Annual Report Format

National Pollutant Discharge Elimination System Stormwater Program

MS4 Annual Report Format

Check box if you are submitting an individual Annual Report with one or more cooperative program elements. ☒

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

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

1. MS4(s) Information

NMR04A014 City of Albuquerque

Name of MS4

Kathleen	Verhage	Senior Engineer
Name of Contact Person (First)	(Last)	(Title)

(505) 768-3654	kverhage@cabq.gov
Telephone (including area code)	E-mail

PO Box 1293, City of Albuquerque, Dept of Municipal Development, Attn: Kathy Verhage Rm 301

Mailing Address

Albuquerque	NM	87108
City	State	ZIP code

What size population does your MS4(s) serve? 546,000 NPDES number NMR04A014

What is the reporting period for this report? (mm/dd/yyyy) From Jul 1, 2015 to Jun 30, 2016

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	
Middle Rio Grande	E-coli	☒ Yes	☐ No	☒ Yes	☐ No
Middle Rio Grande	Temperature	☐ Yes	☒ No	☐ Yes	☐ No
Middle Rio Grande	Polychlorinated Biphenyls in Fi	☐ Yes	☒ No	☐ Yes	☐ No
Middle Rio Grande	Dissolved Oxygen	☐ Yes	☒ No	☐ Yes	☐ No

2. B. Continued

Impaired Water	Impairment	Approved TMDL	TMDL assigns WLA to MS4
		☐ 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, household hazardous waste, trash and debris (including natural vegetation), sediments, automotive fluids including oil and grease, detergents. A "floatables study" and source testing have been performed. Birds are primary

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?

Our public education program targets pet waste, household hazardous waste, trash and debris (including natural vegetation), sediments, automotive fluids, detergents, fertilizers, pesticides

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.

Survey showed that over 90% of individuals understood the importance of pollution prevention and valued improved stormwater quality. A household hazardous recycling event resulted in the participation of over 300 individuals. See

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. 113

D. How many of the sites identified in 4.C did you inspect during this reporting period? 112

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

Each site greater than 1 ac is inspected at least once while active. Larger sites with longer active periods are inspected more frequently. On average, the COA performs 27 private development construction inspections per week.

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

If Yes, based on what criteria? Size, length of time open, direct impervious connection to a water of the US

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	182	No Authority	☐
☒ Yes	Administrative fines	2	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	Second notice of violation		

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?

Stabilized entrance needs maintenance or not built per plan, cement pollution, sediment maintenance BMPs

J. How often do municipal employees receive training on the construction program? Annually

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. 37 (see Item 10)

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?

37

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? see Item 10

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

Complaints regarding spills are investigated immediately (see item 10). The 37 Dry Weather Screening outfalls are screened annually during the Dry Season--typically sometime in November through March (see item 10 for more

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? 1 see item 10

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

L. How often do municipal employees receive training on the illicit discharge program? Annually (appropriate de

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: All COA golf courses have SWPPPs for their operations. General Parks and Open Spaces do not.

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

C. If Yes, at what frequency are inspections conducted? It depends. See Iter

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 activities, detention pond cleaning, storm inlet and drain cleaning, fueling operations, storage of hazardous and non-hazardous materials, general good housekeeping operations, landfill operations

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?

Most frequent inspections occur at facilities that require a Multi Sector General Permit (Landfill and Transit). Good Housekeeping inspections are performed at general maintenance facilities at least semi-annually and generally

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?

Annual refreshers are provided. In addition, training materials have been provided to supervisors to be used when staff turns over and new employees are hired. On the spot training also occurs during inspections, as needed.

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?

None required at this time.

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.)?

Per COA ordinance the following projects are reviewed: 1. more than 500 cubic yards fill exported or impored ; 2. Commercial projects that disturb > 1000 sq ft , 3. Residential projects > 1 Ac, 4. Parking lots > 2000 sq ft, 5. grade change

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.

www..amlegal.com/albuqerueque_nm/

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? 709 (include

H. How many of the plans identified in 7.G were approved? 371

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? 40 All those

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? 3

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? 30 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? Monthly on overall

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? $12 Million

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? $12 million

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:	G.O. Bonds (NPDES, Water Quality Compliance)	Amount $	1.0 Millio	OR %	
Source:	General Funds (Arroyo and Street Maintenance))	Amount $	7.2 Millio	OR %	
Source:	Customer Billing (Household Hazardous Waste, Cl	Amount $	3.8 Millio	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)? 23 see lte

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

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
AMAFCA, SCAFC.	Sampling and Monitoring Wet Weather	Memo of Understanding
AMAFCA, SCAFC.	Education and Outreach	Memo of Understanding
AMAFCA, SCAFC.	General Watershed Based Permit Imple	Memo of Understanding

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
General Public Surveys	2014	2 times/year	2
Student Surveys	2011	Annually	25-30
Dry Weather Screening	2002	Annually	20-37

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.

https://www.cabq.gov/municipaldevelopment/our-department/engineering/storm-water-management/municipal-separate-storm-sewer-system-ms4-permit.

10. Additional Information

Please attach any additional information on the performance of your MS4 program, including information required in Parts I.C, I.D, and III.B. If providing clarification to any of the questions above, 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 Robert J. Perry Digitally signed by Robert J. Perry Date: 2016.11.22 15:48:08 -07'00'

Chief Administrative Officer

Name of Certifying Official, Title

11/21/2016

Date (mm/dd/yyyy)

CITY OF ALBUQUERQUE

Annual Report for Fiscal Year 2016 (FY16)

July 1, 2015 to June 30, 2016

NPDES PERMIT NMR04A000, Effective Date December 22, 2014

eNOI Application Date June 21, 2015

ITEM 10 Additional Information

I.C. Special Conditions

1. Compliance with Water Quality Standards

d. Dissolved Oxygen (DO): AMAFCA continues to monitor the DO in the Rio Grande

e. Polychlorinated Biphenyls (PCBs): The COA began a sediment assessment study in FY16. It will be completed in FY17. As a result of recommendations from this study, soil samples will be taken from the 5 outfall locations monitored under the former Phase 1 permit NMS000101. Soil samples from each of the 5 locations will be analyzed for PCBs using the aroclor method. Detection of PCBs at any location will result in further analysis of the area and sampling upstream for a potential source.

f. Temperature: AMAFCA continues to monitor temperature in the Rio Grande and at the North Diversion Channel through the deployment of sondes. Analysis of stormwater flows for temperature under the former Phase 1 permit indicates no contribution to temperature exceedances in the Middle Rio Grande and continues to indicate no contribution to any potential temperature exceedances.

2. Discharges to Impaired Waters with and without approved TMDLs

b.(i)(c)B: The Monitoring Cooperative continues to work out the details of the sampling plan and sample collection. To date, the permittees under NMR04A000 are still determining a methodology to calculate the bacterial load contributed by the souce area during a storm event. Although the permittees in the cooperative have submitted a sampling plan that has been approved by EPA Region 6, the plan continues to be modified as sampling staff learn by trial and error to collect samples in this arid climate prone to highly localized rain events. The permit calls for the collection of 7 samples over the 5 year permit term. It is hoped to report a value in FY17, dependent upon rain the timing and depth of rain events and subsequent discharge volumes. .

b.(i)(e)A: The COA continues to work with the Albuquerque Bernalillo County Water Utility Authority (WUA) to make improvements to its pump and lift stations. The COA repaired one residential cross connection that had been illegally discharging to the storm drain system in FY2016.

b.(ii)(c): The COA continues to work with Bernalillo County (BernCo) and the NM Department of Transportation (NMDOT) on the development of a joint sampling

program as a Best Management Practice (BMP) in the hopes of demonstrating that surface water is a not contributor to any potential nutrient exceedances.

3. Endangered Species Act (ESA) Requirements

a.(i) AMAFCA has filled in the former embayment reducing the potential for low DO waters to occur and subsequently discharge from the North Diversion Channel (NDC) to the Rio Grande. The COA continues to install water quality features, such as trash racks and water quality manholes in efforts to collect and reduce trash and debris that contribute to the DO problem.

a.(ii) AMAFCA has submitted a revised strategy for reduction of pollutants contributed by the embayment. As stated above, the embayment has been filled in. Annual Incident Take Reports are submitted by AMAFCA to the EPA and Fish and Wildlife Service (FWS).

b.(i) The COA scoped and issued a "notice to proceed" for a contractor to prepare a sediment assessment in the fall of FY16. A draft was completed in August, finalized in October and is included with this first Annual Report as required as Attachment 1, City of Albuquerque Sediment Assessment.

I.D. Stormwater Management Program

A copy of the updated SWMP adapted for compliance under NMR04A000 is included with this first Annual Report as required. Due to the large size of the SWMP, a link to the webpage where it is posted will be provided in email correspondence to regulators and stakeholders. Copies will also be provided on compact disks that will be mailed to regulators, stakeholders, and others upon request.

5b. Post-Construction Stormwater Management .

(x)(c)B. Approximately 200 acres of impervious area (IA) was added to the Albuquerque Metropolitan area last year. Of this, roughly 36% or 72 acres was in residential areas contained by backyard walls and is considered to be disconnected. Therefore the directly connected impervious area (DCIA) added in FY16 was 200 acres minus 72 acres totalling 128 acres. The methodology for estimating impervious area is based on land use codes and was sent to EPA in its 2013 Annual report under the former Phase 1 permit NMS000101.

5d. Industrial and High Risk Runoff

(vi) The COA worked on updating their industrial and high risk program in FY2016. Computer staff created a computer application so that inspectors could download the forms onto cellular phones in the field. In addition, a stormwater quality ordinance was passed on June 20, 2016 that gives COA designated staff authorization to perform inspections as well as enforcement capability. Currently contractor staff performs inspections of facilities that require a Multi-Sector General Permit (MSGP). In addition, the COA is in the process of hiring permanent employees to assist in inspection and data tracking efforts.

5e. Illicit Discharges and Improper Disposal

(vii) In addition to utilizing the 311 complaint system to pinpoint illicit discharges, the COA implemented a new Illicit Discharge Detection and Elimination (IDDE) inspection

program in order to mitigate the influence of lower risk but higher potential discharges. The automotive industry was chosen as the sector in which the inspection program will begin. A contractor was hired to supply staff to perform inspections. In addition, the COA is in the process of hiring permanent employees to assist in inspection and data tracking efforts. See Attachment 2 for a map of the 311 complaints. See the Stormwater Management Plan (SWMP) for the IDDE Plan.

5f. Control.of Floatables Discharges

(iii). Street Sweeping crews picked up 6,900 cubic yards (6700 tons) of dirt and debris from 21,000 miles of COA Right of Way in FY16. Arroyo Maintenance cleaned 3200 cubic yards (3100 tons) of dirt, floatables and debris from the storm drain system during that same time period

III.B. Monitoring, Assessment, and Reporting

Wet Weather Reporting: The COA participates in the Middle Rio Grande monitoring cooperative. During FY16, the monitoring cooperative prepared a sampling and analysis plan. The COA submitted a copy of the plan in June 2016 to EPA Region 6 for approval. The monitoring cooperative continues to work out details regarding sampling and analysis for bacteria given its short holding time and unpredictability of localized storm events in this arid climate. Permit requirements call for the submission of 7 samples by the end of the permit term.

Attachment 3 includes a copy of email correspondence between agency staff in the Middle Rio Grande and EPA Region 6 regarding access and data entry to the NetDMR system. As of November 17, 2016, the COA's permit number had not been entered into NetDMR. Therefore, a hard copy of the Discharge Monitoring Report (DMR) form that will be entered into NetDMR when the permit has been set up in the system is also provided in Attachment 3. An explanation that no sample was taken during the reporting period is indicated in the comment section of the form.

Dry Weather Reporting: See Attachment 4.

Floatables Reporting: See item 5f above. In addition an estimated 10 cubic yards of floatables were removed from the Barelas Pump Station in FY16, the COA's selected floatables monitoring location. AMAFCA provides the information on floatables monitoring in the NDC.

Industrial and High Risk Reporting: The COA's landfills are located outside of the MS4 and drain to the Rio Puerco rather than the Rio Grande. COA's transfer stations, solid waste station at Pino Yards and transit stations, all located within the MS4, are classed as sector P and require visual monitoring only. See Attachment 5 for the visual monitoring result. The monsoon season was weak in the summer of 2015 and failed to produce rain events that resulted in enough stormwater runoff for visual sampling. In addition many of the rain events that did occur did so during evening hours. Additional visual monitoring in future years will be conducted to make up for the lack of visual monitoring in FY2016 as possible during rain events that occur during daylight hours. Quarterly visual events have been scheduled although only semi-annual events are required by the MSGP.

ADDITIONAL INFORMATION FROM REPORT FORM

Item 3. Public Participation and Education

C. In addition to its' participation in the Stormwater Quality Team's outreach activities, the COA sponsored 16 clean up events in open spaces, along trails, in the Bosque, and along the Rio Grande. Over 500 volunteers attended these events. In addition 1295 youth and 277 adults planted over 1600 trees, shrubs, and plants as part of the COA's restoration efforts. The Storm Drainage Department also provided monetary support to The Nature Conservancy and Earth Force in their efforts to promote public education in the schools and in the adult community in the area of watershed health.

Item 5. Illicit Discharges

C. There are 25 discharge points to the Rio Grande. Assessment of the subwatersheds and industry in the Albuquerque Metropolitan area led to the current selection of 12 additional dry weather screening locations. In total, 37 locations have been selected for dry weather screening. See Attachment 2, Dry Weather Screening for the results.

J. During the reporting period from July 1, 2015 through June 30. 2016, approximately 60 improper discharge related complaints were reported to the 311 system and investigated by a City storm drainage engineer. See Attachment 1 for a map indicating location and type of discharge. During this time period 1 cross connection into the storm drain was repaired.

Item 8. Program Resources

D. 23 full time employees include: 19 Arroyo and Storm Drain Maintenance personnel, 3 Storm Drainage personnel, 1 Stormwater Quality Engineer in Planning. This does not include 76 FTE's and 80 full time contractor positions in the Clean City Solid Waste program which picks up trash and floatables nor 21 employees in Street Maintenance that perform street sweeping. This also does not include Parks and Open Space personnel who perform restoration projects, host citizen clean up days, and perform education and outreach.

In addition to FTE's employed by the COA, the Department of Municipal Development, Storm Drainage Section budgets and spends approximately $600,000 per year on consultants hired solely to perform NPDES permit compliance. This is the equivalent of 6 FTE's.

Attachment 1

City of Albuquerque Sediment Assessment

City of Albuquerque
Sediment Assessment

Prepared for **City of Albuquerque, New Mexico**

October 17, 2016

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

Table of Contents

List of Figures

Figure

List of Figures (Continued)

Figure

List of Tables

Table

1. Introduction

The City of Albuquerque (COA) has retained Daniel B. Stephens & Associates, Inc. (DBS&A) to address the requirements of the Sediment Pollutant Load Reduction Strategy (the Strategy) in final watershed-based municipal separate storm sewer system (MS4) permit NMR04A000 (the Permit) (effective date December 22, 2014) and prepare this sediment assessment. The Strategy is to be developed, implemented, and evaluated by the COA to assess and reduce pollutant loads associated with sediment into the receiving water of the Rio Grande. The Strategy must include the following elements:

- Sediment assessment
- Baseline sediment loading estimates
- Targeted controls and best management practices (BMPs)
- Monitoring and interim reporting to assess progress
- Progress evaluation and reporting regarding overall success of the Strategy
- Verification of no adverse effect to the critical habitat of any threatened or endangered species

This report supports the first element of the Strategy, and is based on available data from federal, state, and local studies, supplemented as needed with data collected by COA. The sediment assessment has the following requirements:

- Identify and investigate areas within COA jurisdiction that may be contributing to excessive levels of pollutants in sediment entering the Rio Grande during stormwater discharges

- Identify structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, and areas indicated as potential sources of sediment pollutants

- Record any observed erosion of soil or sediment along ephemeral channels, arroyos, or stream banks, noting as either scouring of sediment or deposition of sediment

Section 2 of this report contains a literature review regarding sediment loading and transport in the Middle Rio Grande. Available water quality and sediment removal data have been compiled, with the results reviewed in Section 3. Section 4 summarizes findings and recommendations for the required Strategy.

2. Background

The mean annual precipitation from 1980 to 2010 recorded at the Albuquerque International Airport weather station was 9.45 inches (WRCC, 2016). The majority of precipitation occurs during the months of July and August as sudden and intense thunderstorms. Elevation in the Albuquerque metropolitan area ranges from 5,000 feet above mean sea level (feet msl) near the Rio Grande to 7,000 feet msl near the Sandia Mountain foothills. Loss of sediment is a continual and natural process, but the approximate 2,000-foot elevational range often translates into massive amounts of sediment being eroded and mobilized during storm events within Albuquerque city limits.

2.1 Sediment Pollutant Loading

The Rio Grande is an alluvial river that has its headwaters in the San Juan Mountains of southwestern Colorado. From there it flows south through New Mexico, then marks the border between Texas and Mexico as it runs southeast toward the Gulf of Mexico.

Historically, the Middle Rio Grande (from Cochiti Dam to Elephant Butte Reservoir) was an aggrading river characterized by a wide, sandy, braided planform with a high sediment load (Scurlock, 1998; Lagasse, 1980). The long dry periods of low peak flows facilitated vegetation encroachment and narrowing, whereas large floods could widen the river channel as “channel reset” events. Today, operation of flood control dams has resulted in a permanently narrower active channel due to the decreased magnitude of upstream peak flows, together with channelization and bank stabilization activities (Makar et al., 2006).

The Middle Rio Grande has some of the most problematic sedimentation issues among rivers of the U.S. Cochiti Dam reduces the suspended sediment loading in the flows downstream of the dam by 87 to 98 percent (USACE et al., 2007; Novak, 2006). However, dam effects diminish downstream because of tributary sediment delivery and in-channel sources of sediment. Excessive channel degradation downstream of the dam can also disconnect the channel from the floodplain, thereby reducing the quality and quantity of in-stream and floodplain habitat and accelerating erosion of the bed and bank. Channel incision downstream of Cochiti Dam and

corresponding increases in the potential for bank collapse are therefore additional sources of sediment.

Sedimentation problems in the Middle Rio Grande also need to be examined in the light of land use, which itself is directly correlated with water quality, hydrologic function, ecosystem health, biodiversity, and the integrity of streams and wetlands. When natural landscapes are converted to urban use, permeable soils are covered with impervious surfaces such as roads, sidewalks, parking lots, and buildings. Increased imperviousness leads to higher volumes and flow velocities of stormwater runoff, often resulting in negative effects on local hydrology, including surface water pollution. Sedimentation from tributaries that drain lands within Albuquerque city limits must therefore be studied in association with potential surface water pollution.

The Permit stipulates that eligible Middle Rio Grande MS4 operators must, in consultation with the New Mexico Environment Department (NMED), the U.S. Environmental Protection Agency (EPA), and affected tribes (if monitoring locations are located on tribal lands), develop and implement a comprehensive monitoring and assessment program designed to meet the following objectives:

- Assess compliance with the permit
- Assess the effectiveness of the permittee's stormwater management program
- Assess the impacts to receiving waters resulting from stormwater discharges
- Characterize stormwater discharges
- Identify sources of elevated pollutant loads and specific pollutants
- Detect and eliminate illicit discharges and illegal connections to the MS4
- Assess the overall health and evaluate long-term trends in receiving water quality

Sedimentation data are valuable in quantifying impacts so that remedial plans can be developed. The terms of the Permit stipulate that "the permittee shall control the discharges of pollutant(s) of concern to impaired waters and waters with approved Total Maximum Daily Loads (TMDLs) . . ., and shall assess the success in controlling those pollutants."

2.2 Naturally Occurring Constituents

Natural drainage to the Rio Grande in the Albuquerque metropolitan area occurs through arroyos (typically dry channels that flow only in response to snowmelt or large rainstorms) that originate on alluvial fans at the foothills of the Sandia Mountains and flow westward to the Rio Grande (Figure 1). In areas west of the Rio Grande, arroyos originate along the West Mesa and flow eastward to the Rio Grande. Many of the arroyos are concrete lined to enhance their capacity to convey storm runoff and prevent erosion, while other arroyos, particularly in the western part of the city, remain natural.

The surface geology on the east side of the Rio Grande includes Sandia granite (pink megacrystic biotite monzogranite and granodiorite) in the higher elevations, and primarily Quaternary-aged sediments from tributary stream-valley alluvium and fluvial terrace deposits (Connell, 2006). The Quaternary deposits are typically composed of sand with varying amounts of clay and gravel. Quaternary alluvium deposits associated with Tijeras Arroyo are composed of variable proportions of subangular to subrounded granite, greenstone, gneiss, limestone, and sandstone derived from the eastern slope of the Sandia Mountains (Connell et al., 1998). The surface geology on the west side of the Rio Grande includes basaltic lavas of the Albuquerque volcanoes, and primarily Quaternary-aged sediments from tributary stream-valley alluvium and fluvial terrace deposits (Connell, 2006). Although metals occur naturally in local soils, concentrations from soil samples within city limits show a possible trend of increasing contamination from upstream sites to the more downstream sites (Martinez, 2015).

2.3 Current Metropolitan Area Stormwater Management

The primary purpose of the Sediment Pollutant Load Reduction Strategy, as required by the Permit, is to reduce pollutant loads associated with sediment in runoff reaching the Rio Grande. The COA and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) have a comprehensive Storm Water Management Program (SWMP) in place to reduce stormwater pollution to the maximum extent practicable and to eliminate prohibited non-stormwater discharges.

AMAFCA maintains the flood control system by routinely removing sediment from the many portions of the system that have been designed to capture sediment (i.e., detention basins shown on Figure 1). Many different types of detention basins have been put in place within the Albuquerque MS4 system, including some with wetland components that can slow the water down to reduce sediment loading to the Rio Grande. For example the North Pino Pond has a "secondary environmental pond," or an extended detention pond that slows down stormwater and, because it is lined by vegetation acting as a filter, increases sediment removal. AMAFCA has designed and built many structures that catch debris, sediment, and trash. These structural BMPs, which protect the Rio Grande from pollution, are often modeled in the University of New Mexico (UNM) Hydraulics Laboratory to enhance their debris-capturing capability. The reduction in sediment has resulted in downstream water quality improvements, as much of the pollutant load involved in urban waters is sediment related.

In addition, the COA has recently updated its drainage ordinance. Under the new drainage ordinance, a current stormwater control permit is now required for erosion and sediment control for all construction, demolition, clearing, and grading operations that disturb the soil on 1 acre or more of land. The permit requires submittal of an erosion sediment control plan prepared by a licensed New Mexico Professional Engineer to ensure that minimum design standards are met and to reduce potential pollutants that may result from the demolition and construction activities. The COA Stormwater Quality Planning Section reviews these plans prior to the start of grading and conducts inspections on all construction sites.

3. Data Review

In cooperation with the COA, AMAFCA, the New Mexico Department of Transportation, and UNM, the U.S. Geological Survey (USGS) conducted a sampling study of stormwater in the Albuquerque metropolitan area. The following sample outfall locations, all of which fall under COA jurisdiction, were selected for investigation as areas that could be contributing to pollutants in sediment entering the Rio Grande during stormwater discharges (Figure 1 and Table 1):

- North Diversion Channel (NDC) near Alameda (North Diversion Channel)
- Mariposa Diversion of San Antonio Arroyo (San Antonio Arroyo)
- COA Barelas Lift Station no. 32 (Barelas Pump Station)
- San Jose Drain at Woodward Road at Albuquerque (San Jose Drain)
- South Diversion Channel (SDC) above Tijeras Arroyo (South Diversion Channel)
- Tijeras Arroyo near Albuquerque (Tijeras Arroyo)

All of these outfalls discharge stormwater directly or indirectly to the Rio Grande. They are located at the downstream end of a drainage basin. Concentrations of pollutants measured at each outfall therefore reflect (1) the extent of sedimentation loading and surface water pollution within the corresponding drainage basin and (2) the effectiveness of sediment removal structures. For example, San Antonio Arroyo has a settling pond above the sampling location, while there is a detention pond right above the San Jose Drain sampling location. The NDC embayment at NDC reduces sediment. The baffle chute structure (along the SDC), the NDC embayment (where trash is collected manually by AMAFCA crews), and the Bear Arroyo debris screen represent three other structures designed to help with sediment removal. The USGS *Summary of Urban Stormwater Quality in Albuquerque, New Mexico, 2003–12* (Storms et al., 2015) was used to summarize and review total dissolved solids (TDS) (Section 3.1), total suspended solids (TSS) (Section 3.2), metal concentrations (Section 3.3), and polychlorinated biphenyl (PCB) congeners (Section 3.4). The USGS report concluded that stormwater samples from outfalls with more urban development (industrial, commercial, and residential) had higher median concentrations of selected physical and chemical constituents (e.g., pH, specific

conductance, TDS, TSS) than stormwater samples from outfalls with less urban development (Storms et al., 2015).

Additional available water quality data were downloaded from the online USGS National Water Information System (NWIS) database (USGS, 2016) for the discharge outfalls and for several stream gage locations along the Rio Grande within the greater Albuquerque area (Figure 1). 2015 sediment removal data from the metropolitan flood control system were obtained from AMAFCA, and are discussed in Section 3.5.

3.1 Total Dissolved Solids

Figure 2a shows recent TDS concentrations for samples collected at the six outfall locations. Figure 2b shows recent TDS concentrations for samples collected from the Rio Grande stream gage locations within the greater Albuquerque area.

3.1.1 Outfall Locations

Since 2003, the TDS concentrations in the sampled outfall locations have ranged from not detected (less than 10 milligrams per liter [mg/L], shown as open symbols in Figure 2a for several outfall locations) to 997 mg/L at the San Antonio Arroyo outfall (Figure 2a). The TDS concentrations are highly variable within each of the outfalls, but overall concentrations are generally below 400 mg/L. None of the measured values in the stormwater samples at the six outfalls exceeded the New Mexico water quality standard of 1,500 mg/L for the Rio Grande Basin.

3.1.2 Rio Grande Locations

TDS concentrations since 2003 in the Rio Grande have ranged from 126 mg/L at the Rio Grande at Albuquerque stream gage to 807 mg/L at the Rio Grande at Alameda Bridge stream gage (Figure 2b). TDS concentrations in the Rio Grande typically appear to be between 150 and 300 mg/L. No TDS concentration exceeded the New Mexico water quality standard of 1,500 mg/L for the Rio Grande Basin. Other than the greater number of outliers from outfall

sampling locations, TDS concentrations seem higher overall at Rio Grande sampling locations (more concentrations greater than 200 mg/L and no concentrations below 100 mg/L).

3.2 Total Suspended Solids and Suspended Sediment

Figure 3a shows recent total suspended solids (TSS) or suspended sediment concentrations from samples collected at the six outfall locations. Figure 3b shows recent TSS or suspended sediment concentrations from the Rio Grande within the greater Albuquerque area. Suspended solids can effectively transport sorbed chemicals such as trace elements and some organic compounds (Drever, 1997).

3.2.1 Outfall Locations

Since 2003, the TSS or suspended solids concentrations in the sampled outfall locations have ranged from not detected (less than 1 mg/L, shown as open symbols in Figure 3a for several outfall locations) to 55,300 mg/L at the Tijeras Arroyo outfall (Figure 3a). The outfalls are typically sampled during periods of high flow, which would generally be carrying higher sediment loads than lower flow (Storms et al., 2015). The TSS concentrations vary widely, but the higher sediment loads tend to be contributed by the Tijeras Arroyo, SDC, and NDC outfalls.

3.2.2 Rio Grande Locations

TSS or suspended sediment concentrations since 2003 in the Rio Grande have ranged from not detected (0.5 mg/L) at the Rio Grande at Isleta stream gage to 81,000 mg/L at the Rio Grande at Albuquerque stream gage (Figure 3b). Generally, the suspended sediment concentrations in the Rio Grande appear to range widely, between 100 and 10,000 mg/L, and likely vary based on the source and amount of stormwater contributed to each stream gage location.

3.3 Metal Concentrations

Based on data collected since 2003 from the outfalls and the Rio Grande, available sample data for dissolved and total concentrations were reviewed for the following metals: aluminum,

cadmium, chromium, lead, nickel, and zinc. Figures 4a through 9d show the total and dissolved concentrations for these selected metals.

3.3.1 Outfall Locations

The USGS report determined that stormwater from the Barelas Pump Station, San Jose Drain, and NDC outfalls generally had higher metal concentrations than the other sampled outfalls (Storms et al., 2015). Dissolved and total metal concentrations for the outfalls are presented individually in the following subsections.

3.3.1.1 Aluminum

Recent dissolved aluminum concentrations at the sampled outfall locations have ranged from 0.01 micrograms per liter (µg/L) at several outfall locations to 5,540 µg/L at the NDC (Figure 4a). With a few exceptions, the dissolved aluminum concentrations are typically below the New Mexico water quality standard of 87 µg/L for the Rio Grande Basin, but several high dissolved aluminum concentrations were measured, at the San Antonio Arroyo outfall in particular. Total aluminum concentrations have ranged from not detected for several outfall locations to 150,000 µg/L at the Tijeras Arroyo outfall (Figure 4b). The total aluminum concentrations vary widely, but the higher concentrations tend to be contributed by the Tijeras Arroyo, SDC, and NDC outfalls.

3.3.1.2 Cadmium

Recent dissolved cadmium concentrations at the sampled outfall locations have ranged from 0.03 µg/L at the SDC outfall to 2.78 µg/L at the San Jose Drain outfall (Figure 5a). The majority of outfall sample results for dissolved cadmium have been not detected at a detection limit of 0.1 µg/L or lower. Total cadmium concentrations have ranged from not detected at several outfall locations to 58.5 µg/L at the SDC outfall (Figure 5b).

3.3.1.3 Chromium

Recent dissolved chromium concentrations at the sampled outfall locations have ranged from not detected (below 1 or 2 µg/L) at several outfall locations to 12.99 µg/L at the NDC outfall (Figure 6a). With one exception, the dissolved chromium concentrations at all outfall locations

are all below 4 µg/L. Total chromium concentrations have ranged from not detected at several outfall locations to 129.57 µg/L at the Tijeras Arroyo outfall (Figure 6b).

3.3.1.4 Lead

Recent dissolved lead concentrations at the sampled outfall locations have ranged from not detected (below 2 µg/L) at all outfall locations to 6.932 µg/L at the NDC outfall (Figure 7a). A total of 11 stormwater samples had dissolved lead concentrations at or above the chronic aquatic life criterion of 2 µg/L. Total lead concentrations have ranged from 0.01 µg/L at several outfall locations to 345.66 µg/L at the SDC outfall (Figure 7b).

3.3.1.5 Nickel

Recent dissolved nickel concentrations at the sampled outfall locations have ranged from not detected (below 5 µg/L) at all outfall locations to 30.5 µg/L at the San Jose Drain (Figure 8a). Total nickel concentrations have ranged from not detected (below 5 or 15 µg/L) at several outfall locations to 244 µg/L at the Tijeras Arroyo outfall (Figure 8b).

3.3.1.6 Zinc

Recent dissolved zinc concentrations in the sampled outfall locations have ranged from not detected (below 5 µg/L) at all outfall locations to 1,380 µg/L at the Barelas Pump Station (Figure 9a). With a few exceptions, the dissolved zinc concentrations are typically below 100 µg/L. Total zinc concentrations have ranged from 0.01 to 2,060 µg/L (Figure 9b).

3.3.2 Rio Grande Locations

Available dissolved and total metal concentration data are summarized in the following subsections for several Rio Grande stream gage locations within the greater Albuquerque area. No total metals data have been collected at the Rio Grande at Albuquerque and Rio Grande at Isleta stream gage locations since prior to 2003.

3.3.2.1 Aluminum

Recent dissolved aluminum concentrations in the Rio Grande in the Albuquerque area have ranged from 1.4 µg/L at the Rio Grande at Albuquerque stream gage to 101 µg/L at the Rio Grande at Alameda Bridge stream gage (Figure 4c). With one exception, the dissolved

aluminum concentrations are all below the New Mexico water quality standard of 87 µg/L for the Rio Grande Basin. Total aluminum concentrations for the Rio Grande have ranged from 350 to 71,500 µg/L, and are typically between 1,000 and 10,000 µg/L (Figure 4d).

3.3.2.2 Cadmium

Recent dissolved cadmium concentrations in the Rio Grande in the Albuquerque area are typically below the detection limit (varied from 0.016 to 0.35 µg/L), and the detected concentrations have all been below 0.05 µg/L (Figure 5c). Total cadmium concentrations for the Rio Grande are typically below 0.1 µg/L, and have ranged from 0.023 to 1.78 µg/L (Figure 5d). Total cadmium concentrations appear lower for Rio Grande sampling locations than for the outfalls.

3.3.2.3 Chromium

Recent dissolved chromium concentrations in the Rio Grande in the Albuquerque area are typically below the detection limit (varied from 0.04 to 2.1 µg/L), and detected concentrations have been 1 µg/L or lower (Figure 6c). Total chromium concentrations for the Rio Grande have ranged from 0.5 to 29.4 µg/L (Figure 6d).

3.3.2.4 Lead

Recent dissolved lead concentrations in the Rio Grande in the Albuquerque area are typically below the detection limit (varied from 0.06 to 2.05 µg/L), and detected concentrations have all been below 0.3 µg/L (Figure 7c). Total lead concentrations for the Rio Grande have ranged from 0.48 to 119 µg/L (Figure 7d). Both dissolved and total lead concentrations at Rio Grande sample locations appear lower than those at outfall sample locations (Figures 7a and 7b).

3.3.2.5 Nickel

Recent dissolved nickel concentrations in the Rio Grande in the Albuquerque area are typically below the detection limit (varied from 0.75 to 5 µg/L), and the detected concentrations have all been below 3 µg/L (Figure 8c). Total nickel concentrations for the Rio Grande have ranged from 1.12 to 64.6 µg/L (Figure 8d).

3.3.2.6 Zinc

Recent dissolved zinc concentrations in the Rio Grande in the Albuquerque area are typically below the detection limit (varied from 0.5 to 90.6 µg/L), and detected concentrations have all been below 18 µg/L (Figure 9c). Total zinc concentrations for the Rio Grande have ranged from 4.2 to 279 µg/L (Figure 9d). Both dissolved and total zinc concentrations appear markedly lower from samples from the Rio Grande compared to those collected at the outfall locations.

3.4 Polychlorinated Biphenyl Congeners

There are 209 configurations (congeners) of PCBs that are synthetic organic compounds. Prior to their ban in 1979, PCBs were used in electrical transformers and condensers, paint, hydraulic fluid, pesticides, ink, carbonless paper, and toilet paper (U.S. EPA, 2016). The two common analytical tests for measuring PCB concentrations include the following (Storms et. al., 2015):

- EPA analytical test method 8082
  - Analyzes for aroclors
  - Laboratory detection limits of 0.3 µg/L or above
- EPA analytical test method 1668
  - Analyzes for congeners
  - Laboratory detection limits of 10 picograms per liter (pg/L) or above

Table 2 summarizes recent total PCB concentrations for samples collected from five of the six outfall locations and two Rio Grande locations. The total PCB concentration of the water samples was estimated by summing the individual congener concentrations using EPA method 1668. PCBs were not detected using EPA method 8082.

3.4.1 Outfall Locations

Recent total PCB concentrations in the sampled outfall locations have ranged from not detected at two outfall locations to 0.123699 µg/L at the North Diversion Channel (Table 2). Overall, the total PCB concentrations in stormwater are generally low, although higher concentrations are noted in the samples collected from the NDC and San Jose Drain outfall locations (Table 2).

3.4.2 Rio Grande Locations

Recent total PCB concentrations in the Rio Grande in the Albuquerque area have ranged from not detected at the Rio Grande upstream of the NDC location to 0.000276 µg/L at the Rio Grande near Isleta location (Table 2). The detected total PCB concentration was below the New Mexico and Pueblo of Isleta water quality standard of 0.014 µg/L.

3.5 Sediment Removal from Flood Control System

AMAFCA maintains the flood control system by routinely removing sediment from the many portions of the system that have been designed to capture sediment. Their currently maintained system includes the following (AMAFCA, 2015):

- 21 flood control dams
- 46 smaller flood control ponds
- 68 miles of arroyo channels
- 11 miles of underground conduit structures
- 10 miles of dikes and diversion structures
- 127 stormwater quality debris facilities

During 2015, AMAFCA removed a total of 34,976 cubic yards of sediment from their various channels, diversion structures, flood control dams, and stormwater quality facilities (Chavez, 2016) (Table 3). Approximately 46 percent of the total sediment removed by AMAFCA was taken from the SDC and Water Quality Structure during the months of January through April, July, October, and November (Table 4). The amount removed from the SDC and Water Quality Structure includes sediment collected from structures above and below the confluence of Tijeras Arroyo with the SDC. The amount of sediment removed has not been tracked separately for the two channels, but will be in the future.

In 2015, 2,735 cubic yards of sediment was removed from the NDC for several months during the spring and fall (Table 4). No sediment removal was documented during 2015 from the San Antonio Arroyo.

The Barelas Pump Station and San Jose Drain sites are maintained by COA and do not have documented sediment removal data. The COA employs several crews that routinely check and clean more than 30,000 storm drains within the city after large storm events. The 14 pump stations and 11 dams the COA maintains are inspected each year in May and June just prior to the monsoon season.

4. Conclusions and Recommendations

Erosion of sediment during storm events is a continual and natural process—especially in the Albuquerque metropolitan area, where stormwater flows toward the Rio Grande over the alluvial fans of the Sandia Mountain foothills and mostly unmodified sandy arroyos that drain the West Mesa. The COA and AMAFCA have a comprehensive plan in place to reduce stormwater pollution to the maximum extent practicable. Many different types of detention basins have been installed within the Albuquerque MS4 system to slow down stormwater and ultimately reduce the amount of sediment reaching the Rio Grande (Figure 1). AMAFCA has designed and built over a hundred water quality structures specifically to catch debris, sediment, and trash from stormwater prior to entering the Rio Grande. Sediment collected in these detention basins and water quality structures is routinely removed as part of ongoing operation and maintenance of these facilities by COA and AMAFCA. Recently completed projects include the following:

- Black Arroyo Dam east branch channel and regional water quality facility
- Boca Negra Dam project
- Calabacillas Arroyo grade control structures 3b and 3c and bank protection project
- East Amole surge pond
- Hahn Arroyo rehabilitation project Phase I
- La Presa Project (included 80 acre-foot detention facility)
- NDC sedimentation basin

The COA has recently updated its drainage ordinance with a significant change requiring a current stormwater control permit for erosion and sediment control for all construction, demolition, clearing, and grading operations that would disturb 1 acre or more of land. The result of this ordinance requirement will be a reduction in sediment erosion from construction sites under its jurisdiction.

In Section 3, recent water quality data for TDS, TSS, metal concentrations, and PCBs from discharge outfalls were reviewed and compared with corresponding data from the Rio Grande within the greater Albuquerque area. In general, TDS and TSS concentrations detected in stormwater samples were similar to those detected in the samples collected from the Rio Grande (Figures 2a through 3b). However, while TDS concentrations from Rio Grande sampling locations exhibited less variability compared to concentrations measured at the outfalls, TDS concentrations in the Rio Grande samples also appeared typically higher, indicating that the detention ponds and other BMPs to reduce sediment loading to the river are working and do reduce the amount of contaminants making it to the river. The TSS concentrations at the outfall locations varied widely, but more sediment was frequently contributed from the Tijeras Arroyo, SDC, and NDC outfalls. Therefore, implementation of additional sediment loading reduction BMPs should be targeted in these drainage areas. Concentrations of lead, cadmium (total concentrations), and zinc appeared higher in outfall samples than in Rio Grande samples, also suggesting that system-wide progress is still possible toward removing those pollutants. PCBs using EPA method 1668 were detected at low concentrations in stormwater samples. The highest PCB concentrations were detected in stormwater from the NDC and San Jose Drain outfalls, while the lowest concentrations were from the San Antonio Arroyo outfall.

The purpose and intent of the Sediment Pollutant Load Reduction Strategy is to encourage entities to look at how to reduce pollutants attached to sediments; based on the above conclusions, this appears to already be working. It is recommended that entities continue the BMPs already in place to reduce sediment loading, and also look into additional ways to reduce sediment loading. In cooperation with other stakeholders (e.g., COA, Bernalillo County), AMAFCA is currently planning the installation of the following infrastructure and/or the implementation of the following studies to improve stormwater quality and decrease the amount of sediment reaching the Rio Grande (AMAFCA, 2015):

- Adobe Acres pump station outfall (includes 10 acre-foot pond)
- Bosque surface water quality outfall improvements for Barelas Pump Station outfall [COA lead agency on this project]
- Barr Main Canal improvements (includes series of inline detention ponds)

- Black Mesa Pump Station outfall upgrade
- Black Mesa storm drain (McCoy)
- Bobby Foster storm drain
- Calabacillas Arroyo bank monitoring and enhancement
- Calabacillas Arroyo prudent line study
- Hahn Arroyo phase II
- Hamilton Dam
- Kirtland Air Force Base 30 acre-foot south detention basin [COA lead agency on this project]
- Karsten Area restudy
- Las Ventanas Dam stormwater quality upgrades
- Marble-Arno pond and pump station [COA lead agency on this project]
- NDC Indian School water quality pond
- NDC outfall stormwater quality facility improvements
- North Fourth Street storm drain
- North Geologic Window Dam (173 acre-foot detention pond)
- Old Coors ponding area
- Pond 2149
- SDC outfall water quality improvements
- Tijeras Arroyo facility plan
- Tijeras Arroyo sediment retention structure (to collect 15,000 to 30,000 cubic yards of sediment and debris before it enters the SDC)
- Upper Snow Vista Channel improvements study
- Valle de Oro drainage and water quality infrastructure
- West I-40 diversion channel

All of these planned infrastructure improvements and studies are recommended to further reduce sediment loading and improve stormwater quality in the Albuquerque metropolitan area.

It is further recommended that the City investigate several specific areas within its jurisdiction that may be contributing excessive levels of pollutants in sediment entering the Rio Grande during stormwater discharge events. The recommended investigation would target areas within Tijeras Arroyo (upstream of the concrete-lined area) and other arroyos that are contributing higher sediment loads (e.g., top ranked locations from Table 3). Analytical analyses would be conducted to determine the presence or absence of near-surface PCB and metal concentrations in the collected sediment. In addition, sediment samples should be collected from arroyo locations upgradient of the urbanized area for an estimate of background concentrations. This additional sediment sampling within COA jurisdiction would supplement historical stormwater analytical data, and allow for comparison of PCB and metal concentrations in sediment between the various arroyos and upgradient background locations. The field and laboratory data results could then be evaluated spatially within the City's jurisdiction and compared to the results of the previous investigations summarized in this assessment report.

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Figures

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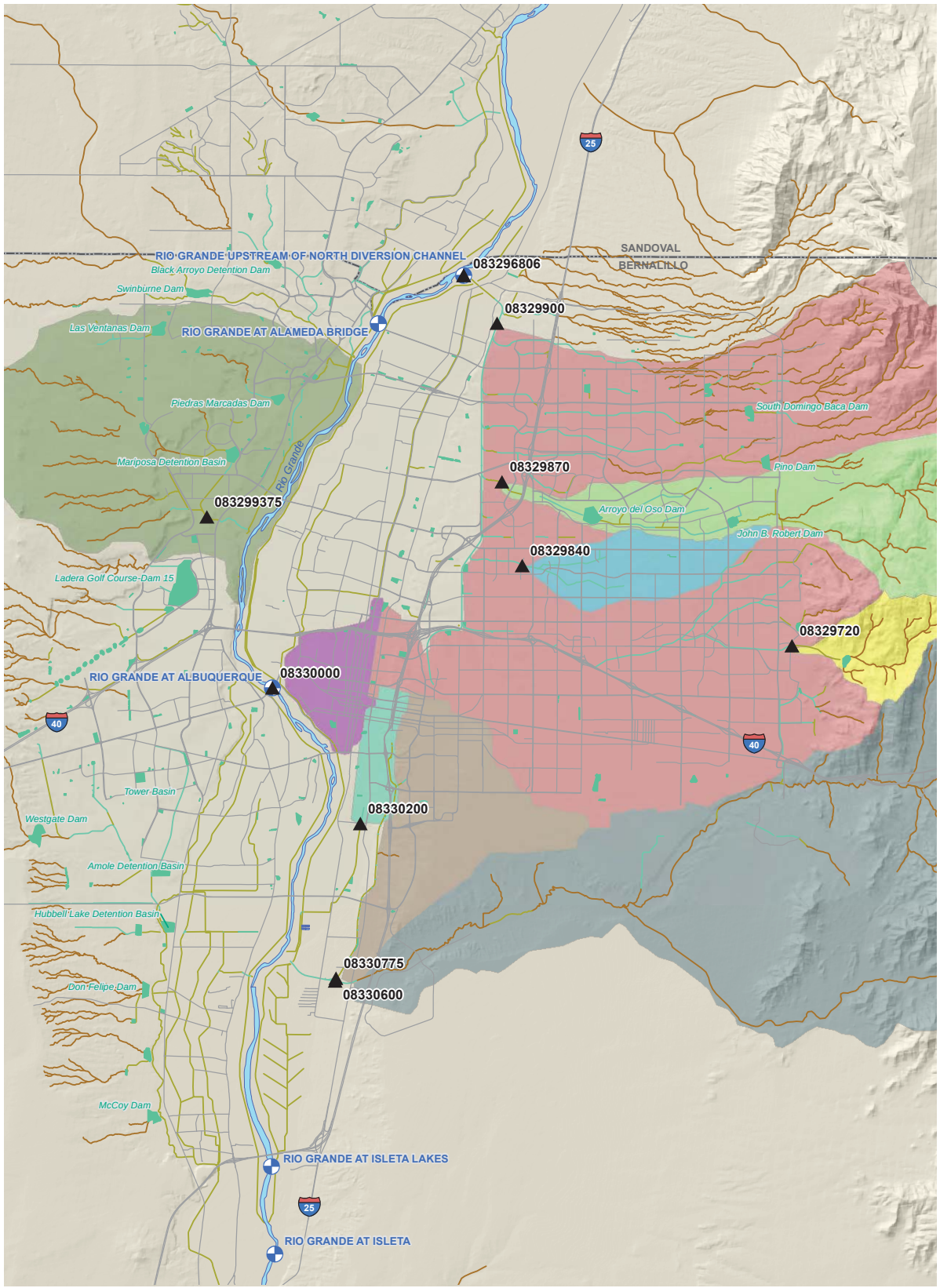

Figure 1

CITY OF ALBUQUERQUE

Outfall Sampling Location and Stream Gages

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9/16/2016

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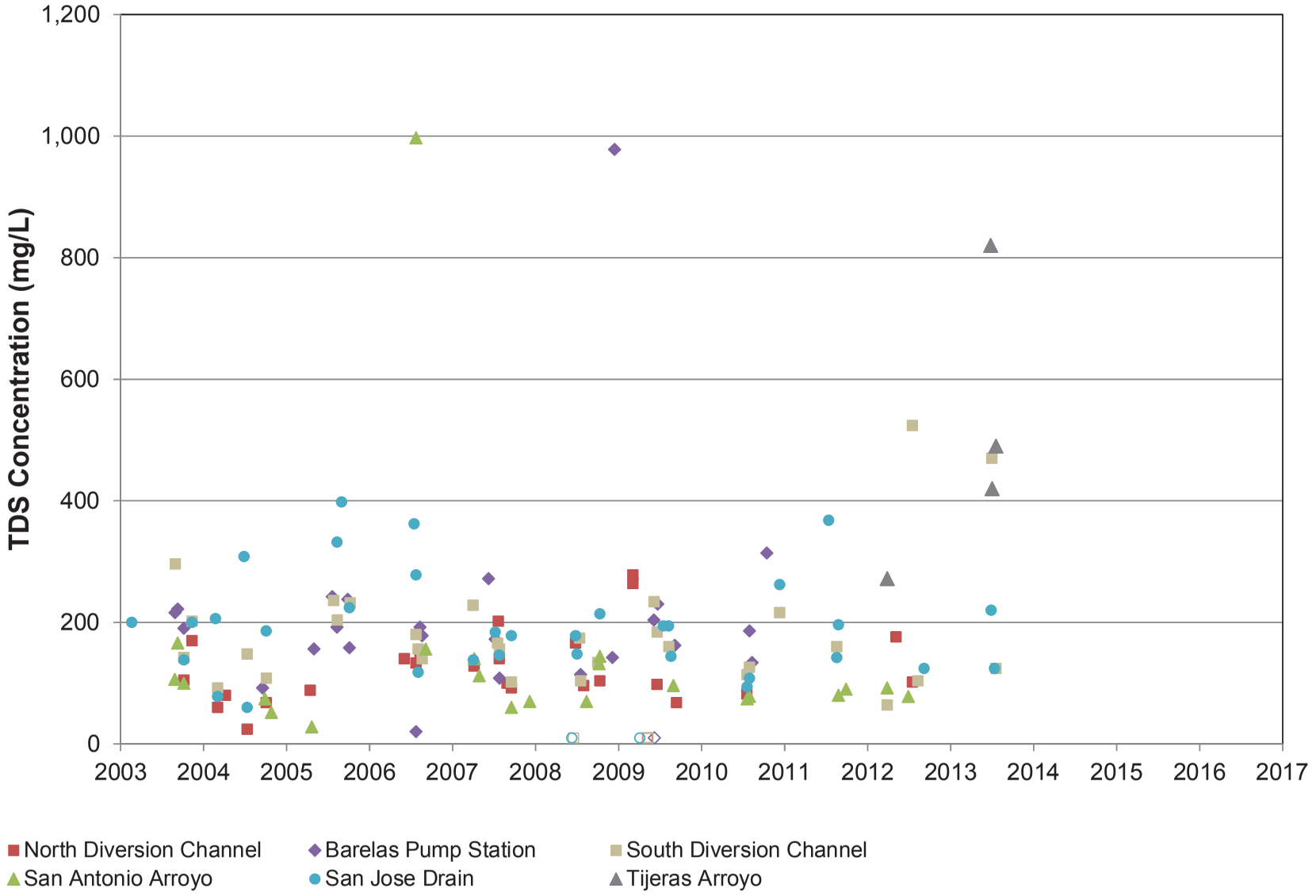

Note: Open symbols denote non-detections (at detection limit).
Sources: Storms et al., 2015; USGS, 2016

Figure 2a

CITY OF ALBUQUERQUE

Total Dissolved Solids, Outfall Locations

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9/19/16

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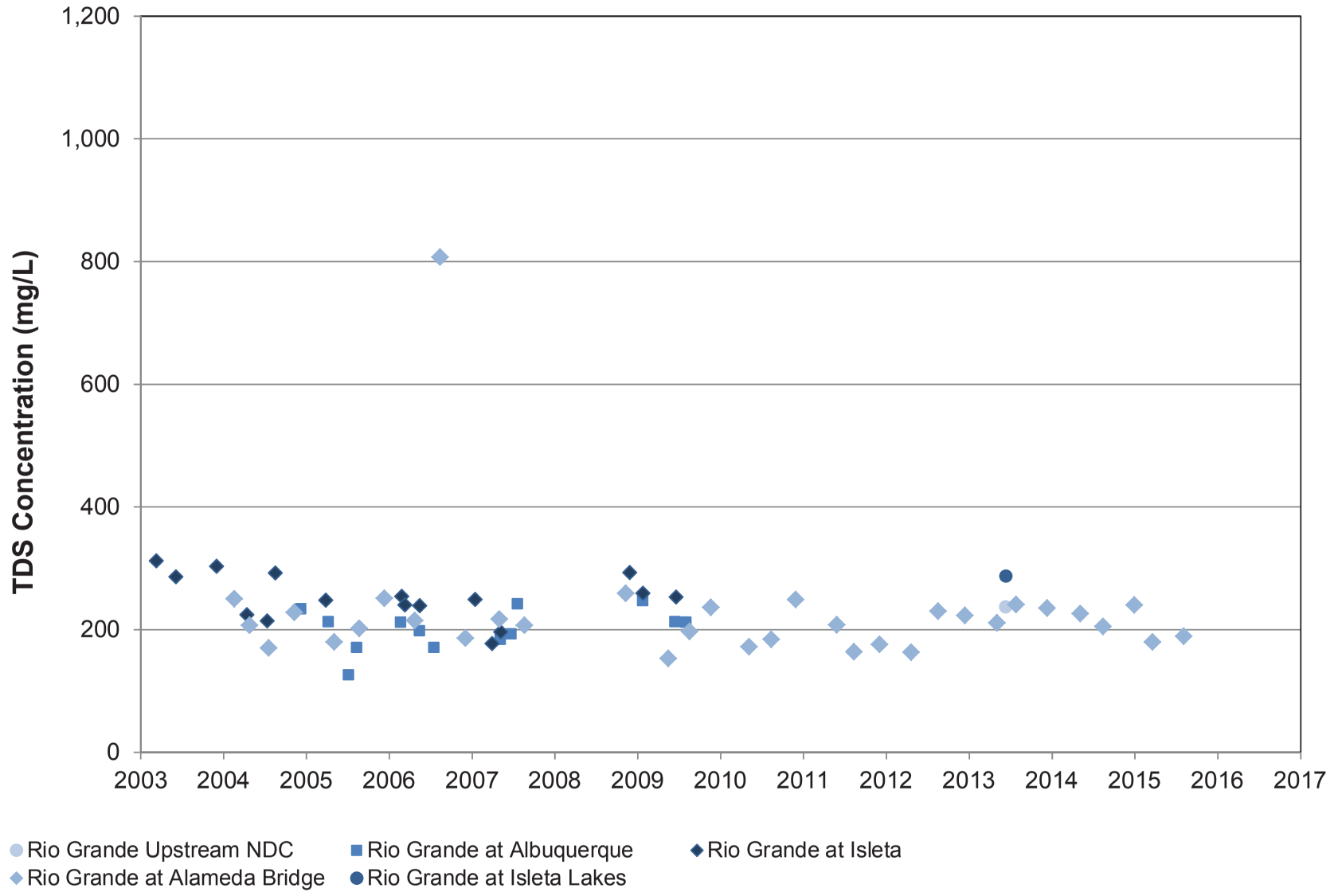

Sources: Storms et al., 2015; USGS, 2016

Figure 2b

CITY OF ALBUQUERQUE

Total Dissolved Solids, Rio Grande Locations

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9/19/16

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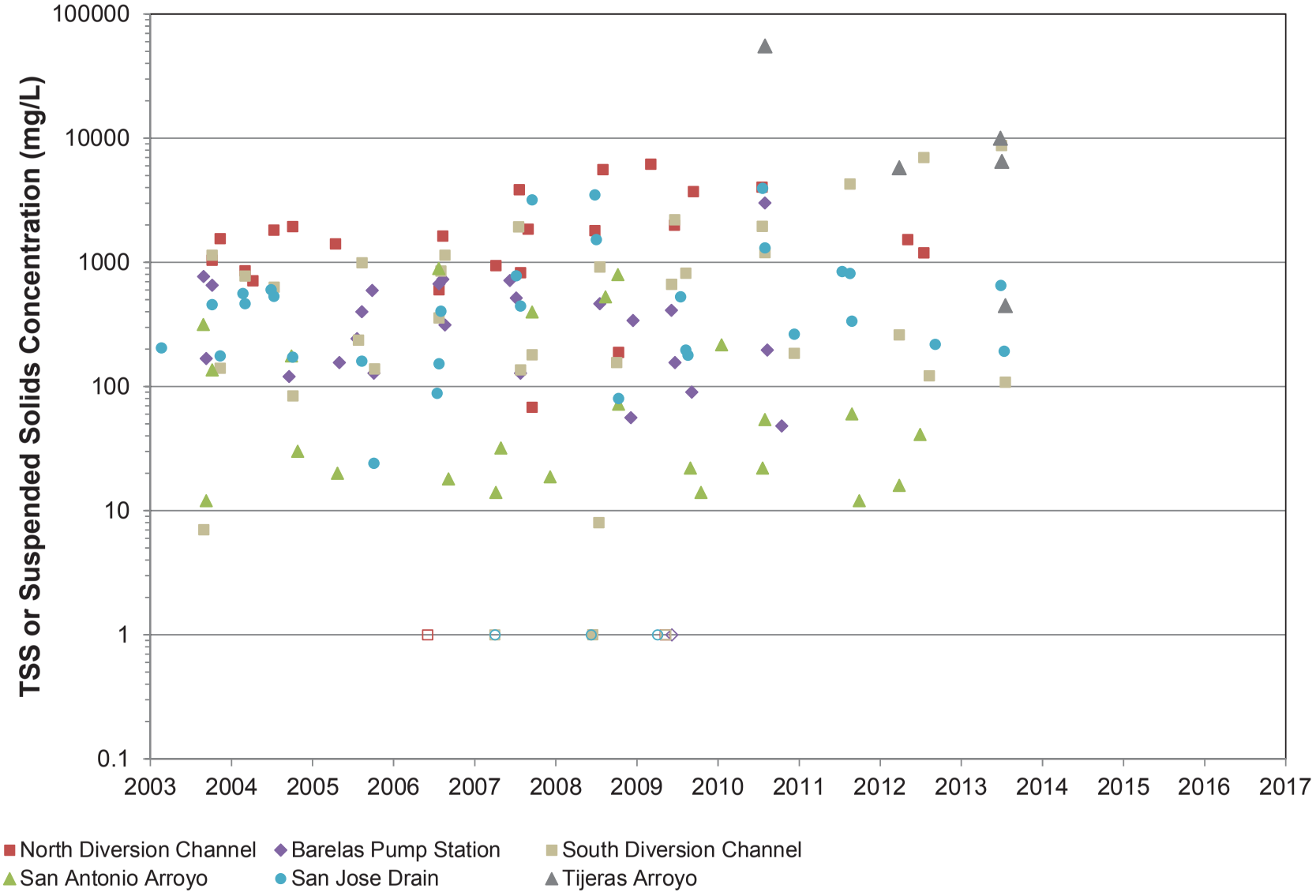

Note: Open symbols denote non-detections (at detection limit).
Sources: Storms et al., 2015; USGS, 2016

Figure 3a

CITY OF ALBUQUERQUE

Total Suspended Solids or Suspended Sediment Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

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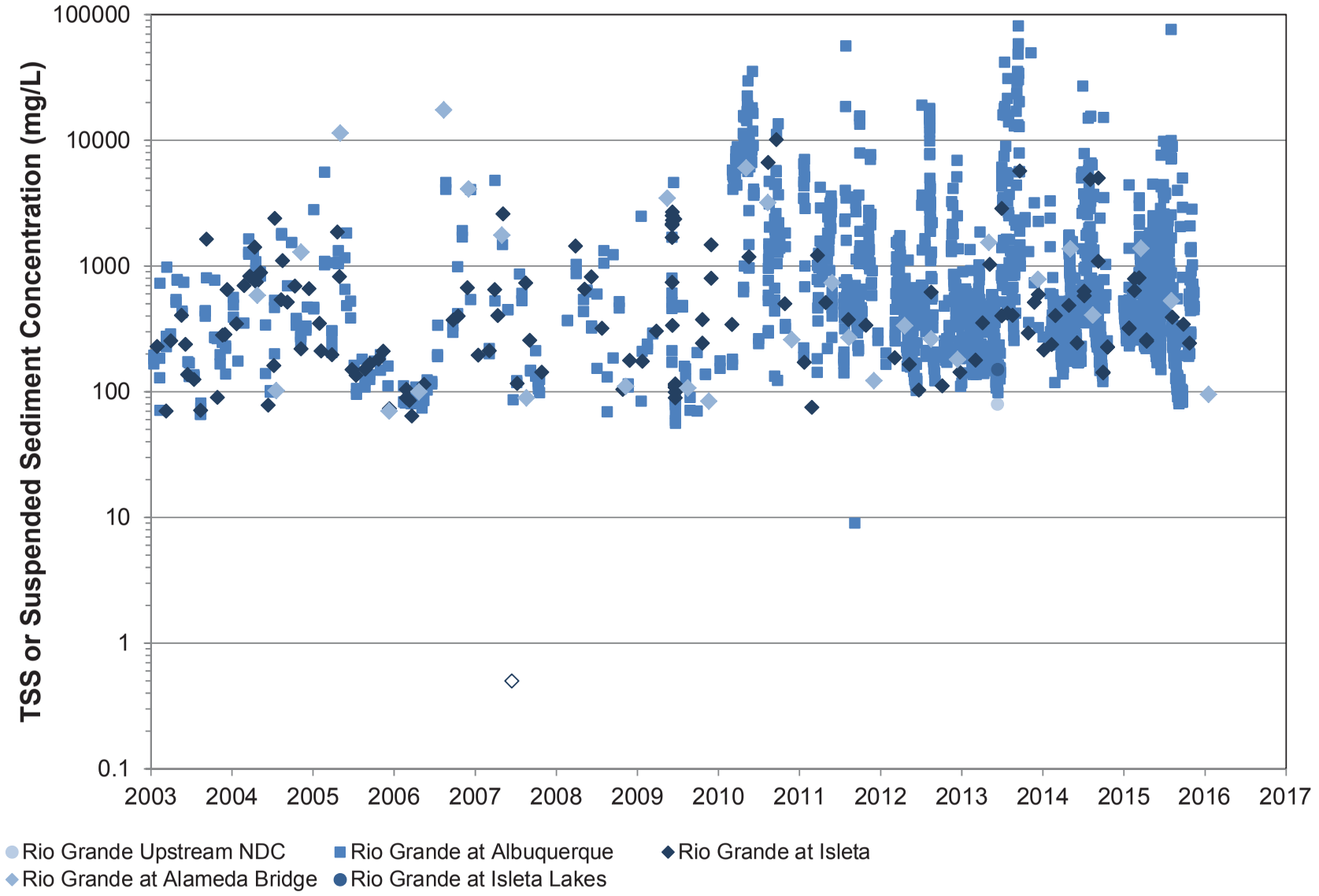

Note: Open symbols denote non-detections (at detection limit).
Sources: Storms et al., 2015; USGS, 2016

Figure 3b

CITY OF ALBUQUERQUE

Total Suspended Solids or Suspended Sediment
Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

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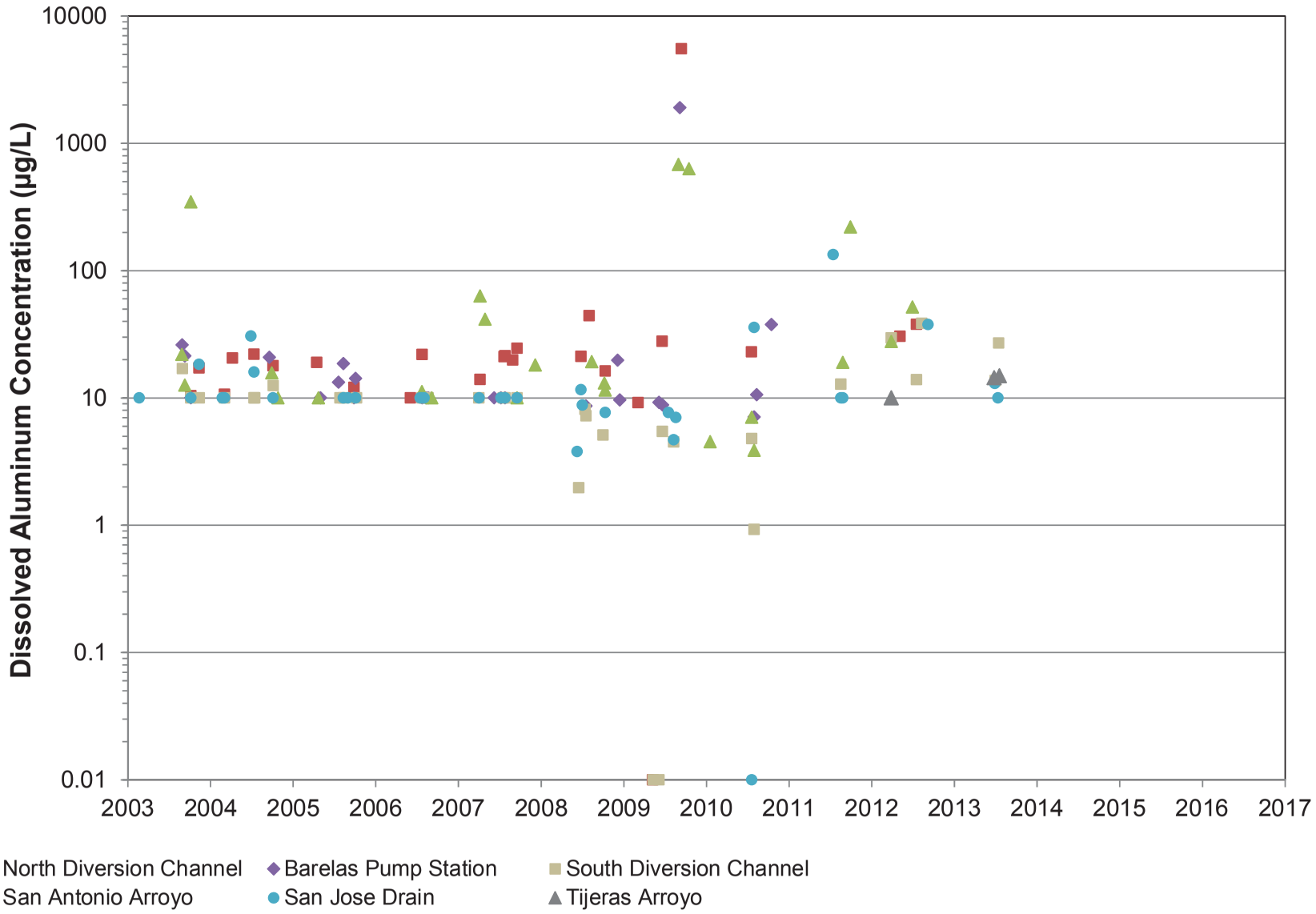


Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 4a

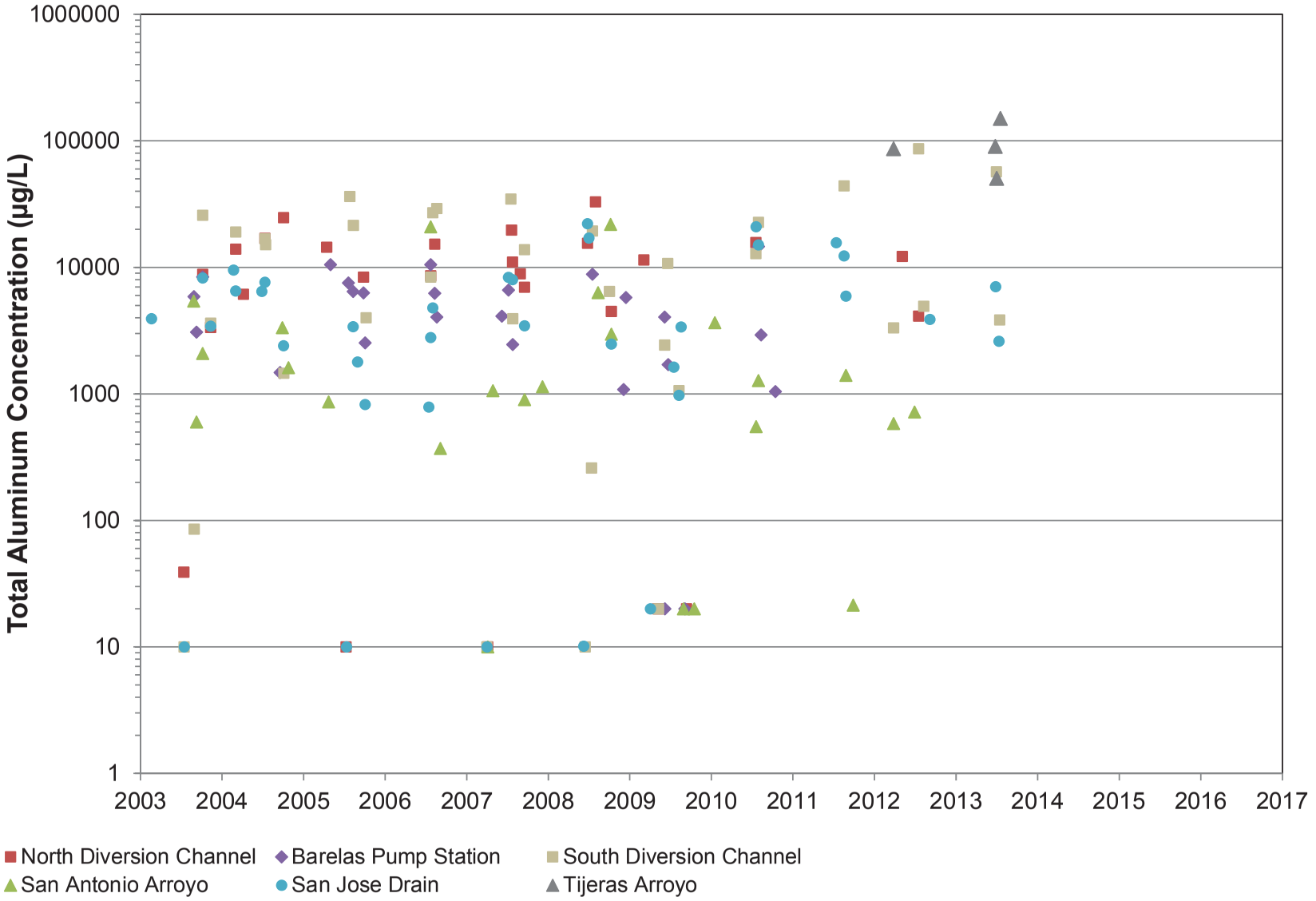
CITY OF ALBUQUERQUE

Dissolved Aluminum, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig04b_Al-Tot-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 4b

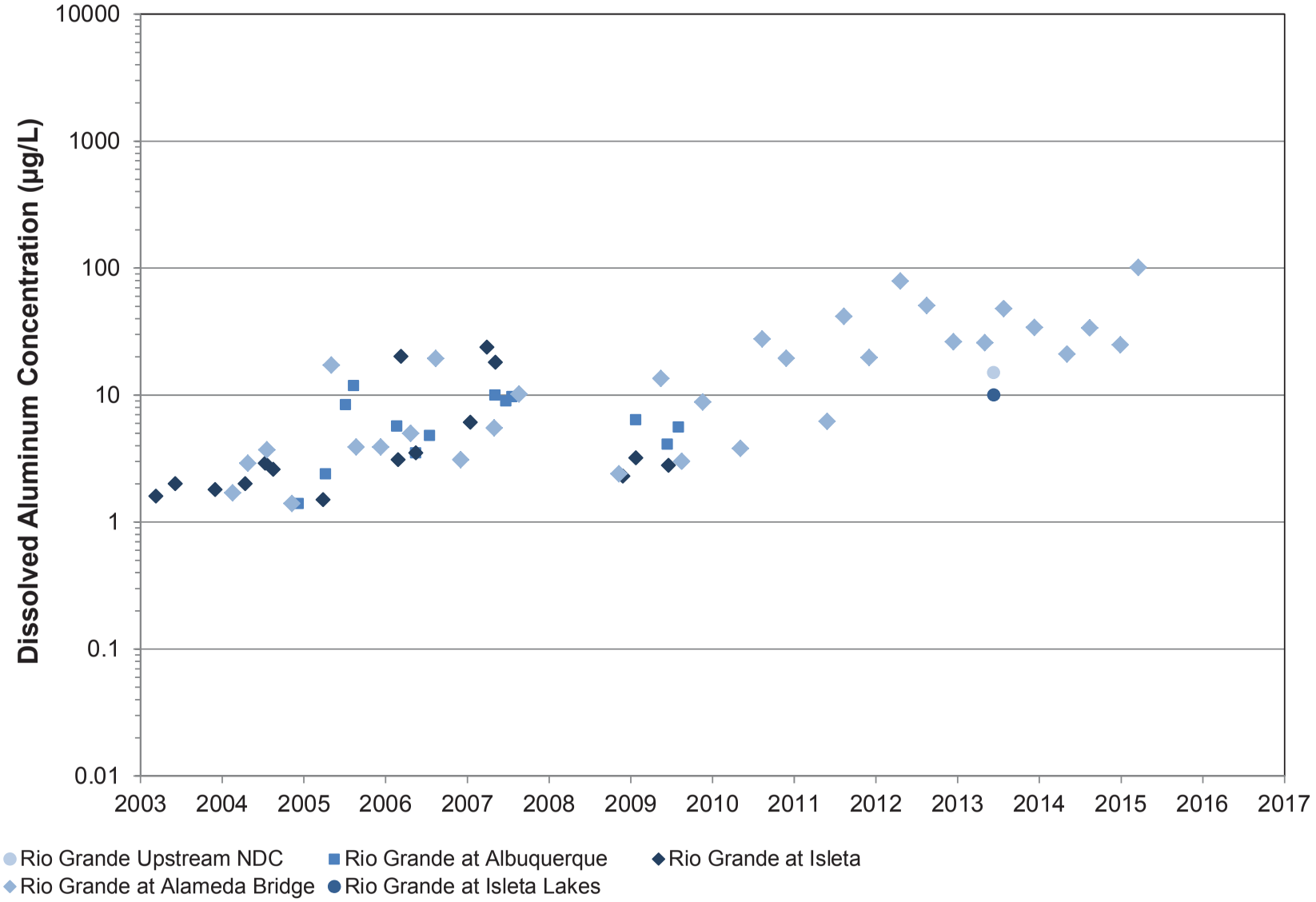
CITY OF ALBUQUERQUE

Total Aluminum, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig04c_Al-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 4c

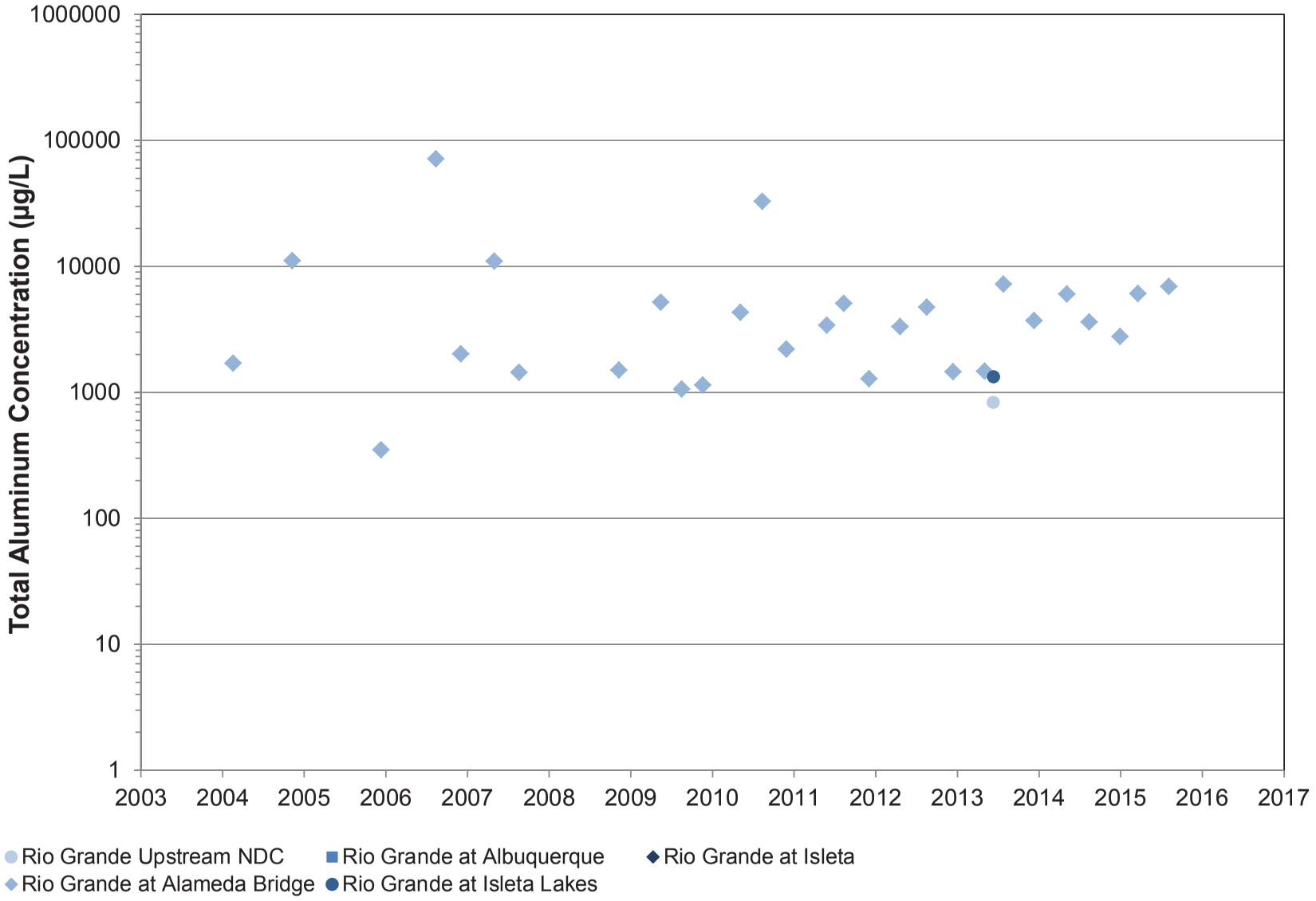
CITY OF ALBUQUERQUE

Dissolved Aluminum, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig04d_Al-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 4d

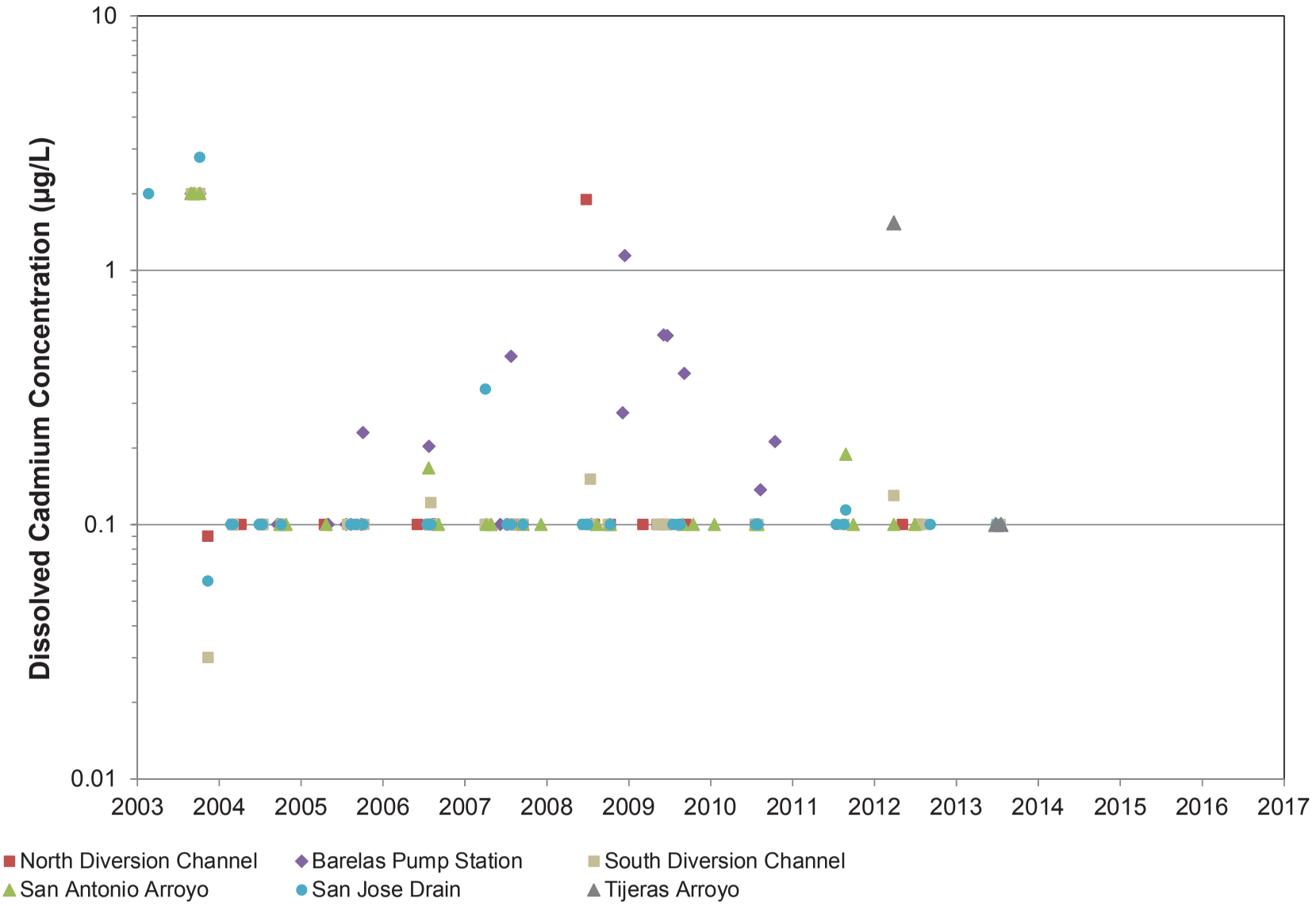
CITY OF ALBUQUERQUE

Total Aluminum, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig05a_Cd-Diss-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 5a

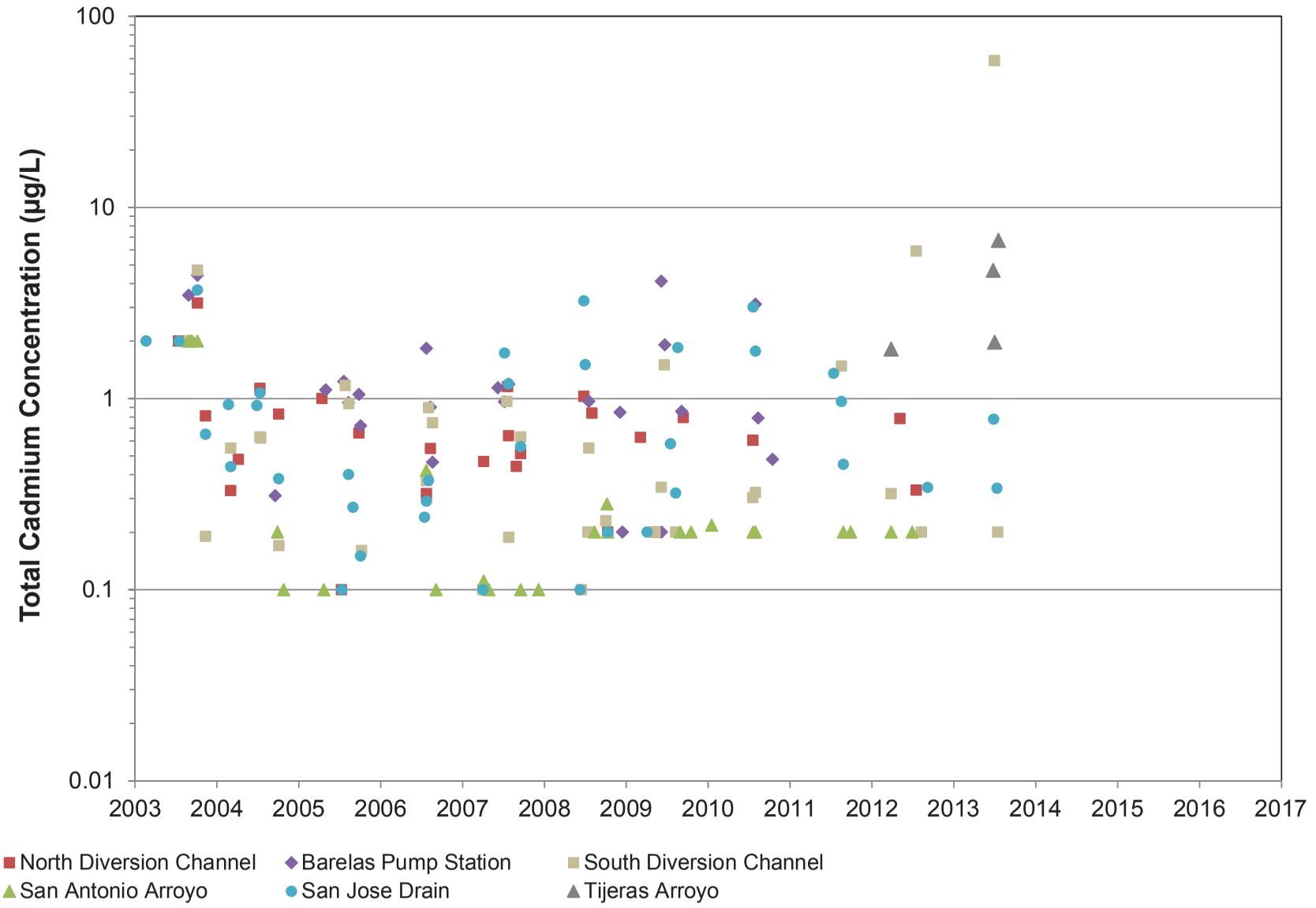
CITY OF ALBUQUERQUE

Dissolved Cadmium, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig05b_Cd-Tot-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 5b

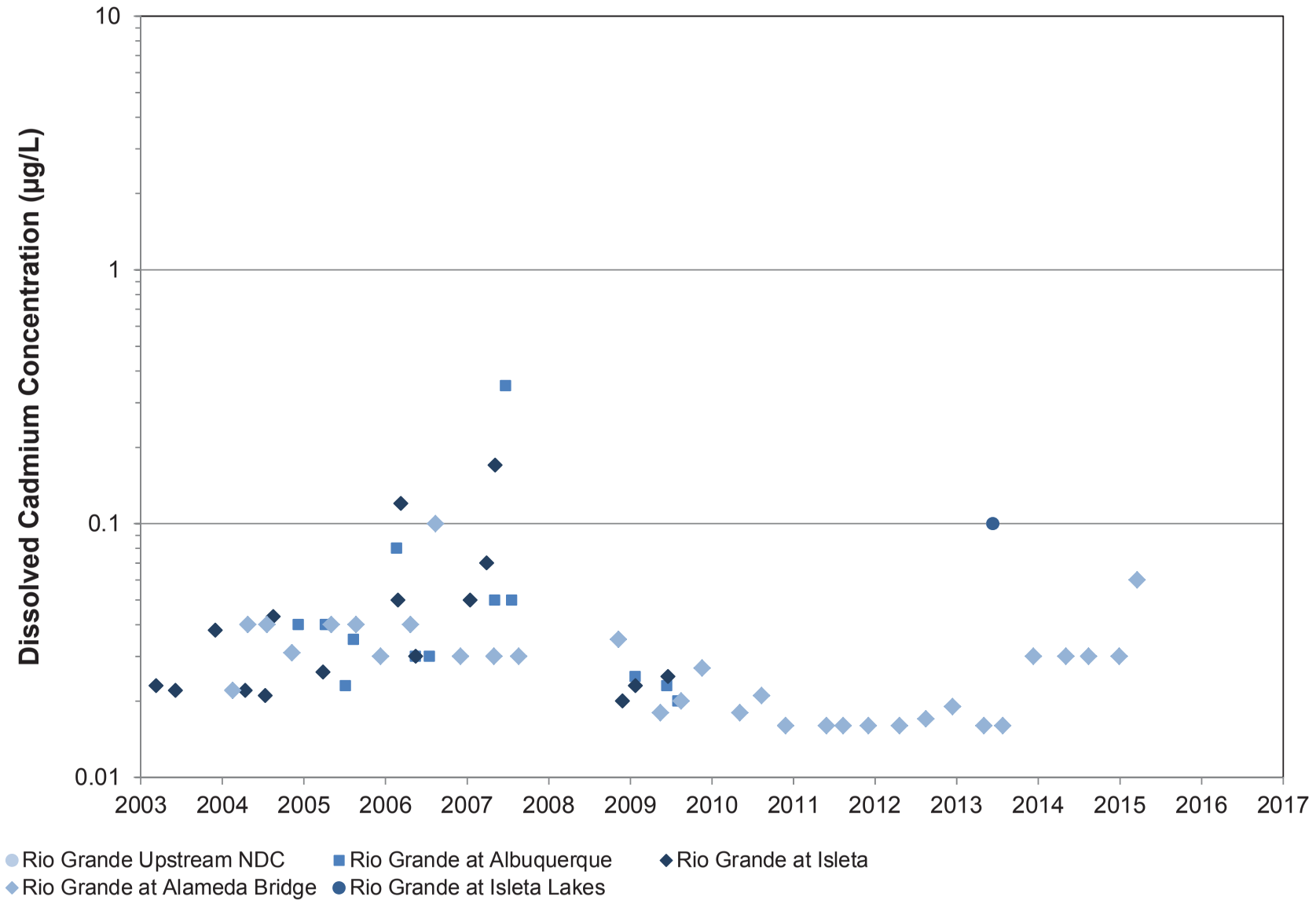
CITY OF ALBUQUERQUE

Total Cadmium, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig05c_Cd-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 5c

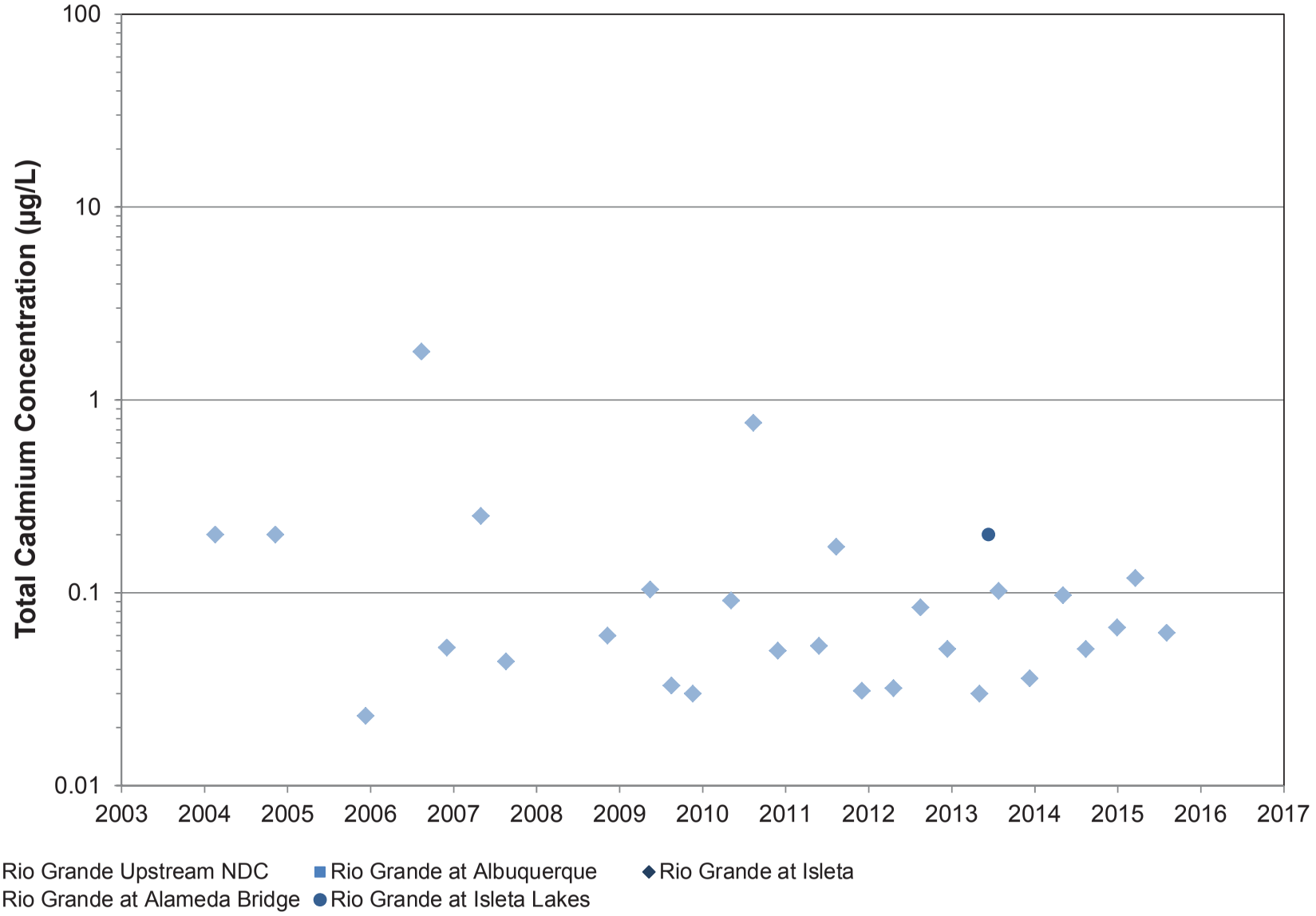
CITY OF ALBUQUERQUE

Dissolved Cadmium, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig05d_Cd-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 5d

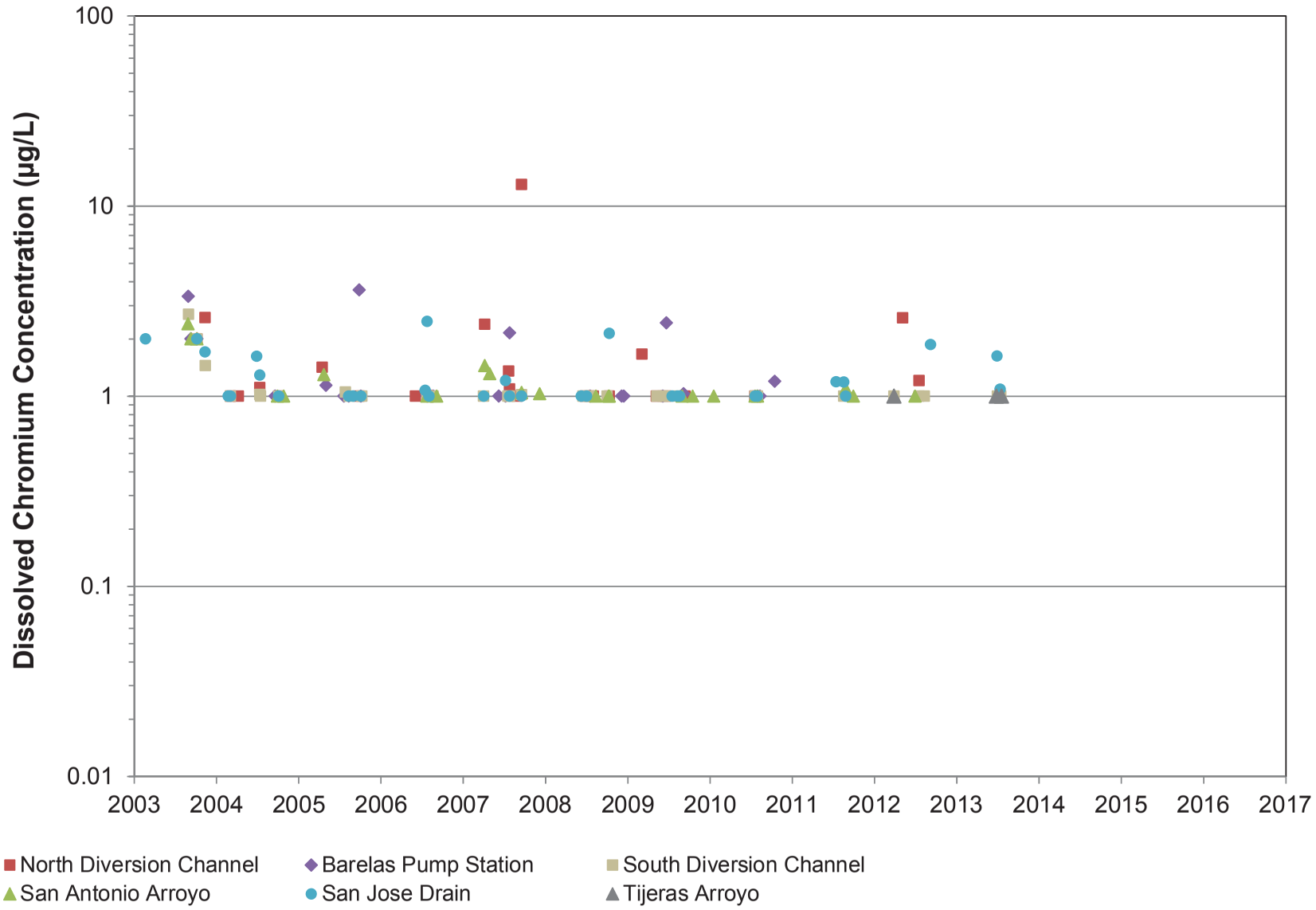
CITY OF ALBUQUERQUE

Total Cadmium, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig06a_Cr-Diss-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 6a

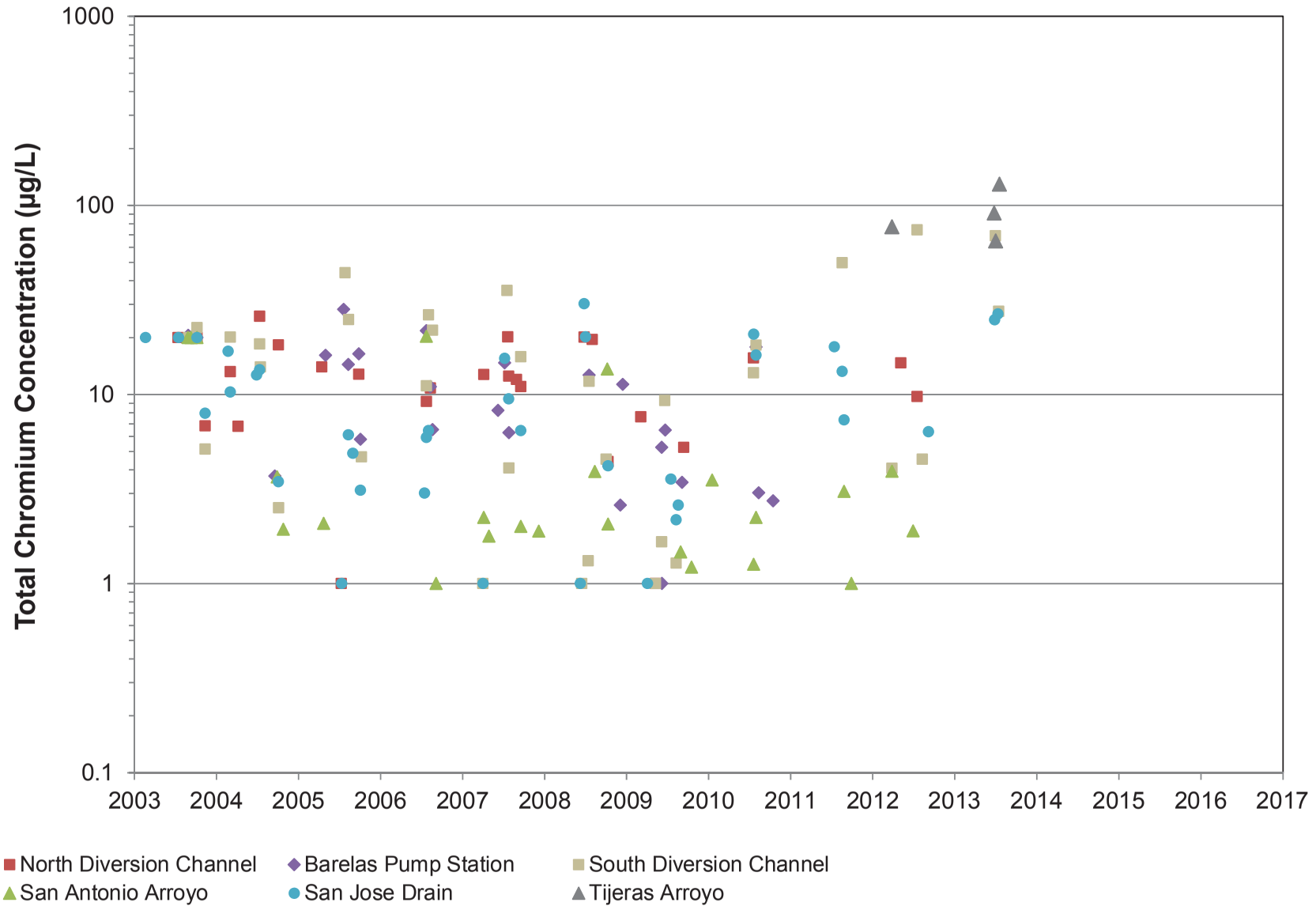
CITY OF ALBUQUERQUE

Dissolved Chromium, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig06b_Cr-Tot-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 6b

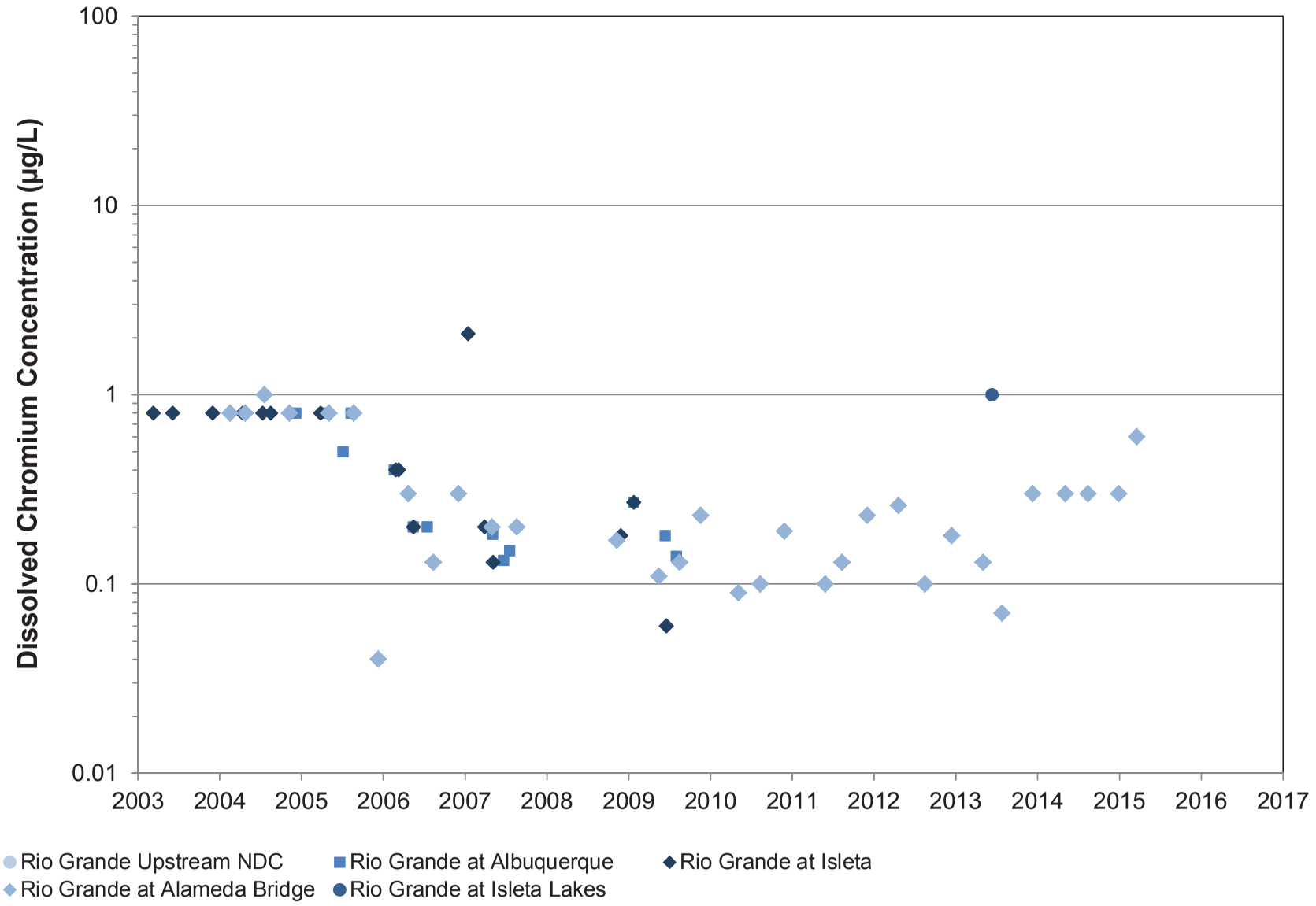
CITY OF ALBUQUERQUE

Total Chromium, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig06c_Cr-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 6c

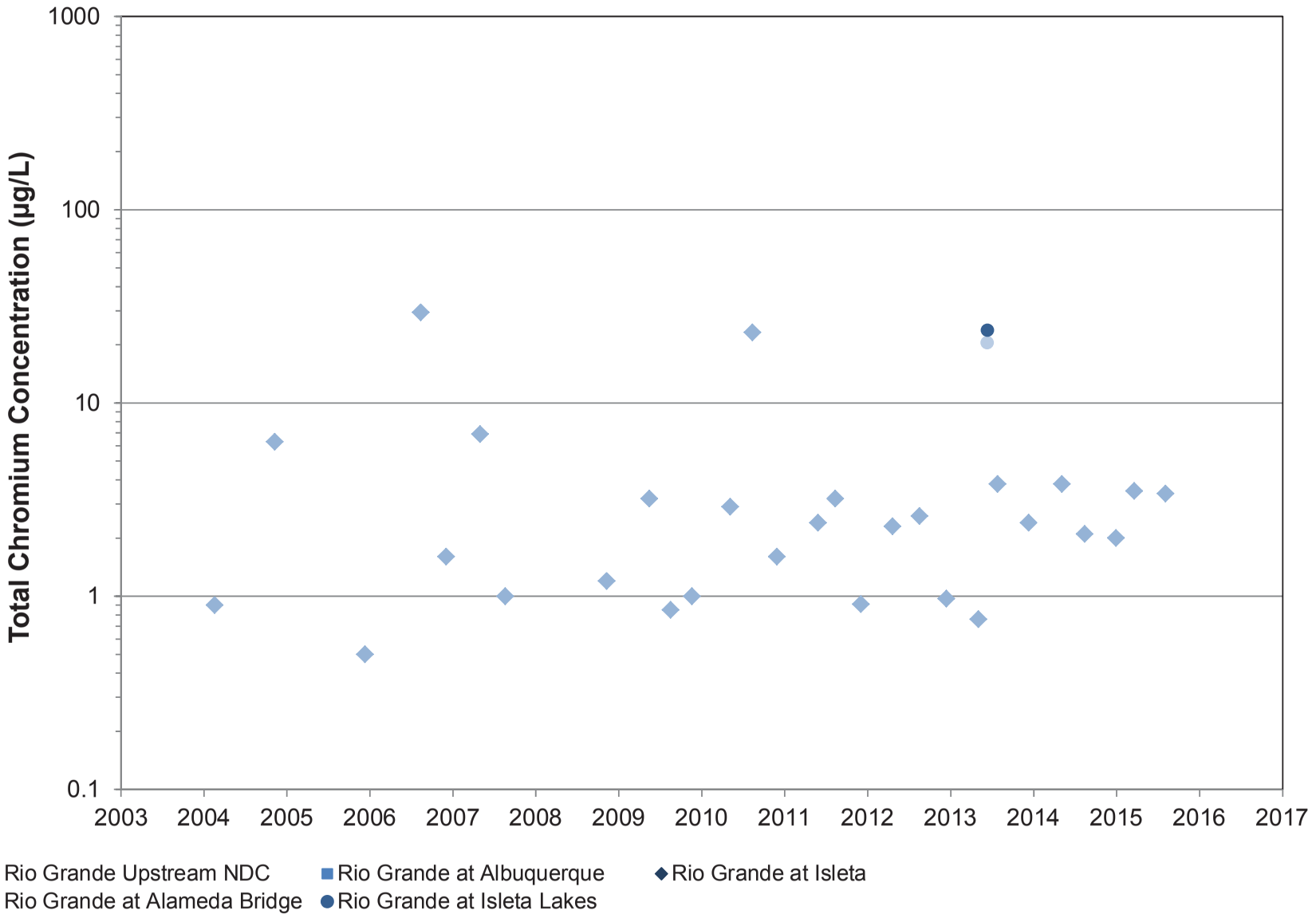
CITY OF ALBUQUERQUE

Dissolved Chromium, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig06d_Cr-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 6d

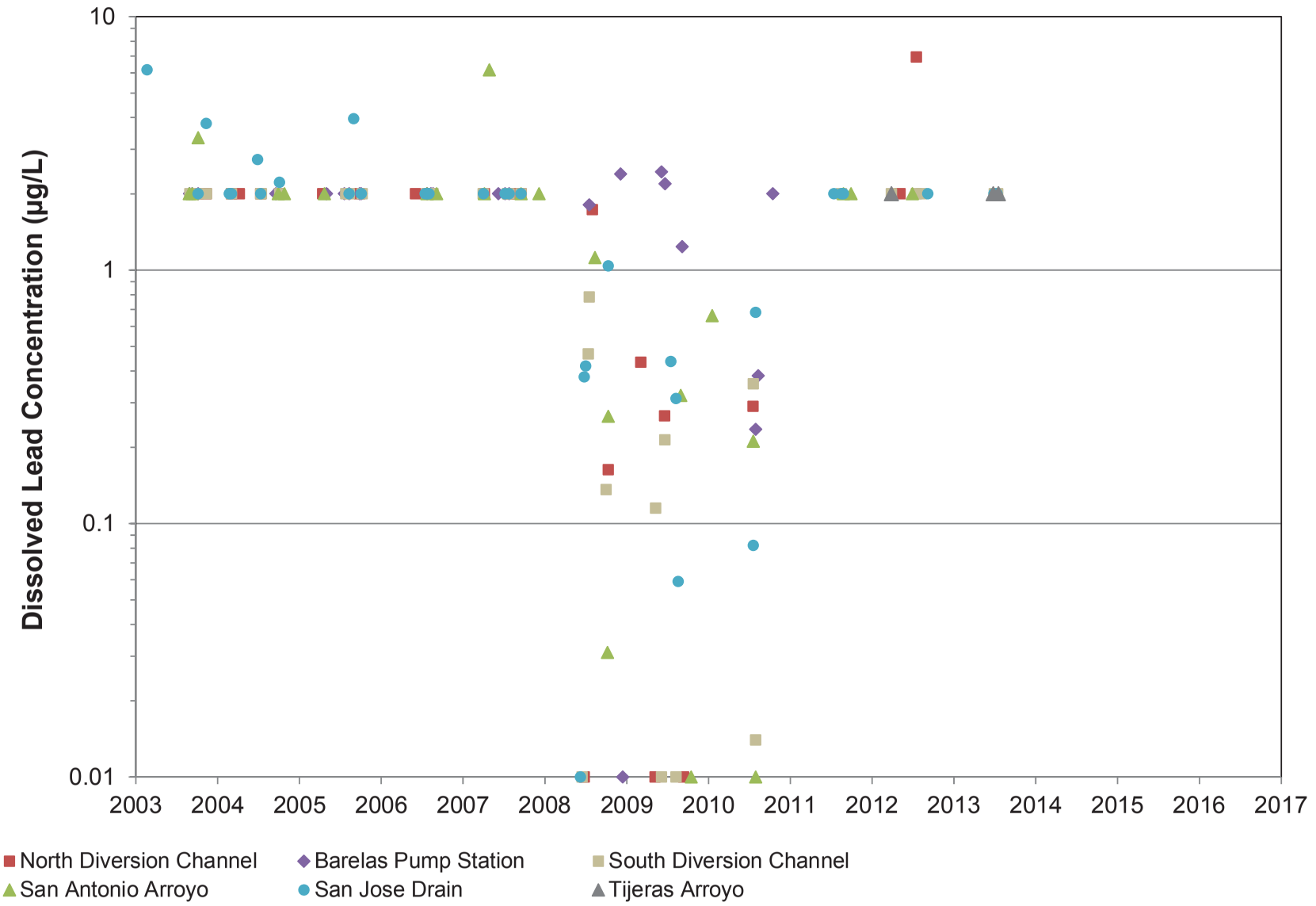
CITY OF ALBUQUERQUE

Total Chromium, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig07a_Pb-Diss-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 7a

CITY OF ALBUQUERQUE

Dissolved Lead, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig07b_Pb-Tot-Outfalls.doc

Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 7b

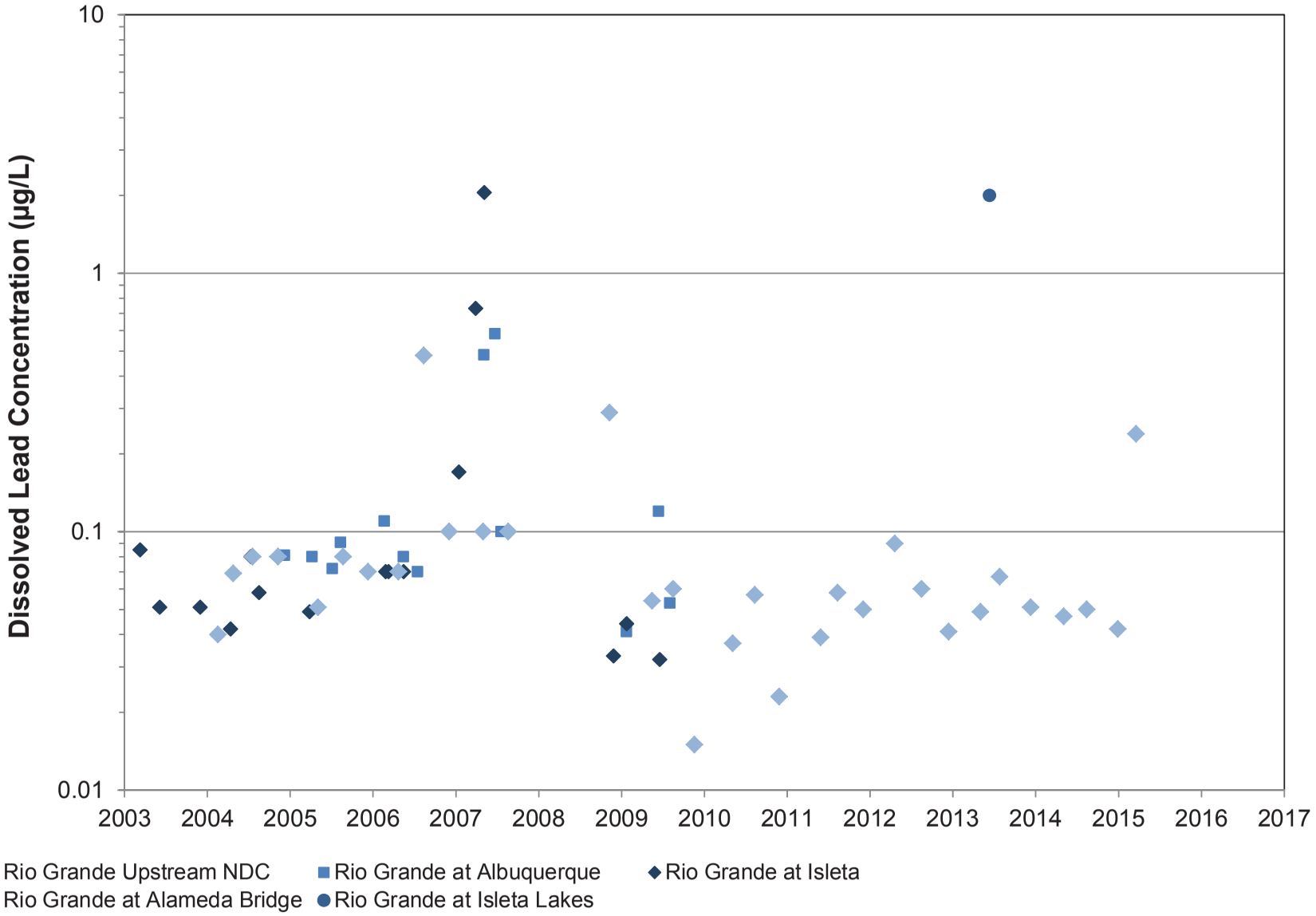
CITY OF ALBUQUERQUE

Total Lead, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig07c_Pb-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 7c

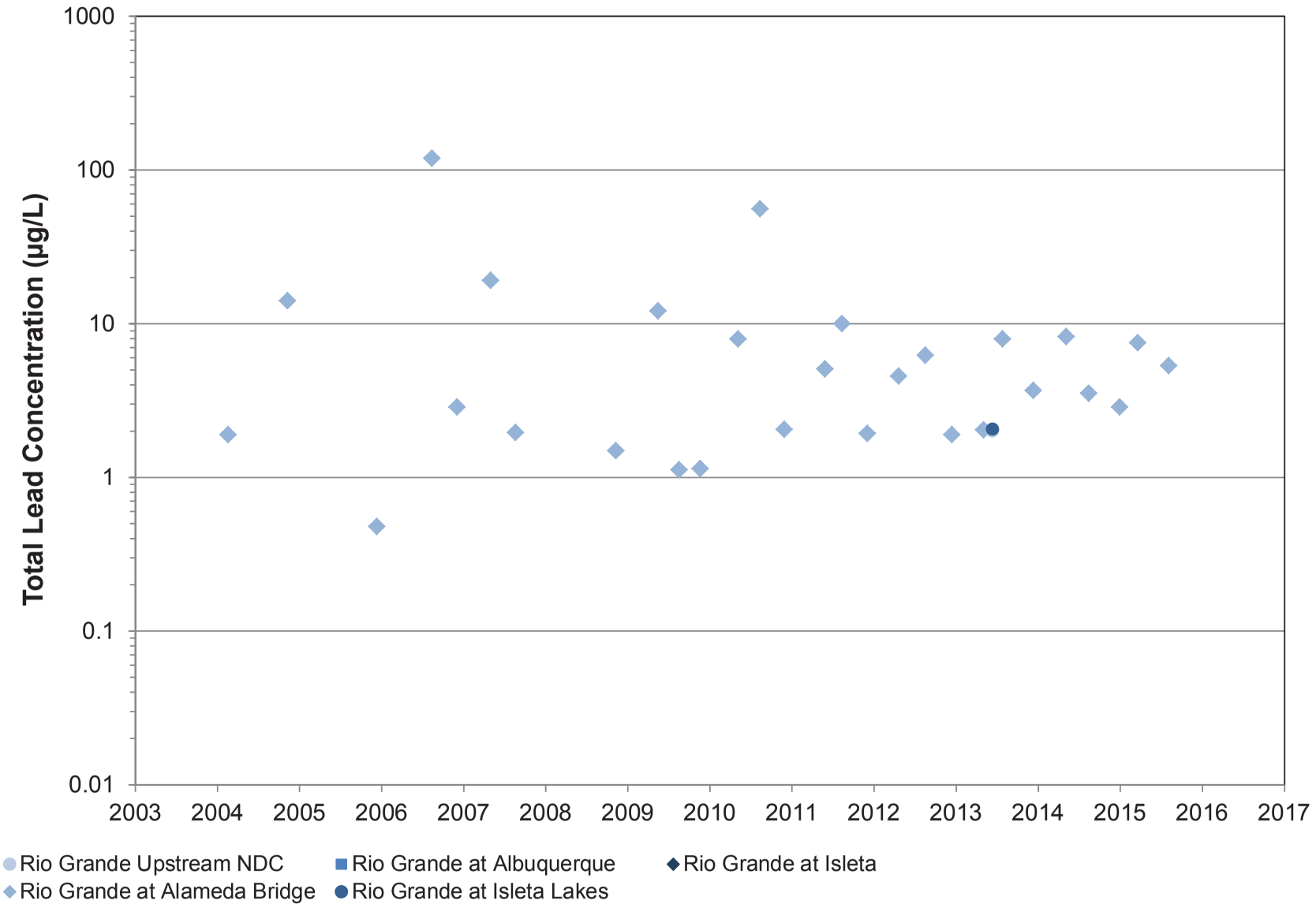
CITY OF ALBUQUERQUE

Dissolved Lead, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig07d_Pb-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 7d

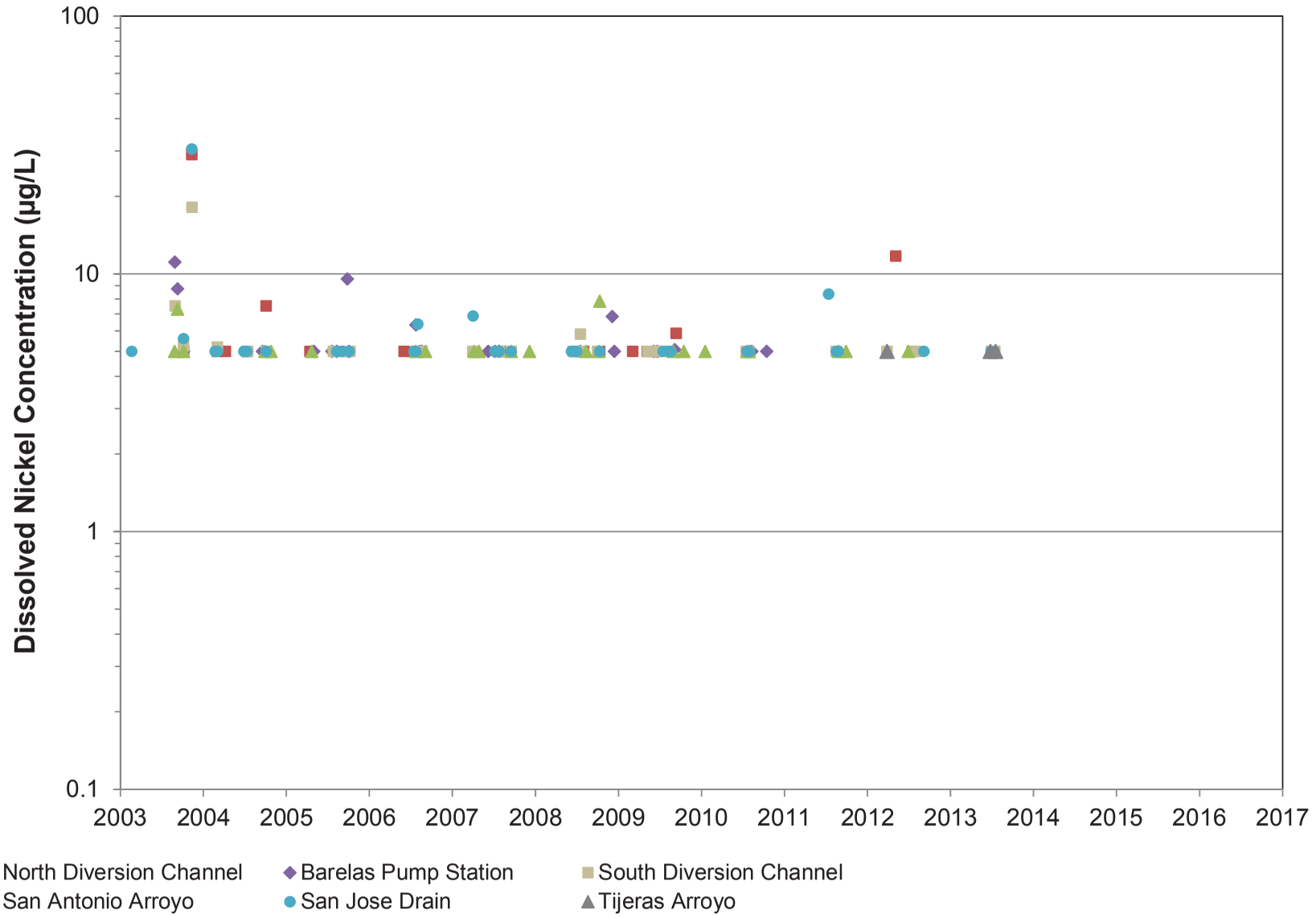
CITY OF ALBUQUERQUE

Total Lead, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig08a_Ni-Diss-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 8a

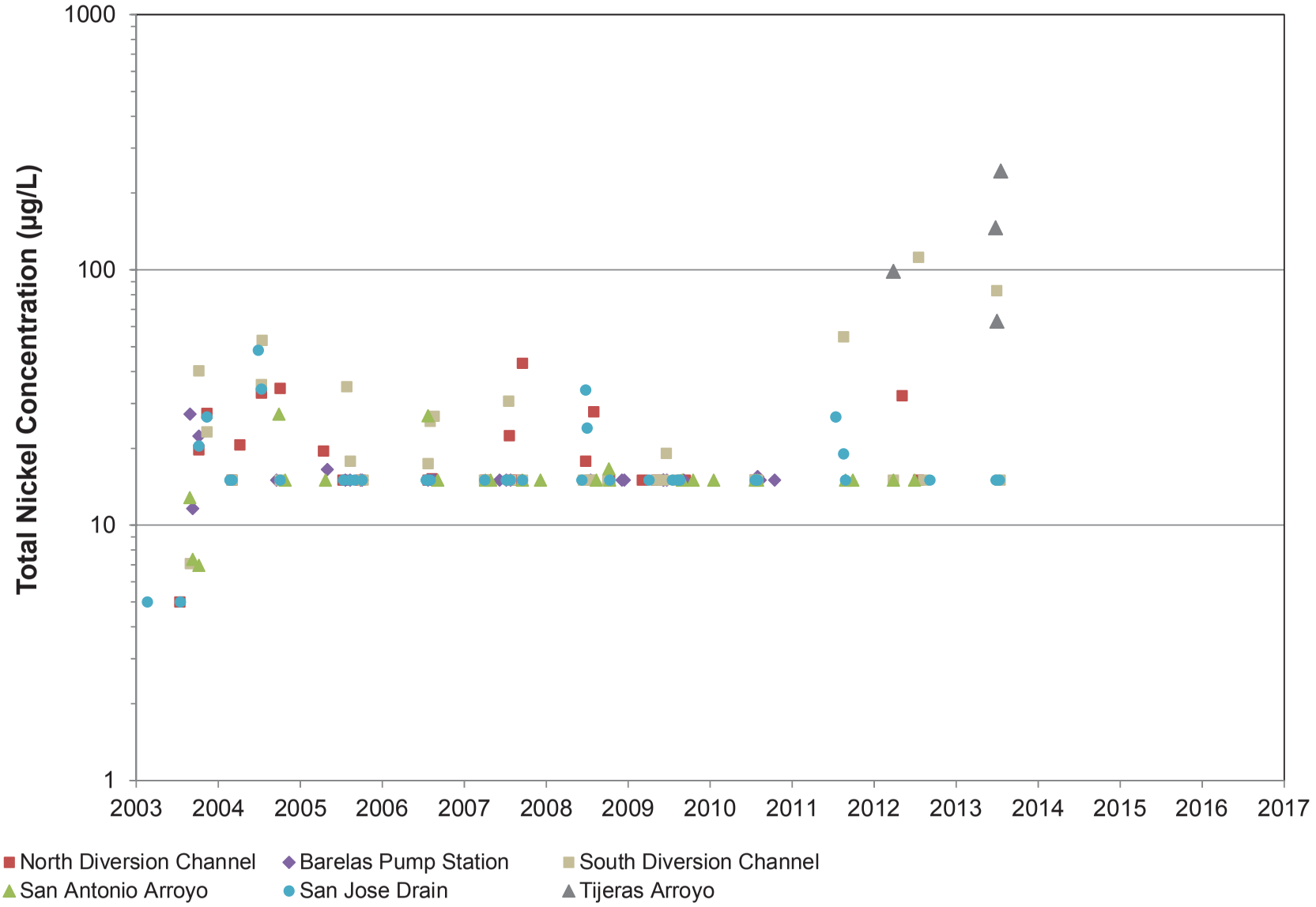
CITY OF ALBUQUERQUE

Dissolved Nickel, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig08b_Ni-Tot-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 8b

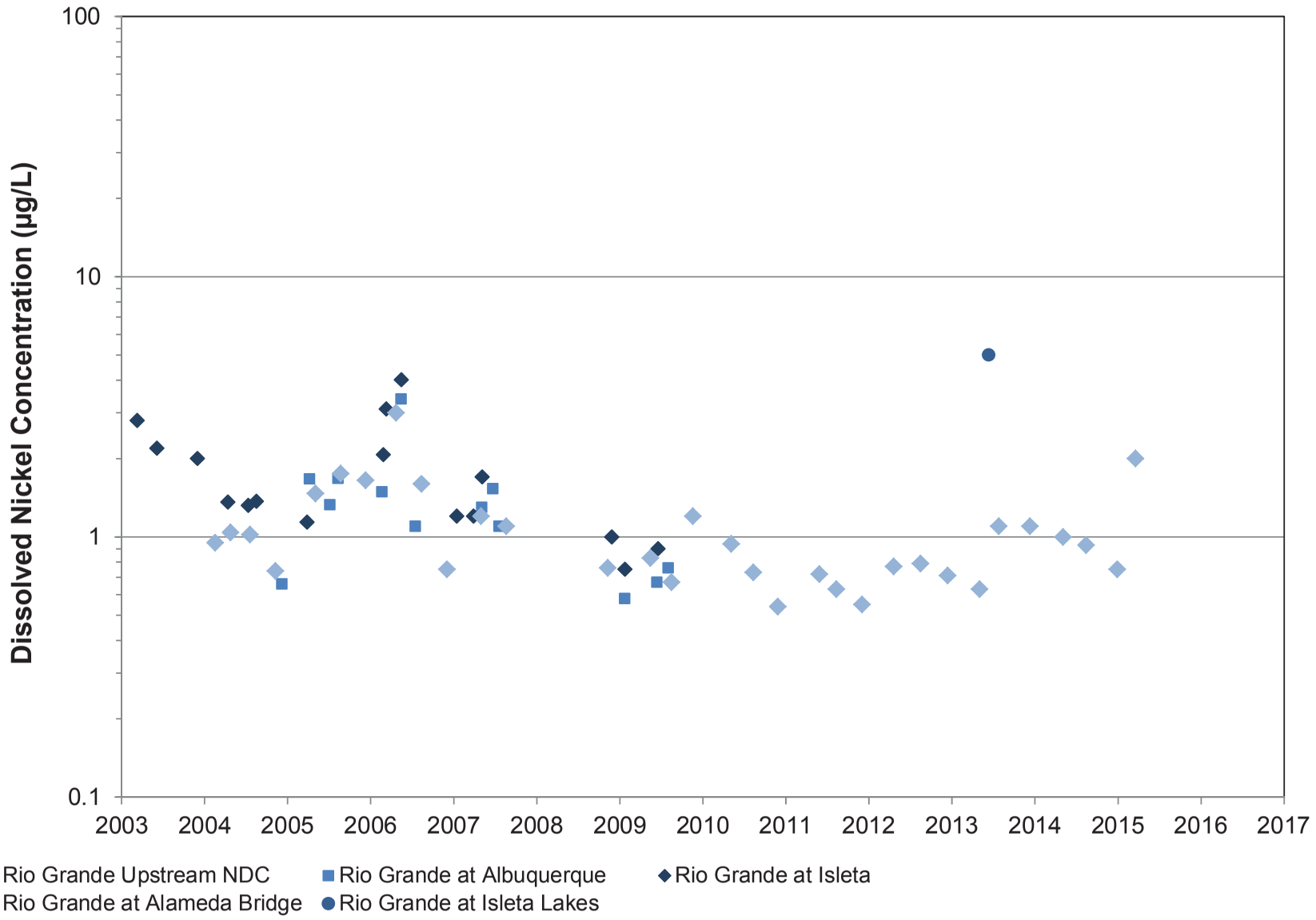
CITY OF ALBUQUERQUE

Total Nickel, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig08c_Ni-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 8c

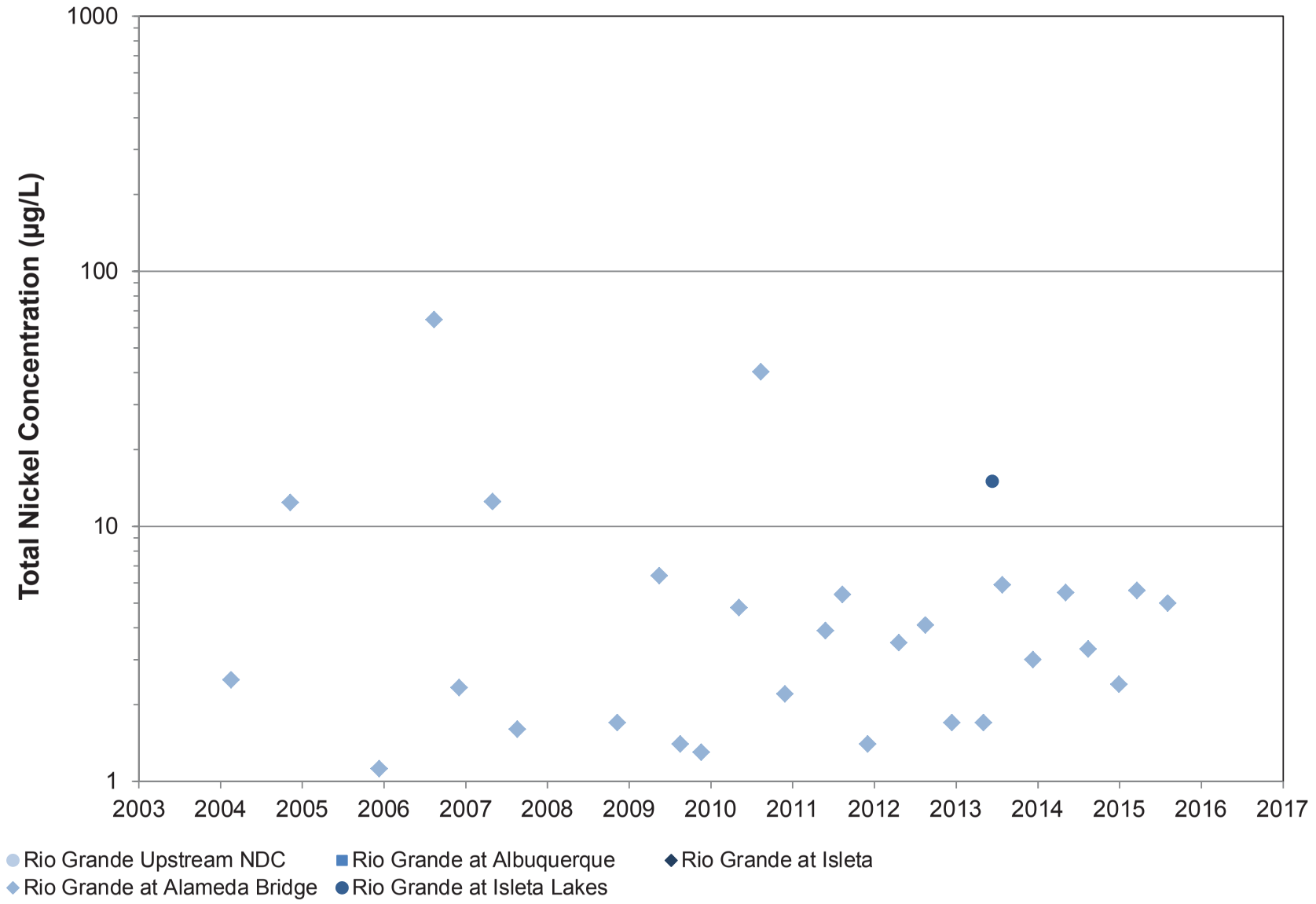
CITY OF ALBUQUERQUE

Dissolved Nickel, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig08d_Ni-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 8d

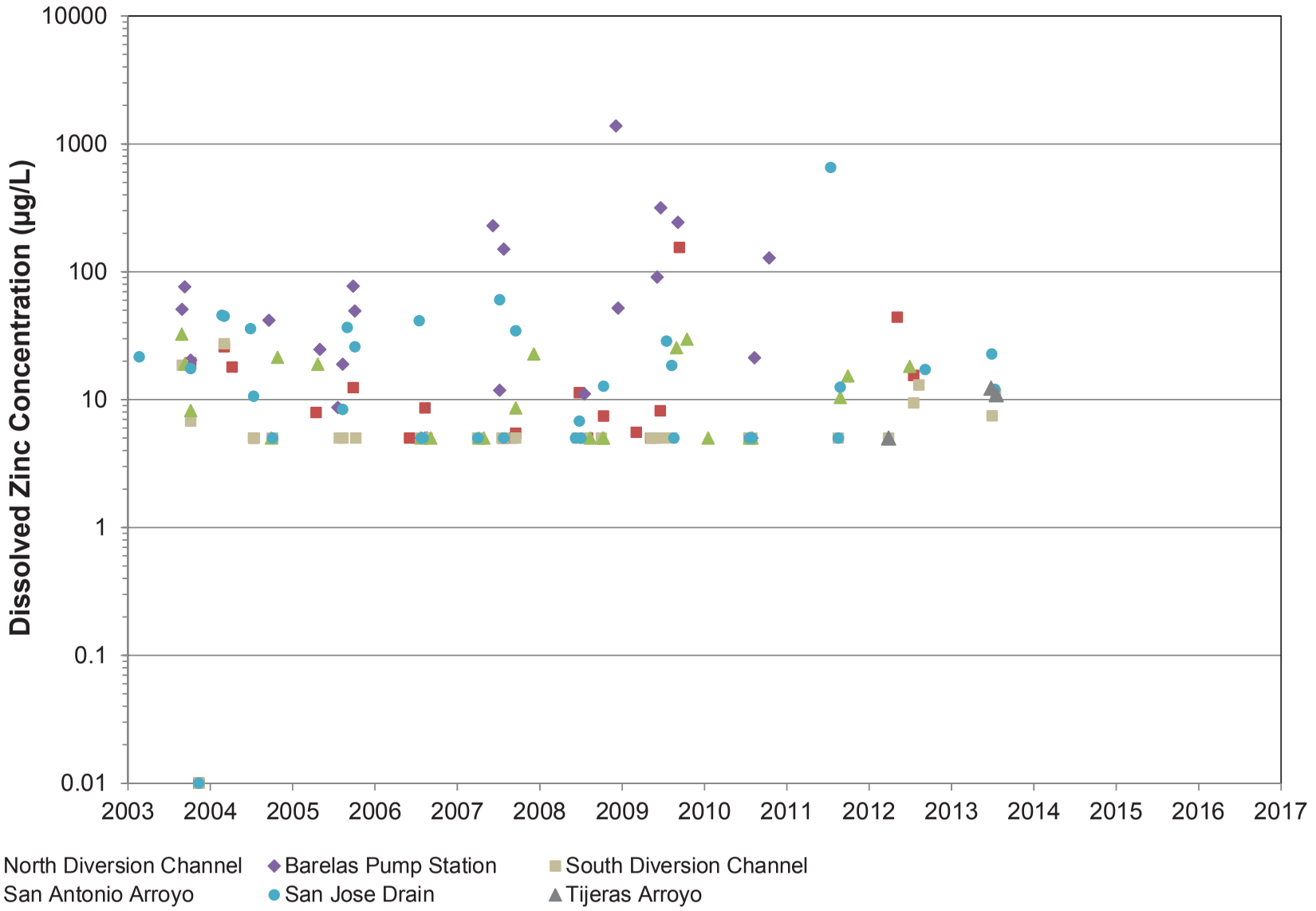
CITY OF ALBUQUERQUE

Total Nickel, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig09a_Zn-Diss-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 9a

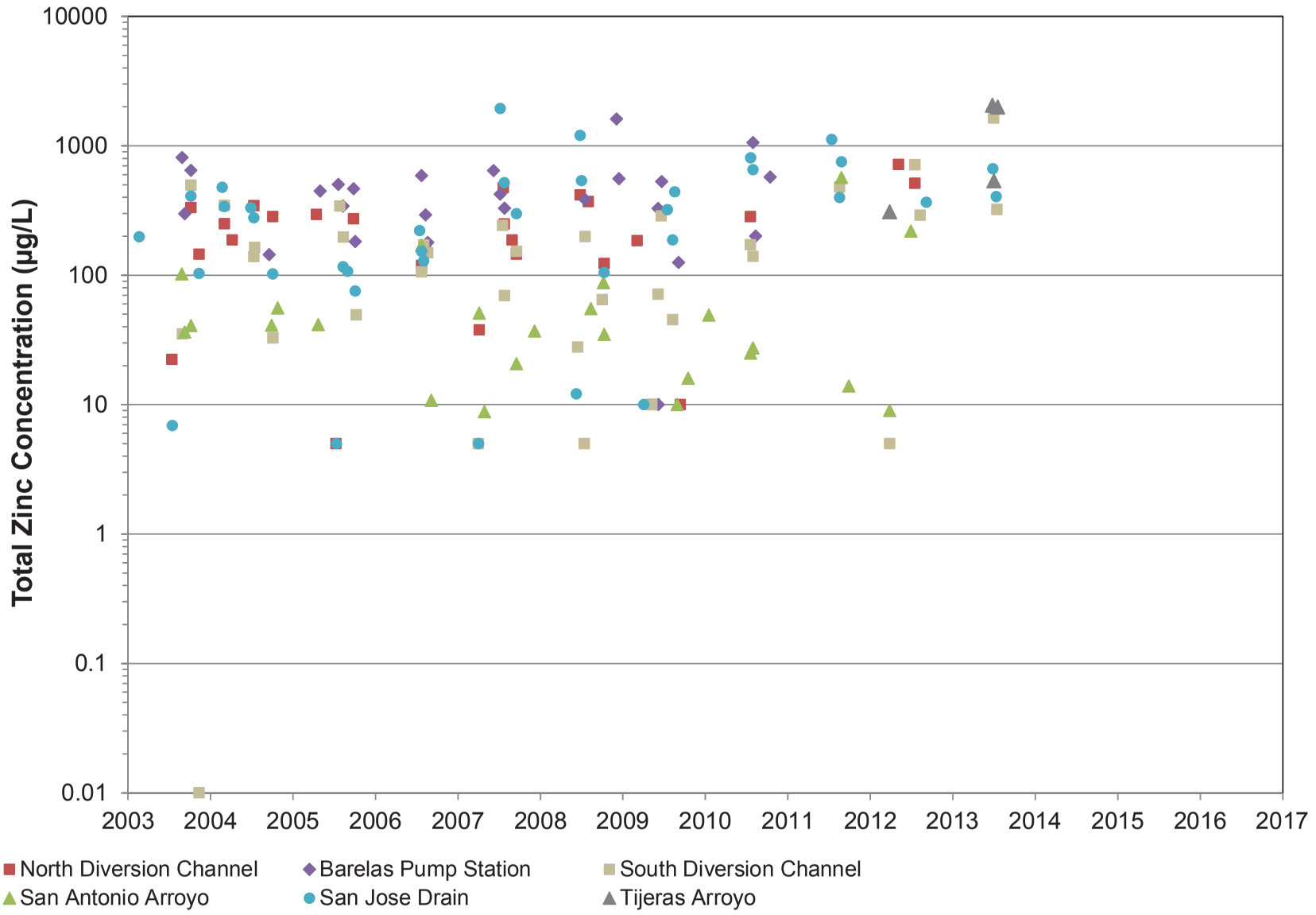
CITY OF ALBUQUERQUE

Dissolved Zinc, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig09b_Zn-Tot-Outfalls.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 9b

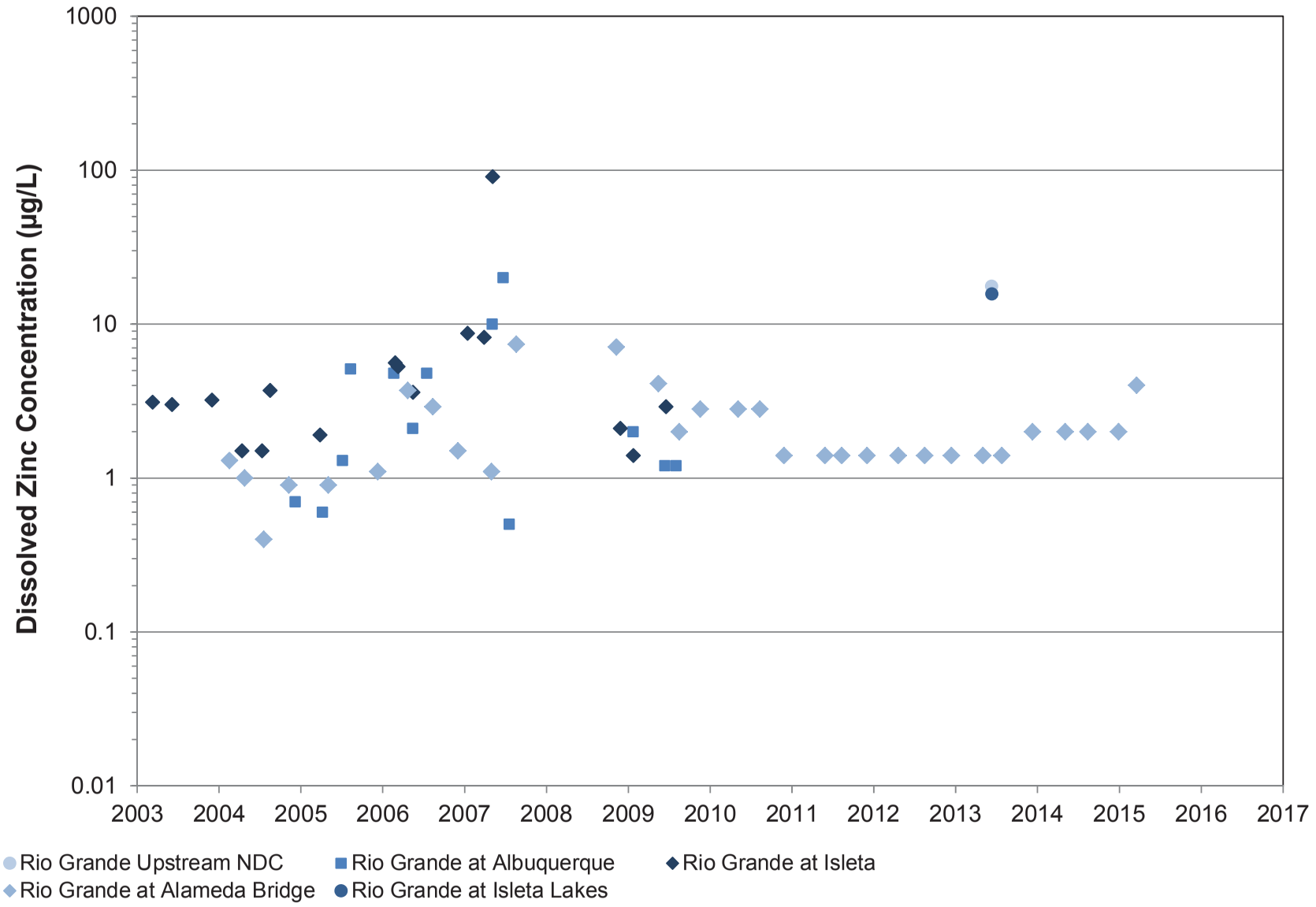
CITY OF ALBUQUERQUE

Total Zinc, Outfall Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig09c_Zn-Diss-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 9c

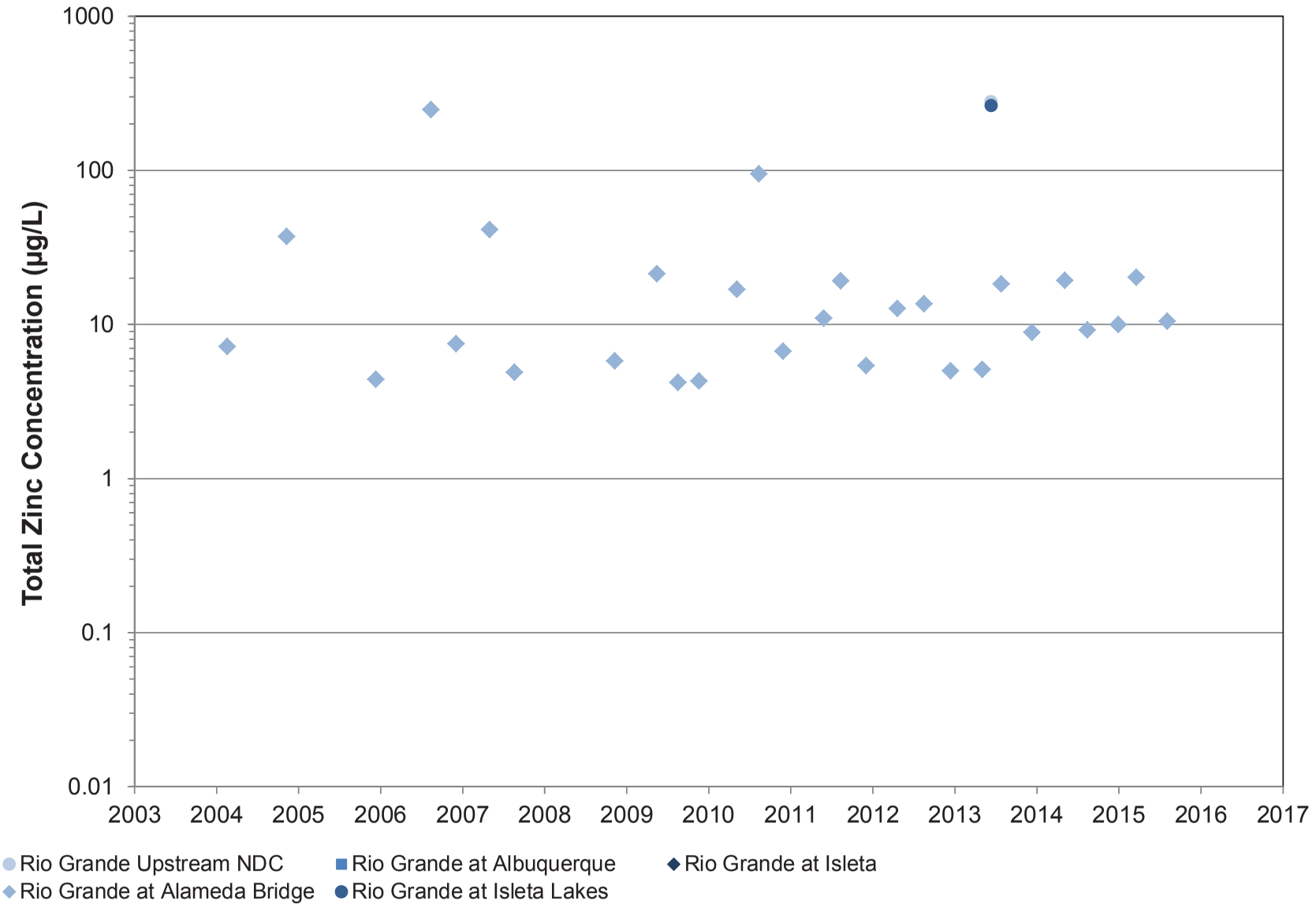
CITY OF ALBUQUERQUE

Dissolved Zinc, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

P:_WR14-049\Sediment Assmnt.9-16\Figures\Fig09d_Zn-Tot-RG.doc



Note: Non-detections plotted at detection limit.
Sources: Storms et al., 2015; USGS, 2016

Figure 9d

CITY OF ALBUQUERQUE

Total Zinc, Rio Grande Locations

Daniel B. Stephens & Associates, Inc.

9/19/16

Tables

Table 1. Outfall Water Quality Sampling Locations

Site Name	Site Number	USGS Station Number	Drainage Area (mi^2)	Land Use (%)					Station Location
				Agricultural	Commercial	Industrial	Open Space	Residential	
North Diversion Channel	UR-9900	08329900	92	36	15	4	4	41	Concrete-lined channel
San Antonio Arroyo	UR-300	083299375	31	73	1	14	1	11	Natural unlined channel
Barelas Pump Station	UR-400B	NA	4	9	34	10	12	35	Stormwater pumping station
San Jose Drain	UR-500	08330200	2	18	30	9	2	41	Concrete-lined channel
South Diversion Channel	UR-200	08330775	11	30	28	21	8	13	Natural unlined channel
Tijeras Arroyo	UR-330600	08330600	135	—	—	—	90	—	Natural unlined channel

Source: Storms et al., 2015
USGS = U.S. Geological Survey
mi^2 = Square miles
NA = Not applicable
— = Not provided

Table 2. Total Polychlorinated Biphenyl Concentrations

Site	Sample Date	Total PCBs [a]		Data Source
		(pg/L)	(µg/L)	
Oufall Locations				
North Diversion Channel	7/20/2011	123,699	0.123699	USGS
	5/11/2012	7,836	0.007836	USGS
	7/23/2012	4,607	0.004607	USGS
	7/6/2015	10,500	0.0105	MS4 Cooperative
San Antonio Arroyo	9/1/2011	1,241	0.001241	USGS
	10/5/2011	ND		USGS
	4/3/2012	134	0.000134	USGS
	7/5/2012	147	0.000147	USGS
	6/10/2015	235	0.000235	MS4 Cooperative
San Jose Drain	7/20/2011	17,580	0.01758	USGS
	8/24/2011	229	0.000229	USGS
	9/1/2011	8,888	0.008888	USGS
	9/12/2012	33,503	0.033503	USGS
	7/6/2015	6,040	0.00604	MS4 Cooperative
South Diversion Channel	8/24/2011	73	0.000073	USGS
	4/3/2012	3,632	0.003632	USGS
	7/23/2012	4,277	0.004277	USGS
	8/16/2012	233	0.000233	USGS
	7/6/2015	7,580	0.00758	MS4 Cooperative
Tijeras Arroyo	8/3/2011	ND		USGS
	4/3/2012	1,583	0.001583	USGS
	7/7/2015	7,140	0.00714	MS4 Cooperative
Rio Grande Locations				
Rio Grande upstream of North Diversion Channel	7/29/2011	ND		USGS
	8/18/2011	ND		USGS
	9/22/2015	ND		MS4 Cooperative
Rio Grande near Isleta	9/22/2015	276	0.000276	MS4 Cooperative

[a] Sum of congeners
pg/L = Picograms per liter
µg/L = Micrograms per liter
USGS = U.S. Geological Survey
ND = Not detected

Table 3. AMAFCA Total Sediment Removal, 2015

AMAFCA Maintained Location	Rank	Sediment Removed (cubic yards)	Percent of Total (%)
Amole Dam	15	144	0.41
Bear Canyon Arroyo	28	6	0.02
Black Arroyo Dam	4	2,564	7.33
Cabezon Channel	18	117	0.33
Candelaria Inlet	27	12	0.03
Corrales Main	6	1,333	3.81
Domingo Baca Water Quality Structure	16	135	0.39
Hahn Channel	26	18	0.05
Hubbel Dam & Spillway	13	361	1.03
Kinney Dam	8	1,026	2.93
La Cueva System & Water Quality Features	24	36	0.10
Ladera System- Dams & Mirehaven	14	291	0.83
Los Padillas Spillway Diversion	25	24	0.07
Mariposa Diversion Channel	23	52	0.15
North Diversion Channel	3	2,735	7.82
North Domingo Baca Dam & Channel	2	3,803	10.87
North Domingo Baca Trailer Park Ponds	10	762	2.18
Piedras Marcadas Dam & Mid Branch PM Channel	7	1,107	3.17
Powerline Channel	19	91	0.26
Raymac Dam	9	869	2.48
Snow Vista Pond and Channel	12	486	1.39
South Diversion Channel & Water Quality Structure	1	16,127	46.11
South Domingo Baca Channel	20	76	0.22
South Pino Channel & Water Quality Facility	17	117	0.33
Southwest Valley Projects	22	52	0.15
Vineyard Channel & Water Quality Structure	21	52	0.15
West Bluff, Laurelwood Ponds & WQ Structure	11	620	1.77
West I-40 Channel & Storm Drains	5	1,960	5.60
Total		34,976	100.00

Source: Chavez, 2016

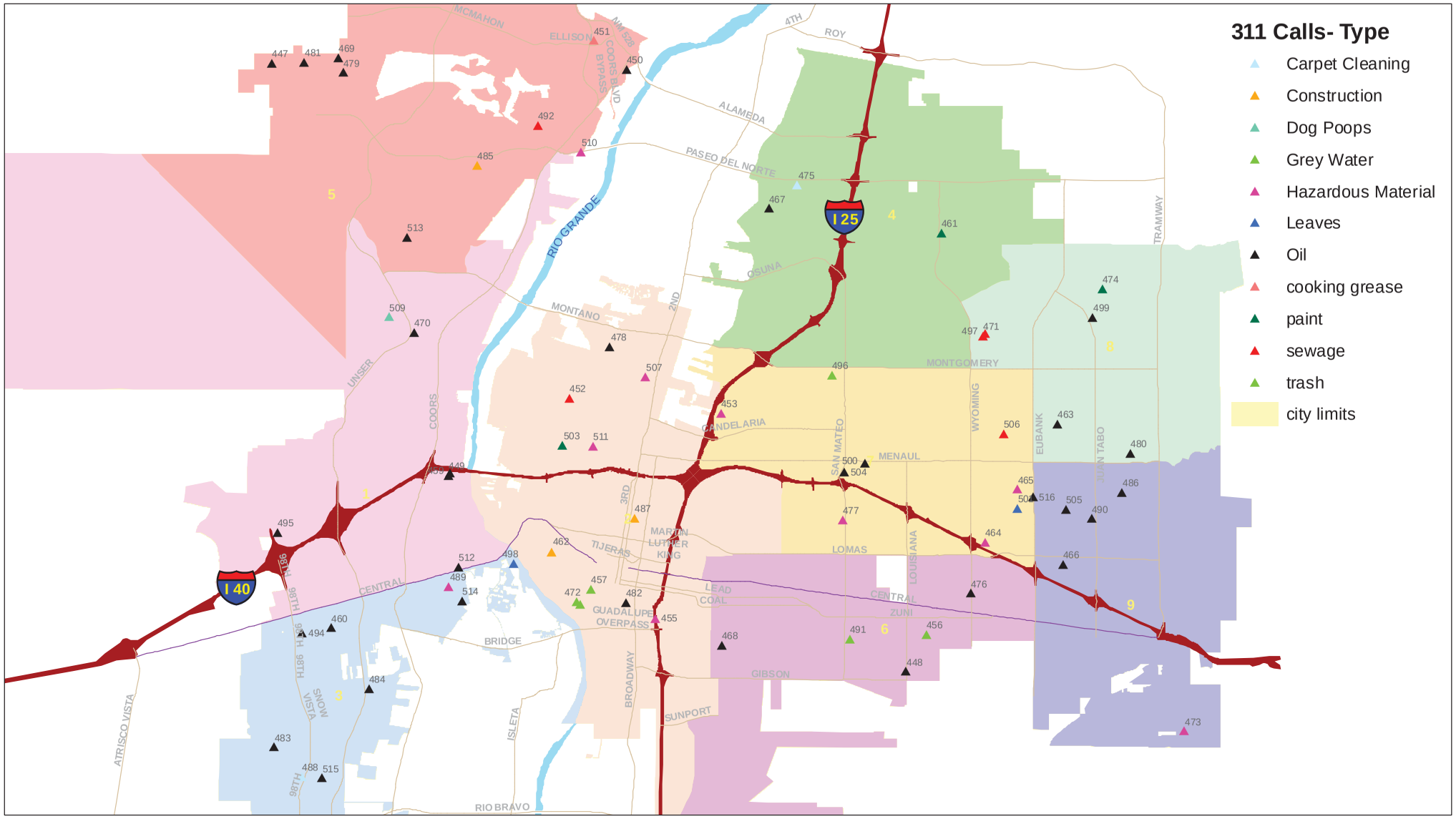
Table 4. Sediment Removed from North Diversion Channel and South Diversion Channel, 2015

Month	Sediment Removed (cubic yards)	
	North Diversion Channel	South Diversion Channel and Water Quality Structure
January	—	3,113
February	—	304
March	264	3,050
April	387	540
May	540	—
June	—	—
July	—	4,002
August	—	—
September	918	—
October	626	2,358
November	—	2,760
December	—	—
Total	2,735	16,127

Source: Chavez, 2016
— = No removal

Attachment 2

Map of 311 Complaints by Type



311 calls in 2015

Attachment 3

Monitoring and Reporting

Eaton, Shellie

From: Verhage, Kathleen M.
Sent: Thursday, November 17, 2016 4:35 PM
To: 'Smith, Nelly'; Kali Bronson; Nguyen, Helen; sarah.holcomb@state.nm.us; Honker, William; Cardenas, Adele
Cc: David Gatterman; Arthur Bishop; Carla Dominici (cprando@unm.edu); Chavez, Patrick; Che Shu-Nyamboli; Cyndie Tidwell; DAVID SERRANO; EUGENE PETTES; Fred Marquez; John Avila; John Kay; Kathie Deal; Smith, LindaK; Daggett, Kevin; Larry Blair; Maria Rinaldi; Dan McGregor; Michael Buchanan; Eaton, Shellie; Steven Morgenstern; Tim McDonough (tmcdonough@losranchosnm.gov); Trujillo, Timothy R, NMDOT; Karen Agogino; Andrew Edmondson (aedmondson@townofbernalillo.org); Johnson, LaGayla; Houston, Robert; Larsen, Brent; Smith, LindaK; Nguyen, Helen
Subject: RE: DMR Reporting, Water Year 2016, Permit No. NMR04A000

Hi Nelly-
Thanks for the prompt response. The City of Albuquerque (COA) will include a copy of the DMR form that was sent in the Annual Report submittal. The COA will also access the NetDMR system in mid December and indicate that no sample was collected in NetDMR, should the form be set up. As a note, our certified official checked the system today for our permit number and no match was found.

My understanding of the system is that because the other entities in our monitoring cooperative have not applied for NetDMR registration and received approval, they are allowed to submit paper copies until December 21, 2016. According to our permit language, the DMR submittal is required on December 1 with our Annual Report. This occurs prior to December 21, 2016. Therefore, it is not until NEXT year's submittal on December 1, 2017, after the December 21,2016 deadline that these entities are required to use NetDMR.

However, because the COA is registered and has submitted DMRs using NetDMR under our former Phase 1 Permit, we are required to do so under the new Watershed Based Permit. Therefore, we request that EPA begin the set up process with our permit tracking number NMR04A014 so that we may meet the December 21, 2016 deadline. We will include a line item in our Annual Report under Monitoring, Assessment and Reporting that we were unable to find a permit match in NetDMR for NMR04A014 as of November 17, 2016 and will attempt to access the system again in mid-December. If the system has not been set up for us by then, we will be unable to comply with the December 21, 2016 deadline and will file in NetDMR when our forms are available.

Thanks,
Kathy Verhage
Storm Drainage Section
City of Albuquerque
(505) 768-3654

From: Smith, Nelly [mailto:Smith.Nelly@epa.gov]
Sent: Thursday, November 17, 2016 1:48 PM
To: Verhage, Kathleen M.; Kali Bronson; Nguyen, Helen; sarah.holcomb@state.nm.us; Honker, William; Cardenas, Adele
Cc: David Gatterman; Arthur Bishop; Carla Dominici (cprando@unm.edu); Chavez, Patrick; Che Shu-Nyamboli; Cyndie Tidwell; DAVID SERRANO; EUGENE PETTES; Fred Marquez; John Avila; John Kay; Kathie Deal; Smith, LindaK; Daggett, Kevin; Larry Blair; Maria Rinaldi; Dan McGregor; Michael Buchanan; Eaton, Shellie; Steven Morgenstern; Tim McDonough (tmcdonough@losranchosnm.gov); Trujillo, Timothy R, NMDOT; Karen Agogino; Andrew Edmondson (aedmondson@townofbernalillo.org); Johnson, LaGayla; Houston, Robert; Larsen, Brent; Smith,

LindaK; Nguyen, Helen
Subject: RE: DMR Reporting, Water Year 2016, Permit No. NMR04A000

Hi Kathy:

Please see responses in green text.

Thanks again!

Nelly Smith
Municipal Stormwater Coordinator
EPA Region 6
Permitting Section
NPDES Permits and TMDLs Branch

ph: 214-665-7109
Email: smith.nelly@epa.gov

From: Verhage, Kathleen M. [mailto:kverhage@cabq.gov]
Sent: Wednesday, November 16, 2016 5:00 PM
To: Smith, Nelly <Smith.Nelly@epa.gov>; Kali Bronson <kbronson@bernco.gov>; Nguyen, Helen <Nguyen.Helen@epa.gov>; sarah.holcomb@state.nm.us; Honker, William <honker.william@epa.gov>; Cardenas, Adele <Cardenas.Adele@epa.gov>
Cc: David Gatterman <dgatterman@sscafca.com>; Arthur Bishop <adbishop123@unm.edu>; Carla Dominici (cprando@unm.edu) <cprando@unm.edu>; Chavez, Patrick <pchavez@amafca.org>; Che Shu-Nyamboli <cshu@unm.edu>; Cyndie Tidwell <CTidwell@corrales-nm.org>; DAVID SERRANO <DSERRANO@RRNM.GOV>; EUGENE PETTES <XPETTES@RRNM.GOV>; Fred Marquez <fmarquez@sandovalcounty.com>; John Avila <javila@corrales-nm.org>; John Kay <jtkay@sandia.gov>; Kathie Deal <kjdeal@sandia.gov>; Smith, LindaK <Smith.Lindak@epa.gov>; Daggett, Kevin <kdaggett@cabq.gov>; Larry Blair <blairylar@hotmail.com>; Maria Rinaldi <mrinaldi@townofbernalillo.org>; Dan McGregor <dmcgregor@bernco.gov>; Michael Buchanan <mbuchanan85@unm.edu>; Eaton, Shellie <seaton@cabq.gov>; Steven Morgenstern <steven.morgenstern@state.nm.us>; Tim McDonough (tmcdonough@losranchosnm.gov) <tmcdonough@losranchosnm.gov>; Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>; Karen Agogino <karen.agogino@nnsa.doe.gov>; Andrew Edmondson (aedmondson@townofbernalillo.org) <aedmondson@townofbernalillo.org>; Johnson, LaGayla <Johnson.Lagayla@epa.gov>; Houston, Robert <Houston.Robert@epa.gov>; Larsen, Brent <Larsen.Brent@epa.gov>; Smith, LindaK <Smith.Lindak@epa.gov>
Subject: RE: DMR Reporting, Water Year 2016, Permit No. NMR04A000

Hi Nellie-
According to Page 3 of Part III, Item D.1 of the permit, "Monitoring results ….obtained during the monitoring period…. shall be submitted on discharge monitoring report (DMR) forms along with the annual report required by Part III.B". Our annual report is due no later than December 1. Therefore, our DMR submittal will not accompany our annual report submittal and violate our permit requirements. Should we indicate in our Annual Report submittal on or before December 1 that the DMRs will follow on December 21 and will such a note be sufficient? **Yes, please include this information in your Annual Report. The reason we have this date is because the dateline to start submitting DMR electronically to EPA is December 21, 2016. Please see (NPDES) Electronic Reporting Rule at https://www.epa.gov/compliance/npdes-ereporting.**

Also note that it will take time for each agency's certified official to obtain access to the netDMR system because of the written request and approval process required. The City of Albuquerque's (COA) experience with the registration process in 2011 was a 3-4 week lag between the mailing of the request and subsequent receipt of approval. **To accommodate the transition (certification and approval process) to NetDMR, we included the group EPA e-mail address (R6_MS4Permits@epa.gov) where the traditional DMR Form can be submitted via e-mail, in the comment "section" or "comments box" permittees can add any comment related to sampling locations or whether the form is being submitted in cooperation with other entity.** At this point we have less than 5 weeks from your requested due date of December 21 and 2 weeks from the December 1 deadline referred to in the permit with next week being cut short due to the Thanksgiving holiday. Those entities, such as the COA and SNL/DOE, that have been granted access to the system should be able to meet the December 21 deadline if our forms have been set up by mid December. However, the entities that have never used the netDMR system will likely be unable to obtain approval and access the forms by the listed date. I would like to suggest that the EPA prepare an electronic form (**they can use the standard DMR Form and submit it electronically via e-mail. See attached blank DMR Form provided by Helen Nguyen, our NetDMR Coordinator**) for each agency rather than attempt to get us all set up in netDMR by mid December. The agencies that participated in the monitoring cooperative have no data to report this year for the reasons discussed by Kali in the email below. I believe that all we will need to do to complete the DMR forms is enter the appropriate "no sample collection" qualifier, have our certifying officials sign the forms, and include them with our Annual Reports or in a separate submission by December 21 and note this in our reports. We could then enter the data into netDMR and have our officials certify them at a later date upon receipt of approval.

Please provide additional clarification as our December 1 deadline looms in the near future. Thank you for help with this**. Please document in your Annual Report submittal that the DMRs will follow on December 21. Per Helen, the process to certify and approve agencies in the NetDMR system is very quick. It may take only one day to obtain the certification and approval. We (Permitting and Enforcement/Compliance Teams) are also exploring the option of design a specific DMR Form for this permit and the upcoming statewide MS4 permit, until then the standard DMR Form can and Annual Report can be used for compliance purposes. Please also contact Helen Nguyen on additional questions regarding certification and approval process on NetDMR:**

Helen Nguyen
214-665-6458 (Office)
214-665-2168 (Fax)
nguyen.helen@epa.gov

Kathy Verhage
Storm Drainage Section
City of Albuquerque
(505) 768-3654

From: Smith, Nelly [mailto:Smith.Nelly@epa.gov]
Sent: Wednesday, November 16, 2016 2:14 PM
To: Kali Bronson; Nguyen, Helen; sarah.holcomb@state.nm.us; Honker, William; Cardenas, Adele
Cc: David Gatterman; Arthur Bishop; Carla Dominici (cprando@unm.edu); Chavez, Patrick; Che Shu-Nyamboli; Cyndie Tidwell; DAVID SERRANO; EUGENE PETTES; Fred Marquez; John Avila; John Kay; Kathie Deal; Smith, LindaK; Verhage, Kathleen M.; Daggett, Kevin; Larry Blair; Maria Rinaldi; Dan McGregor; Michael Buchanan; Eaton, Shellie; Steven Morgenstern; Tim McDonough (tmcdonough@losranchosnm.gov); Trujillo, Timothy R, NMDOT; Karen Agogino; Andrew Edmondson (aedmondson@townofbernalillo.org); Johnson, LaGayla; Houston, Robert; Larsen, Brent; Smith, LindaK
Subject: RE: DMR Reporting, Water Year 2016, Permit No. NMR04A000

Kali:

We are entering individual permittees into the ICIS system. The point of contact for this task is LaGayla Johnson. We expect the system will be ready before mid-December so the permittees can enter data using NetDMR. If the system is not ready by December 21, permittees can submit electronic copies to Linda K. Smith via e-mail at Smith.Lindak@epa.gov. You also need to send copy of the DMR to R6_MS4Permits@epa.gov (note: there is an underscore between R6 and MS4). I have copied LaGayla and Linda in this e-mail.

Yes, MS4s can certify and enter DMR data for the 12 MS4s through the NetDMR under "duly authorized representative of that person". Per Enforcement and Compliance team's request, a written authorization notice needs to be in place. Please contact Linda Smith (214.665.6641) or Robert Houston Houston.Robert@epa.go (214.665.9789) if you need to discuss further on the written authorization notice.

Thanks again!

Nelly Smith
Municipal Stormwater Coordinator
EPA Region 6
Permitting Section
NPDES Permits and TMDLs Branch

ph: 214-665-7109
Email: smith.nelly@epa.gov

From: Kali Bronson [mailto:kbronson@bernco.gov]
Sent: Monday, November 14, 2016 12:49 PM
To: Smith, Nelly <Smith.Nelly@epa.gov>; Nguyen, Helen <Nguyen.Helen@epa.gov>; sarah.holcomb@state.nm.us; Honker, William <honker.william@epa.gov>; Cardenas, Adele <Cardenas.Adele@epa.gov>
Cc: David Gatterman <dgatterman@sscafca.com>; Arthur Bishop <adbishop123@unm.edu>; Carla Dominici (cprando@unm.edu) <cprando@unm.edu>; Chavez, Patrick <pchavez@amafca.org>; Che Shu-Nyamboli <cshu@unm.edu>; Cyndie Tidwell <CTidwell@corrales-nm.org>; DAVID SERRANO <DSERRANO@RRNM.GOV>; EUGENE PETTES <XPETTES@RRNM.GOV>; Fred Marquez <fmarquez@sandovalcounty.com>; John Avila <javila@corrales-nm.org>; John Kay <jtkay@sandia.gov>; Kathie Deal <kjdeal@sandia.gov>; Kathy Verhage <kverhage@cabq.gov>; Kevin Daggett <kdaggett@cabq.gov>; Larry Blair <blairylar@hotmail.com>; Maria Rinaldi <mrinaldi@townofbernalillo.org>; Dan McGregor <dmcgregor@bernco.gov>; Michael Buchanan <mbuchanan85@unm.edu>; Shelly Eaton <seaton@cabq.gov>; Steven Morgenstern <steven.morgenstern@state.nm.us>; Tim McDonough (tmcdonough@losranchosnm.gov) <tmcdonough@losranchosnm.gov>; Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>; Kali Bronson <kbronson@bernco.gov>; Karen Agogino <karen.agogino@nnsa.doe.gov>; Andrew Edmondson (aedmondson@townofbernalillo.org) <aedmondson@townofbernalillo.org>
Subject: RE: DMR Reporting, Water Year 2016, Permit No. NMR04A000

Hello Helen and Nelly,
Adele Cardenas recently forwarded an email to Dave Gatterman, SSCAFCA, regarding questions about DMR reporting for 12 MS4s in the Middle Rio Grande, New Mexico. For purposes of permit compliance, these entities sample the same two locations for the same list of constituents at the same frequency (the watershed-based MS4 Permit No. NMR04A000 sampling cooperative). The question was regarding whether one MS4 can certify and enter DMR data for the 12 MS4s through the NetDMR under "duly authorized representative of that person" text within the Permit. The response was that Nelly and Thea Lomax both interpreted the Permit language to allow 1 DMR for all, as long as a joint agreement between the MS4s is set up. This seems like a good option and our group is discussing it internally. However, we would not be able to have this in place prior to December 1, 2016.

During water year (WY) 2016 no samples were collected by the cooperative group of the 12 MS4s (the final sampling plan was not approved and submitted until June 21st, 2016; the end of the WY was June 30th, 2016). However, it is our understanding that a DMR is still expected to be submitted noting that no samples were collected. Based on conversations I have had with other MS4s, we understand that the NetDMR system has not yet been set up based on this sampling plan and with the specified list of constituents within this plan. Because the NetDMR system is not set up for Permit No. NMR04A000, the permittees are not currently able to submit data to this system.

Hence, we will not submit a DMR report for WY2016 and are informing you through this email that no water quality samples were collected during WY2016. This will also be noted in the annual report.

For your information, the current members of the monitoring group include:
AMAFCA – NMR04A016
SSCAFCA – NMR04A001
COA - NMR04A014
NMDOT District 3 – NMR04A010
Bernalillo County – NMR04A008
UNM – NMR04A013
Village of Corrales – NMR04A004
Village of Los Ranchos – NMR04A006
ESCAFCA – NMR04A015
Rio Rancho – NMR04A007
Sandoval County – NMR04A003
Town of Bernalillo – NMR04A002

Please confirm that you have received this email and respond if you have any further direction regarding this issue.

Thank you,

Kali Bronson
Stormwater Program Compliance Manager
Infrastructure Planning Geo Resources
Building N, 2400 Broadway Blvd. SE, Albuquerque NM, 87102
Email: kbronson@bernco.gov
O: (505) 848-1544
www.bernco.gov

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME City of Albuquerque

ADDRESS P.O. Box 1293
Albuquerque, NM 87103

FACILITY LOCATION Middle Rio Grande Urban Area

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved.
OMB No. 2040-0004

PERMIT NUMBER	DISCHARGE NUMBER
NMR04A014	RIO NORTH

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2015	07	01	TO	2016	06	30

☐ Check here if No Discharge

NOTE: Read Instructions before completing this form

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
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	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Ron Romero, Engr.
Div. Mgr.

TYPED OR PRINTED

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.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE		DATE		
505	768-2766	2016	11	23
AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No sample collected. Sampling plan for the Middle Rio Grande Collaborative Monitoring Group was not approved by EPA until 06/22/2016. No storm events occurred between 06/22/2016 and 06/30/2016.

EPA Form 3320-1

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME City of Albuquerque
ADDRESS P.O. Box 1293
Albuquerque, NM 87103

FACILITY LOCATION Middle Rio Grande Urban Area

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

NMR04A014 — PERMIT NUMBER

RIO SOUTH — DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2015	07	01	TO	2016	06	30

Form Approved.
OMB No. 2040-0004

☐ Check here if No Discharge

NOTE: Read Instructions before completing this form

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
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	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Ron Romero, Engr.
Div. Mgr.
TYPED OR PRINTED

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.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE		DATE		
505	768-2766	2016	11	23
AREA CODE	NUMBER	YEAR	MO	DAY

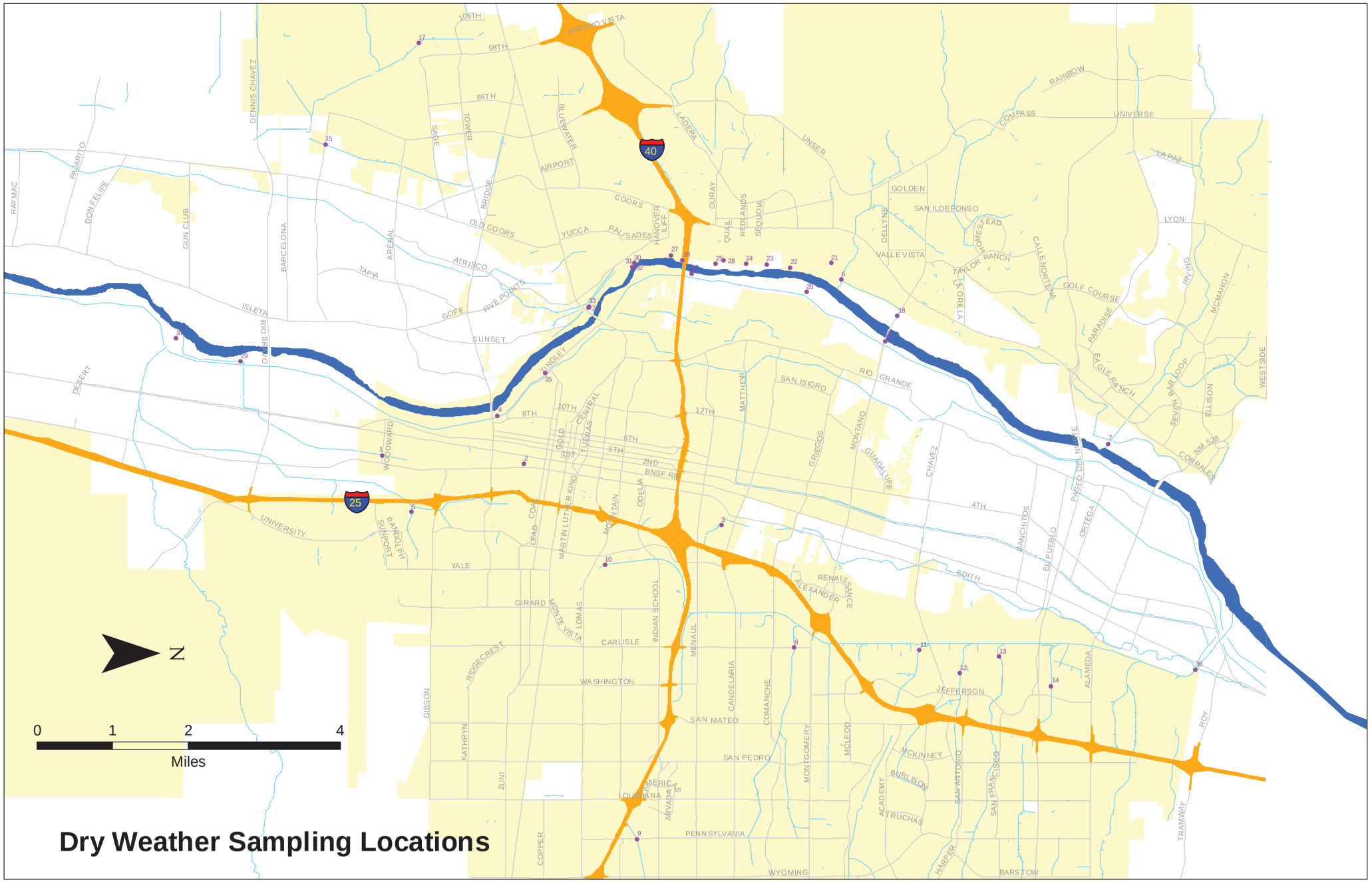
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No sample collected. Sampling plan for the Middle Rio Grande Collaborative Monitoring Group was not approved by EPA until 06/22/2016. No storm events occurred between 06/22/2016 and 06/30/2016.

EPA Form 3320-1

Attachment 4

Dry Weather Screening Results


N
0
1
2
4
Miles
Dry Weather Sampling Locations

Location 01	SAN JOSE DRAIN AT WOODWARD

DATE	1/20/2016	TIME	12:25 PM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	46.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 02	BROADWAY POND INFLOW CHANNEL

DATE	1/19/2016	TIME	11:40 AM	WEATHER	Sunny

SUSPECTED SOURCE	boiler water of loveles hospital and irrigation water from Coal and Lead roads	EST. FIOW, CFS	0.01

SUSPECTED PROBLEM TYPE	Nuisance Flow	APPEARANCE	clear

AIR TEMP,°F	50.0		
WATER TEMP,°F	46.0	OBSERV GROSS POLLUT:	none
PH:	6.5		
DISS OXYGEN, MG/L:	6.0	E_coli_Coliform mpn/100ml:	lab error-
CONDUCTIVITY, µmos/cm	888.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	<2.0	AMMONIA, MG/L N:	ND
COD, MG/L:	17.3	NITRATE+NITRITE, MG/L N:	0.82
TSS, MG/L:	ND	TOTAL PHOSPHORUS, MG/L P	0.61
TDS, MG/L:	520.0		

INSPECTOR	SK

Location 03	MENAUL POND INFLOW CHANNEL

DATE	12/1/2015	TIME	1:50 PM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00

SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 04	BARELAS PS-32

DATE	1/20/2016	TIME	12:54 PM	WEATHER	Sunny

SUSPECTED SOURCE	groundwater infiltration	EST. FIOW, CFS	0.50
SUSPECTED PROBLEM TYPE	Nuisance Flow	APPEARANCE	clear

AIR TEMP,°F	46.0		
WATER TEMP,°F	57.0	OBSERV GROSS POLLUT:	none
PH:	7.5		
DISS OXYGEN, MG/L:	5.0	E_coli_Coliform mpn/100ml:	435.2
CONDUCTIVITY, µmos/cm	679.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	< 2.0	AMMONIA, MG/L N:	ND
COD, MG/L:	15.8	NITRATE+NITRITE, MG/L N:	0.25
TSS, MG/L:	ND	TOTAL PHOSPHORUS, MG/L P	0.12
TDS, MG/L:	440.0		

INSPECTOR	SK

Location 05	KIRTLAND CHANNEL AT SOUTH DIVERSION CHANNEL

DATE	12/7/2015	TIME	9:45 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00

SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	52.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 06	SAN ANTONIO ARROYO AT USGS GAGE (RIVER)

DATE	12/3/2015	TIME	11:45 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 07	CALABACILLAS ARROYO AT RIO GRANDE

DATE	12/3/2015	TIME	11:00 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR: SK

Location 08	HAHN ARROYO AT CARLISLE

DATE	1/19/2016	TIME	12:40 PM	WEATHER	Sunny

SUSPECTED SOURCE	Leyendecker ps/well at Montgomery and Louisiana	EST. FIOW, CFS	0.01

SUSPECTED PROBLEM TYPE	Nuisance Flow	APPEARANCE	Clear

AIR TEMP,°F	50.0
WATER TEMP,°F	50.0
PH:	6.5
DISS OXYGEN, MG/L:	5.0
CONDUCTIVITY, µmos/cm	404.0
BOD, MG/L:	2.5
COD, MG/L:	21.8
TSS, MG/L:	ND
TDS, MG/L:	528.0

OBSERV GROSS POLLUT: none

E_coli_Coliform mpn/100ml:	1.0
OIL and GREASE, MG/L:	ND
AMMONIA, MG/L N:	ND
NITRATE+NITRITE, MG/L N:	0.65
TOTAL PHOSPHORUS, MG/L P	0.19

INSPECTOR SK

Location 09	EMBUDO ARROYO AT PENNSYLVANIA

DATE	1/20/2016	TIME	11:50 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	46.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 10	HIGHLANDS SYSTEM OUTFALL AT UNM HOSPITAL

DATE	1/20/2016	TIME	12:10 PM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	46.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 11	BEAR CANYON ARROYO AT NORTH DIVERSION CHANNEL-OSUNA

DATE	12/4/2015	TIME	10:30 AM	WEATHER	Sunny
SUSPECTED SOURCE	na			EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na			APPEARANCE	na

AIR TEMP,°F	50.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR SK

Location 12	SOUTH PINO ARROYO AT WASHINGTON

DATE	12/4/2015	TIME	10:20 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	50.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 13	NORTH PINO ARROYO AT NORTH DIVERSION CHANNEL

DATE	12/4/2015	TIME	10:10 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00

SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	50.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 14	SOUTH DOMINGO BACA ARROYO AT WASHINGTON

DATE	12/4/2015	TIME	10:00 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	50.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 15	AMOLE DEL NORTE CHANNEL AT BLAKE RD

DATE	1/20/2016	TIME	1:25 PM	WEATHER	Sunny

SUSPECTED SOURCE	irrigation water from Tower pond park at 82nd st and tower	EST. FIOW, CFS	0.02
SUSPECTED PROBLEM TYPE	Nuisance Flow	APPEARANCE	clear

AIR TEMP,°F	46.0		
WATER TEMP,°F	57.0	OBSERV GROSS POLLUT:	none
PH:	7.5		
DISS OXYGEN, MG/L:	6.0	E_coli_Coliform mpn/100ml:	<1
CONDUCTIVITY, µmos/cm	454.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	2.0	AMMONIA, MG/L N:	ND
COD, MG/L:	24.2	NITRATE+NITRITE, MG/L N:	ND
TSS, MG/L:	10.0	TOTAL PHOSPHORUS, MG/L P	0.16
TDS, MG/L:	334.0		

INSPECTOR	SK

Location 16	WEST BLUFF I-40 OUTFALL AT RIO GRANDE

DATE	12/1/2015	TIME	2:30 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 17	SNOW VISTA ARROYO AT SAGE RD

DATE	12/3/2015	TIME	12:00 PM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	na

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 18	Montano East of Coors

DATE	2/3/2016	TIME	11:20 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	35.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 19	Montano PS-47 west of Rio Grande Blvd

DATE	2/3/2016	TIME	11:50 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	35.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 20	Candelaria PS-40

DATE	2/5/2016	TIME	11:30 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	40.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 21	Namaste and Coors

DATE	2/3/2016	TIME	10:30 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	26.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 22	Snow Goose at Oxbow Bluff

DATE	2/17/2016	TIME	11:00 AM	WEATHER	Sunny
SUSPECTED SOURCE	na			EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na			APPEARANCE	NA

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 23	Sequoia

DATE	2/8/2016	TIME	11:50 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	45.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 24	Redlands-Grande Vista

DATE	2/8/2016	TIME	11:30 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	45.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 25	Paseo del rey-ouray-vista grande

DATE	2/19/2016	TIME	1:10 PM	WEATHER	Cloudy

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	60.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location	26	Duranes PS

DATE	2/5/2016	TIME	10:40 AM	WEATHER	Sunny
SUSPECTED SOURCE	na			EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na			APPEARANCE	NA

AIR TEMP,°F	40.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR SK

Location 27	calle del vista-Atrisco

DATE	2/4/2016	TIME	12:40 PM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	30.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 28	westcliffe and josephine nw

DATE	2/19/2016	TIME	1:18 PM	WEATHER	Partly Cloudy

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	55.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 29	San Jose drain at abq riverside drain

DATE	2/12/2016	TIME	11:15 AM	WEATHER	Sunny
SUSPECTED SOURCE	na			EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na			APPEARANCE	NA

AIR TEMP,°F	50.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR SK

Location 30	Atrisco-Atrisco Pl-riverview

DATE	2/19/2016	TIME	12:35 PM	WEATHER	Cloudy

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	60.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 31	Labajada-atrisco-north 30 in pipe

DATE	2/4/2016	TIME	11:38 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	25.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location	32	Labajada-atrisco-south 36 in pipe

DATE	2/4/2016	TIME	11:38 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00

SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	25.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location	33	central-sunset-Osage PS-44-2 pipes 36 and 42 in

DATE	2/4/2016	TIME	11:08 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	25.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Location 34	central-sunset-Osage PS-44-6 in pipe

DATE	2/11/2016	TIME	9:30 AM	WEATHER	Sunny

SUSPECTED SOURCE	ground water	EST. FIOW, CFS	2.00

SUSPECTED PROBLEM TYPE	Nuisance Flow	APPEARANCE	clear

AIR TEMP,°F	41.0		
WATER TEMP,°F	54.0	OBSERV GROSS POLLUT:	none
PH:	7.5		
DISS OXYGEN, MG/L:	6.0	E_coli_Coliform mpn/100ml:	260.3
CONDUCTIVITY, µmos/cm	605.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	<2.0	AMMONIA, MG/L N:	ND
COD, MG/L:	ND	NITRATE+NITRITE, MG/L N:	0.16
TSS, MG/L:	ND	TOTAL PHOSPHORUS, MG/L P	0.084
TDS, MG/L:	377		

INSPECTOR	SK

Location 35	Alcalde PS-41

DATE	2/10/2016	TIME	9:35 AM	WEATHER	Sunny
SUSPECTED SOURCE	ground water			EST. FIOW, CFS	0.10
SUSPECTED PROBLEM TYPE	Nuisance Flow			APPEARANCE	clear

AIR TEMP,°F	34.0		
WATER TEMP,°F	41.0	OBSERV GROSS POLLUT:	none
PH:	6.5		
DISS OXYGEN, MG/L:	7.0	E_coli_Coliform mpn/100ml:	>2419.6
CONDUCTIVITY, µmos/cm	638.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	6.0	AMMONIA, MG/L N:	ND
COD, MG/L:	16.8	NITRATE+NITRITE, MG/L N:	0.19
TSS, MG/L:	6.0	TOTAL PHOSPHORUS, MG/L P	0.11
TDS, MG/L:	413		

INSPECTOR SK

Location 36	NDC at Edith

DATE	2/9/2016	TIME	11:25 AM	WEATHER	Sunny
SUSPECTED SOURCE	well wash			EST. FIOW, CFS	2.00
SUSPECTED PROBLEM TYPE	Nuisance Flow			APPEARANCE	clear

AIR TEMP,°F	49.0		
WATER TEMP,°F	55.0	OBSERV GROSS POLLUT:	none
PH:	7.5		
DISS OXYGEN, MG/L:	8.0	E_coli_Coliform mpn/100ml:	< 1
CONDUCTIVITY, µmos/cm	754.0	OIL and GREASE, MG/L:	ND
BOD, MG/L:	5.0	AMMONIA, MG/L N:	ND
COD, MG/L:	29.5	NITRATE+NITRITE, MG/L N:	ND
TSS, MG/L:	6.0	TOTAL PHOSPHORUS, MG/L P	0.11
TDS, MG/L:	464		

INSPECTOR SK

Location 37	Tijeras at 2nd st-valley high sw

DATE	2/11/2016	TIME	10:50 AM	WEATHER	Sunny

SUSPECTED SOURCE	na	EST. FIOW, CFS	0.00
SUSPECTED PROBLEM TYPE	na	APPEARANCE	NA

AIR TEMP,°F	43.0		
WATER TEMP,°F		OBSERV GROSS POLLUT:	na
PH:			
DISS OXYGEN, MG/L:		E_coli_Coliform mpn/100ml:	
CONDUCTIVITY, µmos/cm		OIL and GREASE, MG/L:	
BOD, MG/L:		AMMONIA, MG/L N:	
COD, MG/L:		NITRATE+NITRITE, MG/L N:	
TSS, MG/L:		TOTAL PHOSPHORUS, MG/L P	
TDS, MG/L:			

INSPECTOR	SK

Attachment 5

Visual Monitoring Results at Sector P Sites

Weston Solutions, Inc.
3840 Commons Ave. NE
Albuquerque, NM 87109
505-837-6520 Fax 505-837-6550
www.westonsolutions.com

July 13, 2016

Ms. Kathy Verhage, P.E.
Department of Municipal Development - Storm Drainage Design
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Reference: PROJECT NO. 8010 CITYWIDE ON-CALL NPDES AND MS4 ENGINEERING SUPPORT SERVICES 2nd QUARTER 2016 UPDATE TASK 3 VISUAL STORM WATER INSPECTIONS

Dear Ms. Verhage:

This Memo describes the results of the 2016 Quarter 2 Visual Storm Water Inspections for 16 City of Albuquerque (City) facilities. This evaluation and memo has been prepared to address the requirements of the U.S. Environmental Protection Agency's (EPA) Municipal Separate Storm Sewer System (MS4) Permit issued to the City in 2014 and the Multi Sector General Permit for Storm Water Discharges Associated with Industrial Activity (MSGP) at City-owned facilities. Its purpose is to document the City's compliance with the requirements relative to quarterly storm water monitoring.

To comply with the MS4 and MSGP's requirements for storm water monitoring, Weston Solutions and CDM Smith were tasked with performing quarterly visual storm monitoring at 17 City-owned facilities which meet the definition of an industrial facility in the MSGP based on audits of city owned facilities performed between 2012 and 2016. The following facilities were monitored for visual inspection, locations of these facilities are also shown in Figure 1.

- Arroyo Del Oso Golf Course
- Arroyo Maintenance Facility
- Balloon Fiesta Park/ Golf Training Center
- Albuquerque BioPark Facilities*
- Daytona Transit Center
- Fire Department Mechanical Shop
- Fleet- 4th Street Fuel Station
- Fleet- Lomas Fuel Station
- Ladera Golf Course
- Los Altos Golf Course
- Montessa Park Open Space
- Pino Yards
- Puerto del Sol Golf Course
- Street Satellite #1
- Street Satellite #2
- Street Satellite #3
- Yale Transit Center

visual monitoring for the ABQ BioPark Facilities will begin after the implementation of their SWPPP and SPCC Plan, estimated for 3rd Quarter 2016

Table 1 shows the Outfall identification names along with the inspection team responsible for monitoring the particular outfall.

Figure 1: Facility Site Locations

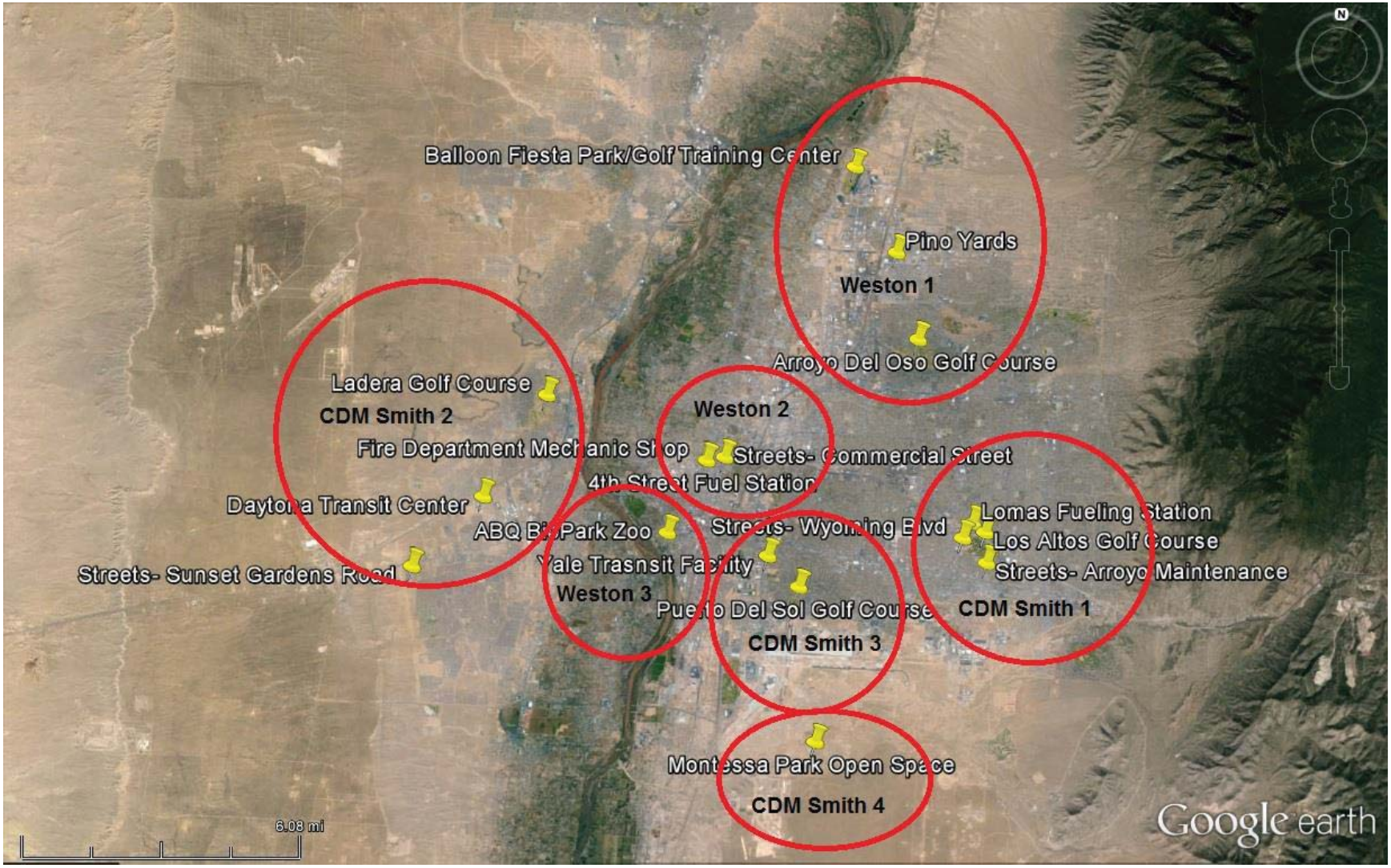


Table 1: Outfall ID and Designees

Site	Outfall ID
Weston 1	
Balloon Fiesta Park/ Golf Training Center	BFP1
	BFP2
	BFP3
	BFP4
	BFP5
Pino Yards	PY1
	PY2
	PY3
Arroyo Del Oso Golf Course	ADO1
	ADO2
Weston 2	
Fleet- 4th Street Fuels	FS1
Fire Department Mechanic Shop	FM1
	FM2
Street Satellite #2	SS2
CDM Smith 1	
Los Altos Golf Course	LA1
	LA2
Fleet- Lomas Fuel Station	L1
Arroyo Maintenance Facility	AM1
Street Satellite #1	SS1A
	SS1B
CDM Smith 2	
Daytona Transit Center	D1
	D2
Ladera Golf Course	LGC1
	LGC2
Street Satellite #3	SS3
CDM Smith 3	
Puerto Del Sol Golf Course	PDS1
	PDS2
Yale Transit Facility	Y1
CDM Smith 4	
Montessa Park Open Space	MP1
	MP2
***Weston 3**	
*ABQ BioPark Facilities	*BP1

visual monitoring for the ABQ BioPark Facilities will begin after the implementation of their SWPPP and SPCC Plan, estimated for 3rd Quarter 2016

Background

The MSGP establishes requirements for monitoring the quality of storm water discharges depending on the activities at the different types of industrial facility. Although benchmark monitoring is not required, the MSGP does require quarterly visual assessment of storm water quality. Visual assessment consists of the collection of grab samples from each outfall (subject to demonstration of substantially identical outfalls) and examination for the presence of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, or other indicators of storm water pollution.

Certain criteria regarding the precipitation event must be met for an assessment event. Visual assessment of storm water must occur:

- During daylight hours
- Within 30 minutes of the start of storm water discharge (or as soon as practicable
- thereafter)
- At least 72 hours after the previous storm water discharge event

Weston will follow the City's existing storm water monitoring protocol outlining the locations and descriptions of all outfalls to be monitored. The protocol identifies contact persons at each facility for use in notifying City personnel when members of the storm water monitoring team are mobilizing to that location. A standard visual assessment form will be used by all staff to document the monitoring activities.

Quarter 2 Monitoring Results

Kick-off for this work was on June 8th 2016, limiting the sampling period to only a few weeks, specifically June 8th to June 30th. Weston Team 1 mobilized 4 times during June to collect samples from storm events. A visual sample was collected from all outfalls over the course of the 4 mobilizations. Weston Team 2 mobilized 3 times but only collected a sample at one outfall. CDM Smith Teams 1-4 did not mobilize in any storms this quarter as there was a short window and limited rain events in those specific locations. The monitoring reports and photo logs from Weston Team 1 and Weston Team 2 can be found in the Appendix. Any outfalls that were not monitored in Quarter 2 will be made up during Quarter 3.

Observed Problems

In general very few pollution problems were observed at any of the outfalls with few exceptions. Many of the grab samples exhibited presence of sediment, but in small enough quantities to not cause for alarm. One notable pollution issue was however observed at Pino Yards on June 22th, 2016. PY1 and PY2 were both covered in debris, see Figure 2 below:

Figure 2: Pino Yards PY1 and PY2 6/22/2016

Daniel Tapia, the Operations and Maintenance Superintendent of the Streets Maintenance Division was informed of the issue. He had the drains cleaned out on June 24th, 2016. Figure 3 shows PY1 and PY2 after the cleaning occurred:

Figure 3: Pino Yards PY1 and PY2 6/24/2016

Figure 3 cont'd: Pino Yards PY1 and PY2 6/24/2016

Results from the Quarter 2 Visual Inspections can be found in the Appendix. Samples were collected from Pino Yards, Arroyo del Oso Golf Course, Balloon Fiesta Park and Streets Maintenance #2 during the second quarter. All facilities that did not produce a sample in Quarter 2 will be made up in the coming months.

We appreciate the opportunity to provide professional consulting services to you and we look forward to assisting you in the next quarter. Please contact me at (505) 837-6548 (Dana.Peterson@WestonSolutions.com) or Brad Sumrall at (505) 837-6566 (Brad.Sumrall@WestonSolutions.com) if you have any questions or need additional information.

Sincerely,
WESTON SOLUTIONS, INC.

Dana Peterson, PE
Project Engineer

APPENDIX: Q2 INSPECTION FORMS AND PHOTO LOGS

APPENDIX: Q2 INSPECTION FORMS & PHOTO LOGS- VISUAL INSPECTIONS

4th STREET FUEL

City of Albuquerque
4th Street Fuel Station

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/22/16
Time: 8:01 PM
Inspector: Dana Peterson
Signature:

Weather: cloudy
Storm Precip: rain ~~started~~ to East, none here
Last 72 Hour Precip:
Photo: 2X

Outfall ID:	FS1
Flow Observed:	☐ Yes ☒ No
Description of Monitoring Site:	dry
Flow Estimate (include units and method of estimation):	No discharge
Other Observations:	
Color (Describe):	
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No
Odor:	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No
Describe:	

Additional Comments: ~~Stayed~~ dry here; rain at Mile East

WESTON SOLUTIONS

Date: June 22, 2016

Event: MS4 Visual Storm Monitoring

Inspector: Dana Peterson (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

4th Street Fuels	
	
No runoff observed	No runoff observed

City of Albuquerque
4th Street Fuel Station

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/26/16
Time: 5:21 PM
Inspector: Dana Peterson
Signature:

Weather: cloudy/windy
Storm Precip:
Last 72 Hour Precip:
Photo:

Outfall ID:	FS1
Flow Observed:	☐ Yes ☒ No
Description of Monitoring Site:	
Flow Estimate (include units and method of estimation) :	
Other Observations:	
Color (Describe):	
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No
Odor:	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No
Describe:	

No discharge

Additional Comments: Radar indicated T-storm here, arrived on-site, dry ground, windy & cloudy but no rain.

WESTON SOLUTIONS

City of Albuquerque
4th Street Fuel Station

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☐ Q2 ☐ Q3 ☐ Q4

Date: 6/30/16
Time: 8:00AM
Inspector: Savannah Martinez
Signature: [signature]

Weather: Cloudy
Storm Precip: -
Last 72 Hour Precip: -
Photo: -

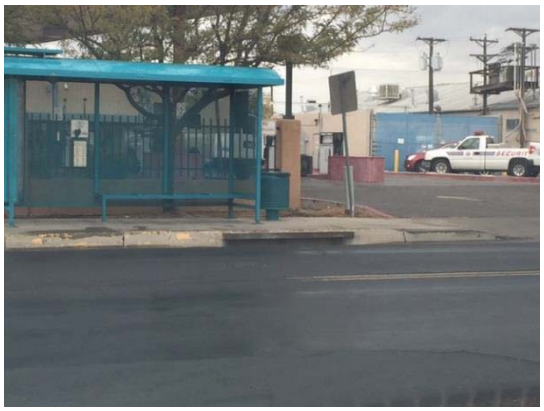
Outfall ID:	FS1
Flow Observed:	☐ Yes ☒ No
Description of Monitoring Site:	Ground was wet but no discharge
Flow Estimate (include units and method of estimation) :	
Other Observations:	
Color (Describe):	
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No
Odor:	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No
Describe:	

Additional Comments: There was slight rain but no discharge

WESTON SOLUTIONS

Date:	June 30, 2016
Event:	MS4 Visual Storm Monitoring
Inspector:	Savannah Martinez (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

4th Street Fuels	
	
No runoff observed	No runoff observed

ARROYO DEL OSO GOLF COURSE

City of Albuquerque

Arroyo Del Oso Golf Course

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 22, 2016
Time: 7:30 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Rain
Storm Precip: 0.04 inches
Last 72 Hour Precip: None
Photo: yes-

Outfall ID:	ADO1	ADO2
Flow Observed:	☐ Yes ☒ No	☒ Yes ☐ No
Description of Monitoring Site:	No discharge in Arroyo	raining steady
Flow Estimate (include units and method of estimation) :	∅	channel flow ≈ 1cfs
Other Observations:		a lot of dirt in Arroyo
Color (Describe):		brown
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☒ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☒ No
Suspended Solids:	☐ Yes ☐ No	☒ Yes ☒ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☒ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☒ No
Odor:	☐ Yes ☐ No	☐ Yes ☒ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☒ No
Describe:		Sediment in sample, no other pollutants noted.

Additional Comments: ADO2 - lightning in area, waited in car 20 minutes, was able to collect sample

ADO1 - Rain in area but not discharging in Arroyo

WESTON SOLUTIONS

Date:	June 22, 2016
Event:	MS4 Visual Monitoring Assessment
Inspector:	Sarah Luckie (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Arroyo Del Oso Golf Course

No Discharge at ADO1

No Discharge at ADO1

Arroyo at ADO2

Sample from ADO2

City of Albuquerque

Arroyo Del Oso Golf Course

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/23/2016
Time: 6:00 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Overcast, light rain
Storm Precip: —
Last 72 Hour Precip:
Photo: yes - AD01

Outfall ID:	AD01	AD02
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	Overcast, slight rain in Area	No discharge
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: No discharge in either location

WESTON SOLUTIONS

Date:	June 23, 2016
Event:	MS4 Visual Monitoring Inspection
Inspector:	Sarah Luckie (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Arroyo Del Oso Golf Course	
	
	
No Discharge observed	No Discharge observed

City of Albuquerque

Arroyo Del Oso Golf Course

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 26, 2016
Time: 4:30 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Dark rain clouds
Storm Precip: —
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	ADO1	ADO2
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	Very dark storm clouds in area, no rain / runoff at site location	
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: Arived at ADO1 @ 4:45 PM, waited for rain to move in until 5:30 then went to check other sites as no rainfall / runoff observed

Returned @ 6:15 & waited until 7:00 PM, no rainfall / runoff observed.

WESTON SOLUTIONS

Date:	June 26, 2016
Event:	MS4 Visual Monitoring Inspection
Inspector:	Sarah Luckie (Weston)

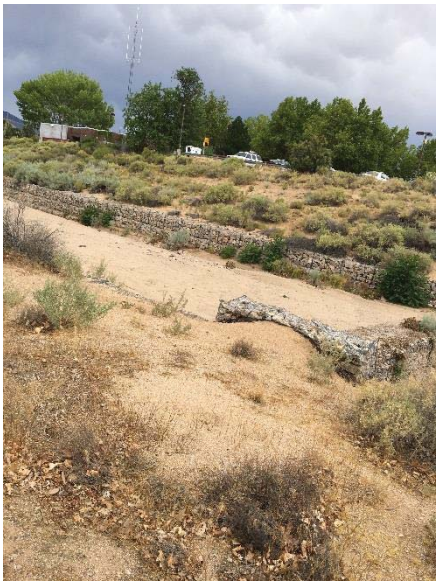
CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Arroyo Del Oso Golf Course

ADO1 No Discharge

ADO2 No Discharge

No Discharge observed



No Discharge observed

City of Albuquerque

Arroyo Del Oso Golf Course

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 30, 2016
Time: 8:15 AM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Cloudy
Storm Precip: —
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	ADO1	ADO2
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	No rain or discharge was observed in this event	
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: Radar indicated rain, was cloudy but no rain in area.

Date:	June 30, 2016
Event:	MS4 Stormwater Visual Inspection
Inspector:	Sarah Luckie

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Arroyo Del Oso Golf Course	
	
	No Discharge observed at location

BALLOON FIESTA PARK/ GOLF TRAINING CENTER

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 22, 2016
Time: 8:50 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather:
Storm Precip:
Last 72 Hour Precip:
Photo:

Outfall ID:	BFP1	BFP2	BFP3
Flow Observed:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Description of Monitoring Site:			
Flow Estimate (include units and method of estimation) :		* Did not make it to BFP before sunset	
Other Observations:			
Color (Describe):			
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Describe:			

Additional Comments:

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 8:50 PM
Time: June 22, 2016
Inspector: Sarah Luchie
Signature: Sarah Luchie

Weather: _____
Storm Precip: _____
Last 72 Hour Precip: _____
Photo: _____

Outfall ID:	BFP4	BFP5
Flow Observed:	☐ Yes ☐ No	☐ Yes ☐ No
Description of Monitoring Site:		
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Did not get to BFP before sunset *

Additional Comments: _____

WESTON SOLUTIONS

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/23/2016
Time: 6:45 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Overcast, light rain
Storm Precip: —
Last 72 Hour Precip:
Photo: yes.

Outfall ID:	BFP1	BFP2	BFP3
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	No discharge, only light rain in Area		
Flow Estimate (include units and method of estimation) :			
Other Observations:			
Color (Describe):			
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Describe:			

Additional Comments: No discharge observed

WESTON SOLUTIONS

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/23/2016
Time: 7:15 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Overcast, light rain
Storm Precip: —
Last 72 Hour Precip:
Photo: yes

Outfall ID:	BFP4	BFP5
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	No discharge observed	
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: No discharge.

WESTON SOLUTIONS

Date: June 23, 2016

Event: MS4 Visual Storm Water Monitoring

Inspector: Sarah Luckie (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Balloon Fiesta Park/ GTC	
	
	No discharge observed at this rain event

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 26, 2016
Time: 5:40 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Dark rain clouds
Storm Precip: —
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	BFP1	BFP2	BFP3
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	Very dark storm clouds in the area, no rain/runoff observed at this site location		
Flow Estimate (include units and method of estimation) :			
Other Observations:			
Color (Describe):			
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Describe:			

Additional Comments: Arived around 5:40 PM, waited to see if storm would move in, no rain/discharge observed.

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☐ Q2 ☐ Q3 ☐ Q4

Date: June 26, 2016
Time: 5:40
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Dark clouds in Area
Storm Precip: —
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	BFP4	BFP5
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	Dark clouds in the area, no rain / runoff observed.	
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments:

Date: June 26, 2016

Event: MS4 Visual Storm Water Monitoring

Inspector: Sarah Luckie (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Balloon Fiesta Park/ GTC	
	
	 No discharge observed at this rain event

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 30th
Time: 8:30 AM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Light rain
Storm Precip:
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	BFP1	BFP2	BFP3
Flow Observed:	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No
Description of Monitoring Site:	Light rain with a small ammount of discharge		No discharge at this outfall, used storm drain NE of BP3
Flow Estimate (include units and method of estimation) :	< 1 cfs	< 1 cfs	< 1 cfs
Other Observations:	—	—	—
Color (Describe):	brown	brown/yellow	brown
Turbidity:	☐ Clear ☐ Slightly Cloudy ☒ Very Cloudy ☐ Opaque	☐ Clear ☒ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☒ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Suspended Solids:	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
Settled Solids:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Sheen Present:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Odor:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Foam Present:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Describe:	Sediment in sample	Slight sediment in sample	Sediment in sample

Additional Comments: Only observed issues were slight sediment in samples

WESTON SOLUTIONS

City of Albuquerque

Balloon Fiesta Park and Golf Training Center

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 30, 2016
Time: 8:30 AM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Light rain
Storm Precip:
Last 72 Hour Precip: —
Photo: yes

Outfall ID:	BFP4	BFP5
Flow Observed:	☐ Yes ☒ No	☒ Yes ☐ No
Description of Monitoring Site:	No discharge used storm drain E of BFP4	Slight amount of discharge
Flow Estimate (include units and method of estimation) :	< 1 cfs	< 1 cfs
Other Observations:	—	ponding in area
Color (Describe):	clear	brown/yellow
Turbidity:	☒ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☒ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☒ No	☐ Yes ☒ No
Suspended Solids:	☐ Yes ☒ No	☒ Yes ☐ No
Settled Solids:	☐ Yes ☒ No	☐ Yes ☒ No
Sheen Present:	☐ Yes ☒ No	☐ Yes ☒ No
Odor:	☐ Yes ☒ No	☐ Yes ☒ No
Foam Present:	☐ Yes ☒ No	☐ Yes ☒ No
Describe:	clean sample	Sediment in sample

Additional Comments: Only issues were sediment in samples - not enough to be concerned.

WESTON SOLUTIONS

Date:	June 30, 2016
Event:	MS4 Stormwater Visual Monitoring
Inspector:	Sarah Luckie (Weston)

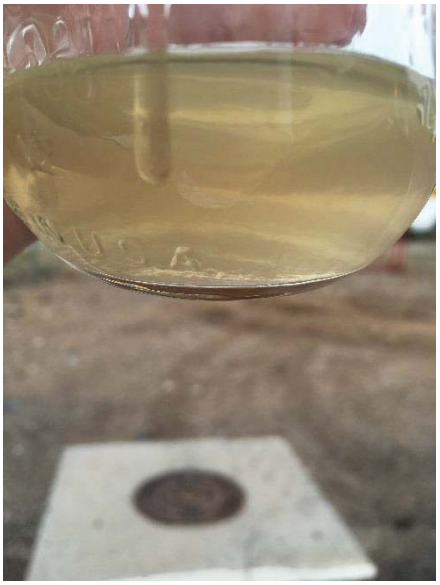
CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Balloon Fiesta Park

Grab Sample from BFP1


Ponding observed at BFP5

Grab Sample from BFP5


Grab Sample from BFP2

Balloon Fiesta Park	
 No discharge observed at BFP4	 No discharge observed at BFP3
 Sample taken NE of BP3	 Sample taken East of BP4

FIRE DEPARTMENT MECHANIC

City of Albuquerque

Fire Department Mechanic Shop

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/22/16
Time: 8:07 PM
Inspector: Dana Peterson
Signature:

Weather: Cloudy
Storm Precip: Rain to East - none here
Last 72 Hour Precip:
Photo: 2x, 1 of FM1, 1 of FM2

Outfall ID:	FM1	FM2
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:		
Flow Estimate (include units and method of estimation) :	No discharge	
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: Rain ~1 mile east, but looks like it stayed dry here

WESTON SOLUTIONS

Date:	June 22, 2016
Event:	MS4 Visual Storm Water Monitoring
Inspector:	Dana Peterson (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Fire Mechanic Shop	
 No discharge observed	 No discharge observed

City of Albuquerque
Fire Department Mechanic Shop

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/26/16
Time: 5:12 PM
Inspector: Dana Peterson
Signature:

Weather: cloudy/windy
Storm Precip: —
Last 72 Hour Precip: —
Photo: —

Outfall ID:	FM1	FM2
Flow Observed:	☐ Yes ☐ No	☐ Yes ☐ No
Description of Monitoring Site:		
Flow Estimate (include units and method of estimation) :	No discharge	
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: Radar indicated T-storm here, Arrived on-site, no rain, cloudy & windy w/ dry ground

WESTON SOLUTIONS

City of Albuquerque
Fire Department Mechanic Shop

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/30/16
Time: 8:20 AM
Inspector: Savannah Martinez
Signature: Savh M

Weather: Cloudy
Storm Precip: —
Last 72 Hour Precip: —
Photo: —

Outfall ID:	FM1	FM2
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	Ground was wet but no discharge	Ground was wet but no discharge
Flow Estimate (include units and method of estimation) :		
Other Observations:		
Color (Describe):		
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No
Describe:		

Additional Comments: There was Slight Rain for about 10 minutes but no discharge.

WESTON SOLUTIONS

Date: June 30, 2016

Event: MS4 Visual Storm Water monitoring

Inspector: Savannah Martinez (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Fire Mechanic Shop	
 No discharge observed	

PINO YARDS

City of Albuquerque
Pino Yards Complex

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 22, 2016
Time: 8:25 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Cloudy
Storm Precip: 0.04 in
Last 72 Hour Precip: None
Photo: yes

Outfall ID:	PY1	PY2	PY3
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No
Description of Monitoring Site:			Discharge running down street
Flow Estimate (include units and method of estimation) :			Down curb ≈ 1 cfs
Other Observations:	lots of trash in grate	lots of trash in grate	—
Color (Describe):			brown
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☒ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☒ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☒ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☒ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☒ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☒ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☒ No
Describe:	No Runoff making it to outlets but too much trash in both grates.		sediment present in sample

Additional Comments: PY1 & PY2 need cleaning

PY3 - sediment laden, no other pollutants noticed

Date: June 22, 2016

Event: MS4 Visual Monitoring Assessment

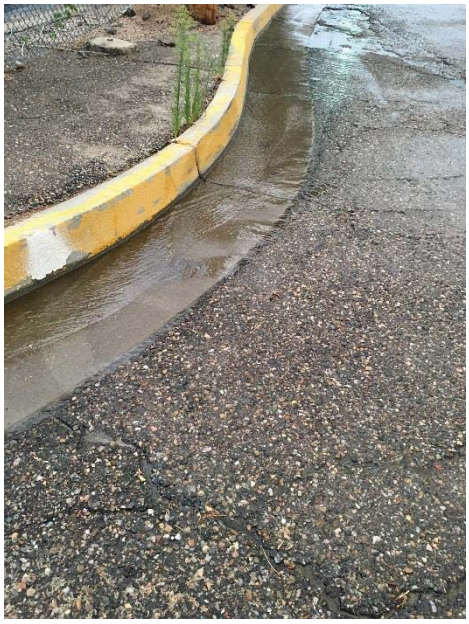
Inspector: Sarah Luckie (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Pino Yards

Excess debris is PY1, no discharge

Excess debris is PY1, no discharge



PY3 discharge observed

Sample from PY3

City of Albuquerque
Pino Yards Complex

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☐ Q2 ☐ Q3 ☐ Q4

Date: June 26, 2016
Time: 6:00 PM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Dark clouds in area
Storm Precip: —
Last 72 Hour Precip: —
Photo: No.

Outfall ID:	PY1	PY2	PY3
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	No rain or discharge in the area of Pino Yards.		
Flow Estimate (include units and method of estimation) :			
Other Observations:			
Color (Describe):			
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Describe:			

Additional Comments: No rain or discharge in area.

City of Albuquerque
Pino Yards Complex

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: June 30, 2016
Time: 7:45 AM
Inspector: Sarah Luckie
Signature: Sarah Luckie

Weather: Cloudy
Storm Precip: —
Last 72 Hour Precip: —
Photo: No

Outfall ID:	PY1	PY2	PY3
Flow Observed:	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Description of Monitoring Site:	No rain or discharge was observed in this event		
Flow Estimate (include units and method of estimation) :			
Other Observations:			
Color (Describe):			
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Odor:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Describe:			

Additional Comments: Radar indicated rain, was cloudy but no rain in area

STREET SATELLITE #2

City of Albuquerque
Street Maintenance Satellite #2

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/22/2016
Time: 7:43 PM
Inspector: Dana Peterson
Signature:

Weather: cloudy, drizzle
Storm Precip:
Last 72 Hour Precip: none
Photo: 5x

Outfall ID:	SS2
Flow Observed:	☒ Yes ☐ No
Description of Monitoring Site:	trickle into drop inlet
Flow Estimate (include units and method of estimation) :	trickle ~2 GPM
Other Observations:	Break in rain storm
Color (Describe):	Brown
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☒ Opaque
Floating Solids:	☐ Yes ☒ No
Suspended Solids:	☒ Yes ☐ No
Settled Solids:	☒ Yes ☐ No
Sheen Present:	☐ Yes ☒ No
Odor:	☐ Yes ☒ No
Foam Present:	☐ Yes ☒ No
Describe:	Brown, cloudy some grit + silt

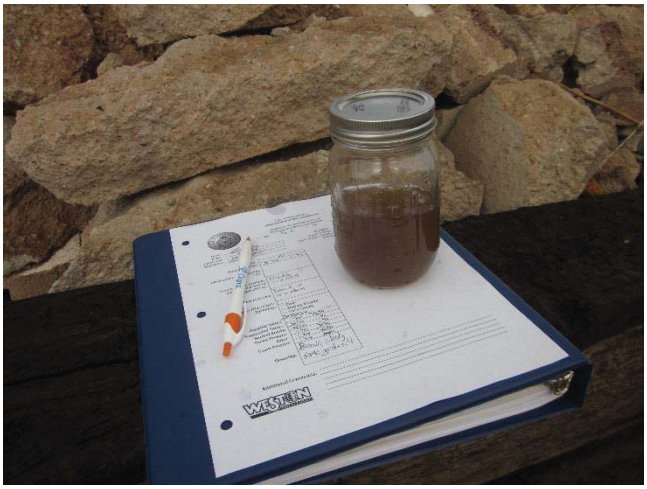
Additional Comments:

Date: June 22, 2016

Event: MS4 Visual storm Water Monitoring

Inspector: Dana Peterson (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Street Maintenance #2	
	
	

City of Albuquerque
Street Maintenance Satellite #2

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/26/16
Time: 5:34 PM
Inspector: Dana Peterson
Signature:

Weather: Cloudy/Windy
Storm Precip:
Last 72 Hour Precip:
Photo:

Outfall ID:	SS2
Flow Observed:	☐ Yes ☒ No
Description of Monitoring Site:	
Flow Estimate (include units and method of estimation) :	
Other Observations:	
Color (Describe):	
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No
Odor:	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No
Describe:	

No Discharge

Additional Comments: Radar indicated T-storms here; arrived on-site, cloudy + windy but no rain + ground was dry.

WESTON SOLUTIONS

City of Albuquerque
Street Maintenance Satellite #2

Quarterly Visual Monitoring of
Storm Water Outfall Discharges

☐ Q1 ☒ Q2 ☐ Q3 ☐ Q4

Date: 6/30/16
Time: 8:30 AM
Inspector: Savannah Martinez
Signature: Sah Mtz

Weather: Cloudy
Storm Precip: —
Last 72 Hour Precip: —
Photo: —

Outfall ID:	SS2
Flow Observed:	☐ Yes ☒ No
Description of Monitoring Site:	Ground was dry No discharge
Flow Estimate (include units and method of estimation) :	
Other Observations:	
Color (Describe):	
Turbidity:	☐ Clear ☐ Slightly Cloudy ☐ Very Cloudy ☐ Opaque
Floating Solids:	☐ Yes ☐ No
Suspended Solids:	☐ Yes ☐ No
Settled Solids:	☐ Yes ☐ No
Sheen Present:	☐ Yes ☐ No
Odor:	☐ Yes ☐ No
Foam Present:	☐ Yes ☐ No
Describe:	

Additional Comments: Very cloudy but no discharge or rain.

WESTON SOLUTIONS

Date: 6/30/16

Event: MS4 Visual Inspection Monitoring

Inspector: Savannah Martinez (Weston)

CITY OF ALBUQUERQUE
STORM WATER MONITORING PHOTOGRAPH LOG

Streets #2	
 No Discharge	