

**RIVEREYES OBSERVATIONS IN THE MIDDLE RIO GRANDE
FOR THE 2016 IRRIGATION SEASON
FINAL REPORT**

Prepared for

U.S. BUREAU OF RECLAMATION

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EXECUTIVE SUMMARY

Reconnaissance of portions of the Middle Rio Grande is mandated by Reasonable and Prudent Alternative Element C of the 2003 Biological Opinion (U.S. Fish and Wildlife Service 2003). Such reconnaissance is conducted under the project commonly referred to as “RiverEyes.” RiverEyes monitoring must be performed when flows are less than 300 cubic feet per second at San Acacia Diversion Dam. RiverEyes provides current information on river flows that allow action agencies to react quickly to rapidly changing conditions on the river, facilitate coordination among the agencies to prevent unexpected drying, and prepare for Rio Grande silvery minnow (*Hybognathus amarus*) rescues.

Under contract with the Bureau of Reclamation, hydrologic conditions were monitored daily from April 1 through October 31, 2016. For each day that hydrologic conditions in the Rio Grande were monitored, observations were summarized in a text message to Bureau of Reclamation and U.S. Fish and Wildlife Service personnel, and a brief summary report was prepared documenting spatial and temporal observations of flow (measured and visual estimates) and longitudinal limits of running water conditions. These reports were distributed via e-mail to recipients of water operations conference call notes. Similarly, verbal reports of field observations were made during water operations conference calls. Records of observed and measured hydrologic conditions were kept for the duration of the observation period.

Channel drying was restricted to the Isleta and San Acacia reaches over the period of monitoring. The location and extent of channel drying varied within each reach over the period of monitoring in response to the magnitude and variance of in-stream flow, flow dynamics linked to localized and regional storm events, out-of-channel diversion of water, and river irrigation (in the San Acacia Reach) to maintain running water conditions (i.e., water pumped from the Low Flow Conveyance Channel to the river). The location and extent of channel drying also appears to vary with macrotopographic features of the river and its adjacent corridor. Notable among these features is the elevation of the streambed relative to that of adjacent segments of drain canals that parallel the river. The river is more likely to remain wetted where the elevation of the river is equal or lower than that of adjacent drain canals.

The first occurrence of river channel drying in the Isleta Reach was observed on August 31, 2016, whereas the first occurrence of channel drying in the San Acacia Reach was observed on July 13, 2016. The last occurrence of river channel drying in the Isleta Reach was observed on October 30, 2016. The last occurrence of river channel drying in the San Acacia Reach was observed on October 31, 2016.

Channel drying in the Isleta Reach was restricted to one river segment until the Los Chavez Wasteway was opened up and was flowing roughly 7-15 cubic feet per second (cfs). After September 9, 2016, the river dried upstream of Los Chavez Wasteway and downstream past Peralta Wasteway. The northern extent of drying was at river mile (RM) 161.6, just north of the New Mexico 6 highway bridge in Los Lunas and the southernmost drying occurred south of Peralta Wasteway at RM 151.0. Channel drying in the San Acacia Reach was restricted to one river segment. The bottom of the dried river segment was consistently just above the south boundary of Bosque Del Apache where pumps were supplementing the river water. The uppermost extent of drying was at RM 94.1 for a total of 20.0 miles. The northern boundary of Bosque Del Apache is at RM 84.3. The number of days the river dried in the Isleta and San Acacia reaches of the Middle

Rio Grande during the 2016 irrigation season, and the extent and variability of that drying, are presented in Table 1 and Table 2.

The maximum total extent of river channel drying observed for a single day in the San Acacia reach during the 2016 irrigation season (i.e., 11.0 miles) occurred on September 6, 2016. Within the Isleta reach, the maximum extent of drying occurred on September 4, 2016 when a total of 4.2 miles of river dried.

Running water conditions were maintained by supplementing flows through pumping water from the Low Flow Conveyance Channel to the river downstream of the south boundary of Bosque del Apache Refuge (RM 73.7).

Discharge measurements were performed at a variety of sites when it was judged safe to wade in the stream, when flowing water was present, and within anticipated budgetary constraints. Likewise, irrigation wasteways were surveyed to determine the amount of water being discharged to the Rio Grande when it was judged safe to wade in the wasteways, when flowing water was present, and within anticipated budgetary constraints.

Appendix A contains the daily observations of river drying in both the San Acacia and Isleta reaches. River miles, coordinates, daily drying, daily rewetting and total river miles dried were all documented. Records of the daily longitudinal extent of channel drying are visually represented in spreadsheets that provide a stylized representation of the Rio Grande at the half-mile scale (Appendix B).

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INTRODUCTION

The variability of flow characteristics of the contemporary Middle Rio Grande¹, resulting either from natural or regulated causes, imparts a patchiness of environmental types at the scale of river segments, including the extremes represented by hydrologic abundance and periodic discontinuity of flow, with a continuum of intermediate types between these extremes. Low flow conditions that often result in fish mortality have been linked to conditions of aridity, exacerbated by water diversion in the basin and episodic conditions of drought.

Real-time estimates of surface water discharge in the Middle Rio Grande are available at flow gauges maintained by the U.S. Geological Survey (USGS) (web accessible at <http://waterdata.usgs.gov/nm/nwis/rt>). However, only coarse-scale patterns of autocorrelation exist in the temporal record of flow across the linear series of gauge stations because intervening flows are subject to infiltration, evaporation, diversion, and the potential addition of supplemental water and wastewater returns. Fine-scale dynamics in hydrologic conditions cannot be accurately deduced or interpolated from measured flow in the consecutive series of USGS gauges, and continuous river conditions cannot be assured even when a consecutive series of flow gauges registers that overland flow exists. The absence of continuous flow may result in fish mortality, including the federal and state endangered Rio Grande silvery minnow (*Hybognathus amarus*; silvery minnow). On-site river monitoring is used to guide adjustments to daily water management operations to reduce mortality to the silvery minnow and other aquatic life that occupy running water habitats along the Middle Rio Grande.

The silvery minnow is currently listed as endangered by the State of New Mexico, having first been listed on May 25, 1979, as an endangered endemic population of the Mississippi silvery minnow (*Hybognathus nuchalis*) (New Mexico Department of Game and Fish 1988). On July 20, 1994, the U.S. Fish and Wildlife Service (USFWS) published a final rule to list the silvery minnow as a federal endangered species with proposed critical habitat (Federal Register 1994). The species is also listed as endangered by Texas (Sections 65.171–65.184 of Title 31 Texas Administrative Code) and the Republic of Mexico (Secretaria de Desarrollo Social 1994).

The contemporary range of the silvery minnow in the Middle Rio Grande of New Mexico (Figure 1) extends downstream from the vicinity of Bernalillo to the headwaters of Elephant Butte Reservoir, a distance that fluctuates as the size of the pool of water in storage in Elephant Butte Reservoir changes, but approximates 150 river miles. Prevailing aridity and highly variable hydrologic conditions in the Middle Rio Grande represent significant factors that challenge efforts to develop and manage the region's water resources for consumptive uses while simultaneously maintaining local fishery resources, notably including the silvery minnow.

¹ For reference in this document, the “Middle Rio Grande” is defined as the Rio Grande downstream from Cochiti Dam to the headwaters of Elephant Butte Reservoir. The Middle Rio Grande below Cochiti Dam is further designated by four reaches defined by locations of mainstream irrigation diversion dams. The Cochiti Reach extends from Cochiti Dam to Angostura Diversion Dam. The reach from Angostura Diversion Dam to Isleta Diversion Dam is called the Albuquerque Reach. The Isleta Reach is bounded upstream by Isleta Diversion Dam and downstream by San Acacia Diversion Dam. Finally, the reach below San Acacia Diversion Dam to the headwaters of Elephant Butte Reservoir is the San Acacia Reach.

This project, commonly known as “RiverEyes,” is mandated by Reasonable and Prudent Alternative Element C of the 2003 Biological Opinion (USFWS 2003). RiverEyes monitoring must be performed when flows are less than 300 cubic feet per second (cfs) at San Acacia Diversion Dam. RiverEyes provides current information on river flows that allow action agencies to react quickly to rapidly changing conditions on the river, facilitate coordination among the agencies to prevent unexpected drying, and prepare for silvery minnow rescues.

Appendix A presents a detailed account of spatial and temporal observations of hydrologic conditions, including longitudinal limits of running water conditions, along with measured and visual estimates of flow at select USGS sites and irrigation outfall locations. Records of the daily longitudinal extent of channel drying are visually represented in spreadsheets that provide a stylized representation of the Rio Grande at the half-mile scale (Appendix B).

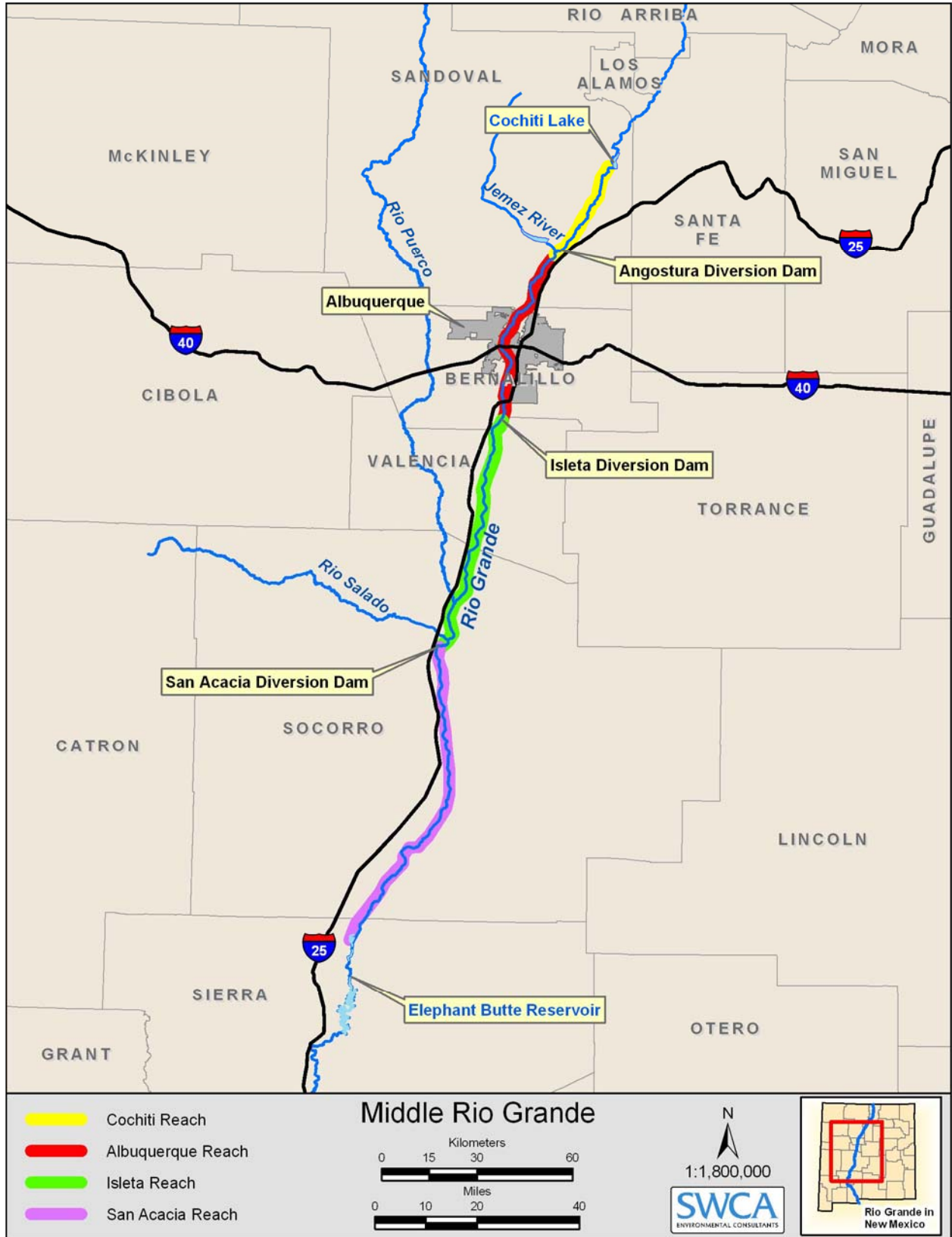


Figure 1. Overview of the Middle Rio Grande.

METHODS

Daily Reconnaissance

Under contract with the U.S. Bureau of Reclamation (Reclamation), SWCA Environmental Consultants (SWCA) monitored hydrologic conditions daily from April 1 through October 31, 2016. River reconnaissance was generally performed late in the day, but during daylight hours, so that observations could be verbally relayed to water operations staff and fish rescue crews in the evening (usually by about 8:00 p.m.). Follow-up reconnaissance to determine hydrologic conditions was performed within the Isleta and San Acacia reaches at other times when requested by water operations or fish rescue personnel. Text message reports were provided to designated Reclamation personnel and the USFWS Fish Rescue Coordinator on an as needed basis. SWCA staff participated in early morning (8:30 a.m.) water operations conference calls to relay information concerning observed hydrologic conditions to concerned and affected stakeholders. Telephone or text message reports were provided to designated Reclamation personnel and the USFWS Fish Rescue Coordinator (Thomas Archdeacon, or as appointed). A handheld global positioning system (GPS) unit was used to record spatial characteristics of receding and advancing edges of running water habitat. Point-specific location data were recorded using the Universal Transverse Mercator (UTM) system, North American Datum 1983, Zone 13.

Discharge Measurements

Discharge measurements were performed as time and budget constraints permitted and when it was judged safe to wade in the river. Irrigation wasteways were surveyed within allotted time and budget constraints to determine the volume of water being discharged to the Rio Grande. Occasional discharge measurements were performed at other locations as requested by water operations or fish rescue personnel. Water depth (feet) and flow velocity (feet per second) were measured using a USGS top-setting wading rod fitted with a Marsh-McBirney Flo-Mate portable flow meter. Estimation of discharge (cfs) followed protocol specified by Marsh-McBirney Inc. (1990, 1994).

Daily Reports

A summary report of observations was prepared and distributed daily via text messages and e-mail reports as low flow conditions warranted. Field observations were reported during water operations conference calls. The daily reports included information such as:

- observed river conditions for each location visited;
- visual estimates of flow rate;
- results of quantitative flow measurements;
- observations on the rate of drying/shrinkage if the river was actively receding;
- observations on the rate of rewetting if the river was advancing after a period of drying;
- observations of disconnected lateral pools; and
- forecasts of probable river conditions over the next 24 hours.

Data Management

A daily record of the longitudinal extent of river drying and rewetting was maintained. A relational database (Microsoft Access) and a spreadsheet database (Microsoft Excel) were developed for the storage, analysis, and retrieval of these data.

The logical construct of the relational database is helpful for envisioning the data collection and data analysis process across hierarchical scales of time and space. This contributes to a unified frame of reference for investigations at the scale of river reach, user-defined river segments, and point-location data. The logical construct of the relational database is helpful for envisioning how measured hydrologic data and RiverEyes observational data can be interactively employed to produce a more comprehensive understanding of river dynamics.

Daily RiverEyes data recorded at the scale of river reach include observations of river drying (yes/no, total river miles dried, extent of expansive drying, and rewetting events). Also, narrative accounts of daily observations exist as database entries. Point-location observations are recorded by river mile (tenths and sometimes hundredths of a river mile) and meter (Universal Transverse Mercator [UTM] coordinates, usually at a resolution less than 15 meters). Point-location data include observations of the upstream and downstream extent of river drying and observations of flow (measured and unmeasured estimates).

Data entry screens of the relational database incorporate logical data entry rules, along with queries designed to ease tasks of data validation at the time of data entry. The relational database queries provide much greater flexibility in selecting and sorting data than is possible with the limited sort and selection criteria of spreadsheet applications. The RiverEyes relational database provides numerous options for printing formatted reports, many of which have been anticipated as on-demand data outputs ranging from day-specific reports, range-of-date reports, reach-specific reports, and reports ordered chronologically by various search criteria, including reports ordered by extent of drying. The relational database also includes an automated report that searches for the maximum and minimum river miles and UTM coordinates of river drying—information crucial for recognizing expansive events of river recession (i.e., “new drying”).

Safety

A Job Hazard Analysis (JHA) was performed for this project. Personnel were required to certify that they reviewed and complied with the JHA requirements each day in which work was performed on the project. Vehicle inspections were conducted at the start of each day. All personnel that operated all-terrain vehicles received safety instruction in their operation. All safety requirements were followed.

RESULTS

Daily Reconnaissance

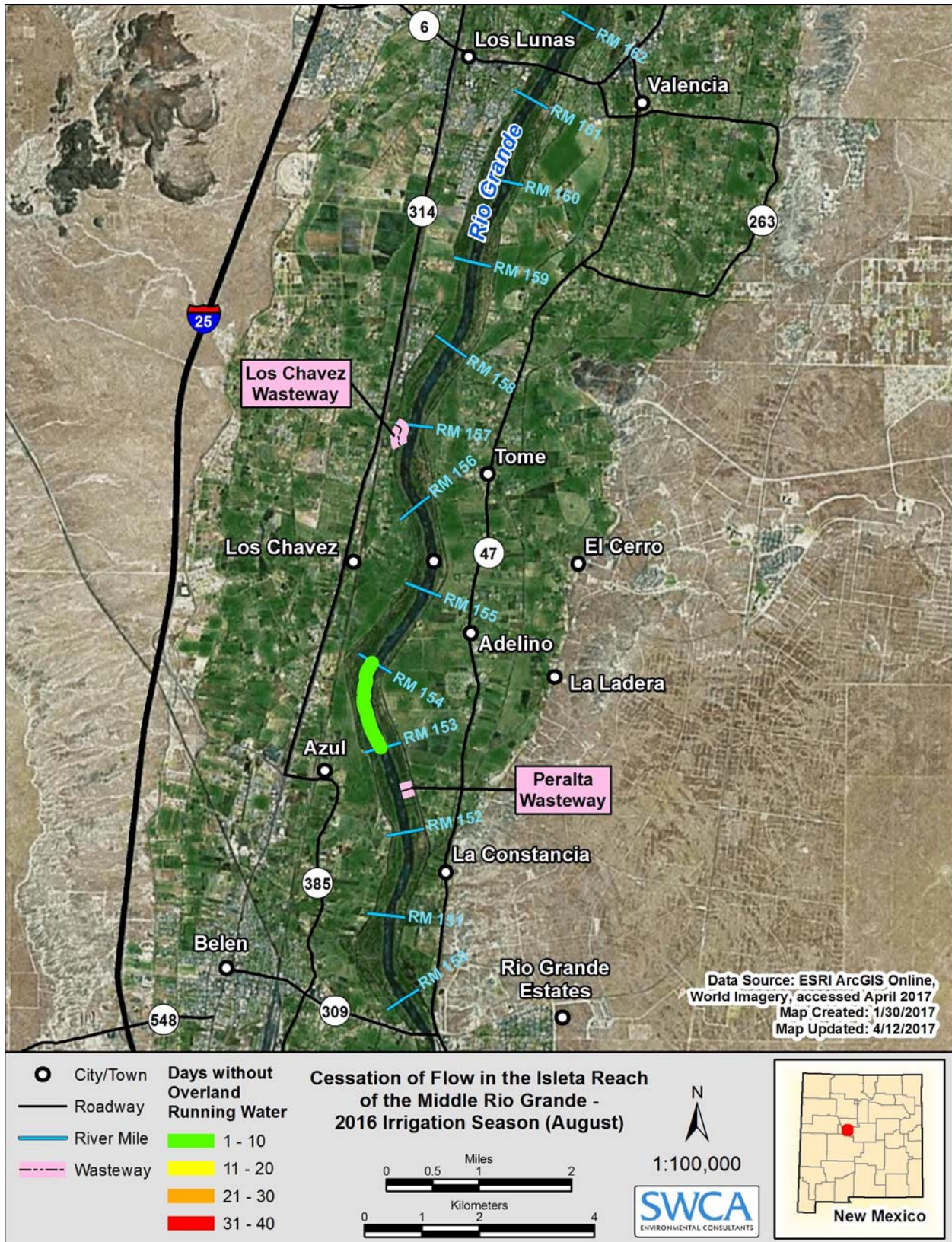
Records were maintained of observed and measured hydrologic conditions over the duration of the monitoring period, the details of which accompany this report in various database formats. Channel drying was restricted to the Isleta and San Acacia Reaches over the period of monitoring. The location and extent of channel drying varied within each reach over the period of monitoring in response to the magnitude and variance of in-stream flow, flow dynamics linked to localized and regional storm events, out-of-channel diversion of water, and river irrigation (in the San Acacia Reach) to maintain running water conditions (i.e., water pumped from the Low Flow Conveyance Channel to the river). The location and extent of channel drying also appear to vary with macrotopographic features of the river and its adjacent corridor. Notable among these features is the elevation of the streambed relative to that of adjacent segments of drain canals that parallel the river. The river is more likely to remain wetted where the elevation of the river is equal to or lower than that of adjacent drain canals.

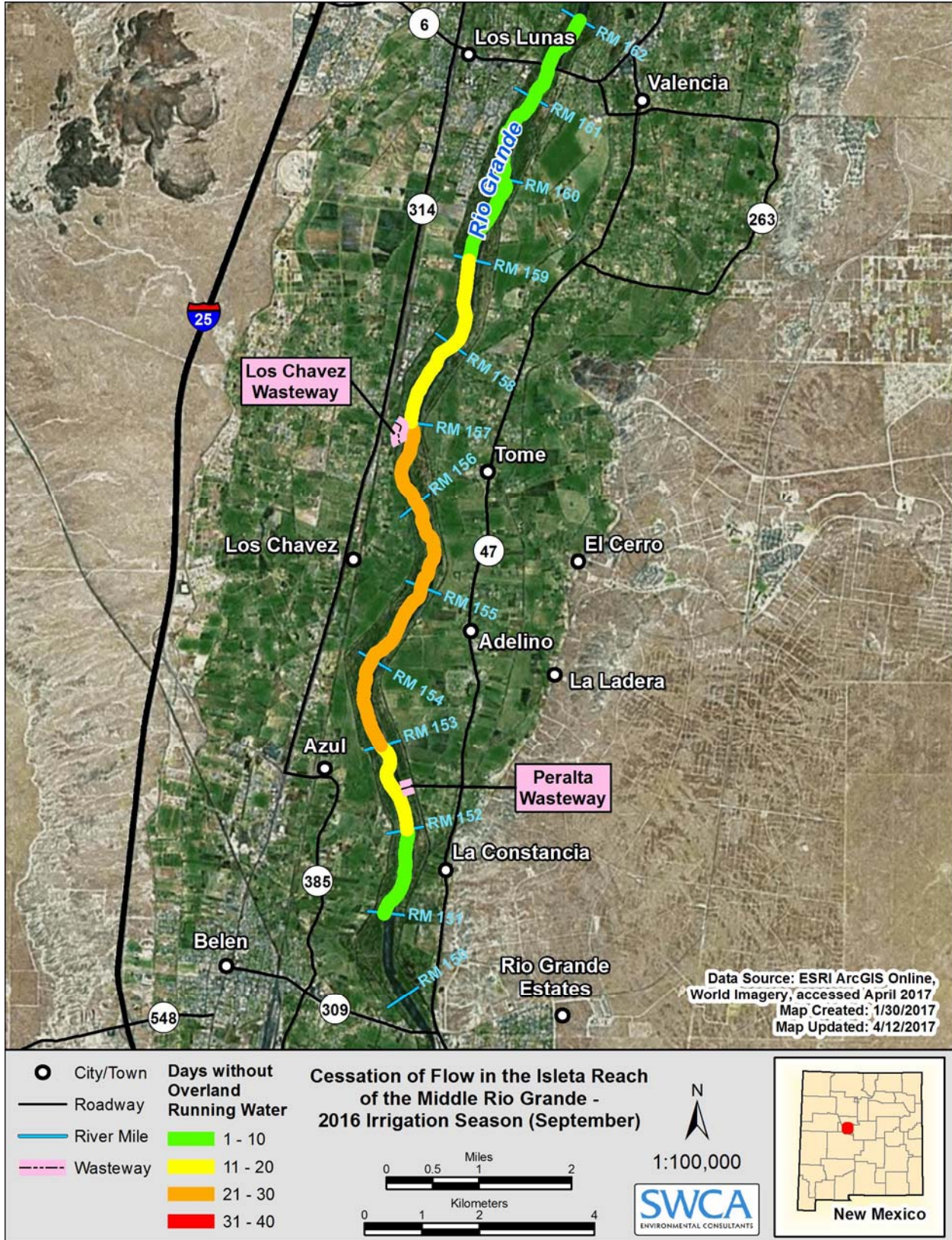
The first occurrence of river channel drying in the Isleta Reach was observed on August 31, 2016, with 1.1 mile drying whereas the first occurrence of channel drying in the San Acacia Reach was observed on July 13, 2016 for a total of 6.5 miles. The last occurrence of river channel drying in the Isleta Reach was observed on October 30, 2016 and the last occurrence of river channel drying in the San Acacia Reach was observed on October 31, 2016.

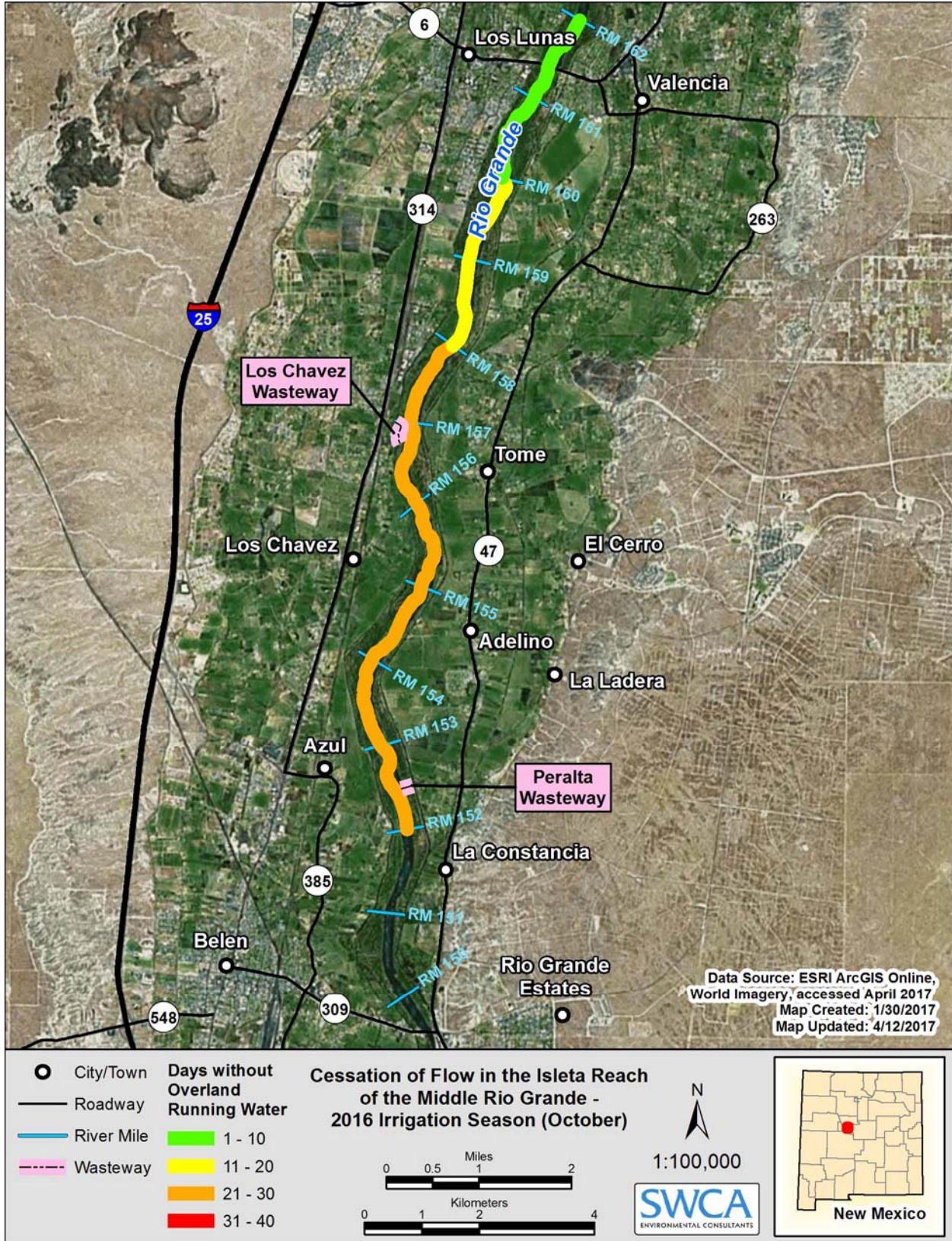
Channel drying in the Isleta Reach was restricted to two river segments. One above and one below the Los Chavez Wasteway (RM 156.6). The southern extent of this drying was at RM 151.0 and the northern extent was just above NM 6 highway bridge at RM 161.6 for a total of roughly 10 miles due to half a mile of wet river at Los Chavez Wasteway. Channel drying in the San Acacia Reach was restricted to one river segment. The majority of river drying occurred within the Bosque Del Apache Refuge. The southern extent was relatively stable at RM 73.9-74.0 due to river irrigation from pumps at the southern boundary. The northern extent of the San Acacia Reach drying was RM 94.1 for a total drying of roughly 20 river miles.

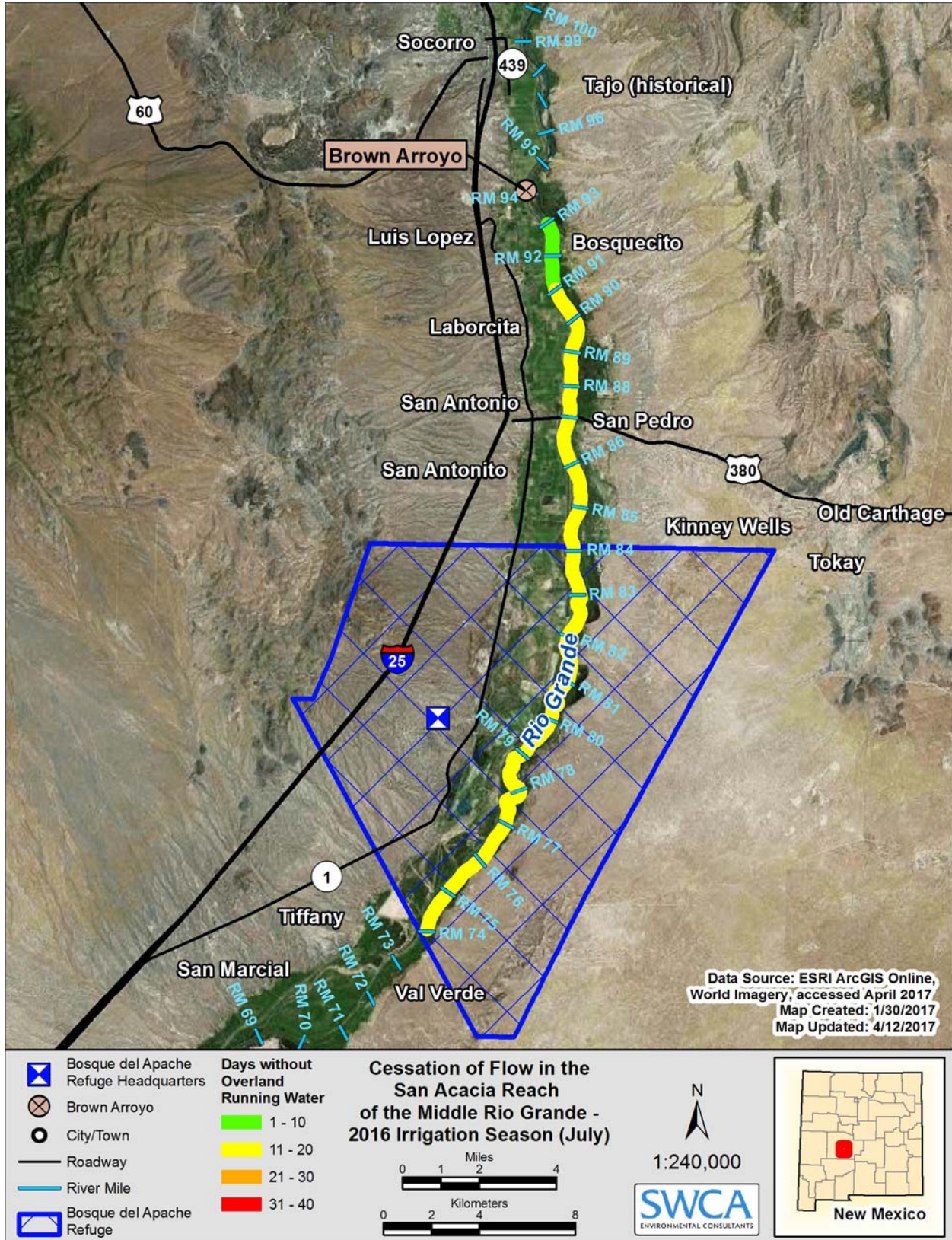
Running water conditions were maintained below the southern boundary of the Bosque Del Apache Refuge by pumping water from the Low Flow Conveyance Channel over an approximate distance of 13.7 miles (i.e., downstream to RM 60.0). Figures 2-10 show the extent and the number of days the river dried in the Isleta and San Acacia reaches of the Middle Rio Grande during the 2016 irrigation season.

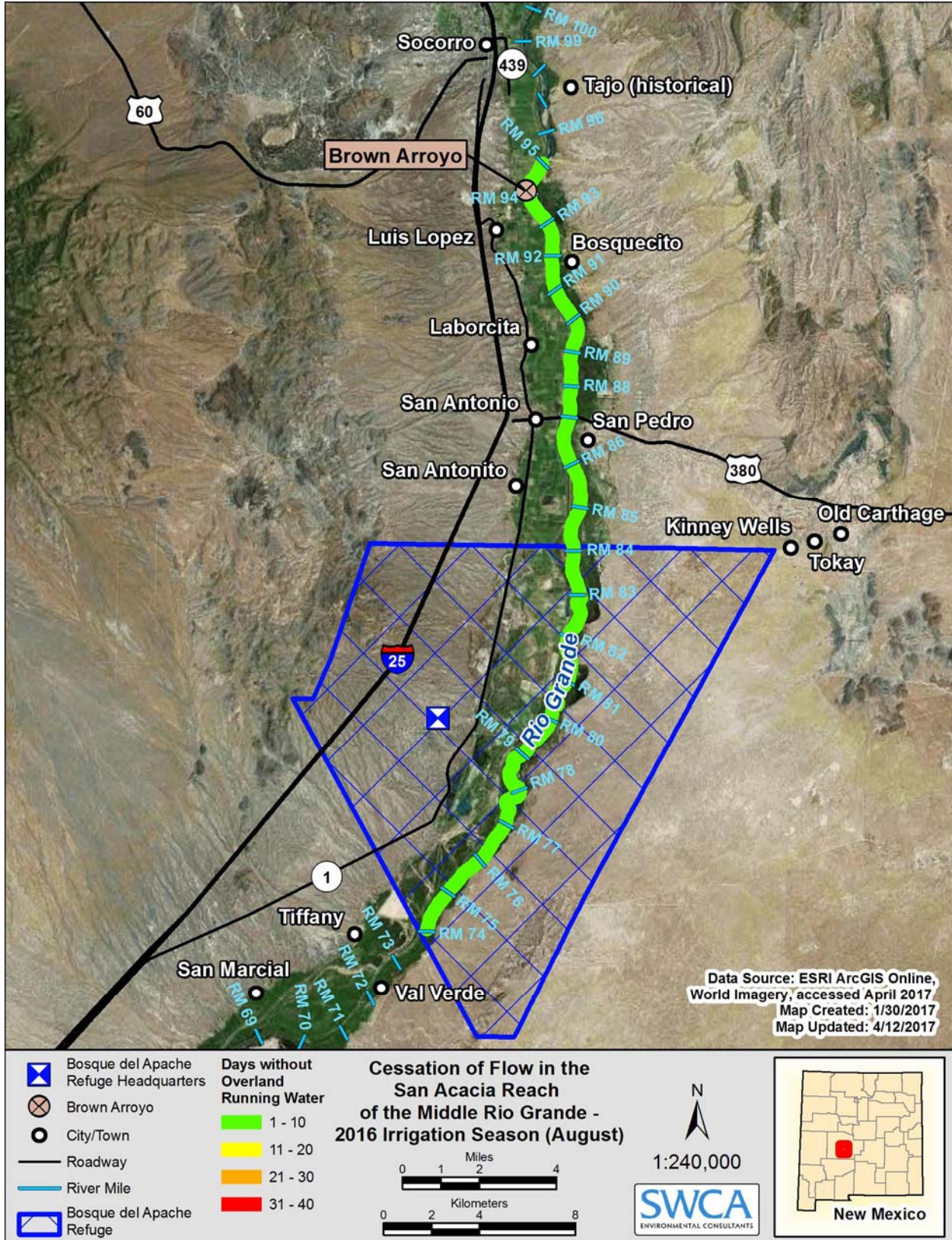
Inclusive of the Isleta and San Acacia reaches of the Middle Rio Grande, overland running water habitat was absent from 21.5 unique miles of river channel on one or more days during the 2016 irrigation season. The maximum total extent of river channel drying observed for a single day during the 2016 irrigation season (i.e., 21.6 miles) occurred on September 25, 2016 when a total of 8.0 miles of river in the Isleta Reach and 13.6 miles of river in the San Acacia Reach was dry or reduced to isolated pools. River reach- and month-specific mean values of the length of river channel without overland running water during the 2016 irrigation season are specified in Table 1 and Table 2.

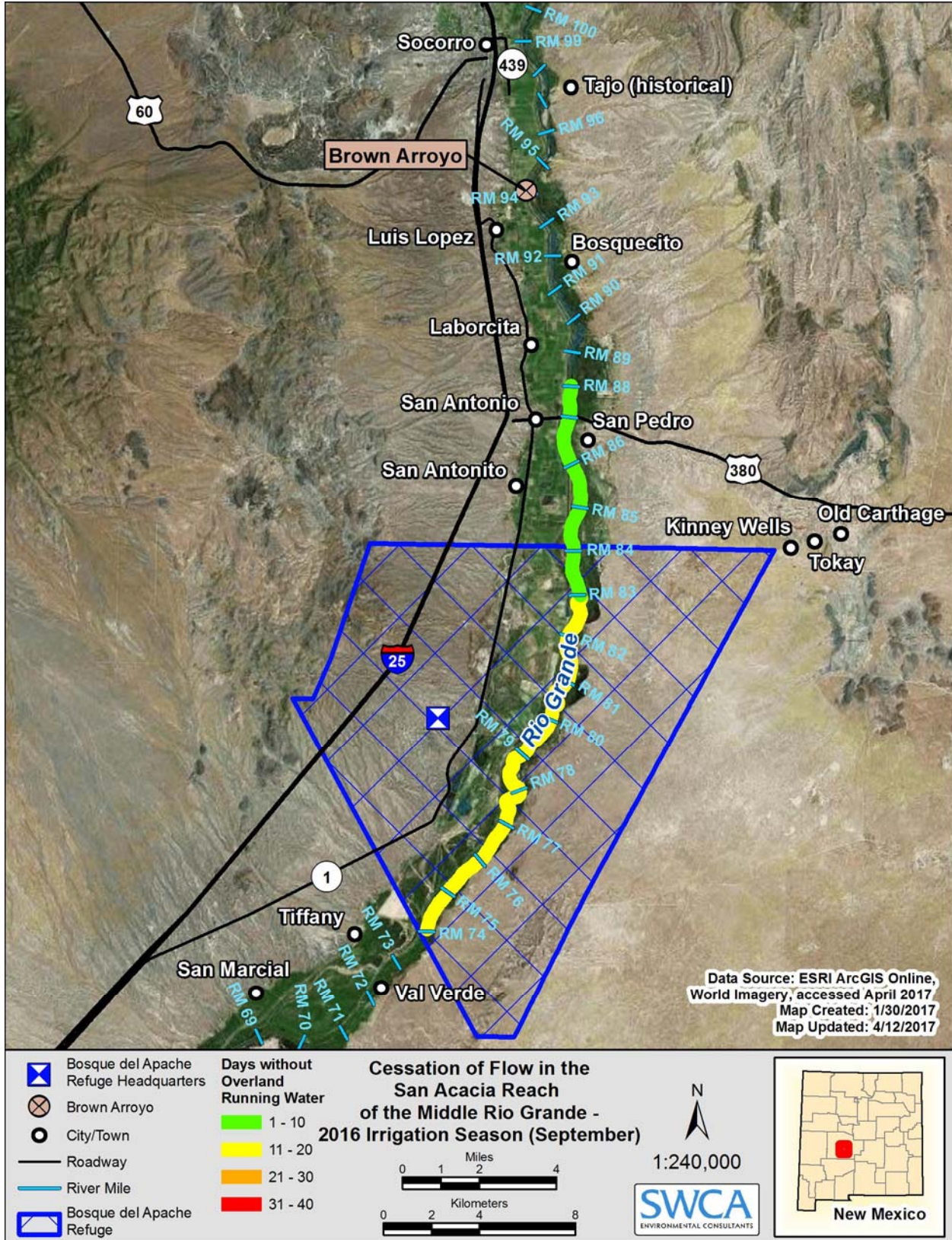












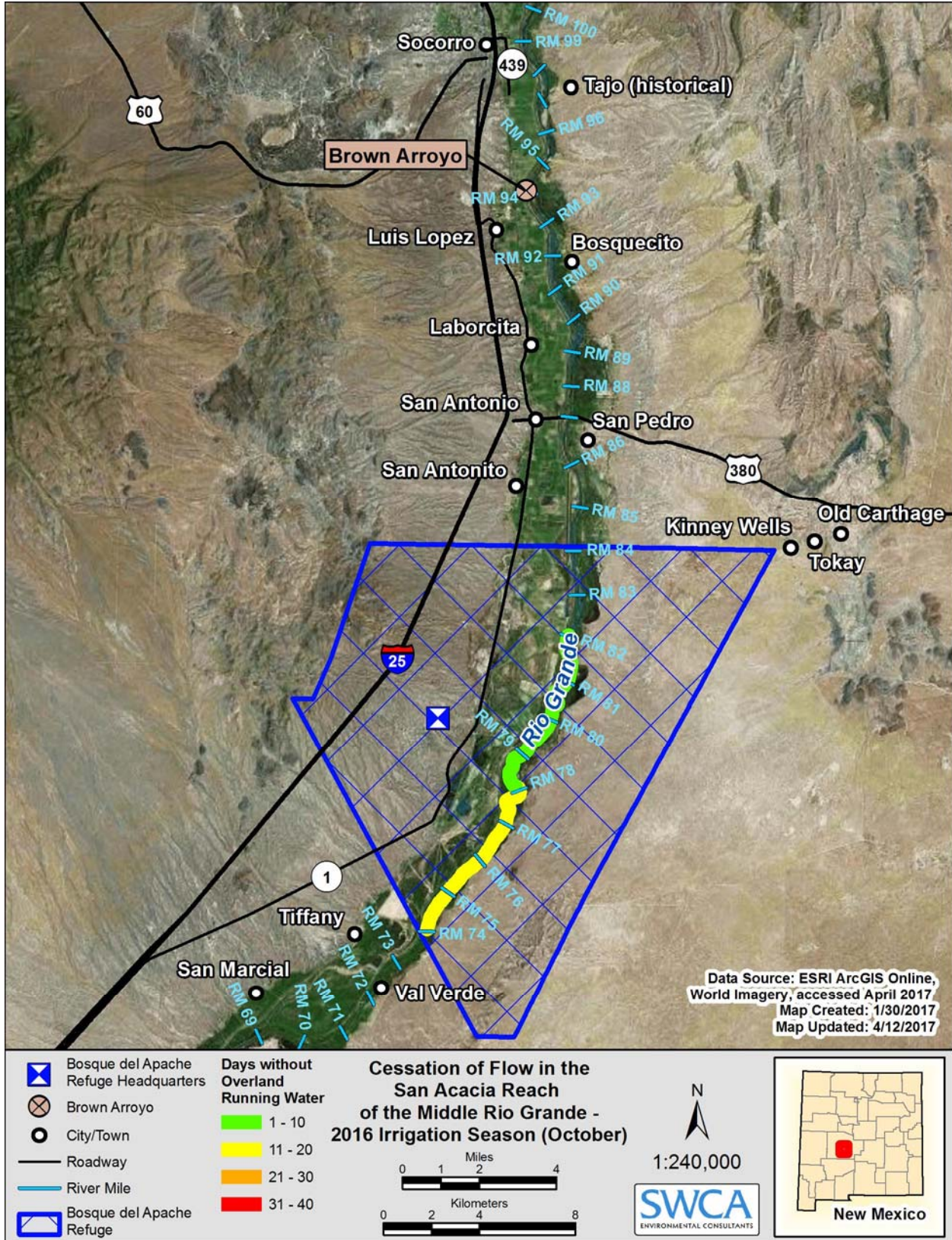


Table 1. Statistics Concerning the Occurrence and Extent of River Drying in the Isleta Reach during the 2016 Irrigation Season

Monthly Statistics for Isleta Reach (2016)						
Month (2016)	Days of Channel Drying	Mean Num. of River Miles Dry/Day	Std. Dev.	Std. Error	C.I. of Mean	Max. Num. of River Miles Dry
April	0	0.000	0.000	0.000	0.000	0.000
May	0	0.000	0.000	0.000	0.000	0.000
June	0	0.000	0.000	0.000	0.000	0.000
July	0	0.000	0.000	0.000	0.000	0.000
August	1	0.25	0.28	0.08	0.56	1.1
September	24	6.9	8.1	2.3	3.22	9.7
October	28	7.214	11.0	3.1	4.07	8.5

C.I. = confidence interval.

Table 2. Statistics Concerning the Occurrence and Extent of River Drying in the San Acacia Reach during the 2016 Irrigation Season

Monthly Statistics for San Acacia Reach (2016)						
Month (2016)	Days of Channel Drying	Mean Num. of River Miles Dry/Day	Std. Dev.	Std. Error	C.I. of Mean	Max. Num. of River Miles Dry
April	0	0.000	0.000	0.000	0.000	0.000
May	0	0.000	0.000	0.000	0.000	0.000
June	0	0.000	0.000	0.000	0.000	0.000
July	19	15.9	6.1	1.3	2.7	18.0
August	5	10.4	1.8	0.4	1.6	20.0
September	20	9.5	9.0	1.9	3.9	13.6
October	19	4.7	6.0	1.3	2.7	8.0

C.I. = confidence interval.

River channel segments without running water during the 2016 irrigation season were generally much longer, but less variable in the San Acacia Reach compared to the Isleta Reach (see Table 1 and Table 2). Drought conditions during the 2016 irrigation season were more severe in the San Acacia Reach compared to the Isleta Reach, as is evident from the greater number of river miles dried and the duration of channel drying in the San Acacia Reach. Relative to the Isleta Reach, intermittent portions of the San Acacia Reach were more often subject to short-term rewetting during the 2016 irrigation season. Rewetting of intermittent portions of the Middle Rio Grande can be linked primarily to occasional significant inputs of stormwater runoff from large contributing watersheds that are confluent with the Rio Grande a short distance upstream of the San Acacia Reach, notably including the Rio Salado and Rio Puerco.

ACKNOWLEDGMENT AND CREDITS

Joe Toya, Deanna Strohm, Ian Dolly, Joanna Franks, and Jesse Shuck were responsible for observations of river dynamics in the San Acacia and Isleta Reaches of the Middle Rio Grande. Michael Hatch developed the database system and Jesse Shuck and Joe Toya maintained the data entry that generated much of the content of this report. We are grateful to the U.S. Bureau of Reclamation for funding this project. Likewise, we are grateful to the Middle Rio Grande Conservancy District for granting access to the Rio Grande and its adjacent riparian corridor within their respective jurisdictions.

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APPENDIX A.
REPORT OF 2016 FLOW ESTIMATES AND LONGITUDINAL
LIMITS OF RUNNING WATER CONDITIONS IN THE MIDDLE
RIO GRANDE

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River Eyes Report - 2016

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
31-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 1.09 mile segment in the Isleta Reach. River dried in Isleta Reach						
	18:35	(RM 153.9)	TOD	0.00 (0 - 0)	Visual	3842335	339720	---	---
	18:09	above PWW (RM 152.8)		0.00 (0 - 0)	Visual	---	---	3840014	340774
01-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 1.6 mile segment in the Isleta Reach. Drying in Isleta near LCWW						
	17:30	LCWW (RM 154.5)	TOD	0.00 (0 - 0)	Visual	3843010	340218	---	---
	17:50	above PWW (RM 152.9)	BOD	0.00 (0 - 0)	Visual	---	---	3840812	340005
02-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 3.6 mile segment in the Isleta Reach. 2.0 miles of new drying						
	21:19	LCWW (RM 156)	TOD	0.00 (0 - 0)	Visual	3845078	340497	---	---
	21:00	PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	---	---	3840041	340517
<i>Report printed: 1/26/2017 4:30:14 PM</i>			<i>Page 1 of 44</i>						

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
03-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 3.6 mile segment in the Isleta Reach. River is drying north, but LCWW is wetting .3 miles within this drying						
	17:25	above LCWW (RM 156.8)	TOD	0.00 (0 - 0)	Visual	3846392	340468	---	---
	17:15	LCWW (RM 156.5)	top of rewetting at LCWW	0.00 (0 - 0)	Visual	---	---	3845903	340359
	17:20	below LCWW (RM 156.2)	Bottom of LCWW wetting	0.00 (0 - 0)	Visual	3845353	340373	---	---
	17:35	PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	---	---	3840122	340129
05-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 3.9 mile segment in the Isleta Reach. Drying from RM 152.4 to 157.1 with rewetting where LCWW outfalls into Rio						
	20:40	North of LCWW (RM 157.1)	TOD	(- 0)	Visual	3846704	340464	---	---
	21:00	LCWW (RM 156.7)	Bottom of first section of drying	0.00 (0 - 0)	Visual	---	---	3846211	340477
	21:30	TOD (RM 155.9)	Top of second section of drying	0.00 (0 - 0)	Visual	3845050	340535	---	---
	21:45	PWW (RM 152.4)	BOD of second section of drying	0.00 (0 - 0)	Visual	---	---	3840122	340129
	22:00	(RM 0)		0.00 (0 - 0)	Visual	---	---	---	---
06-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 4.67 mile segment in the Isleta Reach. New drying above and below LCWW						
	19:18	Above LCWW (RM 157.4)	TOD	0.00 (0 - 0)	Visual	3846211	340475	---	---
	19:30	LCWW (RM 156.6)	BOD for first section	0.00 (0 - 0)	Visual	---	---	3846031	340424
	19:50	below LCWW (RM 155.8)	TOD second section	0.00 (0 - 0)	Visual	3844904	340561	---	---
	20:30	below PWW (RM 151.8)	BOD second section	0.00 (0 - 0)	Visual	---	---	3839235	340348

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
07-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 3.1 mile segment in the Isleta Reach. rewetting below LCWW						
	17:20	below LCWW (RM 155.5)	TOD	0.00 (0 - 0)	Visual	3844442 340748	---	---	
	17:45	PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	---	---	3840122	340129
08-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 3 mile segment in the Isleta Reach. Rewetting below lcww						
	19:30	below LCWW (RM 155.4)	TOD	0.00 (0 - 0)	Visual	3844248 340844	---	---	
	19:50	PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	---	---	3840122	340129
10-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.3 mile segment in the Isleta Reach. New drying above LCWW and below PWW						
	20:26	above LCWW (RM 158.8)	TOD	0.00 (0 - 0)	Visual	3849126 341408	---	---	
	20:00	LCWW (RM 156.7)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846211	340475
	19:00	below lcww (RM 155.9)	TOD second section	0.00 (0 - 0)	Visual	3845052 340553	---	---	
	19:30	below pww (RM 151.7)	BOD second section	0.00 (0 - 0)	Visual	---	---	3839043	340351

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
11-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.9 mile segment in the Isleta Reach. New drying above LCWW						
18:30		Above LCWW (RM 159.5)	TOD first section	0.00 (0 - 0)	Visual	3850102	341817	---	---
18:45		LCWW (RM 156.7)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846211	340475
19:20		below lcww (RM 155.9)	TOD second section	0.00 (0 - 0)	Visual	3845053	340555	---	---
20:00		below PWW (RM 151.8)	BOD second section	0.00 (0 - 0)	Visual	---	---	3839235	340348
12-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 2 mile segment in the Isleta Reach. Almost 5 miles of new rewetting in isleta reach						
17:45		below LCWW (RM 154.4)	TOD	0.00 (0 - 0)	Visual	3842910	340119	---	---
17:58		PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	---	---	3840122	340129
14-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 4.2 mile segment in the Isleta Reach. Sept 13 was continuous						
17:10		LCWW (RM 156.6)	TOD	0.00 (0 - 0)	Visual	3846031	340424	---	---
18:00		PWW (RM 152.4)	BOD	0.00 (0 - 0)	Visual	3840122	340129	---	---

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
15-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6 mile segment in the Isleta Reach. New drying above LCWW and below pww						
16:40		below nm6 bridge (RM 158.4)	TOD	0.00 (0 - 0)	Visual	3848425	341434	---	---
17:50		LCWW (RM 156.6)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846031	340424
18:00		below lcww (RM 156)	TOD second section	0.00 (0 - 0)	Visual	3845079	340529	---	---
18:30		below pww (RM 151.8)	BOD second section	0.00 (0 - 0)	Visual	---	---	3839235	340348
16-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.7 mile segment in the Isleta Reach.						
17:10		(RM 159.2)	TOD first section	0.00 (0 - 0)	Visual	3849662	341524	---	---
17:40		Near Los Chavez WW outfall (RM 156.7)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846211	340475
18:20		(RM 156)	TOD second section end of Los Chavez	0.00 (0 - 0)	Visual	3845079	340529	---	---
18:50		(RM 151.8)	BOD second section	0.00 (0 - 0)	Visual	---	---	3839235	340348

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
17-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.1 mile segment in the Isleta Reach.						
	16:00	(RM 158.7)	TOD first section	0.00 (0 - 0)	Visual	3848958	341386	---	---
	16:20	(RM 156.6)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846031	340424
	16:40	(RM 156)	TOD second section	0.00 (0 - 0)	Visual	3845079	340529	---	---
	17:00	(RM 152)	BOD second section total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3839444	340361
18-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.3 mile segment in the Isleta Reach.						
	17:10	(RM 158.7)	TOD first section total dry first section 2.1 mi	0.00 (0 - 0)	Visual	3848958	341386		---
	17:40	(RM 156.6)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846031	340424
	18:10	(RM 156)	TOD second section	0.00 (0 - 0)	Visual	3845079	340529	---	---
	18:40	(RM 151.8)	BOD second section total dry forsecond section is 4.2 mi	0.00 (0 - 0)	Visual	3839235	340348	---	---

Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)	
19-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the Isleta Reach.						
	15:10	(RM 161)	TOD first section	0.00 (0 - 0)	Visual	3852182	342555	---	---
	14:30	(RM 156.7)	BOD second section begin rewetted from los chavez ww outfall	0.00 (0 - 0)	Visual	---	---	3846211	340475
	14:00	(RM 156)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845079	340529	---	---
	13:40	(RM 152.3)	BOD second section total dry second section 3.7 mi	0.00 (0 - 0)	Visual	---	---	3839900	340274
20-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9 mile segment in the Isleta Reach.						
	17:30	(RM 161.1)	TOD first section total dry first section 4.5 mi	0.00 (0 - 0)	Visual	3852280	342678	---	---
	17:50	(RM 156.6)	BOD first section	0.00 (0 - 0)	Visual	---	---	3846031	340424
	18:00	(RM 156)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845079	340529	---	---
	18:35	(RM 151.5)	BOD second section total dry second section 4.5 mi	0.00 (0 - 0)	Visual	---	---	3838723	340348

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
21-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.3 mile segment in the Isleta Reach.						
	17:00	(RM 161.2)	TOD first section total dry 1st section 4.5 mi	0.00 (0 - 0)	Visual	3852435	342759	---	---
	17:20	(RM 156.7)	BOD 1st section	0.00 (0 - 0)	Visual	---	---	3846211	340475
	17:35	(RM 156.1)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845217	340445	---	---
	17:45	(RM 151.3)	BOD second section total dry of second section is 4.8 mi	0.00 (0 - 0)	Visual	---	---	3838415	340247
22-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.7 mile segment in the Isleta Reach.						
	17:30	(RM 161.3)	TOD first section total of first section 4.6 mi	0.00 (0 - 0)	Visual	3852613	342817	---	---
	17:55	(RM 156.7)	BOD first section beginning of rewetting from los chavez ww flow	0.00 (0 - 0)	Visual	---	---	3846211	340475
	18:25	(RM 156.1)	TOD second section end of los chaves flow	0.00 (0 - 0)	Visual	3845217	340445	---	---
	18:45	(RM 151)	BOD second section totsl dry of second section 5.1 mi	0.00 (0 - 0)	Visual	---	---	3837998	339973

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
23-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.4 mile segment in the Isleta Reach.							
	16:30	(RM 161.6)	TOD first section total dry first section 4.9 miles	0.00 (0 - 0)	Visual	3853016 343021	---	---		
	16:55	(RM 156.7)	BOD first section beginning of rewettign los chavez flow	0.00 (0 - 0)	Visual	---	---	3846211	340475	
	16:25	(RM 156.1)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845217 340445	---	---		
	16:45	(RM 151.6)	BOD second section total dry for second section is 4.5 mi	0.00 (0 - 0)	Visual	---	---	3838901	340332	
24-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the Isleta Reach.							
	16:45	(RM 160.9)	TOD first section total dry first section 4.2 mi	0.00 (0 - 0)	Visual	3852120 342528	---	---		
	17:05	(RM 156.7)	BOD first section beginning rewetting near los chavez ww outflow	0.00 (0 - 0)	Visual	---	---	3846211	340475	
	17:25	(RM 156.2)	TOD second section end of flow from los chavez flow	0.00 (0 - 0)	Visual	3845370 340358	---	---		
	17:45	(RM 152.4)	BOD second section total dry second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3840122	340129	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
25-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the Isleta Reach.						
18:00	(RM 160.9)		TOD first section total dry first section 4.2 mi	0.00 (0 - 0)	Visual	3852120 342528	---	---	
18:15	(RM 156.7)		BOD first section beginning of rewetting from los chavez outflow	0.00 (0 - 0)	Visual	---	---	3846211 340475	
18:45	(RM 156.2)		TOD second section end of flos from los chavez ww	0.00 (0 - 0)	Visual	3845370 340358	---	---	
19:10	(RM 152.4)		BOD second section total dry of second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3840122 340129	
26-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the Isleta Reach.						
17:10	(RM 160.8)		TOD first section total dry first section 4.1 mi	0.00 (0 - 0)	Visual	3852028 342452	---	---	
17:35	(RM 156.7)		BOD first section beginning of rewetting at los chavez ww outfall	0.00 (0 - 0)	Visual	---	---	3404750 ---	
17:45	(RM 156.3)		TOD second section beginning of dry at end of los chavez flow	0.00 (0 - 0)	Visual	3845497 340300	---	---	
18:05	(RM 152.4)		BOD second section total dry second section is 3.9 mi, new drting in this section0.1 mi	0.00 (0 - 0)	Visual	---	---	3840122 340129	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
27-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.4 mile segment in the Isleta Reach.						
	17:30	(RM 160.9)	TOD first section total dry first section is 4.2 mi	0.00 (0 - 0)	Visual	3852120 342528	---	---	
	17:45	(RM 156.7)	BOD first section beginning of rewetting from los chavez ww	0.00 (0 - 0)	Visual	---	---	3846211 340475	
	18:05	(RM 156.3)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845497 340300	---	---	
	18:25	(RM 152.1)	BOD second section total dry of second section 4.2 mi	0.00 (0 - 0)	Visual	---	---	3839622 340344	
28-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.1 mile segment in the Isleta Reach.						
	14:45	(RM 165.6)	BOD first section beginning of rewetting near los chavez	0.00 (0 - 0)	Visual	---	---	3846031 340424	
	15:00	(RM 160.3)	TOD first section total dry first section 3.7 mi	0.00 (0 - 0)	Visual	3851235 342061	---	---	
	14:40	(RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845370 340358	---	---	
	14:15	(RM 151.8)	BOD second section total dry second section .4 miles 0.2 miles of drying in this section	0.00 (0 - 0)	Visual	---	---	3839235 340348	

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)		
						Top (N - E)	Bottom (N - E)	
29-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.9 mile segment in the Isleta Reach.					
15:10	(RM 160)		TOD first section total dry first section 3.4 mi. 0.3 miles of rewetting	0.00 (0 - 0)	Visual	3850779 342076	---	---
14:53	(RM 156.6)		BOD first section Beginning of rewetting near los chavez flow	0.00 (0 - 0)	Visual	---	---	3846031 340424
14:45	(RM 155.8)		TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3844898 340588	---	---
14:20	(RM 151.3)		BOD second section total dry for second section is 4.5 mi. 0.1 mi of drying	0.00 (0 - 0)	Visual	---	---	3838415 340247
30-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.5 mile segment in the Isleta Reach.					
20:15	(RM 159.6)		TOD first section total dry first section is 0.3 mi	0.00 (0 - 0)	Visual	3850221 341887	---	---
20:00	(RM 156.6)		BOD first section begin rewetting from los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031 340424
19:55	(RM 156.2)		TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845370 340358	---	---
19:40	(RM 151.7)		BOD second section total dry for second section s 4.5 mi.	0.00 (0 - 0)	Visual	---	---	3839043 340351

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
01-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.3 mile segment in the Isleta Reach.							
	19:15	(RM 159.4)	TOD first section total dry first section is 2.8 mi. 0.2 miles of rewetting	0.00 (0 - 0)	Visual	3849921 341690	---	---		
	19:00	(RM 156.6)	BOD first section beginning of rewetting from los chavez flow	0.00 (0 - 0)	Visual	---	---	3845927	340392	
	18:55	(RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845300 340383	---	---		
	18:40	(RM 151.7)	BOD second section total dry for second section is 4.5 mi	0.00 (0 - 0)	Visual	---	---	3839003	340346	
02-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5.6 mile segment in the Isleta Reach.							
	20:30	(RM 158.4)	TOD first section total dry first section is 1.8 miles. 1.0 miles of rewetting	0.00 (0 - 0)	Visual	3848421 341303	---	---		
	20:10	(RM 156.6)	BOD first section beginning of rewetting from los chavez flow	0.00 (0 - 0)	Visual	---	---	3845924	340351	
	20:00	(RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845341 340349	---	---		
	19:25	(RM 152.4)	BOD second section total dry for second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3842671	339959	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
03-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5 mile segment in the Isleta Reach.							
	16:30	(RM 157.8)	TOD first section total dry first section 1.2 miles. 0.6 mi of rewetting	0.00 (0 - 0)	Visual	---	---	---	---	
	17:15	(RM 156.6)	BOD first section beginning of rewetting from los chavez flow	0.00 (0 - 0)	Visual	---	---	---	---	
	17:35	(RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	---	---	---	---	
	17:50	(RM 152.4)	BOD second section total dry of second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	---	---	
04-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5.7 mile segment in the Isleta Reach. No flow out of Los Chavez wasteway. Bed still wet in spots with some pools left.							
	16:30	(RM 158.1)	TOD no flow out of Los chaves wasteway	0.00 (0 - 0)	Visual	---	---	---	---	
	17:50	(RM 156.6)	BOD None	0.00 (0 - 0)	Visual	---	---	---	---	
05-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 6.8 mile segment in the Isleta Reach.							
	16:30	(RM 159.6)	TOD first section total dry first section id 3.0 miles. 1.0 miles new drying	0.00 (0 - 0)	Visual	3850221	341887	---	---	
	17:15	(RM 156.6)	BOD 1st section beginning of rewetting 0 from Los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424	

17:35 (RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845370	340358	---	---
17:50 (RM 152.4)	BOD second section total dry for second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3840122	340129

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
06-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.1 mile segment in the Isleta Reach.						
	16:50	(RM 160.1)	TOD first section total dry first section is 3.5 mi	0.00 (0 - 0)	Visual	3850935	342054	---	---
	17:55	(RM 156.6)	BOD first section beginning of rewetting from Los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424
	18:35	(RM 156.4)	TOD second section end of flow from los chavez	0.00 (0 - 0)	Visual	3845664	340245	---	---
	18:50	(RM 152.4)	BOD second section total dry for second section is 3.6 miles	0.00 (0 - 0)	Visual	---	---	3842671	339959
07-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 6.9 mile segment in the Isleta Reach.						
	18:10	(RM 159.6)	TOD first section total dry first section	0.00 (0 - 0)	Visual	3850195	341883	---	---
	18:45	(RM 156.6)	BOD first section beginning of rewetting from Los Chavez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424
	18:55	(RM 156.3)	TOD second section end of Los chavez flow	0.00 (0 - 0)	Visual	3845497	340300	---	---
	19:10	(RM 152.4)	BOD second section total dry for second section is 3.9 mi	0.00 (0 - 0)	Visual	---	---	3840122	340129

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
08-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.9 mile segment in the Isleta Reach.							
	17:10	(RM 160.6)	TOD first section total dry first section is 4 mi	0.00 (0 - 0)	Visual	3851709 342226	---	---		
	17:45	(RM 156.6)	BOD first section rewetting flor los chavez wasteway	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	18:15	(RM 156.3)	TOD second section end of flow from los chavez wasteway	0.00 (0 - 0)	Visual	3845497 340300	---	---		
	18:30	(RM 152.4)	BOD second section total dry for second section is 3.9 mi	0.00 (0 - 0)	Visual	---	---	3845497 340129		
09-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5.6 mile segment in the Isleta Reach.							
	17:50	(RM 158.3)	TOD first section total dry of first section 1.7 mi. 2.3 miles of rewetting	0.00 (0 - 0)	Visual	3848268 341355	---	---		
	18:35	(RM 156.6)	BOD of first section rewetting from Los chavez wasteway	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	18:45	(RM 156.3)	TOD second section end of flow from wasteway	0.00 (0 - 0)	Visual	3845497 340300	---	---		
	19:20	(RM 152.4)	BOD second section total dry from second section is 3.9 miles	0.00 (0 - 0)	Visual	---	---	3840122 340129		

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)		
10-Oct-2016			General Comments: Flow in the main river channel is continuous throughout the Isleta reach							
	17:10	(RM 158.3)		50.50 (-99 - 200)	Visual	---	---	---	---	
	17:35	(RM 156.6)		50.50 (-99 - 200)	Visual	---	---	---	---	
	18:00	(RM 152.4)		40.50 (-99 - 180)	Visual	---	---	---	---	
11-Oct-2016			General Comments: Flow in the main river channel is continuous throughout the Isleta reach based on field observations							
	16:20	(RM 158.3)		-7.00 (-99 - 85)	Visual	---	---	---	---	
	17:15	(RM 156.6)	None	-4.50 (-99 - 90)	Visual	---	---	---	---	
	17:45	(RM 152.4)	None	-9.50 (-99 - 80)	Visual	---	---	---	---	
12-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 3.1 mile segment in the Isleta Reach.							
	18:40	(RM 154.9)	TOD	0.00 (0 - 0)	Visual	3849921	341690	---	---	
	19:30	(RM 151.8)	BOD	0.00 (0 - 0)	Visual	---	---	3839189	340348	
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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)	
13-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4 mile segment in the Isleta Reach.						
	14:20	(RM 155.8)	TOD	0.00 (0 - 0)	Visual	3844387	340619	---	---
	19:30	(RM151.8)	BOD	0.00 (0 - 0)	Visual	---	---	3839189	340348
14-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4 mile segment in the Isleta Reach.						
	19:25	(RM 155.8)	TOD	0.00 (0 - 0)	Visual	3844387	340619	---	---
	19:50	(RM 151.8)	BOD	0.00 (0 - 0)	Visual	---	---	3839189	340348
15-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5 mile segment in the Isleta Reach.						
	15:15	(RM 157.6)	TOD first section total dry first section 1 mi	0.00 (0 - 0)	Visual	3847456	340770	---	---
	15:40	(RM 156.6)	BOD first section rewetting from Los Chavez wasteway	0.00 (0 - 0)	Visual	---	---	3844837	340619
	15:55	(RM 155.8)	TOD second section end of flow from los chavez ww	0.00 (0 - 0)	Visual	3844837	340619	---	---
	16:05	(RM 151.8)	BOD second section Total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3839189	340348

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
16-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4.7 mile segment in the Isleta Reach.						
	15:45	(RM 157.3)	TOD first section total dry first section is 0.7 mi	0.00 (0 - 0)	Visual	3847028	340554	---	---
	16:10	(RM 156.6)	BOD first section Rewetting from Los Chavez wasteway	0.00 (0 - 0)	Visual	---	---	3845927	340392
	16:35	(RM 155.8)	TOD second section end of flow from Los chavez wasteway	0.00 (0 - 0)	Visual	3844837	340619	---	---
	16:55	(RM 151.8)	BOD second section Total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3839189	340348
17-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4.2 mile segment in the Isleta Reach.						
	18:15	(RM 156)	TOD	0.00 (0 - 0)	Visual	3845075	340489	---	---
	18:45	(RM 151.8)	BOD	0.00 (0 - 0)	Visual	---	---	3839189	340348
18-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5.4 mile segment in the Isleta Reach.						
	12:15	(RM 185.2)	TOD first section Total dry first section is 1.6 mi	0.00 (0 - 0)	Visual	3848132	341360	---	---
	12:00	(RM 156.6)	BOD first section. Rewetting from Los Chavez waseway	0.00 (0 - 0)	Visual	---	---	3845927	340392
	11:47	(RM 156.2)	TOD second section End of los chavez flow	0.00 (0 - 0)	Visual	3845350	340338	---	---

12:50 (RM 152.4)	BOD second section Total dry for second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3842671	339959
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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
19-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 6.4 mile segment in the Isleta Reach.							
	15:00	(RM 159.2)	TOD first section total dry in first section is 2.6 mi	0.00 (0 - 0)	Visual	3849668 341522	---	---		
	15:10	(RM 156.6)	BOD first section rewetting from los chavez wasteway	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	15:20	(RM 156.2)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845350 340338	---	---		
	15:30	(RM 152.4)	BOD second section total dry for second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3840122 340129		
20-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.8 mile segment in the Isleta Reach.							
	14:30	(RM 160.7)	TOD first section total dry first section 4.1 mi	0.00 (0 - 0)	Visual	3851858 342314	---	---		
	14:20	(RM 156.6)	BOD first section rewetting from los chavez flow	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	14:10	(RM 156.2)	TOD second section end of flow from los chavez	0.00 (0 - 0)	Visual	3845350 340338	---	---		
	13:55	(RM 152.5)	BOD second section total dry second section is 3.7 mi	0.00 (0 - 0)	Visual	---	---	3840204 340107		

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
21-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8.3 mile segment in the Isleta Reach.						
	13:05	(RM 160.9)	TOD first section total dry first section is 4.3 mi	0.00 (0 - 0)	Visual	3852091	342503	---	---
	12:45	(RM 156.6)	BOD first section rewetting from los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424
	12:40	(RM 156.2)	TOD second section end of flow from los chavez ww	0.00 (0 - 0)	Visual	3845350	340338	---	---
	12:10	(RM 152.2)	BOD second section Total dry second section 4 mi	0.00 (0 - 0)	Visual	---	---	3839769	340320
22-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8.5 mile segment in the Isleta Reach.						
	12:05	(RM 161.1)	TOD first section total dry first section 4.5 mi	0.00 (0 - 0)	Visual	3850941	342048	---	---
	11:44	(RM 156.6)	BOD first section rewetting from Los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424
	12:40	(RM 156.2)	TOD second section end of los chavez ww flow	0.00 (0 - 0)	Visual	3850948	342055	---	---
	12:10	(RM 152.2)	BOD second section total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3839762	340321

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)		
						Top (N - E)	Bottom (N - E)	
23-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8.4 mile segment in the Isleta Reach.					
	12:40	(RM 161.2)	TOD first section total dry first section is 4.6 mi	0.00 (0 - 0)	Visual	3851111 342050	---	---
	13:05	(RM 156.6)	BOD first section Rewetting from Los Chavez ww	0.00 (0 - 0)	Visual	---	---	3846031 340424
	12:45	(RM 156.2)	TOD second section end of los chaves flow	0.00 (0 - 0)	Visual	3845352 340349	---	---
	12:10	(RM 152.4)	BOD second section total dry for second section is 3.8 mi	0.00 (0 - 0)	Visual	---	---	3840046 340176
24-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8.7 mile segment in the Isleta Reach.					
	12:40	(RM 161.3)	TOD first section total dry first section is 4.7 mi	0.00 (0 - 0)	Visual	3852575 342816	---	---
	13:05	(RM 156.6)	BOD first section rewetting from los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031 340424
	12:30	(RM 156.4)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845690 340245	---	---
	12:10	(RM 152.4)	BOD second section total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3840046 340176

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
25-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the Isleta Reach.							
	13:00	(RM 160.6)	TOD first section total dry first section 4 mi	0.00 (0 - 0)	Visual	3851713 342229	---	---		
	13:05	(RM 156.6)	BOD first section rewetting from los chavez ww	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	13:30	(RM 156.4)	TOD second section end of flow from los chavez ww	0.00 (0 - 0)	Visual	3845690 340245	---	---		
	13:40	(RM 152.4)	BOD second section total dry for second section is 4 mi	0.00 (0 - 0)	Visual	---	---	3840046 340176		
26-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.7 mile segment in the Isleta Reach.							
	18:20	(RM 160.3)	TOD first section total dry first section 3.7 mi	0.00 (0 - 0)	Visual	3851242 342061	---	---		
	18:30	(RM 156.6)	BOD first section rewetting from Los Chavez ww	0.00 (0 - 0)	Visual	---	---	3846031 340424		
	18:40	(RM 156.4)	TOD second section end of los chavez flow	0.00 (0 - 0)	Visual	3845690 340245	---	---		
	19:00	(RM 152.4)	BOD second section total dry for second section 4 mi	0.00 (0 - 0)	Visual	---	---	3840046 340176		

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
27-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.9 mile segment in the Isleta Reach.							
	18:10	(RM 160.1)	TOD first section total dry first section 3.5 mi	0.00 (0 - 0)	Visual	3850931 342045	---	---		
	18:30	(RM 156.6)	BOD of first section rewetting from Los Chavez ww	0.00 (0 - 0)	Visual	3846031 340424	---	---		
	14:00	(RM 156.4)	TOD second section end of flow from Los Chavez	0.00 (0 - 0)	Visual	---	---	3845690	340245	
	13:40	(RM 152)	BOD second section total dry for second section 4.4 mi	0.00 (0 - 0)	Visual	3839447 340350	---	---		
28-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8.1 mile segment in the Isleta Reach.							
	17:10	(RM 159.4)	TOD first section total dry first section is 3.8 mi	0.00 (0 - 0)	Visual	3849965 341687	---	---		
	17:40	(RM 156.6)	BOD first section rewetting from Los Chasvez ww	0.00 (0 - 0)	Visual	---	---	3846031	340424	
	18:00	(RM 156.5)	TOD second section end of flow from los chavez	0.00 (0 - 0)	Visual	3845825 340322	---	---		
	18:20	(RM 152.2)	BOD second section total dry for second section 4.3 mi	0.00 (0 - 0)	Visual	---	---	3839790	340313	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
29-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4.7 mile segment in the Isleta Reach.							
	13:40	(RM 157.2)	TOD first section total dry first section is 0.6 mi	0.00 (0 - 0)	Visual	---	---	---	---	
	14:00	(RM 156.6)	BOD first section rewetting from Los chavez	0.00 (0 - 0)	Visual	---	---	---	---	
	14:20	(RM 156.5)	TOD second section end of Los chavez flow	0.00 (0 - 0)	Visual	---	---	---	---	
	14:40	(RM 152.4)	BOD second section total dry for second section is 4.1 mi	0.00 (0 - 0)	Visual	---	---	---	---	
30-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 2.6 mile segment in the Isleta Reach.							
	13:40	(RM 155)	TOD	NA	Visual	3843657	340622	---	---	
	14:40	(RM 152.4)	BOD	NA	Visual	---	---	3840072	340156	
31-Oct-2016			General Comments: Flow is continuous in the Isleta reach							
	8:00	(RM 161.4)		50.50 (-99 - 200)	Visual	---	---	---	---	

Date	Time	Location*	Observation	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
Comments				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
13-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 6.5 mile segment in the San Acacia Reach. Flow in the main river channel is discontinuous from RM 73.9 (bottom of dry to top of) to RM 80.40 for a total of 6.5 miles.							
	17:15	(RM 80.4)	TOD First day of drying	0.00 (0 - 0)	Visual	3742879	328376			
	16:15	(RM 73.9)	BOD First day of drying	0.00 (0 - 0)	Visual			3733147	322941	
14-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 7.91 mile in the San Acacia Reach. Flow in the main river is discontinuous from RM 73.92 (BOD to TOD) to RM 81.83 for a total of 7.91 miles. 1.41 miles of new drying.							
	17:15	(RM 81.83)	Top of Dry. River dried for 1.41 additional miles for a total of 7.91 miles	(0 - 0)	Visual	3745116	328781			
	16:05	(RM 73.92)	BOD with pumps flowing at south boundary~40-45 cfs	0.00 (0 - 0)	Visual	---	---	3733140	322939	
15-Jul-2016			General Comments: Flow in the main river channel is discontinuous from RM 73.92 (BOD to TOD) to RM 82.95 for a total of 9.03 miles. New Drying is 1.53 miles.							
	15:25	(RM 82.95)	TOD	0.00 (0 - 0)	Visual	3747500	329313	---	---	
	17:41	(RM 73.92)	BOD	0.00 (0 - 0)	Visual	---	---	3733140	322939	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)	
16-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 12.4 mile segment in the San Acacia Reach. Flow in the main river channel is discontinuous from RM 73.92 to RM 86.32 for a total of 12.4 miles. New Drying is 3.86 miles.						
	15:50	(RM 86.32)	TOD	0.00 (0 - 0)	Visual	3753652	328674	---	---
	17:25	BDA (RM 73.92)	BOD	0.00 (0 - 0)	Visual	---	---	3733140	322939
17-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 14.47 mile segment in the San Acacia Reach.						
	13:10	TOD (RM 88.39)	TOD	0.00 (0 - 0)	Visual	3756632	328955	---	---
	12:00	Boundary BDA (RM 73.92)	BOD	0.00 (0 - 0)	Visual	---	---	3733140	322939
18-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.85 mile segment in the San Acacia Reach.						
	17:25	(RM 89.77)	TOD	0.00 (0 - 0)	Visual	3758522	329282	---	---
	15:20	Boundary BDA (RM 73.92)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733140	322939

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Date	Time	Location*	Observation	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
19-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 16.76 mile segment in the San Acacia Reach. Flow in the main river channel is discontinuous from RM 73.92 (bottom of dry to top of dry) to RM 90.68 for a total of 16.76 miles.						
	7:50	(RM 90.68)	TOD	0.00 (0 - 0)	Visual	2759509	328599	---	---
	8:45	Boundary BDA (RM 72.93)	Bottom of Dry	0.00 (0 - 0)	Visual	---	---	3733140	322939
20-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 17.31 mile segment in the San Acacia Reach. Flow in the main river channel is discontinuous from RM 73.92 to RM 91.23 for a total of 17.31 miles. New Drying is 0.55 miles.						
	7:05	(RM 91.23)	Top of dry	0.00 (0 - 0)	Visual	3760364	328236	---	---
	8:15	(RM 73.92)	Bottom of Dry	0.00 (0 - 0)	Visual	---	---	3733140	322939
21-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 17.94 mile segment in the San Acacia Reach. Flow in main channel is discontinuous from 73.92 to RM 91.86						
	7:45	(RM 91.86)	TOD	NA	Visual	3761218	328163	---	---
	9:10	(RM 73.92)	BOD	NA	Visual	---	---	3733191	322944
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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
22-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.97 mile segment in the San Acacia Reach. Almost two miles of rewetting due to recent storms						
	8:30	(RM 89.89)	TOD	NA	Visual	3758692	329120	---	---
	8:49	(RM 73.92)	BOD	NA	Visual	---	---	3733191	322944
23-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.94 mile segment in the San Acacia Reach. River slowly rewetting at top of dry						
	13:30	S of Neil Cupp (RM 88.86)	TOD	NA	Visual	3757233	328977	---	---
	14:15	(RM 73.92)		NA	Visual	---	---	3733191	322944
24-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.99 mile segment in the San Acacia Reach. Only 0.5 miles of new drying						
	10:20	(RM 89.91)	TOD	NA	Visual	3758685	329134	---	---
	11:50	(RM 73.92)	BOD	NA	Visual	-----		3733191	322944
25-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.82 mile segment in the San Acacia Reach. Roughly 0.37 miles have rewetted						
	7:20	S of Neil Cupp (RM 89.74)	TOD	NA	Visual	3758440	329267	---	---

8:15 (RM 73.92) BOD NA Visual --- --- 3733191 322944

Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
26-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.78 mile segment in the San Acacia Reach.						
	9:35	(RM 89.7)	TOD	NA	Visual	3758380 329277	---	---	
	10:10	(RM 73.92)	BOD	NA	Visual	---	---3733191	322944	
27-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 15.83 mile segment in the San Acacia Reach. Stable drying at 89.75						
	7:25	S of Neil Cupp (RM 89.75)	TOD	NA	Visual	3758447 329263	---	---	
	8:05	(RM 73.92)	BOD	NA	Visual	---	---3733191	322944	
28-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 17.74 mile segment in the San Acacia Reach. stable river						
	12:30	N of Neil Cupp (RM 91.66)	TOD	NA	Visual	3761075 328162	---	---	
	13:50	(RM 73.92)	BOD	NA	Visual	---	---3733191	322944	
29-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 17.72 mile segment in the San Acacia Reach.						
	7:40	N of Neil Cupp (RM 91.64)	TOD	NA	Visual	3761051 328166	---	---	
	8:30	(RM 73.92)	BOD	NA	Visual	---	---3733191	322944	Report

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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
30-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 17.72 mile segment in the San Acacia Reach.						
	13:00	N of Neil Cupp (RM 91.64)	TOD	NA	Visual	3761051	328166	---	---
	10:30	N of south boundary BDA (RM 73.92)	BOD	NA	Visual	---	---3733191	322944	
31-Jul-2016			General Comments: The river is dry or reduced to isolated pools over a 20.18 mile segment in the San Acacia Reach.						
	14:00	N of Neil Cupp (RM 94.1)	TOD	NA	Visual	3764170	327196	---	---
	12:30	N of south boundary BDA (RM 73.92)	BOD	NA	Visual	3733191	322944	---	---
01-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 20.23 mile segment in the San Acacia Reach.						
	14:00	N of Neil Cupp (RM 94.15)	TOD	NA	Visual	3764263	327198	---	---
	7:00	N of south boundary BDA (RM 72.93)	BOD	NA	Visual	---	---3733191	322944	
02-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 13.13 mile segment in the San Acacia Reach. Storms are responsible for rewetting 11 miles of the river						
	9:00	N of 380 Bridge (RM 87.05)	TOD	NA	Visual	3747110	329297	---	---
	7:00	(RM 73.92)	BOD	NA	Visual	---	---3733191	322944	Report

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
03-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 6.18 mile segment in the San Acacia Reach. River was rewetting rapidly during field inspection						
	11:30	(RM 80.1)	TOD	NA	Visual	3742488 328184	---	---	
	7:30	(RM 73.92)	BOD	NA	Visual	---	---	3733191	322944
04-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 5.63 mile segment in the San Acacia Reach.						
	11:30	N of MidBosque (RM 79.55)	TOD	NA	Visual	3741435 327682	---	---	
	12:00	N of south boundary BDA (RM 73.92)		NA	Visual	---	---	3733191	322944
05-Aug-2016			General Comments: The river is dry or reduced to isolated pools over a 5.83 mile segment in the San Acacia Reach. River still rewetting						
	11:30	no of mid Bosque (RM 79.75)	TOD	NA	Visual	3741931 328024	---	---	
	12:00	N of south boundary BDA (RM 73.92)	BOD	NA	Visual	---	---	3733191	322944
06-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 11 mile segment in the San Acacia Reach.						
	13:50	no of north boundary (RM 84.9)	Top of Dry	0.00 (0 - 0)	Visual	3750639 329244	---	---	
	14:54	N of south boundary (RM 73.9)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733166	322956

Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
07-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.4 mile segment in the San Acacia Reach. Several miles of rewetting						
	13:45	(RM 82.3)	Top of Dry	0.00 (0 - 0)	Visual	3745895 329040	---	---	
	14:40	(RM 73.9)	Bottom of Dry	0.00 (0 - 0)	Visual	3733166 322956	---	---	
09-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.1 mile segment in the San Acacia Reach. Extensive drying since yesterday						
	17:00	(RM 83.1)	Top of Dry	0.00 (0 - 0)	Visual	3747201 329389	---	---	
	15:45	(RM 74)	Bottom of Dry	0.00 (0 - 0)	Visual	---	---	3733130 322951	
10-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.4 mile segment in the San Acacia Reach. River is mostly stable with a small amount of drying						
	16:00	(RM 83.4)	Top of Dry	0.00 (0 - 0)	Visual	3747905 329149	---	---	
	17:10	(RM 74)	Bottom of Dry	0.00 (0 - 0)	Visual	---	---	3733130 322951	

Date	Time	Location*	Observation	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)	Bottom (N - E)		
11-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 9.9 mile segment in the San Acacia Reach. Small amount of new drying in San Acacia reach						
	20:10	South of north boundary (RM 83.9)	Top of dry	0.00 (0 - 0)	Visual	3748364	329004	---	---
	19:00	North of south boundary (RM 73.9)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
12-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.6 mile segment in the San Acacia Reach. A little over 2 miles of river rewet since yesterday						
	14:30	3 miles down from north boundary None of BDA (RM 81.5)	Top of Dry	0.00 (0 - 0)	Visual	3744568	328936	---	--
	15:40	just north of south boundary of None BDA (RM 73.93)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
13-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.1 mile segment in the San Acacia Reach. There was a small amount of rewetting since yesterday						
	19:20	roughly 3 miles south of north boundary BDA (RM 81.1)	Top of dry	0.00 (0 - 0)	Visual	3743938	328847	---	---
	18:00	north of south boundary BDA (RM 73.9)	Bottom of Dry	0.00 (0 - 0)	Visual	---	---	3733167	322957

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)			
14-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.4 mile segment in the San Acacia Reach. roughly 1.3 miles of new drying since yesterday							
14:00		South of north boundary BDA (RM 82.3)	Top of Dry	0.00 (0 - 0)	Visual	3746018	329091	---	---	
14:45		(RM 73.9)		NA	Visual	---	---	---	---	
15-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.6 mile segment in the San Acacia Reach. less than a mile of rewetting since yesterday							
18:40		Just south of north boundary of BDA (RM 81.5)	Top of Dry	0.00 (0 - 0)	Visual	3744649	328939	---	---	
19:15		(RM 73.9)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957	
17-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.6 mile segment in the San Acacia Reach. River has not dried or rewet since yesterday.							
8:45		Just south of north boundary (RM 81.5)	Top of Dry	0.00 (0 - 0)	Visual	3744637	328951	---	--	
9:35		(RM 73.9)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)				
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)		
18-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 6.2 mile segment in the San Acacia Reach. roughly 1 and a half miles of rewetting since yesterday							
	19:30	(RM 80.1)	Top of dry	0.00 (0 - 0)	Visual	3741937	328043	---	---	
	18:15	(RM 73.9)	Bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957	
19-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the San Acacia Reach. almost two miles of new drying since yesterday							
	18:00	Just south of the north boundary None BDA (RM 81.9)	Top of Dry	0.00	(0 - 0)	Visual	3745242	328783	---	--
	19:20	just north of south boundary BDA None (RM 73.9)	bottom of dry	0.00	(0 - 0)	Visual	---	---	3733167	322957
20-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the San Acacia Reach. River is stable since yesterday							
	17:40	(RM 81.9)	Top of dry	0.00 (0 - 0)	Visual	3745242	328783	---	---	
	18:25	(RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957	

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
21-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.3 mile segment in the San Acacia Reach. roughly .3 miles of new drying since yesterday						
	15:22	south of north boundary BDA (RM 82.2)	top of dry	0.00 (0 - 0)	Visual	3745649 328869	---	---	
	16:15	north of south boundary of BDA (RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
22-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 8.3 mile segment in the San Acacia Reach. no significant drying or rewetting since yesterday						
	17:05	just south of north boundary BDA (RM 82.2)	None	Top of dry 0.00	(0 - 0)	Visual	3745649 328869	---	--
	18:00	just north of south boundary BDA (RM 73.9)	None	Bottom of dry 0.00	(0 - 0)	Visual	---	---	3733167 322957
23-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 7.9 mile segment in the San Acacia Reach. almost half a mile of new drying since yesterday						
	7:00	just south of north boundary (RM 81.8)		top of dry 0.00	(0 - 0)	Visual	3745108 328788	---	--
	7:45	(RM 73.9)	top of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates				
				Flow (cfs) Avg (Range)	Estimate Type	(UTM NAD 1983, Zone 13)		Top (N - E) Bottom (N - E)		
24-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 10.4 mile segment in the San Acacia Reach. roughly two and a half miles of new drying since yesterday							
	18:00 None	just north of the north boundary BDA (RM 84.3)	Top of Dry	0.00 (0 - 0)	Visual	3749666	328946	---	---	
	16:15 None	just north of south boundary (RM 73.9)	BDA	Bottom of dry 0.00	(0 - 0)	Visual	---	---	3733167 322957	
25-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 13.6 mile segment in the San Acacia Reach. almost 3 and a half miles of new drying since yesterday							
	20:15 None	just north of US 380 bridge (RM 87.5)	(RM top of dry)	0.00 (0 - 0)	Visual	3755570	328895	---	---	
	18:40 None	just north of south boundary (RM 73.9)	BDA	Bottom of dry 0.00	(0 - 0)	Visual	---	---	3733167 322957	
26-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 13.1 mile segment in the San Acacia Reach. half a mile of rewetted since yesterday							
	7:35	(RM 87)	Top of dry	0.00 (0 - 0)	Visual	3754405	328793	---	---	
	8:05	(RM 73.9)	BOD	0.00 (0 - 0)	Visual	---	---	3733167	322957	

Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)	Bottom (N - E)		
30-Sep-2016			General Comments: The river is dry or reduced to isolated pools over a 4.4 mile segment in the San Acacia Reach. roughly four and a half miles of new drying since yesterday						
	17:30	roughly midbosque in BDA (RM top of dry		0.00 (0 - 0)	Visual	3739635 326417	---	---	
	None	78.4)							
	15:50	just north of south boundary BDA		bottom of dry 0.00	(0 - 0)	Visual	---	---	3733114 328945
	None	(RM 74)							
01-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 4.4 mile segment in the San Acacia Reach. no new drying or rewetting since yesterday						
	16:50	(RM 78.4)	top of dry	0.00 (0 - 0)	Visual	3739635 326417	---	---	
	16:40	(RM 74)	BOD	0.00 (0 - 0)	Visual	---	---	3733114	328945
02-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 6.8 mile segment in the San Acacia Reach. almost two and a half new miles of drying since yesterday						
	16:45	(RM 80.8)	Top of dry	0.00 (0 - 0)	Visual	3743521 328641	---	---	
	15:30	(RM 74)	BOD	0.00 (0 - 0)	Visual	---	---	3733114	328945
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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
03-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 6.8 mile segment in the San Acacia Reach. No significant drying or rewetting						
	17:00	roughly midbosque (RM 80.8)	top of dry	0.00 (0 - 0)	Visual	3743521	328641	---	---
	17:15	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
04-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.6 mile segment in the San Acacia Reach. almost a mile of new drying since yesterday						
	17:30	s of north boundary (RM 81.6)	top of dry	0.00 (0 - 0)	Visual	3744568	328937	---	---
	17:00	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
05-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 8 mile segment in the San Acacia Reach. Roughly half a mile of new drying since yesterday						
	15:15	s of north boundary (RM 82)	top of dry	0.00 (0 - 0)	Visual	3745636	328874	---	---
	16:00	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
06-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.3 mile segment in the San Acacia Reach. roughly .7 miles of rewetting since yesterday						
	15:30	s of norht boundary (RM 81.2)	top of dry	0.00 (0 - 0)	Visual	3744105	328910	---	---
	16:10	n of south boundary (RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
07-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.5 mile segment in the San Acacia Reach. roughly a quarter mile of new drying since yesterday						
	14:30	s of north boundary (RM 81.4)	top of dry	0.00 (0 - 0)	Visual	3744397	328992	---	---
	16:10	n of south boundary (RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
08-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.5 mile segment in the San Acacia Reach. no significant change in river drying since yesterday						
	15:20	s of north boundary (RM 81.4)	top of dry	0.00 (0 - 0)	Visual	3744397	328992	---	---
	15:20	n of south boundary (RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
09-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 7.4 mile segment in the San Acacia Reach. roughly 0.1 miles of new rewetting						
	13:10	s of north boundary (RM 81.3)	top of dry	0.00 (0 - 0)	Visual	3744260	328960	---	---
	14:20	n of south boundary (RM 73.9)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733167	322957
16-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 3.8 mile segment in the San Acacia Reach. 3.8 miles of new drying						
	19:25	s of midbosque (RM 77.8)	top of dry	0.00 (0 - 0)	Visual	3738899	326655	---	---
	19:25	(RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
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Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
17-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.3 mile segment in the San Acacia Reach. roughly 3.5 miles of new rewetting						
	13:45	n of south boundary (RM 74.3)	top of dry	0.00 (0 - 0)	Visual	3733837	323130	---	---
	12:10	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
19-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.5 mile segment in the San Acacia Reach. half a mile of new drying since yesterday						
	12:30	n of south boundary (RM 74.5)	top of dry	0.00 (0 - 0)	Visual	3734115	323210	---	---
	11:15	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
22-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.7 mile segment in the San Acacia Reach. 0.7 miles of new drying since yesterday						
	13:15	n of south boundary (RM 74.7)	top of dry	0.00 (0 - 0)	Visual	3734404	323429	---	---
	11:45	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
23-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 1 mile segment in the San Acacia Reach. 0.3 miles of new drying since yesterday						
	13:15	(RM 75)	Top of dry	0.00 (0 - 0)	Visual	3734999	323897	---	--
	11:45	(RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945

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Date	Time	Location*	Observation Comments	Estimated	Flow	River Drying GIS Coordinates			
				Flow (cfs)	Estimate	(UTM NAD 1983, Zone 13)			
				Avg (Range)	Type	Top (N - E)		Bottom (N - E)	
24-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 3.1 mile segment in the San Acacia Reach. 2.1 miles of new drying						
	14:10	(RM 77.1)	top of dry	0.00 (0 - 0)	Visual	3738067	326359	---	---
	15:00	(RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
25-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.5 mile segment in the San Acacia Reach. 2.6 miles of new rewetting						
	14:10	(RM 74.5)	top of dry	0.00 (0 - 0)	Visual	3734136	323295	---	---
	15:00	(RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945
28-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.2 mile segment in the San Acacia Reach. 0.2 miles of new drying						
	15:00	(RM 75.2)	top of dry	0.00 (0 - 0)	Visual	3735234	324102	---	---
	14:50	(RM 75)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3735010	323907
29-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 0.7 mile segment in the San Acacia Reach. 0.7 miles of new drying						
	16:50	(RM 74.7)	top of dry	0.00 (0 - 0)	Visual	3734383	323404	---	---
	16:00	(RM 74)	top of dry	0.00 (0 - 0)	Visual	---	---	3733366	322963

Date	Time	Location*	Observation Comments	Estimated Flow (cfs) Avg (Range)	Flow Estimate Type	River Drying GIS Coordinates (UTM NAD 1983, Zone 13)			
						Top (N - E)		Bottom (N - E)	
30-Oct-2016			General Comments: The river is dry or reduced to isolated pools over a 5.1 mile segment in the San Acacia Reach. 4.4 miles of new drying						
	12:50	Midbosque (RM 79.1)	Top of dry	0.00 (0 - 0)	Visual	3740940	327202	---	---
	13:00	(RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945

31-Oct-2016 **General Comments:** The river is dry or reduced to isolated pools over a 2.5 mile segment in the San Acacia Reach.
2.6 miles of new rewetting

	12:50	midbosque (RM 76.5)	top of dry	0.00 (0 - 0)	Visual	3736982	325726	---	---
	13:00	n of south boundary (RM 74)	bottom of dry	0.00 (0 - 0)	Visual	---	---	3733114	328945

* For reference, the Los Lunas Bridge over the Rio Grande (NM 49) is at river mile 161.4, the Los Chavez Wasteway is at river mile 156.7, the Peralta Wasteway is at river mile 152.5, and the Belen Bridge over the Rio Grande (NM 6) is at river mile 149.5, U.S. Highway 380 is at river mile 87.1, South Boundary Bosque del Apache Refuge pump channel is at river mile 73.7, and Fort Craig is at river mile 64.8.

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**APPENDIX B. SPREADSHEET ACCOUNTS OF 2016 RIVEREYES
OBSERVATIONS**

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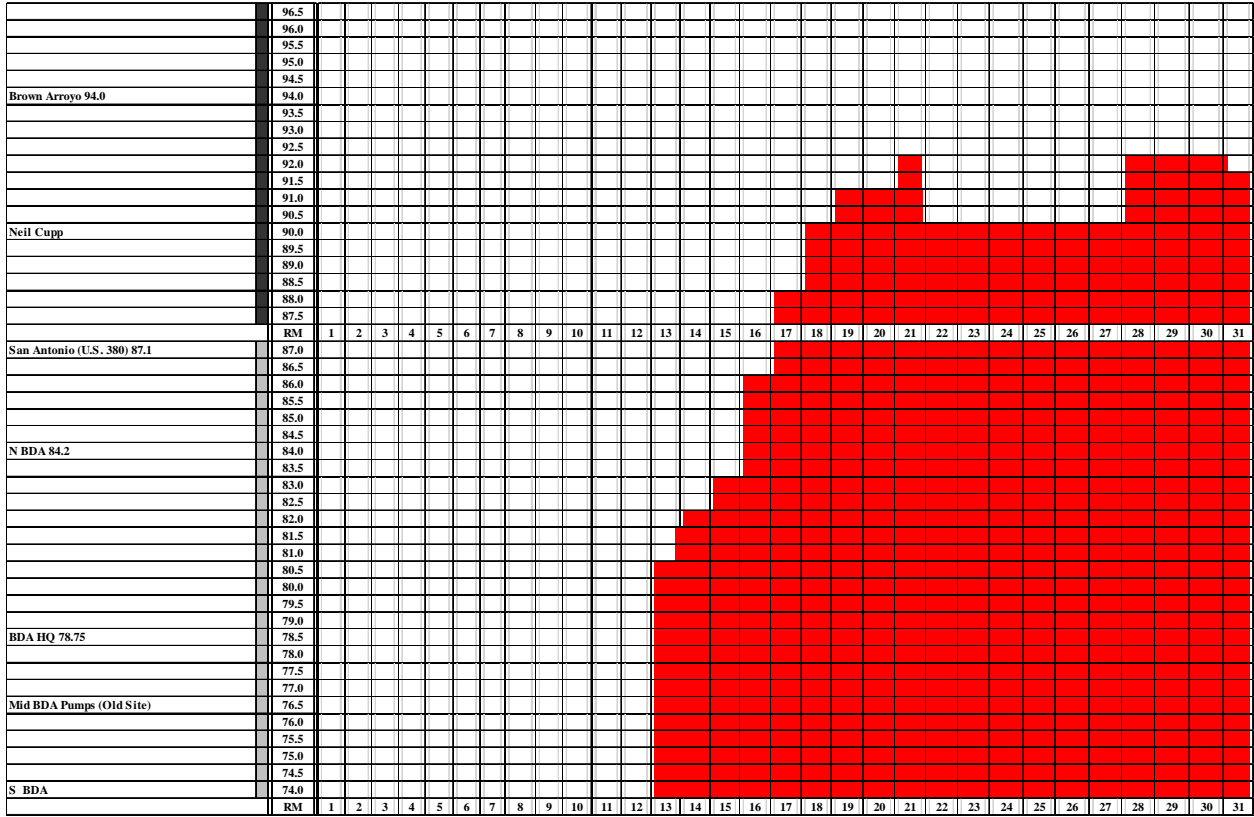


Figure A.1 River Drying in the San Acacia Reach for July 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

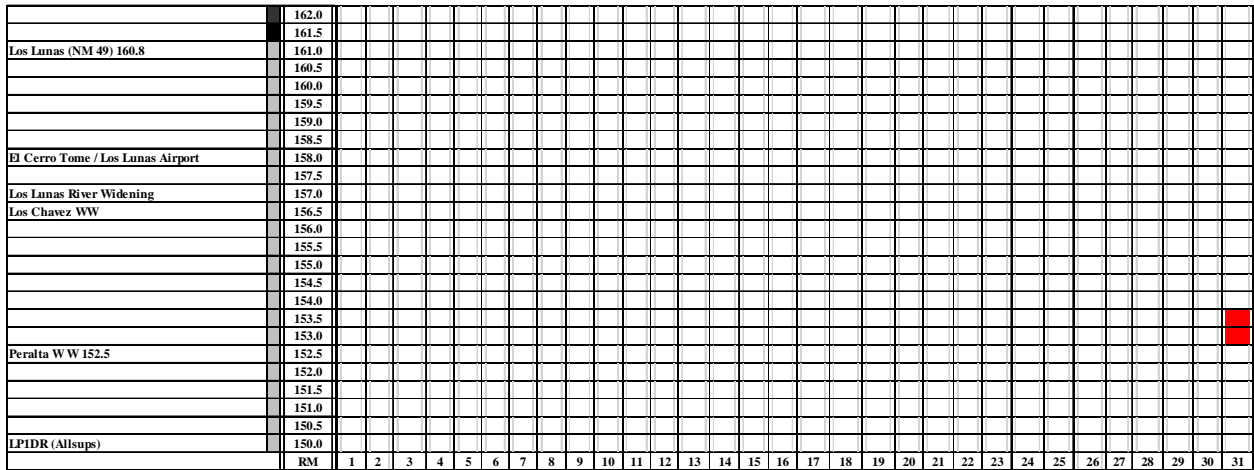


Figure A.2 River Drying for the Isleta Reach in August 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

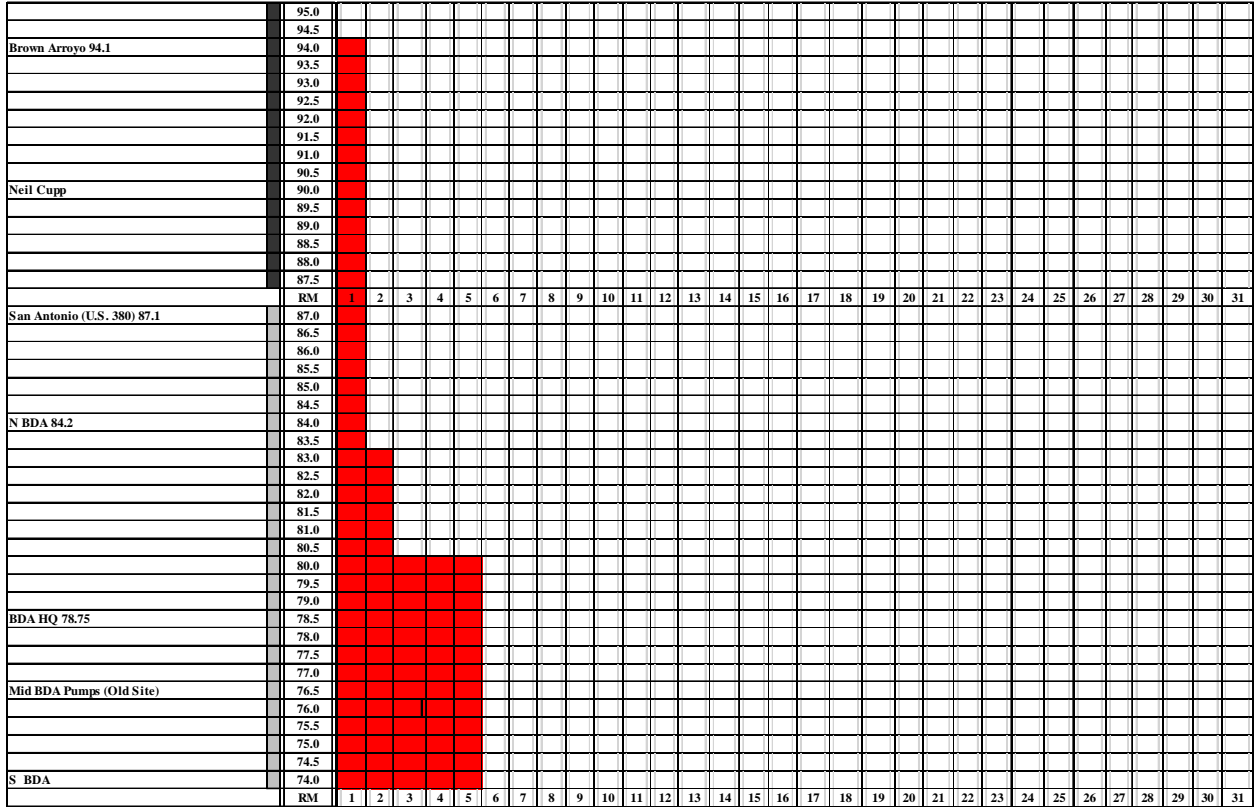


Figure A.3 River Drying in San Acacia Reach for August 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

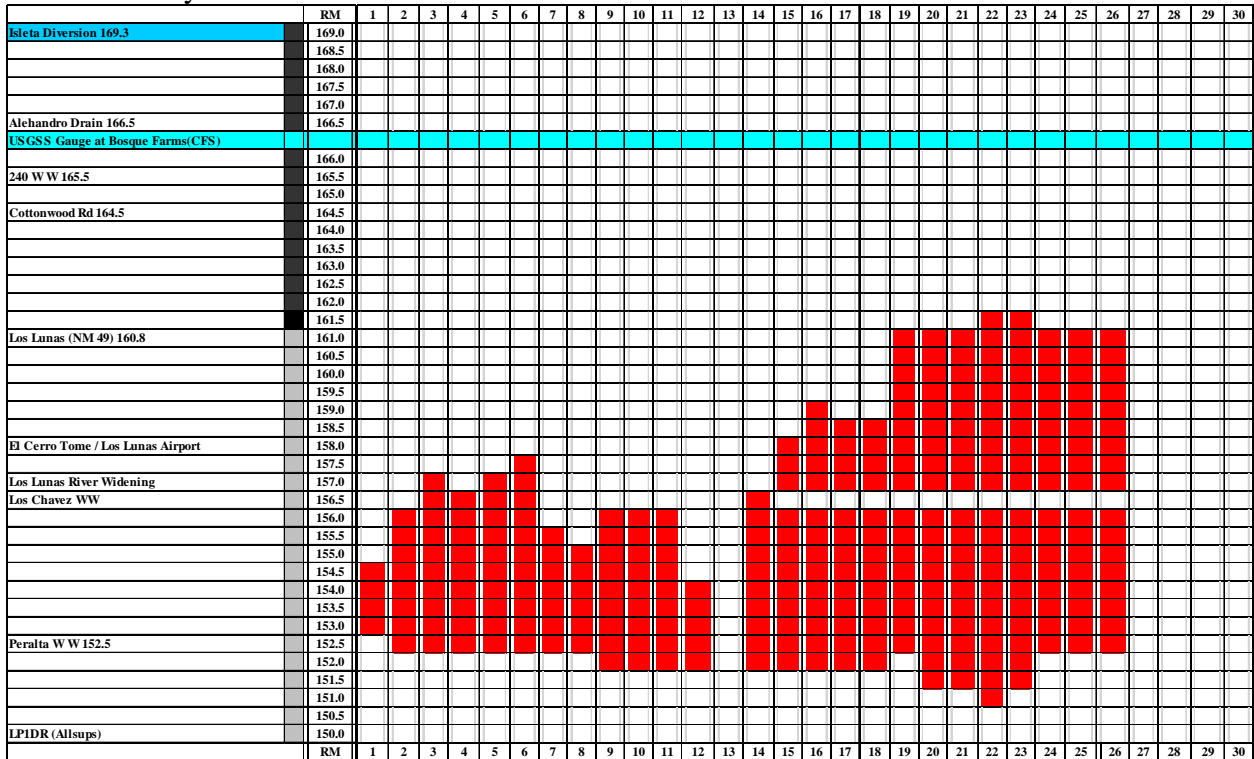


Figure A.4 River Drying in Isleta Reach for September 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.



Figure A.5 River Drying in San Acacia Reach for September 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

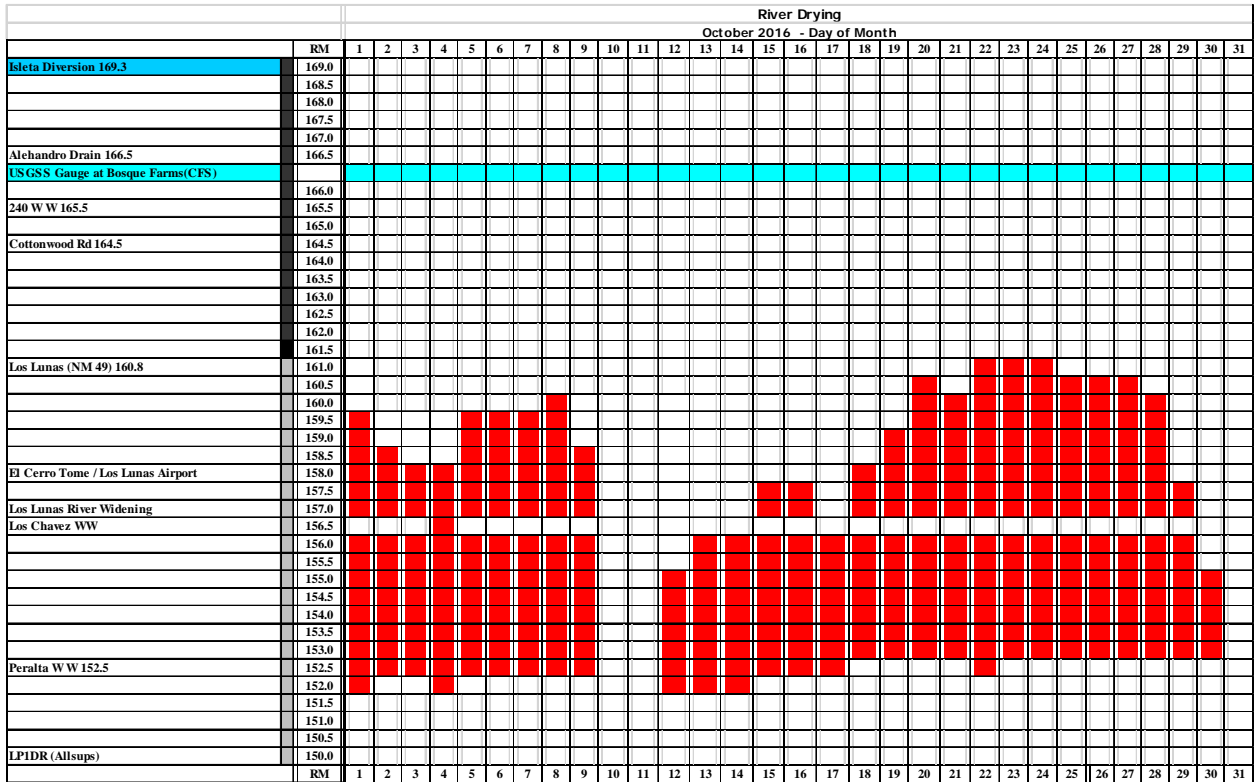


Figure A.6 River Drying in Isleta Reach for October 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

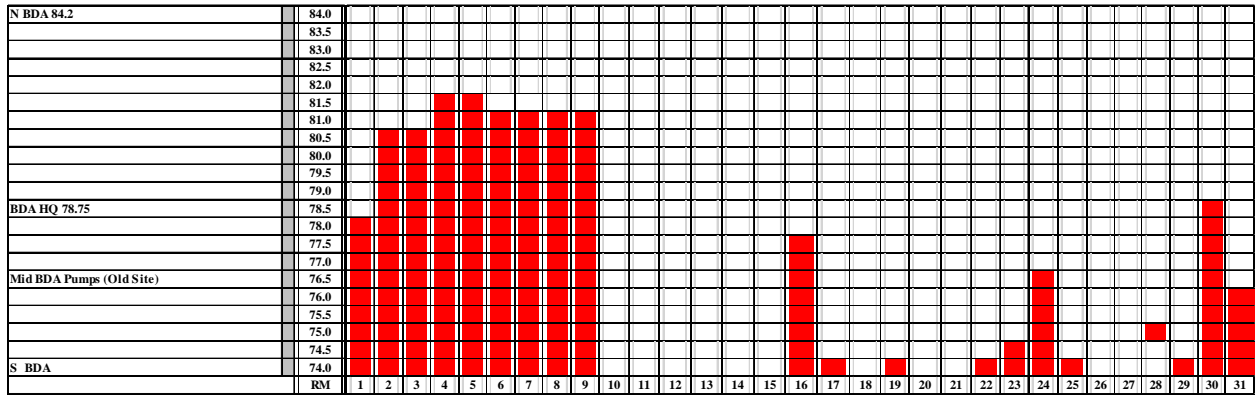


Figure A.7 River Drying in San Acacia Reach for October 2016 with River Miles denoted on the X-axis and day of the month on the Y-axis.

**APPENDIX C.
SAFETY DOCUMENTS**

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JOB HAZARD ANALYSIS FORM (JHA)

Version 10a

Project Name: River Eyes Monitoring Support 2016	Project Manager: Jesse Shuck <i>River Eye</i>	Project Number: 026071.03	Project Start Date: 4/1/2016	Project Address / Lat + Long Bernalillo, Valencia and Socorro counties
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PM Author Name (list other contributors): Franchesca Lucero	Project Field Work Description: Monitor flow conditions and document river drying	Project Location Directions: Rio Grande corridor between Albuquerque and Elephant Butte Reservoir
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The JHA form must be prepared prior to the start of any field work and may be modified in writing when environmental or administrative conditions change. Crew members should identify additional hazards and notify their Field Lead and coworkers immediately as conditions change. The Project Manager has ultimate responsibility for the proper planning of field work. Per OSHA and certain state laws, the Field Supervisor has ultimate responsibility for the safe execution of field work and can be held personally responsible for negligence.

SECTION 1 PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

SWCA Standard PPE for Field Work

Note: A decision to deviate from these standards may only be made with written approval by the Project Manager under the Project specific exceptions section below.

- **Eye Protection** – Protective eyewear must be carried at all times and worn in areas where vegetation or other hazards are at or above eye-level.
- **Gloves** – Gloves must be carried at all times and must be worn whenever faced with the risk of blisters, lacerations, abrasions, and punctures (i.e.: vegetation, rocky terrain, operating equipment, etc.). Leather gloves are the standard; however, certain conditions may require specialized gloves (i.e.: chemical-proof, heat resistant, cold weather, etc.).
- **Footwear** – Ankle-protecting hiking boots are SWCA's standard. Some projects may require a deviation from this standard (i.e.: steel-toed boots, river shoes, etc.). Flip flops are never permitted.
- **Shirts/Pants** – Long-sleeved shirts and pants are standard clothing for field crews, as they provide protection from many hazards such as poison ivy/oak, lacerations/scratches, sunburns and cold weather conditions. Sleeveless shirts are not permitted.
- **Safety Vests** – Reflective safety vests are required when operating around heavy equipment or roadways, or as required by clients. Safety vest classifications (I, II, III) depend on project specific hazards
- **Hearing Protection** - Should be used when working near loud equipment and must be able to reduce the sound to 85 db or less.
- **Head Protection** - Baseball hat or head covering providing shade should be worn for general outdoor work in open areas that have minimal risk of head injury. Winter hats designed to retain heat should be worn when working in cold weather. ANSI-approved (Z-89.1) hard hats must always be worn when working near heavy equipment or when head-strike hazards are present (or if required by the client/contract). DOT-approved (49CFR571.218) helmet must be worn when operating ATVs. Climbing helmets must be worn according to SWCA's 'Slope Guide' reference card.

PM PPE Assessment	Required?
Hard Hat	<input checked="" type="checkbox"/>
Safety Vests	<input type="checkbox"/>
Ear Protection	<input type="checkbox"/>
Long-Sleeved Shirts	<input type="checkbox"/>
Over-Ankle Hiking Boots	<input type="checkbox"/>
Wading Boots	<input type="checkbox"/>
Steel-Toe Boots	<input type="checkbox"/>
Work Gloves	<input type="checkbox"/>
Safety Goggles	<input type="checkbox"/>
Fire Resistant Clothing (FRC)	<input type="checkbox"/>
Sun Protection	<input type="checkbox"/>
Dust Mask (3M)	<input type="checkbox"/>
Eye Protection	<input type="checkbox"/>
Safety Glasses	<input checked="" type="checkbox"/>
Gloves	<input type="checkbox"/>

Required carry at all times (Worn according to hazards)
Safety Glasses
Gloves

Project Specific PPE Requirements or Exceptions to SWCA Standards : It may not be possible to wear ankle-protecting hiking boots when it is advisable to wear wading boots or chest waters. A motor cycle helmet is more appropriate for this project as opposed to a "construction-site hard hat".

Overall Risk
2B
1A
1D
1B
2B
2C
1D
3D

	Respiratory failure, Poison ingestion	information. Avoid cylinder shaped objects sticking out of the ground or attached to a stake or heavy object. These could be illegal coyote-getters, which are laced with cyanide or other poison and detonate when tugged or pulled.			
General - Dangerous or Violent Individuals	Personal injury / Mental stress	Be conscious of potentially dangerous or violent individuals or groups. Do not confront or approach dangerous individuals. If you feel threatened, call 911 and contact your Project Manager/Office Director immediately (management should inform local law enforcement once employees are safely out of the field). To avoid possible landowner confrontational issues, ensure that the landowner has been notified in a timely fashion and that their acknowledgment of such notification is formally documented (i.e.: who made the notification, when, and what the response was). The Client or whoever did the notification must confirm that such actions have been taken by email, etc. If situation allows attempt a courtesy notification to further ensure no misunderstandings. Should one occur, do not argue; rather, politely withdraw and notify client. As a last resort, consider carrying pepper spray, and know how to use it. SWCA does not as a general rule provide pepper spray to employees. If an employee chooses to carry pepper spray on their own free will, they must thoroughly read the instructions and report to their supervisor that they intend to carry such a device, and be able demonstrate knowledge on its proper use (without discharging it). A Principal or Office Director may choose to provide pepper spray to employees, but by doing so they must provide formal training on its proper use before allowing an employee to carry it (insert link to video), and a training acknowledgement form must be submitted to safetytraining@swca.com upon successful completion.	2	C	
General - Working in Unfamiliar Areas (getting lost)	Disorientation, Various other hazards	Employees should be aware of surroundings and should inform others of their destination for the day. Always carry a map, compass, matches/lighter, more water than you need for the day, and signaling device (mirror, air horn, and whistle). Before leaving your vehicle, mark a waypoint on your handheld GPS so you can find your way back at the end of the day. If you have no cell phone coverage, do not panic. Before moving, trace your thoughts back to the last point where you definitely knew your location, how long ago that was and in what general direction you traveled since then. Retrace your original path before you got lost. If no success – create a physical or a sound signal. Insulate yourself and wait for help to arrive.	1	D	
General - Seasonal Allergies	Rash, Difficulty breathing, Vomiting, Cramps, and Eye irritation	Be aware of pollen count in survey area. Use preventative medicine such as antihistamines to reduce hazard of environmental pollen (as always, check with your doctor before taking any medication). If your doctor advises you to carry an EpiPen due to a potentially severe allergic reaction, make sure those around you know how to assist you and where the EpiPen is located.	3	D	

RiverEyes Observations for 2016

General - Heat Stress	Heat Exhaustion, Heat Stroke, Dehydration, Sunburn, Long term health risks (Cancer)	Heat exhaustion is caused by the loss of large amounts of fluid by sweating, sometimes with excessive loss of salt. A worker suffering from heat exhaustion still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. In more serious cases, the victim may vomit or lose consciousness. The skin is clammy and moist, the complexion is pale or flushed, and the body temperature is normal or only slightly elevated. In most cases a treatment involves having the victim rest in a cool place and drink plenty of liquids. Victims with mild cases of heat exhaustion usually recover spontaneously with this treatment. Those with severe cases may require extended care for several days. There are no known permanent effects. Wear sunscreen, hat, and sunglasses to help avoid heat stress.	1	D	1D
General - Dehydration	Dehydration	Workers should drink 5 to 7 ounces of fluids every 15 to 20 minutes (1 gallon per person per day) to replenish the necessary fluids in the body. Include both water and electrolytes as needed. Signs of dehydration include thirst, lack of urination and concentrated color, dry mouth, lack of tears, no sweating, muscle cramps, and nausea and vomiting. Fluid replacements may be attempted by drinking frequent, small amounts of clear fluids.	1	C	1C
General - Hiking & Working Remotely	Communication hazards, Head/Neck injuries, Various other hazards	Let others know the general location of your field work. Carry tools in hand, facing downslope, so they can easily be discarded. Wear boots with non-skid soles. Make sure your footing is secure. Test each step. Be careful going downhill, especially after a long day. Try to keep one hand free while traversing up or down steep slopes. Wear appropriate footwear and clothing to ensure protection. If you fall, roll with the fall. Establish secure footing before taking the next step. Start a regimen of whole body stretching to improve muscle tone and flexibility. Know your weak spot (i.e.: recurring wrist or ankle pain, a shoulder that's often sore or a "bad" back indicate areas at risk). Be sure to warm up (20 jumping jacks) and stretch muscles before engaging in rigorous activity—avoid stretching or straining cold muscles. For guidance on stretching exercises, refer to the guideline MySWCA, or the reference card.	2	C	2C
General - Blisters	Blisters, Infection, Fatigue	Break in boots before field work. Do not remove or rub off the top of the blister. Before your blister grows and ruptures, apply a blister bandage. This will pass the friction to the bandage rather than your skin. The most important part is to do this before the blister gets unbearable. If the blister ruptures, apply antibiotic ointment, but avoid alcohol or iodine. Change the gauze or bandage daily.	2	C	2C
General - Steep Inclines/Declines (rock outcrops, cliffs, downed trees & steep drainages)	Slips, Trips, Falls, Head / Neck injuries, Cuts, Bruises, Broken bones	Travel on the contour; do not attempt to scale or descend rock outcrops. Consider all rock outcrops unstable, and do not depend on them to support your weight. Test every step to uncover loose rocks, unstable soil, or slick surfaces, as they may be slippery. Downed trees are often extremely slippery or unstable and it is best to avoid stepping on or straddling them. Grasp rooted brush to avoid uncontrolled slides.	1	C	1C
General - Surveying (cutbanks and cliffs)	Slips, Trips, Falls, Head / Neck injuries, Cuts, Bruises, Broken bones, Cave-ins	Be mindful of cutbanks and friable soils. Even if a bank looks stable, it may be seriously undercut and additional pressure could cause mass cleavage and a slide/fall of the bank. Vehicles should remain at least 25 feet from cutbank edge, and persons walking should remain several feet away from areas where mass wasting or other erosion factors are observable.	1	C	1C
Vehicle - Automobile	Minor to severe personal injury, Multiple person injury, Fatality, Fire, Fatigue, Civil and criminal hazards	<ul style="list-style-type: none"> • Complete SWCA Daily Vehicle Inspection Log. Address any delinquent issues identified during inspection. Wear seatbelts. Drive defensively. Use lights & flashers when appropriate. While driving in rough terrain, stop vehicle, walk ahead of the vehicle for a short distance to identify hazards and look for areas to turn around, etc. Secure all loose objects in the passenger area or store in a separate storage area. Know the symptoms of fatigue. Take frequent breaks when driving long distances. Do not drive more than three hours without a break. • Park vehicles in locations that do not impede traffic flow. Back vehicles into parking slots when possible. Use spotter when the view of the parking area is obstructed. Do not breach berms or otherwise restricted roads. Do not park in arroyos or other areas prone to flash flooding when storms are likely. Follow the guidelines of "Tread Lightly." • Vehicles traveling on unimproved roads may accumulate excessive amounts of dry vegetation on the undercarriage, resulting in potential fire danger. To prevent this, field personnel will visually inspect the undercarriage of parked vehicles and remove vegetation when necessary. Field vehicles will also be parked in areas with sufficient vegetation clearance to prevent vehicle fires. 	3	C	3C
Vehicle - All Terrain Vehicle (ATV)	Minor to severe personal injury, Multiple person injury, Fatality, Fire, Fatigue, Civil and criminal hazards	<p>Prior to riding, all employees must complete SWCA's ATV training located on MySWCA. Complete SWCA Daily ATV Inspection Log. Wear proper PPE (a helmet is required). Do NOT carry passengers unless the ATV is designed to do so. Use extra caution if road or environmental conditions change. Be aware of your surroundings. Give special attention to terrain features such as roads, slopes, canals, ditches, blind intersections, trees, shrubs, other vehicles. Don't traverse a hill sideways, always climb straight up or straight down. If you are in a situation where you need to cross pitched terrain (having a distinct change in camber from one side of the vehicle to the other), always lean towards the upslope direction to avoid rollovers. If you're not sure of the trail conditions, be prepared for the worst and consider walking, if feasible.</p> <p>To avoid damage to the truck wall in front of truck bed and rear window, place a barrier of some sort such as 2-4 old rubber tires that can absorb the impact of the ATV if it goes too far in loading or shifts in transport. Never push ATV up a ramp alone.</p> <p>Consider installing a winch or carrying a come-a-long with added recovery straps.</p> <p>Drive up ramps carefully wearing all PPE necessary (i.e.: helmets and gloves, etc.).</p>	5	B	5B

RiverEyes Observations for 2016

Equipment - Carrying Field Equipment	Slips, Trips, Sprains, Strain, Cuts, Scratches, Back injury, Heat Exhaustion/Stroke, Fatigue	Employees shall not carry objects greater than 40lbs. (or any other weight that could result in injury) or greater than 6 feet without the aid of a mechanical device or the assistance of another employee. Watch for uneven surfaces or objects on the ground. Wear gloves where potential pinch points occur or where objects are able to cut you. Use any other applicable Personal Protective Equipment (PPE) as needed.	3	C	3C
Equipment - Loading Equipment (on/off vehicles)	Slips, Trips, Sprains, Strain, Cuts, Scratches, Back injury, Fatigue, Crushing hazard	Employees will secure all loads in or on vehicles using ropes, tie-downs, tarps, bungee cords, or other appropriate securing materials to keep load/equipment from shifting or falling.	3	D	3D
Site Condition - Traversing Slopes	Slips, Trips and Falls causing sprains; Broken bones and concussions; Loose falling rocks causing head trauma	Traversing steep slopes can be hazardous and cause premature fatigue. It is important to always assess steep slopes for safety. Alternate routes should be taken when possible. Consider: length of hike, number of difficult pitches (slope changes), difficulty of hardest pitch, average pitch difficulty, commitment level to finish hike (point of no return), ascent and descent time, terrain (i.e.: mud, scree, talus, grassland, thick vegetation). Review topographical maps: Avoid steep descents/inclines. Wear hiking boots that support and protect your ankles and feet. Consider hiking poles for footing stability and stability of the path ahead. Keep poles pointed away and to the sides of your body. Slow your pace, keep your steps short, and your weight over your feet. Stay focused on foot placement. Steep slopes: use a "side-wide" gait; stepping slightly to the side, whether up or down, helps balance and prevents knee stress. After the first step, step wide to the opposite side; feels natural as you distribute your weight into a wide stance. In descent, keep your knees slightly bent and your center of gravity low. On descent, if hands are needed for balance, face the slope. Zigzag or switchback when possible to reduce strain and fatigue; also reduces your partner from hiking in your "rock shadow", the area below in the path of rolling/falling rocks. Watch ahead and avoid wet or icy obstacles such as rocks, trees and mud. Think ahead what you'll do if you start to slide - prepare for it. If falling, do not try to "catch" yourself; try to avoid landing on your hands, elbows or knees. Landing on the side of your body is much safer. Scree is a loose slope of small rock fragments; talus is rock fragments large enough to step on individually. Fatigue slows your awareness and preparedness to hike safely; slopes will decrease your distance output and efficiency after a 15% grade incline. Use the Yosemite Decimal System (YDS) to assess slope class and plan routes. Grade is represented by percentage (%) and Slope is represented in degrees (°).	1	B	1B
Site Condition - Crossing Water (arroyos, flash floods, rivers and streams)	Drowning, Hypothermia, Trip hazard, Vehicle / Equipment loss	If thunderstorms and / or heavy rain occur, move immediately to higher ground and do NOT cross any arroyos or small streams. Be aware of storms in the mountains that may result in flash flooding in locations some distance from the storm center. Do not cross fast flowing water. Find a wrist thick shoulder height stick to test the water depth in front of you; this can also be used as support, enabling you to keep two points of contact with the river bottom at all times. Loosen your pack so you can get it off quickly if you fall. Face slightly upstream on an angle and sidestep—do not cross your legs. If you are in a group, hold onto each other and cross in a "conga line," angling upstream, with the weaker hikers in the middle. For fast/moderately fast flowing water, cross if less than just above the knee-deep and you can see/feel the bottom (use a stick). For slow flowing water, cross if less than waist deep; do not cross unless necessary. If water is impassable, find a shallow spot to cross, if you can't find a safe place and your life does not depend on you crossing, turn around and go back.	5	D	5D
Site Condition - Wet Soil	Trip hazard, Hypothermia, Cultural integrity compromise	Some soils are extremely hydric and, if saturated, can create conditions where off-road vehicles can become stuck – even with a small amount of precipitation. Driving in conditions like these can cause deep rutting in roads and may damage vegetation, leading to erosion or loss of habitat. Driving should be avoided in these conditions; however, walking in these conditions can also provide similar difficulties. Any work on or near cultural resource sites can leave deep footprints and may affect site features or integrity. In very wet conditions, fieldwork should be suspended for a day or more to avoid affecting cultural resource sites.	5	D	5D
Site Condition - Barbed Wire Fence	Electric Shock, Cut / Puncture / Laceration hazard, Trip hazard	Choose safe crossing points and techniques. Team members should always assist each other. Be sure to wear appropriate leather gloves when handling barbed wire. Wear appropriate clothing to protect against punctures, cuts, and lacerations by wire or post. When possible, as a first option, employees should crawl under barbed wire fences if spacing allows. Use caution when crossing fence for trip hazards. Cautiously use boot to apply weight to fence to determine if it is strong enough to support weight before climbing over it. Ensure the posts are not in a position to impale or cause harm while crossing. Always wear gloves when handling a fence. Keep tetanus shots current in case of laceration.	1	B	1B
Site Condition - Electric Fence	Electric shock, Cut / Puncture / Laceration hazard, Trip hazard	Know what electric fencing looks like; look for signs. To determine if electricity is on, place a long blade of grass on the fence to see if it snaps.	2	D	2D
Site Condition - Dense Vegetation (scratches from brush and trees)	Scratches, Eye trauma, Ear trauma	Be aware of potential hazards. Wear appropriate clothing to protect the skin. When moving through dense woody vegetation, always wear long sleeved shirt, long pants, closed toe shoes, safety glasses and gloves. Carry personal first aid kits. Recognize hazardous vegetation and avoid contact.	5	C	5C

RiverEyes Observations for 2016

Site Condition - Toxic Plants (Poison Ivy or Poison Oak)	Scratches, Eye trauma, Ear trauma, Toxic / Poisonous / Irritant plants	Carry personal first aid kits containing Calamine lotion. Recognize hazardous vegetation and avoid contact. Apply Ivy Block to exposed skin repeatedly while in infested area. Dispose of covers/gloves safely. Decontaminate entire body. Apply Tecnu cream for two minutes then wash off with copious amounts of water. BE AWARE: toxins may have transferred to clothing, backpacks, vehicle interiors and hotel rooms. Be sure to use caution when handling potentially exposed clothing, tools and equipment.	3	D	3D
Animal - Insect Bites & Stings	Irritation, Bite / Sting, Infection, Allergic reaction, Disease	<ul style="list-style-type: none"> DEET can be applied to either exposed skin or clothing. It should not be applied to skin that is covered by clothes. Do not apply insect repellent over cuts, wounds, or inflamed or eczematous skin. Under most circumstances of casual use, 10% - 35% DEET will provide adequate protection. In conditions where there is a rapid loss of repellent from the skin due to wash off from rain, perspiration, or high ambient temperatures, periodic reapplication is suggested. Use a bug net that covers exposed skin. If bitten, use antihistamines to control symptoms. If your doctor advises you to carry an EpiPen due to a potentially severe allergic reaction, make sure those around you know how to assist you and where the EpiPen is located. The sting of these insects is caused by the insects utilizing self defense or defense of the nest response, so avoid all nests when possible. If a bee stings you, remove the stinger by scraping away the stinger sideways along the sting using a needle or credit card (do not squeeze with tweezers, it will cause more venom to come out). 	3	D	3D
Animal - Tick Bite	Irritation, Infection, Disease	Frequently check for ticks—if you can catch them within 24 hours there is 0% chance of contracting Lyme Disease. Use fine tweezers to grasp the tick as close to the skin surface as possible. Pull backwards gently but firmly, using an even, steady pressure. Do not jerk or twist. Do not squeeze, crush, or puncture the body of the tick, since its bodily fluids may contain infection causing organisms. After removing the tick, wash the skin and hands thoroughly with soap and water. If any mouth parts of the tick remain in the skin, these should be left alone; they will be expelled on their own. Attempts to remove these parts may result in significant skin trauma. Seek medical attention should the bite become infected.	2	D	2D
Animal - Snake Bite	Puncture wound, Toxin exposure, Infection, Allergic reaction, Loss of limb, Death	Watch where you step and sit when outdoors. Wear loose, long pants and snake gaiters. If gaiters are not available, then calf high, thick leather or rubber boots should be worn. Use a flashlight when walking at night. Never handle a snake, even if you think it is dead. If bitten, remain clam and take off any jewelry or tight clothing near the bite quickly, before swelling starts. Clean the bite wound with antiseptic wipes or soap and water. Be sure to wipe in the direction away from the wound. If you think the bite was from a venomous snake, get to a hospital as soon as you can. If medical help is more than 30 minutes away, tie an elastic wrap two inches above the bite to slow circulation to the area; overly tight tourniquets should never be used as these can block arterial blood flow to the affected area and worsen tissue damage. The wrap should be loose enough to slip a finger underneath it. Do NOT bleed the wound. Do NOT try to suck the venom out of the wound. Do NOT put ice on the bite.	2	A	2A
Animal - Bear Encounter	Laceration, Severe head & body trauma, Death	Always work in groups of two, at a minimum. Be sure that you have radio or phone communication with other groups, so that they can let you know if they see bears or bear sign in the area. Make noise while working, ie. so that the bears can hear you coming and you don't take them by surprise, if they're in the area. Never make eye contact with bears. If possible, get closer to your work partner and make yourselves look large, raise arms, make noise, and leave area slowly without turning your back.	1	A	1A
Animal - Bear Spray Usage	Laceration, Severe head & body trauma, Death	The best defense is to not get within ¼ mile of bears, if possible. If a bear confrontation is possible (or probable) and bear spray is to be used observe the following guidelines: <ol style="list-style-type: none"> Use bear spray only. Other pepper sprays will be ineffective. Be sure spray has not expired and is at least in a 7.9 oz. can. If possible have a backup canister available but in either case the spray canisters have to be readily accessible (on your person) as you may only have seconds to react. Be sure to disengage safety mechanism. Begin to spray charging bear at a minimum of 25 feet—any further and spray will be less effective, any closer will reduce the time that the spray will take to effect the bear. Spray for at least 6 seconds. Spray downwind, if you have the option. Aim at face, particularly the eyes and nose, unless it is of the Fog type spray in which case aim lower and to the front of the bear to allow the fog to billow up. After initial bursts, back away while releasing a few period bursts of spray to cover your withdrawal. 	1	A	1A
Animal - Bear Spray Exposure	Rash, Difficulty Breathing, Vomiting, cramps, and Eye Irritation	VERY IMPORTANT!! Check the trigger safety on yourself and field partners multiple times throughout the day. If bear spray is accidentally released or blown back on user after sprayed, rinse thoroughly with soap and water, change clothing (if necessary), and leave the field for the day. If possible put the affected clothing in a sealed plastic bag. Bear spray can act as a bear attractant, once sprayed.	1	C	1C

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Animal - Mountain Lion	Laceration, Severe head & body trauma, Death	Avoid working when mountain lions are most active—dawn, dusk, and at night. Do not approach a mountain lion. If you encounter a mountain lion, do not run; instead, face the animal, make noise and try to look bigger by waving your arms; throw rocks or other objects. If attacked, fight back. If you witness a mountain lion attacking someone, immediately call 911.	1	A	1A
Animal - Endangered Species	Citation	With fieldwork, you must avoid nesting locations. Coordination must be made with appropriate governing agencies to be compliant while surveying.	5	C	5C
Animal - Stray / Wild Dog	Laceration, Severe head & body trauma, Disease	Stay away from dogs. Do not run if confronted, back away slowly using a calm, low voice, and remain calm. Carry pepper spray and have it readily accessible. Look for a defense weapon. Carry and know how to properly use pepper spray. SWCA does not as a general rule provide pepper spray to employees. If an employee chooses to carry pepper spray on their own free will, they must thoroughly read the instructions and report to their supervisor that they intend to carry such a device, and be able demonstrate knowledge on its proper use (without discharging it). A Principal or Office Director may choose to provide pepper spray to employees, but by doing so they must provide formal training on its proper use before allowing an employee to carry it (insert link to video), and a training acknowledgement form must be submitted to safetytraining@swca.com upon successful completion.	5	B	5B
Animal - Horse & Livestock	Blunt force trauma, Paralysis, Fall hazards, Goring / Lacerations	Whenever possible, ask landowner to confine horses / livestock outside of the project area. Stay a safe distance away from animals. Avoid calves and separating them from their mothers. Avoid isolating one animal from the group. Never trust a bull.	1	A	1A
Special - Chainsaw	Severe laceration, Loss of limb, Death, Eye injury, Hearing loss (STS), Back strain	Use proper chainsaw technique. Be aware of the direction trees will fall when cut. Make sure all field crew members are outside fall zone and away from person using chainsaw. Wear appropriate chainsaw protective gear. Make sure that the chainsaw is in working order before operation. Be aware of sharp stumps and trip hazards once trees have been removed. Be aware of all chainsaw activity in the area.	5	B	5B
Special - Excavation (Surface)	Splinters, Blisters, Cuts, Lacerations, Back strain, Tripping hazard	Wear gloves while digging and screening matrix. Watch for broken glass and sharp metal objects on ground surface and while screening to avoid lacerations. Avoid putting unnecessary strain on back while digging and screening by maintaining proper posture and using legs to lift. Do not lift and twist simultaneously.	3	D	3D
Special - Excavation (with machinery)	Explosion, Fire, Asphyxiation, Electrical shock, Cave-in, Fall & Trip hazards, Heavy equipment hazard	Before you dig (to avoid explosion, fire and electrical shock): Notify state and local utility location services at least 72 hours prior to breaking ground to receive a Dig Permit. This is commonly known as "Blue staking". Ensure all utilities are either located and marked or determined to not be in the area. During excavations (to avoid asphyxiation and cave-in): Never enter a trench deeper than 1.2 m deep (4') without a safe exit (i.e.: ladder or slope). Excavations deeper than 1.5 meters (5') require a protective system such as sloping, shoring and benching. Excavations 1.5 meters or greater must be monitored for soil conditions and hazards by a competent person daily and any time conditions change. All spoils, equipment or tools must be backset from the edge a minimum of 2'. Hand dig within 3 feet of known utilities. Report all utilities that are struck or damaged to the project supervisor and the utility owner (pipe and cables can be damaged with no visible signs and must be safety tested). All trenches will be backfilled and leveled upon completion of excavation and returned, as much as possible, to its original state and not left exposed overnight.	1	E	1E
Special - Roadway Work (working in the Right of Way)	Severe laceration, Loss of limb, Death, Eye injury, Visibility hazards, Crushing hazards	Utilize safety clothing, cones, and other traffic control measures. Wear hard hats and vests at all times. Park vehicle off side of road and clearly post signs and cones, if needed. Look both ways if crossing road. Do not cross in low visibility area; walk to high visibility area to cross, and double check, if necessary.		C	C
Special - Solo Fieldwork	Communication hazards, Various other hazards	Solo Fieldwork Policy (outside of populated areas): (Non-Populated Areas) Solo fieldwork should be avoided whenever possible. Exceptions are allowed only when: <ul style="list-style-type: none"> the fieldworker will have reliable cell phone (or satellite phone) coverage the entire time, the fieldworker is either working close enough to a city or town that emergency response could arrive quickly (within say 20 min or so), or working with/near non-SWCA personnel who are capable of providing assistance if needed (e.g., monitoring a construction crew), and the terrain, roads, work methods, environmental conditions, etc. are safe for solo fieldwork. In addition, a communication plan must be established in advance to ensure that the worker will be reasonably safe. Each office must have a detailed plan. Solo Fieldwork Policy (in populated areas): (Populated Areas) For solo fieldwork in town (populated areas where people are typically present to help or call for help in an emergency), the PM and the fieldworker must still have a process for checking in, at a minimum to confirm that the fieldworker got back to work/home safely at the end of the day.	5	D	5D

RiverEyes Observations for 2016

Site Condition – Water Hazards Cold/Frozen/Stagnant Waters	Infections, Waterborne diseases and hypothermia from overexposure to cold water and falling through ice	Stagnant Waters: Rivers, canals, drains, ditches, reservoirs, and lakes may not always have the highest water quality. Often, these waterways contain bacteria and other pathogens or pollutants. It is important for field crewmembers to have a basic understanding of the water quality within the area where they are working. Review the following information: Wash your hands often. Keep a supply of waterless antibacterial hand cleaner available. Clean hands before eating or touching the mouth in any way. Be wary of entering contaminated waters with open wounds or rashes. If you have a compromised immune system, skin sensitivities, or prior exposure to water borne illnesses, do not enter the water without protection (waders, etc.). Continuously monitor your skin and body for tell-tale signs of infection. After water work, wash all clothing thoroughly and segregated from other clothing, air out footwear, etc. Be sure to find out about possible upstream contamination hazards. Extremely cold water: Avoid entering extremely cold water. Review signs of hypothermia in the First Aid section of the manual when working in or around these conditions. Frozen bodies of water: Never go on ice without first checking the local conditions including recommended ice thickness, temperature, etc.	3	D	3D
IT - Lifting heavy equipment	Lifting heavy equipment	Extreme caution must be exercised when handling heavy equipment when the weight is 40 lbs. or more, or dimensions that make it awkward to handle and / or lift. Do the following: - Vehicle Transport: Rent a Pickup or SUV - Have a dolly/two-wheeler on hand (have portable dolly available for travel) - Use carts, if available - 2 people available to lifting and carrying - If possible, ship tools/equipment ahead of arrival and directly to destination	2	B	2B
IT - Heavy/Awkward Equipment Installation	Back/Hand/Head potential injuries by strain or impacts	When IT equipment of any size is difficult to install due to weight, size dimensions or cramped space, the following must be done: - Must have second set of hands to help - Move equipment/material as necessary to ensure safe access - Access must be at least 24" to the front of equipment (if equip pulls out then the length of equip plus 24") When IT equipment of any size is difficult to install due to weight, size dimensions or cramped space, the following must be done: - Must have second set of hands to help - Move equipment/material as necessary to ensure safe access - Access must be at least 24" to the front of equipment (if equip pulls out then the length of equip plus 24")	2	B	2B
IT - Electrical Hazards 110 volt and above	Electrocution	Electrical energy must be neutralized prior to commencement of work. Do the following: - Unplug cords - If immediate area where work is being done then lockout the switches - Ensure proper grounding - Do not work around water - Use only plug ends that are grounded or have ground plugs - Do not use extension cords as a means of permanent wiring (power strips/surge protectors acceptable)	1	A	1A
IT - Confined areas	Back/Hand/Head potential injuries by strain or impacts	Only work in areas having sufficient clearance access. 24" is the minimum distance between equipment and other fixed objects such as walls. - Nothing stored within 18" of sprinkler heads - Use "Half Rack" mobile rack in confined areas - Do not block electrical panels or access to firefighting equipment or risers/piping - Do not block any utility cutoffs (i.e.: water, electrical, gas, etc.)	3	C	3C
IT - Wires/Equipment on floors	Tripping hazards; Slips, Trips & Falls	Secure wiring and equipment to ensure that they are not a tripping hazard.	1	C	1C
IT - Urban/Vehicle/Criminal Hazards	Theft	Never leave equipment in plain sight in vehicle. If possible, always secure equipment in room or office rather than vehicle.	1	A	1A
*When a new hazard is encountered in the field, pause and add it to the JHA. Communicate the hazard to the field crew and, if proper PPE is not at hand for new hazard, stop work and contact supervisor to plan accordingly.					
**If an employee chooses to carry pepper spray, they must read the instructions, and report to their supervisor that they intend to carry the device--and be able describe its proper use to their supervisor (<i>without</i> discharging it). Employees who carry 'bear mace' pepper spray must also watch the training video on MySWCA under 'Safety Training'.					

SECTION 3 COMMUNICATIONS

Call 911 if you have a medical emergency. For medical triage, call Medcor at 1-800-775-5866. This service provides first aid advice, along with possible courses of action to take for injuries.

WORKERS COMPENSATION & EMERGENCY MEDICAL PROVIDER INFORMATION

Emergency Provider	Address	City	State & Zip	Telephone
Presbyterian Hospital	1100 Central Ave. SE	Albuquerque	NM 87106	505-841-1234

W/C Non-Emergency Provider	Address	City	State & Zip	Telephone
Socorro General Hospital	1202 Hwy 60 West	Socorro	NM 87801	575-835-1140

W/C Claim Address - Billing Dept.	Address	City	State & Zip	Telephone
	3033 N Central Ave. Suite 145	Phoenix	AZ 85012	602-274-3831

CLIENT SAFETY CONTACT

Safety Manager Name	Safety Manager Phone	Safety Manager Email	Incident Reporting Requirements
Raymond Aeyta	505-270-6552		report ASAP

ADDITIONAL PHONE NUMBERS

Highway Patrol	BLM/USFS Ranger	Emergency Towing Company	Police / Fire Department / Ambulance
1-888-442-6677	505-761-8700	505-864-3030	5052422677/ 911/505314-0130

Poison Control	Hazardous Materials	Animal Control	Border Patrol
800-222-1222	911	505-861-1301	N/A

RADIO COMMUNICATIONS

SWCA Emergency Communication Policy requires every field crew member to carry a walkie-talkie, and one member of the field crew must also carry a satellite communication device (i.e.: Delorme InReach or SPOT— typically the Field Crew Supervisor). **Comm checks are required during the JHA daily brief (and periodically throughout the day).** More checks may be required if the crew is on alert for incoming inclement weather, nearby wildfires, etc. Channels 8-14 can be used without an FCC License (in an emergency, you may use any frequency necessary to call for help by using the radio's 'scan' feature to find a monitored channel). Every crew member must carry extra batteries as needed.

Primary Radio Channel	Secondary Radio Channel	Monitored Emergency Channel	National Weather Service Channel

It is the Field Supervisor's responsibility to communicate any incidents to their Supervisor and the Project Manager; as well as properly documenting and reporting incidents to the OSR at the project's office of origin and SWCA safety

SWCA CONTACTS

	Name	Phone	Comment
Project Manager	Mike Hatch	505-328-4419	
Field Supervisor	Greg Pargas	505-506-1517	
Principal (Office Manager)	Matt Bandy	505-552-2724	
Office Safety Representative (OSR)	Alayne Hamilton	505-206-6654	
Safety Manager	Jim Harris (available 24 hours per day for guidance)	1.855.SOS.SWCA (855.767.7922)	

SECTION 4 DAILY JHA TRACKING

Employee Acknowledgment:
 - By signing and initialing this section I confirm that I have read and understand the contents of this Job Hazard Analysis (JHA) document and that I will follow this guidance. I also understand that anyone can call a Safety Timeout at any time in order to ensure a safe work environment. If I witness any unsafe situation, or when in doubt, I will STOP and make an informed decision involving the Field Supervisor and others.
 - This document must be signed and initialed on the first day of field work and initialed each day thereafter while on the project. If needed, please use another sheet for additional signatures.

***** NOTE: The Field Crew Supervisor must review the following with their crew on a daily basis: 1. Site specific hazards, and 2. the "Safety Checklist" reference card (Morning, Noon, and End of Day).**

Project Number:	Signature	Check One		Please initial for each day of the project							Week Ending	
Print Name		Crew	Supervisor	SU	MO	TU	WE	TH	FR	SA		



DAILY SAFETY VEHICLE INSPECTION LOG

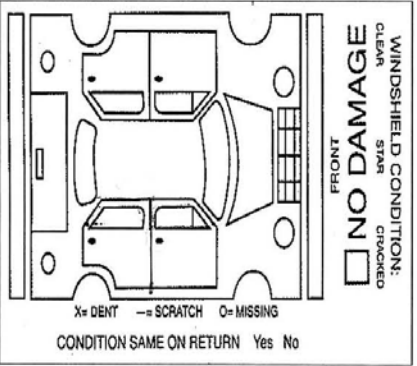


Contact your Project Office Safety Representative (OSR) for any vehicle collisions or citations while on the job

VEHICLE INFORMATION					
VIN No: <input type="text"/>				WEEK ENDING: <input type="text"/>	
PLATE <input type="text"/>		STATE: <input type="text"/>		OFFICE: <input type="text"/>	
YEAR: <input type="text"/>		MAKE & MODEL: <input type="text"/>		COLOR: <input type="text"/>	
VEHICLE OWNER (√): <input type="checkbox"/> PERSONAL <input type="checkbox"/> SWCA <input type="checkbox"/> RENTAL CONTRACT NUMBER: <input type="text"/>					

VEHICLE CHECKLIST	
Check appropriate item with the associated day. Any deficiencies must be listed at the bottom of the page.	All vehicles in use shall be checked and documented at the beginning of each shift. All defects shall be corrected before the vehicle is placed into service.

For fluid checks, see periodic checks below.	S	M	T	W	T	F	S
What is the recommended Pounds per Square Inch? PSI =							
Are all tires inflated to the correct PSI?							
Is the tire tread in good condition for route?							
Are the tires free of gouges, blisters or defects?							
Do the high / low headlights work properly?							
Do the brake lights work properly?							
Do the reverse lights work properly?							
Do all (4) turn signal lights work properly?							
Other							
Does the horn work?							
Does the steering wheel rotate properly?							
Do the brakes & parking brake work properly?							
Do the windshield wipers work properly?							
Do you have an insurance / fleet card for the vehicle?							
Is there a copy of the current registration in the vehicle?							
Is a copy of the rental contract in the vehicle?							
Is there Vehicle Incident Reports (VIR) in the vehicle?							
Is a operators manual in the vehicle?							
Is there a emergency kit located in the vehicle?							
Is there a fire extinguisher in the vehicle (if required)?							
Is the load secure and evenly weighted?							
Are the straps or ropes in good condition?							
Is the hitch properly secure and the correct size?							
Is the trailer hitch latch secure?							
Are the Breakaway chains securely attached?							
Are the trailer lights working?							
Are electrical wires secure?							
Are the trailer tires safe?							



List date noticed and all damages, scratches, missing or non-working items.

- | | | |
|--|--|---|
| REMINDEERS:
Perform 360° vehicle walk around
Adjusted seat to appropriate position
Fasten seat belt
Adjust mirrors for a clear view | PERIODIC CHECKS:
Windshield Wiper Fluid (WEEKLY or SOONER)
Wiper Blades (WEEKLY or SOONER)
Spare Tire - Inflated and Functional (WEEKLY or SOONER)
Coolant (WEEKLY or SOONER) | PERIODIC CHECKS:
Motor Oil (WEEKLY OR EVERY 500 MILES)
Type (i.e. 10/30) _____
Transmission (ONCE A MONTH OR 2000 MILES)
Power Steering (ONCE A MONTH OR 2000 MILES) |
|--|--|---|

DRIVER / MILEAGE LOG					
DRIVER - Print & Sign	Project / Task	Mileage			
SUN		/	Start	End	
MON		/	Start	End	
TUE		/	Start	End	
WED		/	Start	End	
THU		/	Start	End	
FRI		/	Start	End	
SAT		/	Start	End	

If you are involved in an accident: provide copy of SWCA's fleet insurance card and direct other involved party's to contact us at: autoclaim@swca.com or by phone (602) 274-3831 ext. 1169. Do not discuss the accident with anyone except SWCA Management / Supervisors; Take Pictures if possible.