2020 RiverEyes Monitoring Report

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EXECUTIVE SUMMARY

AJAC Enterprises (AJAC) was contracted by the U.S. Bureau of Reclamation (Reclamation) to conduct daily river monitoring and reporting during 2020 as part of a cooperative interagency effort to document the extent and duration of channel drying in the Middle Rio Grande (MRG). The monitoring effort (referred to as "RiverEyes") verifies important compliance elements within the 2016 Biological Opinion, as it relates to Reclamation, Bureau of Indian Affairs, and Non-Federal Water Management and Maintenance Activities on the Middle Rio Grande, specifically Reasonable and Prudent Measure 4, and Terms and Conditions 3.2, 9.1, and 9.2. When flow discharges fell below key thresholds known to increase flow intermittency risk, field observations were relayed to an interagency water management team and, particularly when flow intermittency was detected, reported to the U.S. Fish and Wildlife Service (USFWS) to support endangered Rio Grande Silvery Minnow (*Hybognathus amarus*) rescue and relocation activities. GeoSystems Analysis, Inc. (GSA) was subcontracted by AJAC to assist with project reporting, protocol development, crew training, data management, and technical support.

The U.S. Geological Survey (USGS) maintains a network of streamflow monitoring stations throughout the MRG that publish real-time, provisional streamflow volumes to the internet (e.g. https://waterdata.usgs.gov/nm/nwis/current/?type=flow). Per the contractual agreement with Reclamation, field reconnaissance within specific high-risk segments of the MRG was conducted when streamflow discharge was below 300 cubic feet per second (cfs) at USGS 08354900 Rio Grande Floodway at San Acacia, New Mexico (NM), or below 80 cfs at USGS 08331160 Rio Grande Near Bosque Farms, NM. During 2020, stream flows fell below this threshold in the San Acacia Reach beginning on April 3 and the monitoring team conducted regular field reconnaissance from April 5 through October 31. The Bosque Farms gage fell below the 80 cfs threshold for the first time on June 8 and crews started regular monitoring in the Isleta Reach on the following day, June 9. Like the San Acacia Reach, monitoring officially ended in the Isleta Reach on October 31. Also under contract with Reclamation, AJAC pumped supplemental water into the Rio Grande mainstem near the Bosque del Apache Wildlife Refuge (BdA) South Boundary from May 1, 2020, through August 26, 2020, except for a period between July 14, 2020, to August 1, 2020, while a pump study was completed. During most of May, the Middle Rio Grande Conservancy District (MRGCD) also pumped between 20 and 40 cfs into the mainstem through a new solar-powered pumping facility at the former Neil Cupp pump site, near river mile (RM) 90.

Water was extremely limited in 2020, which triggered a series of unique events. The MRGCD board voted to end the irrigation season nearly a month early, so irrigation ceased on October 5, 2020. Emergency releases of water in storage were required to maintain continuous streamflow in Albuquerque. Also, interstate agreements were negotiated to extend the irrigation season and minimize channel drying. Regular coordination was required between water management agencies to balance water delivery to various users while also minimizing negative biological impacts to the river corridor.

Drying was first observed in the San Acacia and Isleta Reaches on May 10 and June 12, respectively. The last day that drying occurred was November 13 in the San Acacia Reach (estimated based on stream gage records at San Marcial, but per Reclamation, the last day of RiverEyes field mapping was October 31) and October 31 in the Isleta Reach. The total number of unique river miles (RMs) affected by drying at some point throughout the 2020 monitoring year was 39.69 in the San Acacia Reach and 13.04 in the Isleta Reach (52.75 RMs in total for the entire Middle Rio Grande) while the maximum single day dried extent was slightly lower in each reach. Table 1 summarizes relevant dates and the maximum single day dried extent. On July 21, the San Acacia Reach achieved its largest single day drying event (38.36 RMs; the "Reachwide" field on Table 1) while the maximum extent dried on a single day in the Isleta Reach occurred on July 11 (11.71 RMs). Riverwide, the maximum extent dried on a single day happened on July 17 (47.78 RMs; 37.33 RM in the San Acacia Reach plus 10.45 RMs in the Isleta Reach). The dried channel conditions affected 163 days and 137 days in the San Acacia and Isleta Reaches, respectively, and drying affected three distinct segments of the San Acacia Reach and two segments of the Isleta Reach.

For most of the monitoring season, Reclamation removed previously excavated sediment from a realignment of the mainstem Rio Grande channel within BdA, however, construction crews were reduced due to the on-going COVID-19 pandemic. The RiverEyes monitoring crew also needed to take regular safety precautions through the monitoring season to prevent spread of COVID-19 to field staff. Agency staff were prepared and trained to implement RiverEyes monitoring in the reach through the City of Albuquerque.. However, no river drying occurred in the Angostura Reach during 2020.

Table 1. River segments affected by drying in each reach with important dates and maximum dried extent.

Reach	Approximate RMs Affected in Segment	Segment Description	First Day Drying Occurred	Last Day Drying Occurred	Maximum Extent (RM) Dried on a Single Day	Date the Maximum Single Day Extent Occurred
San Acacia	RM 62.75 to RM 98.71	Socorro to below Fort Craig	5/10/2020	11/13/2020	35.5	7/21/2020
	RM 60.31 to RM 61.91	Above the "S Curve"	7/12/2020	9/8/2020	1.55	9/7/2020
	RM 54.48 to RM 56.61	Above the LFCC Confluence	7/10/2020	10/16/2020	2.11	7/21/2020
	Reachwide		***5/10/2020***	***11/13/2020***	***38.36***	***7/21/2020***
Isleta	152.52 to 157.48	Near Peralta Wasteway	6/12/2020	10/31/2020	8.63	9/6/2020
	131.8 to 135.94	Downstream of Sabinal Drain Near Abeytas Heading	7/2/2020	9/24/2020	3.78	7/13/2020
	Reachwide		***6/12/2020***	***10/31/2020***	***11.71***	***7/11/2020***
TOTAL	**Riverwide**		**5/10/2020**	**11/13/2020**	**47.78**	**7/17/2020**

INTRODUCTION

For this report, channel drying (or sometimes "drying") refers to an episode when continuous surface water flow becomes interrupted, creating (occasionally short) segments of exposed riverbed; and the phrase "channel drying" is sometimes interchanged with the phrase "flow intermittency". "Rewetting" refers to an event where surface water flow reenters a location affected by channel drying, reducing the affected length, but surface flow may not necessarily be connected through the entire affected area. "Reconnection" refers to an event where a segment of river channel affected by channel drying entirely rewets and there is continuous surface flow throughout the entire extent. Rewetting or reconnection are caused by precipitation, increased flow bypass through an upstream diversion dam, increased release from an upstream reservoir, irrigation wasteway releases, or seasonal reductions in evapotranspiration.

Channel drying has been actively monitored since 1996. The monitoring effort became more formal in 2002 when SS Papadopulos and Associates, Inc. (SSPA) systematically mapped the extent of flow intermittency under contract with New Mexico Interstate Stream Commission (NMISC). Monitoring and reporting flow intermittency was required in 2003 (USFWS 2003) and more recent documents describe the negative impact of channel drying on federally-listed species conservation efforts (USFWS 2016). The "RiverEyes" monitoring program, which reports the extent of channel drying, helps to facilitate coordination among water management agencies, prevent unexpected drying, or slow the rate of drying to alleviate negative impacts to riverine habitat including federally threatened and endangered fish and wildlife species. Amongst these listed species, channel drying has direct effects on the endangered Rio Grande Silvery Minnow (*Hybognathus amarus*, Silvery Minnow; USFWS 2016).

In addition to informing water management decisions, daily reconnaissance observations also assist U.S. Fish and Wildlife Service (USFWS) Silvery Minnow Rescue crews with assessing the need and timing, and prioritization of salvage locations. Early detection and rapid rescue response are crucial because studies have shown that remnant pools which form during flow intermittency frequently dry within 48 hours (USFWS 2016 and Smith 1999). Also, fish trapped in more persistent pools do not typically survive more than 48 hours due to elevated temperatures, predation, depleted oxygen, and poor water quality (USFWS 2016 and Smith 1999).

Channel drying has episodically concentrated in two reaches of the Middle Rio Grande in New Mexico – Isleta and San Acacia (SWCA 2015). In this report, the Isleta Reach refers to the MRG segment that stretches from the Isleta Diversion Dam on Pueblo of Isleta land south of Albuquerque to the San Acacia Diversion Dam (see Figure 1). The San Acacia Reach lies downstream of the Isleta Reach and extends from the San Acacia Diversion Dam downstream 58.5 miles to Elephant Butte Reservoir. On average, drying is more frequent, expansive, and of longer duration in the San Acacia Reach than the Isleta Reach (Table 2).

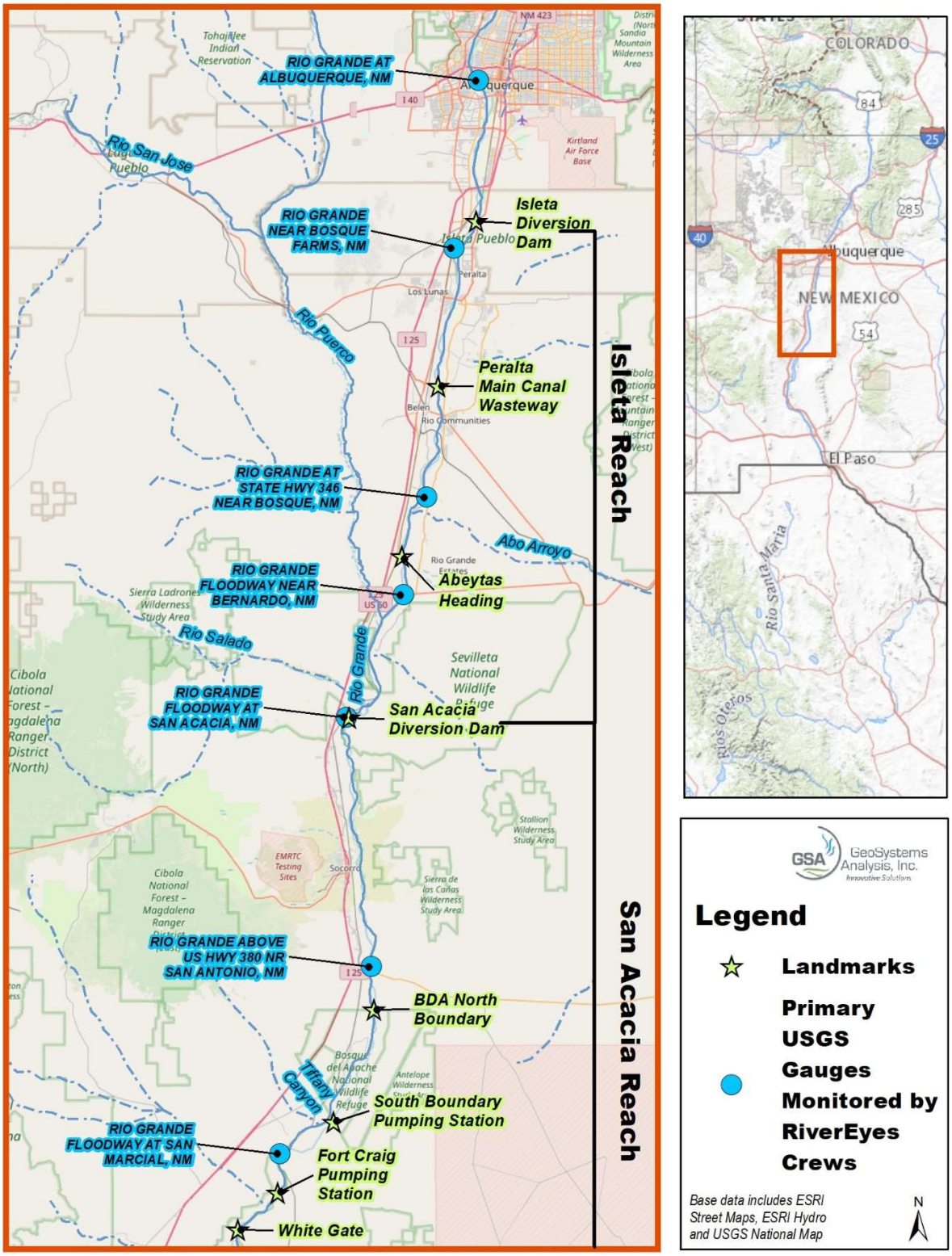

Figure 1. Map showing the location of Isleta and San Acacia Reaches of the Middle Rio Grande plus other landmarks mentioned in this report.

Table 2. Total number of river miles affected by drying at some point during the year in the Isleta and San Acacia Reaches (adapted and expanded from USFWS 2016). Note that the total RMs affected does not numerically coincide with the longest single day dried extent in a year.

	Isleta		**San Acacia**		**Combined**	
	53 Miles		58.5 Miles		111.5 Miles	
Year	Miles	Percent	Miles	Percent	Miles	Percent
2001	0	0	7	12	7	6.3
2002	18.2	34.3	25	42.7	43.2	38.7
2003	30	56.6	40	68.4	70	62.8
2004	31	58.5	37	63.2	68	61
2005	4	7.5	24.5	41.9	28.5	25.6
2006	9.5	17.9	16.5	28.2	26	23.3
2007	9.5	17.9	20.5	35	30	26.9
2008	0	0	0	0	0	0
2009	0	0	20	34.2	20	17.9
2010	8.5	16	19.7	33.7	28.2	25.3
2011	12.9	24.3	27.1	46.3	40	35.9
2012	19.2	36.2	31.8	54.4	51	45.7
2013	9.7	18.3	26.8	45.8	36.5	32.7
2014	3.3	6.2	23.1	39.5	16.4	23.7
2015	6.4	12.1	13.2	22.6	19.6	17.6
2016	10	18.9	20	34.2	30	26.9
2017	2.4	4.5	21.3	36.4	23.7	21.3
2018	7.8	14.7	37.9	64.8	45.7	41.0
2019	0	0	17.4	27.7	17.4	15.6
2020	13.0	24.5	39.7	67.8	52.7	47.3
MEAN	**9.8**	**18.4**	**23.4**	**39.9**	**32.7**	**29.8**

During the 2020 monitoring season, Reclamation contracted AJAC Enterprises to complete the RiverEyes project and AJAC sub-contracted GSA to provide technical support, assist with finding qualified field staff, develop the field utilities and protocols, train field crews, assist with daily reporting, manage data, and develop this annual report. The report sections that follow present the field methods and monitoring results from this season.

METHODS

Daily Reconnaissance

Daily reconnaissance and mapping of channel drying was conducted by field crews when provisional real-time flow reported on the USGS streamflow website (https://waterdata.usgs.gov/nm/nwis/current/?type=flow) was below specific thresholds. Up until October 31, 2020, fieldwork occurred in the San Acacia Reach when the San Acacia gage (Station 08354900) was below 300 cfs and in the Isleta Reach when the Bosque Farms gage (Station 08331160) reported less than 80 cfs. Field staff also periodically checked flow conditions on days when the reported discharge exceeded those thresholds if 1) requested by Reclamation, 2) drying had been detected during the previous couple days, 3) recent field observations suggested that channel intermittency was highly possible, or 4) gage readings on the USGS website were suspect. GSA also trained agency staff from MRGCD, Albuquerque Bernalillo County Water Utility Authority, and New Mexico Interstate Stream Commission on RiverEyes monitoring protocols and procedures in case drying occurred in Albuquerque but regular reconnaissance never became necessary.

The extent of channel drying was mapped daily until late September. Per Reclamation, crews shifted to a reduced field schedule (four days per week typically on Tuesday, Thursday, Saturday, and Sunday) from September 28 through October 31. During fieldwork, crews drove the riverbed in the survey reaches with an all-terrain vehicle (ATV or “quad”) when channel conditions allowed but mud, deep water, high flow velocity, obstructed riverbed access due to steep banks or dense vegetation, saturated floodplains, or quicksand often necessitated monitoring via foot. Reconnaissance began at daybreak, so observations could be relayed to agencies early enough (before 8 A.M. whenever possible) to inform water operational adjustments and daily fish rescue activities. If drying was detected, affected extents were communicated via text messages sent to Reclamation staff and the USFWS Fish Rescue Coordinator. A more comprehensive daily summary report was also transmitted via email on most days when monitoring occurred. The daily reports are submitted electronically with this report.

To ensure safety, reporting accuracy, and consistency between field observers; field staff regularly communicated with each other during internal team (AJAC/GSA) phone calls or text message threads. A RiverEyes team member also participated in regular water operations conference calls (generally Monday and Friday) to convey field observations, report dried extent, and hear water operation plans and adjustments.

Field observations were documented on an iPad tablet connected to a Bluetooth Global Positioning System (GPS; Garmin Glo, consistently ~10-foot accuracy) or on a smart phone using project specific mobile applications (apps). Field proximity was determined to the nearest 0.01 river mile using a spatially referenced .pdf base map accessed via Avenza Maps (https://www.avenza.com/avenza-maps/). To enable placement to this precision, various utilities and addons to ESRI ArcMap were utilized to clean and re-segment the 2012 Reclamation river mile Geographic Information System (GIS) file into half-mile, tenths, and hundredths of a mile symbols on the electronic field map (Figure 2).

River segments with a historically high drying probability were denoted on the electronic field map with a red-colored river centerline to assist field staff with targeting "hot spots" to check during low flow conditions. The map also displayed adjacent land ownership (when known), irrigation infrastructure, landmarks, wasteways, interior drains, municipalities, arroyos, rangelines, roads, streamflow gages, important river access locations, and other characteristics. Locating nearby rangelines (Reclamation's hydrographic survey cross-sections that do not coincide with river miles) was especially important when surveying by foot because dense vegetation may have been recently cleared along the rangeline from the levee to river, which improved on foot accessibility.

Field crews recorded observations into a customized mobile database app specially developed for storing RiverEyes data. All field observations were registered with underlying GPS coordinates (automatically marked by the app), as well as the nearest 0.01 RM, which was keyed in by the field observer. Typical types of observations logged into the field app include upstream or downstream extent of drying, discharge estimates, discharge measurements, remnant pools, and general observations. Additionally, the app stored and geo-tagged field photos. In 2020, GPS-enabled field maps and a RiverEyes field application were also developed for the Angostura Reach and the maps are included with electronic deliverables submitted with this report. The nearest RM (to 0.01) to key RiverEyes landmarks in the Angostura (included for the first time in 2020), Isleta, and San Acacia Reaches is provided as Appendix D and electronically.

Figure 2. Sample RiverEyes field maps from the 2020 monitoring season. When accessed via the Avenza Maps app, current field location is clearly marked with a large blue dot and the interface allows for panning, zooming, etc.

Discharge Measurements

The RiverEyes field crew quantified current river discharge (in cfs) using three methods with varying degrees of accuracy and precision: 1) metered discharge measurements, 2) ball and tape discharge measurements, and 3) 'trained' visual estimates. Field crews were prepared to meter flow volume at wasteway outfalls, near USGS gages, and at other locations (per RiverEyes contract requirements) with a SONTEK FlowTracker 2, if requested by Reclamation. In 2020, however, metered discharge measurements were never requested, and USGS-reported flows generally appeared to match field observations. MRGCD staff did regularly meter flow conditions through Albuquerque, however, and their measurements are summarized in Appendix E.

Field crews frequently measured flow using a measuring tape, depth rod, small floating ball (e.g., golf ball), and stopwatch (per EPA 1997). With this method, the observer measured the width of wetted flow perpendicular to the flow angle to the nearest foot. Depth was measured with to the nearest 0.1 foot at four locations across the wetted channel intended to constitute mean depth. These width and depth measurements were then multiplied to calculate the approximate cross-section area. Flow velocity was measured by timing the number of seconds required for a golf ball to float down a 20-foot section of the channel. The RiverEyes field app calculated discharge by multiplying velocity by the cross-sectional area and a typical correction factor (0.9) that is used when measuring discharge with this method (EPA 1997).

Ball and tape measurements were frequently used to help the field crew learn to make better visual estimates of flow. When visual flow estimates were recorded, no systematic measurements occurred. The field observer simply recorded their minimum and maximum flow estimate (in cfs) while the field app calculated and recorded the mean as the visual estimate.

Daily Reports

Email and text summaries were regularly circulated between the contractors, Reclamation, and USFWS when low flow conditions warranted. The RiverEyes team also reported current conditions during water operations conference calls. Daily summary reports (submitted electronically with this report) focused on:

- the extent of drying as number of RMs and distance to major landmarks;
- the RM change of drying or rewetting since the previous report;
- accessibility;
- current river conditions;
- visual flow estimates in "hot spots" or other locations that might be useful for predicting flow trends or intermittency risk;
- observations of disconnected lateral pools;
- representative field photos;
- summarizing USGS reported flows at USGS gages over the past 24 hours; and,
- 24-hour precipitation in the Rio Grande watershed (per Reclamation's ET Toolbox; Reclamation 2020), because it may affect channel drying.

Data Management

The mobile app was designed within the Fulcrum app (www.fulcrumapp.com) and it contained various design elements to promote data quality and improve efficiency. Data format, visible data elements, relevant lists, and the overall app display change according to the type of observation being logged. Data were synched between monitoring staff in the field using a utility that automatically packages data across users and devices, and uploads data to the cloud so reconnaissance observations, monitoring locations, and photos are safely backed up and accessible for other field personnel and office staff, even in real-time.

The DVD that accompanies this report includes:

- Raw and post-processed 2020 data files as .xls, raw data as .shp;
- Spatially-referenced .pdf map files that can be used on tablets and smartphones to determine the nearest 0.01 RM to your current location while conducting fieldwork in the Angostura, Isleta, and San Acacia Reaches;
- RiverEyes landmarks (.shp);

- RMs segmented to the nearest 0.01 RM as .shp and .kml;
- Daily summary reports (.pdf);
- Field photos; and
- This report as .doc and .pdf.

Safety

AJAC drafted a Job Hazard Analysis (JHA) for this project (see Appendix B). Field personnel certified that they reviewed the document and complied with the JHA requirements in practice each day. GSA's COVID-19 Safety Manual was also provided to field staff. All staff who operated ATVs received a formal safety instruction and certification. Motor vehicle and ATV inspections were conducted at the start of each day. Field personnel communicated between themselves regularly and checked in with the safety officer and/or other AJAC/GSA staff via phone call or text message after daily monitoring responsibilities were finished. To protect staff during the COVID-19 pandemic, crew transport was limited to one person per vehicle whenever possible. Face masks were typically worn by field staff when they needed to work together, and equipment was regularly sanitized after use. All safety guidelines were followed, no injuries occurred on the project, and none of the field staff contracted COVID-19 during the project.

RESULTS

Dried Extent

Channel drying occurred in both the San Acacia and Isleta Reaches during the 2020 monitoring season and intermittency affected multiple segments in each reach. Drying began in the San Acacia Reach on May 10 and while field observations ended on October 31, based on USGS gages, it appears the reach reconnected on November 13. The Isleta Reach initially dried on June 12 and the last day of drying in the reach was October 31 (also the last day of formal monitoring for the year). While outside the official project monitoring period, a crew member confirmed the Isleta Reach was continuous during a field reconnaissance completed on the morning of November 1. Based on provisional USGS data, mean daily discharge at the San Acacia gage was 138 cfs when drying began in the San Acacia Reach while mean daily discharge at Bosque Farms was 65 cfs on that first day with drying in the Isleta Reach. The total number of days with flow intermittency in the San Acacia and the Isleta Reaches was 163 and 137, respectively (Table 3 and Table 4). A description of each of the segments affected by drying is shown in the list below.

Isleta Reach Segments

1. Near Peralta Wasteway. A total of 8.90 unique RMs were affected from RM 151.17 (drying extended to this point on June 15) to RM 160.07 (intermittency extended upstream to this point on September 6). Occasionally, this section was divided into two dry sub-segments via irrigation return flow out of the Los Chavez Wasteway, however, rewetting from Los Chavez never extended more than about a half mile. This segment experienced drying for a total of 137 days during 2020 that occurred during two drying events (it dried, reconnected, and then dried again).

2. Downstream of Sabinal Drain near Abeytas Heading. A total of 4.14 unique RMs were affected from RM 131.80 (drying extended downstream to this point on September 21) to RM 135.94 (intermittency extended to this point upstream on August 22). This segment experienced four drying events (i.e. it dried and then reconnected four times) spanning a total of 43 days. While not captured during early morning visits, its highly likely that drying in this segment reached downstream of the HWY 60 bridge during hot afternoons in July.

San Acacia Reach Segments

1. Socorro to below Fort Craig: Includes two sub-segments (a and b below) depending on whether supplemental pumping occurred at BdA South Boundary. A total of 35.96 RMs were affected from RM 62.75 (drying extended this far downstream on September 6, after pumping ceased) to RM 98.71 (intermittency extended to this point upstream on July 21). This segment experienced four drying events separated by typically brief periods of reconnection totaling 86 days.

    a. From ~4.7 RM above Brown Arroyo, downstream to the BdA South Boundary Pump Site (near RM 73.75). When the pumps ran, the downstream extent held in a pool near RM 73.85.

    b. Below the South Boundary Pump Site to Below Fort Craig: This segment only dried when the pumps ran at reduced volume or were shut off. Segment extends downstream to ~11 RM below the BdA South Boundary Pump Site and the initial separation was typically on the downstream end.

2. Above the “S Curve”: Location referred to as “Near White Gate” in McKenna 2018. During 2020, a total of 1.60 RMs were affected from RM 60.31 (drying reached this point downstream on July 14) to RM 61.91 (drying extended to here on September 7). This segment experienced two drying events before and after a late July storm pulse totaling 21 days. It is also highly influenced by groundwater levels.

3. Above the LFCC confluence with the Rio Grande. A total of 2.13 RMs were affected between RM 54.48 (drying reached this location on July 19) and RM 56.61 (drying extended to this point upstream on July 13). This segment experienced four drying events totaling 57 days, and like segment 2, is highly influenced by groundwater elevation and evapotranspiration rates.

The longest consecutive drying event in the San Acacia Reach occurred in the Socorro to south of Fort Craig section and lasted for 99 days (August 7 to November 13). In the Isleta Reach, the longest drying event was 93 consecutive days (Peralta Wasteway segment, July 31 to October 31). Refer to Figures in Appendix A for the daily extent of river drying to the nearest 0.5 RM. Appendix G summarizes the total affected length in tabular form. Drying reached its maximum length in the San Acacia Reach on July 21 when the total dry length was 38.36 RMs, spread across three dried segments. The maximum dry length in the Isleta Reach occurred on July 11 (11.71 RMs), spread across two segments. Note that as shown in Table 1, the maximum single day dried extent occurred on different days in each reach, and the river-wide maximum single day dried extent occurred on July 17 (47.78 RMs), a separate day from when the largest drying episode occurred in either reach individually.

Over the past couple decades, supplemental pumping at the BdA South Boundary (approximately RM 74) has augmented river flow and maintained continuous flow below the pumps. In 2020, pumping began on May 1 and ceased on August 26 with a break between July 14 and August 1, while a pumping study was underway. The pumping study was initiated to formally measure hydrologic response to pumping cessation plus monitor silvery minnow distribution, density, and habitat below the pump site. RiverEyes crews regularly measured channel depth and width at four staff gages installed below the pump site during the study (see Appendix F). In 2020, MRGCD also began operating an upgraded, solar-powered pumping facility at the Neil Cupp pump site (RM 90.2) that can pump to both the river and an irrigation canal. Pumping from the Neil Cupp Hub to the river occurred for much of May.

Table 3. Summary of RiverEyes channel drying observations in the San Acacia Reach during 2020. Note that mean length does not include information from November.

San Acacia Reach			
Month	**Total Number of Intermittent Days**	**Maximum Length (RMs)**	**Mean Length (RMs)**
May	9	16.96	3.9
June	30	22.79	21.1
July	25	38.36	24.1
August	25	34.45	19.2
September	30	35.5	31.3
October	31	30.19	27.5
November	13	N/A	N/A
Grand Total	**163**	**38.36**	**21.9**

Table 4. Summary of RiverEyes channel drying observations in the Isleta Reach during 2020.

Isleta Reach			
Month	**Total Number of Intermittent Days**	**Maximum Length (RMs)**	**Mean Length (RMs)**
June	19	6.83	3.1
July	26	11.71	6.9
August	31	11.57	8.8
September	30	11.54	7.8
October	31	7.95	6.5
Grand Total	**137**	**11.71**	**6.62**

When channel drying expanded into new segments, remnant pools often formed in the thalweg, scour holes, and/or other depressional features. After a more prolonged period of dewatering (typically after a few days to a week), remnant pools dried, creating an entirely dry riverbed. The presence, size, and location of remnant pools were sometimes (though inconsistently) recorded and often communicated to the managing agencies via daily emails; however, RM locations where remnant pools entirely dried were not systematically differentiated from segments where remnant pools persisted during fieldwork. Raw data (provided electronically with this report in various formats) include crew observations related to the distribution and size of remnant pools as well as visual estimates of flow in various locations during 2020. Note that these data are not intended to represent a complete log of remnant pools in the channel during the season.

DISCUSSION

The Rio Grande watershed had slightly below average snowpack during the winter 2019-2020 (Reclamation 2020), but above average temperatures through the spring and summer increased evapotranspiration and irrigation demand while also depleting the snow water equivalent. No spring runoff-driven flow spike occurred in the mainstem channel in 2020, the irrigation season was shortened by nearly a month, and the possibility of drying in Albuquerque was high. In addition to low snowmelt runoff, monsoonal rainstorms also produced below average rainfall.

Negotiations between the Rio Grande Compact states extended the irrigation season through September and into October and minimized the extent of drying. Often slight but strategic flow releases from irrigation wasteways in the Isleta Reach assisted with minimizing the length affected by drying. Also, while mean daily discharge at the USGS Albuquerque gage (Station 08330000) consistently fell below 100 cfs through October 2020 and local newspapers prepared

the public for potential channel drying, no intermittency ultimately occurred through the Angostura Reach near Albuquerque.

The onset of channel drying in the Isleta and San Acacia Reaches was earlier than usual, and even occurred during spring runoff that often produces high sustained channel flows and overbank flooding into adjacent riparian and wetland habitats. While drying occurred substantially earlier than normal in 2020 (beginning May 10 in the San Acacia Reach), the initial flow separation event happened later than it did back in 2018, a very dry year when mainstem intermittency started in the San Acacia Reach on April 1. Like 2018, pumping eventually ceased at the BdA South Boundary pump site and channel drying extended downstream to just above the LFCC outfall. Channel intermittency affected three segments of the San Acacia Reach and the specific areas affected in 2020 were similar to 2018. Drying in the Isleta Reach lasted longer than it has during the past few years and the total affected length (13 RMs) had not stretched this far since 2012 when the total number of RM affected in the Isleta Reach was 19.2. Total affected length in the Middle Rio Grande was 52.7 RMs in 2020, the longest extent since 2004 (Table 2).

The RiverEyes monitoring team continued to confirm flow continuity until October 31, 2020, but based on gage records, it appears the San Acacia Reach remained disconnected until November 13, 2020. MRGCD staff confirmed flow continuity and metered 14 cfs near the San Marcial gage (Station 08358400) on November 14, 2020.

REFERENCES

McKenna, C. 2018. 2018 RiverEyes Monitoring Report. Report developed by GeoSystems Analysis under sub-contract with AJAC Enterprises. Parties contracted by U.S. Bureau of Reclamation Albuquerque Area Office, Albuquerque, New Mexico. 14 pages.

U.S. Bureau of Reclamation (Reclamation). 2020. 2020 Annual Operating Plan. Albuquerque Area Office, Albuquerque, New Mexico. Reviewed as a PowerPoint presentation.

Smith, J.R. 1999. Summary of Rio Grande Investigations for FY1997. Draft. U.S. Fish and Wildlife Service Report Submitted to the U.S. Bureau of Reclamation, Albuquerque, New Mexico.

SS Papadopulos and Associates, Inc. (SSPA). 2004. ESRI geodatabase containing RiverEyes project observations between 2002 and 2004.

SWCA Environmental Consultants (SWCA). 2015. RiverEyes Observations in the Middle Rio Grande for the 2015 Irrigation Season.

U.S. Environmental Protection Agency (EPA). 1997. Volunteer Stream Monitoring: A Methods Manual. EPA document EPA 841-B-97-003.

U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and threatened wildlife and plants; Final rule to list the Rio Grande Silvery Minnow as an endangered species. Federal Register 59:36,988–37,001.

USFWS. 2003. Biological and conference opinions on the effects of actions associated with the Programmatic Biological Assessment of Bureau of Reclamation's Water and River Maintenance Operations, Army Corps of Engineers Flood Control Operation, and Related Non-Federal Actions on the Middle Rio Grande, New Mexico. Consultation No. 2-22-03-F-0129. New Mexico Ecological Services Field Office, Albuquerque, New Mexico.

USFWS. 2016. Final Biological and Conference Opinion for Bureau of Reclamation, Bureau of Indian Affairs, and Non-Federal Water Management and Maintenance Activities on the Middle Rio Grande. Consultation Number 02ENNM00-2013-F-0033. New Mexico Ecological Services Field Office, Albuquerque, New Mexico.

Appendix A. Longitudinal Limits of Drying and Mean Daily Discharge as Reported by USGS for Various Gages in the Isleta and San Acacia Reaches (discharge data Provisional)

***Instances When the Bernardo Gage Provisionally Reports 0 cfs but Continous Low Flow (1-3 cfs) was Observed by RiverEyes**

RiverEyes Confirmed Discontinuous Segments Indicated in Red. Suspected Discontinuous Segments Indicated in Orange for Days When Field Monitoring Was Not Conducted but Surface Flow Remained Disconnected

		May																													
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Isleta Diversion 169.4	169.0																															
	168.5																															
	168.0																															
	167.5																															
	167.0																															
Alejandro Drain 166.6	166.5																															
	166.0																															
	165.5																															
240 Wasteway 165.2	165.0																															
Cottonwood Rd 164.5	164.5																															
USGSS @ Bosque Farms (CFS)		111	113	146	145	117	122	116	128	122	122	113	111	108	108	119	122	124	128	127	126	125	124	124	298	371	239	128	120	114	106	106
	164.0																															
	163.5																															
	163.0																															
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	162.0																															
	161.5																															
Los Lunas (HWY 6) 161.4	161.0																															
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El Cerro Tome / Los Lunas Airport	158.0																															
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Los Lunas River Widening	157.0																															
Los Chavez Wasteway 156.7	156.5																															
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	150.5																															
LP1DR (Allsups) 149.6	150.0																															
Belen Br (NM 6 Hwy 309) 149.5	149.5																															
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	148.5																															
	148.0																															
AT&SF RR 147.7	147.5																															
New Belen Wasteway 147.2	147.0																															
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LP2DR 144.6	144.5																															
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Aerial Gas Line 143.7	143.5																															
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Feeder 3 Wasteway 142.7	142.5																															
	142.0																															
	141.5																															
	141.0																															
Jarales Rd Br 140.8	140.5																															
USGSS @ HWY 346 (CFS)		62.7	63.9	81.9	108	98.9	69.3	62.6	53.5	65.4	62.9	65.2	55.1	48	44.1	46.5	53.3	56.5	52	52.9	51.4	50.3	48.4	51.7	53.9	195	271	119	78	65.8	59.2	52.6
Storrie Wasteway 140.1	140.0																															
	139.5																															
Abo Arroyo 139.3	139.0																															
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Sabinal Drain Outfall 137.9	137.5																															
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Abeytas Heading 134.4	133.0																															
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	131.5																															
	131.0																															
Bernardo (U.S. 60 Br) 130.6	130.5																															
USGSS @ Bernardo (CFS)		61.9	56	70.9	137	131	85.8	67.1	52.9	64.4	85.2	86.4	64.4	56.7	43.9	40.1	51	54.7	51.4	45.3	46.6	43.6	43.2	41.8	52.1	188	408	281	125	86.2	68.6	53.3
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Lower San Juan Drain 2 122.1	122.0																															
Sevilleta North Boundary 121.7	121.5																															
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Rio Salado 118.9	118.5																															
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		June																														
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Isleta Diversion 169.4	169.0																															
	168.5																															
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Alejandro Drain 166.6	166.5																															
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	165.5																															
240 Wasteway 165.2	165.0																															
Cottonwood Rd 164.5	164.5																															
USGSS @ Bosque Farms (CFS)		107	253	124	128	99.4	91.3	89.1	83.6	76.2	73.1	68.8	64.5	61.8	58.3	54	51.9	53.3	51.8	51.7	51.8	52	51	49.9	47.7	45.4	43.8	43	42	42.9	42.5
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Los Lunas (HWY 6) 161.4	161.0																															
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El Cerro Tome / Los Lunas Airport	158.0																															
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Los Lunas River Widening	157.0																															
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Peralta Wasteway 152.5	152.5																															
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Belen Br (NM 6 Hwy 309) 149.5	149.5																															
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Feeder 3 Wasteway 142.7	142.5																															
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Jarales Rd Br 140.8	140.5																															
USGSS @ HWY 346 (CFS)		53.4	51.7	173	118	117	83.2	71.1	52.9	45.9	35.4	31.1	35.1	27.7	26	24.2	20.7	19.7	18.7	16.6	16	17.8	26.8	23.4	16.5	13	12.4	12.4	11.4	11.2	10.5
Storrie Wasteway 140.1	140.0																															
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Bernardo (U.S. 60 Br) 130.6	130.5																															
USGSS @ Bernardo (CFS)		47.6	45.5	179	177	157	88.4	79.9	46.8	36.3	24.1	16.7	13.7	14.5	10.6	8.42	6.91	4.67	4.32	4.29	3.72	2.56	1.14	1.25	1.1	0.75	0.59	0.77	0.63	0.56	0.52
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Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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240 Wasteway 165.2	165.0																															
Cottonwood Rd 164.5	164.5																															
USGSS @ Bosque Farms (CFS)		46.4	41.6	40.8	40.5	43.3	41.4	41.9	42.8	40.6	40.6	40.3	39.8	41.1	40.9	39.7	38.3	37.3	37.6	36.2	38.6	38.6	38.6	43.3	35.6	135	155	93.4	75.1	63.2	48.1	33.8
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Jarales Rd Br 140.8	140.5																															
USGSS @ HWY 346 (CFS)		10.2	10.7	11.3	11.3	16.9	10.9	9.84	10.6	11.3	7.75	7.36	6.82	6.51	7.64	9.33	8.18	8.39	12	15	12	11.4	14.2	14.4	14.8	18.2	20.4	82.7	75.9	60.9	45.4	29.7
Storrie Wasteway 140.1	140.0																															
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Abo Arroyo 139.3	139.0																															
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Bernardo (U.S. 60 Br) 130.6	130.5																															
USGSS @ Bernardo (CFS)		0.5	0.36	0.61	0.55	0.34	0.26	0.37	0.2	0.29	0.21	0.06	-0.01*	0.08*	0.04*	0*	0*	0*	0*	0*	1.49	5.58	9.96	13.2	14.8	18.9	37.3	207	243	114	86.2	42.7
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Sevilleta North Boundary 121.7	121.5																															
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		August																												
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Isleta Diversion 169.4	169.0																															
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Alejandro Drain 166.6	166.5																															
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240 Wasteway 165.2	165.0																															
Cottonwood Rd 164.5	164.5																															
USGSS @ Bosque Farms (CFS)		31.9	31.9	32.5	30	29.6	28.3	28.3	28	28.3	30.4	32.2	32.6	33.5	33.3	32.3	32.8	33.2	34.5	34	35.3	34.4	32.5	32.8	35.1	34.2	36.6	35.3	32	33.2	33.3	34.2
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Los Lunas (HWY 6) 161.4	161.0																															
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El Cerro Tome / Los Lunas Airport	158.0																															
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Feeder 3 Wasteway 142.7	142.5																															
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Jarales Rd Br 140.8	140.5																															
USGSS @ HWY 346 (CFS)		26.6	34.3	25.7	20.6	18	16.7	16.3	17.5	19.1	22.8	20	15.7	12.9	11.9	10.7	10.5	9.86	9.13	8.72	8.36	7.86	7.62	7.87	9.33	9.83	10.2	9.42	8.86	8.59	8.78	9.56
Storrie Wasteway 140.1	140.0																															
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Abo Arroyo 139.3	139.0																															
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Abeytas Heading 134.4	133.0																															
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	132.0																															
	131.5																															
	131.0																															
Bernardo (U.S. 60 Br) 130.6	130.5																															
USGSS @ Bernardo (CFS)		27.6	23.4	45.9	21.2	16.9	12.4	9.99	9.12	9.99	14.4	16.4	12.8	7.93	5.87	3.66	1.76	0.92	0.76	0.57	0.51	0.46	0.54	0.41	0.5	0.44	0.15	0*	0*	0*	0*	0*
	130.0																															
	129.5																															
	129.0																															
	128.5																															
	128.0																															
	127.5																															
Lower San Juan Drain 127.2	127.0																															
Rio Puerco 126.6	126.5																															
	126.0																															
	125.5																															
	125.0																															
	124.5																															
La Joya 124	124.0																															
	123.5																															
	123.0																															
	122.5																															
Lower San Juan Drain 2 122.1	122.0																															
Sevilleta North Boundary 121.7	121.5																															
	121.0																															
	120.5																															
	120.0																															
	119.5																															
	119.0																															
Rio Salado 118.9	118.5																															
	118.0																															
	117.5																															
	117.0																															
	116.5																															

		September																												
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Isleta Diversion 169.4	169.0																														
	168.5																														
	168.0																														
	167.5																														
	167.0																														
Alejandro Drain 166.6	166.5																														
	166.0																														
	165.5																														
240 Wasteway 165.2	165.0																														
Cottonwood Rd 164.5	164.5																														
USGSS @ Bosque Farms (CFS)		35.3	35	32.3	29.5	28	27.8	28.5	29.8	33.8	33.8	36.4	42.3	67.9	34.7	35	33.2	33.3	33.5	33.9	33.8	33.3	31.8	30.9	30.7	30.8	31.1	30.9	28.9	28.6	27.8
	164.0																														
	163.5																														
	163.0																														
	162.5																														
	162.0																														
	161.5																														
Los Lunas (HWY 6) 161.4	161.0																														
	160.5																														
	160.0																														
	159.5																														
	159.0																														
	158.5																														
El Cerro Tome / Los Lunas Airport	158.0																														
	157.5																														
Los Lunas River Widening	157.0																														
Los Chavez Wasteway 156.7	156.5																														
	156.0																														
	155.5																														
	155.0																														
	154.5																														
	154.0																														
	153.5																														
	153.0																														
Peralta Wasteway 152.5	152.5																														
	152.0																														
	151.5																														
	151.0																														
	150.5																														
LP1DR (Allsups) 149.6	150.0																														
Belen Br (NM 6 Hwy 309) 149.5	149.5																														
	149.0																														
	148.5																														
	148.0																														
AT&SF RR 147.7	147.5																														
New Belen Wasteway 147.2	147.0																														
	146.5																														
	146.0																														
	145.5																														
	145.0																														
LP2DR 144.6	144.5																														
	144.0																														
Aerial Gas Line 143.7	143.5																														
	143.0																														
Feeder 3 Wasteway 142.7	142.5																														
	142.0																														
	141.5																														
	141.0																														
Jarales Rd Br 140.8	140.5																														
USGSS @ HWY 346 (CFS)		11.6	10.9	9.72	8.69	7.22	6.93	9.01	7.91	14.9	18.8	18.9	23.1	17.9	25.2	20.5	15.7	14.1	13.1	11.6	11.3	11.4	10.9	11.1	21.8	13.3	14.5	13.6	12.3	13.6	13.6
Storrie Wasteway 140.1	140.0																														
	139.5																														
Abo Arroyo 139.3	139.0																														
	138.5																														
	138.0																														
Sabinal Drain Outfall 137.9	137.5																														
	137.0																														
	136.5																														
	136.0																														
	135.5																														
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	133.5																														
Abeytas Heading 134.4	133.0																														
	132.5																														
	132.0																														
	131.5																														
	131.0																														
Bernardo (U.S. 60 Br) 130.6	130.5																														
USGSS @ Bernardo (CFS)		0*	0*	0*	0*	0*	0*	0*	0*	0.72	5.37	8.3	9.4	11.9	8.42	13	7.94	4.57	3.37	1.78	0.3	0*	0*	0*	1.23	5.89	3.21	2.84	1.38	3.03	3.89
	130.0																														
	129.5																														
	129.0																														
	128.5																														
	128.0																														
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Lower San Juan Drain 127.2	127.0																														
Rio Puerco 126.6	126.5																														
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	125.5																														
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	124.5																														
La Joya 124	124.0																														
	123.5																														
	123.0																														
	122.5																														
Lower San Juan Drain 2 122.1	122.0																														
Sevilleta North Boundary 121.7	121.5																														
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	120.0																														
	119.5																														
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Rio Salado 118.9	118.5																														
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	117.5																														
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		October																												
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Isleta Diversion 169.4	169.0																															
	168.5																															
	168.0																															
	167.5																															
	167.0																															
Alejandro Drain 166.6	166.5																															
	166.0																															
	165.5																															
240 Wasteway 165.2	165.0																															
Cottonwood Rd 164.5	164.5																															
USGSS @ Bosque Farms (CFS)		27.2	27.4	28.2	27.9	27.9	28.8	28.1	28	28.4	28.4	28.2	28.5	28.7	28	28.2	28.8	29.5	29.3	29.1	29.8	30.5	30.9	30.9	30.3	29.9	30.9	31.4	43.5	39.8	70.4	100
	164.0																															
	163.5																															
	163.0																															
	162.5																															
	162.0																															
	161.5																															
Los Lunas (HWY 6) 161.4	161.0																															
	160.5																															
	160.0																															
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	158.5																															
El Cerro Tome / Los Lunas Airport	158.0																															
	157.5																															
Los Lunas River Widening	157.0																															
Los Chavez Wasteway 156.7	156.5																															
	156.0																															
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	155.0																															
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	153.5																															
	153.0																															
Peralta Wasteway 152.5	152.5																															
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	151.5																															
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	150.5																															
LP1DR (Allsups) 149.6	150.0																															
Belen Br (NM 6 Hwy 309) 149.5	149.5																															
	149.0																															
	148.5																															
	148.0																															
AT&SF RR 147.7	147.5																															
New Belen Wasteway 147.2	147.0																															
	146.5																															
	146.0																															
	145.5																															
	145.0																															
LP2DR 144.6	144.5																															
	144.0																															
Aerial Gas Line 143.7	143.5																															
	143.0																															
Feeder 3 Wasteway 142.7	142.5																															
	142.0																															
	141.5																															
	141.0																															
Jarales Rd Br 140.8	140.5																															
USGSS @ HWY 346 (CFS)		13.3	14.1	17.2	17.7	18.8	21.1	20.2	17.6	18.2	17.3	16.5	16.5	16.7	15.3	15.1	14.7	14.3	14.1	13.4	15.7	15.1	15.4	15	15.5	15.7	16.4	52.8	87.4	75.8	83.2	76.2
Storrie Wasteway 140.1	140.0																															
	139.5																															
Abo Arroyo 139.3	139.0																															
	138.5																															
	138.0																															
Sabinal Drain Outfall 137.9	137.5																															
	137.0																															
	136.5																															
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	134.0																															
	133.5																															
Abeytas Heading 134.4	133.0																															
	132.5																															
	132.0																															
	131.5																															
	131.0																															
Bernardo (U.S. 60 Br) 130.6	130.5																															
USGSS @ Bernardo (CFS)		2.99	1.74	3.16	4.55	6.07	6.58	8.24	8.18	7.52	7.68	6.32	5.7	5.93	5.73	5	5.04	4.97	4.23	3.7	3.61	4.73	4.84	4.97	5	5.38	6.09	12.2	62.1	67.6	77	86.4
	130.0																															
	129.5																															
	129.0																															
	128.5																															
	128.0																															
	127.5																															
Lower San Juan Drain 127.2	127.0																															
Rio Puerco 126.6	126.5																															
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	125.5																															
	125.0																															
	124.5																															
La Joya 124	124.0																															
	123.5																															
	123.0																															
	122.5																															
Lower San Juan Drain 2 122.1	122.0																															
Sevilleta North Boundary 121.7	121.5																															
	121.0																															
	120.5																															
	120.0																															
	119.5																															
	119.0																															
Rio Salado 118.9	118.5																															
	118.0																															
	117.5																															
	117.0																															
	116.5																															

May																																
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
San Acacia Diversion Dam 116.2	116.0																															
USGS @ San Acacia (CFS)		138	141	130	185	202	182	144	140	138	160	156	163	130	116	124	137	144	134	108	104	85.9	98.4	100	110	145	243	196	137	95.3	69	56.9
	115.5																															
	115.0																															
One Mile Stop 114.8	114.5																															
	114.0																															
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	108.5																															
	108.0																															
	107.5																															
	107.0																															
Lemitar Diversion 106.7	106.5																															
	106.0																															
	105.5																															
	105.0																															
9 Mile Outfall 104.5	104.5																															
USGS @ Escondida (CFS)		144	151	138	168	208	192	154	145	141	157	154	167	143	130	128	137	142	138	120	109	99.3	97.7	100	105	116	202	199	141	105	78.7	63.5
Escondida Br 104.1	104.0																															
	103.5																															
	103.0																															
N. Socorro Div. Channel 102.5	102.5																															
	102.0																															
	101.5																															
Escondida Drain Outfall 101.0	101.0																															
	100.5																															
	100.0																															
	99.5																															
Otero Street 99.0	99.0																															
	98.5																															
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	95.0																															
	94.5																															
Brown Arroyo 94.0	94.0																															
	93.5																															
	93.0																															
	92.5																															
	92.0																															
	91.5																															
	91.0																															
	90.5																															
Neil Cupp 90.2	90.0																															
	89.5																															
	89.0																															
	88.5																															
	88.0																															
	87.5																															
USGS @ Highway 380 (CFS)		55.6	68.9	66.6	63.2	95.9	88.4	67.4	43.8	48.1	64.7	77.4	77.4	72.2	53.7	50.2	52.1	57.8	60.2	52.2	38.7	35	26.1	24.3	21.9	23.8	51.6	117	62.3	26.8	5.86	0
San Antonio (U.S. 380) 87.1	87.0																															
	86.5																															
	86.0																															
	85.5																															
	85.0																															
	84.5																															
BDA North Boundary 84.1	84.0																															
	83.5																															
	83.0																															
	82.5																															
	82.0																															
	81.5																															
Realignment Channel Inlet 81.4	81.0																															
	80.5																															
	80.0																															
	79.5																															
Realignment Channel Outlet 79.4	79.0																															
BDA HQ 78.7	78.5																															
	78.0																															
Former Mid BDA Pump Site 77.6	77.5																															
	77.0																															
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	76.0																															
	75.5																															
	75.0																															
	74.5																															
	74.0																															
South BDA Boundary Pumps 73.8	73.5																															
	73.0																															
	72.5																															
	72.0																															
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	70.5																															
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	69.5																															
	69.0																															
San Marcial RR Bridge 68.6	68.5																															
USGS @ San Marcial (CFS)		20.6	32.9	38.2	38.8	35	56.6	53.4	41.8	28	25.2	34.5	43.6	46.4	43.6	31	29.2	29.1	31.6	34.6	30.6	24.4	23.5	22.6	20.8	21	22.5	23	29	26.6	22.6	21.1
	68.0																															
	67.5																															
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Ft Craig 64.5	64.5																															
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	61.0																															
	60.5																															
S Curve 60	60.0																															
	59.5																															
White Gate 59.2	59.0																															
	58.5																															
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		June																													
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
San Acacia Diversion Dam 116.2	116.0																														
USGS @ San Acacia (CFS)		51.3	52.3	53.1	62.9	61.5	62.1	62.6	59.9	59	53.8	52.1	48	45.8	47.1	46.1	42	42.3	41.4	40.1	44.2	41	42.6	40.6	42	43.3	43.3	42.4	42.3	42.8	42.6
	115.5																														
	115.0																														
One Mile Stop 114.8	114.5																														
	114.0																														
	113.5																														
	113.0																														
	112.5																														
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	108.0																														
	107.5																														
	107.0																														
Lemitar Diversion 106.7	106.5																														
	106.0																														
	105.5																														
	105.0																														
9 Mile Outfall 104.5	104.5																														
USGS @ Escondida (CFS)		50.5	49.9	49	52.4	52.8	52.5	51.9	51.8	49.7	48.9	41.7	41.5	34.9	36.5	37.3	31.3	30.8	30.2	28.4	28.2	31.1	29.3	27.9	29.5	28.9	30.1	29	29.6	29.7	29.9
Escondida Br 104.1	104.0																														
	103.5																														
	103.0																														
N. Socorro Div. Channel 102.5	102.5																														
	102.0																														
	101.5																														
Escondida Drain Outfall 101.0	101.0																														
	100.5																														
	100.0																														
	99.5																														
Otero Street 99.0	99.0																														
	98.5																														
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Brown Arroyo 94.0	94.0																														
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	90.5																														
Neil Cupp 90.2	90.0																														
	89.5																														
	89.0																														
	88.5																														
	88.0																														
	87.5																														
USGS @ Highway 380 (CFS)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Antonio (U.S. 380) 87.1	87.0																														
	86.5																														
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BDA North Boundary 84.1	84.0																														
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	81.5																														
Realignment Channel Inlet 81.4	81.0																														
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	79.5																														
Realignment Channel Outlet 79.4	79.0																														
BDA HQ 78.7	78.5																														
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Former Mid BDA Pump Site 77.6	77.5																														
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South BDA Boundary Pumps 73.8	73.5																														
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	70.5																														
	70.0																														
	69.5																														
	69.0																														
San Marcial RR Bridge 68.6	68.5																														
USGS @ San Marcial (CFS)		21.2	21.9	20.5	20.3	20.6	18.9	19	16.6	20.2	19.8	20.6	19.9	22	21.4	19.1	19.7	19.1	23.3	22.4	19.6	21.6	21.5	21.3	21.1	21.9	21.8	22.5	17.9	14.8	14.2
	68.0																														
	67.5																														
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S Curve 60	60.0																														
	59.5																														
White Gate 59.2	59.0																														
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		July																													
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
San Acacia Diversion Dam 116.2	116.0																															
USGS @ San Acacia (CFS)		41.5	39.8	39.1	38.8	38.8	38.6	38.2	38.3	38.3	37.7	35.7	34.3	34.6	33	31.4	30	29.3	28.4	28.1	27.9	27.3	27.2	28.8	71.6	558	451	648	331	278	266	184
	115.5																															
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One Mile Stop 114.8	114.5																															
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Lemitar Diversion 106.7	106.5																															
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9 Mile Outfall 104.5	104.5																															
USGS @ Escondida (CFS)		30.2	28.7	27.5	26.1	25.7	25.6	25.8	25.7	25.6	25.9	24.9	23.6	23.3	24.7	23.9	21	19.7	18.8	16.5	17.2	15.8	38.5	47.7	76.5	356	278	609	316	317	264	187
Escondida Br 104.1	104.0																															
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N. Socorro Div. Channel 102.5	102.5																															
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Escondida Drain Outfall 101.0	101.0																															
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USGS @ Highway 380 (CFS)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	321	489	520	182	236	123	105
San Antonio (U.S. 380) 87.1	87.0																															
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BDA North Boundary 84.1	84.0																															
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Realignment Channel Inlet 81.4	81.0																															
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Realignment Channel Outlet 79.4	79.0																															
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South BDA Boundary Pumps 73.8	73.5																															
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San Marcial RR Bridge 68.6	68.5																															
USGS @ San Marcial (CFS)		13.8	15.3	15.1	14	13.5	9.31	4.62	4.24	4.73	3.86	3.03	2.48	0	0	0	0	0	0	0	0	0	0	0	0	107	153	705	249	226	157	110
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		August																													
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
San Acacia Diversion Dam 116.2	116.0																															
USGS @ San Acacia (CFS)		142	146	124	131	53.2	27.1	31.3	28.5	26.4	25.9	22	21.7	21.8	23	22.6	21	22.4	22.3	21.4	20.3	19.7	18.9	17.4	18.4	20.2	21.2	22	23.4	23	23.1	22.4
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Lemitar Diversion 106.7	106.5																															
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9 Mile Outfall 104.5	104.5																															
USGS @ Escondida (CFS)		141	136	130	143	66.6	46.3	37.6	36.8	35.1	34.8	29.7	25.4	23.8	23.8	21.1	19.7	19.4	18.9	17.2	16.1	14.5	12.8	9.59	8.78	9.9	13.1	14.1	14.7	15.9	14.6	13.8
Escondida Br 104.1	104.0																															
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N. Socorro Div. Channel 102.5	102.5																															
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Neil Cupp 90.2	90.0																															
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USGS @ Highway 380 (CFS)		77.8	53.6	50.4	40.8	23.7	10.9	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Antonio (U.S. 380) 87.1	87.0																															
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Realignment Channel Outlet 79.4	79.0																															
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South BDA Boundary Pumps 73.8	73.5																															
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San Marcial RR Bridge 68.6	68.5																															
USGS @ San Marcial (CFS)		84	47.8	41.9	30.5	41.4	31.7	19.5	18	17.4	14.8	16.8	18	17.3	16.8	17.1	16.5	18.4	18.6	16.3	14.9	15.2	18.1	18.4	16.2	9.58	1.24	0	0	0	0	0
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September																															
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
San Acacia Diversion Dam 116.2	116.0																														
USGS @ San Acacia (CFS)		22.3	24.9	26.2	28.4	27.4	27.3	27.3	26.7	25	24.4	24.5	24.1	24.1	24.5	23.8	24.1	23.6	23.6	24.6	24.2	24.5	24.3	25.1	25.3	29.9	34.1	34.8	33.1	32.6	31.4
	115.5																														
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One Mile Stop 114.8	114.5																														
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Lemitar Diversion 106.7	106.5																														
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	105.0																														
9 Mile Outfall 104.5	104.5																														
USGS @ Escondida (CFS)		15.3	18.5	18.8	19.7	19.4	17.1	17.3	15.8	24.1	20	19	18.1	15.8	15.3	14.4	14.9	14.9	15.2	16.1	16	16	17.6	17.3	17.6	18.5	25.5	26	27.3	29	28.7
Escondida Br 104.1	104.0																														
	103.5																														
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N. Socorro Div. Channel 102.5	102.5																														
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Escondida Drain Outfall 101.0	101.0																														
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USGS @ Highway 380 (CFS)		0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Antonio (U.S. 380) 87.1	87.0																														
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Realignment Channel Outlet 79.4	79.0																														
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San Marcial RR Bridge 68.6	68.5																														
USGS @ San Marcial (CFS)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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October																															
Landmark	RM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
San Acacia Diversion Dam 116.2	116.0																															
USGS @ San Acacia (CFS)		29.9	30	31	31.4	33.8	33.8	34.2	33.6	35	35.4	35	35.3	37.1	35.8	36.2	36.7	37.3	37.9	37.7	37.8	38.1	42.3	41.7	41.7	52.4	44.5	36.9	39.3	49.5	64.2	70.5
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Lemitar Diversion 106.7	106.5																															
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9 Mile Outfall 104.5	104.5																															
USGS @ Escondida (CFS)		27.9	27.3	28.1	27.7	30.4	32.8	33.3	34.3	35.3	35.9	36.8	36.9	39.2	40.5	39	39.6	41.7	41.6	41.8	41.3	41.2	45	45.9	45.4	52.7	53	49.5	45.4	48.7	64.9	72.9
Escondida Br 104.1	104.0																															
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N. Socorro Div. Channel 102.5	102.5																															
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USGS @ Highway 380 (CFS)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
San Antonio (U.S. 380) 87.1	87.0																															
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Realignment Channel Outlet 79.4	79.0																															
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San Marcial RR Bridge 68.6	68.5																															
USGS @ San Marcial (CFS)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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Appendix B. AJAC Job Safety Analysis Forms

Los Lunas Motorsports

SERVICE SCHEDULE CHECKLIST

2017 Polaris A17SEE57A1 SPORTSMAN 570 EPS S
100H SERVICE

CUSTOMER NAME _____ **MILEAGE** _____ **NEXT SVC** _____ **RO#** _____

Electrical System

Lights and Switches - Inspect
- Check all lights for proper operation
- Check all switches for proper operation

Battery - Inspect
- Check condition, Measure voltage
- Inspect for leaks, terminal condition

Spark Plug - Inspect
- Adjust gap
- Replace as needed

Wiring Harness and Connectors - Inspect
- Lube connectors with grease
- Inspect condition, replace if necessary

Head Light Aim - Inspect
- Check for proper alignment

Controls

Control Cables - Inspect
- Check for smooth operation, frayed cables
- Replace as needed

Throttle Operation - Inspect
- Inspect condition
- Adjust/lube cables as needed
- Inspect pedal for sticking if applicable
- Replace cables if necessary

Throttle Body Intake - Inspect
- Inspect for air leaks, Clean
- Replace if necessary

Shift Cable, Lever, Mechanism - Inspect
- Inspect condition
- Adjust as needed
- Lube if needed
- Replace if necessary

Engine

Recoil Starter - Inspect
- Inspect operation and rope
- Replace rope if necessary

Engine Oil Filter - Remove and Replace

Engine Oil - Remove and Replace
- Check for leaks, metal debris, level

Crankcase Ventilation System - Clean
- Check all hoses
- Replace if dried or cracked
- Replace Filter if Equipped

Transmission Oil - Remove and Replace
- Check for leaks, metal debris, level

Fuel and Intake

Idle Speed - Inspect
- Adjust speed as required

Air Cleaner Drain Tube - Inspect
- Inspect, Clean

Fuel Filter - Remove and Replace
- Inspect condition
- Replace if necessary

Air Cleaner - Inspect
- Inspect, Clean
- Replace if necessary

Fuel Line - Inspect
- Inspect overall condition
- Replace if worn or cracked

Fuel System - Inspect
- Inspect lines, tank
- Inspect Pump Seal
- Replace if worn or cracked

Cooling System

Cooling System - Inspect
- Inspect lines and hoses
- Replace if worn or cracked

Radiator Hoses and O-rings - Inspect
- Inspect for cracks in hoses
- Check for leaks in O-rings

- Replace if necessary ☐ ☐

Radiator Coolant - Inspect
- Check for leaks, level ☐ ☐
- Replace if necessary ☐ ☐

Brake System ✔ ⓘ ⚠

Brake Fluid - Inspect
- Check level, fill as required ☐ ☐
- Check condition, replace as needed ☐ ☐

Brake Operation - Inspect
- Check effectiveness and for drag ☐ ☐
- Adjust lever and/or pedal play ☐ ☐

Brake Pads/Shoes - Inspect
- Inspect thickness _____ ☐ ☐
- Inspect condition ☐ ☐

Drive System ✔ ⓘ ⚠

Differential Oil - Remove and Replace
- Check for leaks, metal debris, level ☐ ☐

CVT Drive Clutches - Inspect
- Inspect, Clean ☐ ☐
- Replace if necessary ☐ ☐

Drive Belt - Inspect
- Inspect belt condition ☐ ☐
- Check tension ☐ ☐
- Inspect wheel bearings ☐ ☐

Exhaust and Emissions ✔ ⓘ ⚠

Exhaust System - Inspect
- Inspect overall condition, check for leaks ☐ ☐
- Check nuts and bolts ☐ ☐

Chassis and Tires ✔ ⓘ ⚠

Steering System - Lube
- Inspect tie rods, ball joints, hubs ☐ ☐
- Check caster and camber ☐ ☐
- Inspect joint boots ☐ ☐
- Inspect steering box ☐ ☐
- Lubricate knuckle pivots ☐ ☐

Wheels and Tires - Inspect
- Check and set proper pressure ☐ ☐
- Inspect tread depth _____ ☐ ☐
- Inspect for dry rotting ☐ ☐
- Check wheel bearings ☐ ☐

Chassis Nuts and Bolts - Check Torque
- Check torque on critical chassis nuts and bolts ☐ ☐

Chassis Lubrication Points - Lube
- Hinges, latches ☐ ☐
- All pivots ☐ ☐

Engine Mounts - Check Torque
- Check torque on critical fasteners ☐ ☐

Suspension ✔ ⓘ ⚠

Suspension System - Inspect
- Check shocks ☐ ☐
- Check A-arms and/or trailing arms ☐ ☐
- Check bushings/bearings, lubricate as needed ☐ ☐

Technician or Service Advisor Suggestions _____

_____

_____

Technician Signature	**Date**	**Customer Signature**	**Date**
_____	_____	_____	_____

AJAC Enterprises, Inc. Daily Equipment Inspection Sheet 10/11/2011

Date: _____

Equip. Type: _____ Hour Meter: _____

Model: _____

Name of Person Performing Inspection: _____

Inspection	Yes	No	N/A	Who Was Damage Reported To?	Date of Repair
Is Service Brake Operable?					
Is Secondary (Emergency Brake Operable?					
Is Parking Brake Operable?					
Are Windows Clean and Free From Cracks?					
Are Tires Inflated and Free From Cuts or Tears?					
Are Audible Warning Devices Operable?					
Is Back-up Steering Operable?					
Does Controls Operate Properly?					
Does Windshield Wipers Operated Properly?					
Does Defroster, Heater and/or A.C Operate Properly?					
If the Machine is a Combination Vehicle (Tractor Trailer) Is the Trailer Coupled Correctly?					
Is Fire Extinguisher In Place and Charged?					
Is there any Noticeable Fluid Leaks?					
Does Back-up Alarm Operate Properly?					
Does Beacon Light Operate Properly?					

Comments:

_____

_____

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_____

Date

Signature of Person Responsible for Applicable Repairs _____

JOB SAFETY ANALYSIS	Job Title: Operation of ATV	JSA #	1/23/2017	X] New [ ] Revised
Company/ Organization AJAC ENT.	Title of Person who does job: Accredited ATV Operators	Supervisor: Anthony Orio	Analysis A. Orio	
Plant/Location: San Marical Yard and Pump Sites	Department: O & M Branch	Reviewed By: Clint Autrey	Approved by:	

Required and/or Recommended Personal Protective Equipment: Steel toe boots, gloves, ear protection, hard hat, safety vest, hearing protection. Helmet meeting DOT 218

Sequence of Basic Job Steps	Potential Hazards	Recommended Action or Procedure
1. Tracking and originating of ATV credential	1a. Personal injury	1a. Untrained personnel staff not operate ATV. Must be trained by accredited ATV Instructor/obey operator manual
2. Loading ATV on truck with headache rack and trailer transporting.	2a. Personal Injury	2a. Load ATV's with care and cautiously.
	2b. Trailer becomes unhatched property damage.	2b. Always be sure trailer is secured to truck. Check safety chains, lights, trailer jack in proper position.
	2c. Strains, sprains loss of limbs.	2b. Use care get assistance If needed never load or unload if trailer is not hitched to truck.
	2d. Personal burn	2d. When operating or loading do not come in contact with engine may be HOT
3. Unloading ATV	3a. Stains or sprains	3a. Use caution if needed ask for assistance,
	3b. ATV could fall causing injury or death to person, damage to ATV	3b. When unloading use extreme caution, use spotter if needed.

JOB SAFETY ANALYSIS	Job Title: Operation of ATV	JSA #	1/23/2017	X] New [ ] Revised
Company/ Organization AJAC ENT.	Title of Person who does job: Accredited ATV Operators	Supervisor: Anthony Orio	Analysis A. Orio	
Plant/Location: San Marical Yard and Pump Sites	Department: O & M Branch	Reviewed By: Clint Autrey	Approved by:	

Required and/or Recommended Personal Protective Equipment: Steel toe boots, gloves, ear protection, hard hat, safety vest, hearing protection. Helmet meeting DOT 218

Sequence of Basic Job Steps	Potential Hazards	Recommended Action or Procedure
4. Pre-trip Safety check	4a. Improperly working ATV could cause injury or damage to ATV.	4a. Perform pre-trip safety check lights,brakes,oil, tires, throttle, engine shut off, steering, loose parts, coolant if not air cooled.
	4b. Engine problems.	4b. Allow engine to warm-up prior to task at hand.
	4c. ATV operation without being prepared could fall off causing injury.	4c.Besure ATV is in neutral position and brake is applied proper to starting unit.
5. Operating.	5a. Personal injury.	5a. No passengers allowed on ATV's NO EXCEPTION.
	5b. Drowning	5b. No operation of ATV in flowing waters.
	5c. Loose control of ATV/Personal injury.	5c. Use caution on wet slippery surfaces operator has less control over ATV and should proceed with caution

JOB SAFETY ANALYSIS	Job Title: Operation of ATV	JSA #	1/23/2017	X] New [ ] Revised
Company/ Organization AJAC ENT.	Title of Person who does job: Accredited ATV Operators	Supervisor: Anthony Orio	Analysis A. Orio	
Plant/Location: San Marical Yard and Pump Sites	Department: O & M Branch	Reviewed By: Clint Autrey	Approved by:	
Required and/or Recommended Personal Protective Equipment: Steel toe boots, gloves, ear protection, hard hat, safety vest, hearing protection. Helmet meeting DOT 218				

Sequence of Basic Job Steps	Potential Hazards	Recommended Action or Procedure
	5d. ATV may roll over causing injury or death to operator and damage ATV.	5d. Do not attempt to cross hills sideway check owners manual for proper procedure.
	5e. ATV may hit obstacles	5e. When ground visibility is poor such as early dawn or dusk travel more slowly to maneuver around large rocks, logs or other obstacles.
6. Fueling	6a. Fire	6a. Secure fueling cans in transport vehicle use proper fueling can.
	6b. Fire	6b. Must have proper fire extinguisher.

Appendix C. 2020 Pumping Operations

Date	Pump Volume (cfs) Typically Based Off 0800 Measurement	Notes
	MAY 2020	
5/1/2020	24.6	2 pumps, initially started 1008 AM
5/2/2020	34.9	3 pumps
5/3/2020	34.4	
5/4/2020	33.0	
5/5/2020	32.9	
5/6/2020	32.5	
5/7/2020	31.1	
5/8/2020	31.7	
5/9/2020	31.4	
5/10/2020	31.0	
5/11/2020	35.0	
5/12/2020	30.9	
5/13/2020	30.0	
5/14/2020	30.0	
5/15/2020	31.8	
5/16/2020	34.2	
5/17/2020	34.4	
5/18/2020	30.0	
5/19/2020	27.2	
5/20/2020	34.6	
5/21/2020	31.5	**MAY ACRE FT USAGE**
5/22/2020	31.7	#1 236.5
5/23/2020	35.1	#2 306.5
5/24/2020	30.1	#3 525.3
5/25/2020	26.2	#4 501.7
5/26/2020	33.6	#5 414.5
5/27/2020	22.7	
5/28/2020	34.5	
5/29/2020	33.7	
5/30/2020	34.4	
5/31/2020	29.2	
	JUNE 2020	
6/1/2020	31.7	
6/2/2020	31.4	
6/3/2020	30.3	
6/4/2020	27.6	
6/5/2020	29.2	
6/6/2020	26.2	
6/7/2020	39.8	
6/8/2020	35.9	
6/9/2020	32.4	
6/10/2020	31.5	
6/11/2020	35.0	
6/12/2020	29.0	
6/13/2020	30.6	
6/14/2020	34.6	
6/15/2020	30.0	
6/16/2020	28.1	
6/17/2020	39.1	
6/18/2020	38.0	
6/19/2020	35.5	**JUNE ACRE FT USAGE**
6/20/2020	31.5	#1 416.9
6/21/2020	38.2	#2 331.4
6/22/2020	33.8	#3 408.6
6/23/2020	35.4	#4 237.6
6/24/2020	32.8	#5 454.1

Date	Pump Volume (cfs) Typically Based Off 0800 Measurement	Notes
6/25/2020	33.7	
6/26/2020	34.4	
6/27/2020	36.9	
6/28/2020	31.3	Reduced to 2 pumps at 0800
6/29/2020	21.7	
6/30/2020	25.4	
	JULY 2020	
7/1/2020	27.2	
7/2/2020	24.0	
7/3/2020	24.3	
7/4/2020	24.3	
7/5/2020	24.2	Pumps reduced to 16-17 cfs after reading
7/6/2020	16.5	2nd pump off, 1 running at 11-12 cfs
7/7/2020	11.9	
7/8/2020	12.0	
7/9/2020	11.9	
7/10/2020	11.4	
7/11/2020	11.5	
7/12/2020	12.5	From 11-12 cfs to 5-6 cfs after reading
7/13/2020	4.8	All pumps off after reading
7/14/2020		
7/15/2020		
7/16/2020		
7/17/2020		
7/18/2020		
7/19/2020		**JULY ACRE FT USAGE**
7/20/2020		#1 59.9
7/21/2020		#2 76.0
7/22/2020		#3 121.1
7/23/2020		#4 77.2
7/24/2020		#5 45.0
7/25/2020		
7/26/2020		
7/27/2020		
7/28/2020		
7/29/2020		
7/30/2020		
7/31/2020		
	AUGUST 2020	
8/1/2020		
8/2/2020	35.8	All 3 pumps back on when San Marcial gage fell to 25 cfs
8/3/2020	22.2	2 pumps, one turned off at 1707
8/4/2020	23.3	2 pumps
8/5/2020	22.6	
8/6/2020	21.4	
8/7/2020	22.2	
8/8/2020	22.5	
8/9/2020	22.5	
8/10/2020	17.5	
8/11/2020	21.7	
8/12/2020	22.8	
8/13/2020	21.7	
8/14/2020	23.0	**AUGUST ACRE FT USAGE**
8/15/2020	23.9	#1 257.9
8/16/2020	20.5	#2 169.1
8/17/2020	22.1	#3 111.2
8/18/2020	29.3	#4 235.4
8/19/2020	21.5	#5 202.2

Date	Pump Volume (cfs) Typically Based Off 0800 Measurement	Notes
8/20/2020	21.2	
8/21/2020	23.1	
8/22/2020	24.0	
8/23/2020	23.3	
8/24/2020	23.0	1 pump went off a 1155
8/25/2020	11.4	1 pump reduced to 5-6 cfs at 1749
8/26/2020	6.8	All pumps off at 1700
8/27/2020		
8/28/2020		
8/29/2020		
8/30/2020		
8/31/2020		

Appendix D. 2020 RiverEyes Landmark River Miles

Reach	Site	River Mile
Angostura	Angostura Dam	210.1
Angostura	Jemez River Confluence	208.57
Angostura	HWY 550 Bridge	203.81
Angostura	Rio Ranch North Beach	199.9
Angostura	Harvey Jones Canal	198.28
Angostura	Romero Road	197.97
Angostura	Sandia Lakes Wasteway	195.67
Angostura	Dixon Road	195.54
Angostura	North Diversion Channel	194.18
Angostura	South Boundary Sandia Pueblo	193.91
Angostura	Andrews Lane	193.87
Angostura	Cabezon Channel	192.66
Angostura	Upper Corrales Riverside Drain Outlet	192.14
Angostura	Alameda Bridge	192.07
Angostura	ABQ Drinking Water Diversion	191.76
Angostura	Calabacillas Arroyo	191.24
Angostura	Paseo del Norte Bridge	190.9
Angostura	Corrales Main Canal Wasteway	188.9
Angostura	Montano Bridge	187.87
Angostura	San Antonio Arroyo	187.02
Angostura	Cambell Rd Entrance	186.17
Angostura	Interstate 40 Crossing	184.97
Angostura	Central Wasteway	184.1
Angostura	Central Ave Bridge	183.4
Angostura	Tingley Beach	182.98
Angostura	Cesar Chavez Bridge	181.59
Angostura	Rio Bravo Bridge	178.41
Angostura	ABQ Wastewater Treatment Plant Outfall	177.71
Angostura	South Diversion Channel	177.12
Angostura	SW Valley Channel	176.39
Angostura	Brown Burn	174.73
Angostura	Valle de Oro	174.12
Angostura	Interstate 25 Crossing	172.59
Angostura	Isleta Pueblo North Boundary	172.4
Isleta	Isleta Diversion Dam	169.38
Isleta	Alejandro Drain	166.59
Isleta	Isleta Pueblo South Boundary	166.14
Isleta	240 Wasteway	165.18
Isleta	Los Lunas Highway 6	161.39
Isleta	Los Chavez Wasteway	156.68
Isleta	Peralta Main Canal Wasteway	152.45
Isleta	Lower Peralta Riverside Drain #1	149.59
Isleta	Belen Br (NM 6 Hwy 309)	149.51
Isleta	Belen Railroad Bridge	147.73
Isleta	New Belen Wasteway	147.16

Reach	Site	River Mile
Isleta	Lower Peralta Riverside Drain #2	144.6
Isleta	Aerial Gas Line	143.74
Isleta	Feeder 3 Wasteway	142.72
Isleta	Jarales Rd Br	140.83
Isleta	Storrie Wasteway	140.07
Isleta	Abo Arroyo	139.26
Isleta	Sabinal Drain Outfall	137.86
Isleta	Abeytas Heading	134.39
Isleta	Bernardo (U.S. 60 Bridge)	130.62
Isleta	San Francisco Riverside Drain	127.23
Isleta	Rio Puerco	126.63
Isleta	Lower San Juan Riverside Drain	126.45
Isleta	Lower San Juan Riverside Drain 2	122.06
Isleta	Sevilleta North Boundary	121.64
Isleta	Rio Salado	118.88
San Acacia	San Acacia Diversion Dam	116.17
San Acacia	Lemitar Diversion	106.65
San Acacia	9-Mile Outfall	104.44
San Acacia	Escondida Br	104.12
San Acacia	N. Socorro Div. Channel	102.48
San Acacia	Escondida Drain Outfall	100.9
San Acacia	Socorro Wastewater Treatment Plant Outfall (Otero St)	99.04
San Acacia	Brown Arroyo Wasteway	94
San Acacia	Neil Cupp Pumping Station	90.2
San Acacia	San Antonio (U.S. 380)	87.13
San Acacia	Socorro Drain	84.25
San Acacia	BDA North Boundary	84.1
San Acacia	Md BDA Pumps (Old Site)	77.55
San Acacia	South Boundary Pumping Station	73.75
San Acacia	San Marcial RR Bridge	68.57
San Acacia	San Marcial Gauge	68.26
San Acacia	Fort Craig Pumping Station	64.5
San Acacia	S Curve	60
San Acacia	White Gate	59.21
San Acacia	Power Line	57.5

Appendix E. MRGCD Metered Discharge Measurements in Albuquerque

2020 Albuquerque Reach River Measurements

Date	Time (mdt)	Discharge (cfs)	Location Description	RM
8/7/2020	900	227	Rio Grande below Angostura Diverson	210.6
9/10/2020	1330	303	Rio Grande below Angostura Diverson	210.6
9/11/2020	1500	221	Rio Grande below Angostura Diverson	210.6
9/11/2020	1100	190	Rio Grande below Angostura Diverson	210.6
9/14/2020	1000	211	Rio Grande below Angostura Diverson	210.6
9/14/2020	1500	209	Rio Grande below Angostura Diverson	210.6
9/15/2020	1030	217	Rio Grande below Angostura Diverson	210.6
9/17/2020	1000	295	Rio Grande below Angostura Diverson	210.6
9/25/2020	1000	249	Rio Grande below Angostura Diverson	210.6
10/2/2020	1500	153	Rio Grande below Angostura Diverson	210.6
10/7/2020	1400	105	Rio Grande below Angostura Diverson	210.6
10/8/2020	1100	119	Rio Grande below Angostura Diverson	210.6
10/19/2020	1100	156	Rio Grande at Alameda, above ABCWUA facility	191.83
7/31/2020	1030	168	Rio Grande at Central	183.4
8/6/2020	900	109	Rio Grande at Central	183.4
8/10/2020	1500	72.8	Rio Grande at Central	183.4
8/20/2020	940	172	Rio Grande at Central	183.4
9/15/2020	1000	89	Rio Grande at Central	183.4
9/24/2020	1400	101	Rio Grande at Central	183.4
10/7/2020	1000	89	Rio Grande at Central	183.4
10/19/2020	1000	114	Rio Grande at Central	183.4
10/5/2020	1230	118	Rio Grande At Corrales Siphon	199.72
10/13/2020	1300	88	Rio Grande At Corrales Siphon	199.72
10/19/2020	1300	121	Rio Grande at Paseo del Norte, below ABCWUA facility	191.7
8/6/2020	1230	86	Rio Grande Upstream of Wastewater Treatment plant	177.8
9/14/2020	1300	66	Rio Grande Upstream of Wastewater Treatment plant	177.8
10/7/2020	1300	39	Rio Grande Upstream of Wastewater Treatment plant	177.8

Appendix F. Wetted Width, Depth, and Surface Water Elevation at Four Temporary Staff Gages Measured During the Pump Study

RiverEyes Project Temporary Staff Gages During Pump Study (Data in Feet)												
	RM 71.88			**RM 64**			**RM 58.52**			**RM 55.59**		
Date	***Gage Height***	***Water Surface Elevation***	***Wetted Width***	***Gage Height***	***Water Surface Elevation***	***Wetted Width***	***Gage Height***	***Water Surface Elevation***	***Wetted Width***	***Gage Height***	***Water Surface Elevation***	***Wetted Width***
6/26/2020	4.3	4485.72	53.6	1.65	4455.03	38.1	11.34	4444.87	24.9	11.4	4437.36	24
6/28/2020	4.28	4485.7	52.9	1.64	4455.02	37.6	11.32	4444.85	24.7	11.4	4437.36	24.7
6/29/2020	4.18	4485.6	52.2	1.46	4454.84	36.9	11.12	4444.65	22.2	11.18	4437.14	22.3
6/30/2020	4.18	4485.6	52.2	1.48	4454.86	36.9	11.12	4444.65	23.9	11.16	4437.12	14.4
7/1/2020	4.2	4485.62	51.6	1.39	4454.77	36	11.1	4444.63	21.5	11.18	4437.14	22
7/2/2020	4.19	4485.61	51.5	1.48	4454.86	36.7	11.16	4444.69	23.5	11.2	4437.16	21
7/3/2020	4.2	4485.62	51.5	1.48	4454.86	36.7	11.15	4444.68	22.2	11.19	4437.15	20.5
7/4/2020	4.18	4485.6	52.4	1.46	4454.84	36.5	11.12	4444.65	22	11.18	4437.14	21
7/5/2020	4.2	4485.62	52.1	1.44	4454.82	36.3	11.1	4444.63	22.1	11.15	4437.11	21
7/6/2020	4.13	4485.55	51.4	1.4	4454.78	36.4	11.02	4444.55	21.6	11.16	4437.12	21.5
7/7/2020	4.02	4485.44	50.5	1.24	4454.62	35.6	10.92	4444.45	22.5	11.04	4437	13.1
7/8/2020	3.98	4485.4	51.2	1.18	4454.56	34.1	10.8	4444.33	20.3	10.9	4436.86	13.2
7/9/2020	4.04	4485.46	51.9	1.16	4454.54	34.1	10.8	4444.33	22.6	10.8	4436.76	14.2
7/10/2020	4.03	4485.45	50.9	1.08	4454.46	33.4	10.8	4444.33	20.2	10.58	4436.54	7
7/11/2020	4.02	4485.44	50	1.04	4454.42	32	10.76	4444.29	18.5	10	4435.96	0
7/12/2020	4	4485.42	48.7	1	4454.38	31	10.76	4444.29	22.9	10	4435.96	0
7/13/2020	3.88	4485.3	48.7	0.94	4454.32	15.2	10.75	4444.28	21.2	10	4435.96	0
7/14/2020	3.34	4484.76	0	0.9	4454.28	15.5	10.76	4444.29	21.2	10	4435.96	0
7/15/2020	3.34	4484.76	0	0.6	4453.98	14.7	10.75	4444.28	20.65	10	4435.96	0
7/16/2020	3.34	4484.76	0	0.8	4454.18	13.9	10.75	4444.28	20.75	10	4435.96	0
7/17/2020	3.34	4484.76	0	0.78	4454.16	16.6	10.74	4444.27	19.8	10	4435.96	0
7/18/2020	3.34	4484.76	0	0.4	4453.78	13	10.74	4444.27	19.8	10	4435.96	0
7/19/2020	3.34	4484.76	0	0.4	4453.78	11.7	10.74	4444.27	18	10	4435.96	0
7/20/2020	3.34	4484.76	0	0.6	4453.98	13.2	10.74	4444.27	20.4	10	4435.96	0
7/21/2020	3.34	4484.76	0	0.2	4453.58	12.9	10.72	4444.25	20.3	10	4435.96	0

Appendix G. Summary Table Showing the Daily Discontinuous Length (in RMs) by Affected Segment

Summary of the total length (RMs) affected by drying for each day by segment, reach, and riverwide									
Date	*San Acacia Segment 1a*	*San Acacia Segment 1b*	*San Acacia Segment 2*	*San Acacia Segment 3*	*San Acacia Reach Total*	*Peralta Wasteway Segment*	*Abeytas Heading Segment*	*Isleta Reach Total*	*Riverwide Total*
5/9/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/10/2020	1.94	0	0	0	***1.94***	0	0	***0***	***1.94***
5/11/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/12/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/13/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/14/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/15/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/16/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/17/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/18/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/19/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/20/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/21/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/22/2020	8.37	0	0	0	***8.37***	0	0	***0***	***8.37***
5/23/2020	9.92	0	0	0	***9.92***	0	0	***0***	***9.92***
5/24/2020	11.73	0	0	0	***11.73***	0	0	***0***	***11.73***
5/25/2020	10.69	0	0	0	***10.69***	0	0	***0***	***10.69***
5/26/2020	9.97	0	0	0	***9.97***	0	0	***0***	***9.97***
5/27/2020	8.02	0	0	0	***8.02***	0	0	***0***	***8.02***
5/28/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/29/2020	0	0	0	0	***0***	0	0	***0***	***0***
5/30/2020	11.6	0	0	0	***11.6***	0	0	***0***	***11.6***
5/31/2020	16.96	0	0	0	***16.96***	0	0	***0***	***16.96***
6/1/2020	17.35	0	0	0	***17.35***	0	0	***0***	***17.35***
6/2/2020	19.47	0	0	0	***19.47***	0	0	***0***	***19.47***
6/3/2020	19.51	0	0	0	***19.51***	0	0	***0***	***19.51***
6/4/2020	19.67	0	0	0	***19.67***	0	0	***0***	***19.67***
6/5/2020	19.37	0	0	0	***19.37***	0	0	***0***	***19.37***
6/6/2020	19.5	0	0	0	***19.5***	0	0	***0***	***19.5***
6/7/2020	19.41	0	0	0	***19.41***	0	0	***0***	***19.41***
6/8/2020	19.5	0	0	0	***19.5***	0	0	***0***	***19.5***
6/9/2020	19.65	0	0	0	***19.65***	0	0	***0***	***19.65***
6/10/2020	19.38	0	0	0	***19.38***	0	0	***0***	***19.38***
6/11/2020	19.63	0	0	0	***19.63***	0	0	***0***	***19.63***
6/12/2020	20.61	0	0	0	***20.61***	1.34	0	***1.34***	***21.95***
6/13/2020	20.54	0	0	0	***20.54***	2.49	0	***2.49***	***23.03***
6/14/2020	21.28	0	0	0	***21.28***	2.77	0	***2.77***	***24.05***
6/15/2020	21.34	0	0	0	***21.34***	4.6	0	***4.6***	***25.94***
6/16/2020	21.01	0	0	0	***21.01***	3.83	0	***3.83***	***24.84***
6/17/2020	22.04	0	0	0	***22.04***	4	0	***4***	***26.04***
6/18/2020	22.15	0	0	0	***22.15***	3.65	0	***3.65***	***25.8***
6/19/2020	22.18	0	0	0	***22.18***	5.7	0	***5.7***	***27.88***
6/20/2020	22.6	0	0	0	***22.6***	5.57	0	***5.57***	***28.17***
6/21/2020	22.53	0	0	0	***22.53***	4.86	0	***4.86***	***27.39***
6/22/2020	22.57	0	0	0	***22.57***	4.85	0	***4.85***	***27.42***
6/23/2020	22.35	0	0	0	***22.35***	5.13	0	***5.13***	***27.48***
6/24/2020	22.35	0	0	0	***22.35***	5.42	0	***5.42***	***27.77***
6/25/2020	22.53	0	0	0	***22.53***	5.9	0	***5.9***	***28.43***
6/26/2020	22.79	0	0	0	***22.79***	6.3	0	***6.3***	***29.09***
6/27/2020	22.35	0	0	0	***22.35***	6.43	0	***6.43***	***28.78***
6/28/2020	22.77	0	0	0	***22.77***	6.73	0	***6.73***	***29.5***
6/29/2020	22.79	0	0	0	***22.79***	6.75	0	***6.75***	***29.54***
6/30/2020	22.79	0	0	0	***22.79***	6.83	0	***6.83***	***29.62***
7/1/2020	22.81	0	0	0	***22.81***	6.09	0	***6.09***	***28.9***
7/2/2020	23.2	0	0	0	***23.2***	6.41	0.5	***6.91***	***30.11***

Summary of the total length (RMs) affected by drying for each day by segment, reach, and riverwide									
Date	***San Acacia Segment 1a***	***San Acacia Segment 1b***	***San Acacia Segment 2***	***San Acacia Segment 3***	***San Acacia Reach Total***	***Peralta Wasteway Segment***	***Abeytas Heading Segment***	***Isleta Reach Total***	***Riverwide Total***
7/3/2020	23.18	0	0	0	***23.18***	6.46	0.4	***6.86***	***30.04***
7/4/2020	23.21	0	0	0	***23.21***	6.57	0.35	***6.92***	***30.13***
7/5/2020	23.17	0	0	0	***23.17***	6.2	0.38	***6.58***	***29.75***
7/6/2020	23.55	0	0	0	***23.55***	6.38	0	***6.38***	***29.93***
7/7/2020	23.72	0	0	0	***23.72***	6.85	0	***6.85***	***30.57***
7/8/2020	23.74	0.6	0	0	***24.34***	5.84	1.32	***7.16***	***31.5***
7/9/2020	23.64	1.1	0	0	***24.74***	6.63	1.05	***7.68***	***32.42***
7/10/2020	23.68	1.1	0	1.5	***26.28***	7.58	2.34	***9.92***	***36.2***
7/11/2020	23.64	3.54	0	2	***29.18***	8.57	3.14	***11.71***	***40.89***
7/12/2020	23.81	4.42	0.29	1.86	***30.38***	7.67	3.42	***11.09***	***41.47***
7/13/2020	23.96	5.59	0.65	2.11	***32.31***	7.69	3.76	***11.45***	***43.76***
7/14/2020	34.49	0	0.68	2.03	***37.2***	6.53	3.78	***10.31***	***47.51***
7/15/2020	34.44	0	0.18	1.88	***36.5***	7.71	3.29	***11***	***47.5***
7/16/2020	34.8	0	0.41	1.6	***36.81***	7.54	2.71	***10.25***	***47.06***
7/17/2020	35.02	0	0.58	1.73	***37.33***	7.79	2.66	***10.45***	***47.78***
7/18/2020	34.65	0	0.63	1.9	***37.18***	7.69	2.48	***10.17***	***47.35***
7/19/2020	35.18	0	0.63	1.99	***37.8***	7.37	1.59	***8.96***	***46.76***
7/20/2020	35.34	0	0.24	1.75	***37.33***	7.81	0.35	***8.16***	***45.49***
7/21/2020	35.5	0	0.8	2.06	***38.36***	7.82	0	***7.82***	***46.18***
7/22/2020	35.36	0	0.42	1.56	***37.34***	7.78	0	***7.78***	***45.12***
7/23/2020	32.88	0	0.42	1.54	***34.84***	7.42	0	***7.42***	***42.26***
7/24/2020	32.22	0	0	1.45	***33.67***	6.63	0	***6.63***	***40.3***
7/25/2020	11.82	0	0	1.41	***13.23***	5.41	0	***5.41***	***18.64***
7/26/2020	0	0	0	0	***0***	0	0	***0***	***0***
7/27/2020	0	0	0	0	***0***	0	0	***0***	***0***
7/28/2020	0	0	0	0	***0***	0	0	***0***	***0***
7/29/2020	0	0	0	0	***0***	0	0	***0***	***0***
7/30/2020	0	0	0	0	***0***	0	0	***0***	***0***
7/31/2020	0	0	0	0	***0***	4.45	0	***4.45***	***4.45***
8/1/2020	0	0	0	0	***0***	5.2	0	***5.2***	***5.2***
8/2/2020	0	0	0	0	***0***	5.82	0	***5.82***	***5.82***
8/3/2020	0	0	0	0	***0***	5.98	0	***5.98***	***5.98***
8/4/2020	0	0	0	0	***0***	6.09	0	***6.09***	***6.09***
8/5/2020	0	0	0	0	***0***	7.5	0	***7.5***	***7.5***
8/6/2020	0	0	0	0	***0***	7.42	0	***7.42***	***7.42***
8/7/2020	12.25	0	0	0	***12.25***	7.9	0	***7.9***	***20.15***
8/8/2020	18.89	0	0	0	***18.89***	7.56	0	***7.56***	***26.45***
8/9/2020	19.95	0	0	0	***19.95***	8.36	0	***8.36***	***28.31***
8/10/2020	20.25	0	0	0	***20.25***	7.7	0	***7.7***	***27.95***
8/11/2020	19.87	0	0	0	***19.87***	8.27	0	***8.27***	***28.14***
8/12/2020	20.77	0	0	0	***20.77***	8.2	0	***8.2***	***28.97***
8/13/2020	21.94	0	0	0	***21.94***	8.37	0	***8.37***	***30.31***
8/14/2020	22.01	0	0	0	***22.01***	8.4	0	***8.4***	***30.41***
8/15/2020	21.96	0	0	0	***21.96***	8.37	0	***8.37***	***30.33***
8/16/2020	21.92	0	0	0	***21.92***	7.9	0	***7.9***	***29.82***
8/17/2020	21.69	0	0	0	***21.69***	7.89	0	***7.89***	***29.58***
8/18/2020	21.82	0	0	0	***21.82***	8.32	0	***8.32***	***30.14***
8/19/2020	21.9	0	0	0	***21.9***	8.24	1.9	***10.14***	***32.04***
8/20/2020	21.8	0	0	0	***21.8***	8.2	2.46	***10.66***	***32.46***
8/21/2020	22.44	0	0	0	***22.44***	8.15	3.12	***11.27***	***33.71***
8/22/2020	22.96	0	0	0	***22.96***	8.23	3.25	***11.48***	***34.44***
8/23/2020	22.97	0	0	0	***22.97***	7.79	3.24	***11.03***	***34***
8/24/2020	23.96	0	0	0	***23.96***	7.77	3.62	***11.39***	***35.35***
8/25/2020	23.56	0	0	0	***23.56***	8.08	3.49	***11.57***	***35.13***
8/26/2020	23.47	0	0	0	***23.47***	7.38	2.17	***9.55***	***33.02***

Summary of the total length (RMs) affected by drying for each day by segment, reach, and riverwide									
Date	***San Acacia Segment 1a***	***San Acacia Segment 1b***	***San Acacia Segment 2***	***San Acacia Segment 3***	***San Acacia Reach Total***	***Peralta Wasteway Segment***	***Abeytas Heading Segment***	***Isleta Reach Total***	***Riverwide Total***
8/27/2020	33.14	0	0	0	***33.14***	7.71	1.9	***9.61***	***42.75***
8/28/2020	33.1	0	0	0	***33.1***	7.75	1.89	***9.64***	***42.74***
8/29/2020	33.06	0	0	1.23	***34.29***	8.07	2.48	***10.55***	***44.84***
8/30/2020	32.87	0	0	1.39	***34.26***	7.68	2.63	***10.31***	***44.57***
8/31/2020	32.98	0	0.03	1.44	***34.45***	7.77	2.59	***10.36***	***44.81***
9/1/2020	32.94	0	0.08	1.43	***34.45***	7.59	2.98	***10.57***	***45.02***
9/2/2020	30.85	0	0.04	1.25	***32.14***	7.35	0.99	***8.34***	***40.48***
9/3/2020	31.28	0	0.05	1.26	***32.59***	7.37	1.81	***9.18***	***41.77***
9/4/2020	31.69	0	0.07	1.9	***33.66***	6.83	2.27	***9.1***	***42.76***
9/5/2020	31.55	0	0.09	1.44	***33.08***	7.88	2.29	***10.17***	***43.25***
9/6/2020	32.69	0	1.25	1.53	***35.47***	8.63	2.91	***11.54***	***47.01***
9/7/2020	32.51	0	1.55	1.44	***35.5***	7.68	2.69	***10.37***	***45.87***
9/8/2020	32.49	0	0.64	1.45	***34.58***	8.62	2.42	***11.04***	***45.62***
9/9/2020	30.21	0	0	1.2	***31.41***	7.17	1.06	***8.23***	***39.64***
9/10/2020	29.48	0	0	0.7	***30.18***	6.25	0	***6.25***	***36.43***
9/11/2020	29.64	0	0	0.44	***30.08***	6.2	0	***6.2***	***36.28***
9/12/2020	30.21	0	0	0	***30.21***	6.15	0	***6.15***	***36.36***
9/13/2020	30.72	0	0	0	***30.72***	6.18	0	***6.18***	***36.9***
9/14/2020	30.61	0	0	0	***30.61***	5.95	0	***5.95***	***36.56***
9/15/2020	30.54	0	0	0	***30.54***	6.1	0	***6.1***	***36.64***
9/16/2020	30.4	0	0	0	***30.4***	6.25	0	***6.25***	***36.65***
9/17/2020	30.46	0	0	0	***30.46***	6.25	0	***6.25***	***36.71***
9/18/2020	30.49	0	0	0.64	***31.13***	6.58	0	***6.58***	***37.71***
9/19/2020	30.29	0	0	0.69	***30.98***	7.55	0	***7.55***	***38.53***
9/20/2020	30.17	0	0	0.19	***30.36***	6.67	0	***6.67***	***37.03***
9/21/2020	30.1	0	0	0.13	***30.23***	7.35	1.5	***8.85***	***39.08***
9/22/2020	30.08	0	0	0.14	***30.22***	7.02	0.59	***7.61***	***37.83***
9/23/2020	30.04	0	0	0.17	***30.21***	6.95	0.68	***7.63***	***37.84***
9/24/2020	30.04	0	0	0	***30.04***	7.19	0.55	***7.74***	***37.78***
9/25/2020	29.97	0	0	0	***29.97***	7.29	0	***7.29***	***37.26***
9/26/2020	29.93	0	0	0.08	***30.01***	7.15	0	***7.15***	***37.16***
9/27/2020	29.75	0	0	0.17	***29.92***	7.19	0	***7.19***	***37.11***
9/28/2020	29.75	0	0	0.17	***29.92***	6.29	0	***6.29***	***36.21***
9/29/2020	29.4	0	0	0.19	***29.59***	7.44	0	***7.44***	***37.03***
9/30/2020	29.4	0	0	0.19	***29.59***	7.44	0	***7.44***	***37.03***
10/1/2020	29.12	0	0	0.94	***30.06***	7.95	0	***7.95***	***38.01***
10/2/2020	29.12	0	0	0.94	***30.06***	7.95	0	***7.95***	***38.01***
10/3/2020	28.99	0	0	1.03	***30.02***	6.95	0	***6.95***	***36.97***
10/4/2020	28.96	0	0	1.23	***30.19***	6.52	0	***6.52***	***36.71***
10/5/2020	28.96	0	0	1.23	***30.19***	6.52	0	***6.52***	***36.71***
10/6/2020	28.65	0	0	0.92	***29.57***	7.02	0	***7.02***	***36.59***
10/7/2020	28.65	0	0	0.92	***29.57***	7.02	0	***7.02***	***36.59***
10/8/2020	28.37	0	0	0.89	***29.26***	7.03	0	***7.03***	***36.29***
10/9/2020	28.37	0	0	0.89	***29.26***	7.03	0	***7.03***	***36.29***
10/10/2020	28.03	0	0	0.59	***28.62***	6.41	0	***6.41***	***35.03***
10/11/2020	27.92	0	0	0.54	***28.46***	6.31	0	***6.31***	***34.77***
10/12/2020	27.92	0	0	0.54	***28.46***	6.31	0	***6.31***	***34.77***
10/13/2020	27.67	0	0	0.43	***28.1***	6.37	0	***6.37***	***34.47***
10/14/2020	27.67	0	0	0.43	***28.1***	6.37	0	***6.37***	***34.47***
10/15/2020	27.48	0	0	0.24	***27.72***	6.52	0	***6.52***	***34.24***
10/16/2020	27.48	0	0	0.24	***27.72***	6.52	0	***6.52***	***34.24***
10/17/2020	27.15	0	0	0	***27.15***	6.75	0	***6.75***	***33.9***
10/18/2020	26.83	0	0	0	***26.83***	6.45	0	***6.45***	***33.28***
10/19/2020	26.83	0	0	0	***26.83***	6.45	0	***6.45***	***33.28***
10/20/2020	26.61	0	0	0	***26.61***	6.45	0	***6.45***	***33.06***

Summary of the total length (RMs) affected by drying for each day by segment, reach, and riverwide									
Date	***San Acacia Segment 1a***	***San Acacia Segment 1b***	***San Acacia Segment 2***	***San Acacia Segment 3***	***San Acacia Reach Total***	***Peralta Wasteway Segment***	***Abeytas Heading Segment***	***Isleta Reach Total***	***Riverwide Total***
10/21/2020	26.61	0	0	0	***26.61***	6.45	0	***6.45***	***33.06***
10/22/2020	26.35	0	0	0	***26.35***	6.36	0	***6.36***	***32.71***
10/23/2020	26.35	0	0	0	***26.35***	6.36	0	***6.36***	***32.71***
10/24/2020	26.04	0	0	0	***26.04***	6.34	0	***6.34***	***32.38***
10/25/2020	26.03	0	0	0	***26.03***	6.32	0	***6.32***	***32.35***
10/26/2020	26.03	0	0	0	***26.03***	6.32	0	***6.32***	***32.35***
10/27/2020	26.03	0	0	0	***26.03***	6.03	0	***6.03***	***32.06***
10/28/2020	26.03	0	0	0	***26.03***	6.03	0	***6.03***	***32.06***
10/29/2020	23.76	0	0	0	***23.76***	5.75	0	***5.75***	***29.51***
10/30/2020	23.65	0	0	0	***23.65***	5.75	0	***5.75***	***29.4***
10/31/2020	23.42	0	0	0	***23.42***	4.96	0	***4.96***	***28.38***
MAX	35.50	5.59	1.55	2.11	***38.36***	8.63	3.78	***11.71***	***47.78***
MEDIAN	23.32	0.00	0.00	0.00	***23.32***	6.41	0.00	***6.45***	***31.04***
MEAN	21.41	0.09	0.06	0.35	***21.91***	5.25	0.52	***5.77***	***27.68***
Date of Max	7/21/2020	7/13/2020	7/12/2020	7/21/2020	***7/21/2020***	9/6/2020	7/13/2020	***7/11/2020***	***7/17/2020***
First Day Drying	5/10/2020	7/8/2020	9/7/2020	7/10/2020	***5/10/2020***	6/12/2020	7/2/2020	***6/12/2020***	***5/10/2020***
Last Day Drying	10/31/2020	7/13/2020*	9/8/2020	10/16/2020	***10/31/2020***	10/31/2020	9/24/2020	***10/31/2020***	***10/31/2020***