeting pet waste sources and residential education targeting bacteria sources.					Address measurable goals of targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT
Not Included in NOI	25	According to the requirements in Part I.C.2.b.(i).(f), the permittee shall monitor or assess progress in achieving measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A. The permittee may use the following methods either individually or in conjunction to evaluate progress towards the measurable goal and improvements in water quality as follows: A. Evaluating Program Implementation Measures or B. Assessing Improvements in Water Quality Progress towards achieving the measurable goal shall be reported in the annual report. Annual reports shall report the measurable goal and the year(s) during the permit term that the MS4 conducted additional sampling or other assessment activities.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will track the number of educational outreach opportunities conducted and list the number of people reached through the educational outreach program. • CORR will conduct stormwater monitoring in accordance with Table 10, Wet Weather Monitoring Program, Part III.A.1. The goals and plan for this program are described in the Wet Weather Monitoring Program portion of this SWMP.					Address monitoring and assessment of measurable goals of targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	26	If, by the end of the 3rd year from the effective date of the permit, the permittee observes no progress toward the measurable goal either from program implementation or water quality assessments, the permittee shall identify alternative focused BMPs that address new or increased efforts towards the measurable goal. As appropriate, the MS4 may develop a new approach to identify the most significant sources of the pollutant(s) of concern and shall develop alternative focused BMPs (this may also include information that identifies issues beyond the MS4's control). These revised BMPs must be included in the SWMP and subsequent annual reports. Where the permittee originally used a measurable goal based on an aggregated WLA, the permittee may combine or share efforts with other MS4s discharging to the same impaired stream segment to determine an alternative sub-measurable goal for the pollutant(s) of concern for their respective MS4s, as described in Part I.C.2.b.(i).(c).B above. Permittees must document the proposed schedule for the development and subsequent adoption of alternative measurable goals for the pollutant(s) of concern for their respective MS4s and associated assessment of progress in meeting those individual goals.	CoRR, in cooperation with the TAG, MRGSQT, and CMC has observed progress towards E. coli controls and measurable goals, as demonstrated by the fact that the impairment for E. coli has been removed from the NMED 303 (d) list for 2 of the 3 assessment segments along the river within the Middle Rio Grande corridor. CoRR will continue to annually assess and evaluate the program and progress in achieving the measurable goals listed above.			• CoRR and the Middle Rio Grande MS4 permittees have made significant progress during this Permit term related to E. coli controls and measurable goals. In addition to 6 of the 7 Permit required samples collected by the CMC from the runoff for qualifying storm events, the MRGSQT has funded an additional year of dry weather E.coli data collection by college students in the BEMP program to better understand the baseline concentration of E. coli before storm events. The MRGSQT also funded a graduate student's master's thesis that studied the variability of E. coli concentrations in a water column compared to the juxtaposed sediment. A Watershed Protection Plan will continue to be an option as funding becomes available and AMAFCA will continue the discussion of the possibility of a High Flow Suspension for Recreational uses of river water. In FY 2018, the COA began a Microbial Source Tracking (MST) study; sample collection is underway for this project.		If required, end of the third year from the effective date of the permit. Dec. 22, 2017			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	27	From Table 1.a, Identify potential significant sources of the pollutant of concern entering your MS4.	• AMAFCA, with its co-permittees from the 2012 MS4 Phase I Permit, have completed several studies related to identifying potential significant sources of the pollutant of concern entering the MRG Watershed MS4 area. The results of these studies will be used to guide the overall program plan and goals.	Fully Implemented: 2016 Weston Solutions, INC provides an evaluation of potential wet weather bacteria sources with the urbanized City of Rio Rancho. See SWMP Appendix F - Potential Bacteria Source Map.				16 months (cooperative) from effective date of MS4 Permit April 22, 2016	**April 22, 2016**	**16**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and TAG
Not Included in NOI	28	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a public education program to reduce the discharge of bacteria in municipal stormwater contributed by (if applicable) by pets, recreational and exhibition livestock, and zoos.	• CORR will contribute and participate in the MRGSWQT. • CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities related to targeting pet waste sources and residential education targeting bacteria sources.	Fully Implemented: See Attached Section 4 - MRG SQT Outcomes Report FY 2015-16	Fully Implemented See Attached Section 4 - MRG SQT Outcomes Report FY 2016-17	Fully Implemented - Continuing to implement existing program, updating as necessary.	Fully Implemented - Continuing to implement existing program, updating as necessary.	16 months (cooperative) from effective date of MS4 Permit April 22, 2016	**April 22, 2016**	**16**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	29	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by areas within your MS4 served by on-site wastewater treatment systems.	• CORR will continue membership and involvement in the cooperative MRGSWQT which will conduct educational and public outreach as well as facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening and notification of illicit discharges.	In Progress: Completed by Weston Solutions, Inc. August 12, 2015 CoRR, Task Order 3 - Providing assistance with modifying or revising existing elements in the IDDE program.				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	30	From Table 1.a, Review results to date from the Illicit Discharge Detection and Elimination program (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4.	• CORR addresses this Permit activity in the IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information.	Given data collected, trends have not been identified.				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	31	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e).	• CORR will review its IDDE Program results annually and identify illicit discharges that contributed bacteria to the MS4. • CORR will develop strategies to address IDDEs found to contribute bacteria. The development and implementation of strategies will depend on the results. These strategies will be reported in subsequent Annual Reports.		In Progress: Completed by Weston Solutions, Inc. August 12, 2015 CoRR, Task Order 3 - Providing assistance with modifying or revising existing elements in the IDDE program.			16 months (if alone) or 20 months (cooperative) from effective date of MS4 Permit April. 22, 2016 or August 22, 2016	**August 22, 2016**	**20**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	32	Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary. As required in Part I.C.2.b.(i).(d), the annual report must include an analysis of how the selected BMPs have been effective in contributing to achieving the measurable goal and shall include graphic representation of pollutant trends, along with computations of annual percent reductions achieved from the baseline loads and comparisons with the target loads.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report. • Strategies developed to address IDDEs found to contribute bacteria to the MS4 will be reported in subsequent Annual Reports. • CORR will report annually on compliance monitoring to monitor and test for E. coli. This reporting will be done in accordance with Part III.A (Wet Weather Monitoring Program) of the MS4 Permit. This will include graphical representation of E. coli trends.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Feb. 10, 2016. No discharges observed during screening. See IDDE Program Binder or Annual Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 16, 2017. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report..	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on August 18, 2017. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 13, 2019. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report.	Annual Report (due Dec. 1)	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	33	**Discharges to Impaired Waters Without Approved TMDLs - Part I.C.2.b.(ii)**									
Not Included in NOI	34	According to the requirements in Part I.C.2.b.(ii), if the permittee discharges directly into an impaired water body without an approved TMDL, the permittee shall perform the following activities (described in sections below).	• Impairment for Dissolved Oxygen is addressed in the Endangered Species Act (ESA) section - Part I.C.3. Phase 1 permittee requirement only. • Impairment for PCBs is addressed in Compliance with Water Quality Standards - PCBs - Part I.C.1.e. Phase 1 permittee requirement only. • Impairment for Temperature is addressed in Compliance with Water Quality Standards - Temperature - Part I.C.1.f. Phase 1 permittee requirement only. • Compliance monitoring (Part III.A) includes Gross Alpha testing. Future assessment related to the impairment will be based on results of those samples.								Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division, MCM, and TAG
Not Included in NOI	35	The permittee shall: A. Determine whether the MS4 may be a source of the pollutant(s) of concern by referring to the CWA §303(d) list and then determining if discharges from the MS4 would be likely to contain the pollutant(s) of concern at levels of concern. The evaluation of CWA §303(d) list parameters should be carried out based on an analysis of existing data (e.g., IDDE Program) conducted within the permittees jurisdiction. B. Ensure that the SWMP includes focused BMPs, and corresponding measurable goals, that the permittee will implement, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. Only applicable if the permittee determines that the MS4 may discharge the pollutant(s) of concern to an impaired water body without a TMDL. The SWMP submitted with the first annual report must include a detailed description of proposed controls to be implemented along with measurable goals. C. Amend the SWMP to include any BMPs to address the pollutant(s) of concern.	• Refer to other SWMP sections for: - Dissolved Oxygen is addressed in the Endangered Species Act (ESA) section - Part I.C.3. - PCBs are addressed in Compliance with Water Quality Standards - PCBs - Part I.C.1.e. - Temperature is addressed in Compliance with Water Quality Standards - Temperature - Part I.C.1.f. • Compliance monitoring (Part III.A) includes Gross Alpha testing. Future assessment and strategies related to these impairments will be based on results of the stormwater samples.								

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	36	**Endangered Species Act (ESA) Requirements - Sediment Pollutant Load Reduction Strategy - Part I.C.3.b**									
Not Included in NOI	37	According to the requirements in Part I.C.3.b, the permittee must develop, implement, and evaluate a sediment pollutant load reduction strategy to assess and reduce pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters of the Rio Grande. The strategy must include the following elements (see sections below):	CORR's measurable goals for compliance with the Permit activities are described in the sections below.					See specific Permit activity schedules below.			
Not Included in NOI	38	(i) Sediment Assessment: The permittee must identify and investigate areas within its jurisdiction that may be contributing excessive levels (e.g., levels that may contribute to exceedance of applicable Water Quality Standards) of pollutants in sediments to the receiving waters of the Rio Grande as a result of stormwater discharges. The permittee must identify structural elements, natural or man-made topo-graphical and geographical formations, MS4 operations activities, and areas indicated as potential sources of sediments and pollutants in the receiving waters of the Rio Grande. At the time of assessment, the permittee shall record any observed erosion of soil or sediment along ephemeral channels, arroyos, or stream banks, noting the scouring or sedimentation in streams. The assessment should be made using available data from federal, state, or local studies supplemented as necessary with collection of additional data. The permittee must describe, in the first annual report, all standard operating procedures, quality assurance plans to assure that accurate data are collected, summarized, evaluated and reported.	• CORR's O&M activities, which include sediment removal, will be scheduled, tracked, and evaluated for the Sediment Assessment requirement for this Permit activity. • CORR will document its procedure for sediment removal, scheduling, and tracking related to using this information for the Sediment Assessment.					No Permit required schedule. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	39	(ii) Estimate Baseline Loading: Based on the results of the sediment pollutants assessment required in Part I.C.3.b.(i) above, the permittee must provide estimates of baseline total sediment loading and relative potential for contamination of those sediments by urban activities for drainage areas, sub-watersheds, Impervious Areas (IAs), and/or Directly Connected Impervious Area (DCIAs) draining directly to a surface waterbody or other feature used to convey waters of the United States. Sediment loads may be provided for targeted areas in the entire Middle Rio Grande Watershed using an individual or cooperative approach. Any data available and/or preliminary numeric modeling results may be used in estimating loads.	• CORR will utilize the data collected in the Sediment Assessment for estimating baseline sediment loading to its facilities.					No Permit required schedule. Interim reporting on progress required annually. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	40	(iii) Targeted Controls: Include a detailed description of all proposed targeted controls and BMPs that will be implemented to reduce sediment pollutant loads, calculated in Part I.C.3.b.(ii) above, during the next ten (10) years of permit issuance. For each targeted control, the permittee must include interim measurable goals (e.g., interim sediment pollutant load reductions) and an implementation and maintenance schedule, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions. Any data available and/or preliminary numeric modeling results may be used in establishing the targeted controls, BMPs, and interim measurable goals. The permittee must prioritize pollutant load reduction efforts and target areas (e. g. drainage areas, sub watersheds, IAs, DCIAs) that generate the highest annual average pollutant loads.	• After analyzing the Sediment Assessment findings, CORR will improve this program and program tracking to meet the Permit activity requirements. • CORR will begin adding a detailed description and photo for each facility (each existing targeted control) to its tracking spreadsheet or program procedure.					No Permit required schedule. Interim reporting on progress required annually. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			
Not Included in NOI	41	(iv) Monitoring and Interim Reporting: The permittee shall monitor or assess progress in achieving interim measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A.	• CORR will include in each Annual Report a progress update for this program.					Update as necessary for SWMP and report on progress with each Annual Report.			
Not Included in NOI	42	(v) Progress Evaluation and Reporting: The permittee must assess the overall success of the Sediment Pollutant Load Reduction Strategy and document both direct and indirect measurements of program effectiveness in a Progress Report to be submitted with the fifth Annual Report. Data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of the BMPs and compliance with the ESA requirements specified in Part I.C.3.b. The Progress Report must include: (a) A list of species likely to be within the action area: (b) Type and number of structural BMPs installed; (e) Evaluation of pollutant source reduction effects; (d) Any recommendation based on program evaluation; (e) Description of how the interim sediment load reduction goals established in Part I.C.3.b.(iii) were achieved; and (f) Future planning activities needed to achieve increase of sediment load reduction required in Part I.C.3.d.(iii).	• CORR will complete and provide to EPA with the fifth Annual Report, due Dec. 1, 2019, a Progress Report on the Sediment Pollutant Load Reduction Strategy. This Progress report will meet the Permit requirements.					Progress Report to be submitted with the fifth Annual Report Dec. 1, 2019			

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	43	(vi) Critical Habitat: Verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered or threatened species critical habitat by reviewing the activities and locations of stormwater BMP installation within the location of critical habitat of currently listed endangered or threatened species at the FWS website http://criticalhabitat.fws.gov/crithab/.	• CORR will continue its practice of coordination with the USFWS and USACE, as required, related to CORR's facility construction projects.					No Permit required schedule. Ongoing requirement of the MS4 Permit.			

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	44	**Part I.D.5 - Stormwater Management Plan (SWMP) Control Measures**									
	45	**TABLE 2: Construction Site Stormwater Runoff Control - Part I.D.5.a**									
See NOI Sections Below	46	5.a.(i) The permittee shall develop, revise, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. Permittees previously covered under permit NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit. (Note: Highway Departments and Flood Control Authorities may only apply the construction site stormwater management program to the permittees own construction projects)	• Coordinate CSSRCP requirements (as detailed in Program and in sections below)	Continuing to implement existing stormwater program, updating as necessary.							Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.1	47	Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)	CORR will continue to work with the MS4 Technical Advisory Group (TAG) and other agencies to discuss and help develop and/or enhance existing regulatory mechanisms.	Full Implemented: CORR Municipal Code 153.35(F)(2)(d).				N/A	**June 22, 2016**	**18**	Program Lead: Development Services Engineering Division Manager Implementation: Development Services Department
1.2	48	Develop requirements and procedures as required in Part I.D.a(ii).(b) through Part I.D.a(ii).(h). These Permit sections include requirements for CORR to implement and enforce requirements for construction site operators to 1) implement appropriate erosion and sediment control BMPs - Part I.D.a(ii).(b) and 2) control waste at the construction site that may cause adverse impacts to water quality - Part I.D.a(ii).(c). Permit sections also include requirements to develop procedures for site plan review which incorporate consideration of potential water quality impacts - Part I.D.a.(ii).(d); receipt and consideration of information submitted by the public - Part I.D.a.(ii).(e); site inspection (during construction) and enforcement of control measures - Part I.D.a.(ii).(f); to educate and train permittee personnel and developers, construction site operators, contractors and supporting personnel - Part I.D.a.(ii).(g); and for keeping records of and tracking all regulated construction activities within the MS4 - Part I.D.a.(ii).(h).	• Review site plans and the SWPPPs for CORR-owned projects disturbing at least one acre in order to consider potential water quality impacts and ensure consistency with federal, state and local sediment and erosion control requirements. Ensure SWPPPs for projects are developed by qualified individuals. • Conduct pre-construction meetings on CORR-owned construction projects disturbing at least one acre prior to beginning earth-disturbing activities in order to discuss the SWPPP, NOI and BMPs. • CORR will post a contact phone number at all required construction sites. • In a cooperative effort with SSCAFCA, the DSD ENG reviews private development that has a direct connection to CORR facilities for projects disturbing at least one acre. Review includes stormwater conveyance, water quality and erosion control. • CORR will maintain records of all CORR-owned construction projects disturbing at least one acre within its rights-of-way.	Fully Implemented - Continuing to implement existing program, updating as necessary.					**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
1.3	49	Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.a.(iii)	• CORR will complete the inspections for 100% of the active construction sites under contract by CORR which disturb at least one acre. • CORR will develop a SWPPP inspection form and will track all MS4 inspections using a tracking spreadsheet. • CORR will maintain copies of the completed MS4 inspection forms. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande.	Fully Implemented - Continuing to implement existing program, updating as necessary.					**December 22, 2016**	**24**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.4	50	Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.a.(iv). Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.	• CORR will continue regular coordination amongst engineering staff and to verify that BMPs are in place to control erosion during construction on CORR-owned projects.	In Progress - Continuing to coordinate and implement existing program, updating as necessary.	In Progress - Continuing to coordinate and implement existing program, updating as necessary.	Fully Implemented: Weston Solutions, Inc. provided draft stormwater quality ordinance to NAIOP on 3/21/2018. Planning & Zoning Board - Approves the Ordinance amending the Rio Rancho Code of Ordinances Title XV Land Usage, Chapter 153 Erosion Control; Storm Drainage Sections 153.01 – 153.38		10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	
1.5	51	Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.a.(v). The site plan review must include an evaluation of opportunities for use of GI/LID/ Sustainable practices and when the opportunity exists, encourage project proponents to incorporate such practices into the site design to mimic the pre-development hydrology of the previously undeveloped site. For purposes of this permit, pre-development hydrology shall be met according to Part I.D.5.b of this permit (consistent with any limitations on that capture). Include a reporting requirement of the number of plans that had opportunities to implement these practices and how many incorporated these practices.	• CORR will annually report the number of plans that were reviewed within CORR's right-of-ways that had opportunities to implement GI/LID/Sustainable practices and how many incorporated these practices.	In Progress - Continuing to coordinate and implement existing program, updating as necessary.	In - Process - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on March 16, 2017	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.35(F)(2)(e) Stormwater Quality Design (SQD).		14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	N/A
Not Included in NOI	52	Update the SWMP document and annual report as required in Part I.D.5.a.(vi) and in Part I.D.5.a.(vii)	• Annually evaluate and revise the CSSRCP, as necessary, to ensure that CORR's Program meets the MS4 Permit requirements. • Include in each annual report a summary of the number and frequency of site reviews and inspection activities that are conducted annually and cumulatively during the permit term.	See Annual Report, Section 4. Construction.	See Annual Report, Section 4. Construction.	See Annual Report, Section 4. Construction.	See Annual Report, Section 4. Construction, and SWMP Section 5.3 CGP Compliance Inspection List	Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.6	53	Enhance the program to include the elements in Part I.D.5.a.(viii) through part I.D.5.a.(x). These include: (viii) Use of stormwater educational materials; (ix) Develop or update existing construction handbooks; and (x) construction inspections may be carried out in conjunction with other inspections and use a screening prioritization process.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities where educational materials were dispersed and shared with the public. • CORR will continue to attend and participate in the TAG to exchange information with other MS4s regarding potential program enhancements.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2015-Jun. 2016) Annual Report	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2016-Jun. 2017) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2017-Jun. 2018) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2018-Jun. 2019) Annual Report.	Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	54	**TABLE 3: Post-Construction Stormwater Management in New Development and Redevelopment- Part I.D.5.b**									
See NOI Sections Below	55	Part I.D.5.b.(i) The permittee must develop, revise, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit. (Note: Highway Departments and Flood Control Authorities may only apply the post-construction stormwater management program to the permittees own construction projects).	Track and enforce CORR Development Manual and federal USEPA NOI procedures for new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4.	Continuing to implement existing program, updating as necessary.				See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.1	56	Development of strategies as required in Part I.D.5.b.(ii).(a). Strategies which include a combination of structural and/or non-structural best management practices (BMPs) to control pollutants in stormwater runoff.	• CORR will continue to include both structural and non-structural BMPs to control pollutants in stormwater runoff from CORR owned facilities.	In Progress - Continuing to implement existing program, updating as necessary.	In - Progress - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on May 5, 2017.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.35(F)(2)(e). EPA publication number 832-R-14077 is included in the definition of Stormwater Quality Design Storm/Event.		10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.2	57	Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii)(b)	• CORR will continue to work with the MS4 Technical Advisory Group (TAG) and other agencies to discuss and help develop regulatory mechanisms.		In - Progress - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on May 5, 2017.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.21(B)(2)(f).		24 months (cooperative) from effective date of MS4 Permit Dec. 22, 2016	**December 22, 2017**	**36**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.3	58	Implementation and enforcement, via the ordinance or other regulatory mechanism of site design standards as required in Part I.D.5.b.(ii).(b).	• CORR will develop strategies to administratively or contractually address post-construction peak flow runoff from new development and redevelopment projects within CORR's jurisdiction and/or right of ways to the extent allowable under State, Tribal, or local law.			Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.37 Enforcement.		36 months (cooperative) from effective date of MS4 Permit Dec. 22, 2017	**December 22, 2018**	**48**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.4	59	Ensure appropriate implementation of post-construction structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d).	• Ensure post-construction program requirements are constantly reviewed as appropriate to incorporate improvements in control techniques.		In - Progress - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on May 5, 2017.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.21 Stormwater Quality Protection.		10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
2.5	60	Develop procedures as required in Part I.D.5.b.(ii). (e) - for educational program for project developers; Part I.D.5.b.(ii). (f) - for site inspections and enforcement for long-term operation, maintenance, and repair of BMPs; Part I.D.5.b.(ii). (g) - for control of discharge related to pesticides, herbicides, and fertilizer; and Part I.D.5.b.(ii). (h) - for review and update of the post-construction program.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize, if applicable, the activities where educational materials were dispersed and shared with project developers.	All elements of the Proposed Plan have been implemented. See MRGSWQT Outcomes Report.				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.6	61	Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/ activities within the permit area as required in Part I.D.5.b.(iii) related to developed hydrology mimicking pre-development hydrology.	• CORR will coordinate internally on studies and projects for MS4 Permit compliance with developed hydrology mimicking pre-development hydrology. CORR will abide by the NM OSE rule and plan/design its facilities to drain within 96 hours per the OSE requirements.	Fully Implemented: CORR requires all construction projects to adhere to the following design standard: CORR Development Manual, Vol. II, Storm Drainage Release Rate - The maximum discharge from developed property in the event of a 100 year 6 hour storm shall be the amount of the historic or pre-developed runoff in all watersheds in the City of Rio Rancho.				10 months from effective date of MS4 Permit Oct. 22, 2015	**December 22, 2015**	**12**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.7	62	As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices.	• CORR will assess existing codes, ordinances, planning documents and other applicable regulations for impediments to the use of GI/LID/Sustainable practices that CORR has jurisdiction over		In Progress - Reviewing existing Chapter 153 ordinance.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. Chapter 153 promotes and encourages the use of GI/LID for water conservation in landscaping and in the treatment of stormwater prior to discharge to the WOTUS.		2 years from effective date of MS4 Permit Dec. 22, 2016	**December 22, 2016**	**24**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.8	63	As required in Part I.D.5.b.(iv), develop and submit a report of the assessment findings on GI/LID/Sustainable practices.	• CORR will develop and submit a report of the assessment findings on GI/LID/Sustainable practices. This will be completed in by March 2017 and submitted to the EPA with the Annual Report, due Dec. 1, 2017.					27 months (cooperative) from effective date of MS4 Permit March 22, 2017	**March 22, 2017**	**27**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.9	64	Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi).	• CORR will estimate the IA and DCIA within regulated jurisdiction and/or right of way. This will be done annually as part of the Annual Report preparation. This will be a cooperative effort with other Middle Rio Grande MS4s.		In Progress - Working with Records and GIS Department	IA and DCIA boundary map created on July 27, 2017. City Boundary 66,438 acres, Urbanized Area Boundary 23,636 acres, Impervious Surface 5, 224 acres.		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
2.10	65	Inventory and priority ranking as required in Part I.D.5.b.(vii) for MS4-owned property and infrastructure (including public right-of-way) that may have the potential to be retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges to and from its MS4.	• CORR will continue to meet with agencies within its jurisdiction to discuss the areas requiring drainage and water quality retrofitting within the Middle Rio Grande Watershed, project priorities, and multi-agency funding contributions. • CORR will utilize the Project Schedule to prioritize water quality projects and water quality retrofit projects. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande. • CORR will evaluate the existing BMPs within its most urbanized watershed, the Montoya's Arroyo watershed, based on their effectiveness and capacity. These studies will provide the basis for determining where additional BMPs may be required within this watershed.			In-Progress - RFP process, site vest(s), design review.	Fully Implemented: Completed July 2, 2019 Engineering Design Analysis Report City of Rio Rancho MS4 Outfalls. Completed August 29, 2019 MS4 Outfall Improvements - engineering drawings, specifications, and probable cost.	42 months (cooperative) from effective date of MS4 Permit June 22, 2018	**June 22, 2018**	**42**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.11	66	Incorporate watershed protection elements into regular planning or policy documents as required in Part I.D.5.b.(viii). As applicable to each permittee's MS4 jurisdiction, policy and/or planning documents must include the following: (a) A description of master planning and project planning procedures to control the discharge of pollutants to and from the MS4. (b) Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by controlling the unnecessary creation, extension and widening of impervious parking lots, roads and associated development. (c) Identify environmentally and ecologically sensitive areas that provide water quality benefits and serve critical watershed functions within the MS4 and ensure requirements to preserve, protect, create and/or restore these areas are developed and implemented during the plan and design phases of projects in these identified areas.	• CORR will participate in meetings for project planning of infrastructure retrofitting either on a watershed wide or regional scale. • For projects led by CORR, watershed protection elements will be incorporated into Drainage Management Plans, as appropriate, in order to identify watersheds which potentially can be retrofitted with regional water quality facilities.		In Progress - Reviewing existing Chapter 153 ordinance.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted.		10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
2.11	67	Continuation of incorporate watershed protection elements into regular planning or policy documents as required in Part I.D.5.b.(viii). (d) Implement stormwater management practices that minimize water quality impacts to streams, including disconnecting direct discharges to surface waters from impervious surfaces such as parking lots. (e) Implement stormwater management practices that protect and enhance groundwater recharge as allowed under the applicable water rights laws. (f) Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges. (g) Develop and implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils. (h) The program must be specifically tailored to address local community needs (e.g. protection to drinking water sources, reduction of water quality impacts) and must be designed to attempt to maintain pre-development runoff conditions.	• CORR will develop a written procedure that includes applicable watershed protection elements in Part I.D.5.b.(viii).(g) as required in the MS4 Permit and as applicable to CORR. • CORR will continue to contribute and participate in the MRGSWQT, which supports programs tailored to address local community needs and are designed to attempt to maintain pre-development runoff conditions.		In Progress - Reviewing existing Chapter 153 ordinance.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted.		10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	68	Update the SWMP document and annual report as required in Part I.D.5.b.(ix) and Part I.D.5.b.(x). The following information must be included in each annual report: (a) Include a summary and analysis of all maintenance, inspections and enforcement, and the number and frequency of inspections performed annually. (b) A cumulative listing of the annual modifications made to the Post-Construction Stormwater Management Program, and (c) According to the schedule presented in Table 3, the permittee must: A. Report the number of MS4-owned properties and infrastructure that have been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges. B. As required in Part I.D.5.b.(vi), report the tabulated results for IA and DCIA and its estimation methodology.	• CORR will continue to track all maintenance activity related to maintenance of all CORR owned water quality structures. A summary of the information will be included in each annual report. • CORR will include a cumulative list of retrofitted CORR facilities in each annual report. • CORR will continue to provide MRG permittees with information to support their IA and DCIA reporting requirements to EPA.					Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		
2.12	69	Enhance the program to include the elements in Part I.D.5.b.(xi) and Part I.D.5.a.(xii). These include: (xi) Use of stormwater educational materials; (xii) Develop or update existing construction handbooks; and (x) participate in watershed planning efforts to aid with BMP selection and planning.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities where educational materials were dispersed and shared with the public. • CORR will continue to contribute and participate in the MRGSWQT, which supports post-construction programs. • CORR will participate in any meetings regarding watershed planning efforts. CORR will continue to produce and publish the CORR ICIP annually. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report.				Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering and MRGSWQT

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	70	**TABLE 4: Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Part I.D.5.c**									
3.1	71	Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i). Elements include: employee training program to incorporate pollution prevention and good housekeeping, including a tracking procedure (Part I.D.5.c.(i).(a)); O&M activities, schedules, and long term inspections procedures for structural and non-structural stormwater controls (Part I.D.5.c.(i).(b)); Controls for reducing or eliminating the discharge of pollutants from City owned facilities (Part I.D.5.c.(i).(c)) Procedures for properly disposing of waste removed from CORR facilities (sediment, floatables, and other debris) (Part I.D.5.c.(i).(d)); and procedures to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices (Part I.D.5.c.(i).(e)).	• The City will then develop/enhance the training programs targeting requirements of Part I.D.D.c.(i) including a tracking procedure that ensures employee turnover is considered. • The City will develop a pollution prevention and good housekeeping annual workshop/training for municipal employees responsible for operations and maintenance of the pertinent City facilities.	In Progress - Facility Evaluation(s)	In Progress - Facility Evaluation(s)	In - Process - Consultant Notice to proceed: October 10, 2017 - SWPPP for Streets and Right of Way Facilities May 23, 2018 - SWPPP for Building and Fleet Maintenance February 12, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard	Fully Implemented on August 1, 2018 - SWPPP for Streets and Right of Way Facilities Fully Implemented on September 27, 2018 - SWPPP for Building and Fleet Maintenance Fully Implemented on June 3, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard	18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	
3.2	72	Enhance the program to include the elements in Part I.D.5.c.(ii). These include: (a) Develop or update the existing list of all stormwater quality facilities by drainage basin, including location and description;			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	73	(b) Develop or modify existing operational manual for de-icing activities addressing alternate materials and methods to control impacts to stormwater quality;			In Progress - Facility Evaluation(s)	Reactive Snow Removal Program - The City does not perform snow and ice removal for residential streets.		30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	74	(c) Develop or modify existing program to control pollution in stormwater runoff from equipment and vehicle maintenance yard;	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In Progress - Facility Evaluation(s)	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F		30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	75	(d) Develop or modify existing street sweeping program. Assess possible benefits from changing frequency or timing of sweeping activities or utilizing different equipment for sweeping activities;			In Progress - Facility Evaluation(s)	Reactive Street Sweeping Program - Road sweeping consists of sweeping paved roads as conditions permit. The City attempts to sweep all residential roads at least once every two years.		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	76	(e) A description of procedures used by permittees to target roadway areas most likely to contribute pollutants to and from the MS4 (i.e., runoff discharges directly to sensitive receiving water, roadway receives majority of de-icing material, roadway receives excess litter, roadway receives greater loads of oil and grease);			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	77	(f) Develop or revise existing standard operating procedures for collection of used motor vehicle fluids (at a minimum oil and antifreeze) and toxics (including paint, solvents, fertilizers, pesticides, herbicides...) used in permittee operations;	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In Progress - Facility Evaluation(s)	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
3.2	78	(g) Standard operating procedure for disposal of accumulated sediments, floatables, and debris;			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	79	(h) litter source control program, include targeted public awareness campaign;			In Progress - Facility Evaluation(s)	Fully Implemented - See Section 4 - MRG SWQ Outcomes Report		30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	80	(i) Develop or review and revise, as necessary, the criteria, procedures and schedule to evaluate existing flood control devices, structures and drainage ways to assess the potential of retrofitting to provide additional pollutant removal from stormwater. Implement routine review to ensure new and/or innovative practices are implemented where applicable.			In Progress - Facility Evaluation(s)	In-Progress - See Section 2: Stormwater Outfall RFP		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	81	j) Enhance inspection and maintenance programs by coordinating with maintenance personnel to ensure that a target number of structures per basin are inspected and maintained per quarter;			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	82	(k) Enhance the existing program to control the discharge of floatables and trash from the MS4 by implementing source control of floatables in industrial and commercial areas;			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	83	(l) Include in each annual report, a cumulative summary of retrofit evaluations conducted during the permit term on existing flood control devices, structures and drainage ways to benefit water quality. Update the SWMP to include a schedule (with priorities) for identified retrofit projects;			In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit Oct. 22, 2015 or June 22, 2017	**June 22, 2017**	**30**	
3.2	84	(m) Flood management projects: review and revise, as necessary, technical criteria guidance documents and program for the assessment of water quality impacts and incorporation of water quality controls into future flood control projects. The criteria guidance document must include the following elements: A. Describe how new flood control projects are assessed for water quality impacts. B. Provide citations and descriptions of design standards that ensure water quality controls are incorporated in future flood control projects. C. Include method for permittees to update standards with new and/or innovative practices. D. Describe master planning and project planning procedures and design review procedures.	.		In Progress - Facility Evaluation(s)	Fully Implemented -		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	85	(n) Develop procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied, by the permittee's employees or contractors, to public right-of-ways, parks, and other municipal property. The permittee must provide an updated description of the data monitoring system for all permittee departments utilizing pesticides, herbicides and fertilizers.	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In Progress - Facility Evaluation(s)	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
3.3	86	Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii).		Fully Implemented: GIS map complete.				18 months (cooperative) from effective date of MS4 Permit	**June 22, 2016**	**18**	
Not Included in NOI	87	Update the SWMP document and annual report as required in I.D.5.c.(iv) and Part I.D.5.c.(v). The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.c.(i) throughout Part I.D.5.c.(iii) and its corresponding measurable goal. The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.		In Progress - Facility Evaluation(s)	In Progress - Facility Evaluation(s)	October 10, 2017 - SWPPP for Streets and Right of Way Facilities May 23, 2018 - SWPPP for Building and Fleet Maintenance February 12, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard	Fully Implemented on August 1, 2018 - SWPPP for Streets and Right of Way Facilities Fully Implemented on September 27, 2018 - SWPPP for Building and Fleet Maintenance Fully Implemented on June 3, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard	Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	88	**TABLE 5: Industrial and High Risk Runoff - Part I.D.5.d**									
4	89	As described in Part I.D.5.d, the permittees shall: (i) control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi). If no such industrial activities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.		**Not Applicable**							

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	90	**TABLE 6: Illicit Discharges and Improper Disposal - Part I.D.5.e**									
See NOI Sections Below	91	As described in Part I.D.5.e.(i), the permittee shall develop, revise, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) entering the MS4. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The permittee must (see required items listed below):	• The CORR NPDES Project Manager will continue to review, revise, and implement the Illicit Discharge Detection and Elimination Program requirements. • CORR will update their current written procedure for this program element. • CORR is pursuing developing a cooperative program elements for this program.	Continuing to implement existing program, updating as necessary.				See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.1	92	Mapping as required in Part I.D.5.e.(i).(a). Develop, if not already completed, a storm sewer system map, showing the names and locations of all outfalls as well as the names and locations of all waters of the United States that receive discharge from those outfalls. Identify all discharges points into major drainage channels draining more than twenty (20) percent of the MS4 area;	• CORR will continue to keep this maintenance map up-to-date for CORR facilities and other MS4 permittee facilities, as information is provided. Cooperation with other MS4s will continue related to this map.	Fully Implemented - See SWMP Appendix E and G.				14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	Program Lead: NDPES Project Manager Implementation: Development Services Department Engineering, Recorder and GIS Section, and Consultant
5.2	93	Ordinance (or other control method) as required in Part I.D.5 .e.(i)(b).	• As necessary, draft amendments to existing ordinance prohibiting non-stormwater discharges into the MS4.		In Progress - Reviewing existing Chapter 153 ordinance.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.30		10 months from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.3	94	Develop and implement a IDDE plan as required in Part I.D.5.e.(i).(c). The permittee must include the following elements in the plan: A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, E. coli, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather; B. Procedures for enforcement, including enforcement escalation procedures for recalcitrant or repeat offenders; C. Procedures for removing the source of the discharge; D. Procedures for program evaluation and assessment; and E. Procedures for coordination with adjacent municipalities and/or state, tribal, or federal regulatory agencies to address situations where investigations indicate the illicit discharge originates outside the MS4 jurisdiction.	• CORR will continue implementing the existing IDDE program. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to the IDDE program. • CORR will begin developing a written procedure for this program element. • CORR is pursuing developing a cooperative program for this program element with permittees located within CORR's jurisdiction.	In Progress: Completed by Weston Solutions, Inc. August 12, 2015 CoRR, Task Order 3 - Providing assistance with modifying or revising existing elements in the IDDE program.	In Progress - Reviewing existing Chapter 153 ordinance.	Fully Implemented: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.30		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.4	95	Develop an education program as required in Part I.D.5.e.(i).(d). Develop an education program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. The permittee shall inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.	• CORR will continue its involvement with and financial support of BEMP and RiverXchange through the MRGSWQT. • CORR will work with the MRGSWQT to inform the general public of the hazards associated with illegal discharges and improper disposal of waste. • The MRGSWQT Outcomes Report will be submitted in the Annual Report. • CORR will continue an in-house training program for its administrative, engineering and field employees regarding illegal discharges and improper disposal of waste.	The Middle Rio Grande Stormwater Quality Team has published outreach material "Keep the Rio Grand - Reduce Stormwater Pollution at Home!" CORR				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
5.5	96	Establish a hotline as required in Part I.D.5.e.(i).(e).	• CORR will continue to respond to the information received from this application integral to the IDDE program.	Fully Implemented: Report Rio Rancho App/Website has a NEW report type "Environmental Concern" which tracks Illicit Discharge of Waste, Surface Sewage/Failed Septic Systems and Water Waste.				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Information Technologies / Public Works Records & GIS
5.6	97	Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i).(f). Investigate suspected significant/severe illicit discharges within forty-eight (48) hours of detection and all other discharges as soon as practicable; elimination of such discharges as expeditiously as possible; and, requirement of immediate cessation of illicit discharges upon confirmation of responsible parties. Illicit Discharge is defined in 40 CFR 122.26(b)(2)as "Illicit discharge means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities."	• CORR will continue its policy of investigation of suspected significant/severe illicit discharges within 48 hours of detection and all other discharges as soon as practicable. • CORR will continue investigation and documentation of all applicable illicit discharge complaints (using IDDE Incident Report Form) received through the Report Rio Rancho website/app, as well as other complaints received directly by CORR staff through e-mail, phone, or observation. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to investigation of illicit discharges. • CORR will develop a written procedure for this program element and develop an electronic field form for gathering applicable information regarding reported IDDE.	Fully Implemented:		Fully Implemented/Revised: On May 23, 2018 amendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.32		18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
5.7	98	Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i).(g). Review complaint records for the last permit term and develop a targeted source reduction program for those illicit discharge /improper disposal incidents that have occurred more than twice in two (2) or more years from different locations.	• CORR will continue its policy of reviewing complaint records. This will include a focus on illicit discharges contributing bacteria to the MS4. • Annually, CORR will reevaluate its targeted source reduction program. Potential future targets will be determined and cooperative efforts for targeted source reduction programs with MRGSWQT members will be considered. • CORR will continue adding illicit discharge complaint records for the permit term to the CORR GIS database to help identify sources and trends. • CORR continue developing a cooperative for this program element.	Given data collected, trends have not been identified.				1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	99	As required in Part I.D.5.e.(ii), the permittee shall address the following categories of non-stormwater discharges or flows (e.g., illicit discharges) only if they are identified as significant contributors of pollutants to the MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(90)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. Note: Discharges or flows from fire fighting activities are excluded from the effective prohibitions against non-stormwater and need only be addressed where they are identified a significant sources of pollutants to water of the United States).	• The CORR NPDES Project Manager will review this list annually to check that the categories of authorized non-stormwater discharges are still not considered significant contributors of pollutants to the MS4.	No significant contributors or pollutants to the MS4 found.				No specific implementation schedule, CORR will review annually.			
5.8	100	As required in Part I.D.5.e.(iii), the permittee must screen the entire jurisdiction at least once every five (5) years and high priority areas at least once every year. High priority areas include any area where there is ongoing evidence of illicit discharges or dumping, or where there are citizen complaints on more than five (5) separate events within twelve (12) months. The permittee must: (a) Include in its SWMP document a description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected. (b) Comply with the dry weather screening program established in Table 6 and the monitoring requirements specified in Part III.A.2. (c) If applicable, implement the priority ranking system developed in previous permit term.	• CORR will develop screening procedures, protocols and plan in years 1-3 for the Permit (Dec. 22, 2014 through Dec. 22, 2017). This may be done as a cooperative program. • CORR will implement the IDDE required screening activities for a minimum of 30% of the MS4 by the end of year 4 for this Permit (Dec. 22, 2018). • CORR will complete the IDDE required screening activities for 70% the of the MS4 system by the end of year 5 for this Permit (Dec. 22, 2019). • CORR will continue membership and involvement in the cooperative MRGSWQT which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening for illicit discharges. • CORR is pursuing developing a cooperative for this program element, including implementing the priority ranking system.					Cooperative program - High Priority - screen 1x per year. -Years 1 -3: develop procedures as required in Part I.D.5.e.(i).(c). -Year 4: screen 30% of the MS4 area. -Year 5: screen 70% of the MS4 area.	**See Measurable Goal Schedule**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
5.9	101	Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv).	• CORR will work with Sandoval County to increase the number of Household Hazardous Waste collection days hosted. • CORR will continue working with Sandoval County and SSCAFCA on watershed clean-up events		Fully Implemented: City of Rio Rancho/Sandoval County Recycling Center opened in 2011	**CITY OF RIO RANCHO/ SANDOVAL COUNTY RECYCLING CENTER CLOSURE:** The City of Rio Rancho and Sandoval County joint recycling center located off Iris Road closed on June 23, 2018. The facility officially opened on 2011 in response to citizen input. However, Rio Rancho residents are now being offered more extensive and convenient trash and recycling pickup services directly at their homes through Waste Management that create operating efficiencies and reduce the need for an alternate recycling facility. For more information about Waste Management's services for the City of Rio Rancho, please visit home.wm.com/RIO-rancho.	**NEW! WASTE MANAGEMENT'S AT YOUR DOOR SPECIAL COLLECTION SERVICE.** A three step system to collect electronics, paint, motor oil, pool chemicals, batteries, and other household hazardous waste. Waste Management provides residential services as well: Bulk item collection, Free Glass Drop-off, Yard Waste, and Free Monthly Landfill Access	30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering, Parks and Rec, KRRB, and Waste Management Services.
5.10	102	Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v). The Spill Prevention and Response program shall include: (a) Where discharge of material resulting from a spill is necessary to prevent loss of life, personal injury, or severe property damage, the permittee(s) shall take, or ensure the party responsible for the spill takes, all reasonable steps to control or prevent any adverse effects to human health or the environment: and (b) The spill response program may include a combination of spill response actions by the permittee (and/or another public or private entity), and legal requirements for private entities within the permittees municipal jurisdiction.	• CORR will continue to cooperate with overlapping jurisdictions for spill response. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) and the MRGSWQT which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to spill prevention and response.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Division conducts annual inspections.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Division conducts annual inspections.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Division conducts annual inspections.	Fully Implemented: Stormwater Pollution Prevention Plans (SWPPP) are implemented for all major municipal operations (fleet and building maintenance, streets and right-of-way maintenance, and parks, recreation and community services). SWPPP's contain a Spill Response Plan specific to each facility.	18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
Not Included in NOI	103	Update the SWMP document and annual report as required in Part I.D.5.e.(iii), Part I.D.5.e.(vi), and Part I.D.5.e.(vii). A description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.e, for the above-mentioned SWMP elements, and develop a strategy, if applicable, to implement any new program requirements. • CORR will include a review of the screening completed and the data collected will be included in the Annual Report.					Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
5.11	104	Enhance the program to include requirements in Part I.D.5.e.(ix). The permittee may: (a) Divide the jurisdiction into assessment areas where monitoring at fewer locations still provides sufficient information; (b) Downgrade high priority areas after the area has been screened at least once and there are citizen complaints on no more than 5 separate events within a 12 month period; (c) Rely on a cooperative program with other MS4s for detection and elimination of illicit discharges and illegal dumping; (d) If cooperative program, required detection program frequencies may be based on the combined jurisdictional area rather than individual jurisdictional areas to reduce total number of screening locations; (e) After screening a non-high priority area once, adopt an "in response to complaints only" IDDE for that area (no more than 2 separate events within a 12 month period); (f) Enhance the program to utilize methodologies consistent with those described in "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments."	• CORR will document enhancements made with enhancement activities in the SWMP and Annual Report.					Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
	105	**TABLE 7: Control of Floatables Discharges - Part I.D.5.f**									
6.1	106	As required in Part I.D.5.f.(i), the permittee must develop, update, and implement a program to address and control floatables in discharges into the MS4. The floatables control program shall include source controls and, where necessary, structural controls. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The permittee shall develop or update a schedule to implement as required in Part I.D.5.f.(i).(a).	• The CORR NPDES Project Manager will continue to review, revise, and implement a program to address and control floatables in discharges into the MS4. CORR will develop a written procedure for this program element. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related control of floatables discharges. • CORR will continue utilizing the manual trash collection contracts. • CORR will continue cooperative watershed clean-up events with the City of Rio Rancho. • CORR is pursuing developing a cooperative program for this program element.	The majority of City ponds have existing water quality outlet structures that collect floatables.				18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
6.2	107	Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i).(b).	• CORR will include in each annual report an estimate of the annual volume of floatables and trash removed from each control facility and characterize the floatable type. • CORR will continue to improve SROW staff tracking methods, allowing CORR to better and more easily determine the volume of floatables and sediment removed from each CORR facility.		Fully Implemented: IDDE Program includes a Trash Survey Form. Estimated volume of floatables and trash removal are calculated annually.			10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: Streets and Right-of -Way Manager Implementation: Public Works Department
Not Included in NOI	108	Update the SWMP document and annual report as required in Part I.D.5.f.(ii) and Part I.D.5.f.(iii).	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.f, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report.	In Progress - Completed by Weston Solutions, Inc. December 18, 2015 CoRR, Task Order 3 - Providing assistance with developing, implementing, and enforcing a program to address and control floatables in the MS4. Given data collected, trends have not been identified				Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	109	**TABLE 8: Public Education and Outreach on Stormwater Impacts - Part I.D.5.g**									
7.1	110	Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii). This comprehensive stormwater program should educate the community, employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater.	• CORR will contribute and participate in the MRGSWQT. • The MRGSWQT Outcomes Report will be submitted in the Annual Report. • CORR will continue to conduct education and outreach presentations to the community specific to CORR facilities and water quality.	MRGQST members continue develop, revise, implement, and maintain education and outreach programs.				14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering, KRRB, and MRGSWQT
7.2	111	Update the SWMP document and annual report as required in Part I.D.5.g.(iii) and Part I.D.5.g.(iv). (iii) The permittee must include the following information in the SWMP document: (a) A description of a program to promote, publicize, facilitate public reporting of the presence of illicit discharges or water quality associated with discharges from MS4s; (b) A description of the education activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; & (c) A description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.g.(i) and Part I.D.5.g.(ii) and its corresponding measurable goal. (iv) The permittee must assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the Annual Report.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.g, for the above-mentioned SWMP elements, and assess the overall success of the program and document direct and indirect measurements of the program effectiveness in the Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report.				Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
7.2	112	Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii). (v) Where necessary to comply with the MS4 Permit, the permittee should develop a program or modify/revise an existing education and outreach program to: (a) Promote, publicize, and facilitate the use of GI/LID/Sustainability practices; and (b) Include an integrated public education program regarding litter reduction, reduction in pesticide/herbicide use, recycling, and disposal (including yard waste, hazardous waste materials, and used motor vehicle fluids), and GI/ LID/ Sustainable practices (as allowed by the NM OSE). (vi) The permittee may collaborate or partner with other MS4 operators to maximize the program and cost effectiveness of the required outreach. (vii) The education and outreach program may use citizen hotlines as a low-cost strategy to engage the public in illicit discharge surveillance. (viii) The permittee may use stormwater educational materials provided by the State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The permittee may also integrate the education and outreach program with existing education and outreach programs in the MRG area.	• If enhancement activities are implemented, CORR will annually document progress made with these program enhancement activities.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report.				Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members, KRRB,

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	113	**TABLE 9: Public Involvement and Participation - Part I.D.5.h**									
8.1	114	Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii). This plan should provide opportunities for participation in the review, modification and implementation of the SWMP; develop and implement a process by which public comments to the plan are received and reviewed by the person(s) responsible for the SWMP; and make the SWMP available to the public and to the operator of any MS4 or Tribal authority receiving discharges from the MS4.	• Post the draft SWMP, any SWMP amendments or modifications, and draft Annual Reports to CORRs NPDES Stormwater Program www.rrnm.gov/index.aspx?nid=2184 website with an explanation of the public comment period and instruction on how to submit comments. The posted documents will show redline and strikethrough of text additions and deletions and/or provide explanations for substantial changes. • A 30-day comment period will be allotted for SWMP document public review. • A 45-day comment period will be allotted for Annual Report document public review as required in Part III.B of the MS4 Permit. • Notice to the public will be done using CORRs NPDES Stormwater Program website.	Full Implemented: NOI, SWMP, Annual Report(s) are available to the public and to other operators via City of Rio Rancho Stormwater Webpage: https://rrnm.gov/2184/NPDES-Stormwater-Program				10 months from effective date of MS4 Permit Oct. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
8.1	115	As required in Part I.D.5.h.(iii), the Public Involvement and Participation Plan shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination. The permittee must include the following elements in the plan: (a) A detailed description of the general plan for informing the public of involvement and participation opportunities, including types of activities; target audiences; how interested parties may access the SWMP; and how the public was involved in development of the SWMP; (b) The development and implementation of at least one (1) assessment of public behavioral change following a public education and/or participation event; (c) A process to solicit involvement by environmental groups, environmental justice communities, civic organizations or other neighborhoods /organizations interested in water quality-related issues; and (d) An evaluation of opportunities to utilize volunteers for stormwater pollution prevention activities and awareness throughout the area.	• CORR will contribute and participate in the MRGSWQT, which participates in public events and solicit public participation and feedback by way of surveys. • In targeted areas, CORR will continue to it's "Scoop the Poop" public outreach campaign.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2015-Jun. 2016) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2016-Jun. 2017) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2017-Jun. 2018) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2018-Jun. 2018) Annual Report.	1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering and MRGSWQT
8.2	116	Comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv). Reporting notification requirements also in Part III.D.4.	• CORR will provide hard copies of relative MS4 compliance reporting documents to the NMED, Pueblos of Sandia and Isleta as required here and in Part III.D.4 of the MS4 Permit. • CORR will continue to post the SWMP and Annual Reports on CORRs NPDES Stormwater Program www.rrnm.gov/index.aspx?nid=2184 website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
8.3	117	Include elements as required in Part I.D.5.h.(v). The public participation process must reach out to all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other preexisting programs, or participating in volunteer monitoring efforts.	• CORR will continue to include (along with the cooperative MRGSWQT) water quality information for the public at events, including public meetings. Where neighborhoods include Spanish-speaking residents, CORR may have Spanish-translations available of public meeting announcements and data sheets. The educational videos on the MRGSWQT website (www.keeptheriograndе.org) all have Spanish subtitles. By attending a variety of events, at widespread locations throughout the area, and by using the leading area newspaper (Albuquerque Journal) to advertise events, The MRGSWQT ensures that a wide-range of economic and ethnic groups are reached.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. See (Jul. 2015-Jun. 2016) Annual Report	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. See (Jul. 2016-Jun. 2017) Annual Report	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. See (Jul. 2017-Jun. 2018) Annual Report	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. See (Jul. 2018-Jun. 2019) Annual Report	18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MRGSWQT
8.4	118	Update the SWMP document and annual report as required in Part I.D.5.h.(vi), Part I.D.5.h.(vii), and Part I.D.5.h.(viii). The permittee must provide public accessibility of the SWMP and Annual Reports online via the Internet and during normal business hours at the MS4 operator's main office for public inspection and copying consistent with any applicable federal, state, tribal, or local open records requirements. Upon a showing of significant public interest, the MS4 operator is encouraged to hold a public meeting (or include in the agenda of in a regularly scheduled city council meeting, etc.) on the NOI, SWMP, and Annual Reports.	• As part of the Annual Report process each year, the Deputy Development Services Director and Engineering Division Manager will review the program requirements listed in Part I.D.5.h, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report. • CORR will provide public accessibility of the SWMP document and most recent Annual Report online via the Internet (www.rrnm.gov/index.aspx?NID=2184) and during normal business hours at the CORR office. CORR is located at 3200 Civic Center Circle NE, Rio Rancho, NM 87144. The phone number is 505-891-5045.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
8.5	119	Enhance the program to include requirements in Part I.D.5.h.(ix).	• CORR will annually document progress made with these program enhancement activities. CORR and the MRGSWQT will continue to review, update, and enhance public involvement and participation programs.	MRGQST has continued its educational partnerships with BEMP and RiverXchange. Total budget spent on both programs = $14,692.50. See (Jul. 2015-Jun. 2016) Annual Report.				Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	120	**Part III - Monitoring, Assessment and Reporting Requirements**									
	121	**TABLE 10: Wet Weather Monitoring Program - Part III.A.1**									
See NOI Sections Below	122	According to the requirements in Part III.A.1., The permittee must develop, in consultation with NMED and EPA (and affected Tribes if monitoring locations would be located on Tribal lands), and implement a comprehensive monitoring and assessment program. The permittees shall conduct wet weather monitoring to gather information on the response of receiving waters to wet weather discharges from the MS4 during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Wet Weather Monitoring shall be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations at each water of the US that runs in each entity or entities' jurisdiction(s).	The program details and measurable goals are described below. The monitoring program will be conducted according to the approved Cooperative Monitoring Plan (submitted to EPA on June 20, 2016).					See specific Permit activity schedules below.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
IV	123	Part III.A.3.1.b. Option B: Cooperative Monitoring Program Develop a cooperative wet weather monitoring program with other permittees in the Middle Rio Grande Watershed. The program will monitor waters coming into the watershed (upstream) and leaving the watershed (downstream). The program must include sampling for TSS, TDS, COD, BOD5, DO, oil and grease, E. coli, pH, total nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and Gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Permittees must include additional parameters from monitoring conducted under permits NMS000101, NMR040000 or/and NMR040001 whose mean values are at or above a WQS. The monitoring program must sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events in the wet season and 2 events in the dry season.	• The monitoring program will follow the permit requirements for parameters tested (TSS, TDS, COD, BOD_5, DO, oil and grease, E. coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs, Gross alpha, and temperature). In addition, parameters from stormwater monitoring conducted under permits NMS000101, whose mean values are at or above a WQS, will also be tested. • The monitoring program will be conducted according to the approved Cooperative Monitoring Plan (submitted to EPA on June 20, 2016).					Monitoring program will sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events in the wet season and 2 events in the dry season.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
IV	124	As required in Part III.A.1. and Table 10, the permittees shall submit wet weather monitoring preference Option A or Option B to EPA (i.e., individual monitoring program vs. cooperative monitoring program) with NOI submittals.	Operation B - Cooperative Monitoring Program preference was submitted the CORR NOI on June 19, 2015. See SWMP					N/A	**June 22, 2015**	**6**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	125	Submit a detailed description of the monitoring scheme to EPA and NMED for approval. The monitoring scheme should include: a list of pollutants; a description of monitoring sites with an explanation of why those sites were selected; and a detailed map of all proposed monitoring sites. In addition, as required in Part III.A.1.h, the monitoring program must include a contingency plan for collecting additional monitoring data within the MS4 or at additional appropriate instream locations should monitoring results indicate that MS4 discharges may be contributing to instream exceedances of WQS. The purpose of this additional monitoring effort would be to identify sources of elevated pollutant loadings so they could be addressed by the SWMP.	• The monitoring program will be conducted according to the approved proposed monitoring scheme for Compliance Monitoring (submitted to EPA on December 18, 2015).	Fully Implemented: Proposed Monitoring Plan submitted on Dec. 18, 2015. See (Jul. 2015-Jun. 2016) Annual Report.				1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
Not Included in NOI	126	Submit certification that all wet weather monitoring sites are operational and begin sampling.	• CORR, with its cooperative partners (still to be determined), will submit certification to EPA that all wet weather compliance monitoring sites are operational and will begin sampling, according to the Permit requirements.	Fully Implemented - Wet Weather Monitoring Program is operational and ready for sampling. See (Jul. 2015-Jun. 2016) Annual Report.				14 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
Not Included in NOI	127	As required in Part III.A.1.e, update SWMP document and submit annual reports. The results of the Wet Weather Monitoring must be provided in each annual report.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part III.A.1, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report. • The Wet Weather Monitoring results obtained from July 1st to June 30th will be submitted in each Annual Report on Discharge Monitoring Report (DMR) forms as required in Part III.D.1.	EPA Form 3320-1 DMR submitted with (Jul. 2015-Jun. 2016) Annual Report. No sample collected. Sampling plan for the Middle Rio Grande Collaborative Monitoring Group was not approved by EPA until 06/22/16. No storm events occurred between 06/22/2016 and 06/30/2016.	CMC Wet Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting FY 2017 Wet Season (July 1 to October 31, 2016) - March 6, 2017 - Memo - 393 pages.	CMC Wet Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting FY 2018 Wet Season (July 1 , 2017 to October 31, 2017) - February 20, 2018. See 255 page Memorandum in Annual Report.	CMC Dry Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and reporting FY 2019 Dry Season (November 1, 2018 to June to June 30, 2019) Task Memo.	Update as necessary for SWMP and annually for Annual Report	**Annually**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	128	**Dry Weather Discharge Screening of MS4 - Part III.A.2**									
Not Included in NOI	129	According to the requirements in Part III.A.2., Each permittee shall identify, investigate, and address areas within its jurisdiction that may be contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System as a result of dry weather discharges (i.e., discharges from separate storm sewers that occur without the direct influence of runoff from storm events, e.g. illicit discharges, allowable non-stormwater, groundwater infiltration, etc.). Due to the arid and semi-arid conditions of the area, the dry weather discharges screening program may be carried out during both wet season (July I through October 31) and dry season (November 1 through June 30). Results of the assessment shall be provided in each annual report.	The program details and measurable goals are described below and in Table 6 - Illicit Discharge and Improper Disposal.	Results are provided in each annual report.				See specific Permit activity schedules below.	**Screen the entire jurisdiction at least once (1) every five (5) years and high priority areas at least once (1) a year. ***High priority areas include areas where there are ongoing evidence of ID, or where there are citizen complaints on more that five (5) separate events within twelve (12) months***		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
Not Included in NOI	130	This program may be coordinated with the illicit discharge detection and elimination program required in Part I.D.5.e. The dry weather screening program shall be described in the SWMP and comply with the schedules contained in Part I.D.5.e.(iii). The permittee shall: a) Include sufficient screening points to adequately assess pollutant levels from all areas of the MS4. b) Screen for, at a minimum, BOD_5, sediment or a parameter addressing sediment (e.g., TSS or turbidity), E. coli, Oil and Grease, nutrients, any pollutant that has been identified as cause of impairment of a waterbody receiving discharges from that portion of the MS4, including temperature. c) Specify the sampling and non-sampling techniques to be issued for initial screening and follow-up purposes. d) Perform monitoring only when an antecedent dry period of at least 72 hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology shall consist of collecting a minimum of 4 grab samples spaced at a minimum interval of 15 minutes each.	• Visual screening results will be included in CORR's Annual Report when provided. • CORR will continue with the existing Dry Weather Screening program while working cooperatively to develop illicit discharge screening procedures and plan, as required in part I.D.5.e.(iii). • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening for illicit discharges.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Feb. 10, 2016. No discharges observed during screening. See IDDE Program Binder or Annual Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 16, 2017. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report..	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on August 18, 2017. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 13, 2019. No discharges observed during screening. See Annual Report: Performance Assessment - MS4 Dry Weather Discharge Screening Report.	Cooperative Program -as required in part I.D.5.e.(iii) -Years 1 -3: develop procedures as required in Part I.D.5.e.(i).(c). -Year 4: screen 30% of the MS4 area. -Year 5: screen 70% of the MS4 area.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	131	**Floatables Monitoring - Part III.A.3**									
Not Included in NOI	132	According to the requirements in Part III.A.3., The permittees shall establish locations for monitoring/assessing floatable material in discharges to and/or from their MS4. A cooperative monitoring program may be established in partnership with other MS4s to monitor and assess floatable material in discharges to and/or from a joint jurisdictional area or watershed basis. Floatable material shall be monitored at least twice per year at priority locations and at minimum of one (1) stations (Class B Permittee). The amount of collected material shall be estimated in cubic yards. a) Identify one (1) station to monitor and assess floatable material type.	• CORR will continue to monitor floatable material and estimate the amount collected at least twice per year at a minimum of 1 station. • All floatable material will be taken to a local landfill for disposal.		Arrowhead Ridge Pond - Trash Assessment Cascades at High Resort Pond(s) - Trash Assessment(s) Monterrey Pond(s) - Trash Assessments 19th Ave Pond - Trash Assessment		Eastlake Pond - Trash Assessment	Update as necessary for SWMP and annually for Annual Report	**Monitor at least (1) station at least twice per year at priority locations.**		
	133	**Industrial and High Risk Runoff Monitoring - Part III.A.4**									
4	134	The permittees shall monitor stormwater discharges from Type 1 and 2 industrial facilities which discharge to the MS4 provided such facilities are located in their jurisdiction. (Note: if no such facilities are in the permittees jurisdiction, the permittee must certify that this program element does not apply).	**Not Applicable**								

Section 4	Stormwater Management Program Revisions
	4.1 NPDES Permit No. NMR04A000 Administrative Continuance – Duty to Reapply

This page intentionally left blank.

Ronald D. Brown, Chair
Bruce M. Thomson, P.E., Vice Chair
Deborah L. Stover, Secretary-Treasurer
Tim Eichenberg, Assistant Secretary-Treasurer
Cynthia D. Borrego, Director

Jerry M. Lovato, P.E.
Executive Engineer

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

Section 5	Performance Assessment
	5.1 Illicit Discharge Incident Reporting 5.2 Construction General Permit Compliance Inspection List 5.3 MS4 Outfall Dry Weather Screening 5.4 CMC Monitoring FY2022 Dry Season Memorandum 5.5 CMC Monitoring FY2022 Wet Weather Memorandum

This page intentionally left blank.

CITY OF RIO RANCHO

ILLICIT DISCHARGE INCIDENT TRACKING FORM

Responder Information	
Call taken by: XAVIER PETTES	~~Call date:~~ OFFICE VISIT
Call time: 10:15 AM	Precipitation (inches) in past 24-48 hrs: 0.0"
Reporter Information	
Incident time: 10:00 AM	Incident date: 12/08/2021

Caller contact information (*optional*):

LOUIE AGUILAR, UTILITY OPERATIONS/WATER CONSERVATION

Incident Location *(complete one or more below)*

Latitude and longitude:

Stream address or outfall #:

Closest street address: 138 UNSER BLVD NE, RIO RANCHO NM 87124

~~Nearby landmark:~~ LEGAL DESCRIPTION: U11, BLK 0, LOT 24A

Primary Location Description	**Secondary Location Description:**		
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks
☒ Upland area *(Land not adjacent to stream)*	☒ Near storm drain	☒ Near other water source (storm water pond, wetland, etc.): STORM DRAIN INLET	

Narrative description of location:

SEWAGE OVERFLOW APPEARS TO BE COMING FROM SEPTIC TANK OR GRINDER PUMP.

Upland Problem Indicator Description

☐ Dumping	☐ Oil/solvents/chemicals	☒ Sewage
☐ Wash water, suds, etc.	☐ Other: _____	

Stream Corridor Problem Indicator Description

Odor	☐ None	☒ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☒ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☒ Other: Describe in "Narrative" section			
Floatables	☒ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			

Narrative description of problem indicators:

FOUL ODOR FROM SEWAGE OVERFLOW, FLOWING DOWN DRIVEWAY INTO UNSER BLVD CURB & GUTTER AND INLET.

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

IGNITE AUTO 138 UNSER BLVD NE

EUGENE PETTES

From: Xavier Pettes <xpettes@gmail.com>
Sent: Wednesday, December 8, 2021 10:51 AM
To: EUGENE PETTES
Subject: Ignite Auto

****
****
CAUTION: This email was received from an EXTERNAL source, use caution when clicking links or opening attachments.
****
****

Sent from my iPhone

CITY OF RIO RANCHO

ILLICIT DISCHARGE INCIDENT TRACKING FORM

Responder Information	
Call taken by: XAVIER PETTES	Call date: 10/20/2021
Call time: 12:28 pm	Precipitation (inches) in past 24-48 hrs: 0.0"
Reporter Information	
Incident time: NIGHT OPERATIONS	Incident date: 10/19/2021

Caller contact information (*optional*):
DAVID GATTERMAN SSCAFCA

Incident Location *(complete one or more below)*

Latitude and longitude: LAT. 35° 15' 24" N
Stream address or outfall #: LONG. 106° 38' 22" W
Closest street address: 100 NM 528 NE
Nearby landmark: NM 528 AND MONTOYAS ARROYO

Primary Location Description	**Secondary Location Description:**		
☒ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☒ Along banks
☐ Upland area *(Land not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):	

Narrative description of location:
SPILL ORIGINATED AT THE PROJECT WASHOUT, THEN DISCHARGED TO THE MONTOYAS ARROYO.

Upland Problem Indicator Description

☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage
☐ Wash water, suds, etc.	☒ Other: WASHOUT OVERFLOW	

Stream Corridor Problem Indicator Description

Odor	☒ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☒ Other: Describe in "Narrative" section	SOIL STAINING		
Floatables	☒ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			

Narrative description of problem indicators:
DISCHARGED TO MONTOYAS ARROYO. PAVEMENT MARKINGS MATERIAL UTILIZING GRINDING AND/OR WATER BLASTING W/ VACUUM RECOVERY.

Suspected Violator (name, personal or vehicle description, license plate #, etc.):
ALBUQUERQUE ASPHALT, INC

On Oct 20, 2021, at 2:57 PM, Najar, Patsy R., NMDOT <patsy.najar@state.nm.us> wrote:

Jacob,
Get this taken care off ASAP
Thanks,
Patsy

Sent from my Verizon Smartphone
On Oct 20, 2021 2:54 PM, EUGENE PETTES <XPETTES@RRNM.GOV> wrote:

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

NMDOT-D3 and Albuquerque Asphalt Inc.

The City of Rio Rancho recently performed an inspection at the construction site(s) indicated below for compliance with NPDES General Permit for Discharges from Construction Activities, and found violations of the Construction General Permit (CGP) as well as Rio Rancho Municipal Code: Chapter 153 - Erosion Control; Storm Drainage and Stormwater Quality, Chapter 50 – Solid Waste, and Chapter 91 – Nuisance; Heath and Sanitation.

ILLICIT DISCHARGE: The spill originating in the project staging area, then discharging into the MS4 (Montoyas Arroyo) is in violation of the Federal Clean Water Act and Rio Rancho Municipal Code (see photos below). IF, this release is determined to be a petroleum product, impacted soil shall be removed a disposed of properly.

You are encouraged to visit the construction site, required to correct problems noted above, and advised to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to schedule a meeting with City staff at your earliest convenience, to discuss violations noted above and compliance schedules.

Should you need additional information or have questions, please do not hesitate to contact me.

Thank you,

Xavier Pettes
NPDES Project Manager

City of Rio Rancho | Development Services / Engineering

O: 505.891.5045

RRNM.gov | <image001.png> <image009.png> <image010.png>

From: Xavier Pettes [mailto:xpettes@gmail.com]
Sent: Wednesday, October 20, 2021 12:55 PM
To: EUGENE PETTES <XPETTES@RRNM.GOV>
Subject: NM528 IDDE

****
****
CAUTION: This email was received from an EXTERNAL source, use caution when clicking links or opening attachments.
****
****
<IMG_2641.JPG>

<IMG_2642.JPG>

<IMG_2643.JPG>

<IMG_2644.JPG>

<image011.jpg>

Sent from my iPhone

EUGENE PETTES

From: EUGENE PETTES
Sent: Wednesday, October 20, 2021 2:54 PM
To: Jacob Smith; patsy.najar@state.nm.us
Cc: Len Horan; mju@indifoengineeringnm.com; timothyr.trujillo@state.nm.us; DAVID BRANCH; DAVID SERRANO
Subject: Field Violation Notice - NM528 Project IDDE

NMDOT-D3 and Albuquerque Asphalt Inc.

The City of Rio Rancho recently performed an inspection at the construction site(s) indicated below for compliance with NPDES General Permit for Discharges from Construction Activities, and found violations of the Construction General Permit (CGP) as well as Rio Rancho Municipal Code: Chapter 153 - Erosion Control; Storm Drainage and Stormwater Quality, Chapter 50 – Solid Waste, and Chapter 91 – Nuisance; Heath and Sanitation.

ILLICIT DISCHARGE: The spill originating in the project staging area, then discharging into the MS4 (Montoyas Arroyo) is in violation of the Federal Clean Water Act and Rio Rancho Municipal Code (see photos below). IF, this release is determined to be a petroleum product, impacted soil shall be removed a disposed of properly.

You are encouraged to visit the construction site, required to correct problems noted above, and advised to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to schedule a meeting with City staff at your earliest convenience, to discuss violations noted above and compliance schedules.

Should you need additional information or have questions, please do not hesitate to contact me.

Thank you,

Xavier Pettes
NPDES Project Manager

City of Rio Rancho | Development Services / Engineering

O: 505.891.5045

RRNM.gov |

From: Xavier Pettes [mailto:xpettes@gmail.com]
Sent: Wednesday, October 20, 2021 12:55 PM

To: EUGENE PETTES <XPETTES@RRNM.GOV>
Subject: NM528 IDDE

****
****
CAUTION: This email was received from an EXTERNAL source, use caution when clicking links or opening attachments.
****
****

Sent from my iPhone

EUGENE PETTES

From: Jacob Smith <jacob@alb-asphalt.com>
Sent: Thursday, October 21, 2021 5:37 AM
To: Najar, Patsy R., NMDOT
Cc: EUGENE PETTES; DAVID SERRANO; Len Horan; DAVID BRANCH; mju@indifoengineeringnm.com; Trujillo, Timothy R, NMDOT; Steve Clark; Jorge Garcia; Keith Spolar; Heriberto Pena
Subject: Re: [EXTERNAL] Field Violation Notice - NM528 Project IDDE

Hello All,

We performed the discharge cleanup yesterday after realizing that debris that had been washed out in the project yard had discharged outside of the project yard limits. We apologize for this incident the wash out had occurred during the night operation the night before and I don't believe the crew had realized the extent of the wash out limits. We have discussed this with the crews and will designate and contain any further wash outs far beyond the limits of the Montoyas Arroyo to avoid any additional incidents. I appreciate you all in bringing this to our attention. Please see the photos of the area after the cleanup was completed. Let me know if you have any questions or would like to meet onsite to review the cleanup.

Thank you,

Jacob Smith, P.E.
Project Manager
Albuquerque Asphalt, Inc.
Office: 505-831-7311
Cell: 505-991-3361
jacob@alb-asphalt.com

RioRancho
City of Vision

March 4, 2022

Certified No. 7019 0700 0001 4973 9052

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – Manhole at Sabana Grande and Villa Verde - Rio Rancho, NM

Dear Ms. Williams:

At approximately 08:50 a.m. on Saturday, February 26, 2022, the operation systems manager received a call that there was an overflow at the manhole on Sabana Grande and Villa Verde. The collections department was then called and during inspection they found that a large number of rags had clogged the lines, causing the overflow. The estimated volume from the manhole onto the asphalt street was 500 gallons. The site was cleaned and lime was used on affected area.

If you have any questions or concerns, please feel welcome to contact me at 505-975-8545.

Sincerely,

Matthew Kear
Project Director, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Jason Herman, NMED
Sandra Gabaldon, NMED
Jason Martinez, NMED
Greg Kaufman, Pueblo of Sandia
Amy Rosebrough, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

RioRancho
City of Vision

April 6, 2022

Certified No. 7015 0920 0002 0650 5312

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – Force Main, 1650 Riverside Drive - Rio Rancho, NM

Dear Ms. Williams:

At approximately 5:33 p.m. on Friday, April 1, 2022, the operation systems manager received a call that there was a spill at 1650 Riverside Drive just north of WWTP #3. Upon arrival, the Collections Department determined that the 14" force main was leaking. At this point, a contractor was then called out to repair the line. All flow was contained in the yard at WWTP #3 and lime was used on the affected area. No flow to arroyo. The estimated volume was 500 gallons.

If you have any questions or concerns, please feel welcome to contact me at 505-975-1569.

Sincerely,

Eddie De Lara Jr.
Operations Manager, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Jason Herman, NMED
Jason Martinez, NMED
Greg Kaufman, Pueblo of Sandia
Amy Rosebrough, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

3200 Civic Center Circle NE • Rio Rancho, New Mexico 87144
Office (505) 896-8715 • Fax (505) 891-5201

City of Vision

April 12, 2022

Certified No. 7015 0920 0002 0650 5350

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – Lift Station #21, 1650 Riverside Drive - Rio Rancho, NM

Dear Ms. Williams:

At approximately 09:23 a.m. on Friday, April 6, 2022, the operation systems manager received a call that there was a spill at Lift Station #21 located at 1650 Riverside Drive. Upon arrival, it was determined that the #1 valve at the lift station had failed. This caused the spill. At this point, the Collections Department was called out to clean area and a local contractor was also called out to repair the valve. The estimated volume was 600 gallons and flow did reach the river. Lime was used on affected area.

If you have any questions or concerns, please feel welcome to contact me at 505-975-1569.

Sincerely,

Eddie De Lara Jr.
Operations Manager, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Jason Herman, NMED
Jason Martinez, NMED
Greg Kaufman, Pueblo of Sandia
Amy Rosebrough, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

3200 Civic Center Circle NE • Rio Rancho, New Mexico 87144
Office (505) 896-8715 • Fax (505) 891-5201

RioRancho
City of Vision

July 19, 2021

Certified No. 7019 0700 0001 4973 8611

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – 1120 NM 528, Rio Rancho, NM

Dear Ms. Williams:

At approximately 9:15 a.m. on Thursday, July 15, 2021, the Rio Rancho WWTP collection systems personnel were called out to 1120 NM 528 due to a manhole overflowing just north of Corrales Road. Upon arrival and investigation, they discovered the Air Release Valve (ARV) on the 14" force main had failed. A local contractor was then called out to repair the ARV. Based on the extent of the overflow from the manhole, the estimated volume was 500 gallons. No flow entered the arroyo just South of Corrales Road. Lime was used on the affected area.

If you have any questions or concerns, please feel welcome to contact me at 505-975-1569.

Sincerely,

Edward De Lara Jr.
Operations Manager, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Jason Martinez, NMED
Steve Pullen, NMED
Greg Kaufman, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

RioRancho
City of Vision

September 22, 2021

Certified No. 0000 0000 0000 0000 0000 0000

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – NM 528 and Venada, Rio Rancho, NM

Dear Ms. Williams:

At approximately 0850 a.m. on Friday, September 17, 2021, the Collections Systems manager received a call that there was an overflow at NM 528 and Venada Road near lift station #15. Upon arrival and investigation, they discovered that the ball-valve on the Air Release Valve (ARV) was left open by a local contractor performing work on a new force main. This caused the overflow. The contractor had a containment dug so the spill did not flow into a drain or arroyo. A vactor truck was then called to pump out sewage. Lime was used on the affected area.

If you have any questions or concerns, please feel welcome to contact me at 505-975-1569.

Sincerely,

Edward De Lara Jr.
Operations Manager, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Jason Martinez, NMED
Steve Pullen, NMED
Greg Kaufman, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

RioRancho

City of Vision

Department of Public Works
Utilities Division

October 5, 2021

Certified No. 7015 0920 0002 0650 5657

Nancy Williams
Environmental Specialist
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: NPDES Permit # NM0027987
Sanitary System Overflow – NM 528 and Obregon - Lift Station #22, Rio Rancho, NM

Dear Ms. Williams:

At approximately 5:10 p.m. on Thursday, September 30, 2021, the Operation Systems supervisor received a call that there was a spill/overflow at our lift station #22 due to a mechanical/SCADA failure. When arrived they discovered that the mechanical/SCADA failure caused an error with the SCADA system which then caused the pumps to fail. This caused the overflow. Collection crew was then called out to re-start pumps manually as well as pumping out the wet well. Lime was used on the affected area. Based on the extent of the overflow, the estimated volume was 50,000 gallons.

If you have any questions or concerns, please feel welcome to contact me at 505-975-1569.

Sincerely,

Edward De Lara Jr.
Operations Manager, Jacobs

ED/ab

cc: Anthony Loston, USEPA
Sandra Gabaldon, USEPA
Jason Martinez, NMED
Steve Pullen, NMED
Greg Kaufman, Pueblo of Sandia
Amy Rosebrough, Pueblo of Sandia
Dave Gatterman, SSCAFCA
Xavier Pettis, CORR

USEPA 2017-22 Construction General Permit (CGP) - July 1, 2021-June 30, 2022

Notice of Intent (NOI), Notice of Termination (NOT) and Low Erosivity Waiver (LEW)

#	Issuer	Regulated Entity Name	Program ID	Program	Coverage Type	Program Area	Action Type	Action Status	Coverage Status	Certified Date	Effective Date	
1	EPA	3 MG Reservoir and Well 9 Site Improvements	NMR1004EG	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/24/2022	1/3/2022	ICIP
	EPA	3 MG Reservoir and Well 9 Site Improvements	NMR1004EG	NPDES	General Permit	Construction Stormwater	New	Approved	Active	12/20/2021	1/3/2022	
2	EPA	Broadmoor Heights	NMR1001UB	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	1/25/2019	
3	EPA	BROADMOOR HEIGHTS UNIT 3	NMR1004OW	NPDES	General Permit	Construction Stormwater	New	Approved	Active	4/15/2022	4/29/2022	
4	EPA	Caliber Collision	NMR1004T5	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/24/2022	6/7/2022	
5	EPA	Carriage Estates	NMR1004R2	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/9/2022	5/23/2022	
	EPA	Carriage Estates	NMR1004R3	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/10/2022	5/24/2022	
6	EPA	Champion Xpress Car Wash - Rio Rancho	NMR100432	NPDES	General Permit	Construction Stormwater	New	Approved	Terminated	7/19/2021	8/2/2021	
	EPA	Champion Xpress Car Wash - Rio Rancho	NMR100432	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/18/2022	8/2/2021	
7	EPA	Chessman Drive Drainage	NMR1003UL	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/7/2022	5/3/2021	ICIP
	EPA	Chessman Drive Drainage Project	NMR1003UU	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	5/5/2021	
	EPA	Chessman Drive Drainage Project	NMR1003UU	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	5/5/2021	
8	EPA	Cleveland Heights	NMR1001QE	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	11/30/2018	
	EPA	Cleveland Heights	NMR1001QE	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	11/30/2018	
9	EPA	Cleveland Heights Phase I	NMR100147	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/17/2022	3/1/2018	
	EPA	Cleveland Heights Phase I	NMR100147	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/17/2022	3/1/2018	
10	EPA	CN A300381 NM 528	NMR1004R8	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/10/2022	5/24/2022	
	EPA	CN A300381 NM 528	NMR10042Q	NPDES	General Permit	Construction Stormwater	New	Withdrawn	Inactive	7/14/2021		
	EPA	CN A300381 NM 528	NMR10042W	NPDES	General Permit	Construction Stormwater	New	Approved	Expired	7/16/2021	7/30/2021	
	EPA	CN A300381 NM528	NMR1003ZZ	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/8/2022	6/29/2021	
	EPA	CN A300381 NM528	NMR1003ZZ	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/8/2022	6/29/2021	
	EPA	CN A300381 NMN528	NMR1003ZZ	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	7/23/2021	6/29/2021	
	EPA	CN A300381 NMN528	NMR1003ZZ	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	7/23/2021	6/29/2021	
11	EPA	CO Lift Station Forcemain	NMR10046F	NPDES	Low Erosivity Waiver	Construction Stormwater	New	Approved	Expired	8/30/2021	8/30/2021	ICIP
	EPA	CO Lift Station Forcemain	NMR10046F	NPDES	Low Erosivity Waiver	Construction Stormwater	New	Approved	Expired	8/30/2021	8/30/2021	
12	EPA	Encino Solar Energy Center	NMR10048A	NPDES	General Permit	Construction Stormwater	New	Approved	Expired	9/24/2021	10/8/2021	
	EPA	Encino Solar Energy Center	NMR100294	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/14/2022	7/15/2019	
	EPA	Encino Solar Energy Center	NMR100294	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/14/2022	7/15/2019	
13	EPA	FLEET ESTATES	NMR1004RV	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/17/2022	5/31/2022	
14	EPA	Grande Blvd Development	NMR1004LP	NPDES	General Permit	Construction Stormwater	New	Approved	Active	3/17/2022	3/31/2022	
15	EPA	Harley's Pond	NMR10048K	NPDES	General Permit	Construction Stormwater	New	Approved	Terminated	9/27/2021	10/11/2021	
16	EPA	Hawk Site Units 23 (Phase 1), 27, 28 (Phase 1)	NMR10020D	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/21/2022	4/3/2019	
	EPA	Hawk Site Units 23 (Phase 1), 27, 28 (Phase 1)	NMR10020D	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	10/14/2021	4/3/2019	
17	EPA	High Range 4	NMR1001HD	NPDES	General Permit	Construction Stormwater	Change	Approved	Terminated	1/26/2022	8/9/2018	
	EPA	High Range 4	NMR1001HD	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	3/21/2022	8/9/2018	
18	EPA	High Range Unit 4A	NMR1001HK	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/17/2022	8/13/2018	
	EPA	High Range Unit 4A	NMR1001HK	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/17/2022	8/13/2018	
19	EPA	Inca Self Storage	NMR1003N8	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/25/2022	2/25/2021	
20	EPA	Jemez Vista	NMR1002ZU	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	6/23/2022	6/2/2020	
	EPA	Jemez Vista	NMR1002ZU	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	6/23/2022	6/2/2020	
21	EPA	King Blvd. Restoration	NMR1003EQ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	11/16/2020	ICIP
	EPA	King Blvd. Restoration	NMR1003EQ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	11/16/2020	
22	EPA	Las Residencias	NMR1003OF	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/4/2022	3/8/2021	
23	EPA	Lincoln Avenue Phase II	NMR1002UQ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/19/2021	3/27/2020	ICIP
24	EPA	LOMAS ENCANTADAS	NMR1004S6	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/18/2022	6/1/2022	

USEPA 2017-22 Construction General Permit (CGP) - July 1, 2021-June 30, 2022

Notice of Intent (NOI), Notice of Termination (NOT) and Low Erosivity Waiver (LEW)

#	Issuer	Regulated Entity Name	Program ID	Program	Coverage Type	Program Area	Action Type	Action Status	Coverage Status	Certified Date	Effective Date	
25	EPA	Lomas Encantadas	NMR1004VT	NPDES	General Permit	Construction Stormwater	New	Approved	Active	6/17/2022	7/1/2022	
26	EPA	Lomas Encantadas 1F	NMR10041T	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	7/16/2021	
	EPA	Lomas Encantadas 1F	NMR10041T	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/2/2021	7/16/2021	
	EPA	Lomas Encantadas 1F	NMR10041T	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	7/16/2021	
	EPA	Lomas Encantadas 1F	NMR10041T	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/2/2021	7/16/2021	
27	EPA	Lomas Encantadas 1G Phase 1	NMR10041S	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	7/16/2021	
	EPA	Lomas Encantadas 1G Phase 1	NMR10041S	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/2/2021	7/16/2021	
28	EPA	Lomas Encantadas 4A Camino Encantadas Offsite Impr	NMR10044E	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/19/2022	8/16/2021	
	EPA	Lomas Encantadas 4A Camino Encantadas Offsite Impr	NMR10044E	NPDES	General Permit	Construction Stormwater	New	Approved	Active	8/2/2021	8/16/2021	
29	EPA	Lomas Encantadas 4A Camino Encantadas Offsite Impr	NMR10041U	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	7/16/2021	
	EPA	Lomas Encantadas 4A Camino Encantadas Offsite Impr	NMR10041U	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/2/2021	7/16/2021	
30	EPA	Lomas Encantadas Subdivision	NMR1002MZ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	4/25/2022	12/23/2019	
31	EPA	Lomas Encantadas Subdivision Units 2C and 2B	NMR1000WC	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/26/2022	11/16/2017	
	EPA	Lomas Encantadas Subdivision Units 2C and 2B	NMR1000WC	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/26/2022	11/16/2017	
32	EPA	Lomas Encantadas Unit 2A Phase I and II	NMR1003NQ	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/17/2022	3/2/2021	
33	EPA	Los Diamantes Development	NMR1004CK	NPDES	General Permit	Construction Stormwater	New	Approved	Expired	11/22/2021	12/6/2021	
34	EPA	LOS DIAMANTES DEVELOPMENT	NMR1004V9	NPDES	General Permit	Construction Stormwater	New	Approved	Active	6/13/2022	6/27/2022	
35	EPA	Los Diamantes Subdivision	NMR100441	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/18/2022	8/12/2021	
	EPA	Los Diamantes Subdivision	NMR100441	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/29/2021	8/12/2021	
	EPA	Los Diamantes Subdivision	NMR100441	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/18/2022	8/12/2021	
	EPA	Los Diamantes Subdivision	NMR100441	NPDES	General Permit	Construction Stormwater	New	Approved	Active	7/29/2021	8/12/2021	
36	EPA	Lower Montoyas Arroyo Bank Stabilization	NMR1004MG	NPDES	General Permit	Construction Stormwater	New	Approved	Active	3/25/2022	4/8/2022	
37	EPA	Mariposa	NMR1001HV	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/25/2022	8/15/2018	
	EPA	Mariposa	NMR1001HV	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	9/21/2021	8/15/2018	
38	EPA	Mariposa Estates	NMR1003PI	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/21/2022	3/18/2021	
	EPA	Mariposa Estates	NMR1003PI	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	12/29/2021	3/18/2021	
39	EPA	McDonald's (30-258)	NMR1004IO	NPDES	General Permit	Construction Stormwater	New	Approved	Expired	2/9/2022	2/14/2022	
40	EPA	Meadowlark Lane Improvements	NMR1001UR	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/16/2022	1/31/2019	ICIP
	EPA	Meadowlark Lane Improvements	NMR1001UR	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/16/2022	1/31/2019	
41	EPA	Montreal Loop Rehabilitation Project	NMR1001CZ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	4/19/2022	6/15/2018	ICIP
42	EPA	Mountain Hawk	NMR1003PP	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/13/2022	3/22/2021	
43	EPA	Mountain Hawk 38 Subdivision	NMR1004JP	NPDES	General Permit	Construction Stormwater	New	Approved	Active	2/21/2022	3/7/2022	
	EPA	Mountain Hawk 38 Subdivision	NMR1004JP	NPDES	General Permit	Construction Stormwater	New	Approved	Active	2/21/2022	3/7/2022	
44	EPA	Mountain Hawk 38 Subdivision	NMR1004K2	NPDES	General Permit	Construction Stormwater	New	Approved	Active	2/25/2022	3/11/2022	
45	EPA	Mountain Hawk 40 Subdivision	NMR1003WG	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/3/2022	5/24/2021	
46	EPA	Mountain Hawk Phase I	NMR10036V	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/18/2022	8/19/2020	
47	EPA	Mountain Hawk Unit 23 Subdivision	NMR1003DC	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/3/2022	11/2/2020	
	EPA	Mountain Hawk Unit 23 Subdivision	NMR1003DC	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/3/2022	11/2/2020	
48	EPA	Mountain Hawk Unit 23 Subdivision	NMR1003DD	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/17/2022	11/2/2020	
49	EPA	Mountain Hawk Unit 28 Phase 1-2	NMR1003AE	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/3/2022	9/28/2020	
50	EPA	Mountain Hawk Unit 37 Phases 1-3	NMR1002QW	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/26/2022	2/18/2020	
	EPA	Mountain Hawk Unit 37 Phases 1-3	NMR1002QW	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/26/2022	2/18/2020	
51	EPA	Mountain Hawk Unit 37 Phases 1-3	NMR1002RG	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	4/18/2022	2/25/2020	
52	EPA	Northern Industrial	NMR1004R0	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/9/2022	5/23/2022	
53	EPA	Parkview Subdivision	NMR1002XR	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	4/19/2022	5/5/2020	

USEPA 2017-22 Construction General Permit (CGP) - July 1, 2021-June 30, 2022

Notice of Intent (NOI), Notice of Termination (NOT) and Low Erosivity Waiver (LEW)

#	Issuer	Regulated Entity Name	Program ID	Program	Coverage Type	Program Area	Action Type	Action Status	Coverage Status	Certified Date	Effective Date	
54	EPA	Paseo 550 Apartments	NMR1003MI	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/27/2022	2/17/2021	
55	EPA	Phase 1 Melon Ridge Subdivision	NMR1004B9	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/19/2022	11/16/2021	
	EPA	Phase 1 Melon Ridge Subdivision	NMR1004B9	NPDES	General Permit	Construction Stormwater	New	Approved	Active	11/2/2021	11/16/2021	
56	EPA	Phase 1 Melon Ridge Subdivision	NMR10046P	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/30/2022	9/15/2021	
	EPA	Phase 1 Melon Ridge Subdivision	NMR10046P	NPDES	General Permit	Construction Stormwater	New	Approved	Active	9/1/2021	9/15/2021	
57	EPA	Phase 3 Lomas Encantadas 2B Subdivision	NMR100388	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	3/3/2022	9/4/2020	
	EPA	Phase 3 Lomas Encantadas 2B Subdivision	NMR100388	NPDES	General Permit	Construction Stormwater	Change	Approved	Active	2/4/2022	9/4/2020	
58	EPA	Rainbow Blvd Improvements	NMR1004EX	NPDES	General Permit	Construction Stormwater	New	Approved	Active	12/23/2021	1/6/2022	ICIP
59	EPA	Rainbow Boulevard Improvement Project	NMR1004FB	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/22/2022	1/17/2022	
60	EPA	Roadrunner Redi-Mix, Inc.	NMR100476	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	2/24/2022	9/22/2021	
	EPA	Roadrunner Redi-Mix, Inc.	NMR100476	NPDES	General Permit	Construction Stormwater	New	Approved	Active	9/8/2021	9/22/2021	
	EPA	Roadrunner Redi-Mix, Inc.	NMR100476	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	2/24/2022	9/22/2021	
	EPA	Roadrunner Redi-Mix, Inc.	NMR100476	NPDES	General Permit	Construction Stormwater	New	Approved	Active	9/8/2021	9/22/2021	
61	EPA	Sandoval County Landfill - Litter Barrier Fence	NMR1004R5	NPDES	General Permit	Construction Stormwater	New	Approved	Active	5/10/2022	5/24/2022	
62	EPA	Santa Fe Hills Blvd Reconstruction Project	NMR10035S	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/7/2022	8/4/2020	ICIP
63	EPA	Sara Road Pedestrian Improvements	NMR1004KZ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	6/27/2022	3/22/2022	ICIP
	EPA	Sara Road Pedestrian Improvements	NMR1004KZ	NPDES	General Permit	Construction Stormwater	New	Approved	Terminated	3/8/2022	3/22/2022	
	EPA	Sara Road Pedestrian Improvements	NMR1004KZ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	6/27/2022	3/22/2022	
	EPA	Sara Road Pedestrian Improvements	NMR1004KZ	NPDES	General Permit	Construction Stormwater	New	Approved	Terminated	3/8/2022	3/22/2022	
64	EPA	SEASONS AT MONARCH	NMR1004ND	NPDES	General Permit	Construction Stormwater	New	Approved	Active	4/1/2022	4/15/2022	
65	EPA	SEASONS AT MONARCH	NMR1004KN	NPDES	General Permit	Construction Stormwater	New	Approved	Active	3/3/2022	3/17/2022	
66	EPA	Solcito Subdivision Phase II	NMR1003II	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	5/4/2022	1/4/2021	
	EPA	Solcito Subdivision Phase II	NMR1003II	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Terminated	4/19/2022	1/4/2021	
67	EPA	Solcito Subdivision Phase II	NMR1003IH	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/5/2022	1/4/2021	
68	EPA	STONEGATE SUBDIVISION PHASE 1 & 2	NMR1004IS	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	2/17/2022	2/14/2022	
	EPA	STONEGATE SUBDIVISION PHASE 1 & 2	NMR1004IS	NPDES	General Permit	Construction Stormwater	New	Approved	Active	2/11/2022	2/14/2022	
69	EPA	Suez Estates/Abrazo Lots	NMR100367	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/21/2022	8/10/2020	
70	EPA	The Esplanade	NMR1002US	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	5/13/2022	3/27/2020	
71	EPA	The Village at Cabezon	NMR1004GD	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/3/2022	1/31/2022	
	EPA	The Village at Cabezon	NMR1004GD	NPDES	General Permit	Construction Stormwater	New	Approved	Active	1/17/2022	1/31/2022	
72	EPA	The Village at Cabezon	NMR1004G9	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/19/2022	1/28/2022	
	EPA	The Village at Cabezon	NMR1004G9	NPDES	General Permit	Construction Stormwater	New	Approved	Active	1/14/2022	1/28/2022	
73	EPA	The Villas Subdivision	NMR1002LN	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	3/15/2022	12/5/2019	
74	EPA	TIERRA DEL NORTE SUBDIVISION	NMR1004NL	NPDES	General Permit	Construction Stormwater	New	Approved	Active	4/5/2022	4/19/2022	
75	EPA	Tierra Del Oro	NMR1001JK	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	2/17/2022	9/10/2018	
76	EPA	TIERRA DEL ORO PHASE 2	NMR1004VN	NPDES	General Permit	Construction Stormwater	New	Approved	Active	6/16/2022	6/30/2022	
77	EPA	Tierra del Oro Subdivision	NMR1002IK	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/13/2022	10/31/2019	
	EPA	Tierra del Oro Subdivision	NMR1002IK	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	5/13/2022	10/31/2019	
78	EPA	UNMHSC COE Orthopedic Surgery and Rehab	NMR10037A	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	12/13/2021	8/27/2020	
	EPA	UNMHSC COE Orthopedic Surgery and Rehab	NMR10037A	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	12/13/2021	8/27/2020	
79	EPA	Unser Blvd PH II	NMR1003GQ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/6/2021	12/9/2020	ICIP
	EPA	Unser Blvd PH II	NMR1003GQ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/6/2021	12/9/2020	
80	EPA	Unser Blvd Phase 2 Rehabilitation Project	NMR1003HJ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	12/23/2020	ICIP
	EPA	Unser Blvd Phase 2 Rehabilitation Project	NMR1003HJ	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	10/26/2021	12/23/2020	
81	EPA	Vista Entrada	NMR1004UH	NPDES	General Permit	Construction Stormwater	New	Approved	Active	6/3/2022	6/17/2022	

USEPA 2017-22 Construction General Permit (CGP) - July 1, 2021-June 30, 2022

Notice of Intent (NOI), Notice of Termination (NOT) and Low Erosivity Waiver (LEW)

#	Issuer	Regulated Entity Name	Program ID	Program	Coverage Type	Program Area	Action Type	Action Status	Coverage Status	Certified Date	Effective Date	
82	EPA	VISTA ENTRADA III	NMR1004BE	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/21/2022	11/17/2021	
	EPA	VISTA ENTRADA III	NMR1004BE	NPDES	General Permit	Construction Stormwater	New	Approved	Active	11/3/2021	11/17/2021	
83	EPA	Vista Entrada Lot 13	NMR1003R4	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
84	EPA	Vista Entrada Lot 17	NMR1003R5	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
85	EPA	Vista Entrada Lot 31	NMR1003R7	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
86	EPA	Vista Entrada Lot 43	NMR1003R3	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
87	EPA	Vista Entrada Lot 9 block 118	NMR1003RC	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
88	EPA	Vista Entrada Lot 9 block 94	NMR1003RB	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
89	EPA	Vista Entrada Lots 10, 11, 12	NMR1003R6	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
90	EPA	Vista Entrada Lots 34-35	NMR1003R8	NPDES	General Permit	Construction Stormwater	Termination	Approved	Terminated	1/11/2022	4/1/2021	
91	EPA	Well No. 9 Improvements and 3 MG Reservoir	NMR1004EP	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/22/2022	1/3/2022	ICIP
	EPA	Well No. 9 Improvements and 3 MG Reservoir	NMR1004EP	NPDES	General Permit	Construction Stormwater	New	Approved	Active	12/20/2021	1/3/2022	
92	EPA	Westside Blvd Bike and Ped Path Improvements	NMR1004G8	NPDES	General Permit	Construction Stormwater	Renewal	Approved	Active	4/11/2022	1/28/2022	ICIP
	EPA	Westside Blvd Bike and Ped Path Improvements	NMR1004G8	NPDES	General Permit	Construction Stormwater	New	Approved	Active	1/14/2022	1/28/2022	
93	EPA	Westside Blvd Bike and Ped Path Improvements	NMR1004GH	NPDES	Low Erosivity Waiver	Construction Stormwater	Discontinuation	Approved	Discontinued	4/22/2022	1/18/2022	ICIP
	EPA	Westside Blvd Bike and Ped Path Improvements	NMR1004GH	NPDES	Low Erosivity Waiver	Construction Stormwater	New	Approved	Discontinued	1/18/2022	1/18/2022	

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/2021	11:06am	**Xavier Pettes**
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17'54"N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 1	**Barranca**	**LONGITUDE** 106° 34' 50" W	**Annual Screening**
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER** 45°F	**LAST RAIN (>72 hours or < 72 hours)** 0.0"	
Residential			

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:			
Material	☒ Concrete	☐ Earthen	☐ Rip-Rap	☐ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other_____
Shape	☒ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double	☐ Triple ☐ Other_____
Dimensions	☒ Diameter/Dimensions: 24"			☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____		
Submerged	In Water:	☒ No	☐ Partially	☐ Fully		With Sediment:	☒ No	☐ Partially	☐ Fully
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____				
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☐ Open Space	☒ Other Rio Grande				
Flow Status	☐ Flowing	☒ Dry	☐ Ponded		**Flow Reaches Receiving Water?**	☒ Yes	☐ No		

WATER QUALITY APPEARANCE	**ODOR**	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
		☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE	
	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER None
		☐ GRAY	☐ WHITE	☐ COLORLESS			
	FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER
		☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE		
	OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
	TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☐ None	☒ Other Rundown Undermined
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☒ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:

Grab samples collected: (Circle all that apply)
Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants

QA/QC SAMPLES: ☐ Field Duplicate ☐ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☒ YES ☐ NO

COMMENTS: OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.

INVESTIGATOR SIGNATURE _____ NPDES Project Manager

GHOST

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/21	11:14	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17 · 27 "N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 2	Barranca	**LONGITUDE** 106° 35 · 20 "W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0"	

								Comments:
Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek			
Material	☒ Concrete	☐ Earthen	☐ Rip-Rap	☐ RCP	☐ CMP	☐ PVC	☐ HDPE	☒ Steel ☐ Other_____
Shape	☒ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double ☐ Triple ☐ Other_____
Dimensions	☒ Diameter/Dimensions: 18"		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____		
Submerged	In Water: ☒ No	☐ Partially	☐ Fully		With Sediment: ☒ No	☐ Partially	☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE	**ODOR**	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
		☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE	
	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER NONE
		☐ GRAY	☐ WHITE	☐ COLORLESS			
	FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER
		☒ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE		
	OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
	TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS					
Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☒ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**
QA/QC SAMPLES:	☐ Field Duplicate ☐ Field Blank

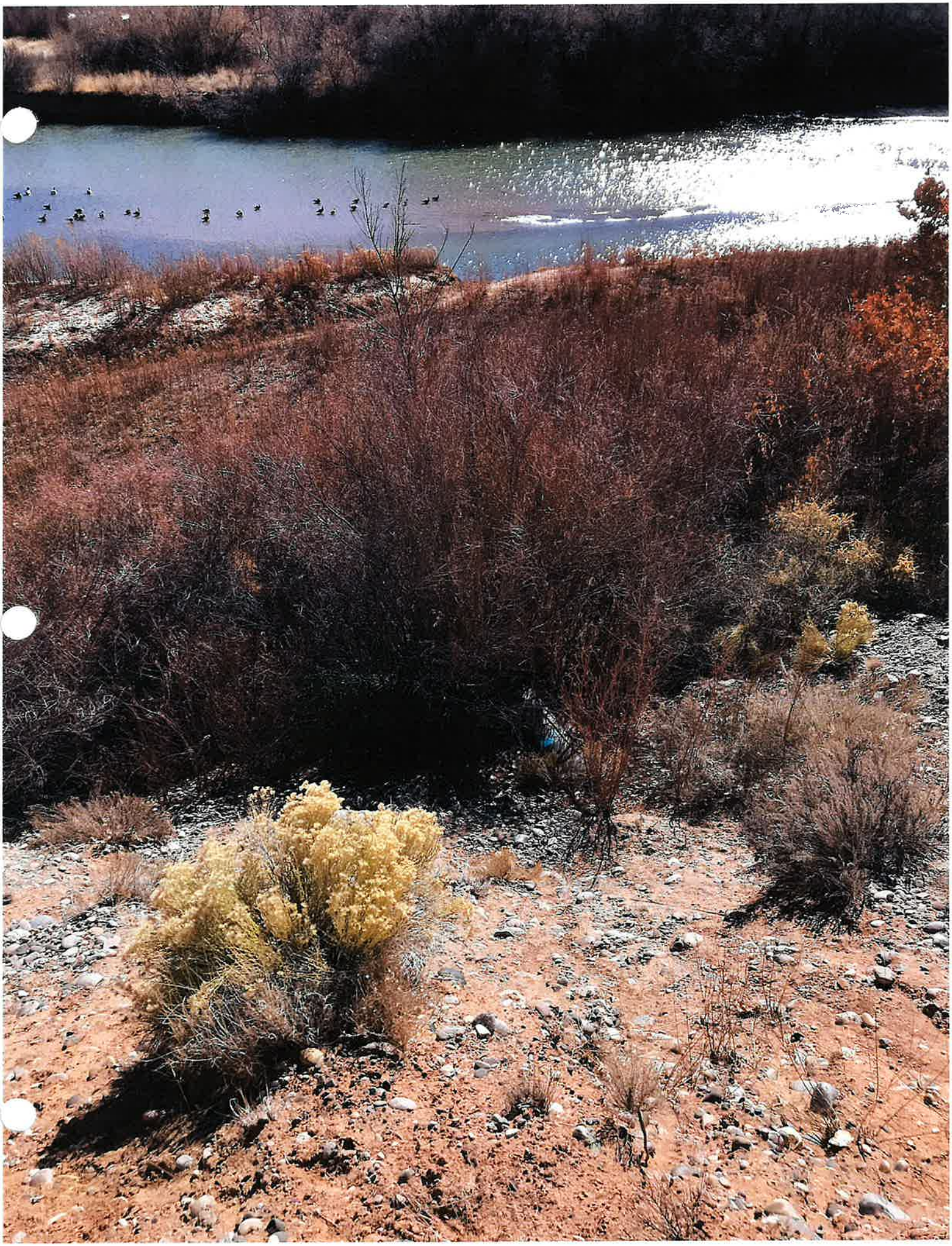
FLOW ESTIMATION — **Flow** Yes / No / Ponded — **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN:	**COMMENTS:**
☒ YES ☐ NO	OUTFALL SITE WAS DRY DURING THIS SITE VISIT.

INVESTIGATOR SIGNATURE _____ NPDES Project Manager



CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/2024	11:19 am	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17 '22"N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 3	Barranca	**LONGITUDE** 106°35 '30 "W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0 "	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen	☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel ☐ Other_____
Shape	☒ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double ☐ Triple ☐ Other_____
Dimensions	☒ Diameter/Dimensions: 60"		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____		
Submerged	In Water: ☒ No	☐ Partially	☐ Fully		With Sediment: ☒ No	☐ Partially	☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE	**ODOR**	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
		☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE	
	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER None
		☐ GRAY	☐ WHITE	☐ COLORLESS			
	FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER
		☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE		
	OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
	TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:

Grab samples collected: (Circle all that apply)
Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants

QA/QC SAMPLES: ☐ Field Duplicate ☐ Field Blank

FLOW ESTIMATION

Flow Yes / No / Ponded

Evidence of overland flow near sampling location? Yes / No

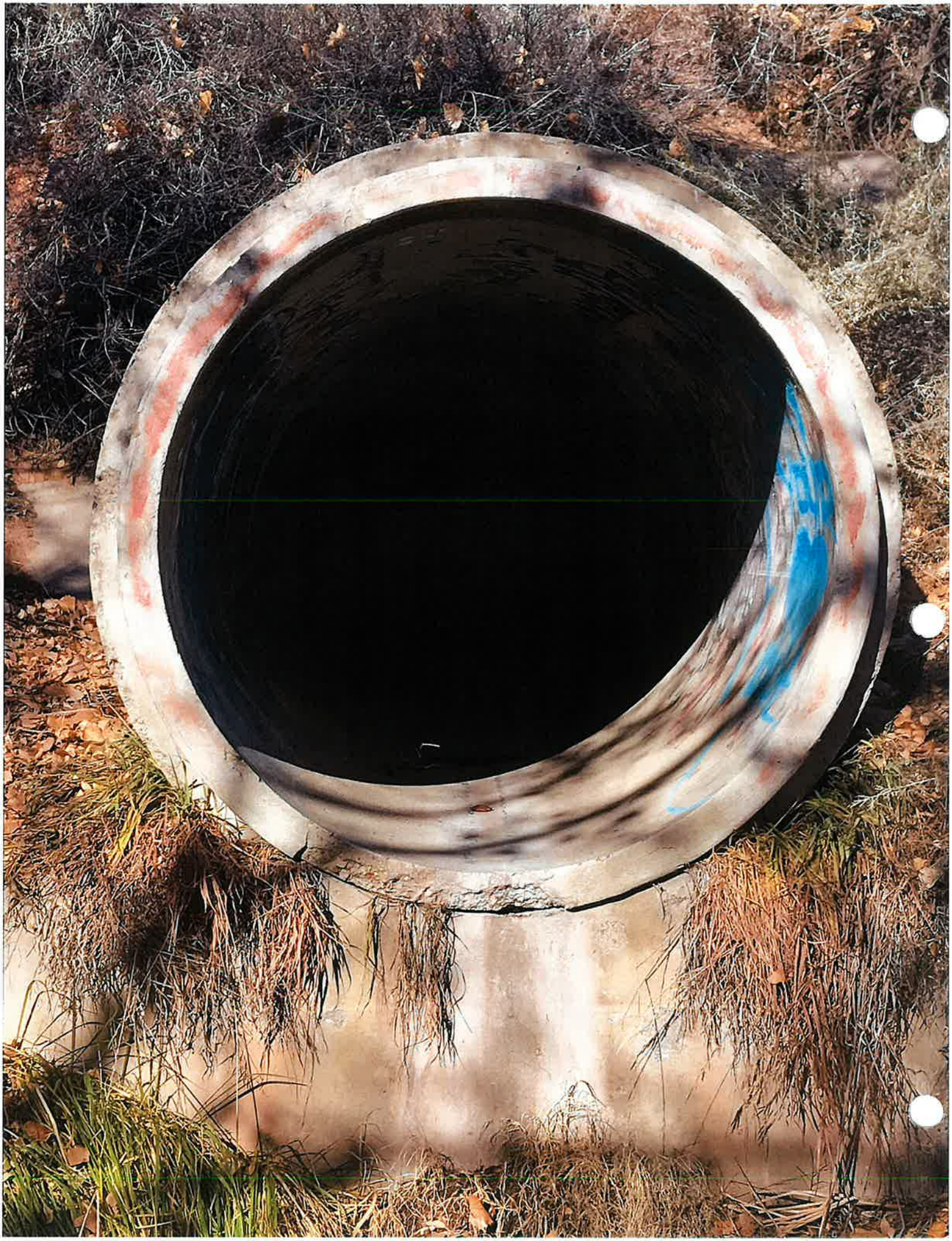
Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☒ YES ☐ NO

COMMENTS: OUTFALL WAS DRY DURING THIS FIELD VISIT.

INVESTIGATOR SIGNATURE _____ NPDES Project Manager



CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/21	10:15 AM	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17' 21" N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 4	Barranca	**LONGITUDE** 106° 35' 35" W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen	☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel ☐ Other_____
Shape	☒ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double ☐ Triple ☐ Other_____
Dimensions	☒ Diameter/Dimensions: 30"		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____		
Submerged	In Water: ☒ No	☐ Partially	☐ Fully		With Sediment: ☒ No	☐ Partially	☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE	**ODOR**	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER _____
		☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE	
	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER None
		☐ GRAY	☐ WHITE	☐ COLORLESS			
	FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER _____
		☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE		
	OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
	TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS					
Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	☐ Field Duplicate	☐ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☒ YES ☐ NO	**COMMENTS:** OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.
INVESTIGATOR SIGNATURE _____	NPDES Project Manager

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/2021	10:11 AM	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17.13 "N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 5	Barranca	**LONGITUDE** 106° 35.42 "W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen	☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel ☐ Other_____
Shape	☒ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double ☐ Triple ☐ Other_____
Dimensions	☒ Diameter/Dimensions: 48"		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____		
Submerged	In Water: ☒ No	☐ Partially	☐ Fully		With Sediment: ☒ No	☐ Partially	☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE							
ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER	
	☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE		
COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER	NONE
	☐ GRAY	☐ WHITE	☐ COLORLESS				
FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER	
	☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE			
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION		
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE		

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS					
Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	☐ Field Duplicate	☐ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☒ YES ☐ NO	**COMMENTS:** OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.
INVESTIGATOR SIGNATURE _____	NPDES Project Manager

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/2021	10:36 am	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17.06 "N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 6	Barranca	**LONGITUDE** 106° 35 . 48 "W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0 "	

Conveyance (Check one only)	X MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:			
Material	☐ Concrete	☐ Earthen	☐ Rip-Rap	X RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other_____
Shape	X Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other_____	☐ Single	☐ Double	☐ Triple ☐ Other_____
Dimensions	X Diameter/Dimensions: 48"		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____			
Submerged	In Water:	X No	☐ Partially	☐ Fully		With Sediment:	☐ No	☐ Partially	☐ Fully
Ownership	☐ SSCAFCA	X City	☐ Private	☐ Unknown	☐ Other_____				
Discharges to	X Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	X Open Space	☐ Other_____				
Flow Status	☐ Flowing	X Dry	☐ Ponded		**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE							
ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER	
	☐ SOAP	☐ CHLORINE	X NONE	☐ EARTHY	☐ PESTICIDE		
COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	X OTHER	plants
	☐ GRAY	☐ WHITE	☐ COLORLESS				
FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	X SCUM	☐ SUDS	☐ OTHER	
	☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	X NONE			
OIL AND GREASE	X NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION		
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	X NONE		

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS					
Outfall Damage	X Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☐ None	X Other Stilling Basin Undermined.
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	X None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	X None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	☐ Field Duplicate	☐ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: X YES ☐ NO	**COMMENTS:** OUTFALL SIZE WAS DRY DURING THIS FIELD VISIT.
INVESTIGATOR SIGNATURE _____	NPDES Project Manager

CITY OF RIO RANCHO

IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
Dry Weather Screening	12/22/2021	10:49 AM	Xavier Pettes
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** 15° 17.54 "N	**OBSERVER INFO. (Reported by Citizens)**
Rivers Edge # 7	Barranca	**LONGITUDE** 106° 35 '50 "W	Annual Screening
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
Residential	45°F	0.0 "	

Conveyance (Check one only)	☐ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☒ Earthen Channel	☐ Arroyo/Natural Creek	Comments:			
Material	☐ Concrete	☒ Earthen	☐ Rip-Rap	☐ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other_____
Shape	☐ Circular	☐ Eliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☒ Other INCISED	☐ Single	☐ Double	☐ Triple ☐ Other_____
Dimensions	☐ Diameter/Dimensions: _____		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____			
Submerged	In Water:	☒ No	☐ Partially	☐ Fully		With Sediment:	☐ No	☐ Partially	☐ Fully
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____				
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____				
Flow Status	☐ Flowing	☒ Dry	☐ Ponded		**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE						
ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER _____
	☐ SOAP	☐ CHLORINE	☒ NONE	☐ EARTHY	☐ PESTICIDE	
COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	☐ BROWN	☐ BLACK	☒ OTHER None
	☐ GRAY	☐ WHITE	☐ COLORLESS			
FLOATING MATERIALS	☐ TRASH OR DEBRIS	☐ OILY SHEEN	☐ ORGANIC	☐ SCUM	☐ SUDS	☐ OTHER _____
	☐ OBJECTS (DESCRIBE)	☐ FECAL MATTER	☐ BIOFILM	☒ NONE		
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: None					

OTHER VISUAL OBSERVATIONS					
Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

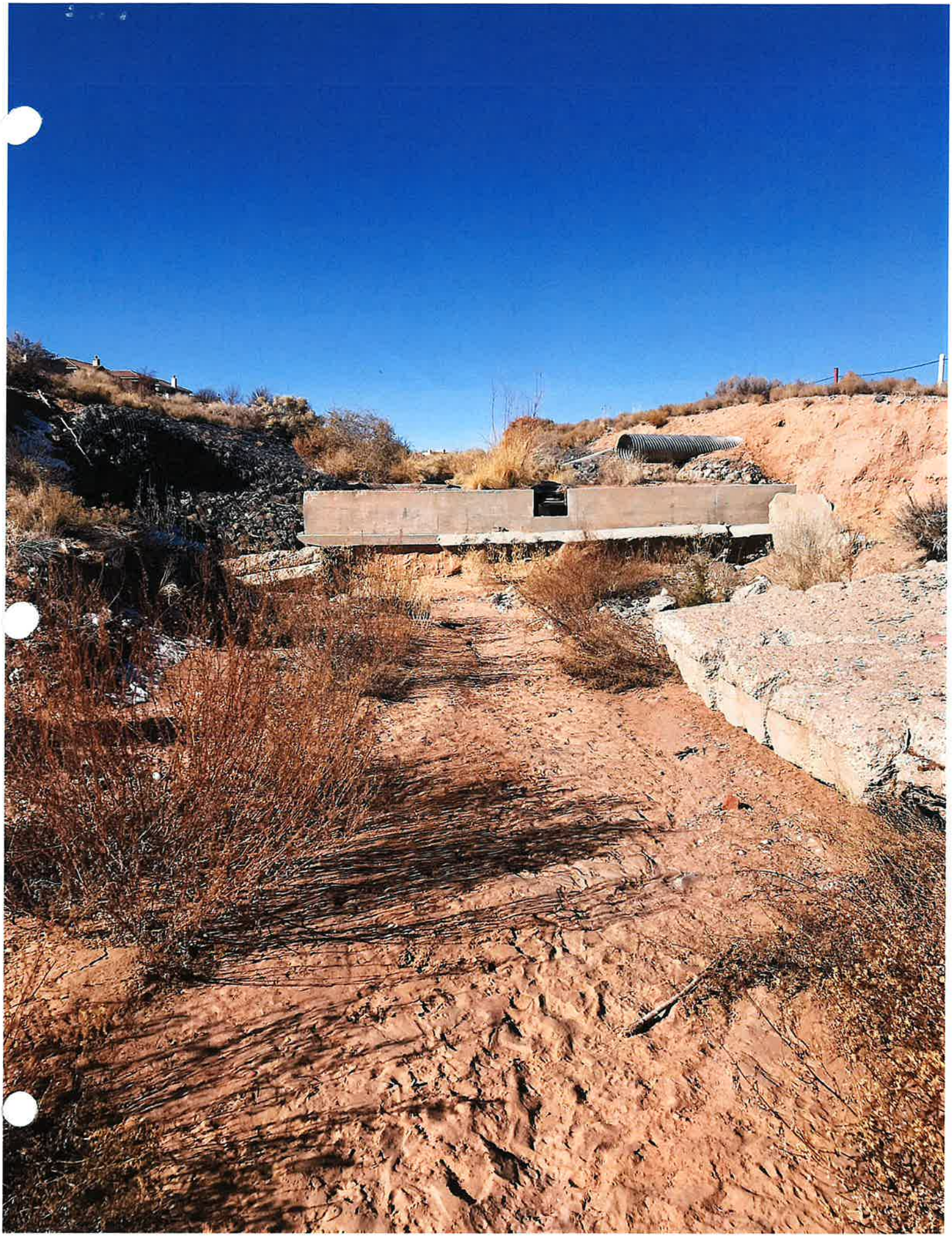
GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	☐ Field Duplicate	☐ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☒ YES ☐ NO	**COMMENTS:** OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.	
INVESTIGATOR SIGNATURE _____	NPDES Project Manager	



Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
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 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

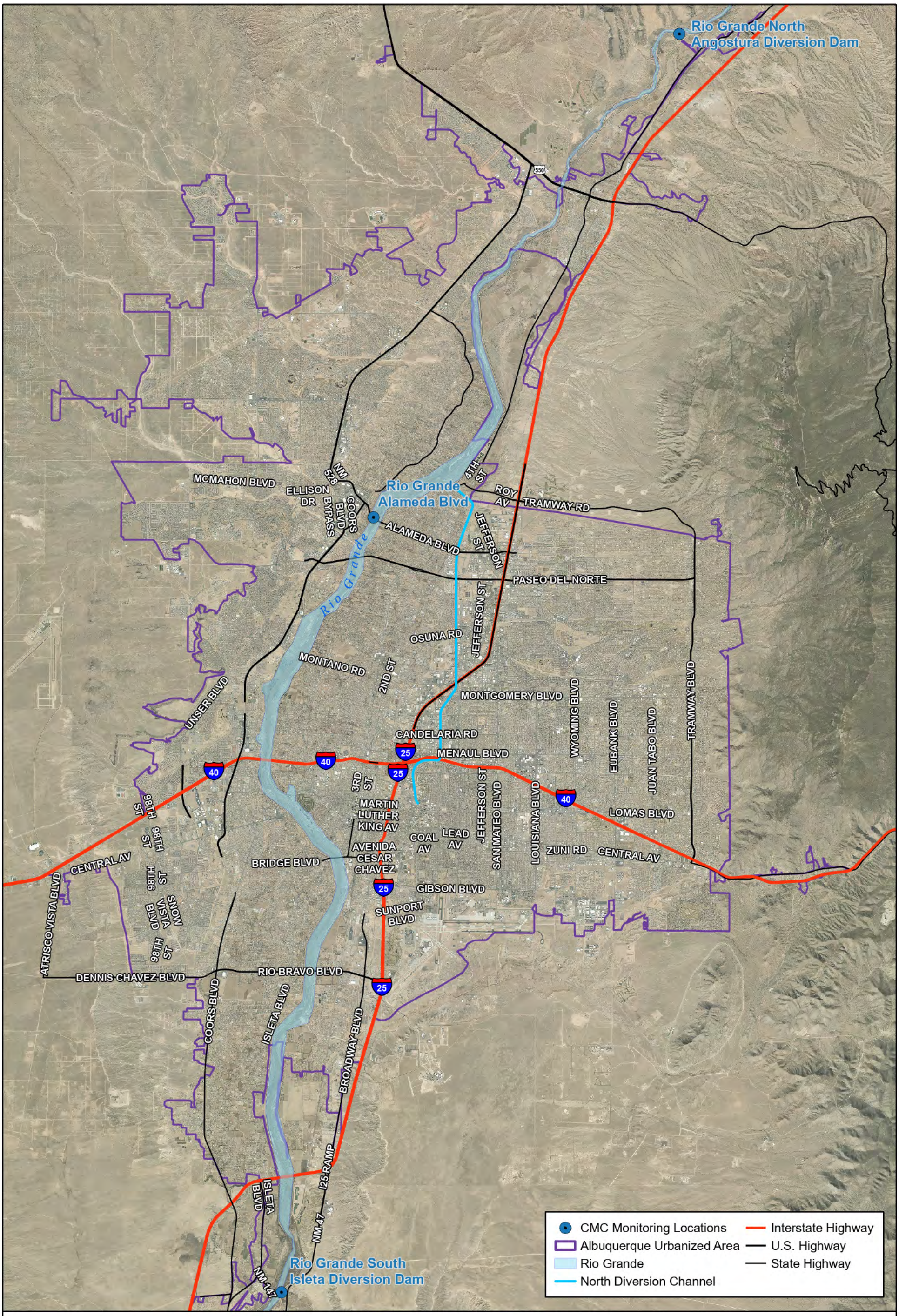
Bohannan Huston, Inc. (BHI) has been tasked to perform water quality services for the CMC Stormwater Data Verification, Database, and Reporting for the Wet Weather Stormwater Quality Monitoring Program for Fiscal Year (FY) 2022 (July 1, 2021 to June 30, 2022). The scope of work for this task includes 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.

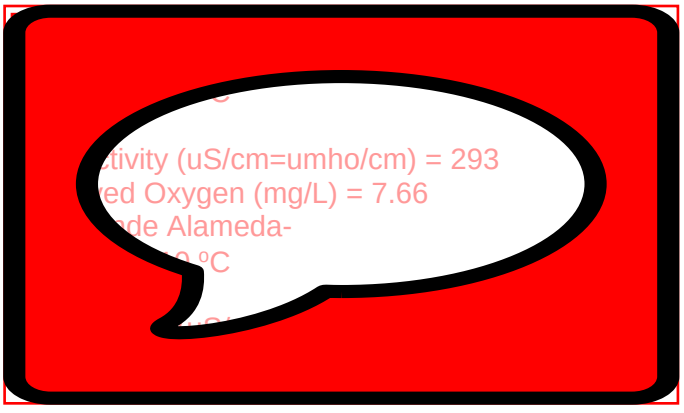
These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or 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



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: 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

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: 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

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

Engineering
Spatial Data
Advanced Technologies

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
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

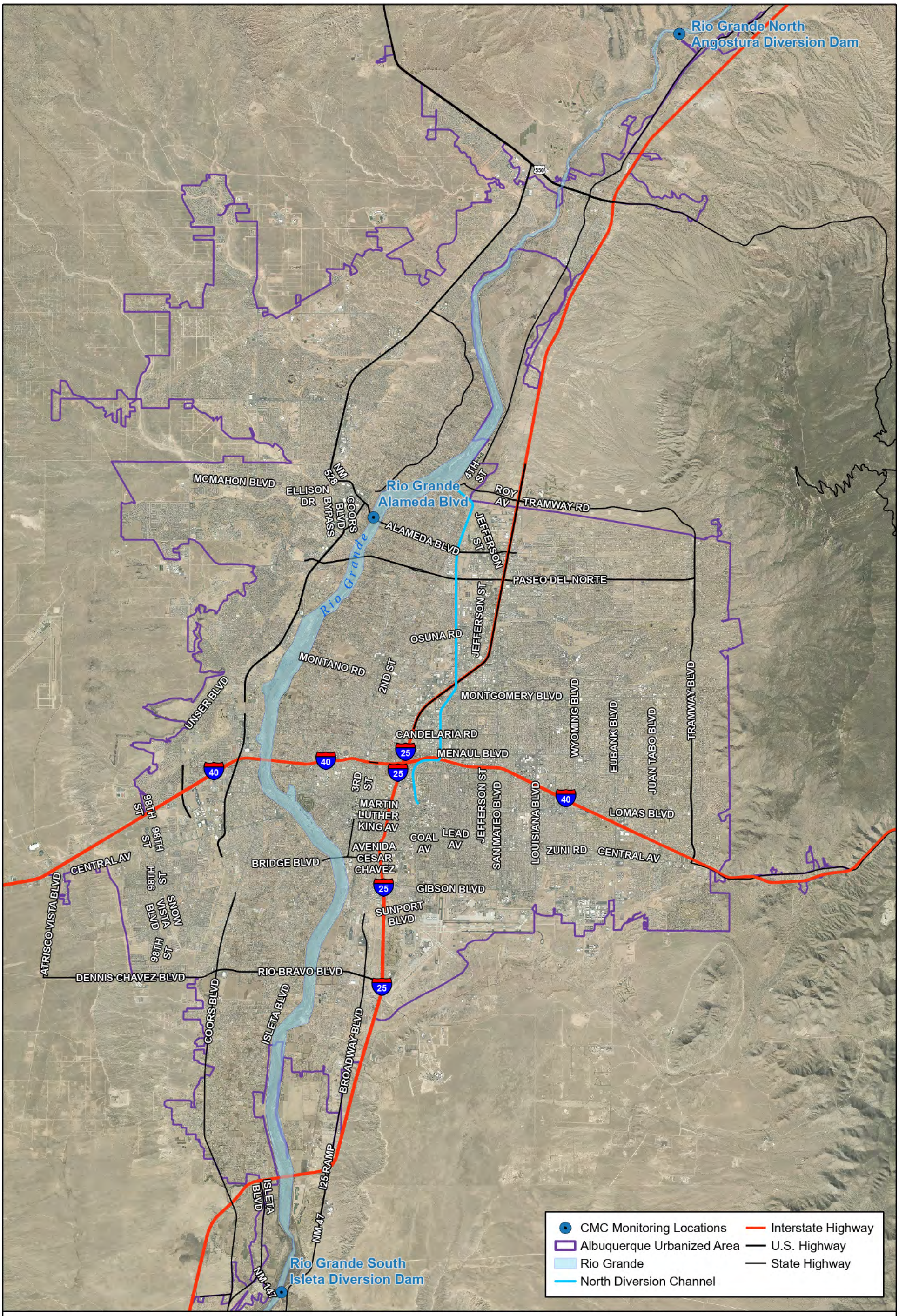
Plan, the WSB MS4 Permit required a minimum of seven (7) storm events be sampled at both the Rio Grande North and Rio Grande South locations (refer to Figure 1, page 4). All Permit required samples have been obtained by the CMC, as well as two (2) samples obtained in FY 2021 and the one (1) sample obtained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



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

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.

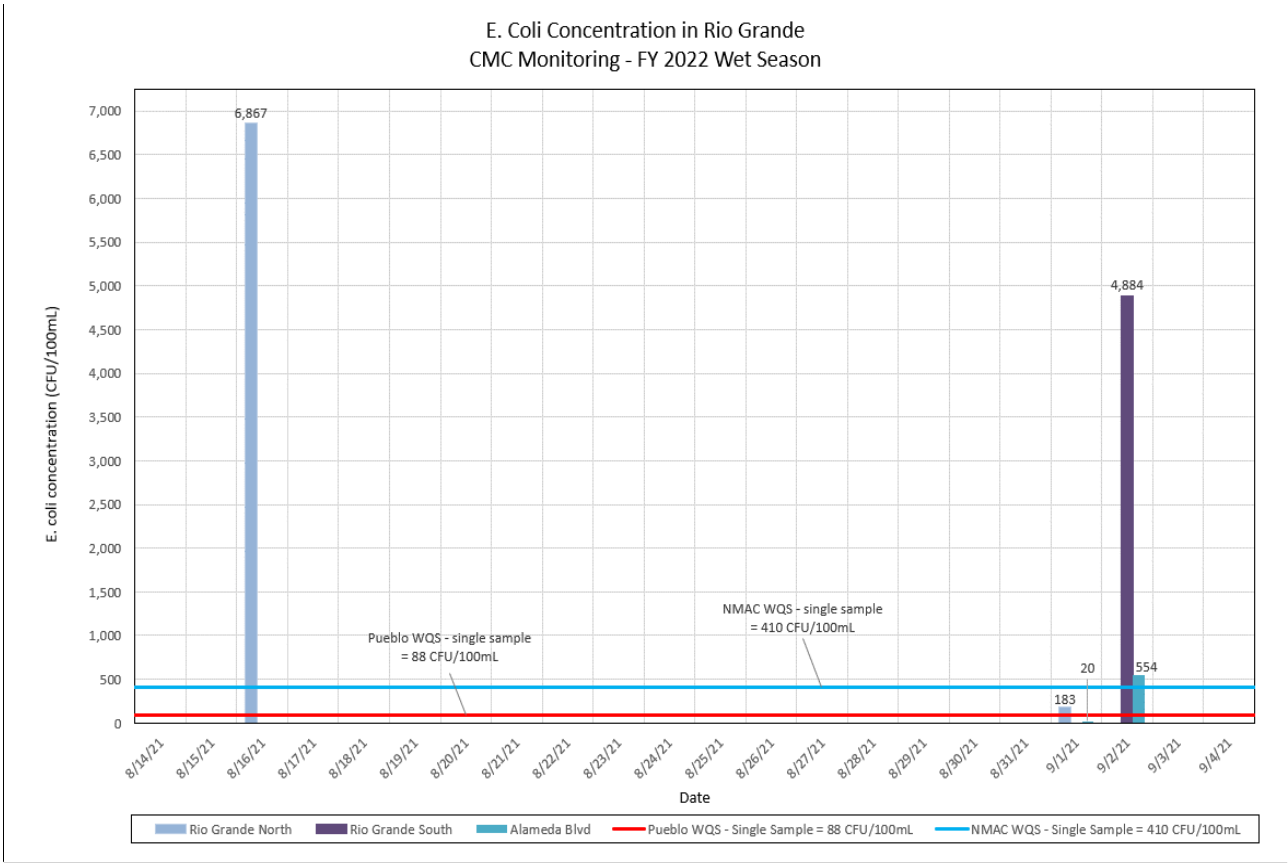


Figure 2: E. coli Results in Rio Grande
CMC Monitoring – FY 2022 Wet Season

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.

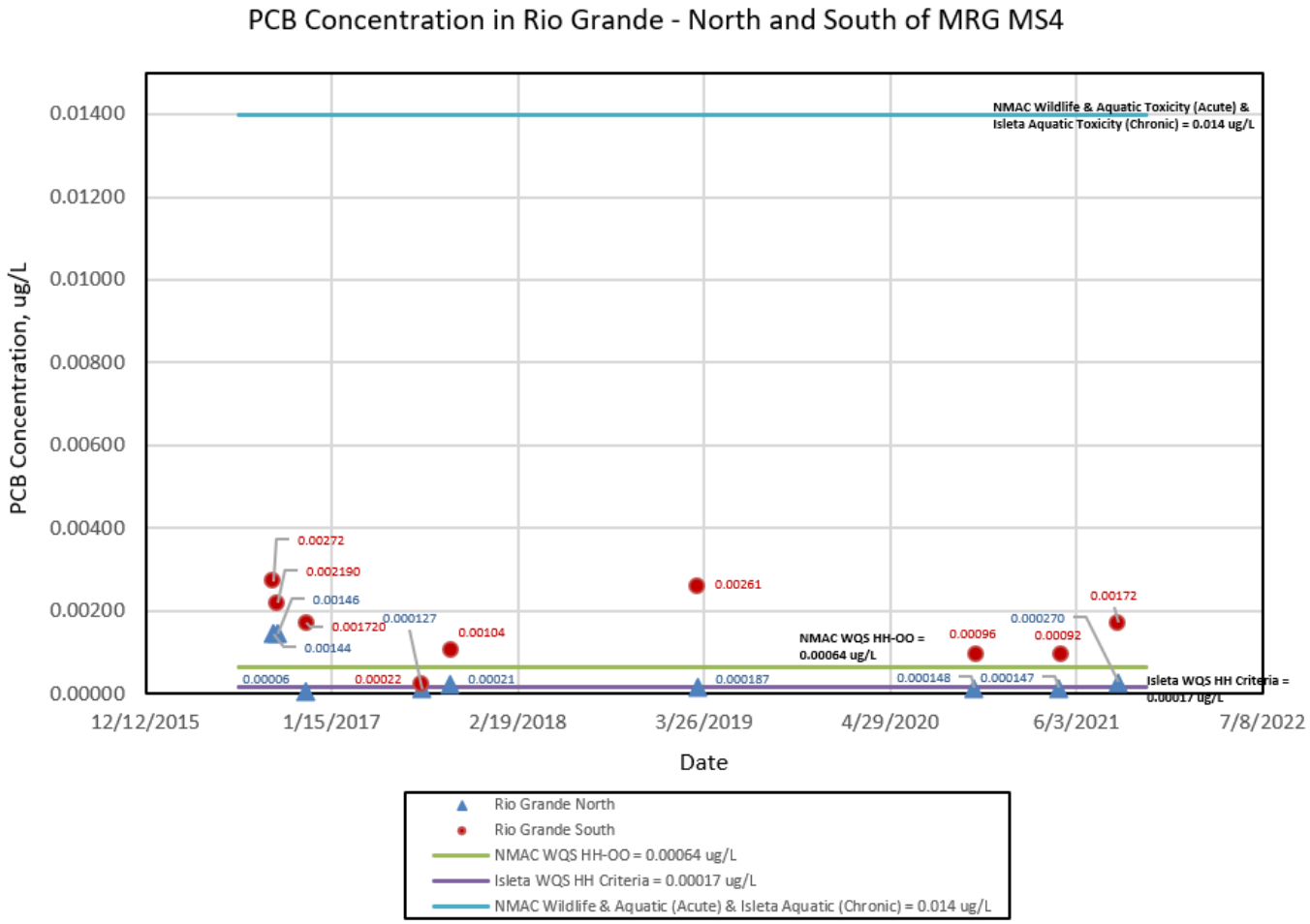


Figure 3: PCB Monitoring Results in Rio Grande
CMC Monitoring – 2016 - 2021

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.

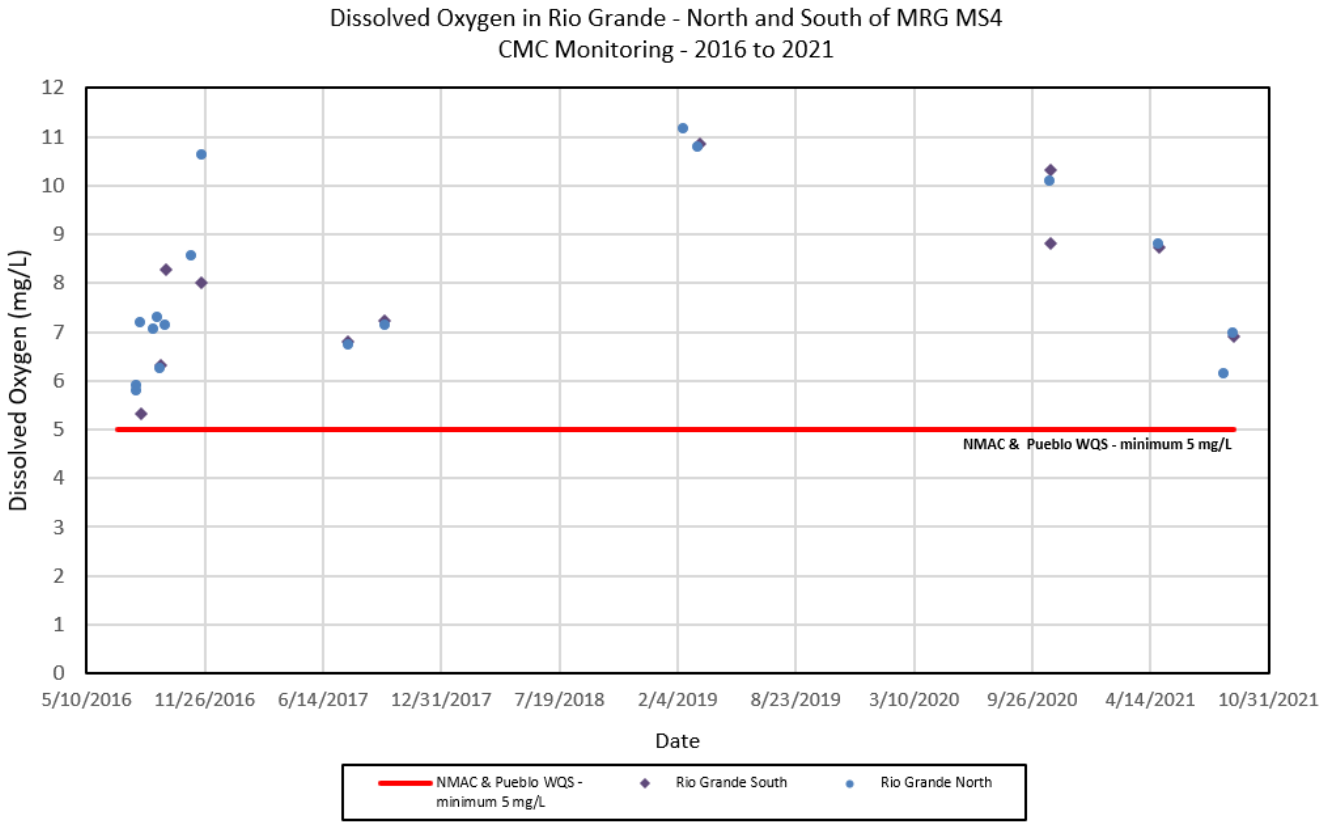


Figure 4: Dissolved Oxygen Results in the Rio Grande
CMC Monitoring – 2016 - 2021

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.

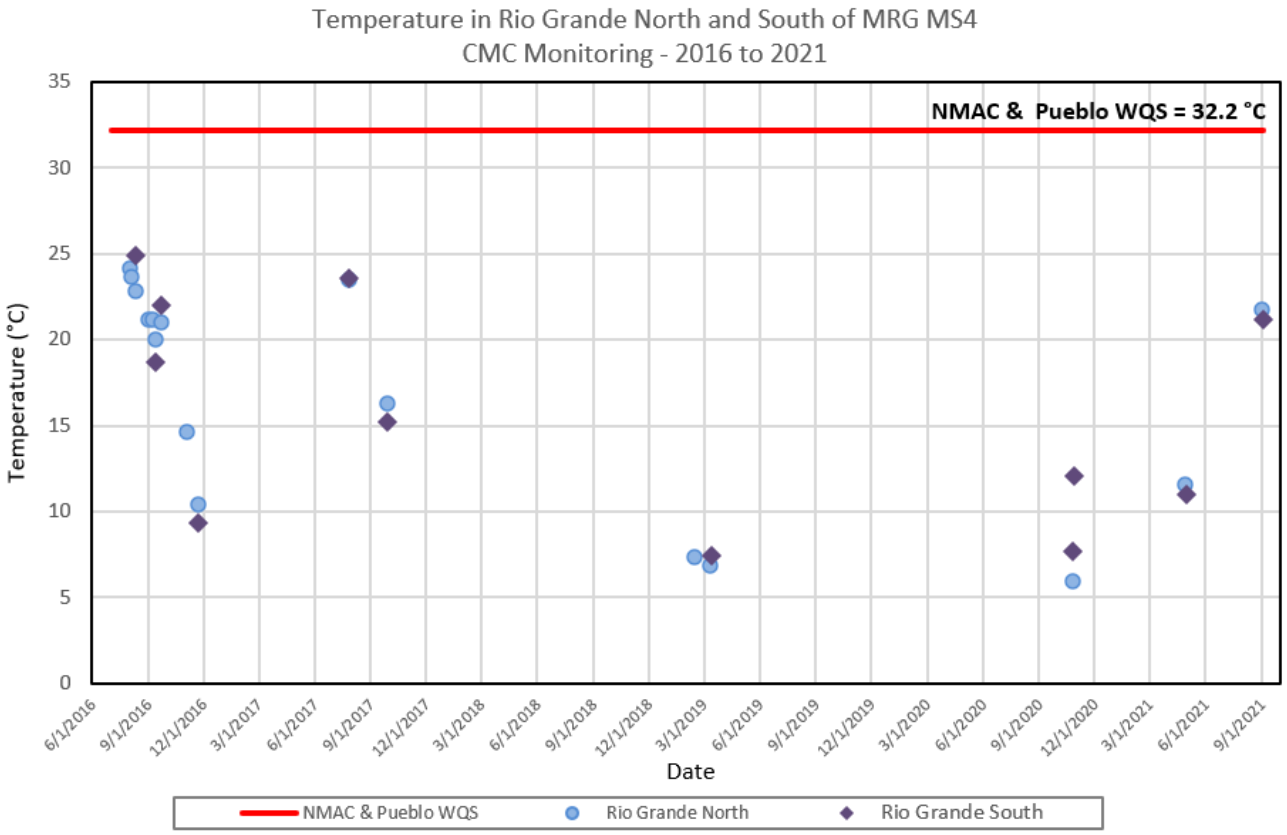


Figure 5: Temperature Monitoring Results in the Rio Grande CMC Monitoring – 2016 - 2021

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.

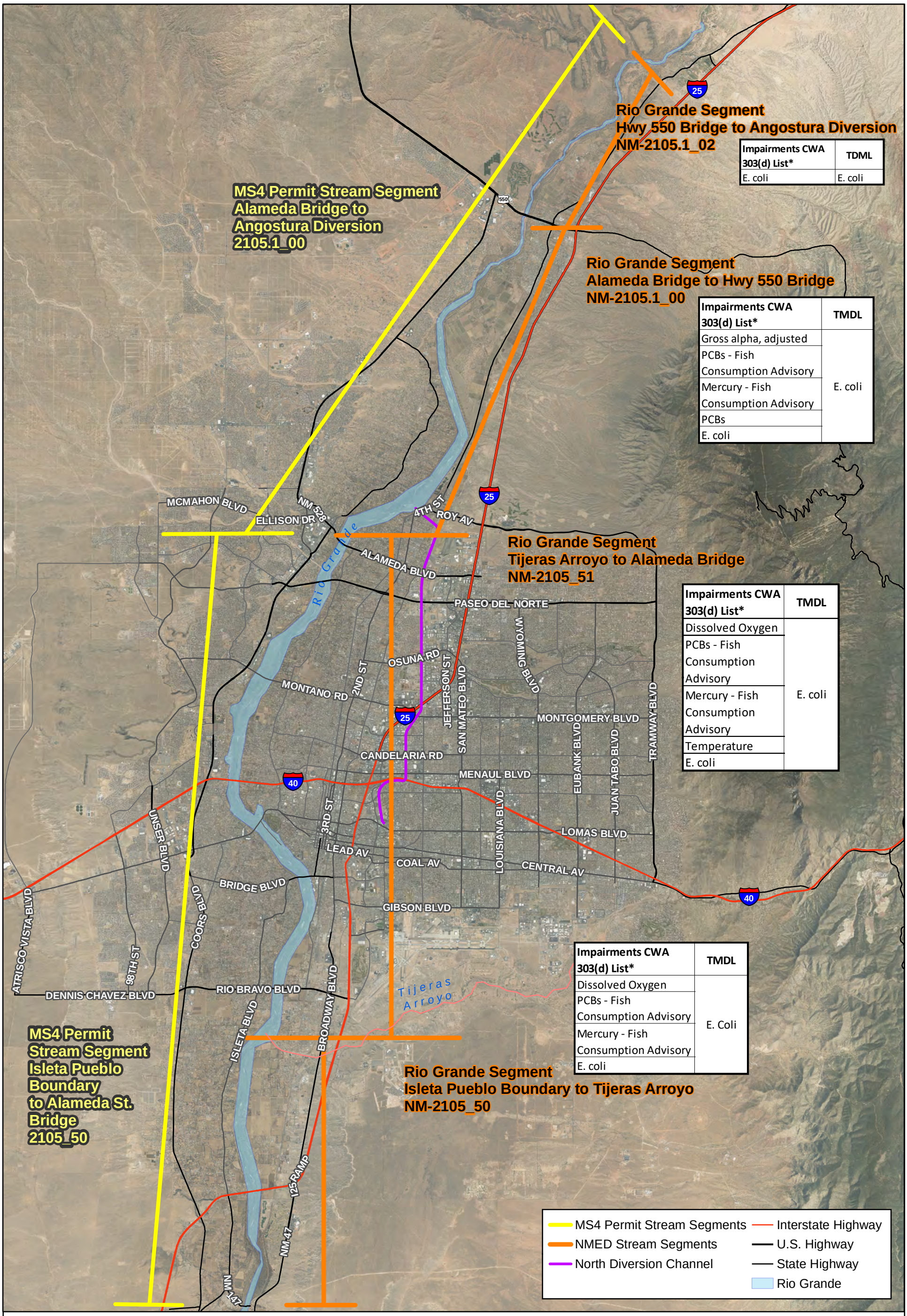
The E. coli daily loading associated with the CMC group and comparison to the NMED WLA was completed for the one (1) qualifying wet season storm event – September 1-2, 2021. For this event, the CMC obtained an E. coli sample in the Rio Grande at Alameda and used this to calculate the E. coli loading 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.



AMAFCA

Bohannan Huston
www.bhinc.com
800.877.5332

N

0 12,000 24,000 Feet
1 in = 12,500 ft

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

P:\20230125\WR\Reports\Final\Figures\MXDs\Figure6-MS4_TMDLStreamSegments_2021_0416.mxd
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

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.

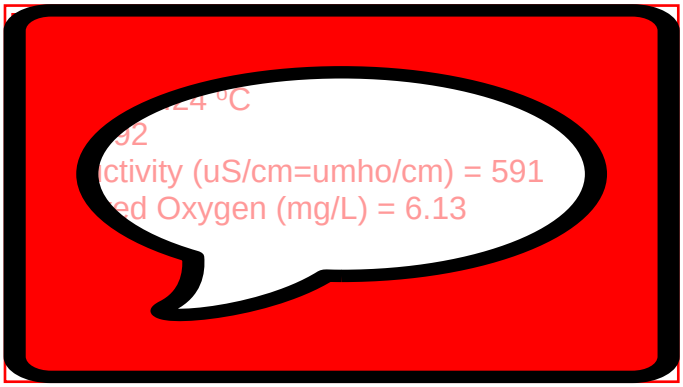
These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or 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



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

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.

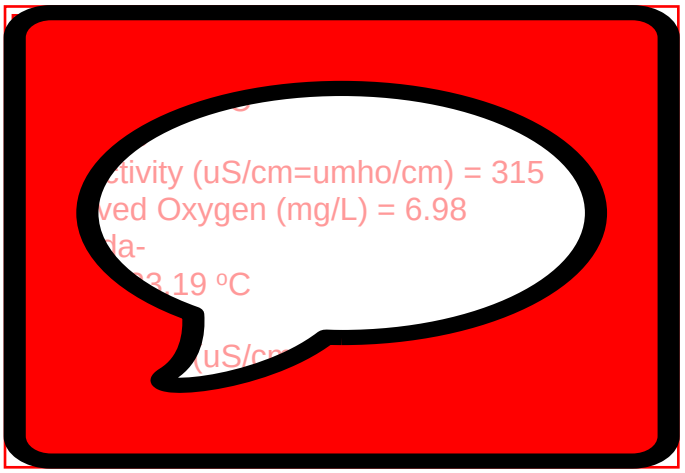
These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or 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



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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

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

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

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 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
Client Sample ID: RG South-20210902
Project: CMC
Collection Date: 9/2/2021 9:20:00 AM
Lab ID: 2109132-004
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)	1.4	0.050	0.050	D	mg/L	1	9/15/2021 1:43:00 PM	62548

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 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.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
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*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

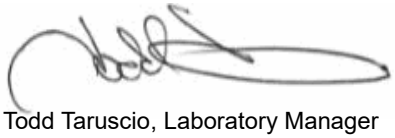
Analytical Results Report

(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.

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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						

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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*		

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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		

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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*		

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

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

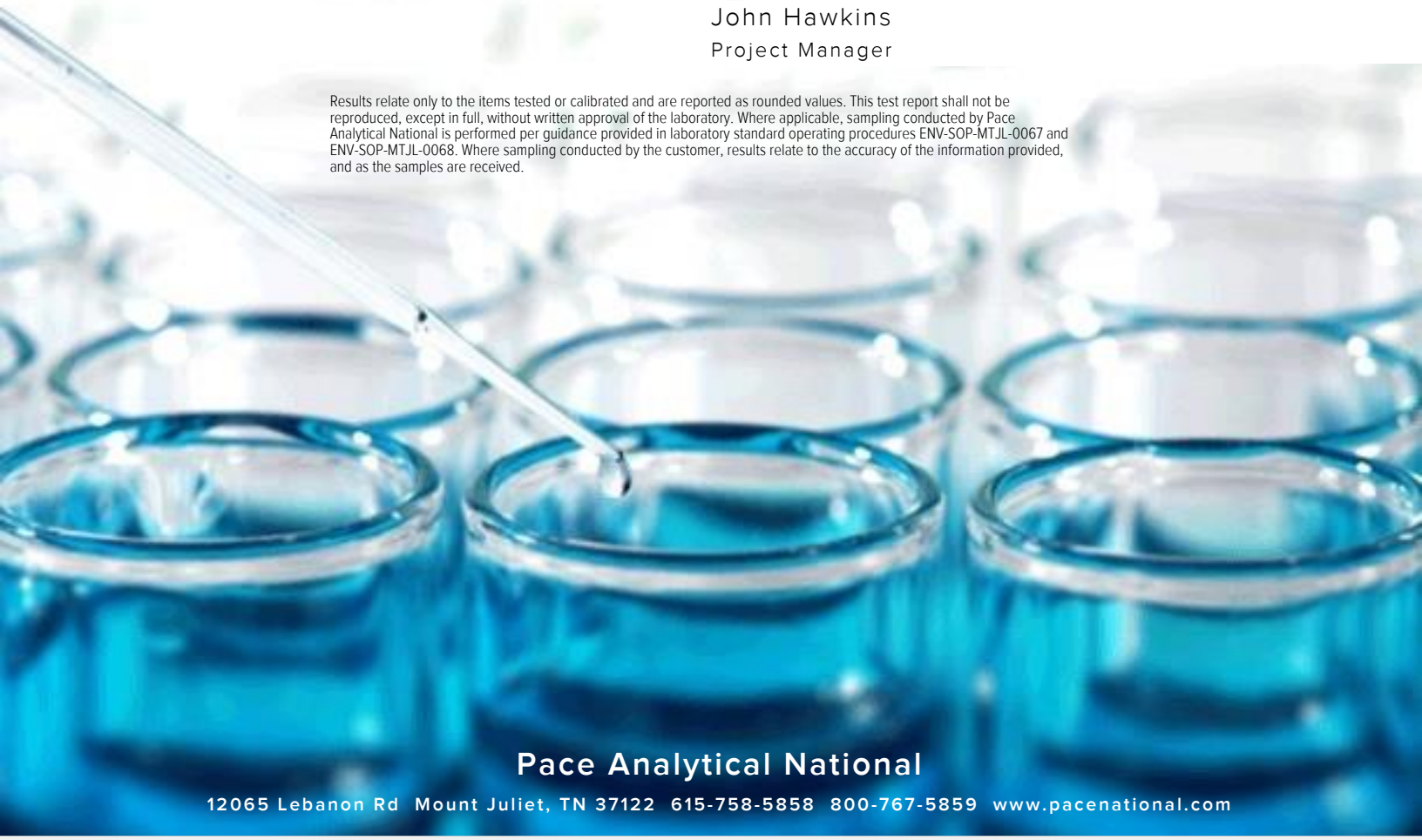
Sample Delivery Group:	L1400264
Samples Received:	09/08/2021
Project Number:	
Description:	

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

Entire Report Reviewed By:

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2109132-001 RG NORTH-20210901 L1400264-01 5

2109132-003 RG SOUTH-20210902 L1400264-02 6

Qc: Quality Control Summary 7

Wet Chemistry by Method 3500Cr C-2011 7

Wet Chemistry by Method 410.4 8

Gl: Glossary of Terms 9

Al: Accreditations & Locations 10

Sc: Sample Chain of Custody 11

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
TEL: 505-345-3975
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

problem solved

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

[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

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

CONFIDENTIALITY NOTICE: This e-mail and any files transmitted with it are the property of The GEL Group, Inc. and its affiliates. All rights, including without limitation copyright, are reserved. The proprietary information contained in this e-mail message, and any files transmitted with it, is intended for the use of the recipient(s) named above. If the reader of this e-mail is not the intended recipient, you are hereby notified that you have received this e-mail in error and that any review, distribution or copying of this e-mail or any files transmitted with it is strictly prohibited. If you have received this e-mail in error, please notify the sender immediately and delete the original message and any files transmitted. The unauthorized use of this e-mail or any files transmitted with it is prohibited and disclaimed by The GEL Group, Inc. and its affiliates..

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:

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
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:

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
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

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

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

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

2109132-001I RG NORTH-20210901 L1400265-01 5

2109132-003I RG SOUTH-20210901 L1400265-02 6

Qc: Quality Control Summary 7

Radiochemistry by Method 900 7

Radiochemistry by Method D5174 8

Gl: Glossary of Terms 9

Al: Accreditations & Locations 10

Sc: Sample Chain of Custody 11

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.

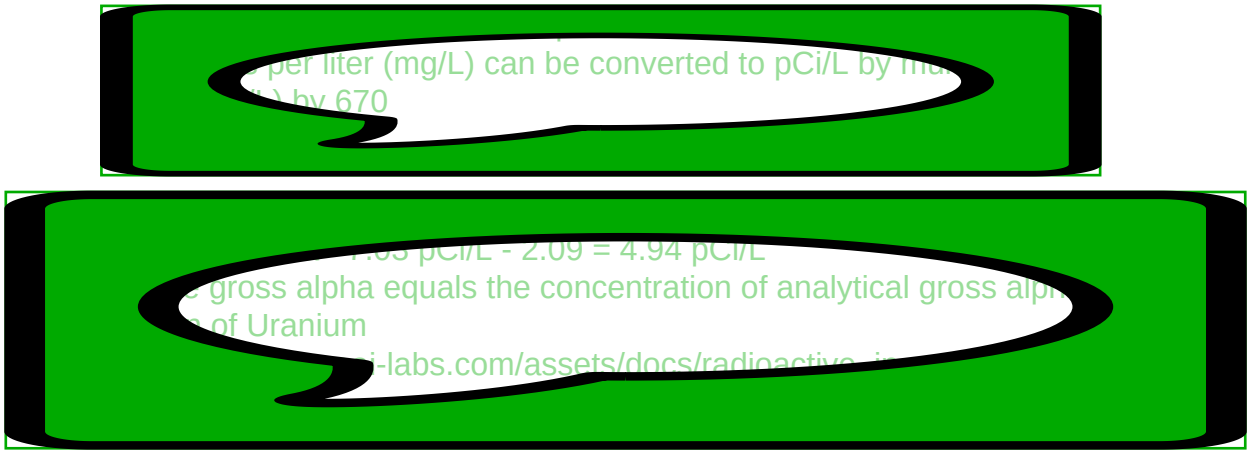
John Hawkins
Project Manager

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

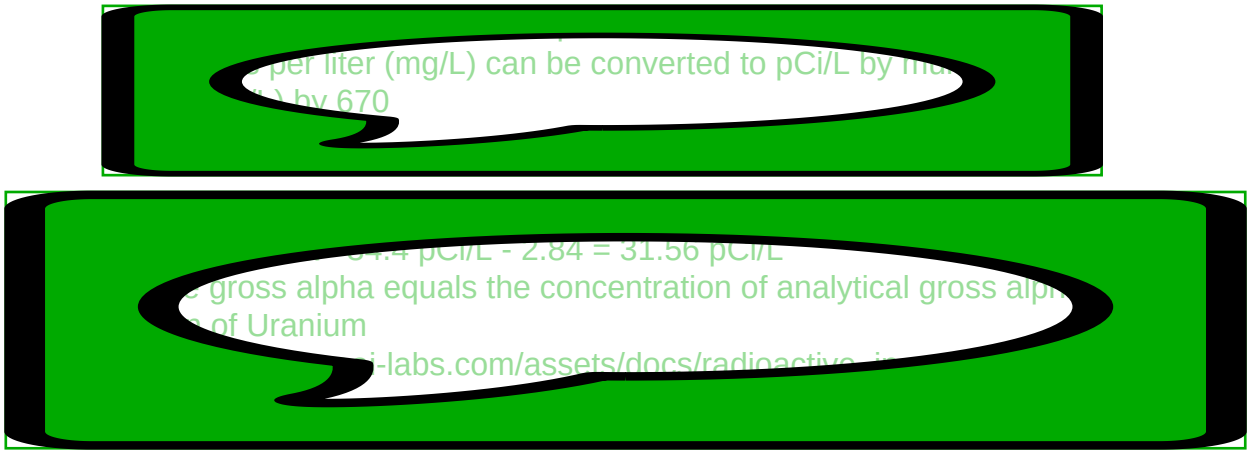


Radiochemistry by Method 900

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



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.

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

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					

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
2	2109132-001I	RG North-20210901	1LHDPEHNO3	Aqueous	9/1/2021 10:05:00 AM	1	Adjusted Gross Alpha 22 -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 22 -02
6	2109132-003J	RG South-20210902	120mL	Aqueous	9/2/2021 9:20:00 AM	1	Cr 6

B185

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		

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: SH	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:	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 AVG 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.

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.

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

****

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

****

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	

Section 6	Annual Report Responsibilities for Cooperation Programs
	6.1 Middle Rio Grande Stormwater Quality Team Outcomes Report FY2021-2022 6.2 Middle Rio Grande Stormwater Quality Team Membership 6.2 Middle Rio Grande Municipal Separate Storm Sewer System Technical Advisory Group – Cooperative Monitoring Plan 6.3 Delegation of Authority for Date Entry into NetDMR System

This page intentionally left blank.

Outcome Report

for Fiscal Year 2021–2022

(July 1, 2021 to June 30, 2022)

Mio Rio Grande Stormwater Quality Team

Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) • City of Albuquerque • Bernalillo County • Town of Bernalillo • Village of Corrales • Ciudad Soil and Water Conservation District • Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA) • Village of Los Ranchos de Albuquerque • Department of Transportation (NMDOT) • City of Rio Rancho • Sandoval County • Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)

PRESENTED BY

SUNNY505

Table of Contents (TBD)

Bernalillo County 1

City of Albuquerque 4

Middle Rio Grande Stormwater Quality Team. 16

Village of Corrales. 18

Village of Los Ranchos 18

Ciudad Soil and Water Conservation District 1

Southern Sandoval County Arroyo Flood Control Authority 1

Albuquerque Bernalillo County Water Utility Authority. 1

UNM | BEMP | Bosque School 1

Town of Bernalillo 1

AMAFCA 1

FY22 Watershed Stewards Final Report 1

NEED UPDATED INFO.

Bernalillo County

Public Outreach and Education Tracking

2021

Date	Location	Event Topic	Description of Education/Outreach Event Program/Materials	Participants
FY21	Land and Water Summit, virtual	2020 Land & Water Summit: Climate Ready Water Management	Kali Bronson, Chair, Land & Water Summit planning committee	8
9/2–3/20	Tijeras Creek Remediation Project	Tijeras Creek Invasive Removal	Removal of invasive species for the Tijeras Remediation Project	5
11/10/20	Virtual training	Climate for Health Ambassadors Training	Kali Bronson participated in training and well as presenting a Bernalillo County 2nd Street green stormwater infrastructure project	108
11/18/21	Virtual training	2020 EPA National Nonpoint Source Training Workshop	Kali Bronson, Joanne Hilton (consultant to Ciudad SWCD), and Steve Glass (chair, Ciudad Soil and Water Conservation District) presented status of Upper Tijeras Creek Watershed-based Plan. A recording of the presentation can be found here: https://www.youtube.com/playlist?list=PL7F4YD5AdOGJUlySUG-ByGa3UWlKKu7w2i	434 participants
1/22/21	Virtual training	Current State of Assets	Convening to discuss incorporting green infrastructure into traditional asset management. The Southwest Ennvironmental Finance Center has a grant to develop asset management strategies for green infrastructure and met with people who manage stormwater and green infrastructure to gain information to inform their report. Bernalillo County and COA participated.	12
1/29/21	Virtual training	Criticality Discussion		10
2/9/21	Virtual training	Funding		12
2/12/21	Virtual training	Life Cycle Costing		10
2/23/21	Stormwater Quality Email Bulletins	Our Watershed/E. coli Impairment	Email bulletin from Bernalillo County Natural Resource Services, Stormwater: https://content.govdelivery.com/accounts/NMBERNCO/bulletins/2c1e608	587 recipients
02/23–26/21	Land and Water Summit, virtual	2020 Land & Water Summit: Climate Ready Water Management	Land &Water Summit Agenda and Information: https://whova.com/web/laws_202008/ and www.landandwatersummitnm.org	175 registrations

2/26/21	Arid LID GSI Awards	GSI project awards distributed by the Arid LID Coalition	Awards given at end of Land and Water Summit. List of awardee's can be found here: https://aridlidcoalition.org/index.php/2021/03/09/2021-gsi-award-winners/	
4/9/21	Water Protection Advisory Board Meeting, virtual	Middle Rio Grande Stormwater Quality Team Overview	Presentation to the board about the MS4 permit, stormwater quality, and education/outreach activities by the permittees. Presented by Kali Bronson, Bernalillo County, Patrick Chavez, AMAFCA, and Kathy Verhage, City of Albuquerque	25
4/20/21	Stormwater Quality Email Bulletins	Stormwater Pollutants	Email bulletin from Bernalillo County Natural Resource Services, Stormwater: **https://content.govdelivery.com/accounts/NMBERNCO/bulletins/2ccaa80**	684 recipients
4/29/21	Focus group, virtual	ULI Focus Group Meeting on Drought Resilience & Water Smart Development	Kali Bronson participated in focus group. Thank you for RSVPing for this one-time virtual Focus Group meeting for developers and land use professionals in New Mexico, Nevada, and Utah who have worked on projects or policies related to water-efficient development and landscaping! Your insights at the Focus Group will help ULI develop a report on drought resilience and water smart development best practices, to be published this Fall. ULI New Mexico, Nevada, and Utah and the national ULI Urban Resilience Program are partnering to host this meeting as one of several focus groups ULI is convening around the American West to learn about challenges, opportunities, and best practices in water smart development. We will integrate what we learn during these regional convenings into a national ULI report about drought resilience, to be published in fall 2021. The report will provide guidance on implementing water smart practices in real estate development and land use, highlighting case studies of successful projects as well as future opportunities for innovation. Our hope is that by sharing tools, resources, and guidance, we can support the integration of water smart practices into development policies and practices, allowing our regions to avert water crises. Your participation will help us identify water-saving practices used in real estate development and landscaping that can help us inform future land use and policy making. Please be advised that we will record the Focus Group meeting, but the recording will only be used by ULI as a reference and will not be shared externally. ULI staff will reach out to confirm any quotes from the Focus Group that we may want to publish in the report.	17
5/25/21	Stormwater Quality Email Bulletins	Rainwater Harvesting Training	Email bulletin from Bernalillo County Natural Resource Services, Stormwater: **https://content.govdelivery.com/accounts/NMBERNCO/bulletins/2da0d91**	1163 recipients
6/11/21	Virtual meeting	Arid LID quarterly meeting; presentation of GSI projects online interactive map	Sarah Osterman presented the draft online, interactive GSI project map for the Middle Rio Grande at the Arid LID Coalition quarterly meeting. Map developed by Sarah Osterman, Bernalillo County	25?
6/1/2021		Middle Rio Grande GSI project map	Middle Rio Grande GSI project map goes live: https://www.arcgis.com/apps/dashboards/f3a07f35be454b00b6c7f70c1d6e27c1	Get site visits

6/14/2021	Virtual training	Residential rainwater harvesting workshop: Design	Ciudad SWCD, in cooperation with Bernalillo County Natural Resource Services and Bernalillo County Open Space, the Arid LID Coalition, and the Rocky Mountain Youth Corps, developed a virtual and online training program for residential rainwater harvesting. The instructional videos and additional resources and information can be found at www.bernco.gov/rainwater	63
6/15/2021	Virtual training	Residential rainwater harvesting workshop: Installation		69
6/16/2021	Virtual training	Residential rainwater harvesting workshop: Care & Maintenance		44
6/19/2021	Gutierrez Hubble House	Residential rainwater harvesting workshop: onsite information session		43
2022				
7/20/21	Stormwater Quality Email Bulletins	Monsoon Awareness	Email bulletin from Bernalillo County Natural Resource Services, Stormwater: **https://content.govdelivery.com/accounts/NMBERNCO/bulletins/2e817df**	744 recipients

Pages related to Stormwater content on the Bernalillo County site and **Unique Visitors per Page**:

https://www.arcgis.com/apps/dashboards/f3a07f35be454b00b6c7f70c1d6e27c1 **(N/A)**

https://ipgr.maps.arcgis.com/apps/webappviewer/index.html?id=537b3c37183e4ea1973f845a6b5e6bce **(N/A)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/epa-regulation-of-stormwater-in-bernalillo-county/ **(308)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/overview/ **(451)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/natural-resources-ordinances/ **(360)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/green-stormwater-infrastructure-and-post-construction-stormwater-management/ **(308)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/stormwater-pollution/ **(331)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/stormwater-pollution/stormwater-pet-waste/ **(64)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/stormwater/illicit-discharge/ **(37)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/wastewater-septic-systems/ **(1095)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/wastewater-septic-systems/wastewater-permitting-process/ **(524)**

https://www.bernco.gov/public-works/public-works-services/water-wastewater-stormwater/wastewater-septic-systems/wastewater-frequently-asked-questions/ **(960)**

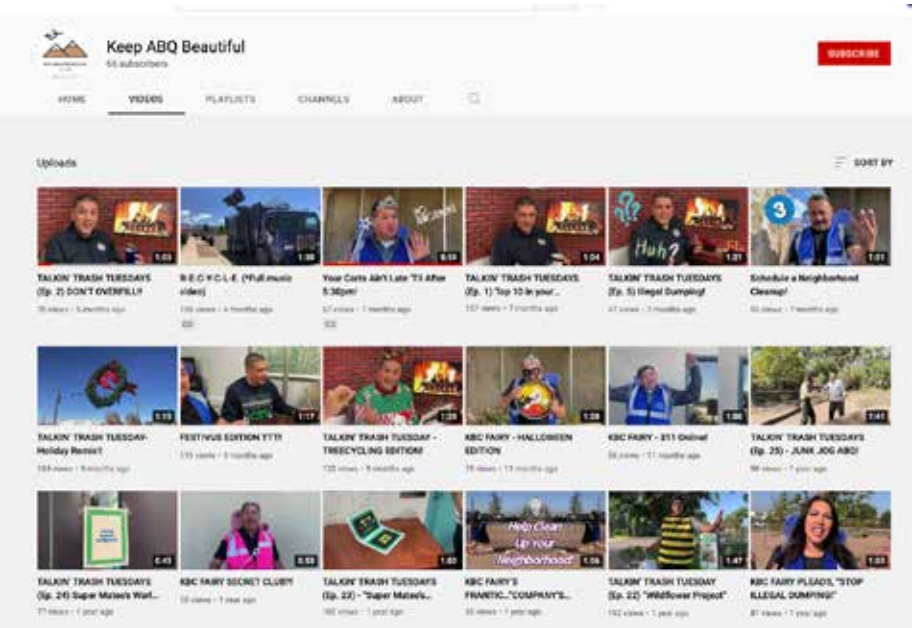
ONE
ALBUQUE
RQUE
city of albuquerque

City of Albuquerque

Public Participation Numbers

In 2021 the City of Albuquerque's Solid Waste's Keep ABQ Beautiful Program garnered 867 views of their YouTube channel, encouraging the public to pick up and recycle trash.
https://www.youtube.com/channel/UCEjJII8yYk-IEv3Lpi6Bw3w/videos

WATCH OUR YOUTUBE CHANNEL



Additionally, the City of Albuquerque hosted clean up events from July 1, 2021 through June 30, 2022, with the following successes:

Company's Comin' Cleanup

- 9/25/21 – 9am to 12pm
- 699 Volunteers/Participants
- 3 hours
- 7.54 tons/15,080 lbs of trash collected

Junk Jog on the Bosque – Plogging

- 10/23/21 – 9a to 12p
- 20 Volunteers
- 98 Participants
- 3 hours
- .97 tons/1,940 lbs of trash collected

Household Hazardous Waste Collection Event

- 11/13/21 – 10am to 3pm
- 585 Participants
- 5 hours
- 24.19 tons/48,373 lbs of HHW collected

One ABQ Cleanup Month

- 4/9/22, 4/16/22, 4/23/22 & 4/30/22 – 9am to 12pm
- 895 Volunteers/Participants
- 3 hours each day x 4
- 38.32 tons/76,640 lbs of trash collected

Planting Numbers for 2021–2022

River Exchange

Date	School	Adults	Kids	Cotton	Willows
2.11.22	Valle Vista	4	34	27	
2.16.22	7 Bar	4	50	35	
2.17.22	7 Bar	3	22	37	
2.18.22	Manzano Mesa	2	40	27	
2.25.22	Manzano Mesa	2	18	18	
3.2.22	La Mesa	5	36	36	
3.9.22	La Mesa	5	46	40	10
3.10.22	Monte Vista	9	48	11	57
3.11.22	John Baker	6	18	11	15
3.16.22	John Baker	7	43	14	47
3.30.22	Cochiti	6	27	20	40
4.1.22	Valle Vista	3	35	21	29
TOTALS		**56**	**417**	**297**	**198**

Other

Date	Group	Adults	Youth	Cotton	Willows
2.10.22	Holy Ghost	2	27	50	
2.19.22	Peace Corps	31	11	65	25
2.23.22	Holy Ghost	2	36	53	
2.26.22	Multi Agency Community Day	42	8	50	100
3.4.22	Cottonwood Classical	4	15	48	
3.19.22	Peace Corps	39	7	75	25
TOTALS		**120**	**104**	**341**	**150**

Total Waste Diverted

FY22 Total HHW (lbs) Diverted from Landfill

Calendar Year	Month	Recycled Waste																
		Reuse Center	RC0014 Waste Oil	RC5056 Motor Fluids	RC0016 Lead Acid Batteries	RC6006 Mercury	ACT15687 Household Paint, xylene, tolulene etc	RC0011 Aerosols	RC7485 Alkaline Batteries	RC7486 Lithium Batteries	RC6254 NiCad Batteries	ACT46232 Compact Bulbs, CFL	ACT46233 HID Lamps	ACT46235 4 Foot Lamps	RC7658 8 Foot Lamps	ACT50491 Non PCB Ballast	ACT58121 Fire Extinguisher	ACT58246 Fertilizer
2021	Jul	1,902		28,874	1,034			3,265	1,382	371	603	385		87	34	347		
	Aug	1,806		19,817	133	5		2,930	956	84	256	310		88	81			
	Sep	2,334		22,986	1,145			921	796	190	227	317		18		137		
	Oct	2,730		13,854		766		6,418	883			114		40	32	300		
	Nov	2,850		22,039	1,241			1,319	444		1,576	222		62	51			
	Dec	3,066		12,811				1,000	479			378						
MID YEAR		14,688	0	120,381	3,553	771	0	15,853	4,940	645	2,662	1,726	0	295	198	784	0	0
2022	Jan	2,130		9,286				884	923			582		62	59			
	Feb	1,668		7,716										61	32		247	
	Mar	1,530		9,176				1,472	443			242		14				
	Apr	1,806		10,544	1,234			1,575	1,247			214		38	20			
	May	1,662		19,007				1,716	863			432		80	61			
	Jun	2,532		17,152	1,131			2,330	1,242	209		229		102	2,029			
TOTAL (lbs)		26,016	0	193,262	5,918	771	0	23,830	9,658	854	2,662	3,425	0	652	2,399	784	247	0

* Misc = Compact Bulbs, 4 ft lamps, Ballast, PCB Capacitors, Carbides, Phosphides, Fertilizers, CO2 Cylinders, etc...

TOTAL	345,872
TOTAL Recycled Waste	225,967
% Recycled	65.3%

PO Amount:	$1,000,500.00
Paid Amount:	$954,466.81
Amount left on PO:	$46,033.19

~~PO# DSW0016901~~
PO# DSW0022306

* Information on this report is gathered from the Reuse forms sent by mail from ACT and the breakdown of items processed list sent by email monthly by Nicole Gwash

Sent for Destruction								
RC0012 Acids	RC0013 Bases	RC0015 Flamables Toxics Incenerated	RC6002 Toxic-Solid (Poisons)	RC7129 Compressed Gas	RC7182 Oxidizers	ACT145226 Pesticides Liquid Toxic	Misc*	TOTAL
1,684	1,354	2,689	2,886	749	299			47,945
895	1,290	861	1,510	169			917	32,108
1,006	981		930	135	78		1,601	33,802
610	518			458			1,330	28,053
805	540	120	1,248			2,352		34,869
588	3,483		682			1,594		24,081
5,588	8,166	3,670	7,256		377		3,848	200,858
472	569		580	100	177	1,823		17,647
848	5,003		175			442		16,192
1,987	4,366		858		837	1,008		21,933
802	822		767			971		20,040
1,383	2,632		1,155			2,357		31,348
2,599	5,264		1,396			1,639		37,854
13,679	26,822	3,670	12,187		1,391		3,848	345,872

	Total Pounds Recycled	Tons Recycled	Total Destroyed	Amount Paid
July	38,284	19.14	4.83	$105,924.00
August	26,466	13.23	2.82	$91,903.31
September	29,071	14.54	2.37	$86,831.00
October	25,137	12.57	1.46	$85,161.75
November	29,804	14.90	2.53	$72,841.00
December	17,734	8.87	3.17	$59,653.00
January	13,926	6.96	1.86	$66,513.25
February	9,724	4.86	3.23	$47,311.00
March	12,877	6.44	4.53	$64,536.25
April	16,678	8.34	1.68	$83,559.75
May	23,821	11.91	3.76	$86,074.75
June	26,956	13.48	5.45	$104,157.75
	270,478	**135.24**	**30.80**	$954,466.81

Household Hazardous Waste Collection Participation | July 2019–June 2020

Household Hazardous Waste Collection Participation
July 2019- June 2020

Month	Participants w/Unknown Location or Not Enough Info to Geocode	Total	Orphaned waste at facility	City Participants (City + No Match or Not Enough Info)	County Participants	Out of County	Out of County Breakdown	County Percentage	Monthly Cost	Light Bulbs (included in monthly cost)	Total Cummulative Cost
Jul-19		1550		1329	206	15	Sandoval- 13, SF-1, Valencia-1	13.3%	$102,037.50	$1,287.50	$102,037.50
Aug-19		1500		1273	216	11	Sandoval- 7, SF-2, Valencia-2	14.4%	$97,977.00	$477.00	$97,977.00
Sep-19	44	1227		1042	175	10	Sandoval - 8, SF-1, Taos-1	14.3%	$80,771.25	$1,016.25	$80,771.25
Oct-19	50	1190		962	222	6	Sandoval - 4, Valencia - 2	18.7%	$78,985.00	$1,635.00	$78,985.00
Nov-19	44	939		758	168	13	Sandoval- 9, Socorro-1, Valencia-3	17.9%	$62,614.25	$1,579.25	$62,614.25
Dec-19	32	715		602	110	3	Sandoval - 2, SF-1	15.4%	$47,934.50	$1,459.50	$47,934.50
Jul-Dec 2019	**170**	7121	**0**	**5,966**	**1,097**	**58**		15.4%	**$ 470,319.50**	**$7,454.50**	$470,319.50
Jan-20	53	990		831	154	5	Sandoval County-4, Valencia County-1	15.6%	$66,612.00	$2,262	$66,612.00
Feb-20	65	834		713	111	10	Sandoval County-8, Valencia County-2	13.3%	$56,121.00	$1,911	$56,121.00
Mar-20	51	928		754	165	9	Sandoval County-8, Torrance County-1	17.8%	$61,742.75	$1,423	$61,742.75
Apr-20	67	1031		864	152	15	Sandoval County-10, SF-2, Valencia-3	14.7%	$67,646.25	$631	$67,646.25
May-20	47	1535		1270	233	32	Cibola-1, Sandoval-24, Santa Fe-3, Torrance-1, Valencia-2	15.2%	$101,687.75	$1,913	$101,687.75
Jun-20	113	1829		1,523	284	22	Sandoval -14, SF-6, Valencia-2	15.5%	$120,614.00	$685	$120,614.00
Jan-Jun 2020	**396**	**7,147**	**0**	**5,955**	**1,099**	**93**		15.4%	**$474,423.75**	**$8,825**	**$474,423.75**
FY20 Total	**566**	**14,268**	**0**	**11,921**	**2,196**	**151**		**15.4%**	**$944,743.25**	**$16,279**	**$944,743.25**
				Participant Total (other than orphaned)			**14,268**			**$16,279**	

Monthly Average	**1189**

Participant Fee	$ 65.00

FY20 Budget	**$ 540,000.00**
Remaining Balance	**$ (404,743.25)**

	Participants	Percentage	Cost
BERNCO Participation to date	2,196	15.4%	$142,740
Unknown or Not Enough Info to Geocode (costs absorbed by COA)	566	3.97%	$36,790

Email Daniele Berardelli, Jake Daugherty, Debra Kelley and Steve Falk if we need to adjust POR amount before the end of the fiscal year.

* All information in this report comes from ACT - Nichole Gwash (NGwash@ACTEnviro.com) by email. She will send an invoice, a list of residents (which must then be sent to Ben Sanborn for geocoding), a list of items processed, and any logs for drums and light bulbs & tubes.

Use the invoice from ACT emailed by Nicole Gwash to fill in the Monthly Costs and Lught Bulbs section. Use the geocoded (by Ben Sanborn) resident list to fill in the participant information. Ben will add a sheet with totals, but go back and search for the :abandoned" items to add to the report. add the number of resients that did not have enough information to the COA total but also list them separate so we can track them.

Household Hazardous Waste Collection Participation | July 2020–June 2021

Household Hazardous Waste Collection Participation
July 2020- June 2021

Month	Participants w/Unknown Location or Not Enough Info to Geocode	Total	Orphaned waste at facility	City Participants (City + No Match or Not Enough Info)	County Participants	Out of County	Out of County Breakdown	County Percentage	Monthly Cost	Light Bulbs (included in monthly cost)	Total Cummulative Cost
Jul-20	78	1624		1329	280	15	Sandoval-10, SF-5	17.2%	$106,809.00	$490.00	$106,809.00
Aug-20	142	1799		1526	246	27	Sandoval-18, SF-8, Valencia 1	13.7%	$119,039.25	$789.00	$119,039.25
Sep-20	119	1419		1190	224	5	Sandoval-5	15.8%	$94,591.00	$931.00	$94,591.00
Oct-20	78	1374		1162	202	10	Sandoval-5, SF-4, Valencia-1	14.7%	$90,951.25	$622.00	$90,951.25
Nov-20	39	892		755	133	4	Sandoval-1, SF-3	14.9%	$59,205.00	$463.00	$59,205.00
Dec-20	42	830		716	113	1	Sandoval-1	13.6%	$55,716.00	$665.00	$55,716.00
Jul-Dec 2020	**498**	7938	**0**	**6,678**	**1,198**	**62**		15.1%	**$ 526,311.50**	**$3,960.00**	$526,311.50
Jan-21	44	992		842	150	0	0	15.1%	$66,322.75	$715	$66,322.75
Feb-21	60	885		745	140	0	0	15.8%	$59,791.25	$859	$59,791.25
Mar-21	41	1248		1078	169	1	Valencia-1	13.5%	$83,046.50	$758	$83,046.50
Apr-21	60	1396		1187	209	0	0	15.0%	$91,927.25	$529	$91,927.25
May-21	70	1426		1237	188	1	Sandoval-1	13.2%	$95,211.75	$998	$95,211.75
Jun-21	59	1636		1,399	237	0	0	14.5%	$108,494.75	$874	$108,494.75
Jan-Jun 2021	**334**	**7,583**	**0**	**6,488**	**1,093**	**2**		14.4%	**$504,794.25**	**$4,733**	**$504,794.25**
FY20 Total	**832**	**15,521**	**0**	**13,166**	**2,291**	**64**		**14.8%**	**$1,031,105.75**	**$8,693**	**$1,031,105.75**
				Participant Total (other than orphaned)			**15,521**			**$8,693**	

Monthly Average	1293.416667

Participant Fee	$ 65.00

FY21 Budget	**$ 540,000.00**
Remaining Balance	**$ (491,105.75)**

	Participants	Percentage	Cost
BERNCO Participation to date	2,291	14.8%	$148,915
Unknown or Not Enough Info to Geocode (costs absorbed by COA)	832	5.36%	$54,080

Email Daniele Berardelli, Jake Daugherty, Debra Kelley and Steve Falk if we need to adjust POR amount before the end of the fiscal year.

* All information in this report comes from ACT - Nichole Gwash (NGwash@ACTEnviro.com) by email. She will send an invoice, a list of residents (which must then be sent to Ben Sanborn for geocoding), a list of items processed, and any logs for drums and light bulbs & tubes.

Use the invoice from ACT emailed by Nicole Gwash to fill in the Monthly Costs and Lught Bulbs section. Use the geocoded (by Ben Sanborn) resident list to fill in the participant information. Ben will add a sheet with totals, but go back and search for the :abandoned" items to add to the report. add the number of resients that did not have enough information to the COA total but also list them separate so we can track them.

ACT Environmental Services
208 Murray Road SE
Albuquerque, NM 87105
(505) 445-9400 ext. 410 Office
E-mail: mthornton@ACTEnviro.com

HHW Chemical Waste Inventory:

Project Name:	Albuquerque/Bernalillo County Household Hazardous Waste Collection Event 5000 Balloon Fiesta Parkway Albuquerque, NM 87113
Job Date:	November 13, 2021
Client:	City of Albuquerque/Bernalillo County
Report Date:	January 25, 2022
Author:	Melanie Thornton / Martin Aranda
Site Contact(s):	Jake Daugherty

On November 13, 2021, ACT Environmental Services, and the City of Albuquerque/Bernalillo County, in a joint effort collected, segregated, packaged, labeled, transported, and disposed of 48,373 pounds of Household Hazardous Waste, and 10,380 pounds of Non-Regulated Solid Waste from 585 residents from residents within the Albuquerque/Bernalillo County at an average of 100.43 pounds of waste per customer.

This work was performed per the Scope of Work given to ACT by the City of Albuquerque/Bernalillo County. A copy of each HHW Chemical Waste Manifest/Bill of Ladings was provided to the City Representative at the time of collection.

DOT Hazard Class	Subsidiary Risk	Types of Chemicals	Total Gross Weight	Number of Drums X Size of Drums	Treatment Technology
Non-Haz		Used motor oil & Antifreeze	8,262 lbs.	4 X 275 Portable Totes	Recycle
Non-RCRA/Non-DOT Regulated Material Solid		Solid waste, empty containers, trash	10,380 lbs.	4 X 40 Yard Bins	Landfill
Non-RCRA/Non-DOT Regulated Material Liquid		Latex Paint	27,280 lbs.	1 X 20 Yard Bin 1 x 30 Yard Bin	Landfill
2.1 – Flammable Gas		Aerosol Spray Cans	1,686 lbs.	3 X 275 Cubic Yard Box	Energy Recovery / Fuel Blending
3 – Flammable Liquid		Paint Related Material	3,511 lbs.	10 X 55 Gallon Metal Drum	Energy Recovery / Fuel Blending
3 – Flammable/Toxic Liquid	6.1 - Toxic	Captan, Diazinon	2,887 lbs.	16 X 55 Gallon Poly Drum	Energy Recovery / Fuel Blending
5.1 – Oxidizing Solids		Potassium Nitrate/Sodium Hypochlorite	12 lbs.	1 X 05 Gallon Poly Drum	Incineration
6.1 – Toxic Solid		Captan, Diazinon	944 lbs.	6 X 55 Gallon Poly Drum	Energy Recovery/Fuel Blending
8 – Corrosive (Acids)		Hydrochloric Acid, Sulfuric Acid	342 lbs.	2 X 55 Gallon Poly Drum	Stabilization / Landfill
8 – Corrosive (Basic)		Sodium Hydroxide, Potassium Hydroxide	1,491 lbs.	8 X 55 Gallon Poly Drum	Stabilization / Landfill
8 – Corrosive (Batteries)		Automotive Lead Batteries, NiCad, Lithium Ion, Alkaline	1,340 lbs.	1 x Wooden Pallet, 2 x 30 Gallon Poly Drum, 5 x 5 Gallon Poly Drums	Recycle
8 – Mercury		Mercury	5 lbs.	1 X 5 Gallon Poly Drum	Recycle
9 – Environmentally Hazardous		Fluorescent Light Bulbs	613 lbs.	9 x Cylinder Box & 1 x 55 Gallon Poly Drum	Recycle

Albuquerque/Bernalillo County Household Hazardous Waste Collection Event at Balloon Fiesta Park

Treatment Technology	Weight
Recycle	10,220 lbs.
Energy Recovery / Fuel Blending	9,028 lbs.
Incineration	12 lbs.
Landfill	39,493 lbs.

Waste Total	Cost	Cost/lbs.
58,753 lbs.	$40,663.75	**$1.44/lbs.**

585 – Albuquerque/Bernalillo County Participants

We are committed to working with you in fulfilling the environmental needs of our communities.

Melanie Thornton
ACTEnviro Office Manager - ABQ

2022 Foothills Spring Cleanup Results

Location	Volunteers	Dog Poop (in Lbs.)	Trash (bags)	Trash * (cubic yards)	Mixed Recycling (bags)	Glass (5 gal buckets)	Aluminum (bags)	New Trail Built (miles)	Trail maintained (miles)	Notes:
Rt 66	29			14.5	6	4	2	0.1		Large items included numerous tires and a matress, 2 trail crews completed the a reroute
Copper	51	40	5	0.9	1	1	0.33		0.5	4 trail crews did maintenance on .5 miles of trail. One cactus crew closed off several social trails
Indian School	43	25	1	0.2	1	0.5	0		0.45	4 trail crews did maintenance on about .45 miles of trail. Two cactus crews planted hundreds of cactus cuttings to block social trails.
Menaul	55	35	3	0.5	1	2.5	1		0.4	four trail crews did maintenance on about .4 miles of trail. Three cactus planting crews planted hundreds of cuttings to block off social trails
Piedra Lisa	39	25	0.5	0.1	0.5	2	0.5		0.25	1 trail crew built 27 drain dips on .25 miles of trail. 2 rock crews built steps on the Canyon Trail, 1 cactus planting crew planted hundreds of cactus cuttings on a variety of short cuts, and 1 graffiti crew scrubbed graffiti off a rock outcrop.
Embudito	31	20	1	0.2	1	0.33	0.25		0.2	1 trail crew built 20 drain dips and did general maintenance on .2 miles of trail, 1 rock crew reinforced several rock ramps on Trail 365, and 2 Cactus planting crews planted hundreds of cactus cuttings on several social trails adding up to .15 miles of trail closure.
	*trash bags converted to cubic yards and added to cubic yard total									
2022 River Cleanup										
	102			15	10	6	2			Filled a dump trailer, plus 4 pickup trucks. Large items: 12 tires, 5 shopping carts, and a vinyl kiddie pool
2022 National Trails Day										
	100							0.04	1.4	4 crews planted cactus on short cuts and social trails
										6 crews did maintenance on approximately 1.4 miles of trail
										2 crews built rock retaining walls
										1 crew built a trail reroute (about 190 feet) to replace several social trails
										several volunteers cleaning up dog poop and trash

ONE ALBUQUERQUE city of albuquerque

2022 Foothills Spring Cleanup Results (2 of 2)

		Volunteers	Dog Poop (in Lbs.)	Trash (bags)	Trash (cubic yards)	Mixed Recycling (bags)	Glass (5 gal buckets)	Aluminum (bags)	New Trail Built (miles)	Trail maintained (miles)
Totals		450	145	10.5	31.4	20.5	16.33	6.08	0.14	3.2
Dia del Rio										
Make a Diff Day										
Grand Total		652	145	10.5		30.5	22.33	8.08		

ONE ALBUQUERQUE city of albuquerque

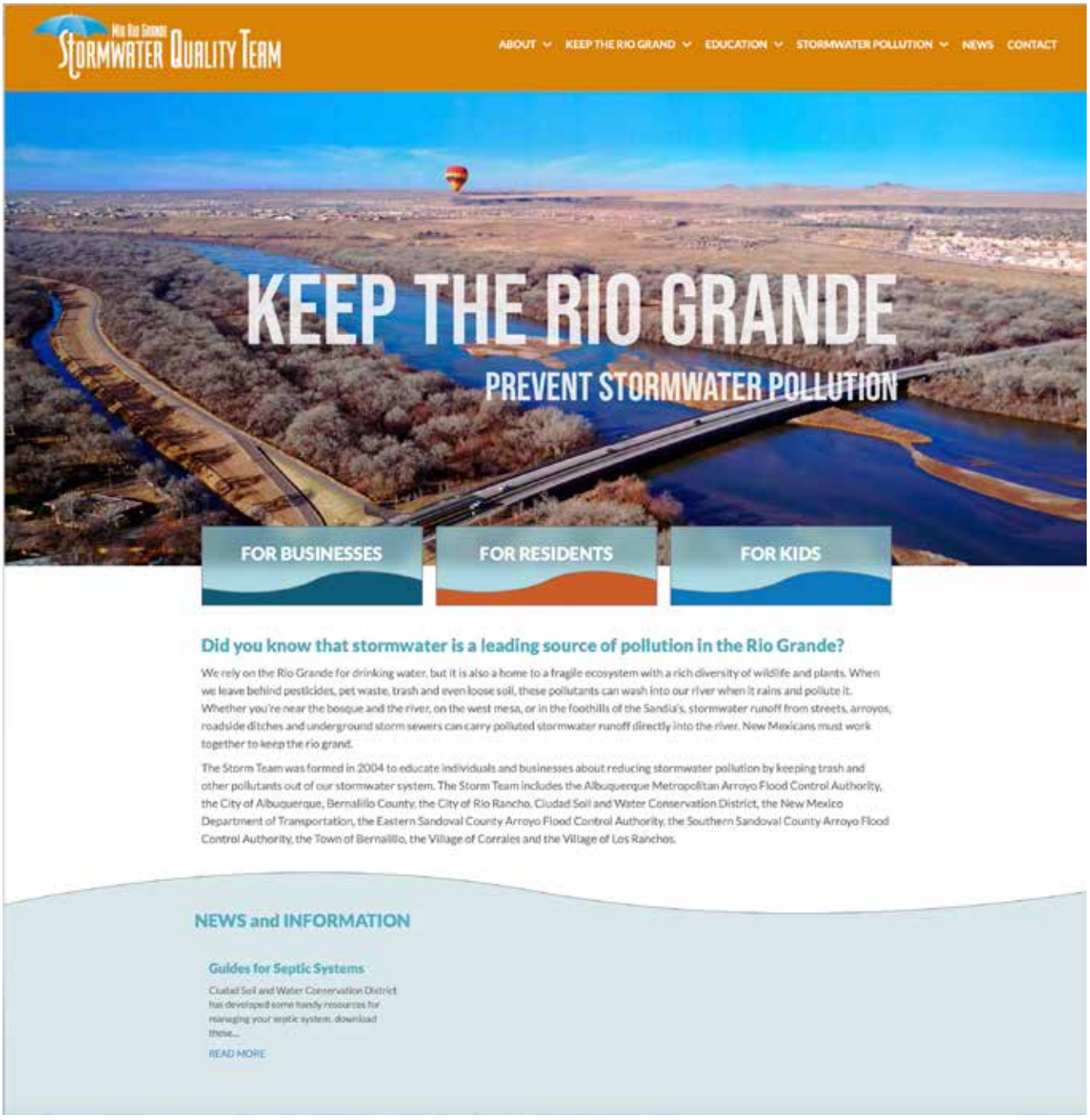
DOES THIS PAGE STAY?

Poop Fairy Signs

Also during FY21 we gave away 202 Poop Fairy signs to local residents. We also gave the Natural History Museum 100 for distribution to the public and 250 to Parks and Open Space for posting.

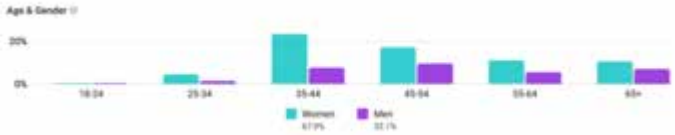
Mid Rio Grande Stormwater Quality Team

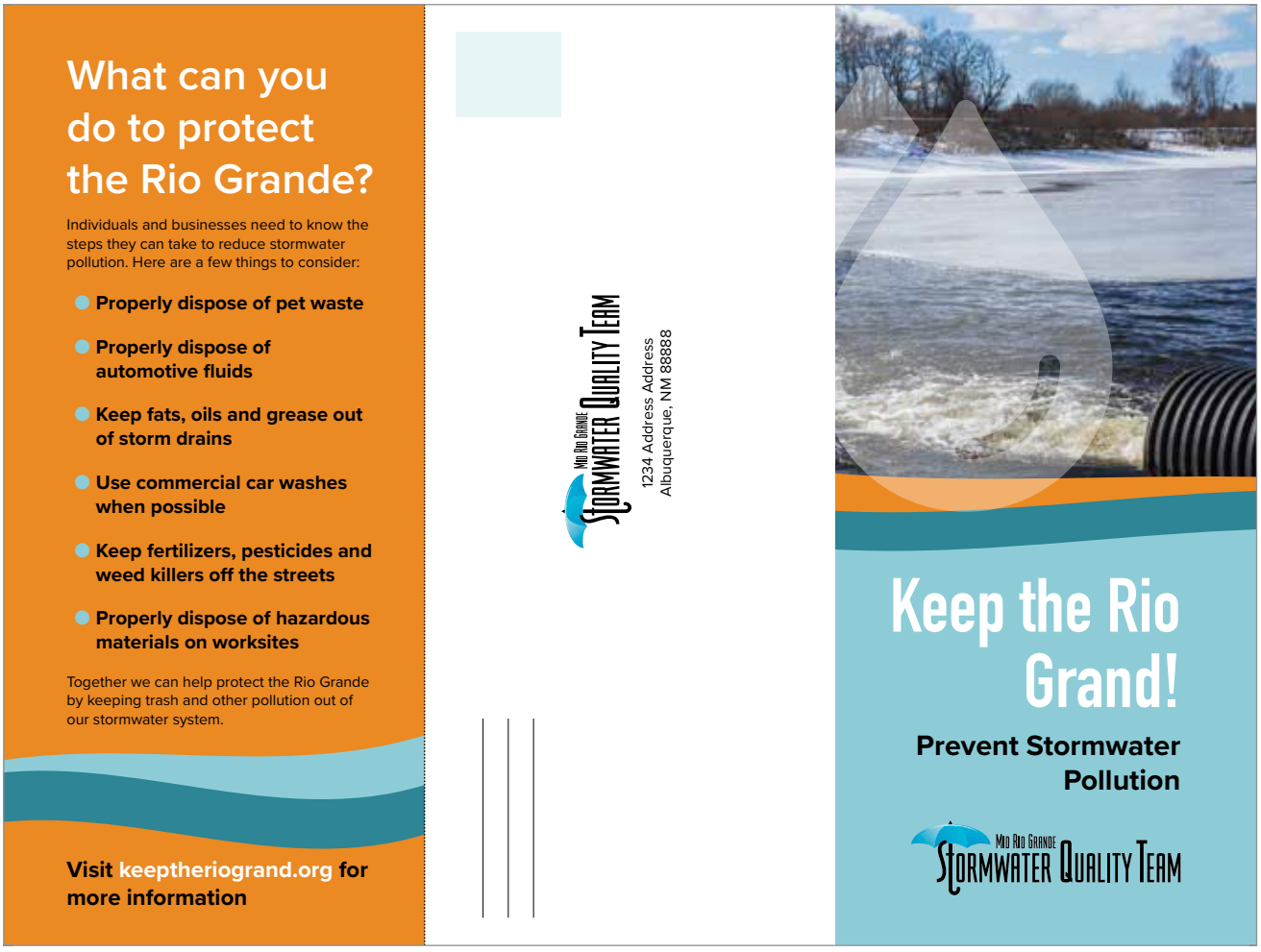
In FY2022 the MRGSQT developed a brand new website.
https://keeptheriogrand.org



FACEBOOK

The MRGSQT Facebook page garnered 1,322 page reach, and an overall 73.1% increase in new page likes.





Additionally, the MRGSQT team developed a new survey card that is now in the rotation for distribution.

Village of Corrales

The Village of Corrales does not have a municipal storm sewer system. To handle stormwater flows from development, engineered grading and drainage (G & D) plans are required of all new residential construction (anything roofed or paved areas on sloped areas) that disturb more than 1,000 square feet. Engineers may use retention ponding, berms and other aspects that keep the impervious surface stormwater flows on the subject property and not running into streets or adjacent properties. In the Commercial zone, retention areas must be built into Site Development Plans.

During the past year, 18 residential G&D's were processed through the Planning and Zoning Department.

.

Village of Los Ranchos

Distributed materials at the Los Ranchos Farmer's Market and posted and distributed poop fairy signs throughout the irrigation system in Los Ranchos.

Ciudad Soil & Water Conservation District

Ciudad Soil & Water Conservation District

Stormwater Presentations 2022

Date	Times	RR or ES	Event	Presenter(s)	Visitors
4.23.2022	9:00am–12:00pm	RR	RiverXchange Community Day	Erin, Steve, Salema	10
6.4.2022	9:00am–12:00pm	RR	BernCo Master Naturalist Presentation	Steve, Erin	25
6.11.2022	9:00am–12:00pm	RR	GHH	BernCo OSD	12
6.13.2022	9:00am–12:00pm	RR	Shady Lakes	Erin, Steve, Jaren (Nature Ninos)	45
6.18.2022	9:00am–12:00pm	RR	Phil Chacon Park	COA OSD – Nature in Your Neighborhood	did not attend
6.13.2022	10:00am–1:00pm	RR	Shady Lakes: Nature Ninos Summer Camp	Steve, Jaren, Saleema (Nature Ninos)	40
6.23&25.2022	6:00–7:30pm 9:00–11:00am		Residential Rainwater Harvesting 2.0 (Online & In-person at GHH)	Erin, Judith, Hunter, Tess, Jim	45
6.30.2022	10:00am–1:00pm	RR	Shady Lakes: Nature Ninos Summer Camp	Steve, Jaren, Saleema	75
7.16.2022	9:00am–12:00pm	RR	Alamosa Community Center	Erin, Steve (COA OSD – Nature in Your Neighborhood)	35
7.25.2022	10:00am–1:00pm	RR	Shady Lakes: Nature Ninos Summer Camp	Erin, Steve	75
7.30.2022	9:00am–2:00pm	RR	Isleta Environmental Fair	Steve Glass, Tom Allen Jaren Peplinski	75
8.22&24.2022	10:00am–2:00pm 9:00–11:00am	RR	UNM Welcome Back Days	Kolt, Thomas, Steve, Erin	100
8.27.2022	9:00am–12:00pm	ES	TBD	COA OSD- Nature in Your Neighborhood	
8.27.2022	9:00am–1:00pm	RR	Santa Ana Environmental Fair	Jaren, Theresa	
9.24.2022	9:00am–12:00pm	RR	TBD	COA OSD- Nature in Your Neighborhood	
TBD	TBD	RR	Children's Water Festival Rio Rancho	TBD	

Mid Rio Grande Stormwater Quality Team

MIDDLE RIO GRANDE
Green Stormwater Infrastructure
MAINTENANCE MANUAL

Prepared by Arid Low Impact Development Coalition
June 2022

The Arid Low Impact Development (LID) Coalition

is a multi-disciplinary group representing an array of perspectives, skills, and organizations who share a common vision to foster public awareness of stormwater as an asset instead of a liability and to increase literacy around effective, arid-adapted **green stormwater infrastructure (GSI) and low impact development (LID)** strategies. The many benefits of these strategies include improving water quality, watershed stewardship, and well-being for all inhabitants in the Rio Grande Watershed.

The Coalition works to provide technical resources and education needed to design GSI and LID interventions in our high desert environment, facilitate communication and collaboration, and support high-quality demonstration and research projects. For more information please visit www.aridlidcoalition.org.

This document was developed by the Arid LID Coalition in conjunction with partners Ciudad Soil and Water Conservation District, The Nature Conservancy, Bernalillo County, Sites Southwest, New Mexico Department of Transportation, MRWM Landscape Architects, Water Authority, and the Urban Waters Federal Partnership.

Special thanks to Sunny 505 and MRWM for providing graphics.

Document Overview

This manual provides an introduction to GSI (Module 1), followed by descriptions of GSI techniques (permeable pavement, stormwater harvesting basins, infiltration conveyances, plants, and mulch) and maintenance requirements for these GSI features (Modules 2 through 6).

MODULE 1 Green Stormwater Infrastructure: Introduction p.1

MODULE 2 Permeable Pavement p.9

MODULE 3 Stormwater Harvesting Basins p.17

MODULE 4 Infiltation Conveyance p.26

MODULE 5 Plant Identification and Maintenance p.34

MODULE 6 Mulch Maintenance p.41

Click on the green box to go to the page.

MODULE 1

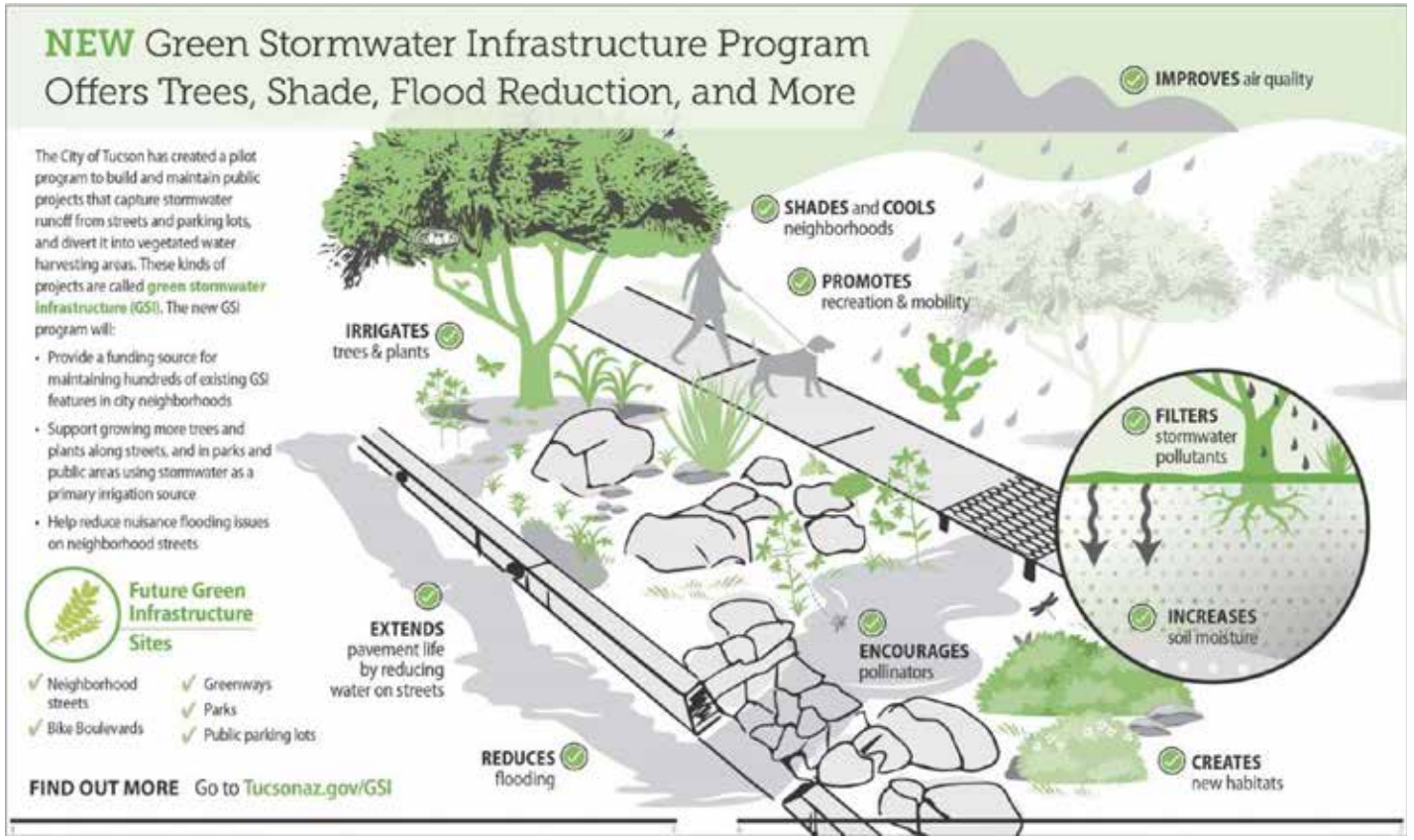
Introduction to Green Stormwater Infrastructure & Maintenance

Green Stormwater Infrastructure & Maintenance

When rain falls in natural, undeveloped areas, the water soaks into the ground and is filtered by soil and plants. But in an urban environment, when rain falls on impervious surfaces (roofs, streets, and parking lots), the water can no longer soak into the ground. Stormwater that runs off these impervious surfaces in urban areas results in higher flows in drains, gutters, storm sewers, and other gray stormwater systems, eventually discharging into arroyos, streams, and rivers. Stormwater runoff carries trash, bacteria, heavy metals, and other pollutants that pose a threat to human health and the environment. Higher flows resulting from heavy rains also can cause flooding and property damage as well as erosion and flooding in streams, damaging habitat, property, and infrastructure.

Green stormwater infrastructure (GSI) is an approach to stormwater management that mimics natural processes to provide nature's benefits, such as:

- Reducing flooding
- Conserving water
- Improving water quality
- Improving air quality
- Carbon sequestration (capturing and storing carbon dioxide)
- Reducing heat island effects
- Providing shade
- Creating wildlife habitat
- Calming traffic
- Improving livability
- Promoting walkability in neighborhoods



From: Tucsonaz.gov/gsi

Why GSI?

Traditional gray stormwater infrastructure includes gutters, pipes, culverts, and detention ponds and is designed to move stormwater runoff from the built environment to water bodies like streams and rivers as quickly as possible.

GSI helps keep rainwater where it falls, provides natural benefits, is less expensive to build than traditional gray infrastructure, requires less maintenance over time, and is less resource intensive.

What is GSI?

GSI includes a variety of measures—stormwater harvesting basins, infiltration conveyances like swales and trenches, permeable pavement—to store, treat, infiltrate, evaporate, or transpire (water use in plants) stormwater and reduce flows to stormwater sewer systems and surface waters. GSI is intended to be used alongside gray infrastructure, not replace it, and in some cases actually reduces the need for costly expansions of gray infrastructure improvements as networks of pipes are undersized in many cities with increased development or density of buildings.

Gray Stormwater Infrastructure

Concrete, metal, pipes and drains

Storm Drain Inlet, Albuquerque, NM (photo by Tess Houle)

Culvert under Interstate 25, Albuquerque, NM (photo by Tess Houle)

North Diversion Channel, Albuquerque, NM (photo by Tess Houle)

What GSI is NOT

GSI is not “zero-scaping”—it does not mean rockscapes with little or no plants. It is not a dirt hole in the ground that solely captures water without treatment or other benefits. GSI installations should include native and arid-adapted plants in order to function properly.

TOP: GSI with limited function: This stormwater harvesting basin does not support vegetation or properly treat pollutants; it instead uses heat-trapping rock mulch and cobble, and does not take advantage of the stormwater to irrigate the plants in this landscape.

BOTTOM: GSI with stacked functions: This stormwater harvesting basin captures street runoff that supports native trail-side shrubs and grasses; treats pollutants; balances organic and inorganic mulches; and overflows into subsequent basins further downstream to reduce in-street flooding during heavy storm events.
(Location: Alameda Drain Trial)

GSI is not meant to solve major flooding issues, but it does reduce localized flooding. Also, like any landscape feature, GSI does not take care of itself—it requires regular inspection, care and maintenance!

Photos by: Mario Nuño-Whelan

Benefits of GSI

Implementing GSI practices in the middle Rio Grande region has many benefits for our watershed. The fundamental goal is to reduce the amount of stormwater runoff and pollution reaching surface waters and adversely impacting our watershed. Benefits of GSI include:

- Reducing air and water pollution by including trees and vegetation, which act as a natural filter.
- Providing traffic-calming benefits with trees and plants adjacent to roadways.
- Reducing heat-related impacts to people and natural landscapes.
- Replicating native environments and providing wildlife habitat in the urban environment.
- Providing opportunities for physical activity for residents, while also improving mental health outcomes by reducing stress and promoting cognition.
- Addressing social equity and environmental justice when used in communities that don't have access to quality outdoor spaces. Environmental justice means all people, regardless of race, color, national origin, or income, are entitled to equal protection from environmental risks.

Maintenance

For green stormwater infrastructure to function properly and allow water to soak into the ground over time, maintenance is needed. Healthy plant root systems help water soak in, and removing sediment and debris prevents clogging and overflowing of the systems.

Modules 2 through 6 in this GSI Maintenance Manual will cover maintenance needs for the most common types of GSI features, including permeable pavement, stormwater harvesting basins, and infiltration conveyances, as well as routine and seasonal plant maintenance and mulch maintenance. Some routine maintenance tasks that generally apply to most GSI installations include:

- Visiting stormwater infrastructure during rainstorms to see stormwater flows in action. Green stormwater systems are designed to harvest rainwater and stormwater, so managing water flow is essential.
- Inspecting and maintaining irrigation systems.
- Managing vegetation that supports natural filtering, but doesn't block the flow of water.
- Removing sediment and trash and clearing inlets and outlets of debris and vegetation.
- Maintaining and refreshing mulch.
- Repairing erosion and human-caused damage.
- Adjusting schedules over time as issues arise and landscapes mature.. Frequencies of inspection and maintenance depend on drainage area, land use, activities in the watershed, and rainfall magnitude and intensity.

Some common problems to look for when doing maintenance inspections are:

- Is water backing up or not making it to the basins and tanks? Look for leaking gutters, clogged curb cuts, or clogged pipes.
- Has the capacity been reduced due to sediment and debris build-up?
- Is there enough capacity to capture sufficient rain?
- Are overflows and outlets working like they should? Look for water overflowing away from outlet or signs of erosion like rivers of dirt on sidewalks.
- Is there standing water for more than a few hours after a storm? If standing water is still present 24 hours after the storm, maintenance is likely needed.

Tools and Specialized Equipment

Routine maintenance and best management practices on vegetated green infrastructure are similar to general landscape maintenance: removing trash and debris; keeping plants healthy; and cleaning out accumulated sediment and pollutants. These tasks can be completed using the following tools:

- Trash, debris, and sediment can be removed with rakes, shovels, and trash grabbers. Leaf and plant trimmings can be added to the basin bottoms to replenish mulch and provide a nutrient source for plants and healthy soils except for noxious and invasive weeds. They should be bagged and removed from site.
- Flat-blade shovels are especially useful for scraping accumulated sediment from inlets and along curbs and gutters or upstream of inlets.
- Vegetation can be pruned for safety, visibility, and plant health using pruning shears and weed pullers. Power shearing equipment should be used sparingly or not at all.
- Properly clean shears before and after use to eliminate the spread of diseases.
- Watering during the plant establishment period and in extended droughts can be done with a hose, bucket or irrigation system.
- Permeable pavement is best maintained using a vacuum-powered street sweeper, and replacement pavers are sometimes needed for repairs (See Module 2).
- Heavy equipment, such as backhoes and front-end loaders, may be needed infrequently if the facilities need to be replaced or if large amounts of sediment have accumulated. If using heavy equipment, care should be taken to avoid compacting soil at the bottom of GSI installations.

Equipment Needed

- Site map/site plan/as-built
- Trash grabbers
- Trash bags
- Gloves
- Bucket/other sediment/ trash removal container
- Broom and dust pan
- Tarps (for stockpiling plant materials removed)
- Wheelbarrow
- Push broom
- Digging shovel
- Square-nosed (or flat-bladed) shovel
- Spade/trowel
- Rake—leaf, shrub, row, and/or hand
- Wire or stiff plastic brush
- Pruning shears/clippers

Maintenance Objectives:
Health and Safety

Health and safety plans and precautions should be provided by employer/site owner; below are a few considerations for health and safety during maintenance of GSI facilities:

- Appropriate Level D personal protective equipment (PPE), including a minimum of a safety vest, steel-toed boots, and safety glasses, should be worn during maintenance activities; hard hats and hearing protection should be used around heavy equipment.
- Equipment operations and procedures must meet Occupational Safety and Health Administration (OSHA) guidelines and standards.
- To protect the health, safety and welfare of the community, put into practice integrated pest management strategies that provide the least toxic methods to control pests, including noxious and invasive weeds.
- Cones, barricades, and/or other protective and warning devices for vehicles and pedestrians to ensure safety of workers and pedestrians.
- Sun protection including clothing, hats and minimum SFP30 sunscreen.
- Stay cool.
- Know the signs of heat stress and heat stroke and proper actions to take.
- Have a first aid kit and ensure that it is well stocked.
- Know where the nearest emergency room and/or urgent care facility is located.

MODULE 2

Permeable Pavement

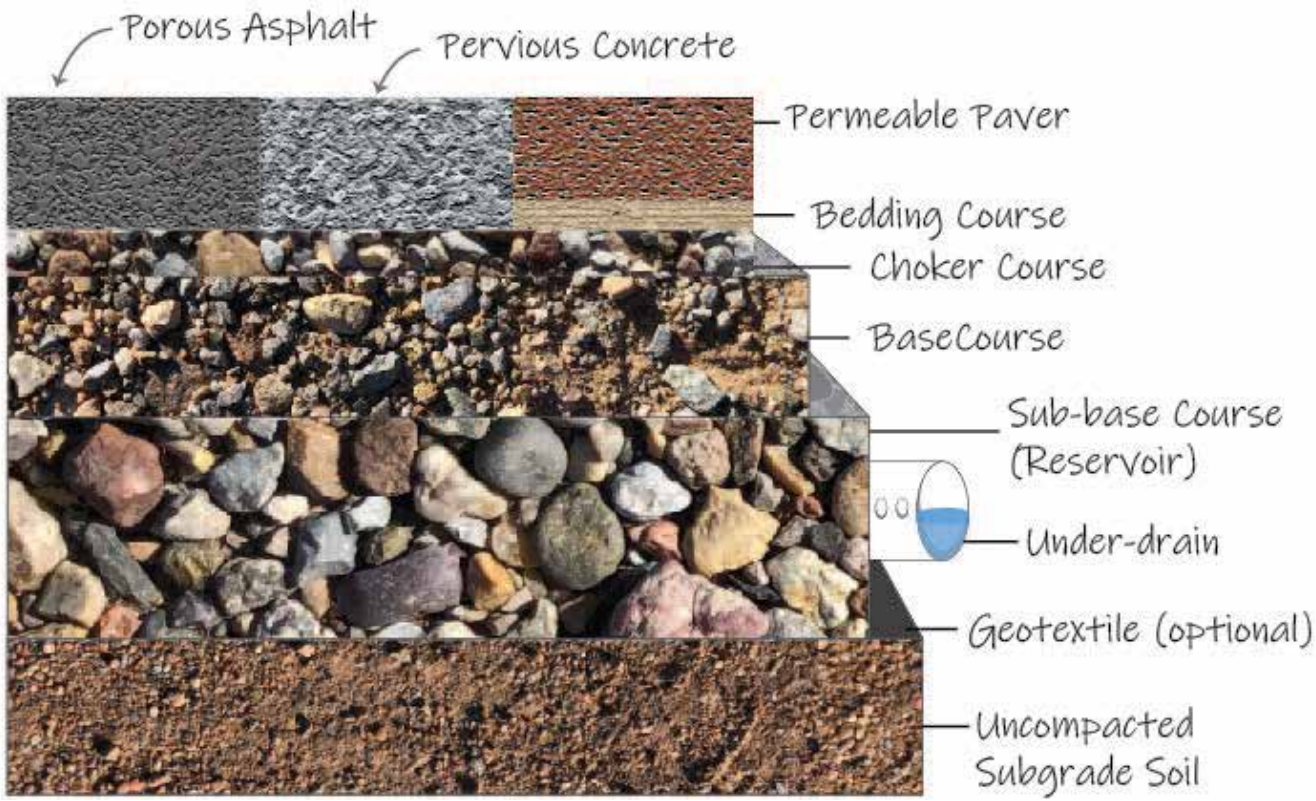
Permeable Pavement

Permeable pavement is a constructed system that allows water to pass through the pavement to the underlying native soil or a constructed infiltration bed below the pavement. Permeable pavement systems can vary, but are generally made up of five layers:

- **Pavement:** A surface pavement layer that is permeable (for example: pervious asphalt, pervious concrete, permeable interlocking pavers).
- **Bedding course:** A thin bedding layer, approximately 2 inches thick, made of 3/8-inch to 1/2-inch diameter stone to stabilize the pavement.
- **Choker course:** An underlying crushed stone reservoir layer, a minimum of 6 inches thick, made of 1-inch- to 2.5-inch diameter stone.
- **Base course or subbase layer:** A combined layer of aggregate stones, ranging in size from 2 to 3 inches, for storing water and distributing the pavement load. A geotextile filter fabric is sometimes added below the subbase level.
- **Under-drain:** An under-drain is sometimes used to move water to additional storage capacity to prevent prolonged saturation.
- **Uncompacted soil subgrade:** (i.e., local soils).

Regular maintenance of permeable pavements ensures they remain functional, allowing water to soak into the ground quickly, reducing flooding during storm events and allowing water stored underground to be used by nearby trees and plants.

Types of permeable pavement may include porous concrete, pervious asphalt, or various types of interlocking pavers. In addition, plastic grid systems (also called reinforced turf pavement) can be used in areas with limited vehicular traffic (such as infrequent parking areas or emergency vehicle or fire access lanes). Permeable pavements can also be paired with other engineered structures like silva cells that create a supported, but suspended surface. This allows for uncompacted soils underneath that make space for tree and plant roots or additional stormwater storage.



Benefits of Permeable Pavement

- Permeable pavement reduces flooding, prevents erosion and property damage, reduces pollutants carried into streams and rivers, and can enhance groundwater recharge by allowing stormwater to soak into the ground quickly instead of being carried away in roadways, sidewalks, or gutters.
- Permeable pavement can melt snow and ice faster during winter storms, dries faster than traditional impervious pavement, minimizing slips and falls, and reduces the need for deicing chemicals and costly snow removal services.
- Permeable pavement allows tree roots to access air and water easily, unlike traditional concrete. Trees along streets have been shown to substantially reduce nitrogen and other pollution loads in stormwater by acting as a natural filter and provide traffic-calming benefits.

Wheelchair accessible permeable pavement

Regular inspection of permeable pavers is needed to make sure they remain level with a smooth, ensuring compliance with the Americans with Disabilities Act (ADA) specifications.

System with multiple permeable pavement types

Maintenance

Key maintenance issues for permeable pavement include:

- **Clogging.** To work effectively, permeable pavement needs to drain without clogging. Permeable pavement should NOT be located adjacent to areas with exposed soil that can clog these features.
- **Exposed soils.** Any nearby exposed soil should be separated from permeable pavement by barriers such as vegetated areas, and those barriers should be maintained to capture sediment before runoff reaches the permeable pavement.
- **Organic debris.** Organic debris, such as leaf litter and grass clippings, should NOT be deposited on or allowed to sit on permeable pavement, as debris can cause clogging and lifting. Leaves and plant material should be regularly collected from permeable pavements for composting.
- **Maintenance.** Ask landscape maintenance personnel to help maintain permeability by not dumping materials or sediment onto permeable pavement.
- **Drainage.** The permeable pavement system must be allowed to dry (de-water) between rainfall events. Too much water retention in the base course layers can prevent the absorption of additional rainfall and result in runoff. There should be an observation well that allows inspectors to determine if excessive water is being held within the system.
- **Site maps.** Show areas of permeable pavement and inspection wells on maintenance site maps.

4th Street permeable pavers curb detail, Photo by Sites SW

4th Street permeable pavers, Photo by Sites SW

4th Street Permeable Pavers, Photo by Sites SW

Maintenance Tasks and Schedules

NOTE: Areas with a lot of vehicle traffic may require maintenance more frequently than those with less traffic or only pedestrian traffic.

- Keep sediment or areas with bare soil from draining onto permeable pavement and maintain vegetated areas that provide a buffer between pavement and bare soil.
- Inspect at least twice a year (at the end of winter and in the fall, when leaves drop) and remove any clogging material from permeable pavements to prevent safety issues (separation and lifting).
- Inspect after rain events of 0.25-inches or greater and remove any material that may clog permeable pavers/pavement.
- Vacuum porous asphalt or permeable concrete at least twice a year with standard street-cleaning equipment with a vacuum device. After vacuuming permeable pavers, stone between pavers may need to be replaced. Some types of permeable pavers do not require vacuuming (The third picture on the right is one example.).
- Inspect bricks for shifting, cracking, lifting, and/or clogging after freeze thaw cycles and after major storm events. Adjust bricks to maintain a smooth and level surface. This is important for trip hazards as well as ADA compliance.
- Observe performance during rainstorms. When water begins to pond during typical rainfall events, you may need to vacuum the pavement.
- DO NOT apply sand and/or fine aggregate to enhance snowmelt or winter condition traction, as these materials will quickly clog permeable pavement causing water to pool on the surface instead of draining quickly.
- Sweep and remove any snowmelt products like salt as soon as it is no longer needed. Salts will effect water quality and plant health.
- DO NOT resurface or seal the permeable pavement, as you normally would with a traditional pavement. This will block the permeability of the pavement.
- Clean areas that are stained by grease or oils with a biodegradable grease and oil cleaner such as liquid dish soap or OxiClean.
- Repair or clean all damaged areas or areas that are not draining as soon as the issue is observed to prevent further damage.

Tools and Specialized Equipment

See general tool list in Module 1.

Specialized equipment includes: street sweeper with vacuum attachment, brooms, trash-grabbers

Photos by: Mario Nuño-Whelan

MAINTENANCE INSPECTION CHECKLIST & SCHEDULE

Permeable Pavement

Location: Weather: Rainfall over last 2–3 days?

Inspector: Site conditions:

Pavement Type: ☐ asphalt ☐ concrete ☐ interlocking pavers ☐ grid pavers

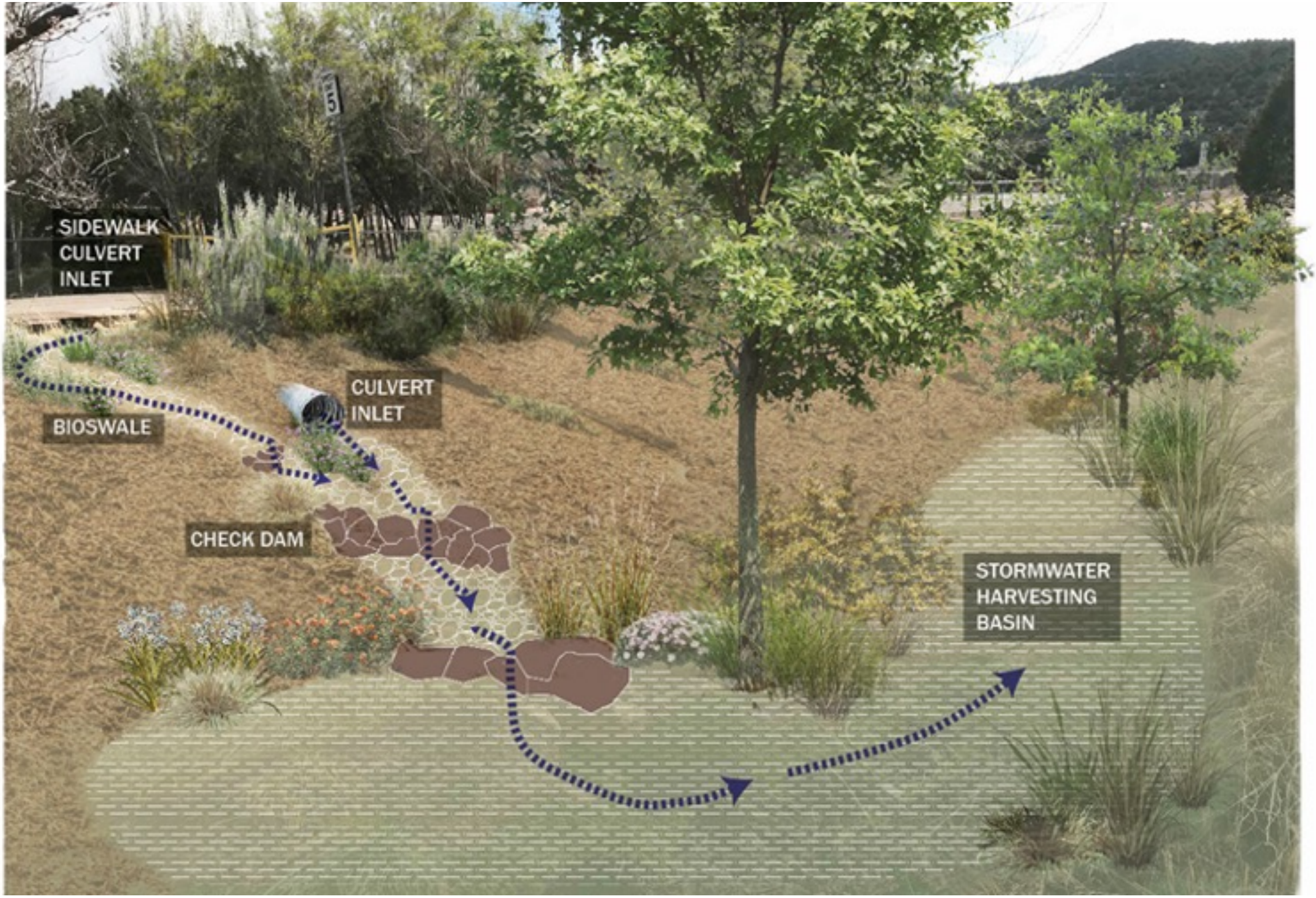
Date: Time:

MAINTENANCE NEEDED	ACTION	COMMENTS
Pavement Surface	*Frequency—Monthly*	
1. Are there signs of clogging? ☐ YES ☐ NO 2. Is there build-up of debris (sediment, trash)? ☐ YES ☐ NO 3. Is there standing water on the permeable pavement? ☐ YES ☐ NO	1. Schedule cleaning with street sweeper/vacuum. 2. Remove debris from surface of pavement. 3. Check inspection wells (if present) to see if there is water that has not infiltrated. If not, schedule a cleaning with street sweeper/vacuum.	
Adjacent Areas	*Frequency: Biannually or 2x per year*	
1. Is there erosion from or around underdrain, if present? ☐ YES ☐ NO 2. Are areas where soil is exposed discharging soil/sediment onto the permeable pavement? ☐ YES ☐ NO 3. Is the permeable pavement negatively impacted by an adjacent site feature? ☐ YES ☐ NO	1. Determine cause of erosion and mitigate by adjusting flow, using rip-rap, or other appropriate method. 2. Install a barrier, such as vegetation, rip-rap, curb, wall or fence with windscreen to stop the bare soil area from discharging sediment onto the permeable pavement. 3. Look for a way to reduce the impact. Discuss impacts and options with supervisor.	
Outlets and Overflow	*Frequency: Annually, after major storms (storms with 0.25" of rain or more)*	
1. If there is an outlet or overflow to a storm sewer system, is it free from debris and functioning? ☐ YES ☐ NO	1. If there is blockage, remove debris/sediment/trash.	
Other	*Frequency: Annually*	
1. Have there been complaints from residents? ☐ YES ☐ NO 2. Do you notice any hazards to the public? ☐ YES ☐ NO 3. Are there any other issue or problems? ☐ YES ☐ NO	1. Address complaints and/or discuss with supervisor. 2. If a hazard is observed, look for a way to fix the issue and discuss with supervisor. 3. If yes, describe in comments and discuss with supervisor.	

Inspector's signature: _____

MODULE 3

Stormwater Harvesting Basins



Stormwater harvesting basin components

Maintenance for Stormwater Harvesting Basins

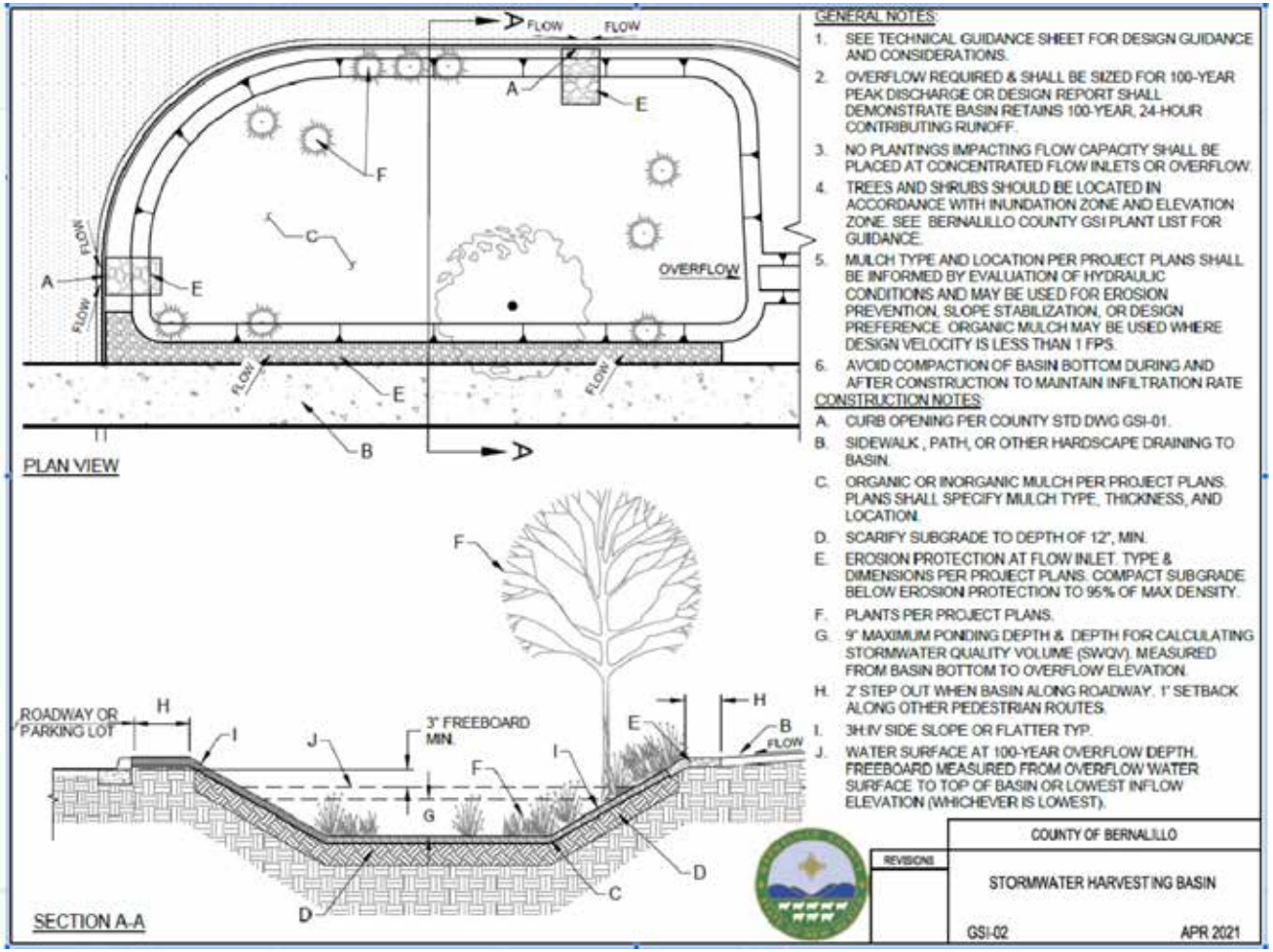
Stormwater harvesting basins are purposely vegetated depressions in the ground that collect stormwater runoff and allow that runoff to infiltrate the soil. The bottom of the basin should not be compacted because it will slow or even stop infiltration.

Stormwater harvesting basins help to control flooding and prevent pollutants from entering arroyos and rivers. The collected water supports trees and other vegetation, cooling our city and making it more livable.

Components of stormwater harvesting basins that need inspection and maintenance include:

- Inflow and outflow structures
- Sediment traps
- Infiltration rates (the rate water soaks into the ground)
- Erosion control/repair
- Plants/weeds management or removal
- Inundation zones within the basin (areas soaked with water after a storm)
- Irrigation system (if present)
- Mulch
- Access ramps/features

Careful maintenance is important to (1) ensure that stormwater harvesting basins capture runoff and allow it to infiltrate into the ground below and (2) prevent pollutants from running into surface waterways like arroyos, streams, and rivers. This protects our drinking water supply and makes our rivers swimmable and fishable.

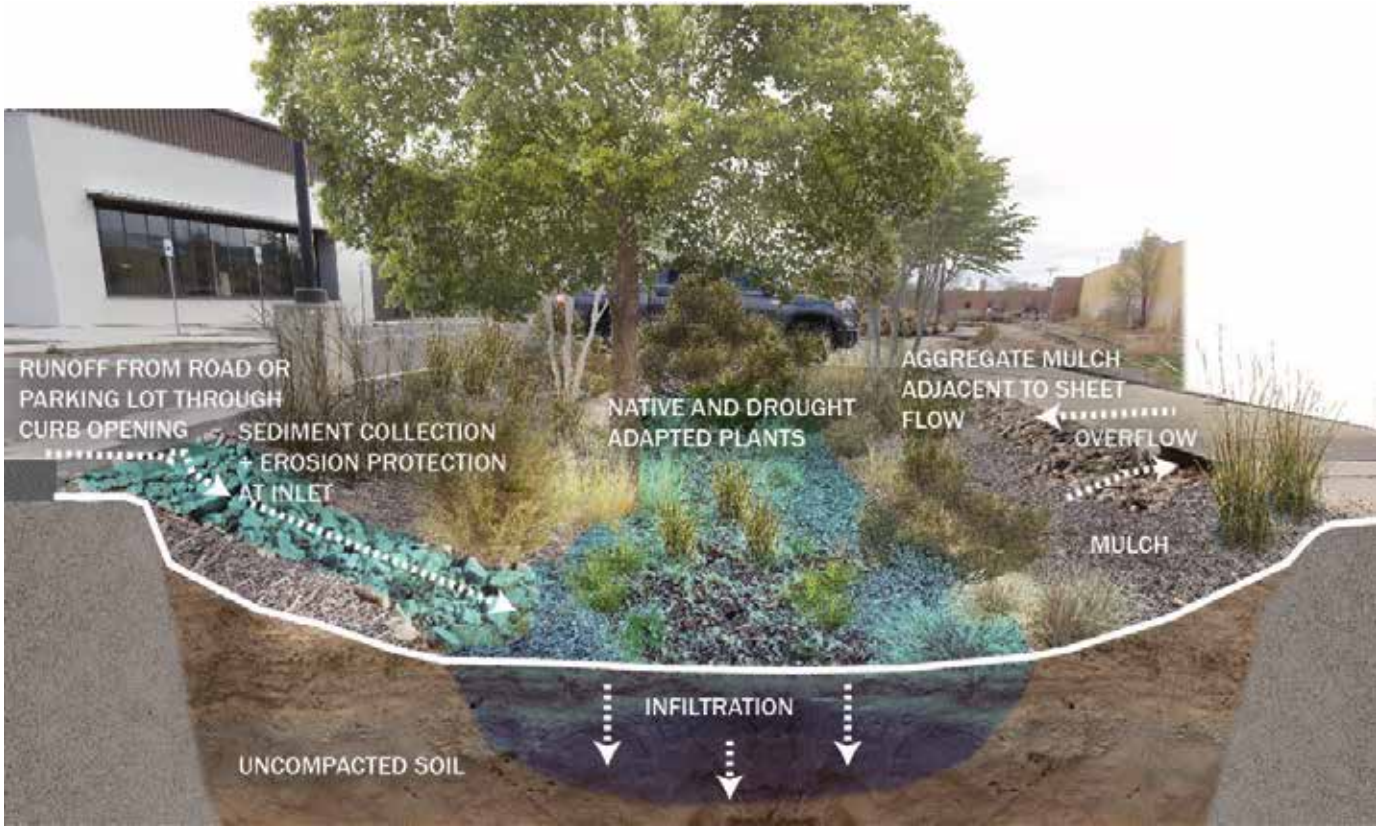


Bernalillo County standard design for a stormwater harvesting basin

Maintenance for Infiltration

To control flooding and pollutants, stormwater harvesting basins must allow water to infiltrate into the soil. If water is standing in the basin for more than 24 hours you may need to drain small to medium sized basins using a pump in to prevent mosquitoes or make repairs. The following maintenance tasks are needed to improve infiltration:

- Remove built-up sediment within the basin by scraping/shoveling to prevent clogging from fine particles.
- Look for any movement of mulch to find pooling zones (areas where water collects). If stormwater runoff isn't spreading throughout the basin evenly, re-grade to direct runoff to the entire basin.
- Make sure you have at least 3 inches of organic mulch in basins. See Module 6, Mulch, for more information on mulch maintenance.
- The roots of grasses and shrubs that can survive in areas inundated with water will improve the soil and help infiltrate water. See Module 5 Plant Maintenance for more information.
- Install soil sponges (mulched vertical infiltration drains) to move water more quickly down into the soil. (See diagram on page 22)
- If there is caliche (a hard clay layer common in the desert) or other confining layer (a layer of soil that allows little if any infiltration) in or under the basin, you may need to use a digging bar or pick to punch through the confining layer in some areas. This is also a good application for a soil sponge or french drain.
- Make the basin wider if there is space available. Spreading the water over a larger area will help it soak in.



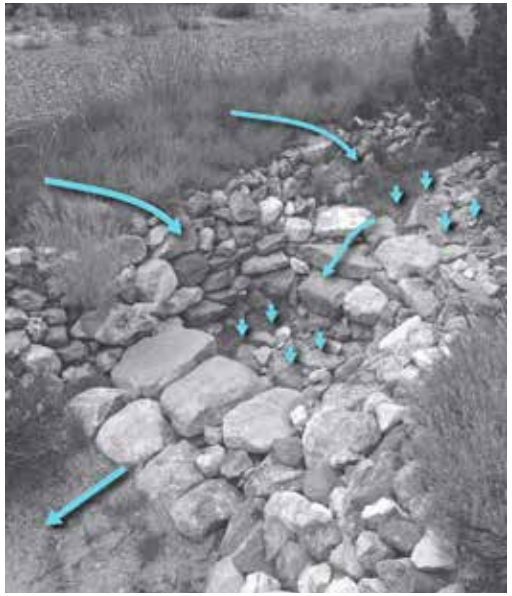
Stormwater harvesting basin schematic

Maintenance for Erosion

It is important to check for and repair erosion (washed out or displaced soil or rock mulch) because it can impact the function of the basin by causing clogging from increased sediment. When inspecting a basin, look for places where water is flowing around the inlet/outlet feature and causing erosion. Additional modifications to inlet height may be needed to redirect flow to inlet.

- Fill eroded areas with soil material similar to the existing material in place.
- Grade filled material with a rake, hoe, or other hand tool so that it matches the grade of the surfaces around it.
- If planting seeds, use an appropriate native seed mix.
- If erosion is happening due to a lot of water entering the basin too fast, consider installing a check dam, Zuni bowl, erosion blanket, or rip/rap. This will help slow the water down and minimize the amount of sediment washed into the bottom of the basin, which can cause clogging and additional maintenance.

Signs of soil erosion



Left: Stormwater harvesting basin at CNM

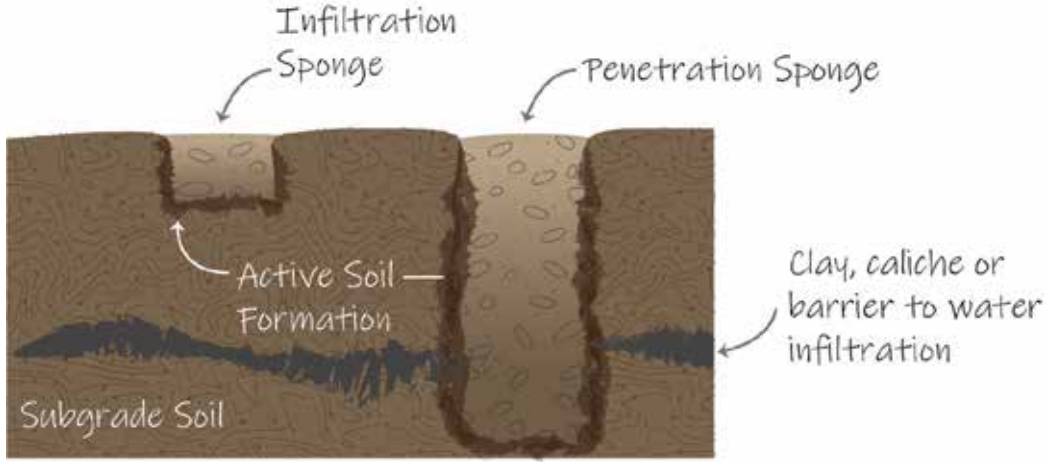
Zuni Bowl

A Zuni bowl is an erosion control feature. It generally consists of rock-lined steps and basins used to prevent headcuts or rills from forming. They work by slowing down and removing energy from the flowing water.

Maintenance to Prevent Clogging:

Use hand tools, such as shovels, rakes and push brooms, to remove sediment, trash, and plant material from:

- Sidewalk/paved areas adjacent to curb cuts/grates
- In and around inlets and outlets
- Sediment traps (plant material can be left in the bottom of basins)
- Basin
- Structure grates
- Pipe/structure openings
- Screens



Maintenance for Plants, Inundation Zones, and Mulch:

- Regular maintenance of plants is needed to keep stormwater harvesting basins functional. Please see the Plants Maintenance Guidelines in Module 5 for more detail.
- Mulch maintenance is also needed to keep stormwater harvesting basins functional. Please see the Mulch Maintenance Guidelines in Module 6 for more detail.

Maintenance for Access Ramps/ Features:

- Inspect the hard infrastructure (storm drain inlets, curb inlets, etc.) to ensure that they are not damaged or cracked and are not being undermined by higher-velocity water flows.
- Keep access ramps open and free of vegetation to allow access for maintenance activities.

Tools and Specialized Equipment

Removal of sediment/organic debris/ trash by mechanized equipment may be necessary. However, use of heavy equipment may seriously damage the basin. To reduce impacts during maintenance activities:

- Include a provision in maintenance contract to quickly replace vegetation that is damaged or removed.
- Do not stage or drive heavy/ mechanized equipment on or across infiltration areas to avoid compaction of soil/media.
- For soil sponge installation, an auger or post-hole digger will be needed.

See also the general tool list in Module 1.

Runoff captured in stormwater harvesting basin at CNM

MAINTENANCE INSPECTION CHECKLIST & SCHEDULE

Stormwater Harvesting Basins and and Bioswales (Conveyence)

Location:

Weather: Rainfall over last 2–3 days?

Inspector:

Precipitation amount:

Date: Time:

MAINTENANCE NEEDED	ACTION	COMMENTS
Frequency—Monthly		
1. Are there plants growing in inlets or outlets, blocking flow? ☐ YES ☐ NO	Remove plants that are blocking flow. If the plant is a good plant (i.e. not invasive), you may be able to move it to another part of the basin/swale. If it is an unwanted plant, remove and dispose.	
2. Are there unwanted plants, such as invasive plants or weeds? ☐ YES ☐ NO	Remove unwanted plants manually, which may include desirable plants growing in areas where they are not wanted (i.e. a tree seedling growing in an inlet).	
3. Are there diseased or dead plants? ☐ YES ☐ NO	Replace diseased or dead plants with similar native species.	
4. Have new plants been added? ☐ YES ☐ NO	Make sure young plants get the irrigation they need.	
5. Are weeds growing in mulch (if present)? ☐ YES ☐ NO	Manually remove mulch and add additional mulch to refresh.	
6. Is organic mulch (if present) at least 3 inches thick? ☐ YES ☐ NO	If mulch is less than 3 inches thick, add additional mulch.	
Frequency—Quarterly, after major storms (storms with 0.25" of rain or more)		
1. Is there standing water 24 hours after storm events? ☐ YES ☐ NO	If there is clogging or poor drainage, remove the accumulated sediment/discolored material/debris. Till or rake the remaining soil as needed.	
2. Is there sediment, plant material, trash/debris blocking inlets or outlets? ☐ YES ☐ NO	Remove sediment/plant material. These materials can be placed in another part of the basin/swale. Remove trash/debris and dispose.	
3. Are any plants diseased, impacted by pests, or have other issues affecting their health? ☐ YES ☐ NO	Replace diseased or dead plants with similar native species.	
4. Is irrigation system functioning correctly? ☐ YES ☐ NO	Fix any issues with irrigation system and adjust irrigation as needed based on season and plant needs.	

MAINTENANCE NEEDED	ACTION	COMMENTS
5. Do trees or shrubs have dead or damaged branches? ☐ YES ☐ NO	Remove any dead or damaged branches.	
6. Has mulch shifted or moved after storms? ☐ YES ☐ NO	Add additional mulch to refresh areas where much as been displaced.	
7. Is there erosion in any areas with organic mulch? ☐ YES ☐ NO	Inorganic (rock) mulch or riprap may be needed where erosion is occurring.	
Frequency—Quarterly in the beginning, then biannually (adjust frequency as needed after 3 inspections)		
1. Is there erosion? Impacts from animal burrows? ☐ YES ☐ NO	Repair soil erosion and repair the cause of erosion (i.e. is trash, debris, volunteer plant blocking the flow path?). Fill holes with lightly compacted soil.	
2. Is there more than 2 inches of accumulated material, like sediment, debris, and/or trash, in the bottom of the basin/swale (inundation zone) ? ☐ YES ☐ NO	If accumulated material is reducing infiltration, remove unwanted sediment/debris/trash. Add mulch or additional soil, if needed.	
3. Do plants look distressed? ☐ YES ☐ NO	During drought (longer periods without rain), adjust/increase irrigation as needed. Plants should be watered regularly until established (1–2 years for perennials, 3–5 years for shrubs, 7–10 years for trees) and as needed thereafter.	
4. Are inlets and outlets in good working condition? ☐ YES ☐ NO	Repair or replace any damaged structural parts of the inlets, outlets, sidewalls. Remove any sediment, debris, or volunteer plants blocking the inlet or outlet.	
Frequency—Annually		
1. Do plants need any pruning? ☐ YES ☐ NO	Prune plants ONLY AS NEEDED for clearance or health (dead, diseased, or damaged branches). Plants DO NOT need to be shaped or kept to size.	
2. Is there good plant coverage throughout the basin/swale? ☐ YES ☐ NO	Replace any dead or dying plants with similar native species.	
3. Are there complaints from residents? ☐ YES ☐ NO	Address complaints and/or discuss with supervisor	
4. Do you notice any hazards to the public? ☐ YES ☐ NO	If a hazard is observed, look for a way to fix the issue and discuss with supervisor.	
5. Are there any other issue or problems? ☐ YES ☐ NO	If yes, describe in comments and discuss with supervisor.	

Inspector's signature: _____

MODULE 4

Infiltration Conveyance

Infiltration Conveyance

Infiltration conveyances are wide ditches that slow water velocity, direct stormwater flow, create temporary surface and subsurface storage of stormwater, and enhance the capacity of the ground to absorb stormwater, promoting groundwater recharge. Infiltration conveyances also aid in removing sediment and pollutants out of stormwater runoff.

Infiltration trenches are generally linear, stone-filled trenches that collect and infiltrate runoff and do not include plants.

Bioswales, another type of conveyance, are shallow, linear, or curved linear features that include organic (wood/plant material) or inorganic (rock) mulch and plants (preferably native). They are designed to improve water quality by carrying (conveying), slowing, and treating stormwater runoff. Bioswales allow pollutants to settle out and promote infiltration.

Infiltration conveyances should slow the water enough to allow it to infiltrate and should have regular inspection and maintenance to keep them functioning properly. Components of infiltration conveyances that need inspection and maintenance include:

- Inflow and outflow structures
- Sediment traps
- Infiltration rates (see ASTM D3385)
- Erosion control and repair
- Plants/weeds
- Irrigation system (if present)
- Mulch

Photos by: Mario Nuño-Whelan

Stormwater Bumpout with Infiltration Conveyance

Infiltration Maintenance

To control flooding and reduce pollutants carried to our rivers, infiltration conveyances should slow down velocity (how fast the water flows), allow water to soak into the ground, and support vegetation when present (bioswales). Maintenance tasks include:

- Remove accumulated sediment, debris, and trash within the channel and at inlets and outlets. Organic debris, such as leaves and plant material, can be left in place if it is not causing blockage. Use manual tools instead of a power blower or trimmer to remove sediment, debris, noxious weeds, and trash.
- Inspect engineered elements for undercutting or clogging.
  - Stormwater moving around concrete or other hard surfaces may erode surrounding soils.
  - Look for and remove any material clogging vertical overflow pipes, honeycomb grates, or other outflow structures.
  - Look for significant changes in channel depth following storm events that might affect how stormwater moves through the feature.
- Where organic mulch (wood and plant material) is used, maintain and refresh as needed (see Module 6 for more information on mulch maintenance).
- If water is standing for more than 96 hours, remove clogging material or increase infiltration in bioswales by installing soil sponges (see Module 3 for more detail) to move water more quickly down into the soil.
- Replace rocks that were dislodged during storm events making sure no bare soil is exposed.

Infiltration trench in parking lot

Maintenance: Plant Care

- Inspect the bioswale for areas that are receiving more or less stormwater by observing soil moisture, dry areas with stressed or dying vegetation, and areas where vegetation is thriving. Determine if regrading is needed to evenly distribute water throughout the channel.
- Infiltration trenches DO NOT include vegetation; remove any vegetation within the trench. Plant roots present in these conveyances reduce infiltration.
- Remove vegetation that is blocking or inhibiting flow in the inlet, outlet, and graveled central channel. Dense vegetation in these locations may cause backup and overflow in undesired areas.
- See Module 5 for detailed plant maintenance information.

Visual inspection of the channel grade

- Check for any movement of sediment that changes the channel grade.
- If the channel grade is steep and water is flowing too fast, consider installing a check dam, Zuni bowl, erosion blanket, or other structure to help slow the flow of water. This may require renovation and is not part of regular maintenance.
- Remove and relocate sediment to maintain the channel grade and re-establish designed flow of water into appropriate areas. A flat shovel works well for this. A steel mesh screen placed over a wheelbarrow can help remove sediment from cobble or gravel.

Erosion control repair

- Fill eroded areas with soil material similar to the existing material in place.
- Use a flat shovel or similar tool to relocate eroded sediment or material (i.e., rocks) to areas where they are needed, or to areas where they were formerly located.
- If planting seeds to reduce erosion, use an appropriate native seed mix.

Bioswale along Second St, Mountain View Neighborhood, South Valley, Albuquerque

Maintenance:
Soil amendments and mulch

- Do not use salt, fertilizers or pesticides in the stormwater management area.
- Add mulch to a minimum depth of 3 inches. See Module 6 for more details on mulch maintenance.
- If there are high flow rates into the basin and the organic mulch (wood/plant material) is regularly washed away, consider adding a check dam or Zuni bowl or changing to inorganic (rock) mulch on just the water flow path, retaining organic mulch on more upland areas.
- See Module 5 for detailed plant maintenance information.

Urban agriculture infiltration conveyance including a conveyance trench and soil sponges.

Tools and Specialized Equipment

Sediment/organic debris/trash should be removed most often by hand equipment. Only use heavy equipment as a last resort or when regrading and refreshing the entire site (no more frequently than every 5 years). The use of mechanized equipment may damage the system. To minimize impacts during maintenance activities:

- Have new plants and a native seed mix available to quickly re-establish vegetation where it has been damaged or removed.
- Do not stage or drive heavy/mechanized equipment on or across infiltration areas to avoid compaction of soil/media. If mechanized equipment is required, use wheeled rather than tracked equipment where possible.
- See the general tool list in Module 1.

MAINTENANCE INSPECTION CHECKLIST & SCHEDULE

Stormwater Harvesting Basins and Conveyences

Location: Weather: Rainfall over last 2–3 days?

Inspector: Precipitation amount:

Date: Time:

MAINTENANCE NEEDED	ACTION	COMMENTS
Frequency—Monthly		
1. Are there plants growing in inlets or outlets, blocking flow? ☐ YES ☐ NO	Remove plants that are blocking flow. If the plant is a good plant (i.e. not invasive, non-native), you may be able to move it to another part of the basin/swale. If it is an unwanted plant, remove and dispose.	
2. Are there unwanted plants, such as invasive plants or weeds? ☐ YES ☐ NO	Remove unwanted plants manually, which may include desirable plants growing in areas where they are not wanted (i.e. a tree seedling growing in an inlet).	
3. Are there diseased or dead plants? ☐ YES ☐ NO	Replace diseased or dead plants with similar native species.	
4. Have new plants been added? ☐ YES ☐ NO	Make sure young plants get the irrigation they need.	
5. Are weeds growing in mulch (if present)? ☐ YES ☐ NO	Manually remove mulch and add additional mulch to refresh.	
6. Is organic mulch (if present) at least 3 inches thick? ☐ YES ☐ NO	If mulch is less than 3 inches thick, add additional mulch.	
Frequency—Quarterly, after major storms (storms with 0.25" of rain or more)		
1. Is there standing water 24 hours after storm events? ☐ YES ☐ NO	If there is clogging or poor drainage, remove the accumulated sediment/discolored material/debris. Till or rake the remaining soil as needed.	
2. Is there sediment, plant material, trash/debris blocking inlets or outlets? ☐ YES ☐ NO	Remove sediment/plant material. These materials can be placed in another part of the basin/swale. Remove trash/debris and dispose.	
3. Are any plants diseased, impacted by pests, or have other issues affecting their health? ☐ YES ☐ NO	Replace diseased or dead plants with similar native species.	
4. Is irrigation system functioning correctly? ☐ YES ☐ NO	Fix any issues with irrigation system and adjust irrigation as needed based on season and plant needs.	

MAINTENANCE NEEDED	ACTION	COMMENTS
5. Do trees or shrubs have dead or damaged branches? ☐ YES ☐ NO	Remove any dead or damaged branches.	
6. Has mulch shifted or moved after storms? ☐ YES ☐ NO	Add additional mulch to refresh areas where much as been displaced.	
7. Is there erosion in any areas with organic mulch? ☐ YES ☐ NO	Inorganic (rock) mulch or riprap may be needed where erosion is occurring.	
8. Are there noticeable differences in channel grade? ☐ YES ☐ NO	If channel grade is too steep in some areas, adjust the grade or add a check dam or riprap to slow the flow of water.	
Frequency—Quarterly in the beginning, then biannually (adjust frequency as needed after 3 inspections)		
1. Is there erosion? Impacts from animal burrows? ☐ YES ☐ NO	Repair soil erosion and repair the cause of erosion (i.e. is trash, debris, volunteer plant blocking the flow path?). Fill holes with lightly compacted soil.	
2. Is there more than 2 inches of accumulated material, like sediment, debris, and/or trash, in the bottom of the basin/swale (inundation zone) ? ☐ YES ☐ NO	If accumulated material is reducing infiltration, remove unwanted sediment/debris/trash. Add mulch or additional soil, if needed.	
3. Do plants look distressed? ☐ YES ☐ NO	During drought (longer periods without rain), adjust/increase irrigation as needed. Plants should be watered regularly until established (1–2 years for perennials, 3–5 years for shrubs, 7–10 years for trees) and as needed thereafter.	
4. Are inlets and outlets in good working condition? ☐ YES ☐ NO	Repair or replace any damaged structural parts of the inlets, outlets, sidewalls. Remove any sediment, debris, or volunteer plants blocking the inlet or outlet.	
Frequency—Annually		
1. Do plants need any pruning? ☐ YES ☐ NO	Prune plants ONLY AS NEEDED for clearance or health (dead, diseased, or damaged branches). Plants DO NOT need to be shaped.	
2. Is there good plant coverage throughout the basin/swale? ☐ YES ☐ NO	Replace any dead or dying plants with similar native species.	
3. Are there complaints from residents? ☐ YES ☐ NO	Address complaints and/or discuss with supervisor	
4. Do you notice any hazards to the public? ☐ YES ☐ NO	If a hazard is observed, look for a way to fix the issue and discuss with supervisor.	
5. Are there any other issue or problems? ☐ YES ☐ NO	If yes, describe in comments and discuss with supervisor.	

Inspector's signature: _____

MODULE 5

Plant Identification and Maintenance

Plant Maintenance

Plants are an important component of green stormwater infrastructure systems. When polluted stormwater passes through a biologically active filter (biofilter) or a plant community (referred to as a bioretention system), pollutants are reduced, and water quality improves. Plants and organic ground cover (e.g., mulch) are the most visible parts of a biofilter but much or most of the filtering happens below ground in healthy soils.

Healthy, native plant systems can:

- Reduce overall runoff volumes
- Reduce peak flows (preventing flooding)
- Increase and maintain infiltration rates
- Cool the soil surface (reducing heat islands)
- Reduce noxious weed establishment

Schematic of plants serving as a biofilter

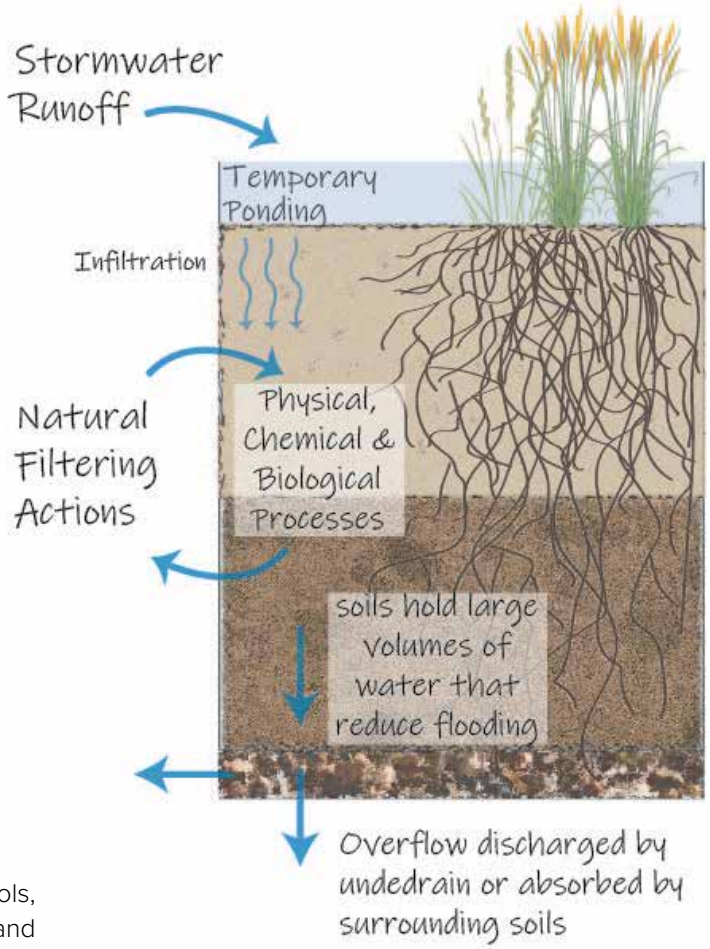


Image Credit: Sarah Hurteau, TNC; IAN Symbols, University of Maryland

Photos by: Mario Nuño-Whelan

Why are Plants Important?

Healthy plants are a vital component of green stormwater infrastructure to help:

- Control erosion
- Keep soils healthy — including soil fungi and microbes
- Promote natural filtering and breaking down of pollutants through biological and chemical processes
- Protect water quality by providing filtration and treatment for pollutants in stormwater runoff
- Provide habitat for wildlife
- Improve the urban environment for people
- Increase infiltration rates as water follows roots systems deeper into the soil

Plant maintenance can affect the optimal performance of green stormwater infrastructure in many ways:

- When vegetation dies and is not replaced, green stormwater systems lose the pollutant and water uptake benefits provided by the plants. Plant replacement is an important maintenance activity and will reduce/eliminate future renovation costs.
- Healthy soil microbes and bacteria that help break down pollutants die without healthy plants.
- Without vegetation, the soil holds less water, which in turn increases runoff.
- Clogged soil media prevents infiltration and can lead to a complete failure of a system, requiring replacement of the soil.

Bioretention systems are stressful environments for plant growth due to periods of flooding and pollutant loading, followed by long dry periods. Certain plant species are more capable of thriving in these extremes than others and can help to minimize the amount of maintenance needed due to plant die-off.

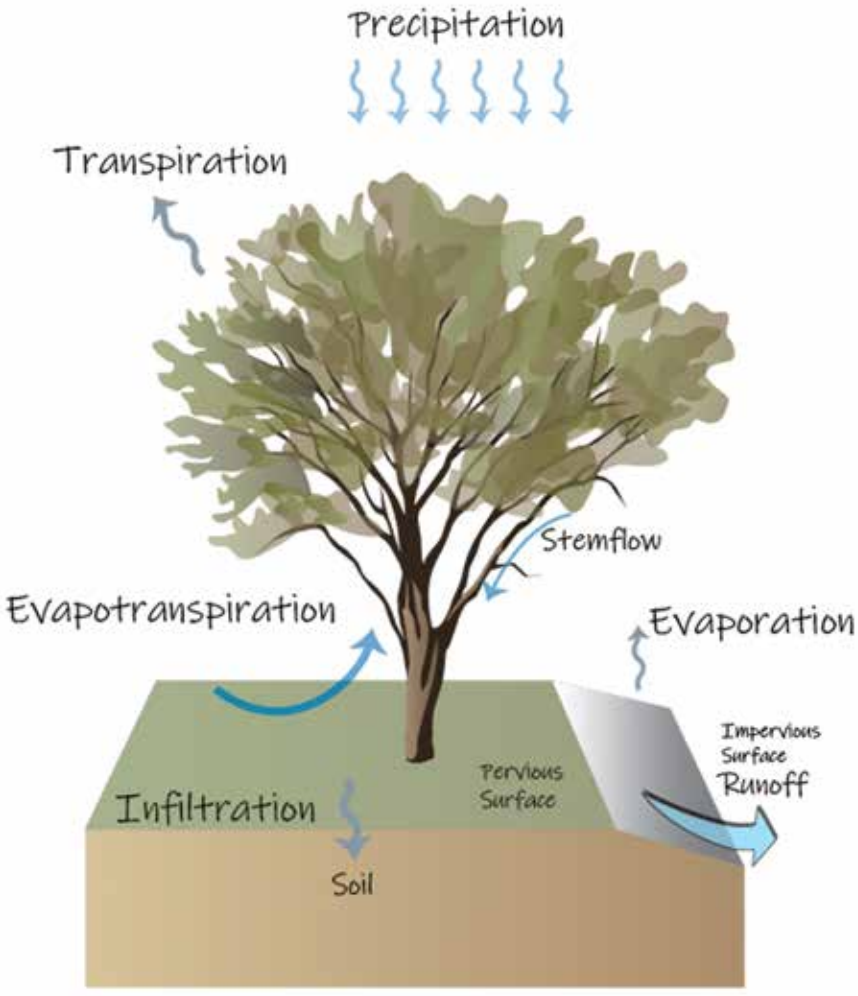


Image Credit: Sarah Hurteau, TNC; IAN Symbols, University of Maryland

Different Plants Live in Different Soil Water Zones

Each planting zone will have a different community of plants that will do best under these really different soil water conditions.

- Inundation zones (where water accumulates on the surface) will require plants that can be submerged in water for up to 48 hours.
- Transition zones (slopes on the edges of the trench or basin) will function best with plants that like extra water and may be occasionally submerged.
- High ground/uplands (areas bordering the trench or basin) require plants that are drought tolerant and require less water overall.

For more information of which plants do best in our native systems, please visit: www.bernco.gov/plantlist.

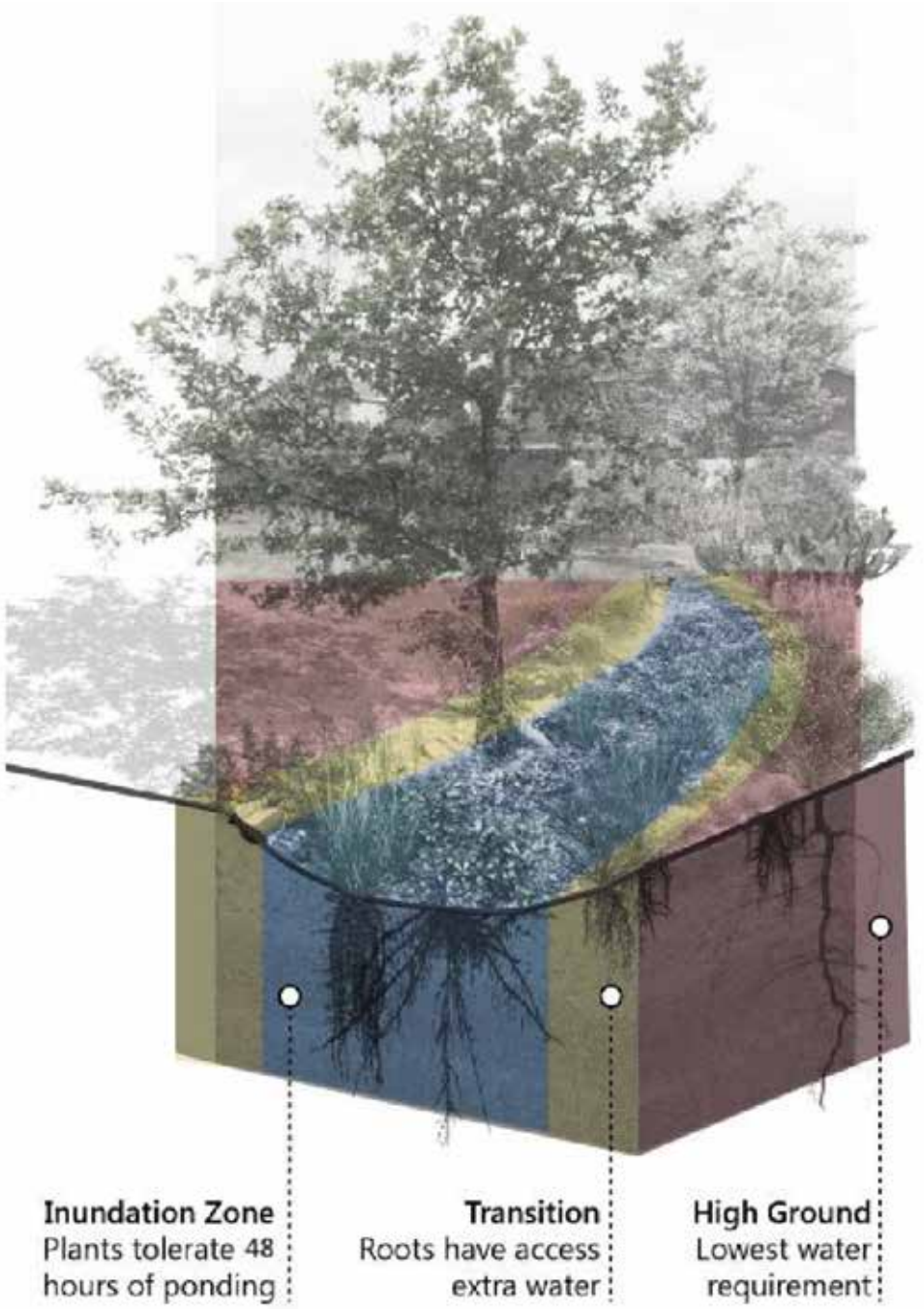


Image Credit: Tess Houle MRWM

Maintenance

- Check the design plan, if possible, so you know what plants should be there, and how the feature is supposed to function. If plants fail repeatedly, consult native plant list for appropriate substitute: bernco.gov/plantlist
- Inspect plants at the beginning of each season (quarterly) and after storm events, checking for healthy plants and pests/disease.
- Some plants may need to be removed so the feature can maintain function.
- Prune plants only as needed. Many plants, especially native plants, need little to no pruning. Many native plants, including grasses, need little or no pruning. Native grasses do not need mowing.
- Don't over-prune trees or shrubs; prune trees and shrubs only if they interfere with human pathways and to maintain sightlines for vehicles in features adjacent to roadways and intersections. Only trim for clearance, not to "shape" the plants!
- Prune trees for health. Pruning trees for health means:
  - Removing any broken limbs or branches.
  - Removing dead, diseased, and damaged branches.
  - Removing a branch if it is rubbing on another branch (crossing branches) or unwanted multiple leaders.
  - Trimming back one of the limbs when two limbs grow closely together, making a "V" in the branch union. This narrow angle makes for a weak branch attachment that could damage the tree later as the limbs grow larger.

For more information on pruning, please visit the Arid LID website for links to short video tutorials. https://aridlidcoalition.org

Native Plant Roots Strengthen and Stabilize the Soil

Some native plants have roots that extend as deep as 15 feet underground. These plants promote infiltration and reduce erosion.

Sod has a shallow root system and does not provide many ecological benefits.

Maintenance (cont.)

- Only remove major tree limbs in winter when the sap is NOT flowing. Deadwood can be removed anytime.
- DO NOT mound organic or inorganic (rock) mulch around tree trunks like a volcano. Make sure mulch is at least 4 inches away from the tree trunk. The root crown is beautiful and should be seen!
- Remove any unwanted plants, such as weeds and invasives, as needed and at least monthly and prior to seed set.
- Check for dead plants and replace them with similar plant types and prioritize the use of native species as they are better adapted to our desert climate.
- Increase irrigation for new plantings to help them get established. For native plants, establishment periods are 5 years for trees, 3 years for shrubs, and 1 to 2 years for perennials/herbs/forbs. For non-native plants, establishment periods will be longer.
- Adjust irrigation seasonally. Pay attention to monsoon and/or drought conditions and adjust irrigation frequency and duration as needed (more during hot/dry seasons and less during cool/wet seasons). Non-native plants usually require some winter irrigation.
- Gradually shift irrigation to less frequent and deeper watering, to maintain soil moisture.
- If replacing a tree, check the Climate Ready Tree List for an appropriate selection. Visit the Arid LID website for a link to this resource. https://aridlidcoalition.org
- Keep leaf litter and trimmings in place or in the basin bottom instead of removing if not causing blockages. This is free mulch and organic material that supports soil and plant health!
- Remove invasive weeds using species-specific guidelines (time of year, technique, etc.); for example, control silver nightshade where unwanted but leave in other areas for native pollinators.
- Weed less by using more organic (wood/plant material) mulch to reduce weed seed germination.
- Don't spray chemical herbicides; hand pull weeds when they pop up.
  - Pull weeds when they are small and after rain. Weeds are easiest to pull when roots haven't grown too deep yet and the soil is soft.
  - Remove weeds before they set seed to reduce future spreading.
  - Remove unwanted volunteer tree seedlings when they are young.
  - Pull or dig out the entire plant including the root system. If you just cut off the top, the plant will likely continue to re-sprout from the base. A trowel, hoe, or shovel should be sufficient to do the job.

Tools and Specialized Equipment

Have new plants available to quickly re-establish vegetation in case plants are damaged or removed.

See the general tool list in Module 1

MAINTENANCE INSPECTION CHECKLIST

Plant Maintenance

Location: Weather: Rainfall over last 2–3 days?

Inspector: Site conditions:

Date: Time:

MAINTENANCE NEEDED	
Frequency—Monthly	
1. Check for and remove unwanted plants, such as weeds and invasive plants. ☐ YES ☐ NO 2. Check for diseased or dead plants and replace them with similar native species. ☐ YES ☐ NO 3. Check for and manually remove weeds and invasives. ☐ YES ☐ NO 4. Irrigate young plants. ☐ YES ☐ NO	*Comments:*
Frequency—Quarterly; after major storms	
1. Inspect plants, checking for healthy plants, pests/disease, or other issues. ☐ YES ☐ NO 2. Inspect irrigation system and adjust as needed. ☐ YES ☐ NO 3. Remove any dead or damaged branches from trees and shrubs. ☐ YES ☐ NO	*Comments:*
Annually	
1. Prune plants only as needed for clearance or health (dead, diseased, or damaged branches). ☐ YES ☐ NO	*Comments:*

Inspector's signature: _____

MODULE 6

Mulch Maintenance

What is Mulch?

Mulch is a layer of porous material applied to the ground surface that helps to stabilize and reduce water loss from the soil by evaporation. It is an important part of green stormwater infrastructure. Mulch can be applied in stormwater harvesting basins, conveyance channels, or any area where retaining soil moisture, preventing erosion, and promoting healthy plant growth is desired.

Types of mulch include:

- **Organic mulch** is generally composed of chipped and/or shredded wood and plant materials. Organic mulch is appropriate for almost all applications.
- **Inorganic mulch** consists of gravel, crushed rock, lava rock, or pebbles and may be appropriate for areas where there are high stormwater flow rates, steep slopes, or where there is heavy foot traffic.

Organic mulch is preferable for most applications as it helps to suppress weed growth and contributes to pollutant treatment and healthy soils. Partially composted, shredded woody mulch is ideal because it locks together, making it more resistant to floating or blowing away. Mulch that is partially composted brings good bacteria and fungi that improve soil and plant health.

Different Types of Mulch

Organic mulch helps:

- retain soil moisture
- control weed growth
- limit big temperature swings in the soil
- prevent erosion
- support a healthy microbiome (a community of microbes, such as bacteria and fungi)
- treat pollutants through filtration

Organic mulch decomposes over time (which is good for the soil and microbiome) acting as a natural fertilizer for both soil and plants and consequently requires periodic refreshing. When using organic mulch within a GSI installation, use the following best practices (adapted from the DRAFT Bernalillo County Green Stormwater Infrastructure Low Impact Design Standards):

- Leaf litter does not need to be removed from the surface of areas with organic mulch.
- Avoid organic mulch products containing bark chips or products that are likely to blow or float away, such as pecan shells. Bark chips are naturally water repellant and resist decomposition.

Healthy fungi “gluing” mulch and soil together.
Source: https://edibleoasisidaho.blogspot.com/2014/10/mold-in-my-lungs-is-good-thing.html

- Keep all mulch at least 4 inches away from the base of trees and plants.
- Spread (or re-spread) mulch evenly across the site, especially when mulch has moved during storm events.
- Use wood chips, natural material erosion control blankets, or small rock mulch over drill seeded or hand broadcast seeded areas.

Inorganic Mulch

Inorganic mulch (gravel, rocks) is not preferred, although it may be useful in some circumstances. It does not contribute to the treatment of runoff or to the biological health of soil and plants. It also stores and releases heat. Inorganic mulch is best used on steep slopes where stormwater runoff velocities may be high or where there is a lot of foot traffic, as it provides added stability, and may be paired with landscape fabric to help prevent erosion. If inorganic mulch is necessary, use the following best practices (adapted from the DRAFT Bernalillo County Green Stormwater Infrastructure Low Impact Design Standards):

- In depressed basins or swales, install a 3-inch depth of chipped wood mulch below a single layer of inorganic mulchof aggregate size of 1" to 2" or large. Chipped (non-composted) wood mulch is recommended to be used under rocks and inorganic mulch materials as it will degrade more slowly than shredded, partially composted wood mulch. OR install landscape fabric in place of chipped wood mulch.
- Use rock and inorganic mulch where there are high flow velocities (greater than 1 foot/second) to slow down the water and prevent erosion.
- Rock and inorganic mulch containing fine grains can create additional sediment accumulation and clogging and therefore should not be used.
- If rock and/or other inorganic mulch is used, plan for maintenance to remove sediment and debris from the mulch; weeds will grow in sediment that accumulates in the rock and inorganic mulch.
- Dark-colored rock and inorganic mulch materials, such as basalt, are preferred for areas that will be stained by urban runoff. Light-colored rock and inorganic mulch materials are preferred for other areas because they retain less heat than dark colored materials.

Landscape fabrics for weed control are not recommended for use in GSI installations. These fabrics generally prevent stormwater runoff from reaching the soil and plant roots and are only permeable when they are fully saturated. Permeability declines as sediment accumulates on the top of the fabric layer, and can't be corrected without digging up the overlying mulch. Weedblock fabric placed under organic or inorganic mulch collects sediment where weeds will grow, creating additional maintenance needs. Organic mulch, when applied appropriately, is much more effective at preventing weed growth.

TOP: Native mulch
BOTTOM: Forest floor mulch
Photos from Soilutions

Maintenance
for Organic Mulch

- Check for an even layer of mulch. If the mulch is piled up in some areas, move it around so that the depth is consistent.
- Organic mulch 3-inches in depth should last at least 3 years; mulch may be top-dressed annually to freshen the appearance. If the GSI facility receives frequent or high-volume flows, mulch may need to be refreshed more frequently.
- Leaf litter does not need to be removed from the surface of areas with organic mulch.
- If flow rates of runoff into the basin are high and the organic mulch is regularly washed away, consider installing inorganic mulch or riprap at the inlet to slow down the flow of water.

Tools and Specialized Equipment

Replacement mulch (see discussion above for appropriate mulch)

See the general tool list in Module 1.

Maintenance
for Inorganic Mulch

- Sediment and debris will accumulate in inorganic mulch over time; remove sediment and debris as necessary.
- Weeds will grow in the accumulated sediment; manually remove weeds when present.

Reference Materials

Climate Ready Trees List, now available statewide: https://www.nature.org/content/dam/tnc/nature/en/documents/Climate-Ready-Trees-Report-Nov2020.pdf

Noxious and Troublesome Weeds of New Mexico: https://aces.nmsu.edu/pubs/_circulars/CR698.pdf

Native Plant List: https://www. bernco.gov/plantlist

Irrigation Quick Reference: https://www.youtube.com/watch?v=WWnwg1DpEsU

Tree Care Quick Tips: https://www.youtube.com/watch?v=hRs3EmjVw9U&list=PL-o5jtJniuba3Pk9sWN94LgHYClPCaUro&index=2&t=4s

How to Plant a Tree: https://www.youtube.com/watch?v=sJmi99gxnFQ&list=PL-o5jtJniuba3Pk9sWN94LgHYClPCaUro&index=4

Tree Pruning Intro: https://www.youtube.com/watch?v=tR1EUMzuFP8&list=PL-o5jtJniuba3Pk9sWN94LgHYClPCaUro&index=5

Arid LID website for short video tutorials on pruning: https://aridlidcoalition.org

arid LID

Low Impact Development in Arid Environments

CIUDAD SOIL & WATER CONSERVATION DISTRICT

MIDDLE RIO GRANDE
Green Stormwater Infrastructure Maintenance Videos

WATCH TRAINING VIDEOS

Making Meaningful Connections by Integrating Water Resources Topics with Language Arts & Science

2022 Report

Presented by
Ciudad Soil & Water Conservation District
Erin Blaz, Education Manager
Saleema Robinson, Assistant Education Coordinator

June 2022

CONTENTS

SUMMARY 3

PROGRAM DESCRIPTION 4

2021-2022 PROGRAM OVERVIEW 6

Program Management and Financial Support 6

Program Components 9

EVALUATION 13

Teacher Feedback 13

Capstone Project 15

Surveys 18

Appendix A (Virtual Field Trip Lesson) 27

SUMMARY

This year, funding enabled 39 NM classes (866 students and 41 teachers) to participate in a combination of *virtual and in-person programming* RiverXchange® program. 38 classes were funded for the program, but 39 were placed in the program considering the likelihood that not all bus and substitute funding was going to be used due to the uncertainty of field trip approval and substitute availability. Eight of the fourteen schools we served were Title 1. All program costs and coordination are provided free of charge to teachers. The program required $56,218.89 in cash and generated a total match valued at $67,351.11 in the form of in-kind contributions including teacher workshop attendance, presenter time and preparation for virtual presentations, as well as volunteer time from students and adults on the field trips to plant 495 trees in the bosque. Student Capstone Projects reached at total of 3,090 community members about stormwater and watershed health related topics.

RiverXchange® continued to have a successful year, even in light of the on-going global pandemic. One of the challenges this year was managing diverse policies for presentations and field trips across schools and presenter preferences and capacity. The result of these variations meant that students experienced varying levels of contact with the program. For example Rio Rancho schools primarily had video presentations and virtual field trips with live presenters, while one Rio Rancho school actually went on a field trip to Candelaria Nature Preserve. APS students primarily had virtual presentations with a live presenter and almost all APS schools did pole planting. However, in evaluating the program metrics both districts demonstrated knowledge gains and improvements in positive water conservation behaviors and attitudes.

Another significant change to the program this year was the evolution from blogging to the Capstone Project. With the inundation of technology and virtual learning in schools as a result of the global pandemic, it was time to rethink the goals of the blogging component and determine if they really support making meaningful connections for students in water resource education. The goal of the Capstone Project was to pilot a language arts component that would support making meaningful connections with students' immediate community- such as the larger school community or neighborhood. Results from the Capstone Project are shared further on in this report. In summary, much of the work we see is similar to the work that was posted on the blog, except many of the teachers that were able to integrate the Capstone Project challenged their classes to share their work with other classes at the school or even the school administration. This meant the work wasn’t going into a digital void where only RiverXchange® staff would view it, but that it rippled out to more local students and adults!

In addition last year RiverXchange®, Bosque Ecological Monitoring Program and Valencia SWCD staff met monthly to discuss watershed and stormwater education collaboration opportunities, such as program continuity across grades and program assessment strategies. This effort continues to help support and improve core aspects of our programs and outreach.

RiverXchange® has demonstrated that its collaborative efforts with partner agencies to bring effective presentations to schools, funding structure to support teacher professional development and field

trips, and management by the Ciudad Soil and Water Conservation District, has allowed it to be not only resilient during times of uncertainty but a valuable resources for teacher and students alike. In fact, RiverXchange® has emerged as a strengthened program that will continue to evolve for years to come and improve how it engages our local community with watershed health and stewardship.

PROGRAM DESCRIPTION

Mission

The mission of RiverXchange is to deepen students' and teachers' understanding and appreciation for their local river ecosystem, motivate participants to protect local water resources by conserving water and keeping their source water clean, and to provide a high quality, high impact outreach opportunity for funders and in-kind contributors.

The Big Water Questions

The optional curriculum frames program outcomes as "guiding questions," known as *Big Water Questions*. A long term goal of RiverXchange is that students understand these questions and can formulate logical, fact-based answers by the time they finish elementary school. We believe that students who can synthesize water facts to understand larger water issues will have the proper critical thinking skills and foundation for further discussion in middle and high school so that they will become informed citizens and voters on water issues.

Understanding a Watershed

- Is every place in the world part of a watershed?
- Where does your community's stormwater go?
- How can surface water become polluted?
- How does the water cycle relate to weather?
- How are groundwater and surface water connected?
- How can groundwater become polluted?
- What actions can all of us take to keep water clean?

Water in Our Society

- In what ways does our society use water?
- Where does your community's drinking water come from?
- Does everyone have the right to use as much water as they want?
- Where does your community's wastewater go?

- What actions can all of us take to conserve water?

River Ecosystem

- How does water affect living things in an ecosystem?
- What role do forests play in a watershed?
- What role do wetlands play in a watershed?
- What are some of the ways scientists can determine the health of a river, lake, bay or ocean?
- What actions can all of us take to improve the health of our ecosystem?

Background

As producers of children's water festivals and other grade K12 water resources outreach in NM since 2007, the RiverXchange program creators observed early on that NM elementary teachers rarely incorporated water concepts in the classroom beyond what is required by the state (e.g., water cycle), and that most elementary teachers considered "water" strictly as a science topic. While teachers personally acknowledged the importance of conserving water and keeping source water clean, they continued to find that upper elementary students had little or no understanding of major water resources topics unless the teacher specifically integrated a wide range of water topics into the curriculum. For this reason, as well as successful festival work with upper elementary students, this age level was selected as the focus for the RiverXchange program.

RiverXchange was created to provide a free program that is fun, interesting, and easy to integrate into the normal curriculum. The hope was to motivate participants to explore water resources topics in depth. The program was originally designed to be carried out over eight months so that students spend more time developing a sense of pride and personal connection to their own river ecosystem, as well as a personal connection to a distant river ecosystem and the students who live near it. Today RiverXchange runs over the course of 3-4 months, as a response to the challenges of implementing a year-long curriculum with the ongoing demands on teachers and students time and requirements for testing and other curriculum.

RiverXchange began in 2007 as a pilot project of Experiential EE, LLC (under a services agreement with the New Mexico Water Conservation Alliance) and the National Great Rivers Research and Education Center, featuring partnerships between two fourth grade classes in Albuquerque, NM, and two fifth grade classes in Godfrey, IL. A curriculum was developed, a field trip to the river was coordinated, and partner classes "met" three times during the year via video tele-conferencing to present what they had learned.

After the pilot project, RiverXchange transitioned to a web-based technology called a wiki. This enabled the program to overcome limitations such as the high cost, availability, and time zone logistical issues associated with video teleconferencing – and easily involve more classes. The curriculum was updated to incorporate the writing component and classroom guest speakers were introduced to reduce teacher workload and bring up-to-date technical information into the classroom. In 2017, the program switched to a blogging platform called Kidblog and in 2021 Kidblog rebranded to Fanschool. Due to the inundation of technology from virtual learning in the global pandemic and the continued barriers to connecting classes on Kidblog/Fanschool, RiverXchange piloted integrating a Capstone Project into the

program instead of the blog in 2021-2022.

In 2012, ownership of RiverXchange transferred to Amy White of Orilla Consulting, LLC, who managed the program through July 2015. In August 2015, RiverXchange became part of the Ciudad Soil & Water Conservation District. In 2020, ownership and the trademark registration of RiverXchange® was transferred fully to Ciudad Soil and Water Conservation.

Since 2007, we have served over 20,166 students!

This year, the program featured the following components:

- Optional standards-based curriculum including hands on science, math, and social studies lessons, as well as writing assignments
- Teacher training on curriculum and Capstone Project implementation
- Ongoing motivational support and Capstone Project monitoring
- End of year teacher survey
- Pre and post student surveys
- Coordination of at least four guest speakers into the classroom
- Coordination of a virtual field trip or in person field trip to the local river or important watershed feature
- Field trip leadership and activity planning

2021-2022 PROGRAM OVERVIEW

I. Program Management and Financial Support

The program timeframe was July 1, 2020 through June 30, 2021. All components including fundraising, design, planning, implementation, and analysis were carried out by employees and contractors of Ciudad Soil & Water Conservation District, including:

Erin Blaz
Jenny Lloyd-Strovas
Astrid Hueglin
Saleema Robinson

SPONSORS

- Southern Sandoval County Arroyo and Flood Control Authority (SSCAFCA)
- Middle Rio Grande Stormwater Quality Team (MRGSQT)

Sponsors provided a total of $56,218.89 in cash.
MRGSQT - $38,532.98 | SSCAFCA - $17,683.04

Program expenses included:

- Technology services
- Office and educational supplies
- Teacher workshop materials and food
- Coordination services (planning, implementing and assessing all program components)
- Bus funding
- Substitute funding

IN-KIND PARTNERS

- Albuquerque Water Utility Authority
- City of Albuquerque – Open Space Division
- City of Rio Rancho – Environmental Programs Office
- City of Rio Rancho — Parks, Recreation and Community Services Department
- Sandia Labs
- Sandoval County Cooperative Extension
- Bernalillo County Cooperative Extension
- Rio Grande Return

In-Kind contributions totaled $67,351.11

In-kind contributions included virtual guest speaker coordination, prep and presentation time. The City of Albuquerque significantly increased their match this year by including a pre-lesson kit and/presentation to classrooms. Additionally, in-kind match was able to return to a pre-2020 range due to the allowance of pole planting field trips, where student and adult time and trees are counted as match through volunteer time and materials.

PARTICIPANT SELECTION

All 39 participating NM classes were fifth grade classes, distributed as follows:

FUNDER	MRGSQT		SSCAFCA	
	SCHOOL - Number of classes	Number of Students	SCHOOL - Number of classes	Number of Students

*Title 1 school	La Mesa* - 4	92	Colinas del Norte* - 5	109
	Valle Vista* - 3	53	MLK* - 4	98
	Duranes* - 1	19	Sandia Vista - 4	92
	Seven Bar - 3	79		
	John Baker- 3	67		
	Zia- 2	40		
	Monte Vista - 2	52		
	Cochiti* - 2	27		
	North Valley Academy - 2	52		
	Manzano Mesa* - 3	61		
	Maggie Cordova* - 1	25		
TOTALS	**26 classes**	**567**	**13 classes**	**299**
RX Total Classes	**39 classes**	**RX Total Students**	**866 students**	

PRESENTATION TOTALS

Program presentations were completed as follows:

Agriculture: 39/39
Stormwater: 39/39
Wastewater: 39/39
Drinking Water: 39/39
Landfill Presentation: 14/14 (Rio Rancho only)

Field Trips

Virtual: 14/14

Pole Planting: 21/21

Candelaria Nature Preserve: 4/4

I. Program Components

The core curriculum of RiverXchange® is delivered through a series of in-class presentations provided by our partner agencies that are guided by the "Big Water Questions" that aim to build an understanding of watershed health. Additionally the field trip, in partnership with City of Albuquerque Open Space, has remained a core component of our program by offering students the opportunity to participate directly in a restoration project to understand the value of action and stewardship as a community effort. The field trip also offers an opportunity for participating students, who come from diverse backgrounds and have varied relationships with the outdoors, a chance to connect with an important, local watershed feature and build a connection to their local river. Furthermore, beyond the core components of RiverXchange®, the program also supports a more robust understanding of watershed health through teacher facilitation of the Capstone Projects and other additional lessons that are demonstrated at the teacher workshop. Extensive resources can be found on the RiverXchange® website but we have found teachers are at their capacity often don't utilize those resources. Each year we continue working on developing a more streamlined program.

A review of this year's program components follows.

PARTNER AGENCY PRESENTATIONS

APS

The Water Utility Authority has a new presenter, Rhea Trotman, who is replacing Theresa Dunn - the long time WUA educator for RiverXchange. Ms. Trotman provided the drinking water and wastewater presentations. Brittany Johnson at Bernalillo County Coop Ext. provided the virtual agriculture presentation. The stormwater presentation will continue to be offered via a video recording from Sandia Labs.

RRPS

The city of Rio Rancho offered pre-recorded videos of their drinking water, wastewater and landfill presentations as this year's presentations. Students will also receive the stormwater video from Sandia Labs. The agriculture presentation will be offered virtually by Steve Lucero and Nicole Lujan from the Sandoval County Coop Ext.

Field Trip Pre-lesson

City of Albuquerque Open Space Division Educator Ellie Althoff provided significant support to students understanding the "why" behind planting cottonwoods and willows in the Bosque by offering a River of Change Kit (a model and lesson derived from the Bosque Education Guide). This kit and lesson was provided to classes for their own use or as an in-person presentation with Ellie to explore the first two segments of the lesson - Rio Bravo and Rio Manso - which discuss the pre-settlement ecology of the Middle Rio Grande and flood control impacts due colonization and non-native settlement of the Middle Rio Grande Valley. The final segment of this lesson called Rio Nuevo, where students are prompted to consider the possible restoration and mitigation strategies for flood control impacts on the ecosystem, was completed either on site at the field trip or during the virtual field trip presentation.

FIELD TRIPS

POLE PLANTING

A total of 417 students and 56 adults attended pole planting field trips from APS schools. With the support of Albuquerque Open Space, 495 total trees were planted in an area of the Bosque just north of I-40 on the east side of the Rio Grande. Images of students pole planting are in Appendix XXXX.

VIRTUAL FIELD TRIPS

This year we continued to offer virtual field trips for schools that were not allowed to go on in-person field trips. City of Albuquerque Open Space generously contributed another educator, Ellie Althoff to join Erin Blaz in facilitating these field trips. The virtual field trip spanned 1.45 hours and explored evidence of the flora and fauna in the existing riparian ecosystem, identification of invasive species, strategies for managing forest health and the Rio Nuevo activity.

CANDELARIA NATURE PRESERVE (CNP)

In March, Martin Luther King Elementary School notified RiverXchange® staff that they were just approved for in-person field trips. Pole planting does not have demonstrated success rates into the warming spring months, so we had to come up with field trip location and activities that would work in April. As Ciudad SWCD is now the land manager of Candelaria Nature Preserve in partnership with COA OSD and Rio Grande Return, we collaborated to deliver two field trip dates to serve four classes at this site. Students were able to contribute some hands-on work by mulching berms alongside basins created for nucleated habitats, as well as nature journaling to envision the future of CNP as an agricultural land converted to wildlife habitat, and the Rio Nuevo activity. Wildlife Biologist Kyle Faig also gave a wildlife talk to students. The event was a great success!

Top row: Ellie Althoff and Kyle Bality from Open Space teaching students to pole plant properly. Middle rows - students from various schools planting in varying weather. Bottom 3 pictures: Field trips to Candelaria Nature Preserve

CAPSTONE PROJECT

This year RiverXchange piloted a new approach to maintain the language arts component that has been meaningful to teachers across the years and to strive to achieve a new kind of meaningful connection between RiverXchange students and their community. The coordination budget that has been used in the past for blog support and evaluation went to supporting teachers in the process of completing this capstone project and acquiring documentation of their class projects. The criteria for the capstone project are:

- (1) Students create something new that teaches other about what they learned in RiverXchange
- (2) Students communicate what they learned beyond their classroom in their community (i.e. other classes at school, your neighborhood or city)
- (3) Students design a stewardship project of their own that includes aspects of conservation and sustainability in their community.

Teachers were asked to update staff on their projects in December and March and to share the context of the project as well as who the project would reach and impact. In April teachers submitted their projects via email to staff and 6 classes were awarded with pizza parties to celebrate their project completion. In total, student capstone projects reached 3,090 community members about stormwater and watershed health topics.

RIVERXCHANGE COMMUNITY DAY

As a strategy to both motivate and celebrate the Capstone Projects, staff offered a Community Day at the end of the year where the class projects were highlighted. The event was held on April 23 in conjunction with the Earth Day Celebration at Agri-nature Center in Los Ranchos. The event was publicized to all RiverXchange® classes and families were encouraged to attend.

TEACHER WORKSHOP

Teacher workshops were held Sept 24, 2021 and October 1st, 2021 at the Open Space Visitor Center with RiverXchange facilitators Jenny Lloyd-Strovas and Erin Blaz. The teacher workshops were highly successful, with 19 participants on the 9/24 and 15 participants on 10/1. We found that there were a lot of new teachers this year, not only new to RiverXchange but also new to the field of teaching. The RiverXchange program was introduced and reviewed, with many returning teachers expressing their appreciation for and confidence in the program. The capstone project was introduced, was well-received, and teachers spent time working in groups to plan their projects. We ran through a few teaching strategies for lessons about the watershed using a 3-D model of the Middle Rio Grande Watershed for integrating geographical mapping and layering of life zones, historical development, biological features, etc, with the final layer demonstrating pollution on our watershed model. City of Albuquerque Open Space education staff ran through activities that supported the field trip learning objectives and reviewed the field trip experience and pre-lesson. Dyane Sonier of Rio Rancho Parks, Rec and Community Service introduced

resources and materials available to teachers on the Rio Rancho workshop date (Oct 1). Teachers enjoyed lunch overlooking migrating birds and explored the visitor center. Everyone left with swag-bags!

Teachers from Valle Vista, MLK, Colinas del Norte and Maggie Cordova map the middle Rio Grande Watershed. (top left and center). Dyane Sonier presents CoRR education programs (top right). Teachers rain on their polluted watershed model of the MRG (middle left). Teachers share their capstone project ideas (middle center). Teachers from Duranes and Zia brainstorm capstone projects together (middle left).

II. EVALUATION

TEACHER FEEDBACK

Teacher feedback is an invaluable resource for program evaluation and it continues to help us understand what teachers value and where we can improve. This year's feedback continues to reinforce that RiverXchange® remains relevant and impactful in curriculum and content. Feedback demonstrates the RiverXchange program is highly valued by teachers for its ability to provide hands-on and experiential activities that expose students to local watershed issues, reconnect them to the natural world, and demonstrate career opportunities in the science and conservation fields. RiverXchange continues to be a valuable curriculum that teachers use to stimulate the personal and collective growth of their students by encouraging them to use teamwork, adaptability, and communication skills to engage in and build an understanding in complex and new topics. In addition, the capstone project has provided an additional opportunity for teachers and students to engage their greater school community in project based learning that occurs in the program through education, research, and community service. Feedback also demonstrates the RiverXchange continues to be valued for its ability to bring hands-on science in the classroom and teach about water resources issues, while addressing both Common Core English Language Arts Standards and Next Generation Science Standards.

Additionally, when asked to share what successes teachers and the students had with integrating the capstone project, teachers reported that students really enjoyed using the capstone to engage with RiverXchange by creating deeper connections to water issues through direct action and demonstration. Teachers described how their students used the project to educate others about environmental issues,

organize campus-wide clean-ups, and build interactive models to demonstrate key watershed science concepts.

Lastly, when asked how RiverXchange could be improved to support teachers in future years, teachers reported difficulty with virtual programming due to COVID and a desire to return to more in person presentations and field trips next year. Teachers also indicated that more physical supplies for hands-on learning and greater support for the capstone project would help them with supporting their students in meeting program objectives.

Below are a few highlights from the teachers:

What are the greatest learning outcomes for your class as participants in RiverXchange?

The exposure to the environmental issues and understanding the environmental issues in the state of New Mexico. - Detrick, Colinas Del Norte

Seeing career opportunities outside of what they know. Giving them the chance to interact with environments that they may not have. - Shafer, Maggie Cordova

Understanding the science of conservation and the importance of valuing life. - Hodges, MLK

My students are more aware of how their behaviors impact the environment.- Granstrom, Seven Bar

I think the hands-on learning approach is the greatest learning outcome. -Filkins, MLK

Please share any feedback you have concerning your experience with the program this year.

RiverXchange was extremely successful because my students were enthusiastic to learn about several ways to take care of our natural resources. Example: fixing water leaks, conserving energy by turning off lights and technology, picking up their animal's waste. - Sanchez, Duranes

This has been a wonderful and helpful way to teach about our local water system. It makes a difference if students can see the river itself and know they have a part to play in keeping the Rio Grande! - Beer, Cochiti

We love the program and would like to continue participating in it, hopefully doing it entirely in person for the following school year. - Ceballos, La Mesa

I would like to see a more streamlined, organized program. Having the presentations in person would be best as well. - Marquez, John Baker

Each year, it seems the program continues to improve. The resources and activities were invaluable.- Turrietta, MLK

Great job and thank you for everything you did for us RiverXchange! - Hornbecker, Colinas Del Norte

CAPSTONE PROJECT

In RiverXchange, our goal is that students not only understand their local watershed but that they use their voice to advocate for conservation and proper management of our watershed in their community. This year we integrated the capstone projects to provide a fun and engaging opportunity for students to learn about and advocate for their watershed.

To provide a variety of opportunities for teachers to meet the capstone project requirements, teachers selected from 3 different capstone project levels, each with its own set of criteria. Each level is tied to a particular level of engagement achieved by each class's capstone project. The different levels are described below.

Level 1: In RiverXchange, we want students to be as aware of their local watershed as they are about other environmental issues like climate change. Through creating hands-on projects, students are able to demonstrate what they learn in a fun and tangible way.

- Criteria: Create something new that teaches others about what you learned

Level 2: RiverXchange was founded on the idea that learning is more powerful when students make meaningful connections between their local ecosystem and themselves and then communicate what they learn with others.

- Criteria: Create something new that teaches others about what you learned, Communicate what you learned with your community

Level 3: What sets RiverXchange Excellence projects apart from the others is that they have a stewardship component along with a communication component. We want to support and celebrate classrooms that take education outdoors and convert what they learn into a hands-on, community-based project.

- Criteria: Create something new that teaches others about what you learned, Communicate what you learned with your community, Design a stewardship project that includes aspects of conservation and sustainability in your local community

Engagement

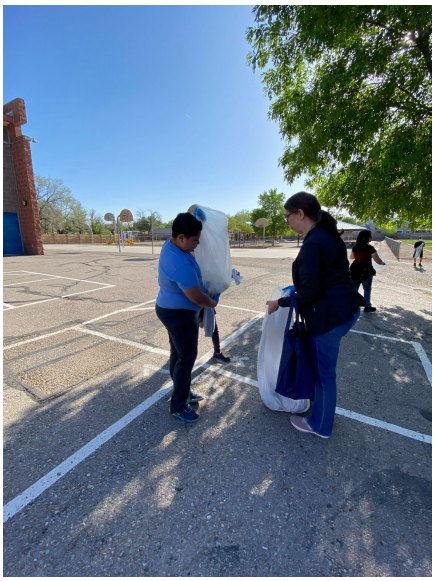
Of the teachers that completed the capstone, most projects addressed criteria 1&2, while only a few extended to criteria 3. Being that this was the first year of integrating capstone projects, staff understood the need to create a laddered system of capstone project engagement for the teachers and students. Having multiple levels of engagement facilitated various kinds of participation based on teacher and student interest and capacity- from presentations and posters to campus-wide clean ups. Some teachers used the capstone project to assess if students achieved the NM Stem Ready/Next Generation Science Standards. Students were engaged by the different capstone projects offered by their teachers, practicing skills in leadership, stewardship, and teamwork. One teacher expressed how the capstone project gave the students the chance to use their talents in new ways.

Beyond the impact to the students, the projects engaged the local community. When asked who in the community the class capstone project reached, teachers shared that often the entire 5th grade, students' families, or in some cases the whole school were reached during the course of the project. Students also expressed wanting to increase their reach to the greater public.

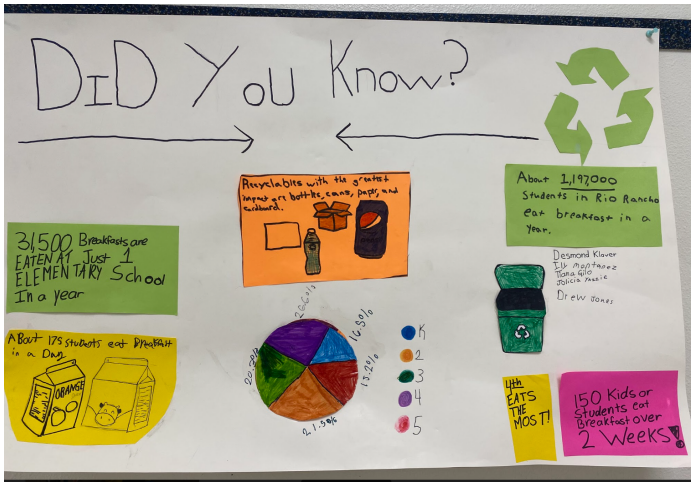
The challenging circumstances of virtual learning the last couple of years made it difficult for some teachers to complete the capstone project with their students. Some teachers expressed how their students had fallen behind in particular content areas and they weren't able to focus on the project due to the extra effort needed to bring students back to grade-level knowledge. One teacher requested additional support in designing and carrying out the capstone project.

Overall, the majority of teachers appreciated the hands-on and outdoor education focus of the capstone project criteria and felt their students gained meaningful experiences in the process.

Capstone Project Images

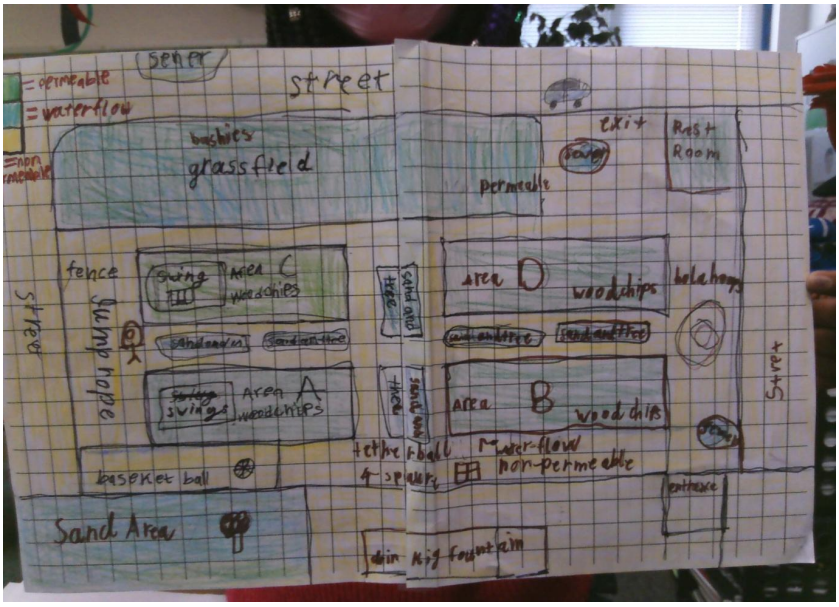


Campus Clean Up- Whole team, Cochiti Elementary

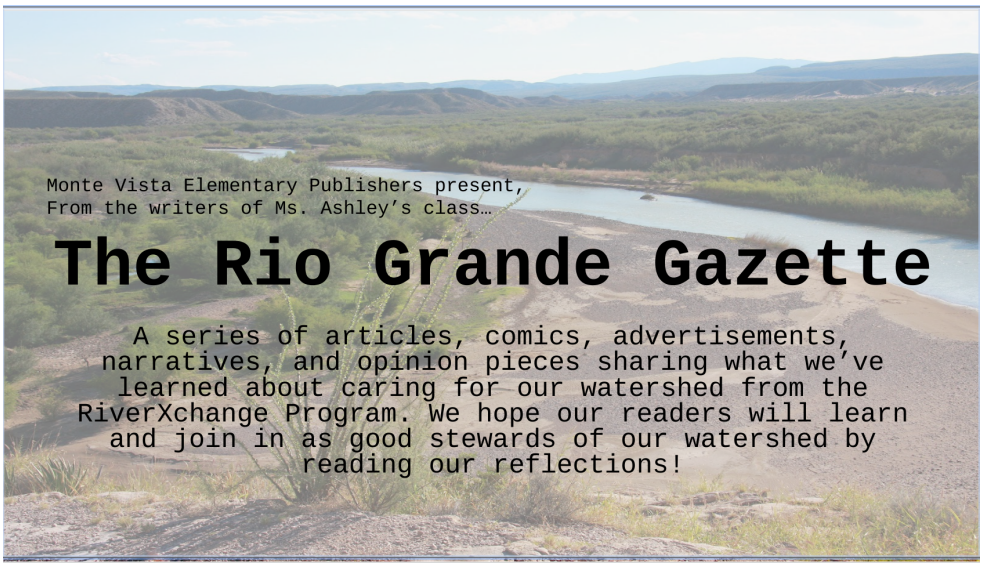


Recycling Project and Posters- Schapekahm, MLK

Green City Design- Chacon, Zia



Watershed mapping - Ackerman, La Mesa



The Rio Grande Gazette, Whole team, Monte Vista

Plantings using recycled plastic bottles- Gold, La Mesa

STUDENT SURVEYS

A key component of RiverXchange is its measurable goals relating to student performance. We collected quantitative data on student performance by way of a pre and post survey and qualitative data by observing the work submitted via the Capstone Projects. The survey includes questions that relate to environmental attitudes and behaviors as well as knowledge gained relating to our learning objectives.

Pre/Post Behavior Survey

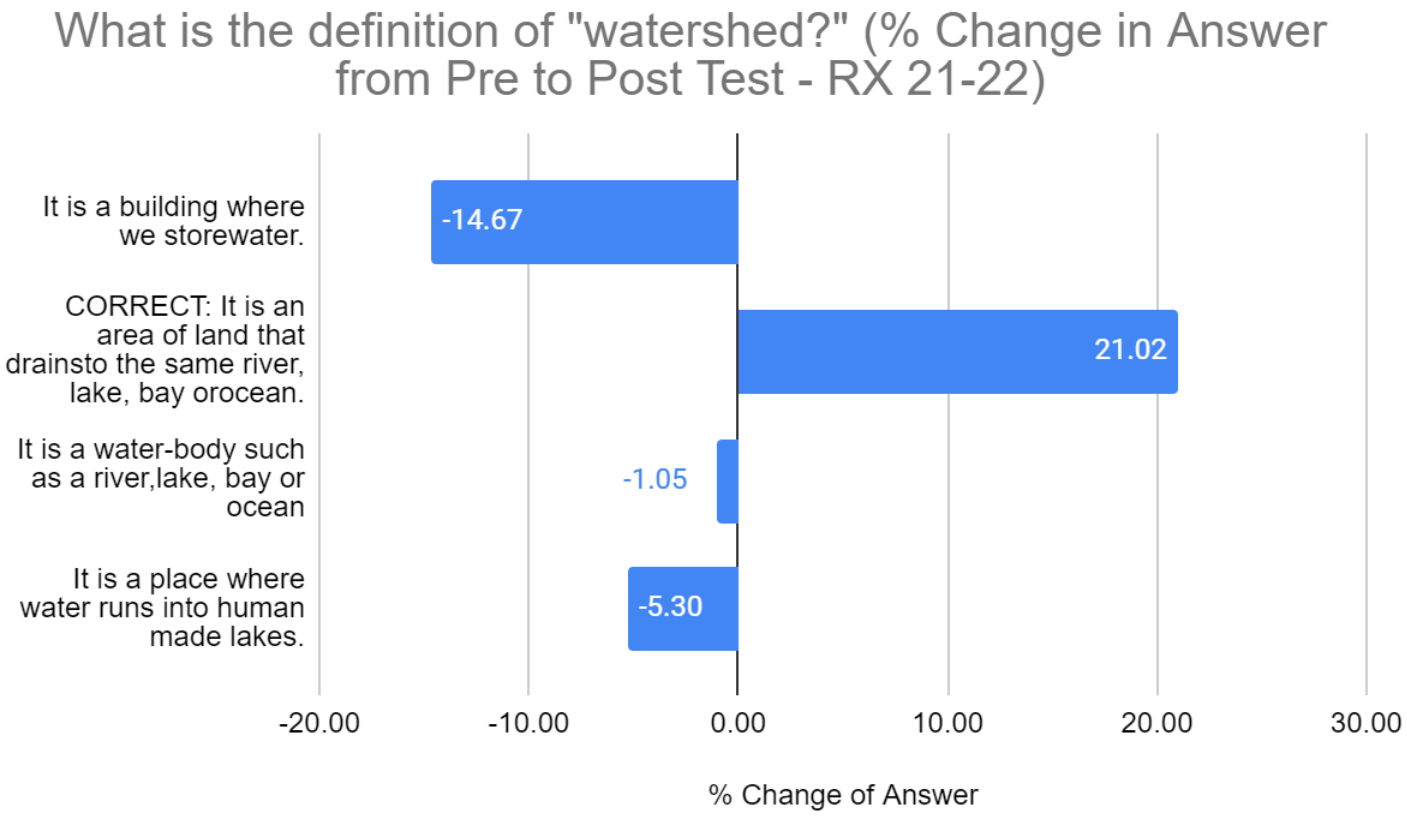
In order to quantify the learning outcomes achieved through RiverXchange, we ask our teachers to have their students fill out a survey prior to and upon completion of the program. Below, you will find a series of graphs used to illustrate the perfect change in responses between the pre and post surveys, as well as some breakout pie charts for further clarification on important topics. This year, 673 students completed the pre-survey, while 669 completed the post-survey. We continue to refine the survey and our programming year after year based on teacher feedback and metrics gathered from these surveys. To view this year's survey questions, use the following hyperlink: RX 21-22 Survey.

This year, we reframed the survey questions using a likert scale (with varying responses) with the hopes of demonstrating more range in growth across knowledge, attitudes and behaviors. In viewing other similar watershed program surveys, like the Watershed Project from the Bay Area in California, we hoped to look beyond our learning objectives and explore what kind of beliefs students had around water conservation behaviors. For example, in the question that asks how important/impactful are the following actions in protecting and conserving water, we were hoping to see increases from some or mild importance to high importance. Since the questions students had to respond to were all individual actions they could take, this movement to high importance, in theory, would demonstrate that they would feel more conviction to take those actions since they find them important and impactful.

As discussed with the MRGSQT general public survey, beyond collecting general knowledge about stormwater issues or watershed health, surveys can be educational tools as well. For example, asking students to select the positive water conservation behaviors they do “often” suggests that both these behaviors are important and desired. So even if students are answering how they think they should behave versus their action behaviors, this is still an effective tool to increase knowledge about behaviors that are positive for water conservation and watershed health.

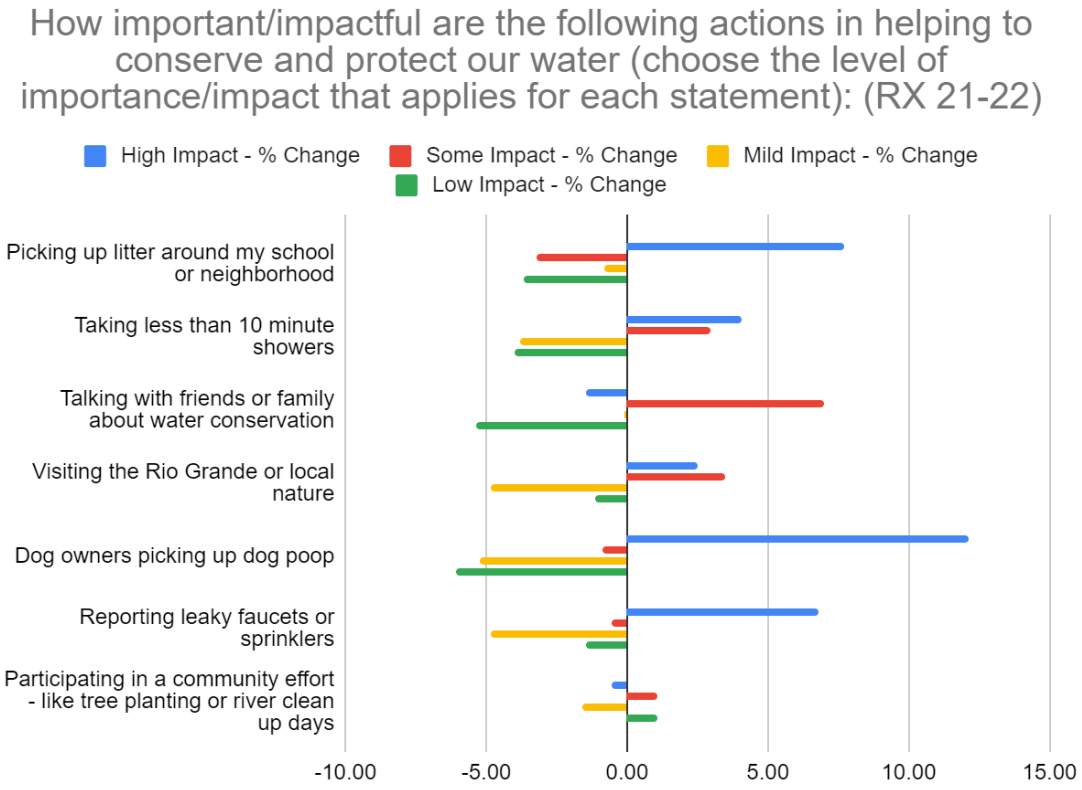
RiverXchange Percent Change Graphs for Pre-Post Surveys for 2021-2022

Watershed Definition

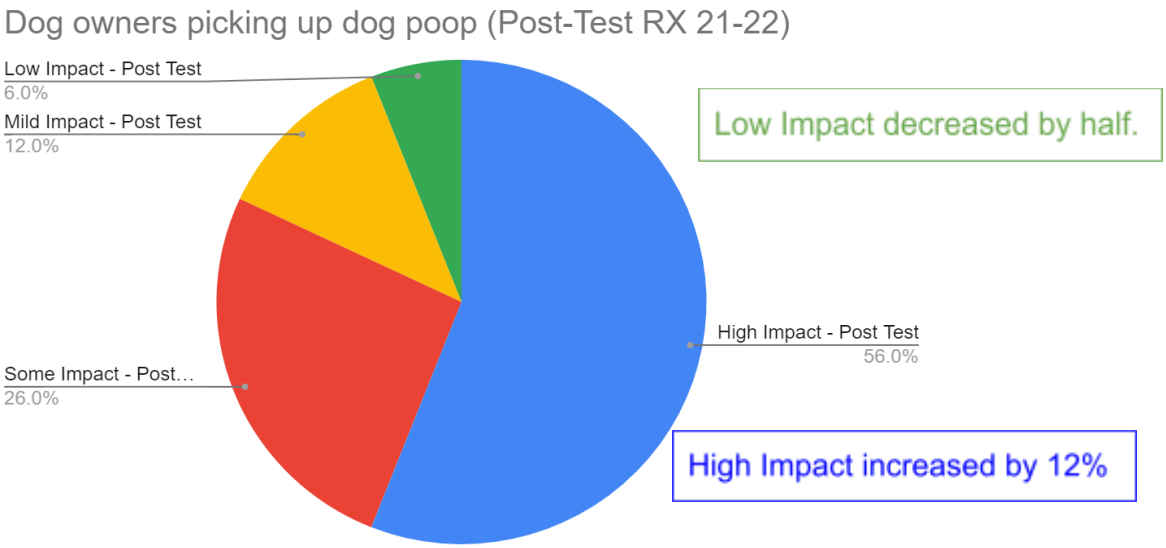


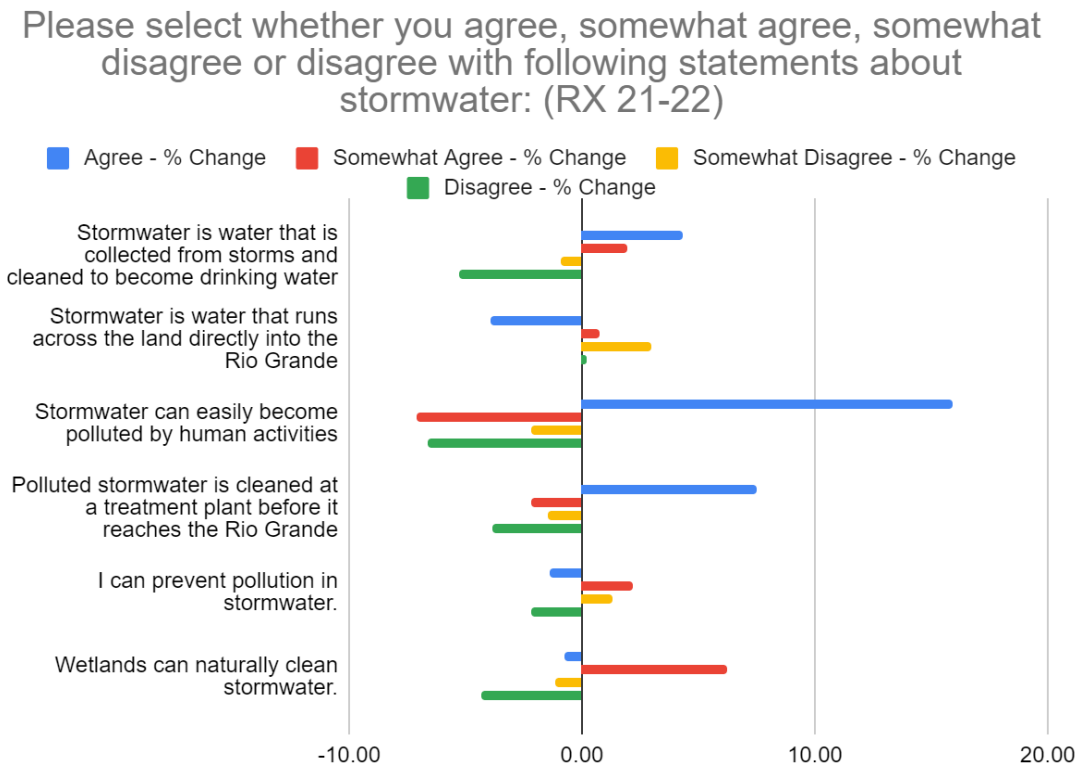
Results: We see over a 20% increase of correct answers for a watershed.

RX Stormwater & Pollution

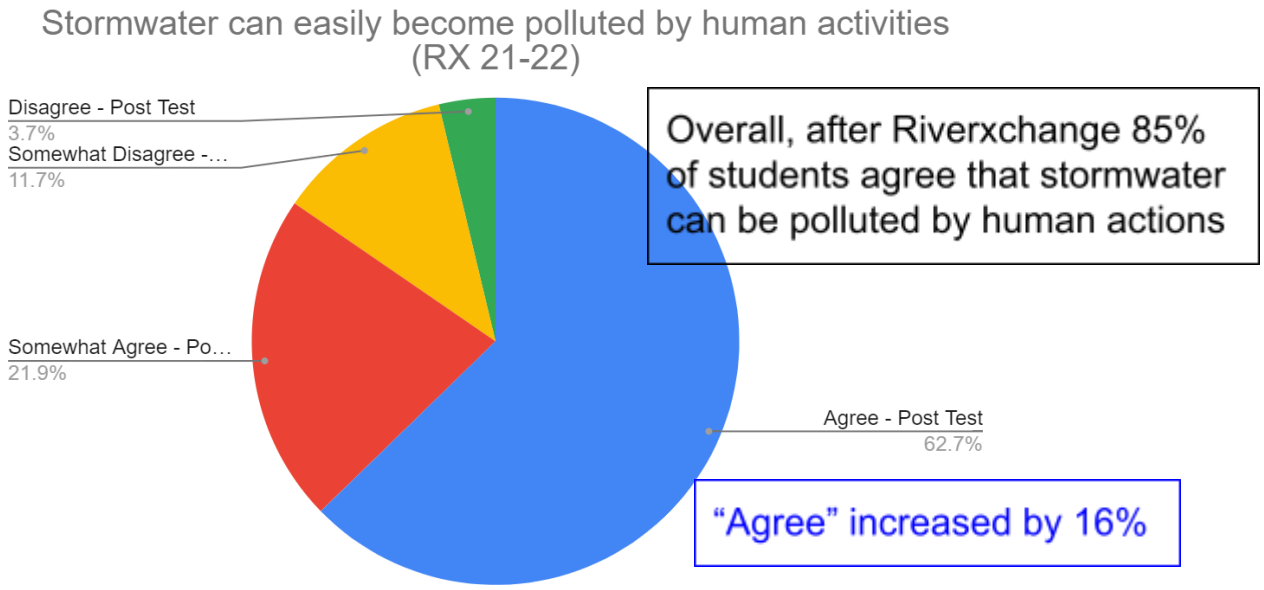


Results: Positive attitudes about picking up litter, taking shorter showers, picking up dog waste and reporting leaky faucets all increased after the program. There was also an increase in the belief that talking with friends and family can have some impact in water conservation. Breakout pie chart: In total over 90% of students believe picking up dog poop is impactful in helping protect water.

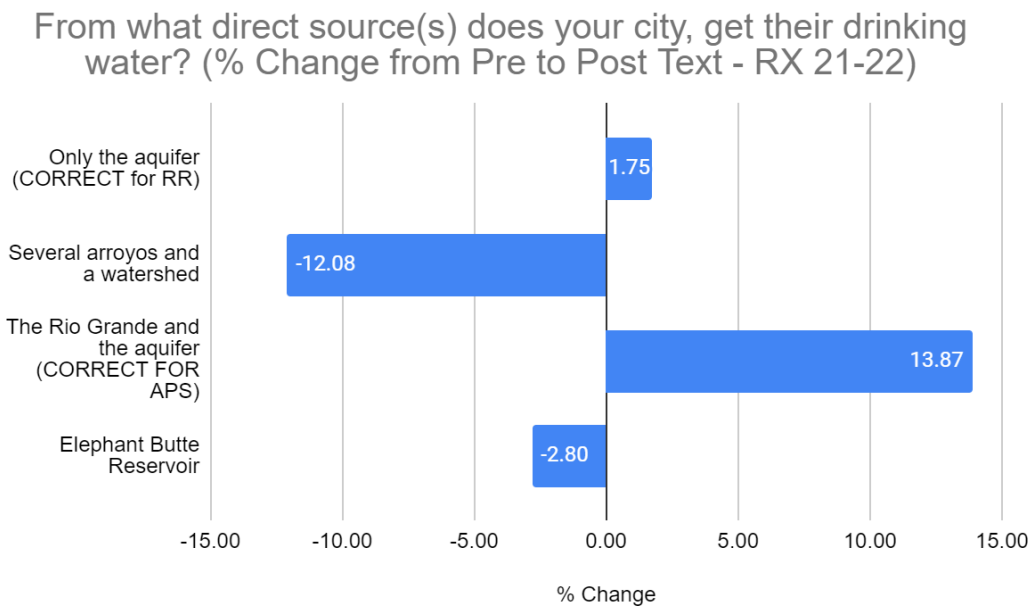




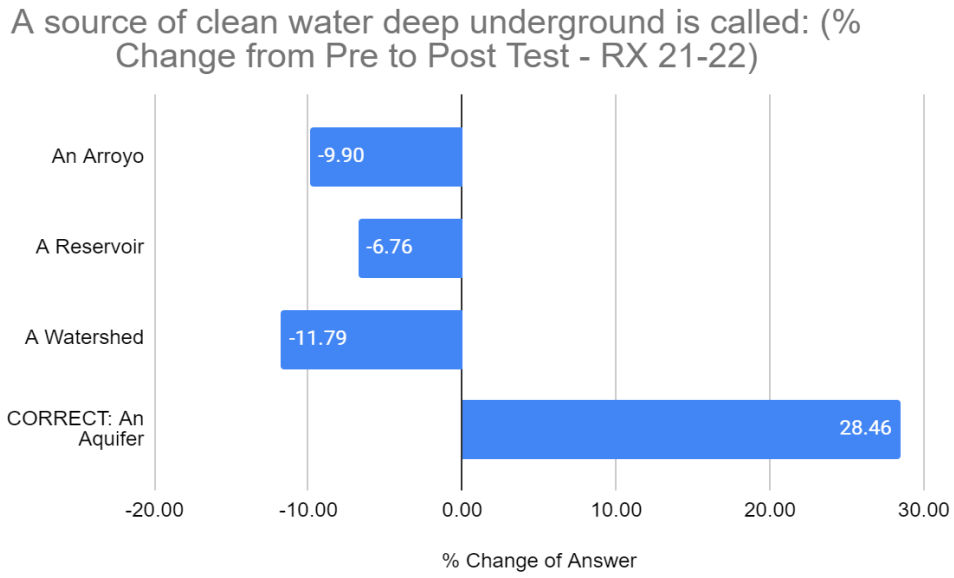
Results: Over the past few years, students seem to struggle with understanding the definition of Stormwater. However, more students agreed that stormwater can be polluted by human activities after the program and over 85% of students agree in total.



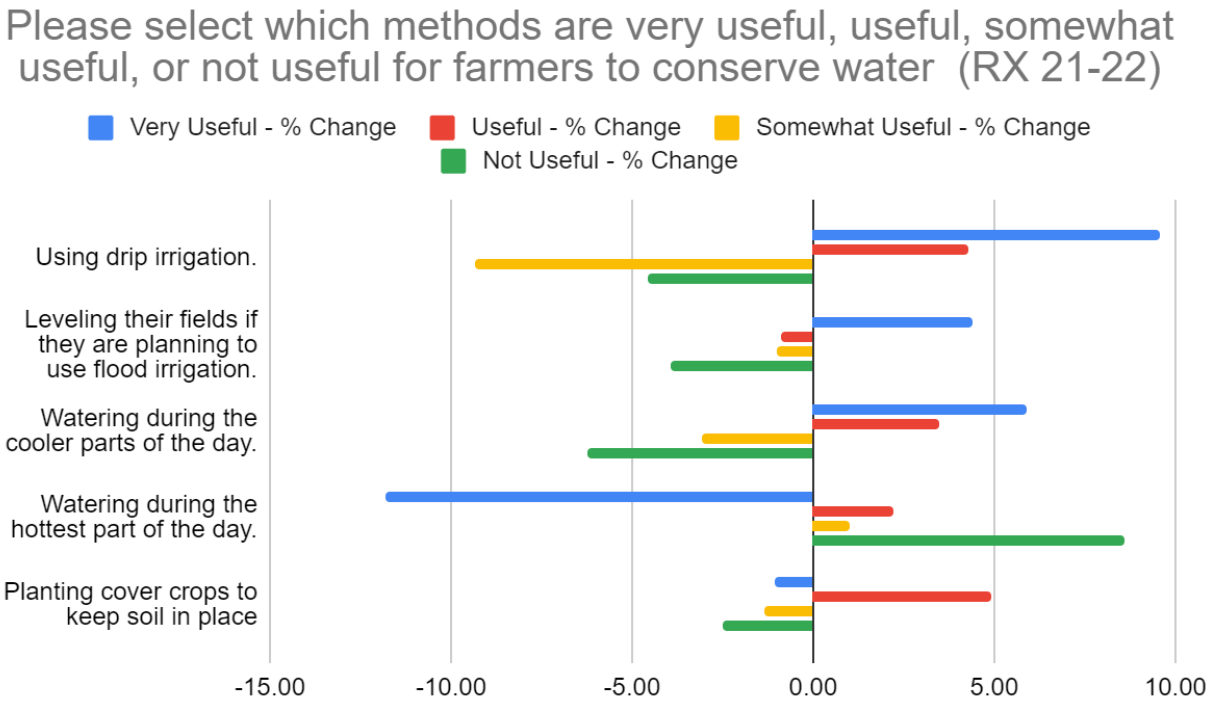
RX Watersource



Results: In looking at the totals separate by school district, APS overwhelmingly answered the drinking water question correctly. RRPS did not do as well selecting only the aquifer, this could possibly be because this isn't reinforced as much as it is in APS with other programs like The Water Utility Authority Rio Field Trip, and could also be because this lesson was in a pre-recorded video format. However, over 75% of students correctly answered the definition of an aquifer, with a 28% increase post-program.

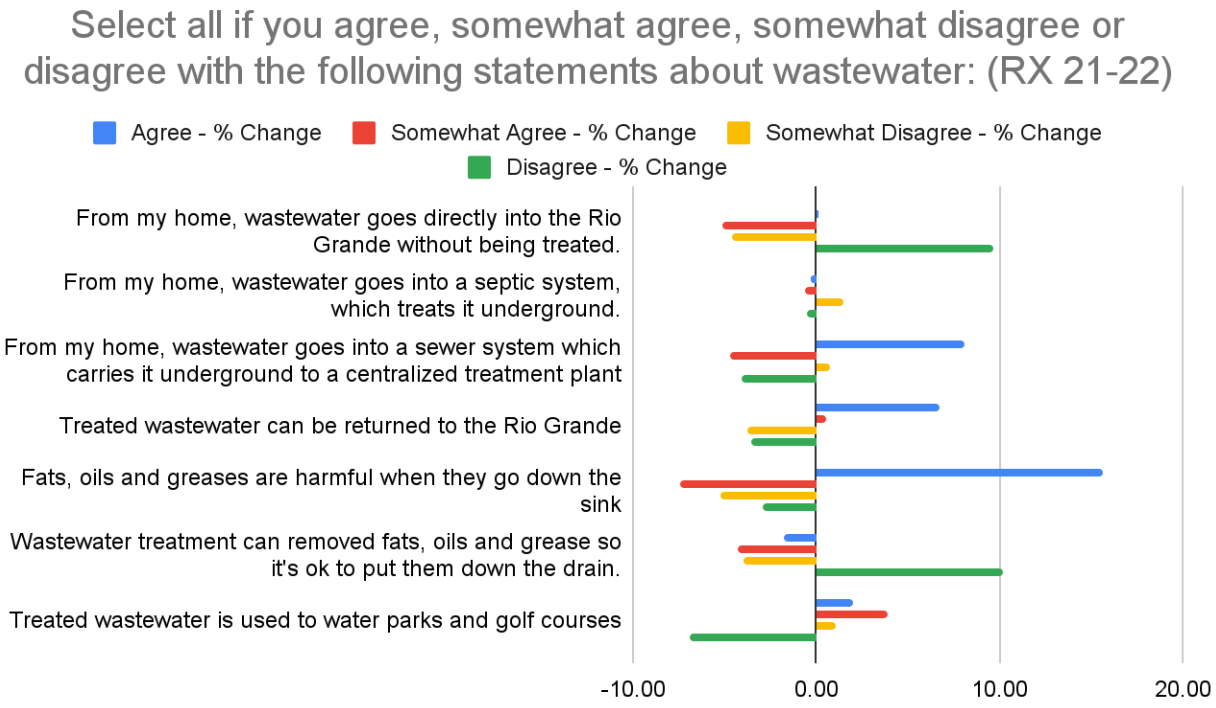


RX Farmers



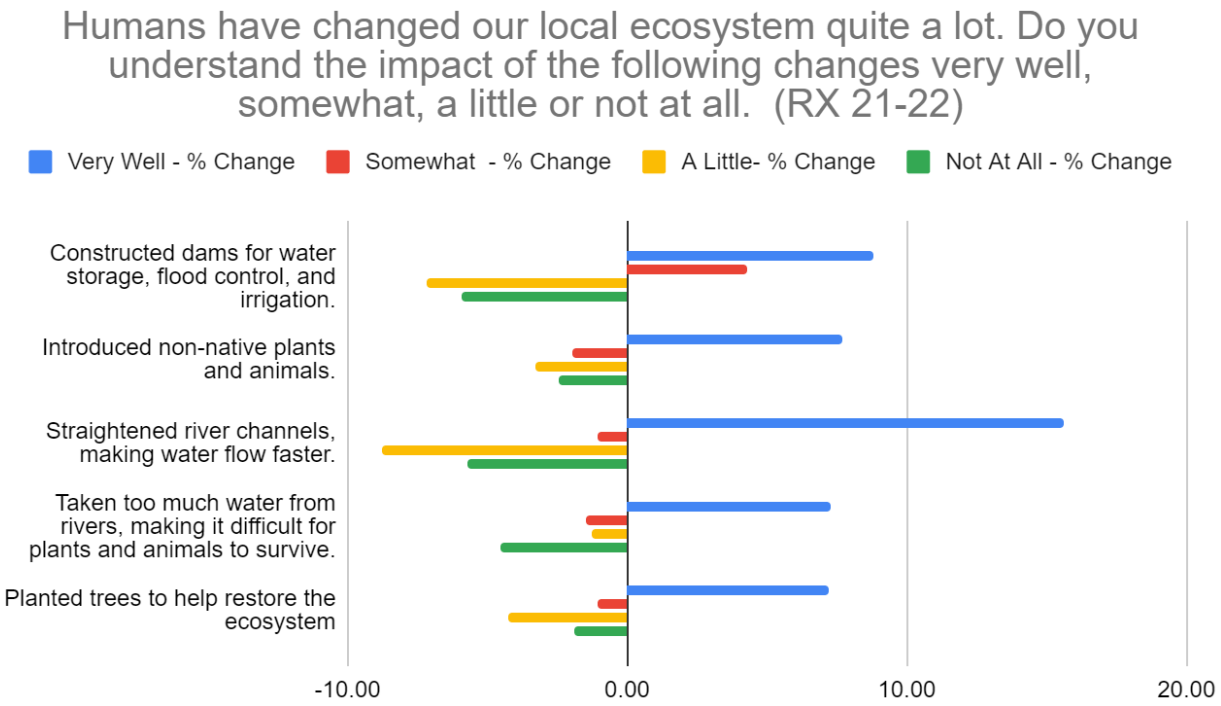
Results: Generally speaking students demonstrate an increase in selecting water conservation strategies in agriculture as "very useful" or "useful" post-program. They also increased the choices of not useful and decreased their choice of highly useful for watering during the hottest part of the day. The agriculture presentations may have touched briefly on the use of cover crops for soil health as a water conservation topic, so while selections of "very useful" decreased, "useful" increased more students may have been considering the topic in the moment, relying on previous knowledge to answer that question.

RX Wastewater

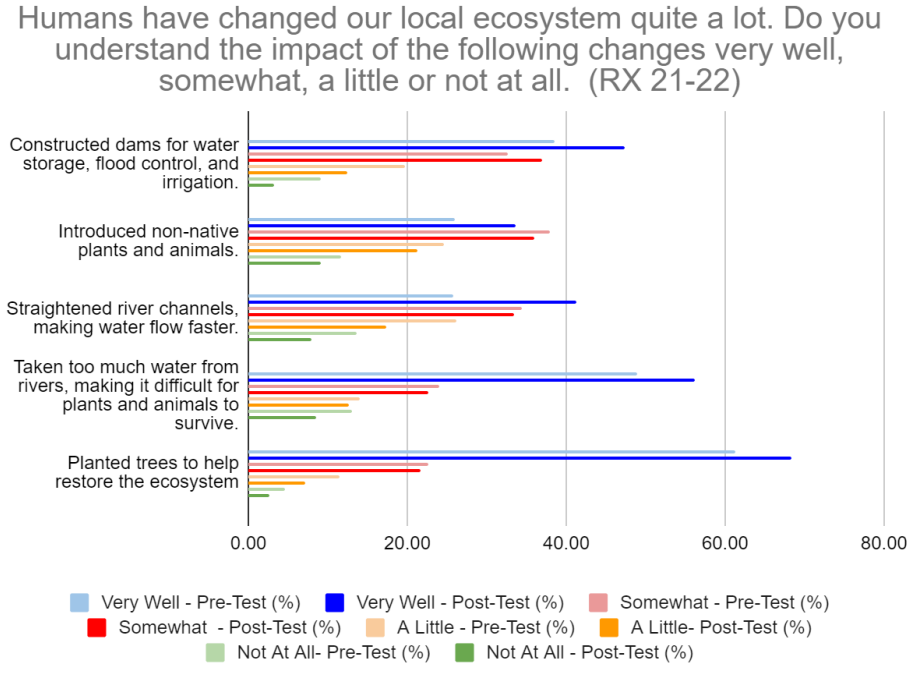


Results: Positive growth is demonstrated across all questions except the septic question which may just be confusing because it doesn't apply to every student.

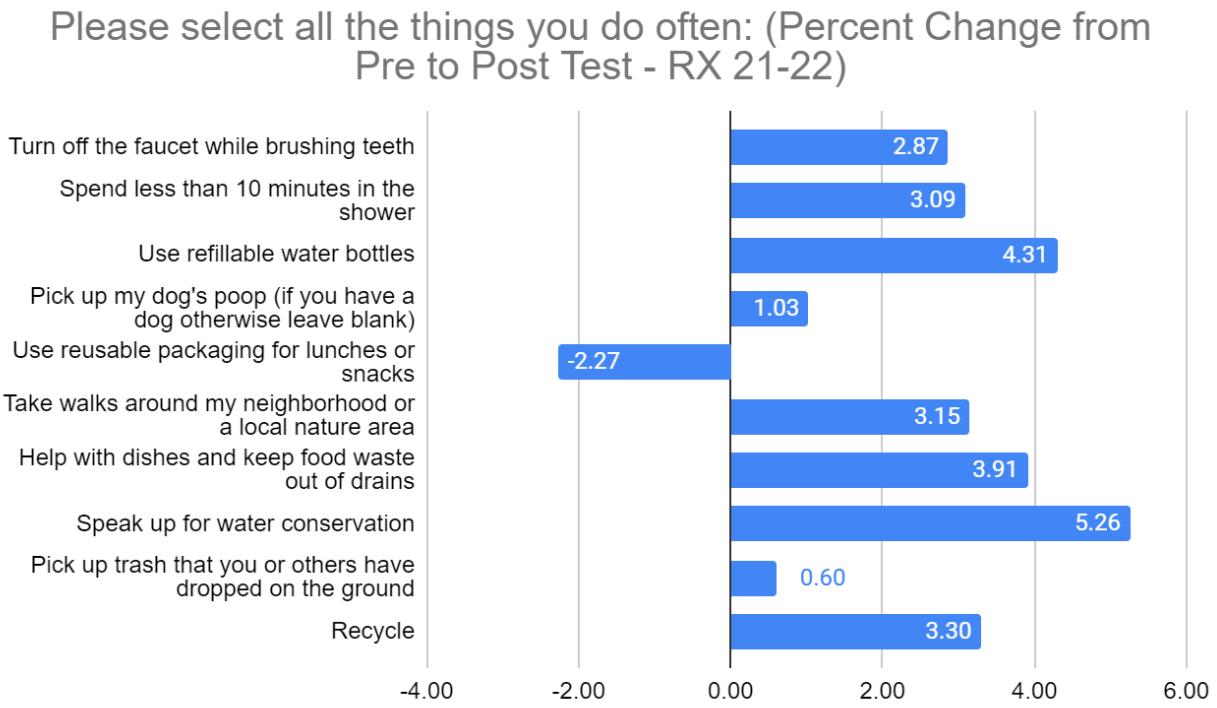
RX Confidence



Results: The goal of this question was to determine student confidence in RiverXchange learning outcomes. When you look at the percentage of total responses below a lot of students seemed pretty confident that they understood these concepts before the program - which is great! It is also great that after the program in general students increased their confidence and decreased their lack of confidence across all topics. This demonstrates they found the program helpful in supporting their understanding of human impacts on our ecosystem.



RX Behaviors



Results: Seeing around 5% change in behaviors from pre to post surveys has been consistent with past years findings. As a fifth grader you might not be changing your behaviors significantly due to family and community behaviors and culture. However, it is exciting to see that the largest percent change was in students speaking up more for water conservation. At this age, this has the potential to shift family and community behaviors more than other behaviors due to the rippling effects of more people taking other actions to conserve and protect water.

The decrease in using reusable packaging could be due to students' increased awareness of food packaging in the cafeteria or home packed lunches or an increased use of single use plastics due to covid concerns.

Appendix A

RiverXchange Virtual Field Trip 2021-2022

1. What are we trying to teach students in this activity?

Essential questions:

- What is a floodplain and why is it important? (Rio Bravo)
- How has the Rio Grande floodplain been changed by humans? (Rio Manso)
- What efforts are being made to conserve the Rio Grande Floodplain? (Rio Nuevo)

2. How can we tie this activity to our teaching goals:

Learning Objectives	**Methods**
The riparian ecosystem of the Rio Grande is shaped by natural flooding.	Observation and finding evidence of: ● riparian habitat - plants and animals that depend on the ecosystem. ● the role of the Cottonwood tree as a keystone species and its dependence on flooding for its life cycle.
Human impacts have reduced or eliminated flooding.	Observation and finding evidence of: ● Human impacts ● Reduced flooding
Conservation efforts are now being made to rehabilitate and strengthen the riparian ecosystem	● What monitoring methods can be used to determine the health of the ecosystem? ● What is being done to restore this ecosystem?

3. How can we tie this activity to standards?

Using the NGSS framework to explore **Phenomena** and support **Claims** based on **Evidence** and **Reasoning.**

Performance Expectations	**DCIs**
5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers and the environment	LS2.A Interdependent Relationships in Ecosystems
5-ESS2-1 Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	ESS2.A Earth Materials and Systems ESS2.C The Roles of Water in Earth's Surface Processes
5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment	ESS3.C Human Impacts on Earth Systems

4. How should this lesson be organized?

I. Introduction
   a. First, the presenters should introduce themselves by name, position, and organization.
   b. A presenter will take the students through the agenda.
      i. Ask students what they have already done in class—this should be the Rio Bravo and Rio Manso activities. Today, we will be taking them through the timeline again, reviewing and demonstrating aspects of both models that are still present in the Bosque still today. Then, we will be introducing a new concept—Rio Nuevo and doing the model with the river as it is today!
   c. Pan the camera around, can students identify where we are? It is the Bosque!
      i. Give the students a brief history of the Open Space Division and its connection to the Bosque and other public lands.
      ii. Describe the importance of understanding and connection to the land. The land needs us just as much as we need it. Part of understanding the land is making observations and questioning the world around us. This will lead directly into the next activity "I notice, I wonder, it reminds me of"

II. "I notice, I wonder, It reminds me of"
   a. This activity is meant to engage students' observational and thinking skills - to turn on their "nature" brains!
      i. Let students know you will describe the activity first and then bring the camera to focus on a smaller, up-close frame of our object to be observed.
      ii. Walk students through each prompt. Describe how these prompts relate to the scientific method (observation, questioning, hypothesis)
      iii. I notice (the foundation of an observation): shape, size, texture, color, location, etc. These are simply what we see, without labeling their function or what we assume is the function.) Ex: "I notice a long, thin shaped object that is bumpy, brown colored with small lines on it."
      iv. I wonder (the foundation of questioning): Take any statement that we think applies to our object and turn it into a question. "I wonder if something was eating this object that caused the lines? I wonder if this is a plant? I wonder if it is alive? I wonder if it is dormant?
      v. It reminds me of: (the foundation of a hypothesis): Making connections to what we already know or can remember helps us make an educated guess to answer our questions. For the purpose of this exercise, we are simply practicing making connections. "It reminds me of a spiral. It reminds me of the colors of sunsets in Albuquerque."
      vi. Complete the activity, prompting and modeling as you go.

III. Rio Bravo
   a. Discussion: Students will have been taken through the Rio Bravo exercise. RX presenter will ask:

i. Do you remember what Rio Bravo means?
ii. How was the river shaped?
iii. What did you place down in and around the river?
    1. Yes! You placed down animals and plants in and around the river. We can still find evidence of the wild river today even though it has changed. Can you name some of the plants or animals that you placed in the Rio Bravo?

b. Activity: What evidence can we find of the Rio Bravo and ecosystem in the floodplain? (A floodplain is a riparian ecosystem so what we are looking for is evidence of a variety of plants and animals that depend on the river).

    i. Plant #1 - Coyote Willow (walk around and "see" your first plant)
        1. "Look at this plant! Wow, it's everywhere here in the Bosque. It's here… over here… and even over there! (point camera.) Let's get a closer look. It has long skinny leaves and smooth bark on the branches.
        2. What do you think it is? Vote with your card or write the name on a paper and hold it up.
        3. You're right! It's a coyote willow! The way you can tell is that it's a shrub that always grows next to water, it's short, and it has long skinny leaves. It's one of the most common shrubs around water (riparian ecosystems) in New Mexico. Beavers LOVE to eat its branches, but it's also eaten by porcupines, deer, and rabbits.
    ii. Animal #1- Beaver (walk to an old beaver chew)
        1. "What do you think has been here?" It looks like something has used long incisors to chew horizontally through the bark. It is a beaver!
        2. Introduce the beaver skull and discuss other adaptations that beavers have that allow them to live in this riparian ecosystem.
            a. Castor oil that they use to waterproof their fur
            b. Ear flaps that close so they don't get water in their ears
            c. Extra eyelid to see underwater
        3. Could you live in a riparian ecosystem? What adaptations do you have?
        4. Coyote Willow is not the only plant that beavers will rely on!
    iii. Plant #2- Cottonwood
        1. "If the porcupine is living and eating this tree, we should probably know what it is. Let's look at the leaves and see if we can figure it out. The leaves aren't on the tree right now because it's winter, so let's find one on the ground. (get leaf). Okay, here it is - it has a heart-shaped (or triangular shaped) leaf with a flat stem that's also called a petiole. And if I look around, I see them everywhere in the Bosque. I can even see them on the other side of the river! (Span the Bosque then point camera to other side of river.)"
        2. "What do you think it is? Vote with your card or write the name on a paper and hold it up."
        3. "You're right! It's a cottonwood. And not just any cottonwood, but a Rio Grande cottonwood. These trees are a very important species in the Bosque. They provide food for many animals, like the porcupine, beaver, deer, rabbits, and insects. Birds eat the insects that feed on the cottonwood. PLUS, many animals use them for their homes! Porcupines sleep in them, and so do great horned owls. Birds make their nest in them. Squirrels live in them. They are a

very important part of a healthy Bosque ecosystem. And the way you identify them is by looking for their heart shaped leaves."

iv. Animal #2- Porcupine
    1. Look up in the cottonwood tree: do you see anything there?
        a. Option 1: I see a porcupine! It is just a small bundle of quills that is resting in the nook between two branches!
        b. Option 2: I see a bunch of branches without bark on them. Who did that? It was a porcupine!
    2. Porcupines live in the canopies of cottonwood trees because that is where their food is! Porcupines eat the same thing as beavers, which is the cambium, or inner layer, of the tree behind the bark. Beavers are chunky and unable to climb, so they cut down trees to get to their food, whereas porcupines are able to climb trees.
    3. Can we find any evidence of porcupines on the ground?
        a. Option 1: I found a track! This track has a bunch of texture on its paw pad. Do you have socks that have texture on the bottom? That helps you stick to the floor and not slide. I bet the texture on its paw pad will help it climb!
        b. Option 2: I found some scat! How do I know that it came from the porcupine? It's located in the middle of the trail, which is right under a big branch of the cottonwood tree. We can also distinguish scat by its shape, size, and color!

c. Conclusion
    i. Even though the river might not be as wild as it used to be in Rio Bravo, we still have an interconnected system of animals and plants that still live here today! Let's investigate how humans have altered this system in our next section, Rio Manso.

IV. Rio Manso
a. Discussion: Students will have been taken through the Rio Bravo exercise. RX presenter will ask:
    i. Do you remember what Rio Manso means?
    ii. How did humans alter this ecosystem?
        1. Yes! They used jetty jacks, added homes, dams, acequias, and invasive species.
    iii. What happened to the river?
        1. Yes! The river was channelized and no longer was the braided, meandering river that we once knew.
b. Activity: What evidence can we find of the Rio Manso in the Bosque today?
    i. Plant #3- Ravennae grass. Ravennae grass is an invasive species that was brought to New Mexico from Africa as an ornamental and also for soil stabilization. Ravennae is drought tolerant, deer tolerant, and frost tolerant so it thrives in New Mexico. Although it doesn't allow other plants to thrive alongside it. It does such a good job, it outcompetes our native grasses.
        1. Can you name some ways in which invasive species can travel?

a. Underneath boats/aircraft, hikers' shoes, bringing them on purpose (ornamental, biological control, soil stabilization)
b. So many more invasive species have made their way to the Middle Rio Grande, but most came on purpose. We just didn't know at the time how problematic they would be.

ii. What happened in the Rio Manso activity that allowed for the invasive species to move in? Yes, they took away vegetation like the cottonwood trees and native shrubs to make room for the expanded population and their homes! Let's take a closer look at the cottonwood trees here.
    1. Cottonwood trees are a keystone species, which means this ecosystem largely depends on their existence and their removal would be catastrophic.
    2. To understand better how our cottonwood trees are doing I want to measure their height. Height in a cottonwood tree doesn't necessarily determine its age, but rather how many resources are available to it.
        a. Explain to students how we use a tangent gauge in order to measure a tree's height. All staff to measure distance to a tree, have students guess the presenter's heights, and then have the students add the measurements to get a calculation.
        b. Trees that are between 60-70 feet are full grown cottonwoods, but with limited resources. Those old cottonwoods that were close to the water will reach up to 90 feet tall! We can't determine if the whole forest has insufficient resources by just one tree. Let's measure the height of another!
            i. Proceed with the same process with another nearby tree.
        c. See how those two trees have a very similar height? Look around at the canopy, what do you notice about the height of all of these trees? Yes, they are mostly the same! We have a very uniform canopy in the Rio Grande Bosque. What resource do you think the trees are not getting enough of? Yes, water! Let's take a look at why these cottonwoods are not getting enough water.

iii. Do you remember what the impact of jetty jacks, levees, and dams did to the Rio Grande in the Rio Manso activity? Yes! They channelized the river or made it straight.
    1. One reason that these cottonwood trees are not getting enough water anymore is because the river does not flood as it would have naturally done before construction.
    2. I need your help to run a little science experiment! I want to see whether a meandering river or a channelized river goes faster.
        a. I want you to form a hypothesis, can you share what you predict will be the answer?
        b. Now, I am going to run two different tests. One in which I will walk in a curved line and one in which I walk in a straight line, both the same length. When I say go, begin counting with [presenter #2]

c. Was your hypothesis correct? The meandering river does run slower! When our river is allowed to meander in cycles slowly and then quickly throughout any given year, the outside to those curves it allows for sand to be deposited and then for cottonwood seedlings to grow. But without those sandbars and moist soil in the floodplain, what happens to our cottonwoods? The seeds cannot grow!

c. Conclusion
    i. Humans have fundamentally altered the Middle Rio Grande, but all it not lost! Humans have also begun to take measures to support a new relationship between our lives and the river. This next section, we have not discussed yet and it is called Rio Nuevo or new river.

V. Rio Nuevo
    a. In the last two models, we were describing what had happened in the past. Rio Nuevo is happening right now and you will ultimately be the ones that get to decide what our river looks like in the future. I want you to be the engineer for me. What would you do to restore the river and make it look more like Rio Bravo?
        i. As the students submit their answers, we will go one by one and explain how that would alter the model. The model will have been already set up as Rio Manso prior to the field trip starting.
        ii. Overbank flooding: during years with high winter snowpack there will be lots of water melting and flowing down into the watershed. Engineers could decide to allow for overbank flooding, which would give the Rio Grande cottonwood seedlings a chance to grow! It would also allow for a better cycling of nutrients so that native species have a better chance of competing with the invasive ones.
        iii. Pole plantings: one way to counteract the decreasing number of cottonwoods is by cutting a long, young branch of an existing cottonwood tree and planting it directly into the ground so that it touches the water table. This branch will then grow roots and form its own, independent tree without the need to grow the trees from seeds.
        iv. Wetland construction: land managers can create new ponds and wetlands that support the variety of wildlife that used to have a home in the Bosque. Some of these are created by allotting space, constructing the ditch with big machines, and providing water as has been done at the Open Space Visitor Center.
        v. Fuel-wood reduction: in earlier years, the overbank flooding that would occur would saturate the branches and leaves that had fallen on the ground and allow them to decompose. It would also act as fire suppression. We now need to manually need to stop these fires because the Bosque is dry and has a lot of fuel. One way to stop these fires is by cleaning the area of downed trees and branches, reducing the fuel.
        vi. Creation of secondary channel: the river used to have many channels as it flowed down the valley. In areas in which a bank may be too high, land managers can remove the excess bank and create a side channel that has enough flow to allow cottonwoods

to germinate and establish themselves. Sediment from these banks can be replaced in the river to provide for sandbars, which is habitat for certain species (silvery minnow).

vii. Removal of exotic species: Many different groups have taken to removing a number of invasive species such as saltcedar, Russian olive, Siberian elm, and others. The Open Space Division hosts spring cleanups every Saturday from April through mid-may in which families are welcomed to come out and help remove invasive species. This is something you can learn how to do!

viii. Water conservation: the amount of water that people use along the river has a large impact on the health of the Bosque and river life. Pumping more water than is being replenished each year has caused the water table to drop and has made it more difficult for native species to survive. Planting low-water use landscaping, installing rain barrels, low-flow toilets, turning off the water while brushing teeth, and taking shorter showers are things that we can do personally. We can also ask businesses and other entities to self-impose water-use limits so that we are all working together.

ix. Jetty Jack Removal: Today, the riverbanks and levees are quite stable. The jetty jacks are seen as a danger to emergency vehicles moving through fires, eye sores, and ultimately the channelization of the river does not benefit the Bosque. Land managers can try to remove the jetty jacks, although it is difficult to do given their size, weight, and difficult access.

x. Monitoring: an important part of managing the Bosque is to understand what is happening to the plants, animals, water table, and other ecological functions. Monitoring is the process of collecting, compiling, and analyzing that information. There are many organizations that will do monitoring throughout Albuquerque in order to ensure that what we do going forward will only benefit the Bosque. So many of our previous actions had unintended consequences and monitoring is one way of making sure that we do not repeat mistakes.

VI. Conclusion

RiverXchange Virtual Field Trip Synopsis 2021-2022

I. Introduction (Ellie: 10 minutes)

II. “I notice, I wonder, It reminds me of” (Erin: 10 minutes)

III. Rio Bravo
   a. Discussion: (Ellie)
   b. Activity
      i. Plant #1 - Coyote Willow (Ellie: 5-7 minutes)
      ii. Animal #1- Beaver (Ellie: 5-7 minutes)
      iii. Plant #2- Cottonwood (Erin: 5-7 minutes)
      iv. Animal #2- Porcupine (Erin: 5-7 minutes)
   c. Conclusion (Erin)

IV. Rio Manso
   a. Discussion (Ellie)
   b. Activity:
      i. Plant #3- Ravennae grass. (Ellie: 5-7 minutes)
      ii. Plant #4- Cottonwood tree / Tangent gauge (Erin: 7-10 minutes)
      iii. Model of river shape- (Erin: 5-7 minutes)
   c. Conclusion (Ellie)

V. Rio Nuevo (Ellie- 30 minutes)

VI. Conclusion (Erin)

Southern Sandoval County Arroyo Flood Control Authority

ADD
SSCAFCA_FY22 Arroyo Classroom End of Year Report (1).pdf
HERE

(21 pages)

Arroyo Classroom

2021-2022 final report

submitted by
Erin Blaz, CSWCD
June 2022

SUMMARY

The Arroyo Classroom program utilizes our natural arroyos as outdoor classrooms and brings local animals into the classroom to motivate 3rd graders to respect the arroyos as important wildlife habitat. Orilla Consulting, LLC developed the program in 2012 and initially implemented the program for 7 classes at Maggie Cordova Elementary in Rio Rancho. In 2013, the program grew to serve 20 classes. On July 1st, 2015, Orilla Consulting, LLC transferred the program to Ciudad Soil and Water Conservation District as part of the larger education and outreach efforts we are involved in throughout Bernalillo and Sandoval Counties. In the 2021-2022 school year, we served 31 classes within Rio Rancho Public Schools, reaching approximately 32 teachers and 638 students. Funding was provided for 35 classes, however one school did not follow through on the registration process. Communication was made until December of 2021, but it was clear there were significant obstacles to getting the school onboard. Beyond that, Arroyo Classroom had a successful year and continued to bring important watershed education to local schools.

Participating Schools

SCHOOL * Title 1 school	**Number of classes**	**Number of Students**
Enchanted Hills Elem.	5	122
Martin Luther King Elem.*	5	114
Sandia Vista Elem.	6	134
Maggie Cordova Elem.*	5	106
Puesta del Sol Elem.*	5	89
Colinas del Norte*	5	73
TOTALS	**31**	**638**

Sponsor

- Southern Sandoval County Arroyo and Flood Control Authority (SSCAFCA)

Sponsor provided a total of $19,300.63 in cash.

Deliverables:

All presentations were offered virtually or in-person and completed.

- Watershed Presentations: 31:31
- Arroyo Walk: 30:31
- Bird Presentation: 31:31
- Reptile Presentations: 31:31

Program Description

Essential Questions: What is a watershed and how does water move across it? What important functions do arroyos provide for humans and other creatures? In what ways can we enjoy arroyos safely and learn new things?

- Students characterize arroyos as ecosystems as well as drains
- Students identify arroyo features that support wildlife
- Students describe the plants, animals, birds and insects that depend on the arroyo ecosystem
- Students explain the ways in which arroyos receive water and the dangers of arroyos
- Students recite the rules for arroyo safety

The program consists of a four-part series of lessons, based on grade-level science standards and addressing areas of interest to SSCAFCA, such as bats, burrowing owls, ATV use, pet waste, and arroyo safety. Erin Blaz delivered two of the lessons – an introductory lesson about watersheds, and either an in person arroyo walk or a virtual arroyo walk that tours an arroyo via Google Earth. Hawks Aloft, Inc. provided the virtual bird presentations as they were prepared to and experienced in delivering virtual presentations with live birds. All lessons were adapted for the virtual setting.

This year the virtual watershed lesson expounded on the water cycle and aimed for students to recognize how water moves across hard (impermeable) or soft (permeable) surfaces. Students made predictions about how water sprayed on a sponge and a stone tile (both at an angle) would move differently to represent the function of a watershed. Then we added more to the stone tile to elaborate on the built environment, including buildings, cars and dogs. Finally, we added “pollution” using similar materials to the enviroscape to create oil, dog poop, pesticide and construction waste. In summary, this lesson introduced the concept of a watershed to students, demonstrated how surface water becomes polluted through various human impacts, and discussed the importance of keeping our arroyos clean.

The virtual arroyo walk this year began with a google earth tour of an arroyo to observe its pathway through Rio Rancho, any visible human impacts and demonstrate the draining power of arroyos into the Rio Grande. We also observed tire tracks in the arroyos and talked about not using motorized vehicles in arroyos, as they are not permitted or allowed in the arroyos, and discussed the impacts of illegal use of arroyos. We observed where the mouth of the arroyo meets the Rio Grande and observed that there was not any kind of infrastructure to clean the water as it enters the river on this particular arroyo. All classrooms received a link to SSCAFCA's Arroyo Safety video as a follow-up to the final presentation.

The in-person Arroyo Walk was approved and completed with 17 total classes. This lesson is about the unique adaptations of arroyo animals and plants, incorporates a walk out to a nearby arroyo from the school and extensive discussion about arroyo safety. The walk starts with a safety discussion about the difference between concrete-lined channels and sandy-bottomed arroyos, and emphasizes that it is never safe to go into concrete-lined channels, while sandy-bottomed arroyos can be visited when there are no clouds in the sky. Students searched for evidence of animals living in the arroyo banks, learned about how lizards and other cold-blooded animals are adapted to the desert environment by moving about to regulate their temperature. They also looked for certain adaptations of desert plants to minimize water loss in the desert. This year, students were extremely excited to go on the walking field trip, as many schools only approved the field trips in spring. A few classes even had a gray fox sighting in a stand of Elms in a drainage area used for the walking field trip.

Top left- Gray fox in Elm spotted by students at Puesta del Sol. Middle top and bottom: Students from Puesta read thermometers to learn about reptile adaptations. Right top and bottom: Students from Colinas look for wildlife evidence on Arroyo.

Evaluation

Teacher feedback for 2021-2022 was collected from 18 participating teachers. Teachers overwhelmingly say they choose to participate in Arroyo Classroom to teach about local ecology and conservation issues, incorporate more science in the classroom, to offer experiential learning opportunities and to offer learning opportunities that connect to the community. They find the presentations to be uniquely engaging and meaningful for their students, however, across the board, teachers requested for the return to in-person learning. Teacher's find that Arroyo Classroom is complementary to other 3rd grade units of study such as life cycles and animal and plant adaptations. Teachers cite that the program is particularly helpful in achieving or developing the following skills: critical thinking and program solving, communication, assessing and analyzing information, and curiosity/imagination.

Highlights from teacher feedback:

What are the greatest learning outcomes for your class as participants in Arroyo Classroom?

- "That students can take what they learned and apply it to their daily lives."
- "Students truly enjoy learning about their environment, animals and how to actively educate others."
- "My class really seemed to learn the most about how the water system within Albuquerque worked."
- "My class has become more aware of how humans can impact wildlife. They remember the animals we have learned about and are determined to keep the environment clean for them."
- "They learned a lot about their local area from habitats for rivers to arroyos."
- "Most of my students could share that the arroyos were important animal and plant habitats and that they had a responsibility to keep them clean, free of pollution and that it wasn't an area for off roading."
- "My students are more aware of their environment and are more knowledgeable."
- "They learn about arroyo safety and also about the local animals. They grow their understanding in conservation as well."
- "That they learn about the environment around them and are more aware of how to take care of it."
- "Students understand their place in protecting our arroyos."
- "Learning about the environment in which my students live. Being able to take what they learn and see it around their houses and school."

Survey Summary

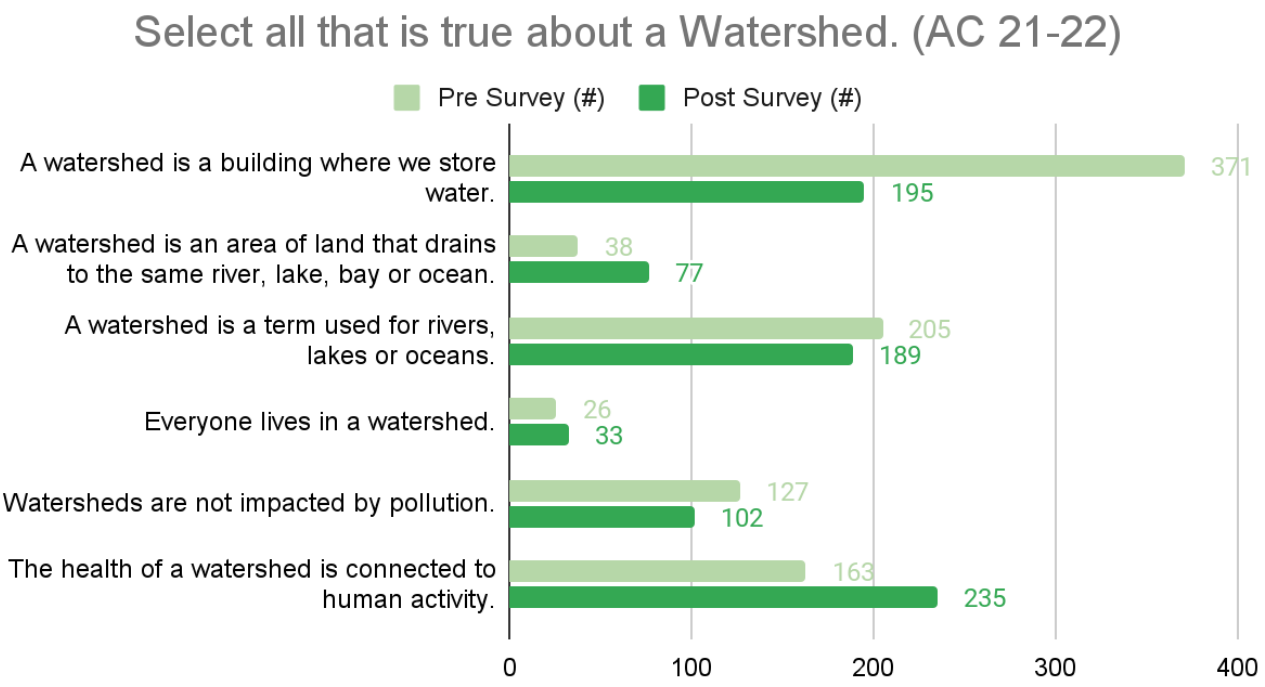
This is the third year that we've administered the pre and post surveys for Arroyo Classroom. Due to some changes in the program content for this year's virtual program, such as the availability of certain species and specimens offered by our presenters for their virtual presentations, we made some adjustments to the pre and post survey to reflect the content of the program. The survey questions were slightly more generalized and used a "check all the apply" format to address different learning

objectives.

This year we had 605 pre-survey responses and 492 post-survey responses. This we formatted the survey responses by total number of responses, rather than percentages.

Survey Metrics:

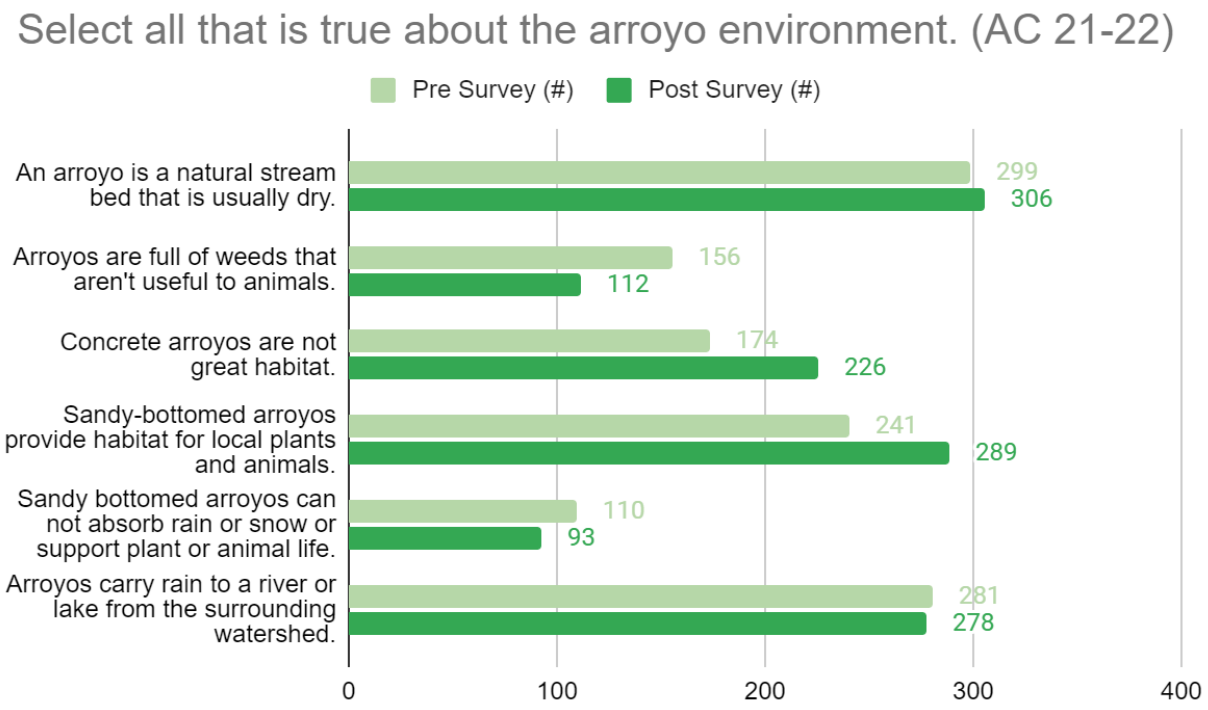
Item 1 Watersheds



Comments

This year we do see an increase in correctly defining a watershed (an area of land that drains to the same waterbody) and a decrease in the wrong answer (a building that stores water) but not a lot of students choose the correct definition of a watershed. More students seem to understand that watershed health is connected to human activity, with almost 50% of students choosing this response. This is an important success as ultimately we want them to see themselves as a part of the watershed and that their actions matter.

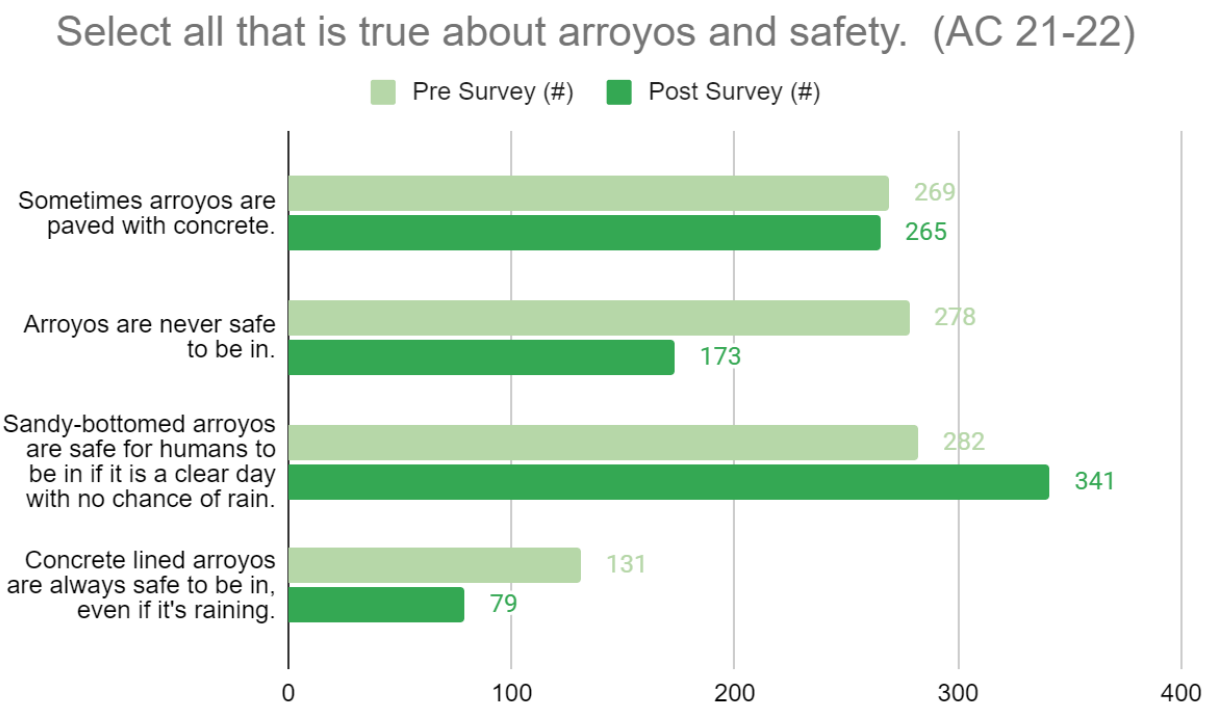
Item 2 Arroyo Function and Environment



Comments

Based on pre and post answers, it looks like the students already know what arroyos are or can easily assume based on “natural stream bed” and “carry rain” responses. There wasn’t much movement from pre to post test. However, with an increase in responses about habitat and concrete arroyos not being beneficial to animals, along with a decrease in the question about weeds, students did demonstrate more knowledge about arroyos post program.

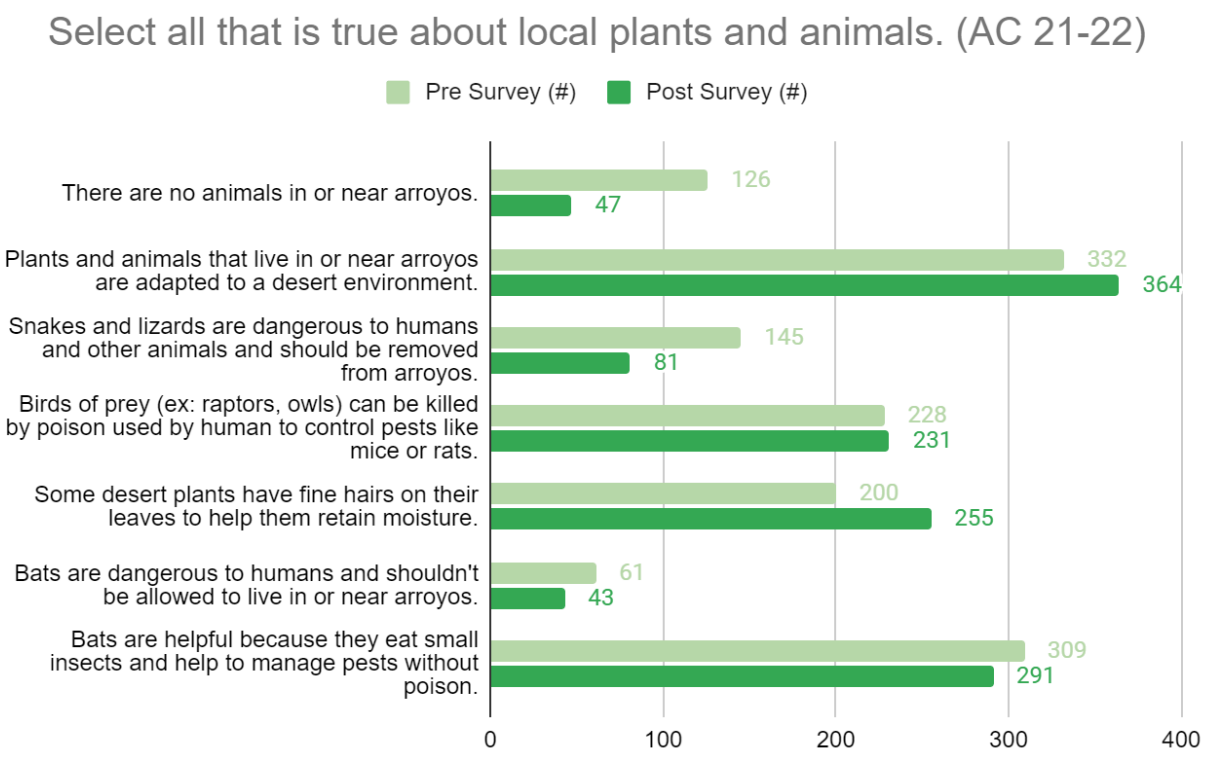
Item 3 Arroyo Safety



Comments

Positive outcomes of this graph are that more students understand the specifics of arroyo safety, demonstrated by a decrease in answers "arroyos are never safe" and an increase in "arroyos can be safe when there is no chance of rain." However, cultural beliefs and folklore may continue the narrative that arroyos or ditches are never safe to be in, as La Llorona might come for you!

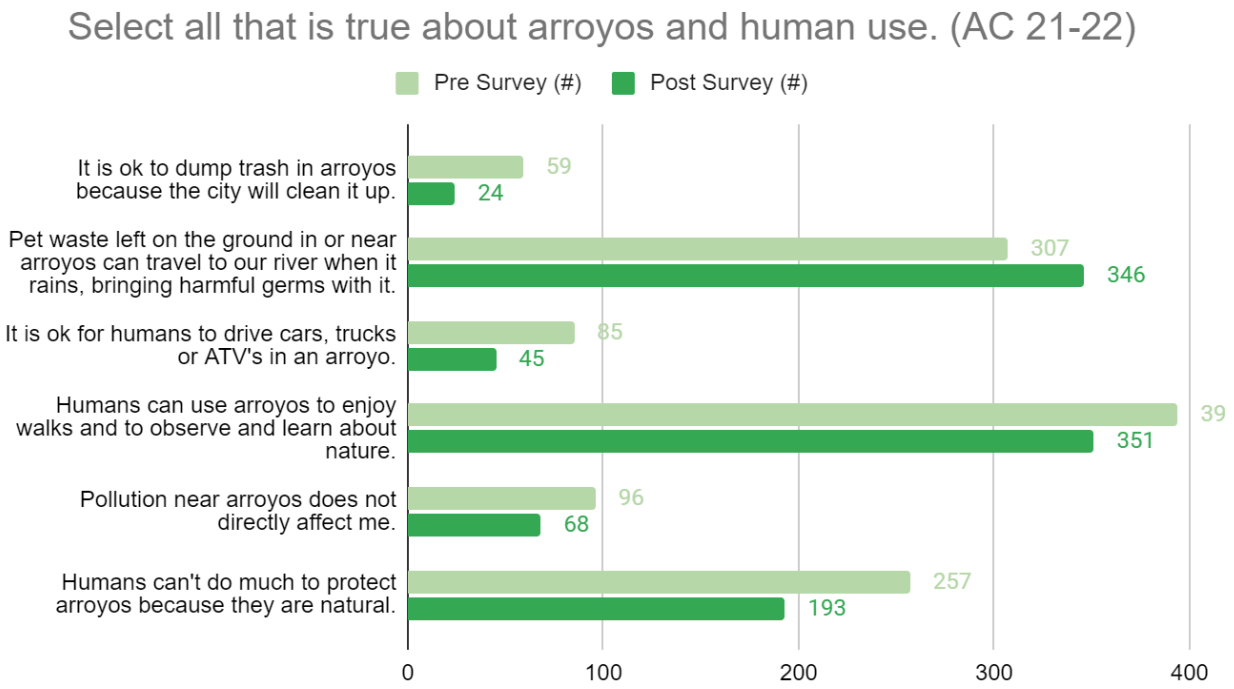
Item 4



Comments

Generally positive outcomes are displayed from these results. Possibly since the 3rd grade curriculum covers adaptations and habitats students are already primed to answer correctly on the pre-survey.

Item 5 Arroyos and Human Use



Comments

Positive outcomes for this question sequence are that there was an increase in students answering more correctly about pet waste as a river contaminant.

Appendix A

Lesson Plans (Ciudad SWCD delivered lessons)

Activity Guide for 3rd Grade – Building a Watershed

1. What are we trying to teach students in this activity?
A watershed is an area of land where all the water flows (or sheds) into a common body of water. We live in the Middle Rio Grande watershed. A natural watershed has many permeable surfaces that help to clean water. Human's build a lot of hard-scapes. As water moves downhill, it carries sediments and other materials to the river. Water is a precious resource and we can help improve the quality of the river by picking up after our pets and not littering or throwing trash on the ground.

2. How can we tie this activity to our teaching goals:

Learning Objectives	Methods
We all live in a watershed. A healthy watershed keeps water clean.	Using models to demonstrate: ● elements of a "watershed" and how natural watersheds help to clean water and move water around. ● Humans have impacts on the watershed (i.e. Hardscapes, Pollution)
The amount of permeable and impermeable surfaces in an area impact the watershed.	We observe and make claims about: ● What happens as water moves across "Hard" vs "Soft" surfaces ● The proportion of hard and soft surfaces around us. ● How this may impact our watershed.
Pollution increases in human environments. What we can do about it.	Using models we aim to demonstrate: ● Water can be polluted in human areas and is harder to clean with impermeable surfaces. All this polluted water flows to the river. Through discussion we: ● Talk about the importance of being responsible and how caring for the watershed in this way not only protects the water, but also helps the people and plants and animals that depend on the water as well. ● Picking up after our pets and minimizing our trash, and the trash on the ground helps keep our river clean

3. How can we tie this activity to standards?

Performance Expectation	
5-ESS2 Earth's Systems	**Disciplinary Core Ideas**

3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. **3-ESS2-2** Obtain and combine information to describe climates in different regions of the world.	**ESS2.C:** The roles of water in Earth's surface processes **ESS2.D:** Weather and climate
5-ESS3 Earth and Human Activity	
3-ESS3-1 Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	**ESS3.A**: Natural resources **ESS3.B**: Natural hazards **ESS3.C**: Human impact on Earth systems

What we do (Science and Engineering Practices)	**How we think (Crosscutting Concepts)**
Developing and Using Models Analysing and Interpreting Data Using Mathematics and Computational Thinking Constructing Explanations Engaging in Argument from Evidence	Patterns Cause and Effect Scale, Proportion and Quantity Structure and Function Systems and Systems Models Stability and Change

4. How should this activity be organized?

Supplies:

- Large Sponge
- Baking tray
- Filter model (2 liter bottle, upside down with cotton ball, sand, rocks, leaf litter)
- Spray bottle with colored water
- hard surface (flat piece of tile, stone, concrete)
- Slideshow

I. Introduction *(5 minutes)*: **Hi everyone, I'm ------- and I'm here from a program called Arroyo Classroom - a program where you get to learn about your local environment. We are going to learn about your local environment and what you can do to protect and conserve it (Define conservation). You can ask what kids do to help the environment as an ice-breaker.**

Open Presentation

1. **Ask if they know what an Arroyo is. Picture on 1st slide.**
   An **Arroyo** is a dry stream bed. We don't get a lot of rain here, but water can flow here when it rains. Arroyos flow to the Rio Grande. Arroyo's are a part of the watershed, but we will define that shortly.
2. First, let's get a discussion going:
   - How many of you used water before you came to school? How did you use it? Where do you think all this water comes from?
   - Where do you get your water? How is it cleaned? (Rio Rancho = Aquifer)
   - Can we all agree it is important to have clean water for all (including plants and animals)?

II. What is a Watershed? What role does it play in the water cycle? (20 min)

Part A: *(5 minutes)* We are going to learn about how the land around us helps to clean water.

1. **Review the Water Cycle - precipitation, evaporation, condensation (water cycle dance video)**
   - **Important to remember water can't be created or destroyed. We are drinking the same water dinosaurs used. We have to keep what we have clean.**

   Part B: *(5 minutes)*
2. **Introduce the Watershed**
   - **What is Watershed video**
   - Anywhere water falls on land is a watershed. What isn't absorbed will continue to run or shed downhill until it collects in a body of water. A watershed is an area of land that drains to the same body of water.
   - Watershed has different names based on the body of water water ends up in. We live in the **Middle Rio Grande Watershed.** Write down the name of our watershed.

STOP PRESENTATION

Part C: *(10 minutes)*

3. **Natural Watershed Helps to Clean Water. Ask students, before each demo what they think will happen and why? What evidence or prior experiences inform them?**
   - Absorbs- permeable surfaces (spray water on sponge)

    - Moves and Collects Water- (saturation of sponge) Arroyos, Wetlands, Rivers
        - Wetlands attract water loving plants that help filter and clean the water
    - What happens to water that soaks in the ground- Filter demonstration - connect it to the aquifer.

<u>Learning Objective: Permeable surfaces are important for filtering and cleaning water, and slowing it down.</u>

- **Human impacts** - less natural features in watersheds, more impermeable surfaces, density of pollution
    - Demonstrate water sprayed on hard surface
    - Water doesn't absorb and it moves faster.

4. Compare water in a concrete arroyo and sand-bottomed arroyo, which moves faster?

Learning Objective: Concrete Arroyos are never safe. Sandy bottomed arroyos are ok to go in if no chance of rain.

III. Activity: What is the proportion of permeable to impermeable surfaces outside our home or school? *(10 minutes)*

1. **Observe outside -** look at the ground. How much is covered by surfaces that can absorb water like soil, sand, dirt, grass, small rocks, etc. How much is covered by hard surfaces- pavement (driveways, streets, etc). Talk about compacted soils.
2. **Guess the percentage of hard vs soft based on observations.** Students create their own pie chart- labeled Hard and Soft.
3. **What claims can we make about our watershed? What evidence supports our claims**

IV. What's In the Water?

(10 minutes)

1. **Discuss pollutants. Discuss what happens to polluted water.**
   Experiment with how "pollutants" might travel through their watersheds.
    - What is pollution?
    - What forms of pollution exist in our city? Discuss each pollutant:
        - Plastic
        - Factories
        - Motor Oil (suggest a tray under or cat litter to clean it up)
        - Fertilizers (use recommended amount) - eutrophication
        - Herbicides or Pesticides (use recommended amount)
        - Dog Waste
        - Construction Erosion/Sediment

Learning Objective: With more hard surfaces - water moves faster, picks up pollutants and heads to Rio Grande without being cleaned.

V. Conclusion (10min)

- What do you think this means for our watershed - the Middle Rio Grande?

The water we drink comes from our watershed. Animals and plants also depend on this water. That's why it's important that we try not to pollute either the water or the land. Anything that pollutes the land will eventually wind up in the water.

- What might be ways we could reduce pollution in our watershed?

By picking up trash and picking up dog poop if we have dogs.

Activity Guide for 3rd Grade – Virtual Arroyo Walk

1. What are we trying to teach students in this activity?
Arroyos function as an important flood control measure and are essential landforms in the upland desert of Rio Rancho. Arroyos are also habitat to plants that have specific adaptations for living in a desert environment that experiences infrequent flooding. We can protect arroyos as habitat and take care of them so they help with flood control.

2. How can we tie this activity to our teaching goals:

Learning Objectives (Students will be able to:)	**Methods**
Describe arroyos function as flood control.	Using visual models (google earth and drone fly-overs) to demonstrate: ● Arroyos are caused by water flows from precipitation. ● Arroyos are dry when there is no precipitation. ● Arroyos lead to a larger water source- the Rio Grande
Describe who arroyos are habitat for.	Using their experience from previous Arroyo Classroom presentations: ● Student recall animals that live in or near arroyos Using models of different climates: ● Students can state plant needs in an arid climate
Desert plants have adaptations that allow them to survive in a climate with a great temperature range, high solar impact and little precipitation. Name a local plant species	Using models we aim to demonstrate: ● Various plant adaptations such as deep vs wide roots, small leaves, fine hairs and spines. Through discussion we: ● Explore how plants can survive in the desert climate, unique traits of cactus, name a specific native plant- Four Wing Saltbush and some ways to identify and find it.

3. How can we tie this activity to standards?

Performance Expectation	
5-ESS2 Earth's Systems	**Disciplinary Core Ideas**
3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. **3-ESS2-2** Obtain and combine information to describe climates in different regions of the	**ESS2.C:** The roles of water in Earth's surface processes **ESS2.D:** Weather and climate

world.	
5-ESS3 Earth and Human Activity	
3-ESS3-1 Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	**ESS3.A**: Natural resources **ESS3.B**: Natural hazards **ESS3.C**: Human impact on Earth systems

What we do (Science and Engineering Practices)	**How we think (Crosscutting Concepts)**
Developing and Using Models Analysing and Interpreting Data Using Mathematics and Computational Thinking Constructing Explanations Engaging in Argument from Evidence	Patterns Cause and Effect Scale, Proportion and Quantity Structure and Function Systems and Systems Models Stability and Change

4. How should this activity be organized?

Materials:

- **Google Earth maps slideshow of arroyo in Rio Rancho**
- **Native Plant and Desert Adaptation slideshow**

I. **Introduction**: This is our final presentation for Arroyo Classroom. Today we are going to learn more about the geography of arroyos and native plants that live in arroyos. Icebreaker: What have you learned so far?

II. Google Earth Arroyo Tour

A. Introduce map and landmarks (Albuquerque, Rio Rancho, Sandia Mountains, Have students recall the name of our river)
B. Review Watershed: discuss where the water flows to from different points in the land, begin to draw attention to arroyos on the map.
C. Upper Watershed: Discuss how the arroyos are converging from smaller arroyos, note the area around the arroyo has roads but isn't developed yet. Remind students how

important our voices can be to help share what we've learned in Arroyo Classroom so everyone who lives here and might eventually live here can do their part in caring for our environment.

D. Middle Watershed: Point out that there is more housing, development and hard (impermeable) surfaces at this point in the watershed. Bring their attention to the tire tracks in the arroyo.
    - What are these tracks from?
    - What might the impact be from driving motorized vehicles in the arroyos?
    - Share that it is illegal and why. Discuss other options for those kinds of activities where it is legal.
E. Lower Watershed: Show the mouth of the arroyo meeting the Rio Grande
    - Ask: Do you see anything in place that would remove garbage?
    - Poll students: 1. Who has seen trash in an arroyo? 2. Who has seen trash larger than a television or microwave? 3. Who has seen trash larger than a couch?
    - What can we do to help keep our arroyos clean and safe for all?

III. Adaptations of native and drought-tolerant plants

A. Introduce desert plants, share some fun facts about Yucca - state flower, edible roots - yucca fries.
B. Compare climates - show side-by-side of a tropical climate (dense vegetation, cloudy, waterfall) vs. arid climate (sparse vegetation, sunny, no water). Talk about how plant's needs are different in these climates.
C. Plant Adaptations
    i. Dormancy
    ii. Root systems (tap root or surface)
    iii. Small leaves
    iv. Fine hairs on plants
D. Cactus
    i. True or False Game
    ii. Why do Cacti have spines video
    iii. Photosynthesis and stomata
E. Four Wing Saltbush
    i. Adaptations and traditional uses of fourwing saltbush.

Arroyo Classroom Scavenger Hunt

Draw or describe each finding, such as size, color, shapes, texture, smells, location and more. You can even write questions you have about what you found! Please respect the wildlife and take an adult. Good luck!

- ❑ Wild animals tracks
- ❑ A plant without leaves
- ❑ A rock that feels warm or cold
- ❑ Cactus
- ❑ A plant with a color other than brown or green. What color?
- ❑ A wild animal on the ground
- ❑ A narrow leaf on a plant
- ❑ A hole in the ground made by an animal
- ❑ A bird in the sky

Arroyo Classroom 2020-2021

Appendix B
Supplemental Materials

-SSCAFCA Activity Book and Educational Videos:

KNOW YOUR ARROYOS
ENJOY • RESPECT • PROTECT

-SSCAFCA handouts:

Did you know?

SSCAFCA protects our community from flooding and erosion caused by big rain storms, and works to keep stormwater clean. Stormwater flows down arroyos into the Rio Grande.

Bugs like to live in stagnant water that collects in ponds and low places in the arroyos. Insects like mosquitoes can carry diseases that make us sick.

Brought to you by:

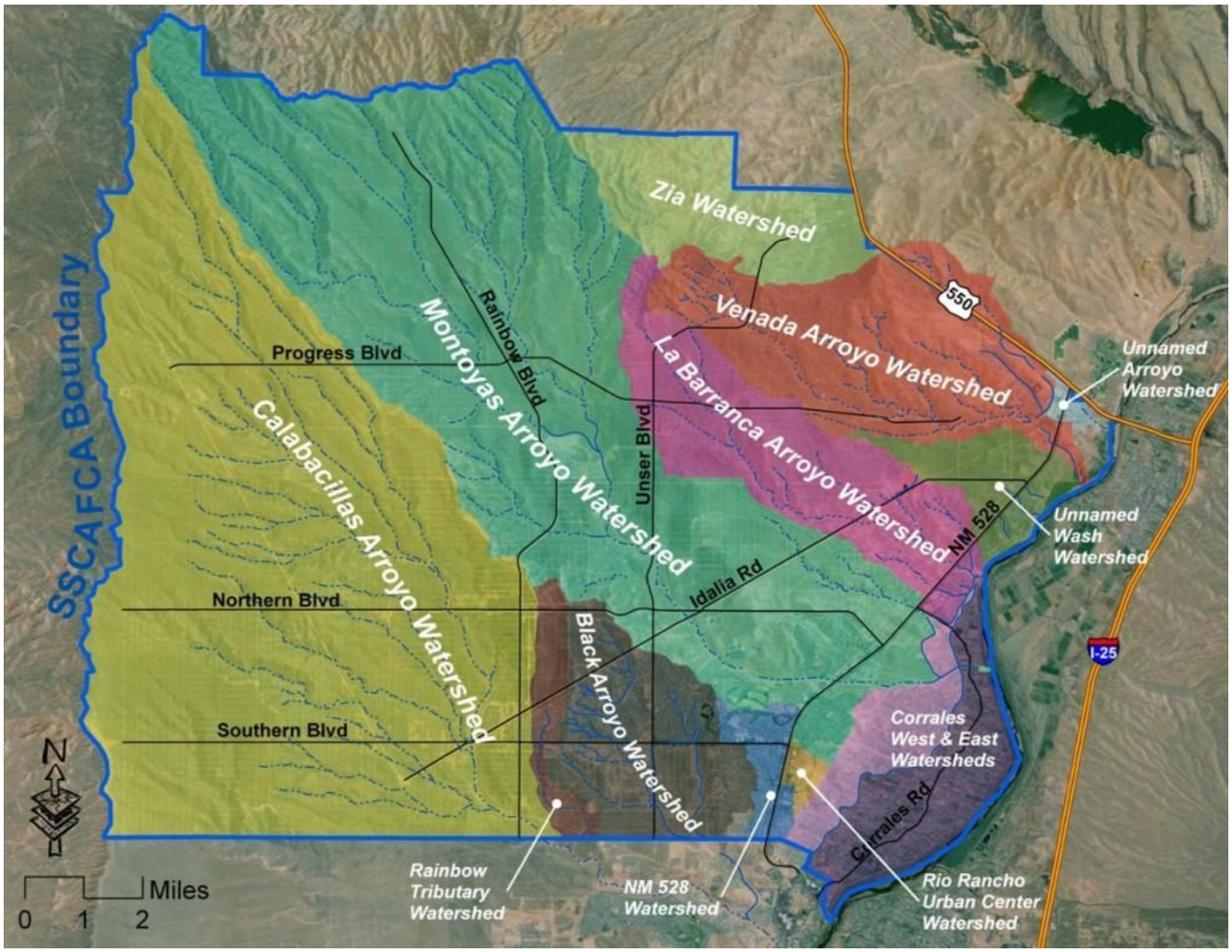
SSCAFCA

Almost all U.S. bats feed exclusively on bugs, and 1 bat can eat between 600 and 1,000 mosquitoes and other insect pests in just one hour. One bat can eat its own weight in insects in a single night!

SSCAFCA provides bat houses to encourage bats to make their homes near our arroyos, and especially near detention ponds where stormwater runoff is captured and allowed to slowly drain.

The more we help bats, the more pests they eat, so we don't have to spray pesticide that could wash down to the Rio Grande and pollute it.

SSCAFCA watershed map:



Arroyo Safety Video:

Arroyo Safety

Albuquerque Bernalillo County
Water Utility Authority

Water Authority distributed educational bill stuffers, ran radio ads and television advertising.

See the Water Authority television advertising at https://youtu.be/AJojsyJfnK4.

WAITING FOR COPY

Town of Bernalillo
"The City of Coronado"

Stormwater tips are printed and distributed in the town's water bills throughout the year. This includes 3,500 copies each month.

Town of
BERNALILLO
"The City of Coronado"

SEPTEMBER 2022

Mayor
Jack Torres

Councilmembers
Dale Pharpe
Sharon Torres-Quintana
Phillip Valverde
Vincent Montoya

Town of Bernalillo Recreation Department Presents:

Bernalillo Youth Basketball Program 2022-2023

Registration begins Monday, September 12, 2022
Last Day to Register: Friday, September 30, 2022
Program Open to Boys & Girls ages 5-13 years old
Participants must be 5 years old by October 1, 2022.
Participants turning 14 before January 1, 2023 will not be eligible.
Previous basketball experience is not required.
No late registration applicants will be accepted.

Program Fees:
$60.00 per participant (*Due at Registration*)

Season Duration:
10 game regular season

Divisions:
Peewee Division - Ages 5 & 6
Junior Division - Ages 7 & 8
Minor Division - Ages 9 & 10
Senior Division - Ages 11-13

Register at:
The Town of Bernalillo
Recreation Center
370 Rotary Park Road
Call for more information:
(505) 771-2078 or
(505) 771-1262

Town of Bernalillo's Annual

School Supply Drive

Accepting school supply donations for the young students of Bernalillo. Supplies are given to students at La Escuelita, Carroll Elementary, and Bernalillo Elementary.
Drop off supplies at Town Hall.
All brand new supplies such as: Backpacks, Colored Pencils, Crayons, Markers, Paper, Glue Sticks, and so much more is needed! Call 867-3311 for more info

Bernalillo Kids Coat Drive

We are collecting new coats for the youth of Bernalillo.
Please drop off donations at Town Hall now through November 18th
All child sizes are needed!
If your child needs a coat, please contact 867-3311 or stop by Town Hall at 829 Camino del Pueblo, Monday-Friday, 8am-5pm.
SHARE THE WARMTH!

-NOTICE - ROAD RUNNER WASTE - TRASH SERVICE FEE INCREASE

There will be a service fee increase of for trash services for each resident in the Town.

This is due to fee increase in several areas:
- Cost of fuel per gallon
- Disposal at landfill
- Disposal for recyclables

The new price for residential cart fee is $18.42.
This will go into effect on September 1, 2022 & will be reflected in the bill provided in October 2022.

You Might See a Credit on Your Water Bill!

The Town's Utility Billing Department has been hard at work auditing our history files and making sure our customers are being charged correctly on their billing statements. This audit process has indicated that ***some*** customers will be receiving a credit to their account. **If you are one of the customers who will receive a water credit, you will see that reflected beginning in the statement for this month!** The Utility Billing Department *will not* be issuing checks or cash for these credits, we will be applying them directly to the account – which is why your bill may be a little lower than you expected. **Any further inquiries about this can be made in writing to joshua.lujan@tobnm.gov, you must include your utility billing account number, name, contact information, and inquiry request.** *Disclaimer: not every utility billing customer will be receiving this credit.*

Keep It Clean Bernalillo

Did you know that fats, oils and grease are draining our drains and sewers? Avoid pouring FOG (Fats, Oil, Grease) down the drain!

Fats, Oils, and Grease are bad for the community. When FOG is washed down pipes, it sticks and hardens. Water in the sewer slows down and starts to produce a foul odor. The FOG can block up the entire pipe, causing sewer backups which are dangerous and cost you a lot of money. Follow these simple steps:
- Pour all greasy/oily waste from pots/pans/fryers into a grease waste container (like a recycled coffee tin can).
- Scrape all food wastes into the trash
- Clean spills with towels and absorbent materials, then throw into trash
- Get on a schedule for regular grease cleaning.

Fats, Oils, and Grease (FOG) can:
- Congeal in underground pipes, cause blockages, and possibly damages pipes and cause sewage to contaminate the area.

For more info contact Public Works Department at 505-771-4832

THE UNIVERSITY OF NEW MEXICO

BEMP
Bosque Ecosystem Monitoring Program

BOSQUE SCHOOL
Challenging Education

Middle Rio Grande Stormwater Quality Team Final Report prepared by the Bosque Ecosystem Monitoring Program

JULY 30, 2022

1

1.1 COMPREHENSIVE OVERVIEW

Historically, culturally, ecologically - the Rio Grande is the heart of our region and the primary resource by which New Mexico's young people familiarize themselves with water. Utilizing its ecosystem as "classroom", BEMP's stormwater science outreach education program aims to teach young people how the health of the Rio Grande is directly related to the health of the surrounding watershed and how they can be stewards in helping to keep the Rio "Grand".

To this end, **7,840 students** throughout Bernalillo and Sandoval counties connected with their local watershed through participation in BEMP activities throughout the 2021-2022 school year. 845 contacts of this total were engaged through purely stormwater science specific lessons.

Due to ongoing pandemic restrictions in the 2021-22 school year, our curriculum shifted to virtual and physical formats to make our activities more equitable and accessible, including adaptations to our stormwater science curriculum to best fit the ongoing COVID-19 scenario. However, as in-person programming became more possible in the 2021-22 school year, in-person visitation to school campuses and the bosque once again became a successful venue for stormwater science education.

In consideration of the implications of COVID-19 on our communities, BEMP's stormwater science program featured synchronous and asynchronous learning resources, as well as in-person programming opportunities. Synchronous resources are remote, live, lessons that include stormwater science concepts and/or projects. Asynchronous curricular components are self-led, virtual lessons that represent a version of the regular stormwater science class and 1-page summer activities; BEMP currently offers five different, 30-minute asynchronous lessons.

Throughout the pandemic, BEMP has continued to support students with accessible, equitable education, including community disseminated educational materials that are actively featured on BEMP's website and social media platforms (See sections 2.2 and 3.0 of this document for more

detailed information). Successful adaptation of BEMP annual events into virtual formats was again necessary to ensure the safety of its participants (Luquillo-Sevilleta Virtual Symposium and Crawford Symposium; see section 2.3). All activities and materials, virtual and printable, are available in English and Spanish to better support inclusion and accessibility to STEM resources for New Mexico's diverse communities.

1.1.1 *Delivery of BEMP Annual Report*

The Bosque Ecosystem Monitoring Program (BEMP) mailed out the BEMP 2021 Annual Report on June 11, 2022. This provides a comprehensive overview of the work done during the performance period up through December 31, 2021. The key sections of that report for MRGSQT include:

Pg. 60 Total outreach numbers and list of schools served

Pg. 61 Community Events and Student Presentation Outreach

2

2.1 STORMWATER SCIENCE EDUCATION AND CURRICULUM

2.1.1 *In-person and synchronous learning.*

3,117 students served

In response to the COVID-19 pandemic, BEMP education continues to pivot to better support the diverse needs of New Mexico's students, teachers and families by offering a multi-level educational pathway to engage with BEMP programming.

For students able to access the field, classes returned to monthly monitoring whereby lessons were taught in data collection procedures, phenological changes, and stewardship initiatives. Additionally, lessons focused on the geographical origins of the Rio Grande and our local drinking water, watershed

dynamics, and the stability of the Rio Grande's water composition throughout the year. Water input fluctuation was discussed in relation to pollution impacts and other bioindicators of watershed health.

For students who were restricted in ability to leave campus, listening to the needs of its audiences, BEMP education re-invisioned in-person classroom sessions to in-person, outdoor lessons on students' campuses. This was done in conjunction with remote lessons that leverage learning and connection within a student's own place-based residence. For example, for students unable to attend monthly data collections onsite in the bosque, a modified version was established to engage students in precipitation, litterfall and arthropod data collections on their own school campuses. Via exposure to data collection in their own neighborhoods, students gain first hand scientific experience while broadening their awareness of the ecosystem all around them rather than as something distant. Other curriculum development examples include a modified stormwater science activity for elementary ages to invent an arthropod while highlighting the connectivity of macroinvertebrate communities to water health, and an asynchronous series analyzing multiple years of groundwater monitoring data in the Rio Grande Valley to discuss the relationship of resource depletion and potential pollution influences.

Additionally, through this multi-level pathway, stormwater science curriculum was offered during the 2021-22 school year paired as an in-person school visit alongside a remote classroom lesson series. Students engaging in these lessons investigate how storms impact river health by looking at a watershed model, varying community sizes, and the pollutants each one produces. Students then utilize data analysis and data visualization components to learn about permeable and impermeable surfaces to better understand how storms impact the overall water quality of the Rio Grande. Through a cumulative in-person activity, students test water quality samples and macroinvertebrate populations hands-on while learning about environmental justice and water health in downstream communities.

Previous in-person lessons that were re-envisioned to become remote, multi-part, synchronous lessons (Exploring the Outdoors and Bosque Data Jam) remained a success. Both lessons focus on water quality and storm impacts, phenological observation, ecosystem monitoring, climate change, scientific processes, graphing and data analysis, encouraging a deeper understanding of nature in students' backyards while developing career-based skills in the sciences, public-speaking and presentation delivery. As in previous years, at the end of their educational process, students come up with a creative piece to represent the results of their scientific projects that are then presented at one or both of our annual events, BEMP Crawford Symposium (April-May) and/or the Luquillo-Sevilleta Virtual Symposium (April-May - presentations in Spanish). This year, College Career High School focused their research

projects on water quality/storm impact topics where students collected and analyzed their own data as a way to better understand first hand the impacts of storms in their own neighborhoods. Through their projects, students broadened community awareness about this topic with the hope of empowering future generations to make a more positive impact.

Throughout the 2021-2022 school year, BEMP served 3,117 students in 32 different schools and community organizations within Bernalillo and Sandoval counties through these lessons.

Funds that would have covered partial costs for some BEMP educational outreach events (Student Congress or Otter Day) were reallocated for the development and execution of new educational resources, printing and other materials, additional translation efforts to support accessible and equitable education, and staff time in order to continue to support the stormwater science program.

2.1.2 *Asynchronous learning.*

4,209 students served, 88,973 indirect interactions

Asynchronous curricular components continue to be designed to meet the diverse needs of students and teachers that otherwise cannot interact with BEMP directly due to timing, scheduling, or pandemic restrictions. As self-led, virtual or printable lessons, BEMP's asynchronous lessons cover a broader array of water quality concepts through various means.

Throughout the 2021-2022 school year, BEMP served 4,209 students within Bernalillo and Sandoval counties through these lessons.

> *Virtual Lessons* **233 students** This year, BEMP educators have been expanding on previous remote stormwater science lessons to include groundwater datasets, including what it is, how it is measured and why it is important. Through use of an aquifer model, students look at several years of data to discuss the relationship between groundwater and river health. Additional lesson concepts include watershed model before and after storm events, environmental justice in downstream communities and stewardship components. These lessons are remote, multi-part, asynchronous lessons offered through Edpuzzle, an interactive video lesson platform.

Self-directed Printable Activities **3,976 downloads** BEMP has been creating and distributing self-led, printable activities to help students and their families become engaged outside and explore their yards, neighborhoods and public lands while also collecting their own data. Subject examples include stormwater pollution sources and watershed heath via the observation of trash accumulation. All activities created have been translated in both English and Spanish and have been uploaded to our website for increased accessibility. Educational resources can be found here.

Social media **88,403 interactions** In maintaining initiatives to make educational materials more accessible to members of our community, BEMP has increased its presence on social media channels and continues to grow. Every day of the week, BEMP staff highlight ecological findings, time in the field, educational activities, and resources from partners. Stormwater science related concepts are consistently presented in Water Wednesday posts including topics such as educational resources from RiverXchange, evidence of water pollution and its effect on wildlife, aquatic invertebrate populations and water health, and stewardship opportunities to reduce impacts on water quality and consumption habits. All materials are provided in English and Spanish.

YouTube channel activity videos **570 views** BEMP's YouTube channel contains videos of our events as well as instructional videos that supplement activities to help guide students through their lessons. Those videos can be found on our YouTube channel, BEMP (Bosque Ecosystem Monitoring Program).

2.1.3 *Events*

281 students served

Providing the community with an opportunity to learn how important student-collected data are for informing the management of our urban riparian system, BEMP's annual community events were successfully adapted for another year to include both virtual and in-person components. Featuring a culmination of student presentations that relied heavily on student collected data and employed their professional development and presentation skills, both the Luquillo-Sevilleta Virtual Symposium and Crawford Symposium were a success in emphasizing the importance of water quality and Stormwater Science concepts.

Additionally, BEMP participated in several other community events and educational festivals to spread community awareness of watershed health, monitoring efforts, and inspire stewardship therein. Some examples include participation in Environmental Justice Week with Valle De Oro, tabling events at Jefferson Middle School, and Valencia Soil and Water Conservation District's Earth Day Science Fiesta.

2.1.4 *Watershed Education Collaboration Group*

Ongoing collaboration with the Ciudad Soil and Water Conservation District and the Valencia Soil and Water Conservation District as part of the Watershed Education Collaborative Group continues. Mutual collaboration rests on the goal of increasing student awareness about water, watersheds and other related components (historical, present and future) related to stormwater in New Mexico.

Of particular note, two separate activities were developed to support student learning throughout Outdoor Learning Week 2021, Environmental Justice Day with Valle De Oro, and Valencia Soil and Water Conservation District's Earth Day Science Fiesta. These lessons encouraged students' awareness of the water cycle, emphasizing the journey of raindrops and the various point and nonpoint pollution sources encountered on their way to the river. Students also participated in a scavenger hunt to become familiar with stormwater control structures, evidence of erosion, and potential sources of water waste.

Moving forward, we would like to continue building a K-12+ water curriculum that scaffolds student learning about stormwater and water related concepts by age group. In utilizing our partnership, we will collectively discern where each of our organizations educational programming best fit within student's experience and build from those strengths while attending to any gaps in student learning we discover. Our collective aim is to offer continuous exposure to stormwater and water quality subjects throughout each grade level while improving New Mexican youth's accessibility to these subjects.

2.1.5 *Assessment tool - IRB update*

This addresses section 2.1.10 in previous reports: Assessment tool of overall effectiveness. BEMP continues to pursue IRB certification so as to officially assess our educational programming and its effectiveness amongst student populations. It is currently being edited to more narrowly refine

questions asked of participants and will again be submitted for review by the IRB governing board; we anticipate its successful acceptance.

3

3.1 OUTREACH NUMBERS

3.1.1 Table(s) of Educational and Indirect outreach numbers for FY 21-22

Education and Curriculum

	Synchronous	**Asynchronous**		**Events**	**Total**
		Virtual Lessons	**1-page Activities**		
Students	3,117	233	3,976	281	**7,607**
Adults**	859	N/A	N/A	83	**942****
Total (Including Adult Contacts)	3,976	233	3,976	364	**8,549****

** Adult contacts not included in total contacts reported

Social Media

	Reaches	**Engagements**	**Views**	**Total**
Instagram	43,697	7,574	N/A	51,271
Facebook	33,925	3,207	N/A	37,132
Youtube	N/A	N/A	570	570
Total	77,622	10,781	570	**88,973**

Albuquerque Metropolitan Arroyo Flood Control Authority

Middle Rio Grande Watershed-Based MS4 Permit

General Permit Requirements

Special Conditions

- Compliance with water quality standards (Download PDF)
- Discharges to impaired waters with and without TMDLs (Download PDF)
- Additional PCB assessment and study requirement for COA, AMAFCA, and Bernalillo County (Links to PDF)
- ESA requirements for addressing dissolved oxygen and sediment pollutant loads (Links to PDF)

Stormwater Management Program (SWMP)

- Minimum Control Measures (MCMs) (Links to PDF)

Monitoring and Assessment

SWMP Minimum Control Measures

- Construction site stormwater runoff control (Download PDF)
- Post-construction stormwater management in new development and redevelopment (Download PDF)
- Pollution prevention/good housekeeping (Links to PDF)
- Illicit discharges and improper disposal (Download PDF)
- Control of floatables discharges (Download PDF)
- Public education and outreach (Download PDF)
- Public involvement and participation (Download PDF)

Watershed Stewards

2021-2022 Final Report

Submitted by
Erin Blaz, Ciudad SWCD
June 2022

SUMMARY

The overall intent of this program is to educate the public on the all-encompassing importance of watershed health, SSCAFCA's role in local watershed management, and to encourage personal commitment to watershed stewardship. This year's program focused on delivering watershed stewards in partnership with activity coordinators at the Meadowlark Senior Center in Rio Rancho and Del Webb Alegria Community in Bernalillo. The program consisted of lecture-style presentations and field trips to local open spaces and other sites of interest, and also included an outreach activity for Pollinator Day at Meadowlark Senior Center in the spring.

The program required funding in the amount of $10,249.05 generated $599.00 in-kind match, and reached 135 senior citizens, significantly more than our original target of 25 seniors. A few of the participants returned for multiple events. There were 17 presentations/field trips that lasted from 1-2 hours for participants, reaching beyond our target of offering 25 hours of program this year.

2021-2022 Themes and Locations
The theme of this year's fall program centered on Green Stormwater Infrastructure (GSI) and included educational presentations and field trips that were specific and relevant to the concepts of GSI and the role of GSI in watershed health. The theme of spring's program was "Walks and Talks" which focused on local wildlife, native and medicinal plants, and brought participants to Arroyo and Riparian areas located within Rio Rancho Open Spaces. All presentations were able to integrate and connect watershed stewards learning objectives to the content, such as stormwater pollution prevention and local habitat protection.

We also offered two events at the Rio Rancho WaterWise Garden, which is an excellent demonstration space for a range of topics. In the fall, the Master Gardeners gave a tour of the garden with a focus on water conservation, plant selection for drought tolerance with a preference on native species and green stormwater infrastructure. In addition to the tour, Sandoval County presented the Rolling River, and discussed the importance of residential and municipal GSI in watershed health. In the spring, Dara Saville of the Yerba Mansa Project completed a very well received talk and tour at the Waterwise garden about native and medicinal plants.

In addition to our normal programming, we also celebrated pollinators at the Meadowlark with a talk about honey bees and a presentation by ABQ Backyard Refuge. During this time we also made bee hotels with participants and passerby's out front of Meadowlark.

Building Partnerships
This year we increased partner support from Sandoval County Master Gardeners and Cooperative Extension office, Dyane Sonier of City of Rio Rancho Parks, Recreation and Community Services and Dave Gatternman of SSCAFCA, which generated some in-kind match to support the program. Discussions with Dyane Sonier focused on taking a reciprocal approach to engaging the local community in areas where our different programs align. There was hope to invite watershed stewards to help plant the new pollinator garden at the WaterWise Garden, but timing did not allow for this event to include Watershed Steward participants this fiscal year.

Stewardship Opportunities
One of the goals of the Watershed Stewards Program is to encourage personal commitment to watershed stewardship, and while the presentations and field trips offered build knowledge around stewardship strategies, program staff continue to seek out ways to engage our participants in hands-on projects that support watershed health.

This year one participant was interested in applying some GSI techniques to an erosion problem behind his house. Dave Gatterman and Erin Blaz met with this participant and Mr. Gatterman was even able to get City of Rio Rancho approval to apply some mitigation and restoration strategies. This was an exciting opportunity to engage participants in a project, however during the process of planning the city applied an erosion treatment to the hillside and it was determined best to wait and see the results of that effort.

During the pollinator day, we also hosted ABQ Backyard Refuge at Del Webb Alegria. This was a very interesting and fruitful conversation. 11 community members participated from Alegria and discussed the need for support in some of their open spaces within the Del Webb development. There was high interest in creating wildlife refuges in these spaces, but they cited challenges within their own HOA and community perceptions - like a desire for lawns and manicured spaces.

Evaluation
Considering we were able to bring in-person programming back safely to this community after a year of virtual programming due to the pandemic, this year's program reached a larger than expected audience and offered more hours of program than anticipated. However, there are certainly ways to improve. Watershed Stewards will benefit from continued support or partnership with other local entities in Rio Rancho and Town of Bernalillo so that we can collectively reach more people with a wider range of content. Watershed Stewards would also benefit from tracking participant contacts across all programs by Ciudad to be able to maintain correspondence, build community around action and stewardship, and survey folks to increase our understanding of our audience and impacts. In response to this FY22 funding was used to purchase a tablet that can be used in the field to track participant signs-in and survey participants. Additionally, finding ways that are of interest and well-suited to the senior community to engage with hands-on projects will need to continue through relationship and rapport building within the community and local partners.

Program Pictures

Prior page: WWG program with tour and rolling river. Top this page: Mikal Deese with a local bird. 2rd row: Justin shows bats & scat comparisons.
3rd row: Justin does Bosque and Arroyo Habitat walks. Bottom row: Dara Saville at WWG and Bee Hive for Pollinator Day.

Middle Rio Grande Stormwater Quality Team
Annual Member
Cooperative Funding Agreement

This Cooperative Funding Agreement is made and entered into this 21st day of July, 2014, by and among the County of Bernalillo, the City of Albuquerque ("COA"), the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"), the New Mexico Department of Transportation ("NMDOT"), and the Southern Sandoval County Arroyo Flood Control Authority ("SSCAFCA"), all political subdivisions of the State of New Mexico (hereinafter collectively referred to as the "Storm Water Team"), and City of Rio Rancho (hereinafter referred to as "Annual Member").

WHEREAS, the Intergovernmental Agreement Regarding the Operation, Function, and Funding of the Storm Water Team, as amended by the First Amendment thereto dated January 22. 2014 ("Intergovernmental Agreement"), provides that potentially eligible MS4s may be added to the Team at any time on an annual basis as additional voting members, provided all requirements for membership have been fulfilled, including providing payment for the expected contribution; and

WHEREAS, the Storm Water Team wishes to add the Annual Member as an additional voting member to the Team on an annual basis; and

WHEREAS, the Annual Member wishes to be added to the Team as an additional voting member on an annual basis; and

WHEREAS, the Annual Member agrees to fulfill all requirements for membership, including providing payment for its expected annual contribution; and

NOW, THEREFORE, in consideration of the covenants and promises set forth herein, the Annual Member agrees as follows:

1. The Annual Member will be invoiced by the Storm Water Team for its annual contribution for Fiscal Year 2015 as tabulated below. The Annual Member agrees to pay the annual contribution to the Storm Water Team's fiscal agent within forty-five (45) days of the date of invoice. Failure to provide payment prior to the deadline will result in the Annual Member's membership being suspended as provided for in the Intergovernmental Agreement.

2. Upon payment of the annual contribution and fulfillment of any other requirements of membership, the Storm Water Team will update Attachment A, Contribution Schedule, and Attachment B, Annual Roster, to include the Annual Member.

3. The Annual Member agrees that by executing this Agreement it is subject to the requirements of the Intergovernmental Agreement as it may be amended from time to time, which is hereby incorporated by reference as if fully set forth herein. The Annual Member agrees to abide by the terms and conditions of the Intergovernmental Agreement as it may be amended from time to time.

4. This Agreement, including Annual Member's membership on the Team, shall be effective for the 2015 fiscal year. This Agreement may be extended beyond the initial fiscal year for additional one (1) year periods running concurrently with the fiscal year. Any extension must be completed in writing at the initiative of and authorization of AMAFCA, as the fiscal agent of the Storm Water Team, with concurrence of the Annual Member. All extensions are subject to the terms set forth herein, provided however, that the annual contribution for any subsequent years shall be established by the Storm Water Team in the Contribution Schedule, which shall be incorporated fully as if set forth herein.

5. The Annual Member's contact, designated voting member, and billing information is as follows:

Annual Member Entity:	City of Rio Rancho
Designated Voting Member:	Eugene Pettes 3200 Civic Center Circle NE Rio Rancho, NM 87144 505-891-5045 xpettes@rio-rancho.nm.us
Billing Instructions:	check
Expected Contribution:	$10,000.00

The Annual Member agrees to immediately notify the Storm Water Team and its fiscal agent in the event of any changes to the information listed herein.

Middle Rio Grande Stormwater Quality Team
Annual Member
Cooperative Funding Agreement

Date: 11/4/14

City of Rio Rancho

[Name, Title]

Keith Riesberg
City Manager

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5005 • FAX (505) 891-0986

June 20, 2016

US EPA, Region 6
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN-WC)
1445 Ross Avenue
Dallas, Texas 75202-2733

RE: Albuquerque Metropolitan Area Municipal Separate Storm Sewer System (MS4) Wet Weather Monitoring Site Certification, Permit No. NMR04A000

Per Table 10, Wet Weather Monitoring Program Implementation Schedules, enclosed as Attachment 2 in the letter from EPA Region 6 dated February 10, 2016, the City of Rio Rancho submits certification that the wet weather monitoring sites in the Middle Rio Grande are operational and ready for sampling. As a member of the Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative, the City of Rio Rancho meets the criteria for a permittee with a cooperative program and qualifies for the cooperative deadline of June 21, 2016. Copies of the Intergovernmental Agreement and Cooperative Monitoring Plan are attached. Please contact Xavier Pettes by phone at 505-891-5045 or by email at xpettes@rrnm.gov if you have any questions regarding the agreement or plan.

CERTIFICATION STATEMENT

I, the undersigned, certify under penalty of law that this document, the Intergovernmental Agreement that creates the Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

David Serrano, P.E.
Engineering Division Manager

6/20/2016
Date

Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative

INTERGOVERNMENTAL AGREEMENT

AN INTERGOVERNMENTAL AGREEMENT, CREATING THE MIDDLE RIO GRANDE MS4 COMPLIANCE MONITORING COOPERATIVE, IN SUPPORT OF COMPLIANCE EFFORTS FOR A STORMWATER DISCHARGE PERMITTING SYSTEM FOR THE MIDDLE RIO GRANDE VALLEY IN ACCORDANCE WITH THE FEDERAL CLEAN WATER ACT.

RECITALS

WHEREAS, the United States Environmental Protection Agency (EPA), Region 6 regulates the discharge of stormwater from municipal separate storm sewer systems (MS4s) in central New Mexico through the issuance of an MS4 permit for the Middle Rio Grande valley urbanized area, under the authority of the National Pollutant Discharge Elimination System (NPDES) regulations (40CFR122); and

WHEREAS, the Middle Rio Grande valley urbanized area is comprised of many diverse local, state, federal and tribal entities, each with separate and distinct authority and responsibilities; and

WHEREAS, the Middle Rio Grande valley urbanized area entities that are eligible for authorization under NPDES General Permit No. NMR04A000 (hereinafter "MS4 Permit"), and therefore eligible to enter into this Intergovernmental Agreement (hereinafter "Agreement") in furtherance of the requirements of the MS4 Permit, are the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), University of New Mexico, New Mexico Department of Transportation District 3, Bernalillo County, Sandoval County, Village of Corrales, City of Rio Rancho, Village of Los Ranchos de Albuquerque, Kirtland Air Force Base, Town of Bernalillo, State Fairgrounds/Expo New Mexico, Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA), Sandia National Laboratories/Department of Energy, Pueblo of Sandia, Pueblo of Isleta, and Pueblo of Santa Ana (collectively "Co-permittees"); and

WHEREAS, the proposed MS4 Permit requires each Co-permittee to obtain and report stormwater compliance monitoring results in their MS4 Annual Report; and

WHEREAS, the proposed MS4 Permit encourages cooperative efforts among the Co-permittees, including compliance monitoring activities, to reduce the amount of pollutants discharged with stormwater into the Rio Grande; and

WHEREAS, cooperation among the Co-permittees in the MS4 Permit through the Middle Rio Grande Compliance Monitoring Cooperative ("CMC"), with regard to monitoring requirements, offers the opportunity to reduce each individual Co-permittee's monitoring costs by cooperatively developing, funding, and executing a common monitoring plan without reducing the effectiveness of the monitoring plan.

NOW, THEREFORE, BE IT AGREED THAT:

1. **PURPOSE.** The CMC will serve as the focal point for the development, execution, and, as needed, the amendment of the Monitoring Plan required as part of the MS4 Permit. The intent of the CMC is to attain and demonstrate permit compliance for member Co-permittees with respect to the provisions of the MS4 Permit. The Monitoring Plan will be developed cooperatively among the member Co-permittees of the CMC.

2. **ELIGIBILITY.** All Co-permittees specifically identified in the MS4 Permit are eligible to be members of the CMC.

3. **MEMBERSHIP.** The CMC will include as members all Co-permittees that have signed this Intergovernmental Agreement ("Members"). Members are expected to provide funding for the ongoing operations of the CMC and to contribute financially or materially to the benefit of the CMC, either from their own assets or through the securing of contributions from others. The Members shall elect a Chairman of the CMC. The Chairman shall be elected by a majority vote of the members.

4. **VOTING.** The CMC will be made up of one voting Member from each Co-permittee in good standing, which is defined as having paid their expected contribution, as defined in the Contribution Schedule included as Attachment 1. Attachment 1 shall be updated annually by the Fiscal Agent (See Paragraph 7) to reflect Members in good standing. Each Member will designate a staff person to represent the Member's interest on the CMC and to vote on that Member's behalf. Designation of a representative may be completed at any time and under any circumstances. Other/outside agencies may participate on the CMC by attending meetings and giving input; however, only the Members in good standing may vote on CMC decisions. Decisions of the CMC will be decided by majority vote of the Members in good standing. The CMC may take action during a meeting, by telephone, or by e-mail.

5. **TERM.** The term of this Agreement shall run from the date the MS4 Permit is issued by the EPA until the date the MS4 Permit is terminated or expires, whichever occurs first. This Agreement may be terminated in its entirety at any time upon the mutual agreement of all of the then-existing Members to this Agreement.

6. **FISCAL MATTERS.** In the first Calendar Year of this Agreement, the CMC will meet to develop a budget based on the costs for implementing the Monitoring Plan for MS4 Permit compliance. To ensure sufficient funding is available to carry out the Monitoring Plan, the budget shall equal 110% of the estimated costs associated with the Monitoring Plan, including estimated contingencies. In subsequent years, the budget will be based on the actual expenditures from the prior year's monitoring activities plus any reasonable increases identified by the CMC. Each Member shall commit funding to the CMC based on the Contribution Schedule established for that year, which Contribution Schedule shall be in a total amount of not less than the budgeted costs. In-kind contributions shall be permitted in lieu of all or a portion of a Members cash contribution,

provided however, that participation in the CMC shall not be considered in-kind contributions. The value of in-kind contributions will be determined by the membership of the CMC by equating the value of the service to the cost that would be paid by the membership of the CMC to have the in-kind service performed by a third party (non-CMC member) contractor. The Contribution Schedule is located in Attachment 1 to this Agreement. This Contribution Schedule may be modified by the CMC annually without requiring modification to this agreement, provided however, that it shall be adopted by unanimous vote of the Members. Any funds remaining at the end of the Agreement Year will be carried into the next Calendar Year of this agreement. In such event, the CMC may either elect to retain the excess funds from the prior Calendar Year as a contingency fund, or may lower the annual contribution schedules for that year for all Members in equal proportion, based on the total amount carried forward. In the event a Member does not have the resources to provide full payment for any funds required by the Contribution Schedule, the remaining Members may agree, by unanimous vote, amend the Contribution Schedule if it is in the best interest of the CMC. Each Member's obligations under this Agreement are contingent upon sufficient appropriations being made therefor by such Member's governing body sufficient to fulfill such Member's said obligations. If such appropriations are insufficient to such Member's obligations hereunder, such Member's shall promptly notify the other Members, and this Agreement shall terminate forthwith with respect to such Member.

7. **FISCAL AGENT.** The Members shall select one (1) Co-permittee to act as Fiscal Agent for the CMC for the purposes of this Agreement. The Fiscal Agent shall act as the custodian of the CMC's funds, securities, and property. All funds will be held in a separate bank account for the purposes of this Agreement. All CMC funds shall be deposited promptly by the Fiscal Agent to the credit of the CMC. The CMC shall adhere to the Fiscal Agent's accounting and procurement procedures, provided such procedures comply with law. The Fiscal Agent shall make available to any interested Member, all records, receipts, and other documentation with respect to all matters concerning this agreement and shall have this account included in its annual audit. The Fiscal Agent shall maintain funds in accordance with all applicable state and Federal statutes. The Fiscal Agent shall be authorized on the CMC's behalf to sign checks, drafts, or other instruments for payment of money, acceptances, notes, or other evidences of indebtedness, to enter into contracts, or to execute and deliver other documents and instruments. This authority to enter into any contract or negotiated agreement shall be subject to approval by the CMC and subject to any limitations as set forth in this Agreement. Subject to the provisions of this Agreement, no loans shall be contracted on behalf of the CMC and no evidence of indebtedness shall be issued in its name unless authorized by a unanimous vote of the CMC Members. In consideration of the in-kind contributions anticipated from the Fiscal Agent, the total financial contribution requirements of the Fiscal Agent's Member agency, under any applicable agreement, shall be credited by the sum of one thousand dollars ($1,000.00) for the term of the permit in which that Member serves as the Fiscal Agent.

8. **PAYMENTS.** The Fiscal Agent will invoice each Member for their respective participation, minus the values of any CMC approved in-kind contributions at the start of each member entity's Fiscal Year. Each Member will pay such invoices to the Fiscal Agent within one hundred twenty (120) days of the date of the invoice. Failure to pay invoices within 120 days of

the date of the invoice shall deem the Member not in good standing status until payment is made in full. Invoices will be sent to CMC Member entities listed in Attachment 1.

9. **PARTICIPATION.** It is intended that the CMC's operation and function described in this Agreement are ongoing, subject to continued support and authorized funding by each of the Members. Each Member has the option to not participate in this Agreement in the future by sending written notice to all the other participating Members twelve (12) months prior to the Member's proposed withdrawal. This time requirement is made so that all Member Co-permittees will have the opportunity to update their Storm Water Management Plans (SWMP) to reflect the change in status of the cooperative sampling effort and obtain EPA's concurrence on the amended SWMP. In such an event, the terminating Member shall not be entitled to return of any contribution(s) made under this Agreement, and this Agreement shall remain in full force and effect by and among the remaining Members.

10. **OUTSIDE CONTRIBUTIONS.** The CMC may accept contributions from outside funding sources, to be used to support the CMC's mission. Such contributions shall not establish any voting privileges on the CMC, which privileges are reserved exclusively to eligible Members. Outside contributions shall be supplementary to the Contribution Schedule, and no Member's contribution shall be reduced based on receipt of any outside contributions except upon adoption of an amended Contribution Schedule by the Members.

11. **CONTRACTING.** Each Member agrees that a variety of contractors (e.g. sample collection, laboratory, sample results interpretation, geotechnical, etc.) may need to be hired in accordance with the State Procurement Code, in advance of any contractor taking any actions on behalf of the CMC. No contractor shall be an employee of either the Fiscal Agent or any Member of this Agreement. Responsibilities of the contractor shall be included in any resulting contract and the contractor shall only be authorized to provide approved services determined to help Member Co-permittees comply with the provisions of the MS4 permit. For procurement purposes, the CMC will form a Selection Advisory Committee ("SAC"), composed of representatives from Members in good standing. Each Member in good standing will have one representative on the SAC for the RFP process. The SAC will rank proposals and recommend the top three respondents to the Fiscal Agent for selection through the Fiscal Agent's existing procurement selection process. Upon approval, the Fiscal Agent will negotiate an agreement with the selected contractor. The CMC will provide input on scope and fees; however, final negotiations and approval will be the Fiscal Agent's responsibility. If contractor services are obtained using the procurement process set forth in this paragraph, then, with concurrence of the other members of the CMC, funds collected as part of the CMC group may be used to pay that contractor directly for services associated with execution of the monitoring plan. Contractors will be agents of the Member issuing the contract. Other Members of the CMC shall not be bound by the terms of the contract but shall be deemed third party beneficiary hereunder.

12. **ALTERNATIVE CONTRACTING.** As an alternative contracting process, and in order to leverage existing and future contracts between Contractors and Members in good standing of the CMC, contracts may be used, with concurrence from all Members of the CMC,

that have been issued by Members to perform elements of the monitoring program. If a contractor is used that has been procured by a Member in good standing of the CMC instead of the Fiscal Agent, then, with concurrence of the other Members of the CMC, an entity that is not the Fiscal Agent for the CMC may contract to have the services performed and upon successful completion of the services, submit an invoice, with no mark-up, to the Fiscal Agent for reimbursement. Reimbursement shall only be authorized for reasonable and necessary costs. All contractor's utilized for the purposes identified in this Agreement shall be procured in accordance with the State Procurement Code. Contractors will be agents of the Member issuing the contract. Other Members of the CMC shall not be bound by the terms of the contract.

13. **EVALUATION.** The Members agree that the Stormwater Monitoring contract is an ongoing program. The effectiveness of the Stormwater Monitoring contract, with regard to permit compliance, will be evaluated by the CMC prior to annual renewal(s) or request for proposals.

14. **LIMITATION ON SAMPLING ACTIVITIES.** The contractor's scope of services will be limited to the CMC-developed and EPA approved sampling plan and associated reporting. If, in the event of an exceedence during routine monitoring events, additional investigation is required by the EPA to identify the source of a potential contaminant, the CMC may expand monitoring activities to the degree necessary to locate the likely entry point of the potential contaminants. Once the likely entry point is identified, further investigation into the source of the potential contaminant will become the responsibility of the specific Co-permittee(s) having jurisdiction at the location where the likely entry occurred. The CMC shall have no responsibility, fiscal or otherwise, to investigate potential sources of contamination outside of the river or its affiliated Middle Rio Grande Conservancy District-owned water conveyances.

15. **PARTICIPATION AFFECTED.** If any situation arises which adversely affects any Member's participation in this Agreement, said Member will immediately, and in writing, notify the other Members. Any circumstance that materially affects this Agreement will be promptly and equitably resolved by all Members and if necessary, an amendment to this Agreement shall be executed.

16. **COMPLIANCE WITH GOVERNING LAWS.** The obligations of each Member under this Agreement shall be performed in compliance with all applicable laws, statues, and ordinances. Nothing herein is intended to constitute any agreement for the Members to perform any activity in violation of the Constitution or Laws of the State of New Mexico or the Ordinances of any Co-permittee that is a Member of this Agreement.

17. **SEVERABILITY.** If any clause or provision of this Agreement is illegal, invalid or unenforceable, under present or future laws effective during the term of this Agreement, then and in that event, it is the intention of the Members hereto that the remainder of this Agreement shall not be affected thereby.

18. **NO RIGHTS CREATED.** It is specifically agreed among the Members that this Agreement does not, and is not intended to, create in the public, or any member thereof, any rights whatsoever, such as but not limited to, the rights of a third Party beneficiary, and does not authorize anyone not a Member of this Agreement to maintain a suit for wrongful death or any other claim whatsoever.

19. **LIABILITY.** As among the Members, each shall be solely responsible for any and all liability from personal injury, including death, or damage to property, arising from any negligent or intentional act or failure to act of the respective Member, its officials, agents, contractors or employees pursuant to this Agreement. Liabilities of each Member shall be subject to the immunities and limitation of the New Mexico Tort Claims Act, §§41-4-1, et seq., NMSA, 1978, and any amendments thereto. By entering into this Agreement, all public agencies and its "public employees" as defined in the New Mexico Tort Claims Act, do not waive sovereign immunity, do not waive any defense and/or do not waive any limitation of liability pursuant to law. No provision in this Agreement modifies and/or waives any provision of the New Mexico Tort Claims Act.

20. **AMENDMENT.** This Agreement may only be altered or amended upon written approval by a majority of the CMC Members.

21. **DATE OF EFFECTIVENESS.** Regardless of the date when this Agreement is signed by each Permittee, this agreement shall not become effective for each Permittee until that Permittee has received official notification from the Environmental Protection Agency that they have received coverage under NPDES General Permit No. NMR04A000.

City of Rio Rancho

Keith Riesberg
City Manager

5/27/16
Date

Approved as to Form:

Jennifer Vega-Brown
City Attorney

Date: 5/26/16

Date for of beginning of Fiscal Year: July 1

ATTACHMENT 1

CONTRIBUTION SCHEDULE

ATTACHMENT 1

Sampling Cooperative Cost Allocation Determination (CAD) Tool

28-Apr-16

Number	Participant			$ 132,000.00	ENTITY PAYMENT	FISCAL AGENT CREDIT ($1k)
1	City of Albuquerque		1.38	$ 45,574.50	$45,600.00	
2	AMAFCA		0.43	$ 14,319.39	$14,400.00	$ (1,000.00)
3	UNM		0.41	$ 13,553.53	$13,600.00	
4	NMDOT		0.12	$ 3,865.56	$3,900.00	
5	Bernalillo County		0.59	$ 19,549.95	$19,600.00	
6	Sandoval County		0.46	$ 15,094.20	$15,100.00	
7	Village of Corrales		0.04	$ 1,393.20	$1,400.00	
8	City of Rio Rancho		0.42	$ 13,997.46	$14,000.00	
9	Los Ranchos de Albuquerque		0.02	$ 705.79	$1,000.00	
10	Town of Bernalillo		0.03	$ 903.81	$1,000.00	
11	ESCAFCA		0.01	$ 338.88	$500.00	
12	SSCAFCA		0.08	$ 2,703.72	$2,900.00	
	Ratio Check (Sum = Weighting Factor)		4.00		$132,000.00	

Middle Rio Grande Stormwater MS4 Technical Advisory Group

MEMORANDUM OF AGREEMENT

A COOPERATIVE AGREEMENT, CREATING THE MIDDLE RIO GRANDE MS4 TECHNICAL ADVISORY GROUP, IN SUPPORT OF COMPLIANCE EFFORTS FOR A STORMWATER DISCHARGE PERMITTING SYSTEM FOR THE MIDDLE RIO GRANDE VALLEY IN ACCORDANCE WITH THE FEDERAL CLEAN WATER ACT.

WHEREAS, the United States Environmental Protection Agency (EPA), Region 6 regulates the discharge of stormwater from municipal separate storm sewer systems (MS4s) in New Mexico through the issuance of an MS4 permit for the Middle Rio Grande valley urbanized area under the authority of the National Pollutant Discharge Elimination System (NPDES) regulations (40CFR122); and

WHEREAS, the Middle Rio Grande area is comprised of many diverse local, state, federal and tribal entities, each with separate and distinct authority and responsibilities; and

WHEREAS, the Middle Rio Grande area entities potentially eligible for authorization under the proposed NPDES General Permit No. NMR04A000 (hereinafter "MS4 Permit") and therefore are eligible to enter into this Agreement (hereinafter "Agreement") in furtherance of the requirements of the MS4 Permit are the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), University of New Mexico, New Mexico Department of Transportation District 3, Bernalillo County, Sandoval County, Village of Corrales, City of Rio Rancho, Los Ranchos de Albuquerque, Kirtland Air Force Base, Town of Bernalillo, State Fairgrounds/Expo New Mexico, the Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), the Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA), Sandia National Laboratories/Department of Energy, Pueblo of Sandia, Pueblo of Isleta, and Pueblo of Santa Ana (collectively "Stormwater Management Entities"); and

WHEREAS, the proposed MS4 Permit encourages cooperative efforts among separate local, state, federal and Tribal governments to reduce the amount of pollutants discharged with stormwater from the Middle Rio Grande urbanized area MS4s; and

WHEREAS, continued cooperation among the Stormwater Management Entities in the MS4 Permit offers an enhanced opportunity each entity to remain aware of the requirements in the MS4 Permit and facilitating compliance with conditions of the permit;

NOW, THEREFORE, BE IT AGREED THAT:

1. The signatories to this Agreement (hereinafter collectively referred to as "Parties" and individually referred to as "Party") support and encourage a cooperative commitment to assist one another with technical issues regarding compliance with the MS4 Permit and agree to form the Middle Rio Grande MS4 Technical Advisory Group (MS4TAG).

2. The purpose of the MS4TAG will be to exchange technical information regarding compliance with the MS4 Permit, exchange ideas among Parties regarding compliance efforts, and exchange information regarding illicit discharges detected within each Party's jurisdiction. The MS4TAG shall have no binding financial authority and shall be strictly advisory in nature.

3. Nothing in this Agreement shall be construed as obligating a Party to this agreement to expend funds for any purpose, and no Party shall be required to contribute any funds in order to participate in this Agreement. In the event the Parties determine that any expenditure of funds becomes necessary in order to comply with the requirements of the MS4 Permit, a separate agreement shall be entered into between the affected Parties regarding any and all such expenditures at that time.

4. The term of this Agreement shall run from the date the MS4 Permit is issued by the EPA until the date the MS4 Permit is terminated or expires, whichever occurs first. This Agreement may be terminated in its entirety at any time upon the mutual agreement of all of the then-existing Parties to this Agreement. In the event any Party wishes to withdraw from this Agreement without terminating the other Parties' interests in this Agreement, withdrawal shall become effective upon ninety (90) days prior written notice to the other Parties. Withdrawal shall fully and completely terminate that Party's interest in and obligations under this Agreement. Following any Party's withdrawal, this Agreement shall continue in full force and effect as to all remaining Parties to the extent possible.

5. This Agreement does not address the "Public Education and Outreach: or "Cooperative Sampling" sections of the MS4 Permit. Any MS4TAG efforts regarding either of these sections of the MS4 Permit under this Agreement shall be strictly in furtherance of the spirit of cooperation intended among the Parties. Each Party acknowledges its obligations under the "Public Education and Outreach" and "Cooperative Sampling" sections of the MS4 Permit are separate and apart from its activities under this Agreement, and a separate agreement will be required for any collaboration among the Parties with respect to those permit requirements.

6. The Parties will appoint two (2) Co-Coordinators from among the Parties, one of which must be from a Party located within the Bernalillo County geographical area and one of which must be from a Party located within the Sandoval County geographical area. Appointment of a Co-Coordinator shall be by majority vote of the voting Parties, with only those Parties located in the county of Bernalillo voting on the Co-Coordinator from that area, and only those Parties located in the county of Sandoval voting on the Co-Coordinator from that area. Co-Coordinators must be appointed annually in each subsequent permit year, or earlier if the position becomes vacant for any reason. For the New Mexico Department of Transportation District 3, which operates stormwater management facilities in both counties, for the purposes of this section, they shall select one county affiliation in year one of the agreement and alternate affiliations is subsequent years of this Agreement. The Co-Coordinators will be expected to coordinate the Parties' efforts under this Agreement, including facilitating meetings of the MS4TAG at least monthly for the first year of the MS4 Permit. In years two through five of the permit, the frequency of meetings may be reduced to quarterly with additional meetings called as necessary to discuss issues regarding MS4 Permit compliance.

7. Each Party shall be entitled to one (1) vote on any action items.

8. This Agreement creates no obligations on behalf of any Party to any other Party to this Agreement, including for any requirements imposed or determinations made by EPA. The Parties acknowledge and agree that each shall at all times remain individually liable for full compliance with the requirements of the MS4 Permit, including EPA's determination regarding the implementation schedule.

9. This Agreement may be modified in writing at any time upon the mutual agreement of the Parties.

10. Parties can be added at any time during the life of this Agreement. A potential future Party's submittal of a signature page to the Co-Coordinators and approval by the Co-Coordinators shall add the Party to the Agreement.

.

NOTE: Each approving entity would have a separate signature page

City of Rio Rancho

Approved as to Form:

City Attorney

Date: 10/1/13

Recommended By:

Dolores Wood, Director

Date: 11.4.13

Approved By:

Keith Riesberg, City Manager

Date: 11/1/13

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5005 • FAX (505) 981-5203

December 19, 2015

SENT VIA EMAIL

Ms. Nelly Smith
Municipal Stormwater Coordinator
EPA Region 6
Permits and Technical Assistance Section
1445 Ross Ave., Suite 1200
Dallas, TX 75202

Re: NPDES General Permit No. NMR04A000 - Proposed Monitoring Plan

Dear Ms. Smith,

Please consider the attached document as City of Rio Rancho's formal submittal of our proposed monitoring plan for NPDES General Permit No. NMR04A000. This submittal is being made in response to Part III.A.1.b., Cooperative Monitoring. The proposed cooperative monitoring agreement includes the following entities:

1. City of Albuquerque
2. City of Rio Rancho
3. Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
4. Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA)
5. Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)
6. New Mexico Department of Transportation (NMDOT)
7. University of New Mexico (UNM)
8. Village of Corrales
9. Village of Los Ranchos de Albuquerque
10. Town of Bernalillo
11. Bernalillo County
12. Sandoval County

The above listed entities are currently negotiating the Cooperative Agreement for cost sharing. Upon completion of the Cooperative Agreement, the final membership of the agreement will be reported to the EPA and New Mexico Environment Department.

Should you require any further information, please feel free to contact Xavier Pettes at xpettes@rrnm.gov or at 505-891-5045.

Sincerely,

David Serrano, PE
Engineering Division Manager

Enclosure: Cooperative Monitoring Plan
Sampling Location Map

Cc: Sarah Holcomb, New Mexico Environment Department

City of Rio Rancho
Cooperative Monitoring Plan – MS4 Watershed-based permit
December 17, 2015

Sampling must be conducted at a minimum of seven (7) events per sampling location during the permit term with at least three (3) events in the wet season and two (2) events in the dry season. Seasonal monitoring periods are the Wet Season: July 1 – October 31 and Dry Season: November 1 – June 30. Monitoring methodology for both seasons will consist of collecting a minimum of four grab samples spaced at a minimum interval of 15 minutes each. Individual grab samples for each sampling location, will be preserved and combined into a single composite sample at the laboratory.

Qualifying Storm Event

Due to the nature of rainfall in the middle Rio Grande Valley, the MS4s are proposing that a qualifying event be defined as a 0.25-inch or greater storm anywhere in the watershed that creates a discharge to the Rio Grande. Additionally, no antecedent dry period will be required in order to ensure that a sufficient number of qualifying events are available for sampling.

In order to determine whether or not a qualifying storm event has occurred, the MS4s may use a variety of different data sources for representative locations within the watershed to identify the qualifying storm event. Sources for determining a qualifying storm event may include, CoCoRahs, wundermap.com data, calibrated National Weather Service radar, and/or USGS weather data based on rainfall measurements taken within the watershed.

Wet Weather Monitoring (Wet Season: July 1 – October 31/Dry Season: November 1 – June 30)

Wet weather monitoring gathers information on the response from the receiving waters to wet weather discharges. The following parameters must be sampled: TSS, TDS, COD, BOD5, DO, TPH/oil, E.coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, ammonia plus organic nitrogen, phosphorus, PCBs and gross alpha. DO, pH, conductivity, and temperature must be analyzed in the field within 15 minutes of sample collection.

Sampling Locations

Rio Grande (NORTH)- In stream sampling within the Rio Grande will be performed upstream of the Angostura Diversion Dam at the north end of the water shed (upstream or background)..

Rio Grande (SOUTH) – In stream sampling within the Rio Grande will be performed at the Isleta Bridge at the south end of the watershed and downstream of all inputs from the Urban Area to the river to provide the downstream water conditions.

These locations have been identified and are proposed to meet the permit requirements as identified in Part III.A. These up and down stream sample locations capture all inputs to the river within the Urbanized Area. See Attachment 1 for a map of sampling locations.

Sample Collection

The greatest difficulty the MS4s will have in sample collection are the logistics for collecting the sample(s) and getting them to the laboratory within the required holding time limitations for each sample type, particularly E.coli. In order to expedite this process, the MS4s are proposing the following actions:

1. On days where rainfall in excess of the qualifying storm event are predicted to take place within a timeframe where an in-stream sample can be collected and delivered to the laboratory in time to meet holding time requirements, the upstream sample (Angostura Diversion Dam) will be collected by noon (12:00 PM) on the day of the predicted event.
2. After collection of the upstream samples, the e-coli sample will be submitted to the laboratory for analysis and the remaining samples will be preserved as required and held until the determination can be made regarding whether or not there is a Qualifying Storm Event.
3. When a Qualifying Storm Event is anticipated within the watershed, a river staging timing methodology will be used to identify the proper time for the sample to be taken from the downstream location(s) per Table 1. For example, if it typically takes one hour for water from the North Diversion Channel to reach the Isleta Bridge sampling location, then the sample will be taken one hour after the discharge from the NDC has occurred.
4. Upon collection of the downstream sample(s) from the Isleta Bridge location, the e-coli sample(s) will be taken to a laboratory for analysis and the balance of the samples will be preserved, as required, and held until the determination can be made regarding whether or not there is a Qualifying Storm Event.
5. In the event that a Qualifying Storm Event is NOT recorded, all non-e-coli samples will be dumped and not analyzed. In the event a Qualifying Storm Event is recorded, samples (upstream and downstream) will be submitted to a laboratory for analysis.

During sample collection, the sampler shall maintain a log book recording the site conditions at the time of sampling, actions taken to collect the samples, and any other pertinent information that may be relevant to the sample event. All collected samples shall have a chain-of-custody form associated with each sample container. This chain-of-custody form shall be maintained by the sampler until the sample is delivered to the laboratory for analysis. Greater detail will be contained in the Quality Assurance Program Plan (QAPP) that will be developed for this plan.

Example CoCoRaHS Rain Gages and Assumed Travel Times for Sampling Stormwater Events in Watershed						
Zonal Segments of River (north to south travel times)		Western Side of Watershed (west to east travel times)		Rio Grande	Eastern Side of Watershed (east to west travel times)	
		3 hours -->	1.5 hours -->	<-- <-- <-- <-- <--	<-- 20 min.	<-- 40 min.
7.4 hours	Rio Grande at Angostura to Rio Grande at Alameda	NM-SN-59	NM-SN-70		N/A	N/A
4.4 hours	Rio Grande at Alameda to Rio Grande at Central	NM-BR-113	NM-BR-144		NM-BR-71	NM-BR-162
5.2 hours	Rio Grande at Central to Rio Grande at Isleta 147 Bridge	NM-BR-159	NM-BR-104		NM-BR-150	NM-BR-41

TABLE 1 – HYDROGRAPH TIMING FOR RAIN EVENTS TO SOUTHERN SAMPLING POINT

Rainfall information associated with the above Station Numbers can be obtained from the Community Collaborative Rain, Hail and Snow Network website (www.cocorahs.org). The Station Numbers provided in the table are for representative purposes only. The actual CoCoRaHS rainfall data utilized to confirm a Qualifying Event will be from the appropriate zone in the watershed but may not be from the exact Station Number listed in the table.

Response to Monitoring Results

In the event of an exceedance, the MS4 Sampling cooperative will examine all meteorological and stream gauge data available and correlate rainfall event/timing with sampling timing to determine the most likely source location and discharge point to the river. Once the most likely source location has been determined, MS4s will cooperatively develop a pollutant-specific response plan whose elements may include a review of land use for potential sources of the specific pollutant exceeded or enhanced public outreach and education to specific user or industry groups.

In the event of rainfall in the same distribution as the storm event associated with the exceedance, additional sampling may be conducted to monitor for potential sources, if appropriate. Only the constituent(s) identified in the exceedance will be analyzed.

Sample Collector Training Requirements

Any person collecting samples for compliance purposes shall be trained in the proper technique for collecting stormwater samples. Experience in the collection of stormwater samples may be

considered in lieu of receiving formal training in sampling requirements. Greater detail will be contained in the QAPP that will be developed for this plan.

Sample Analysis

After a sample collection event has been performed, the validity of the qualifying storm event must be determined before the samples can be counted as an official sample event. However, since the holding time for the E.coli is so short, the MS4s are proposing analyzing the E.coli samples prior to determining the validity of the storm event as a qualifying storm event. The balance of the samples will be held until the determination of the storm event as qualifying can be made. In the event that the storm event is deemed qualifying, the remaining samples will be run for the required parameters. If an event is deemed by an analysis of rainfall data to be non-qualifying, the results from the E.coli samples will be kept but not reported as part of the official sampling event for permit compliance and the preserved samples will be appropriately discarded without analysis.

Field obtained results (D.O., pH, and temperature) will be handled in a similar fashion as E.coli sampling results. In the event the storm is deemed qualifying during the review of rainfall data, the results from these field obtained measurements will be reported with the balance of the sample results. If the storm event is deemed non-qualifying, these results will be kept but not reported for permit compliance.

QAPP

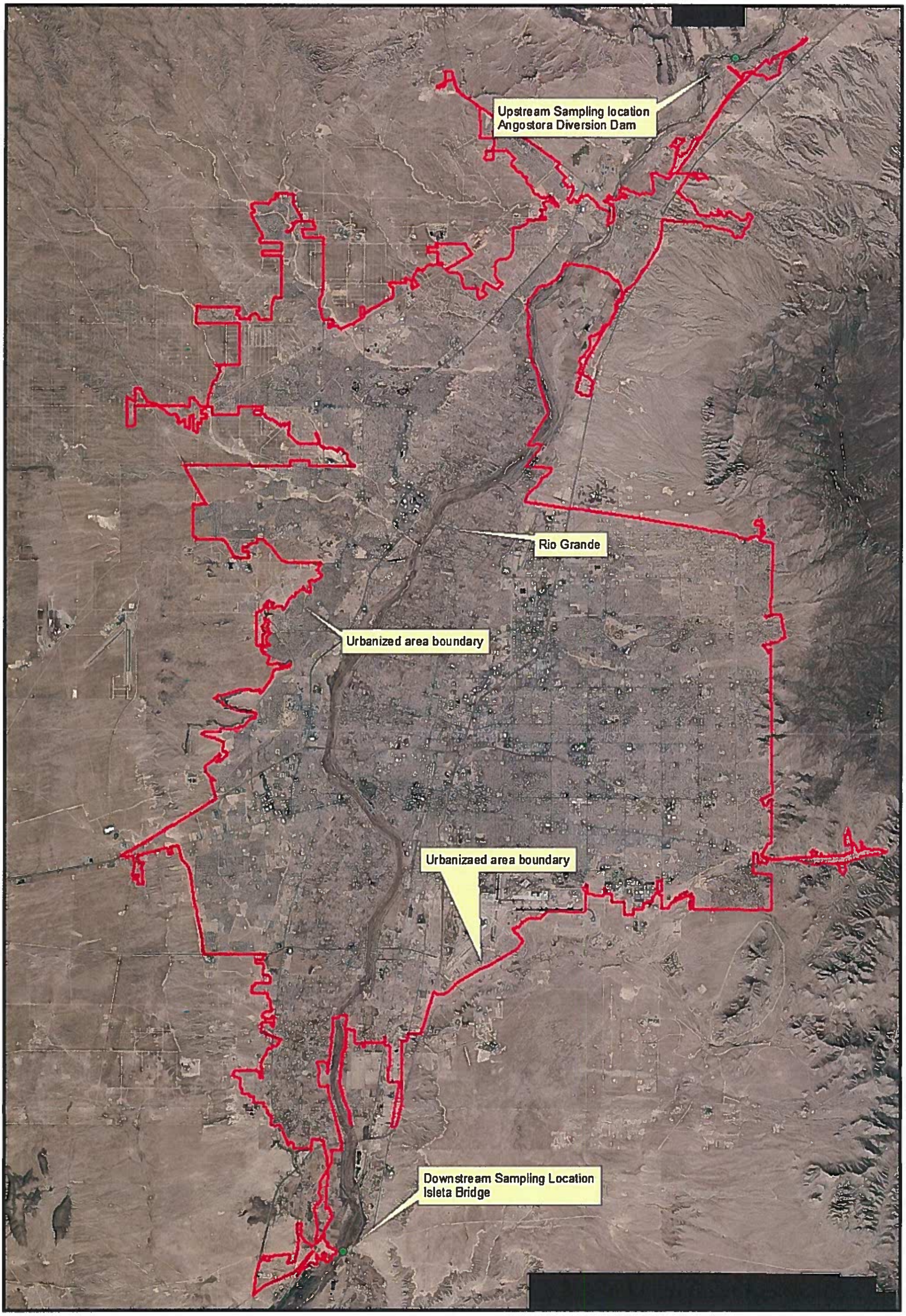
All sampling collection and analysis shall conform to the QAPP to be developed for the sampling program in accordance with Part III.A.5.b and III.Q. of the permit and the methods specified at 40 CRF §136.

Monitoring Records

A QAPP will be developed, conforming to Part III.P requirements.

Permittees Cooperating in Monitoring Program

City of Albuquerque
Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
University of New Mexico (UNM)
New Mexico Department of Transportation (NMDOT)
Bernalillo County
Sandoval County
Village of Corrales
City of Rio Rancho
Los Ranchos de Albuquerque
Town of Bernalillo
Eastern Sandoval County Arroyo Flood Control Authority
Southern Sandoval County Arroyo Flood Control Authority



1 inch = 2.367424 miles

Miles
0 1 2

N

WSB MS4 Sampling Locations

Southern Sandoval County
Arroyo Flood Control Authority

Date: November 13, 2015

Attachment 1

Path: Q:\Environmental_Services\MS4\Sampling\Sampling map 11-13-15 - whole area.mxd

RioRancho
City of Vision

City of Rio Rancho
3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5002 • FAX (505) 981-7274

August 15, 2017

Mr. Jerry Lovato, Executive Engineer
Albuquerque Metropolitan Arroyo Flood Control Authority
2600 Prospect Ave NE
Albuquerque, NM 87107

RE: Memorandum of Understanding for Delegation of Authority for Data Entry into NetDMR System

Dear Mr. Lovato,

As you are aware, twelve permittees covered under the Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) General Permit (NPDES No. NMR04A000) have entered into a cooperative agreement for the performance of permit-mandated water quality monitoring. Currently, results from the samples taken during monitoring events are shared among the twelve members of the Compliance Monitoring Cooperative (CMC) and must be entered by each entity into the Network Discharge Monitoring Report (NetDMR) database individually, creating twelve identical (barring typos or other data entry error) records. This is clearly inefficient, at best.

Following discussions between the CMC and the Environmental Protection Agency (EPA), EPA has approved a methodology whereby one member of the CMC will enter data in NetDMR on behalf of any other CMC-member entity. Each CMC-member entity that wishes to participate will delegate authority to the data entry CMC-member entity or their designed contractor, for this purpose. We appreciate Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) volunteering to be the data entry CMC entity on behalf of the CMC.

Therefore, the City of Rio Rancho, Permit Tracking No. NMR04A007, hereby delegates authority for data entry and approval of sampling results into NetDMR to AMAFCA for the purposes of compliance with MS4 General Permit requirements. Please provide us notification, via email, of the completion of data entry for our records.

In the event that AMAFCA becomes unable to perform this function on behalf of the City of Rio Rancho, please notify me a minimum of 60 days prior to the deadline, or by December 1st, for data entry in order to perform this function internally.

Please contact Xavier Pettes via email at xpettes@rrnm.gov or phone at (505)891-5045 if you have questions or concerns regarding this memorandum. Thank you again for your willingness to perform this function on behalf of the membership of the CMC.

Requested
Keith Riesberg
City Manager, City of Rio Rancho

Acknowledged and Accepted
Jerry Lovato, P.E.
Executive Director, AMAFCA

Section 7	Public Review and Comment
	7.1 Public Comment

Public Review and Comment Period

The City of Rio Rancho published a public notice announcing the draft 2021-2022 Annual Report in the *Rio Rancho Observer* on October 13, 2022. A copy of the draft annual report was made available for review and comment at Rio Rancho City Hall, Development Service Department. The comment period closed on November 30, 2022. The City of Rio Rancho did not receive comments from individuals or organizations during the 45-day comment period.

NPDES Stormwater Program Website

The City of Rio Rancho continues to update and provide information on its NPDES Stormwater Program website. The draft annual report for the 2021-2022 reporting period was made available from October 13, 2022 through November 30, 2022.

https://www.rrnm.gov/2184/NPDES-Stormwater-Program

sioner of Public Lands
xico
BLIC AUCTION

BLIC LANDS
JBLIC AUCTION
AND
, 44.5267± acres

w Mexico

gives notice of a sealed bid auction p
and NMSA Sections 19-7-1 and 19-7-2
located in Sandoval County, New Mexi

nated on the plat entitled "Paseo Gatew
), A and B-1A, a Replat of Portions of Tr
tc.," filed in the office of the County Cle
08 as Instrument No. 2008033908;

res), part of Lot 4 (1.1106 acres), and p
rth, Range 3 East, N.M.P.M.

n area, within the municipal boundaries
f V. Sue Cleveland High School, north
d.

not make any representations or prov
on or fitness for any purpose. The Land
at closing) as a single tract; bids for le

e rules, bidding instructions and forms
y writing the State Land Office, P.O. B
lf, Special Project Analyst, by telephone
The bid packet also is posted on the State
**packet is incorporated in this notice by
ubmitting a bid.**

21,000.00 (three million nine hundred
than the minimum will not be considered.
the Minimum Bid, with additional amounts

n-refundable sale application fee and de-
e in the form specified in the Bid Informa-
clude the sale application fee and required
king the required transaction cost deposit,
associated with the auction and sale. The
e the bid packet for additional information

$6,521.80
$1,216.48
$6,634.32
$3,689.33
$18,061.93

061.93 transaction cost deposit **and** a per-
enting 10% of the Minimum Bid.

h in the bid packet and be submitted in a
lressed to the Commissioner, c/o Christo-
rces Division,

e, 310 Old Santa Fe Trail, Santa Fe, NM,
. Box 1148, Santa Fe, NM 87504-1148
ial Projects Analyst. **BIDS MUST BE RE-
, 2022.**

30 a.m. at the New Mexico State Land Of-
ew Mexico 87501.

and withdraw the Land from sale or to re-
hange on the same or different terms at a
all not constitute or be evidence of a con-
er. The Commissioner will have no obliga-
and that bidder execute a written agree-
no later than 90 days after the selection of

g the sale, the Commissioner will convey
ncumbrances shown in the records of the
ffice. Bidders are responsible for verifying
missioner will further reserve to the State
s, and certain water rights, together with
dent to exploration for and extraction and
water rights. Bidders may request that the
eement for a separately agreed upon fee.

) 827-5095; FAX 827-6157 or TTY (800)
n other formats.

GOV'T LEGALS

of Rio Ran
ed its 2021-2022
Separate Storm
em (MS4) Annual Re
cribing activities conduc
d accomplishments ma
the City pursuant to En
nmental Protection Agenc
EPA) MS4 Permit issued De
ember 22, 2014, NPDES
Permit No. NMR04A000. The
Draft Annual Report is availa
le for public review and com
ent prior to submission to U
EPA, Region 6 during regu
business hours at Rio Ran
o City Hall, 3200 Civic Ce
Circle NE, Suite 130, P
ncho, NM 87144. The d
al Report is also av
line at
mm.gov/2184/
-Stormwater-P
als wishi
on the
sub
with
f th

**DORNAN, TROIA, HOWARD, BREITKREUTZ, CONWAY & DAHLQUIST PC LLO
1403 FARNAM STREET, SUITE 232, OMAHA, NEBRASKA 68102**

**LEGAL NOTICE
IN THE COUNTY COURT OF LANCASTER COUNTY, NEBRASKA**

To: Damon Jakubczak, Interested Party, and whose whereabouts are unknown and upon whom personal service of summons cannot be had:

You are notified that on August 5, 2022, Don Hultz, Petitioner, filed a Petition for Appointment of Permanent Guardian on behalf of James Jakubczak in the County Court of Lancaster County, Nebraska, Case No. CI 22-754. You are an interested party in this matter. Since Petitioner was unable to personally serve you, Judge Holly Parsley, Lancaster County Court Judge, authorized Service by Publication. Final hearing on this Petition will be heard on November 9th, 2022 at 10:30 a.m. at the Lancaster County Courthouse, located at 575 South 10th Street, 2nd Floor, Lincoln, NE, 68508.

Dated: September 27, 2022

DON HIULTZ, Petitioner
BY: DEANA D. KLEIN,
6430
rnan, Troia, Howard,
itkreutz, Conway &
hlquist, PC LLO
03 Farnam Street,
te 232
maha, Nebraska 68102
2) 884-7044
orney for Petitioner

server: October 13, 20, 27,
22

THE PROBATE COURT
UNTY OF SANDOVAL
ATE OF NEW MEXICO

No. SCPB2022238

THE MATTER OF THE
TATE OF ROSE C. SILVA,
ceased.

OTICE TO CREDITORS

TICE IS HEREBY GIVEN
the undersigned has been
pointed personal represen-
ve of this estate. All per-
s having claims against
s estate are required to
sent their claims within four
nths after the date of the
publication or the claims
be forever barred. Claims
st be presented either to
undersigned personal rep-
entative at 220 Ranchitos,
, Albuquerque New Mexico
14, or Attorney, George H.
ez, P.O. Box 819,
nalillo, New Mexico 87004,
iled with the Probate Court
andoval County, located at
0 Idalia Rd., Bernalillo,
w Mexico 87004, telephone
05) 867-7647.

Dated: 9/14/2022

/s/Margaret Evelyn Gutierrez
220 Ranchitos, NW
Albuquerque, NM 87114

/s/George H. Perez
Attorney for Applicant
P.O. Box 819
Bernalillo, NM 87004
(505) 867-2351

STATE OF NEW MEXICO
COUNTY OF SANDOVAL
PROBATE COURT
No. SCPB2022248

IN THE MATTER OF THE ESTATE OF PERRY ROBERT HARPER JR., Deceased.

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of the Estate of Perry Robert Harper Jr. (the "Decedent"). All persons having claims against the Estate of the Decedent are required to present their claims within four (4) months after the date of the first publication of this notice, or sixty (60) days after the date of mailing or other delivery of this notice, whichever is later, or the claims will be forever barred. Claims must be presented to the Personal Representative's attorneys, Spangler Pacheco & Werbelow PA, P. O. Box 15698, Rio Rancho, New Mexico 87174, or filed with the Probate Court of Sandoval County, New Mexico, located at the following address: 1500 Idalia Road, Building D, Bernalillo, NM 87004 and P.O. Box 40 Bernalillo, NM 87004.

Dated: September 22, 2022

/s/Rosa Harper
a.k.a Rose Harper,
Personal Representative
of the Estate of Perry Robert Harper Jr.

Submitted by:

SPANGLER PACHECO & WERBELOW PA

LeeAnn Werbelow
/s/Alexandra N. Lopez
Attorneys for Rosa Harper a.k.a Rose Harper, as Personal Representative for the Estate of Perry Robert Harper Jr.
P. O. Box 15698
Rio Rancho, New Mexico 87174
Telephone: (505) 892-3607
Email: lw@lsplegal.com
nl@lsplegal.com

Observer: October 6, 13, 20, 2022

STATE OF NEW MEXICO
COUNTY OF SANDOVAL
THIRTEENTH JUDICIAL DISTRICT COURT

No. D-1329-PB-2022-00195

IN THE MATTER OF THE ESTATE OF
MARIA L. VIGIL, DECEASED

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of this estate. All persons having claims against this estate are required to present their claims within four months after the date of the first publication of this Notice or the claims will be forever barred. Claims must be presented either to David A. Finlayson, attorney for the estate of Maria L. Vigil, at FINLAYSON LAW FIRM, PC, 7301 Jefferson Street NE, Suite F, Albuquerque, NM 87109, or filed with the Thirteenth Judicial District Court, Sandoval County Courthouse, 1500 Idalia Road, Building A, Bernalillo, NM 87004.

Dated: September 2, 2022
/s/ALEXANDRA M. BELTRAN, Personal Representative
FINLAYSON LAW FIRM, PC
By: /s/David A. Finlayson
Attorneys for the Personal Representative of the Estate of Maria L. Vigil, Deceased
7301 Jefferson Street NE, Suite F
Albuquerque, NM 87109
(505) 373-3500

Observer: September 25, October 6, 13, 2022

FOR CLASSIFIED ADS
CALL
505.823.4444
abqjournal.com/classifieds

STATE OF NEW MEXICO
COUNTY OF SANDOVAL
THIRTEENTH JUDICIAL DISTRICT COURT

No. D-1329-PB-2022-00201

IN THE MATTER OF THE ESTATE OF
VIRGINIA LEA BRANNAN, deceased.

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN the undersigned has been appointed Personal Representative of the Estate of Virginia Lea Brannan, deceased. All persons having claims against this estate are required to present their claims within four (4) months after the date of the first publication of this Notice or the claims will be forever barred. Claims must either be presented to the Personal Representative, c/o Lovato Law, PC, 661 Quantum Rd. NE, Suite 10, Rio Rancho, NM 87124, or filed with the Thirteenth Judicial District Court located at 1500 Idalia Rd., Bernalillo, NM 87004.
Dated: September 26, 2022
/s/ Cody Kasten
Cody Kasten
10512 San Marino Pl. NE
Albuquerque, NM 87111

Submitted by:

LOVATO LAW, P.C.
By: /s/ Edward W. Lovato
Edward W. Lovato
661 Quantum Rd. NE, Suite 10
Rio Rancho, NM 87124
Tel: (505) 738-3777
Edward@lovatolawnm.com
Attorney for Personal Representative

Observer: October 13, 20, 27, 2022

STATE OF NEW MEXICO
COUNTY OF SANDOVAL
THIRTEENTH JUDICIAL DISTRICT COURT

No. D-1329-PB-2022-00205

IN THE MATTER OF THE ESTATE OF
ASHLEY ALICE TRUJILLO, DECEASED

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of this estate. All persons having claims against this estate are required to present their claims within four months after the date of the first publication of this Notice or the claims will be forever barred. Claims must be presented either to David A. Finlayson, attorney for the estate of ASHLEY ALICE TRUJILLO, at FINLAYSON LAW FIRM, PC, 7301 Jefferson Street NE, Suite F, Albuquerque, NM 87109, or filed with the Thirteenth Judicial District Court, Sandoval County Courthouse, 1500 Idalia Rd., Bldg. A, Bernalillo, NM 87004.
Dated: 9-26, 2022

/s/Martin Romero
MARTIN ROMERO, Personal Representative

FINLAYSON LAW FIRM, PC

By: /s/David Finlayson
David A. Finlayson
Attorney for the Personal Representative of the Estate of ASHLEY ALICE TRUJILLO, Deceased
7301 Jefferson Street NE, Suite F
Albuquerque, NM 87109
(505) 373-3500

Observer: October 6, 13, 20, 2022

THIRTEENTH JUDICIAL DISTRICT COURT
COUNTY OF SANDOVAL
STATE OF NEW MEXICO
No. D-1329-CV-2022-00643

KEN YELIN and LAURIE J. YELIN,husband and wife,
Plaintiffs,

- vs -

SUNRISE BANK OF ALBUQUERQUE,MICHIGAN COMMERCE BANK and THEIR UNKNOWN SUCCESSORS AND ASSIGNS,
Defendants.

NOTICE OF SUIT

STATE OF NEW MEXICO to THE UNKNOWN SUCCESSORS AND ASSIGNS of SUNRISE BANK OF ALBUQUERQUE, GREETINGS:

You are hereby notified that the above-named Plaintiff has filed a civil action against you in the above-entitled court and cause regarding a breach of contract. That unless you enter your appearance in said cause on or before 30 days after the last day of publication, judgment by default will be entered against you.

Attorney(s) SPANGLER PACHECO & WERBELOW PA

Matthew M. Spangler
Attorneys for Plaintiff
P.O. Box 15698
Rio Rancho, New Mexico 87174
Telephone: (505) 892-3607
Email: ms@lsplegal.com

WITNESS the Honorable James A. Noel, District Judge of the Thirteenth Judicial District Court of the State of New Mexico, and the Seal of the District Court of Sandoval County, this 27th day of September, 2022.

Audrey Garcia
CLERK OF THE DISTRICT COURT
(SEAL)

By: /s/ Dominique Sanchez
Deputy

Observer: October 6, 13, 20, 2022

EMPLOY 505

This page intentionally left blank.

Section 8	Signature on Certification of Annual Reports
	8.1 Letter of Delegation

This page intentionally left blank.

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144
(505) 981-5005 • FAX (505) 981-0986

"Director"
US EPA Region 6
1445 Ross Ave., Suite 1200 (6EN-WT)
Dallas, TX 75202-2733

NPDES Permit No. NMR04A000
Delegating an "Authorized Representative" for the City of Rio Rancho

Dear Director:

This letter serves to designate either a person or specifically described position as an authorized person for signing reports, storm water pollution prevention plans, certifications or other information requested by the Director or required by the permit. This authorization cannot be used for signing an NPDES permit application (e.g. Notice of Intent (NOI)) in accordance with 40 CFR 122.22. The following person or position is herby authorized to sign reports, storm water pollution prevention plans or certifications other than the NOI application:

Name: David Serrano, P.E. Position: Deputy Director

By signing this authorization, I confirm that I meet the following requirements to make such a designation as set forth in Part IV.H.1-4 of the Municipal Separate Storm Sewer System Permit [79 Fed Reg 76328] effective December 22, 2014.

> *For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

	City Manager	19-Sept-2022
Matt Geisel	Title	Date