



Water Quality and Biological Assessment of the Santa Fe River June 2015



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1 Introduction

The Santa Fe River is located in north Florida on the borders of Alachua, Bradford, Union, Columbia, Gilchrist, and Suwannee counties. It flows from Little Lake Santa Fe Swamp for 75 miles (121 km) into the Suwannee River (Figure 1). The water is usually dark brown from the tannins in the cypress and other tree leaves bordering the generally slow-moving river. The Santa Fe River completely disappears underground for three miles (4.9 km) into the Santa Fe River Sink in O'Leno State Park and reappears from underground at River Rise Preserve State Park. The Lower Santa Fe River is fed by many springs making it much less tannic in some areas and is popular for recreation (kayaking/canoeing, tubing, and fishing) especially in and near the springs (including Hornsby, Ginnie, Gilchrist Blue, Rum Island, Poe, and Lily springs). The surrounding land in 2008 was approximately 47% upland forest, 22% agricultural, 15% wetland, and 11% urban and built-up (FDEP 2012).



1: Santa Fe River Scene at SFR030C1, June 16, 2015

2 Goal of the Study

The purpose of this work was to evaluate the biological integrity at four stations (100 m stretches) along the Santa Fe River. The results of this study will fill in missing gaps of baseline data for the Suwannee River Water Management District (SRWMD) and Alachua County Environmental Protection Department (ACEPD). These data may be used to compare the results of this study with water quality data collected since 1970 to assess possible effects of human activity in the watershed on the receiving waters.

3 Site Locations

Water quality and biological samples were collected at four sites, both upstream and downstream of O'Leno and River Rise Preserve State Parks. This is significant because the water in the upper Santa Fe is a different quality than the water downstream of the river rise. The water upstream is much higher in tannins and the water downstream, particularly in the dry season, is dominated by spring water. The first two sample sites are positioned above O'Leno State Park. SFR010C1 is located on the border of Alachua and Bradford Counties near Graham at CR 225; SFR030C1 is on the border of Alachua and Union Counties near Worthington Springs at SR 121. The sites below River Rise Preserve State Park are: SFR050C1 located at US 441 on the border of Alachua and Columbia Counties, and SFR060C1 near Ft. White on the border of Columbia and Gilchrist Counties (SR 47). These four stations have been routinely sampled by the SRWMD and are currently sampled for water quality only (Figure 1). Global Positioning System (GPS) coordinates were recorded for each sampling location (Table 1). Photographs of the sites are located in Appendix A. A station at O'Leno State Park just above the sink currently and historically has been sampled for macroinvertebrates and water quality and was left out of this study to avoid duplication. The other stations have been sampled for water quality, but not for biological integrity.

Location	Station ID	Latitude	Longitude	County	Sample Date
Santa Fe River near Graham (at County Rd 225)	SFR010C1	29.84654	-82.22003	Alachua, Bradford	6/16/2015
Santa Fe River near Worthington Springs (at SR 121)	SFR030C1	29.92190	-82.42613	Alachua, Union	6/16/2015
Santa Fe River near High Springs (at US 441)	SFR050C1	29.85309	-82.60825	Alachua, Columbia	6/15/2015
Santa Fe River near Fort White (at SR 47)	SFR060C1	29.86487	-82.73976	Columbia, Gilchrist	6/15/2015

4 Methodology

Water & Air collected biological and water quality samples at four stations along the Santa Fe River (Table 1, Figure 1) in June of 2015 and provided the biological analysis and reporting. Laboratory analyses of water quality were performed by the St. Johns River Water Management District (SJRWMD) laboratory. The assessments carried out at each location included the SRWMD Modified Biological Reconnaissance (BioRecon) evaluation, Aquatic Habitat Characterization (Habitat Assessment), Physical/Chemical Characterization, a Rapid Periphyton Survey (RPS), and a Linear Vegetation Survey (LVS). Work was performed in accordance with an approved scope of work following procedures used in bioassessment and water quality monitoring within the SRWMD (SRWMD 2014). Field sampling was conducted by Water & Air personnel Efrain Tavarez and Laura Bedinger. Mr. Tavarez is fully qualified to lead bio-assessment teams and passed the field audits described in Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOP) BRN 1300 and SCI 1300 (FDEP 2014, 2008). He has also undergone FDEP training in water sampling. Both Efrain Tavarez and Laura Bedinger have received FDEP training for LVS, RPS, Habitat Assessment, and SCI and hold current pass status for Habitat Assessment.

4.1 Water Quality Sampling

Surface water grab samples and in situ measurements were collected at all four stations to characterize physical and chemical conditions. Before the water samples were collected, observations were made of air temperature, wind speed and direction, cloud cover, weather and total depth. At mid-depth, a handheld YSI meter (600QS model sonde) was used to measure water temperature, salinity, dissolved oxygen concentration and saturation, pH, and conductivity.

Water sampling kits were assembled by Water & Air. District staff provided bottles, preservatives, labels, chain-of-custody forms and paid for shipment of water samples to the SJRWMD laboratory in Palatka, Florida. All required chain-of-custody and quality assurance procedures were followed.

Water samples were collected with a minimum of solids material. Some water samples were filtered and/or preserved in the field. Surface water samples were taken as grab samples at approximately 30 cm below the surface. The river was sampled mid-channel. One sample from each site was analyzed for turbidity in the field using a Hach 2100P meter. One blank was submitted to the laboratory on each sampling day. Water samples were properly preserved, packaged, and shipped via overnight delivery to the SJRWMD laboratory in Palatka, Florida within the recommended holding times. All required chain-of-custody and quality assurance procedures were followed. Data were reported to SRWMD, ACEPD, and Water & Air Research, Inc.

Laboratory analyses of water quality included measurements of: alkalinity, chlorophyll *a* (Chl *a*), Chl *a* corrected for pheophytin (the ratio of Chl *a* to pheophytin was calculated), chlorophyll *b*, chlorophyll *c*, chloride, color (various analyses), conductivity, ammonium, nitrate-nitrite nitrogen, phosphate, salinity, silica, sulfate, total Kjeldahl nitrogen (TKN), total phosphorus, total organic carbon (TOC), and turbidity. A full list of analytes and the sampling results can be found in Appendix C.

Water & Air developed a sampling schedule indicating which stations would be visited and which tasks will be accomplished each day. The schedule was used to alert the courier of shipments and to help the laboratory plan and prepare for receiving the water samples. The schedule was also used to generate prelogin data files, water sample bottle labels, and chain-of-custody forms. Field data was recorded on paper copies of the appropriate data sheets. The field data was also entered into electronic files using the SJRWMD's Field Data Entry system. The field data were entered and transmitted to the SRWMD and SJRWMD laboratory within one (1) day of each sampling event. The field data were reviewed and entered into the Field Data Entry database and checked for accuracy. The corrected data was submitted to SRWMD and SJRWMD laboratory.

4.2 Habitat Assessment

Following FDEP SOP FT 3000 for Aquatic Habitat Characterization habitat assessments were conducted at all four sites. A 100 meter long sampling area of the river was marked off at each of the four sites. In these areas, the vegetation of the land along the river, river bank characteristics, water velocity, and aquatic macroinvertebrate habitat were observed and recorded in Form FD 9000-3. Productive habitats for macroinvertebrates include snags (woody debris), leaf packs/mats, roots, aquatic macrophytes, and rock.

Field sheets submitted with reports were 1) DEP-SOP-001/01: Form FD 9000-3 Physical/Chemical Characterization Field Sheet and 2) DEP-SOP-001/01: Form FD 9000-5 Stream/River Habitat Assessment Field Sheet (Appendix D).

FDEP Standard Operating Procedures (SOPs)	
Aquatic Habitat Characterization	FT 3000
Physical/Chemical Characterization	FT 3001
Stream Habitat Assessment	FT 3100
Rapid Periphyton Survey	FS 7230
Linear Vegetation Survey	FS 7320
Biological Reconnaissance Field Method	BRN1000
(The BRN1000 above was modified by the SRWMD)	
Determination of Biological Indices	LT 7000
Taxonomic Effort for Freshwater Macroinvertebrates	LT 7900
Field Forms	
Physical/Chemical Characterization Field Sheet	FD 9000-3
Stream/River Habitat Sketch Sheet	FD 9000-4
Stream/River Habitat Assessment Field Sheet	FD 9000-5
Rapid Periphyton Survey Field Sheet	FD-9000-25
Linear Vegetation Survey Field Sheet	FD 9000-32

The habitat assessment evaluates the following characteristics described in DEP-SOP- 001/01: FT 3000 Aquatic Habitat Characterization.

Substrate diversity: variety of habitat or substrate in which macroinvertebrates can find for food and shelter within the 100-meter reach. Examples are snags (woody debris or logs) roots, aquatic vegetation, leaf packs/mats, and rocks.

Substrate availability: spatial abundance of productive habitat in relation to the entire 100-meter reach measured in square meters.

Water velocity: the maximum speed of the current at a typical section of the stream. Increased velocity helps to increase dissolved oxygen.

Habitat smothering: amount of productive habitat partially or fully covered with silt or sand (or in some cases, algae). The number of pools present help to determine this metric, as a natural stream would typically have 1-2 pools for every 12 times its width. Silt and sand smothering are both specifically assessed.

Artificial channelization: whether or not the stream was straightened. A straightened stream with box cut banks and monotypic depth would receive a poor designation.

Bank stability: the degree of erosion and bank sloughing caused by storm surges.

Riparian buffer width: width of natural vegetation from the stream outward from the banks.

Riparian zone quality: value that shows how much the native vegetation has been altered due to cutting, removal, exotic plant invasion, etc.

4.3 Modified BioRecon Sampling and Analysis

The Modified BioRecon was designed by the SRWMD to sample the macroinvertebrate community from as many productive habitats as can be found along the 100-meter stretch of the river. The FDEP has developed a BioRecon method which has been tested and revised to give statistically defensible results. The SRWMD Modified BioRecon method includes up to twenty (20) half-meter sweeps of a dipnet, using a 500 µm net, instead of only four (4) half-meter sweeps with a 600µm net as in the FDEP BioRecon protocol.

The water levels were checked before sampling to determine if the water level in the river was suitable for sampling. Invertebrates were collected using dip nets with a 500 micron (#35) mesh. Samplers performed 20 discrete 0.5 m sweeps with the D-frame dip net.

The most effective way to capture invertebrates was used by placing the bottom rim of the dip net directly downstream of the area to be sampled. The substrate was agitated to dislodge organisms (with hands or brush, where appropriate) from substrates (snags, etc.) working as closely to the net (within 10 cm) as possible. Hands or the brush were used to create water flow into the net and make sure the disturbed material and organism mixture were completely collected by the net. The net was placed at the downstream portion of the habitat, and moved in an upstream pattern until organisms from the 0.5 m area were captured. Three passes over the same 0.5 meter area were used to capture all organisms. Where a continuous 0.5 m sweep was not possible, two 0.25 m sweeps or three 0.17 m sweeps of the same habitat type were performed to obtain a full 0.5 m sweep.

An even number of sweeps were made over each available productive habitat. No minor or unproductive habitats such as sand or muck were sampled. It was possible that there was less than 2 m² of some substrates available for sampling. For this reason, although an ideal total number of sweeps is considered to be 20, judgment was used. The final goal was to have a subsample of 100 macroinvertebrates that are representative of the combined diversity from each of the available substrates.

Sweep samples from all major habitats were composited in wide mouth jugs. Small aliquots of the detritus plus organism matrix were placed in a white picking pan diluted with a small amount of site water. The density of detritus was low enough so organisms were easily seen and captured. Organisms were removed with forceps or a pipette and placed in small jar dishes, sorted by group. These were documented, and then placed in a jar filled with ethanol 80%. These procedures were repeated until all the material in the net was examined, and until no new taxa were found. The jar into which these organisms were placed represents a combination of all habitat types and was returned as a combined sample to the lab for final ID and analysis. If field conditions were unsuitable for field sorting, the samples from all sweeps were placed in wide-mouth jars and stored on ice until sorting was finished in the lab. Samples were picked until at least 100 representative organisms were collected.

The process followed methods recommended in DEP-SOP- 003/11 "BRN 1000 Biological Reconnaissance Methods" section 3.5 except 20 sweeps were performed, only one side of the river was sampled except at SFR010C1, and midges and worms were identified to the lowest practicable taxonomic level as well as all of the other organisms collected. Invertebrate taxonomic identification quality control checks using FDEP SOP LQ 7420 and LD 7232 were utilized with in-house staff. Unusual organisms were sent to an expert for identification verification.

Data were entered in SRWMD provided Microsoft Excel spreadsheets. The organisms were analyzed by entering the data into the Water & Air macroinvertebrate database. For each site the raw data (including feeding guild), total number of species, total number of organisms, percent composition of major taxa, the Shannon-Wiener or Weaver Diversity Index Base 2 (SWDI), the Simpson's Diversity Index, Hill's Modified Evenness, and benthic EPT score were calculated and reported. Please see the Glossary for explanations of these statistical methods. Benthic Invertebrate EPT Score refers to the number of species of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) present. These orders of insects are used because they are generally sensitive to pollution. Score per method, station, and date sampled were included in tabular form.

These indices are somewhat skewed by both BioRecon sorting methods, and will likely produce scores higher than one would find in the general population. The sorting method requires that all different species observed in the sample are collected in small numbers (5 to 15 depending on the species). The distribution in the sorted sample will therefore be more even than in the population. Those species most abundant in the sample will not be represented in their entirety if that number is more than five to fifteen.

The database was also used to calculate the FDEP BioRecon score using formulae from the BioRecon SOP. The FDEP sampling method required four (4) 0.5 meter sweeps rather than twenty (20) as in the SRWMD Modified BioRecon. Therefore it is likely the scores would be

higher than if only four sweeps were collected. The FDEP six-metric method used Total Taxa (number of species found), Ephemeroptera (mayfly) Taxa, Trichoptera (caddisfly) Taxa, Long-lived Taxa (living one year or more), Clinger Taxa (requiring a fairly swift current), and Sensitive Taxa (sensitive to pollutants) to evaluate and score the macroinvertebrate community health. The Eastern Panhandle (Big Bend) of Florida bioregion was used to calculate the values. Scores may range from 1 to 10. This method was used to produce Table 7.

4.4 Rapid Periphyton and Linear Vegetation Surveys

4.4.1 Rapid Periphyton Survey (RPS)

The RPS technique is a means of classifying attached algal mat growth based on presence/absence and the measurement of average algal mat thickness, perpendicular to the substrate. For filamentous algae, the average length of the filaments is measured rather than thickness of a mat. Data are recorded by class using the following rank thickness classifications:

Class N = Non-problematic; algae are absent, or present at thickness up to 1 mm

Class 3 = greater than 1 mm to 6 mm

Class 4 = greater than 6 mm to 20 mm

Class 5 = greater than 20 mm to 10 cm

Class 6 = algae greater than 10 cm

If 20% or more of the sample points have an algal thickness rank of class 4, 5, or 6, a composite sample of periphyton is collected from the 100-meter reach per FDEP SOP FS 7240, targeting any material that is dominant or co-dominant and appears to represent a distinct taxonomic group (e.g. diatoms, filamentous, masses of cyanobacteria, or distinct taxa within these major groups). These samples are transported to the laboratory where the three to five most dominant taxa are identified and recorded to augment autoecological information that can be used to determine whether the types of algae present represent evidence of acceptable vs. adverse conditions. A periphyton sample was collected for analysis at SFR050C1.

RPS Data Interpretation:

If a stream segment exceeds an RPS 4-6 coverage of >25% during two consecutive, temporally independent samplings (> 3 months apart), the FDEP considers this as evidence that the water body fails to meet the Numeric Nutrient Criterion (NNC). If the NNC is met, the RPS results indicate evidence of no imbalance of flora in the stream (FDEP 2013).

Taxonomic analysis of periphyton was conducted by Michael Hein. Portions of the samples were first examined with a Nikon dissecting microscope and then at higher magnification with a Leica inverted microscope. The more abundant filamentous algal taxa present were ranked from 1 to 3 based on filament size and abundance. Larger chain forming diatoms also were included in the analysis because of their abundance in some of the samples.

4.4.2 Linear Vegetation Survey (LVS)

The LVS method was designed to be a rapid screening tool for ecological condition by determining how closely a site's aquatic vascular plants assemblage resembles that of an undisturbed condition.

Because many streams naturally have very little or no vegetation, interpretation of LVS data requires that a minimum of two square meters (2 m^2) of macrophyte coverage to be present throughout a 100-meter stream reach. If there is less than 2 m^2 of vascular plant coverage present in a 100-meter stream reach, there are no floral imbalances attributable to aquatic plants.

If at least 2 m^2 of vascular plant coverage is present in a 100-meter stream reach, the following discussion applies:

The total abundance of submersed, floating and emergent macrophytes within each 10- meter section of the 100-meter stream segment is estimated and placed into one of the following categories based on estimated total percent cover all vegetation within a given 10-meter segment area: 0-5%, >5 and $\leq 10\%$, >10 and $\leq 25\%$, >25 and $\leq 50\%$, >50%.

Frequency of occurrence information by plant species collected by the sampling team is then used to calculate a mean Coefficient of Conservatism (C of C) and Florida Exotic Pest Plant Council (FLEPPC) guidelines in accordance with FDEP SOP FS 7320.

The C of C concept is based on two factors: 1) plants have varying degrees of fidelity to specific habitats and their quality, and 2) plants have varying tolerances to disturbances and respond in varying degrees. Each plant is assigned a C of C value by a group of local botanists in a region, each of whom has extensive experience with the plants in the field. A C of C value is assigned to species on a scale of 0 - 10, and is based on its fidelity to a habitat relatively unaltered from what is believed to be pre-European settlement condition. A C of C of 0, therefore, is given to species that would indicate the most disturbed or ruderal conditions. A value of 10 is given to species that demonstrate a high degree of fidelity to a specific set of ecological conditions; in other words, these species would provide the highest level of confidence that the places in which they are found are the most intact remnant natural systems (FDEP 2011b).

The FLEPPC is a non-profit, non-regulatory board of Florida scientists whose mission is to support the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational, and technical information (<http://www.fleppc.org>). Every two years, the FLEPPC board releases a list of the most invasive exotic plants occurring in Florida. FLEPPC defines Category I invasives as "exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives" (FLEPPC 2009). Category II invasives are defined as "exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species (FDEP 2011b)."

LVS Score Interpretation:

If a site's average Coefficient of Conservatism (C of C) score is > 2.5 and the frequency of occurrence of FLEPPC exotic taxa is $< 25\%$ of the total plant occurrences in two consecutive, temporally independent samples, no imbalance of flora is indicated. If a stream segment's C of C score is < 2.5 and the frequency of occurrence of FLEPPC exotic taxa is $> 25\%$ during two consecutive, temporally independent samplings, the Department considers this as evidence that the NNC is not achieved (FDEP 2013). A Total Maximum Daily Load (TMDL) for nutrients has been established for the Santa Fe River (FDEP 2012) of 0.35 mg/l of nitrate. The LVS is a supportive measure which can give further evidence that the NNC is or is not achieved.

5 Results and Discussion

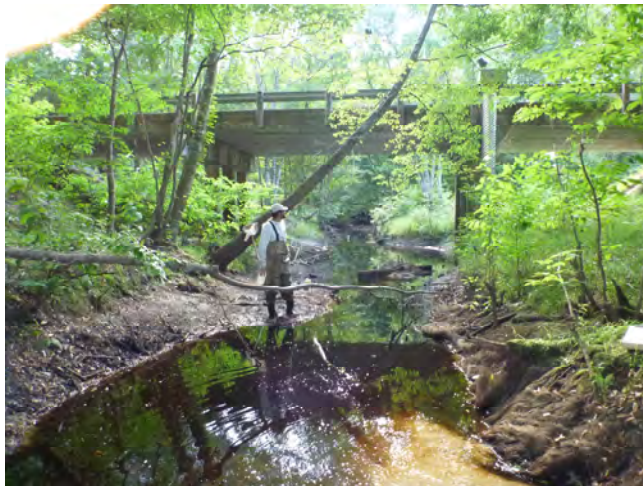
The water quality data collected in this study demonstrated values consistent with expected values with distinctions observable between the sites upstream of the Santa Fe River Sink and the sites sampled downstream of the river Rise Preserve State Park (Table 2, Appendix B and C). Habitat assessment results indicated optimal and suboptimal scores for all sites (Table 5). The BioRecon results were exceptional for benthic macroinvertebrates along this stretch of the Santa Fe River (Tables 6 and 7). Bench sheets with macroinvertebrate identifications and the macroinvertebrate data reports are located in Appendices E and F respectively. RPS results show only one site (SFR050C1) with a dominant algal taxon identified (Table 8), indicating that there is no imbalance of flora at three of four sites sampled. The results of the LVS do show evidence of a disrupted native aquatic macrophyte community at SFR050C1 and SFR060C1 (Tables 8 and 9), and indicates the need for additional sampling. Field sheets (FD-9000-25 and FD-9000-32) are found in Appendix D. A separate algae and diatom analysis of ten samples collected near Poe Springs is presented in Table 10. Photographs of the organisms are located in Appendix G.

5.1 Water Quality and Physical Conditions

Water quality on the Santa Fe River has been a concern due to an increase of algae, a loss of aquatic macrophytes and rises in nutrients. Data from June 1, 2000, through June 30, 2007 (Hallas and Magley 2008; FDEP 2012) indicated that the Santa Fe River, from its confluence with the Suwannee River to just east of the Columbia County line (WBIDs 3605A, 3605 B, and 3605C) was impaired for dissolved oxygen (DO) and nutrients. The Total Maximum Daily Load (TMDL) target developed (a monthly average of 0.35 milligrams per liter [mg/l] of nitrate [NO_3]) was determined to be sufficiently protective of the aquatic flora and fauna in the Santa Fe River. Achieving reductions in nutrients (NO_3) is expected to reduce any pollutant impacts associated with DO (Hallas and Magley 2008; FDEP 2012).

The Numeric Nutrient Criteria (NNC) is a threshold numeric amount of nutrients that a water body can contain and still maintain healthy flora and fauna, and was established by FDEP and accepted by the United States Environmental Protection Agency in 2012. For streams in the north central region of Florida (FDEP 2013; USEPA 2014), the threshold numbers are 1.87 mg/l of Total Nitrogen (TN) and 0.30 mg/l of Total Phosphorus (TP) (FDEP 2016). Absent a site specific interpretation pursuant to Chapter 62-302 Florida Administrative Code (FAC), the NNC threshold values are used in comparison with annual geometric mean concentrations not to be exceeded more than once in any three calendar year period. Where the numerical values are exceeded, biological parameters (SCI, RPS, and LVS) must be used to interpret the narrative nutrient criterion in combination with nutrient thresholds (FDEP, 2016). The NNC thresholds referenced below in the following sections are for comparison purposes only, not to determine impairment status since they are single measurements at one point in time.

5.1.1 Santa Fe River near Graham, County Rd. 225 (SFR010C1)



2: Santa Fe River Scene at SFR010C1, June 16, 2015

The Santa Fe River near Graham, SFR010C1 at County Road 225 on the Alachua/Bradford County border was located near the Santa Fe swamp, and was the furthest upstream of the sites (Figure 1). At SFR010C1 the temperature, pH, dissolved oxygen, specific conductance, and salinity were within normal ranges for a freshwater stream. Water chemistry analytical data (Table 2) for ammonium (0.046 mg/l), TKN (0.716 mg/l), and TP (0.366 mg/l) showed that this site and the other site upstream of the O'Leno sink were higher for these analytes than the two

sites downstream of River Rise (Figure 1). The TP threshold for the NNC is 0.30 mg/l for this region of Florida (FDEP 2013; FDEP 2016). Chlorophyll *a* (0.040 mg/m³) and nitrate-nitrite nitrogen (0.148 mg/l) were lowest at this site and increased with each site downstream. Turbidity was 1.059 Nephelometric Turbidity Units (NTU). Phosphate (0.331 mg/l) and Total Organic Carbon (TOC) (16.270 mg/l) were highest at this site and decreased with each site downstream. The stream was deeply colored with 205 Platinum-Cobalt Units (PCU) (Table 2).

The river was narrow (2.5 m wide) and shallow (0.4 m deep) compared to the other sites, and moderately shady, with no erosion or non-point-source pollution observed (Table 3, Appendix D). The buffer of native vegetation was 8 meters on the least buffered side (the other side was greater than 18 meters); however a power line cut across the site at the 50-meter mark. The high water mark was about 1 meter above the streambed. The water velocity was a moderate 0.18 meters per second. It was not channelized; the sediment had no observable oils but an anaerobic odor was noticed in the deeper areas. Silt and sand smothering was moderate, but no filamentous algae were found and periphyton was rarely observed. The water had a normal odor and no oils present on the surface. The water was tannic and slightly turbid. Fish were abundant; no aquatic macrophytes were observed. The major habitats for the benthic macroinvertebrate community were: woody debris (5-6%), roots (2-3%), and rock (4%), see Table 4.

5.1.2 Santa Fe River near Worthington Springs at SR 121 (SFR030C1)

Site SFR030C1 was located near Worthington Springs at SR 121 on the Alachua/Union County border. The sampling site was 100 meters upstream of the bridge. The temperature, pH, dissolved oxygen, specific conductance, and salinity were within normal ranges for a freshwater stream. The salinity and specific conductivity were lowest at this station, which could indicate less groundwater (which contains more dissolved minerals) entering the river than at the other sites (Table 2). Water chemistry analytical data for ammonium (0.049 mg/l), TKN (0.818 mg/l), and TP (0.272mg/l) showed this site and the SFR010C1 higher for these analytes than for the sites downstream. Chlorophyll *a* (1.802 mg/m³) was much higher here than at the previous site. Nitrate/nitrite (0.265 mg/l) was also higher at this site and increased with each site downstream.

Total nitrogen (TN) (the sum of the TKN and Nitrate/Nitrite values) was 1.083 mg/l, and for comparison the NNC threshold for this region of Florida is 1.87 mg/l. Turbidity was 3.070 NTU, highest among all of the sites. Phosphate (0.225 mg/l) and TOC (16.230 mg/l) were higher here than at the downstream sites, and decreased with each site downstream. The stream was deeply colored with a PCU of 146 (Table 2).

The river was much wider than the first site at 20 meters wide, slightly shaded and with a depth of over 1 meter (Table 3). The site was upstream of the bridge, not near a road and did not appear to be channelized. An excellent riparian buffer of over 18 meters of native vegetation provided good habitat but the water had no measurable velocity. It was the most turbid of all sites with a Secchi depth of 0.9 m and was tannic in color. Sand and silt smothering were moderate; a slight amount of algae smothered the habitat. Sediment and water odors were normal and the water had a slight sheen on the surface. Like SFR010C1 fish were abundant; no aquatic macrophytes were observed, and periphyton was rare (Table 4). The major habitats for the benthic macroinvertebrate community were woody debris (10%), and roots (4%); no rock habitat was present.

5.1.3 Santa Fe River at US 441 near High Springs (SFR050C1)

This site is located at US 441 near High Springs on the Alachua/Columbia County border (Figure 1). Table 2 shows dissolved oxygen was lowest at this site (3.83 mg/l). The specific conductance was highest (489 μ S/cm) as was salinity (0.24 ppt), probably due to groundwater making its way into the Santa Fe from River Rise and from the springs bordering the river. Ammonium, phosphate, color, TKN, and TOC dropped considerably from the values in the first two sites, perhaps diluted by the groundwater inflows. However, Nitrate/Nitrite was 0.397 mg/l, which (assuming it is mostly nitrate) exceeded the TMDL target of 0.35 mg/l of nitrate for the Santa Fe River (FDEP 2012).

The river is the widest at this site among the four (4) sites at an estimated 50 meters, and the water velocity was good at 0.25 m/s (Table 3). The canopy was open, water and sediment oils and odors were normal. The water was clear but tannic in color, but lighter than at the other two sites. Algae and silt smothering were moderate at this site. Periphyton, fish, and aquatic macrophytes were all abundant at SFR050C1. The habitats documented in the river for macroinvertebrate sampling (Table 4) were a small amount of woody debris (<0.1%), roots (0.2%), aquatic vegetation (5.8%), and rock (9.0%).

5.1.4 Santa Fe River near Ft. White, SR 47 (SFR060C1)

The furthest site sampled downstream was located near Ft. White at SR 47 on the Columbia/Gilchrist County border. Table 2 shows the pH slightly higher here than the other sites but well with the normal range, as were the other field parameters. The depth at this site was greatest at 2.1m and the water was clear to the bottom. Chlorophyll a values were 47 times higher at SFR060C1 (1.903 mg/m³) than at SFR010C1 (0.040 mg/m³). Nitrate/nitrite nitrogen was almost 6 times higher at SFR060C1 (0.875 mg/l) than at SFR010C1 (0.148 mg/l) and over twice as high as the values at the other stations (Table 2). Elevated nitrate is likely entering the river from Floridan aquifer groundwater, discharging from springs and/or direct groundwater seepage from the river bed. The TMDL target for nitrate in the Santa Fe River is 0.35 mg/l.

The river was 40 meters wide, typical depth was 1.5m, and water velocity was swift (0.7 m/s). There was only slight evidence of erosion and non-point source pollution. Table 3 shows an open canopy as with SFR050C1 (US 441) site, with moderate sand smothering and only slight algae and silt smothering. Water and sediment odors and oils were normal. As in SFR050C1, periphyton, fish and aquatic macrophytes were abundant. Rock habitat was also abundant at 33% cover. Woody debris (7%), roots (1%), and aquatic vegetation (6%), provided more than adequate habitat for benthic macroinvertebrates (Table 4).

5.2 Habitat Assessment

Table 5 shows the results of the Habitat Assessments for each site sampled. All of the sites showed that the river was not channelized and the land on either side of the river had a wide buffer of native vegetation.

The Habitat Assessment for SFR010C1 fell into the optimal range with a score of 126. Only substrate availability and habitat smothering were in the marginal range at this site (Table 5 and Appendix D).

The Habitat Assessment result for SFR030C1 was in the sub-optimal range (94), lowest among the sites mainly due to the lack of water velocity, low substrate diversity and much habitat smothering by silt (Table 5). The riparian buffer width was good and it was vegetated with native plants.

SFR050C1 scored in the suboptimal range (118) due to habitat smothering. SFR060C1 had the highest score (137) in the optimal range with some smothering and instability of the banks.



3: SFR030C1 right bank, June 16, 2015

5.3 Modified BioRecon

Sorted organisms were identified and recorded on benchsheets found in Appendix E. These results were entered into the Water & Air Database and data output files are located in Appendix F.

The assessment provided includes the results typically provided to the SRWMD (raw data, total number of species, total number of organisms, percent composition of major taxa, the SWDI, the Simpson's Diversity Index, Hill's Modified Evenness, and benthic EPT score, and also those typically provided to ACEPD (FDEP BioRecon). Worms and midges were identified to species level for the SWRMD data. The FDEP BioRecon method of analyses does not include identification to species of worms (Oligochaeta) or midges (Chironomidae) and those were left at the higher taxonomic level for that analysis only. Only a certain number of each type of organism is to be retained according to the SOP (Table BRN 1100-1), therefore some numbers were reduced to stay within those guidelines in the SOP.

Table 6 shows the standard metric data used by the SRWMD to analyze macroinvertebrate data. At SFR010C1 the SWDI results were lower than at the other sites. The other indices show

similar results among stations. Simpson's Diversity (an inverse index) is highest at this station, again indicating lower diversity at this site. The high EPT score of 11 is the same at SFR060C1, the farthest station downstream. EPT are indicators of good water quality.

Table 7 shows the BioRecon results calculated using the FDEP metrics. Please note 20 ½-meter dipnet sweeps in the most productive habitats were used to collect these organisms rather than 4 sweeps used in the FDEP SOP for BioRecon. There was a larger opportunity to collect a greater diversity of organisms than using the standard method. The results at SFR010C1 revealed a score of 9, indicating an exceptional community of organisms as was found at all four sites.

SFR030C1 near Worthington Springs was comparable to the other sites in spite of the lower habitat assessment score. The biological index data (Table 6) are indicative of a healthy ecosystem, as were all sites, and the Total BioRecon score (Table 7) was 9, landing in the Exceptional category. The number of species (44 for the SRWMD index analysis) decreases here for the BioRecon analysis (39) because the Oligochaeta and Chironomidae were not identified to lowest practicable taxonomic level as was done historically for the SRWMD.

The SFR050C1 site at US 441 had the lowest EPT score (6, Table 6). However, the other index values are similar to the other sites. The BioRecon score was 9, in the Exceptional category (Table 7). Some macroinvertebrates found in these samples had not been recorded in past collections by the SRWMD. Those organisms are not particularly rare, but were collected using a dipnet in locations not sampled with that method historically according to past SRWMD data. One of those organisms is a caddisfly larva (Order Trichoptera), *Helicopsyche borealis*, which makes a case in the shape of a tightly coiled snail shell with carefully fitted grains of sand. This caddisfly larva grazes on rock surfaces which are common at sites SFR050C1 and SFR060C1. Their food consists of algae, diatoms, animal material, and detritus. These caddisflies have a wide range of temperature tolerance and they are widespread and common over much of North America. The case is very strong and resistant to crushing; they can be found under stream beds up to 30 centimeters deep (Wiggins 1996).



4: *Helicopsyche borealis*, Santa Fe River

SFR060C1, the site farthest downstream, had similar index scores to the other sites. The BioRecon score was highest at this site (10) and also placed in the Exceptional category. This site had the highest number of sensitive taxa (10), Trichoptera taxa (9), and clinger taxa (8), which made the difference in the score (see Table 7).



5: SFR060C1 left bank near end, June 15, 2015

5.4 Rapid Periphyton Survey (RPS) and Linear Vegetation Survey (LVS)

The RPS and LVS were developed to supplement the NNC to help determine if there is a healthy balance of flora in a stream or river. Results for the RPS are located in Table 8. LVS results are in Tables 9A, 9B, and 9C. Field sheets are found in Appendix D. Santa Fe River Periphyton Analyses Comments, photographs of the periphyton, and collection locations may be found in Appendix G. The results are detailed in Table 10.

5.4.1 RPS

The RPS technique is a means of classifying attached algal mat growth based on presence/absence and the measurement of average algal mat thickness, perpendicular to the substrate.

Table 8 shows that sites SFR010C1 and SFR030C1 had no points ranked 4-6. No algae samples were collected because virtually no periphyton was observed at SFR010C1 and very little at SFR030C1. At SFR060C1, 19% of the points were ranked 4-6. Twenty percent of points must be ranked 4-6 to trigger a collection of periphyton to be analyzed by an expert in the laboratory. No imbalance of flora was indicated at these three sites.

The site analysis for SFR050C1 at US 441 showed 100% of the points were ranked 4-6. A sample was collected at this site. The analysis was as follows: "The dominant visible filamentous algal taxon present in sample SFR050C1 collected 6/15/2015 was a species of

Spirogyra (Chlorophyta). There were also numerous diatoms present and some *Phormidium* (cyanobacteria)" (Appendix G).



6: *Spirogyra* sp. 400X

In an additional study, the ACEPD collected periphyton samples in the Santa Fe River near Poe Springs and had those analyzed by algal taxonomist Mike Hein. His report may be found in Appendix G along with select photographs of the algae and diatoms and a map of the collection locations. He reported that the more abundant filamentous algal taxa present were ranked from 1 to 3 based on filament size and abundance. Larger chain forming diatoms also were included in the analysis because of their abundance in some of the samples. The results were tabulated in Table 10 (ACEPD Springs Algae).

The most abundant filamentous taxon present in the red and red/blue samples was the chntransia stage (tetrasporophyte) of the red algae (Rhodophyta) *Batrachospermum macrospora*. Identification of this taxon was confirmed by Dr. Morgan Vis-Chiasson of Ohio University. For more information on this taxon see Necchi & Oliveira 2011.

No cyanobacteria taxa were observed in the samples that are considered potentially capable of producing toxins based on Table 1 in Landsberg (2002). The chain forming diatoms (Bacillariophyceae) present in the samples are generally common in freshwater habitats. *Cymbella mexicana* is a widely distributed taxon most often reported from hard waters. Species of *Eunotia* are generally characteristic of acidic water. *Melosira undulata* is reported to be a soil diatom, but is also found in oligotrophic rivers, lakes, and in freshwater springs with a pH of about 7.5 and specific conductance about 600 $\mu\text{S}/\text{cm}$. *Melosira varians* is a widely distributed taxon found in the benthos and plankton. *Synedra ulna* is widely distributed in freshwater habitats. *Terpsinoe musica* is widely distributed in freshwater to marine habitats. It has been

suggested that *T. musica* is most frequent in hard waters with warm temperatures and found on submerged tree branches, roots, aquatic bryophytes, rocks, and on the surface of filamentous algae such as *Cladophora*.



7: SFR050C1 algae looking to left bank, June 15, 2016

5.4.2 LVS

Table 9A shows the LVS results for SFR010C1 and SFR030C1. Few or no macrophytes were present at these sites and if there are less than 2 m² of vascular plant coverage present in a 100-meter stream reach, there are no floral imbalances attributable to aquatic plants. Table 9B shows the LVS results for SFR050C1 and SFR060C1.

Table 9B shows the LVS values for SFR050C1 and SFR060C1. These sites are wide open to the sun and have aquatic macrophytes present. Both native and non-native plants are present, some of which are listed as invasive exotics.

C of C values were calculated and may be found in Table 9C. The frequency of occurrence of FLEPPC exotic taxa among all aquatic taxa was also calculated for SFR050C1 and SFR060C1. The results show that the mean C of C is less than 2.5 at both sites (1.53 and 1.64). The % FLEPPC is greater than 25% (30.19% and 66.7%). These results do not appear to show a healthy and diverse native aquatic macrophyte community. This was only one sampling event, however. Two temporally independent evaluations are needed to determine if these sites do not achieve the Numeric Nutrient Criteria.

6 Summary and Recommendations

The Santa Fe looks very healthy with regard to the macroinvertebrate community using the analyses provided. However, these results may not be quantifiable due to the Modified BioRecon sample collection method used. The Modified BioRecon used by the SRWMD is a very good method to find out which species make up the benthic macroinvertebrate community in the river. The Modified BioRecon however, does not fit well into any particular type of statistical analysis due to the collection method, which selectively reduces the significance of dominant taxa. For this reason, analyses using the Shannon (Shannon-Wiener or Weaver) Diversity Index, the Simpson's Diversity Index, and Hill's Modified Evenness are inappropriate. Also, because so much material is collected and analyzed (20 sweeps as opposed to 4 sweeps), it does not fit the FDEP BioRecon analysis method. However, the Modified BioRecon has been used by the SRWMD for decades, so it may be useful to continue at the O'Leno site only to be able to compare current with historic data.

The FDEP Stream Condition Index or SCI is the best method of analysis of benthic macroinvertebrates to use in the SRWMD. It has been developed using rigorous statistical methods and is currently used statewide. It also is used in the site specific interpretations of FDEP Numeric Nutrient Criteria. Hester-Dendy multi-plate artificial substrate samplers are appropriate to use with conventional statistical analyses such as Shannon (Shannon-Wiener or Weaver) Diversity Index, the Simpson's Diversity Index, and Hill's Modified Evenness. These have a standard area for macroinvertebrate collection where densities may be calculated.

The algal community was examined more closely at SFR050C1 (US 441) and also near Poe Springs. Nitrate-nitrite nitrogen and chlorophyll *a* levels increased downstream as more groundwater entered the system via the springs. The aquatic macrophyte community may not achieve NNC as indicated by the LVS results at SFR050C1 and SFR060C1. SCI sampling at SFR050C1 and SFR060C1 twice, at least three months apart will help clarify the health of these sites. Another analysis using the RPS and LVS is recommended for sites SFR050C1 and SFR060C1 to determine if they achieve the NNC using those methods. Additional bioassessments (SCI, RPS, LVI) sampling at these four stations along the Santa Fe River is recommended to provide in-stream biological data in support of the Surface Water Improvement Plan (SWIM) and Minimum Flows and Levels (MFLs) established for the Santa Fe River.

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Glossary

Autoecological – refers to the ecology of a single species, the relationship between that species and its environment

Basin Management Action Plan (BMAP) – the "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a Total Maximum Daily Load (TMDL). It represents a comprehensive set of strategies--permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance, and revenue generating activities. These broad-based plans are developed with local stakeholders, they rely on local input and local commitment, and they are adopted by Secretarial Order to be enforceable.

Benthic Macroinvertebrates – organisms evaluated in stream bioassessment studies. These are organisms without backbones that are large enough to see without magnification that live all or part of their lives in the water and sediments; includes the immature and adult stages of many different types of invertebrates. Examples of freshwater benthic macroinvertebrates include immature stages of many flies, beetles (adult and immature), mayflies, caddisflies, stoneflies, dragonflies, in addition to aquatic worms, clams, snails, leeches and numerous other organisms.

Bioassessment or Biological Assessment – benthic macroinvertebrate assessment, methods included in this report are Biological Reconnaissance (BioRecon), Stream Condition Index (SCI), and artificial substrate (Hester-Dendy) sampling.

Biological Health – the diversity and richness of the macroinvertebrate community composition in a waterbody, can be used to provide an estimate of waterbody health.

Biological Metric or Index – method of using the assemblages of macroinvertebrates to measure the effects of human disturbances using parameters that respond to human influences in a predictable manner.

Biological Reconnaissance (BioRecon) – Biological assessment method that includes collecting samples from the four most productive habitats (leaf packs, snags, roots, rocks, and aquatic vegetation) using a d-frame dipnet; organisms are sorted, identified, counted, and used to assess the biological health of sampling locations. The scores are interpreted as exceptional = [7-10], healthy = [4-7), or impaired = [0-4). A square bracket indicates the value next to it is included in the range and a parenthesis indicates the value is excluded.

Biological Sampling – Dip nets and other devices may be used to collect organisms living in leaf packs, on submerged finely divided roots, on shell or rock rubble, or in or on submerged snags (dead trees and branches). Grab or dredge methods collect the organisms in the bottom sediments. Artificial substrates may be used to mimic natural habitat such as logs, and are left in the water for a period of time allowing aquatic organisms to populate them.

Braided Channel – A lack of a single stream channel resulting in numerous smaller intertwined channels typically observed as a stream flows through a low-lying wetland area.

Chantransia – the botanical name for a genus of multicellular red algae

Clinger Taxa – organisms that require steady water velocity or a wave-swept littoral zone and decline with human disturbances such as channelization. Clingers typically have behavioral (e.g., fixed retreat construction including rock ballasts, silk production) or morphological (e.g., modified gill structures, long curved claws, hooks) adaptations for attachment to the tops of rocks or wood surfaces.

Dissolved Oxygen (DO) – The amount of oxygen in water which varies according to temperature, weather, and salinity. Sources of oxygen in waterbodies include the atmosphere and aquatic plants (as a result of photosynthesis).

Ephemeroptera (mayflies) - The larvae occur in many aquatic habitats, adults have short adult life cycle, primarily mating and egg laying. Larvae go through many life stages, most are

collectors or scrapers feeding on a variety of detritus and algae. Larvae commonly have three distinct caudal appendages. Many mayfly species are sensitive to pollution, particularly heavy metals and decrease with an increase in human disturbance (FDEP 2011(b)).

Feeding Guild – any group of species that exploit the same resources for feeding. A guild does not typically have strict, very clearly defined boundaries.

Filter Feeders – organisms that feed by filtering their food, requiring fine particulate organic matter. Primarily mayfly, caddisfly, and fly larvae, and all clams and mussels. Filter feeders correspond best with human disturbance of all functional feeding groups.

Florida Index (or Beck's Index) – Designed for use in Florida freshwater streams and rivers, especially with reference to the impact of organic pollution on community composition. Class 1 organisms are sensitive or intolerant of pollution; Class 2 organisms are facultative and, thus, can tolerate varied conditions, perhaps including moderate levels of pollution. A high Florida Index value indicates the presence of a large number of pollution sensitive organisms and a healthy environment.

Global Positioning System – a navigation system based on satellite communication with a receiver device

Habitat Assessment – includes a map of the creek bottom drawn to show the width of the creek and the location and amount of various habitat types for benthic macroinvertebrates, including roots, leaf packs, submerged logs, rocks, and submerged plants. Water velocity and observations of habitat smothering, channelization, bank stability, and the amount and quality of the vegetation on each side of the creek are noted. Habitat assessment scores are interpreted as poor (0 to 39), marginal (40 to 79), suboptimal (81 to 123), or optimal (124 to 160).

Habitat Smothering – Excessive deposition of sand or silt on stream beds, leaf packs, root mats, and snags resulting accelerated erosion upstream, thereby reducing available aquatic macroinvertebrate habitat.

Hester-Dendy (artificial substrate) Sampling – Artificial substrate samplers are deployed at sampling locations; for this study, the samplers were left in the creeks for 28 days. During this time, benthic macroinvertebrates climb onto the samplers and live between the plates, some form cases, filter food debris passing by, and scrape and eat periphyton and other algae and diatoms that may grow on the sampler. Predatory insects find this an opportunity to get a meal, as well. Biological indices used to evaluate the macroinvertebrate data include the Shannon-Weaver Diversity Index, Pielou's Evenness, and the Florida Index.

Hill's Modified Evenness – E_5 approaches zero as a single species becomes more and more dominant in a community (Ludwig and Reynolds 1988). Conversely, the index approaches one as species numbers become more evenly distributed.

Hill's Modified Evenness – (E_5): $E_5 = (N_2 - 1) / (N_1 - 1)$

Land Use – For this study, land use was estimated from digitized water management district GIS maps and aerial photography -- The relative amount of natural, silvicultural (tree plantations); agricultural, residential, commercial, and industrial land uses were estimated and noted as a percentage of land area.

Leaf Packs – An accumulation of dead, partially decayed leaves located within a waterbody that provides good habitat for aquatic macroinvertebrates.

Long-lived Taxa – organisms that have a life cycle greater than one year. Macroinvertebrates with such protracted life cycles are considered good biological indicators since their presence indicates the maintenance of certain water quality or habitat conditions; the number of long-lived taxa typically decreases in response to degraded water quality or physical conditions.

Macrophyte – an aquatic plant that grows in or near water and is either emergent, submergent, or floating. In lakes and rivers macrophytes provide cover for fish and substrate for aquatic invertebrates, produce oxygen, and act as food for some fish and wildlife

National Pollutant Discharge Elimination System (NPDES) Program – stormwater permitting program. Phase I includes large and medium Municipal Separate Storm Sewer Systems (MS4) and 11 categories of industrial activity, including large construction activity that disturbs 5 or more acres of land. Phase II includes MS4s not regulated by Phase I and small construction activity disturbing between 1 and 5 acres.

Numeric Nutrient Criteria (NNC) – The Numeric Nutrient Criteria was developed by the FDEP to comply with the section 303c of the Clean Water Act. The Florida rule was accepted by the Environmental Protection Agency in November 2012.

Please see 62-302.531 Numeric Interpretations of Narrative Nutrient Criteria at the following address: http://www.dep.state.fl.us/water/wqssp/nutrients/docs/NNC_Implementation.pdf

For streams, if a site specific interpretation pursuant to paragraph 62-302.531(2)(a) or (2)(b), F.A.C., has not been established, biological information shall be used to interpret the narrative nutrient criterion in combination with Nutrient Thresholds. The narrative nutrient criterion in paragraph 62-302.530(47)(b), F.A.C., shall be interpreted as being achieved in a stream segment where information on chlorophyll a levels, algal mats or blooms, nuisance macrophyte growth, and changes in algal species composition indicates there are no imbalances in flora or fauna, and either:

1. The average score of at least two temporally independent SCIs performed at representative locations and times is 40 or higher, with neither of the two most recent SCI scores less than 35, or
2. The nutrient thresholds set forth in the table below are achieved.

Nutrient Watershed Region	Total Phosphorus Nutrient Threshold ¹	Total Nitrogen Nutrient Threshold ¹
Panhandle West	0.06 mg/L	0.67 mg/L
Panhandle East	0.18 mg/L	1.03 mg/L
North Central	0.30 mg/L	1.87 mg/L
Peninsular	0.12 mg/L	1.54 mg/L

Percent Dominance – percent of the single most frequently occurring taxa or species in a sample, tends to increase in pollution tolerant taxa with the exclusion of other taxa. Metrics used to characterize the absolute or proportional abundance of individual taxa within a sampled assemblage. An assemblage largely dominated (>50%) by a single taxon or several taxa from the same family suggests environmental stress.

Periphyton – a complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus that is attached to submerged surfaces in most aquatic ecosystems. It serves as an important food source for invertebrates, tadpoles, and some fish.

Pielou's Evenness – A measure of the distribution of taxa within a community. Calculated using the number of taxa per sample, abundance (total number of organisms/sample), and SWDI. Values range between 0 and 1. A value of 1 denotes all taxa are represented by an equal number of individuals and approach zero as a single taxa becomes more dominant.

pH – The measure of how acidic or basic a fluid is.

Physical/Chemical Characterization – includes water velocity, pH, dissolved oxygen, specific conductivity, temperature, land use, canopy cover, erosion, high water marks, presence or

absence of oils, odors, fish, iron or sulfur bacteria, and periphyton, (algae living on surfaces such as rocks).

Riparian Zone – Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water. Riparian buffers can be natural or manmade. Naturally vegetated riparian buffers provide bank stabilization, nutrient regulation, filtering of sediments, shade, and the primary source of woody debris and lead that provide in-stream biological habitat.

Secchi – Measurement of water clarity. The measurement is made using an opaque disk, typically white (or white and black), used to gauge the transparency of water by measuring the depth (Secchi depth) at which the disk ceases to be visible from the surface.

Sensitive Taxa – organisms sensitive to human disturbances. Those macroinvertebrates that can only exist when habitat conditions have not been degraded and water quality is good.

The Shannon-Wiener or Weaver Diversity Index (SWDI) – The SWDI is a measure of community structure and heterogeneity defined by the relationship between the number of distinct taxa and their relative abundances. The SWDI is determined by two components: the degree of evenness in the distribution between species, and the total number of species. Values generally range from 0 to 5, where the highest values indicate greater diversity and a healthy environment. The index can be skewed by naturally occurring patchy distribution. The presence (or absence) of sensitive species is important in assessing the significance of SWDI as a water quality indicator. (Barbour et al., 1996). The Shannon Diversity Index Base 2 is the index used by the US Environmental Protection Agency for evaluating community ecology. It incorporates both species richness and evenness into a single value. It is based on the number of species in the sample rather than the number of species in the community, which will likely be higher. This bias is reduced as n increases.

n = the total number of individuals in the sample

n_i = the number of individuals belonging to the i th species in the sample

Shannon Diversity Index, Base 2 (H'): $H' = [\sum (n_i / n) * \log_2 (n_i / n)]$

Simpson's Diversity Index - gives the probability that two individuals drawn at random from a population belong to the same species. Therefore a low score, approaching zero, indicates a low probability that two random individuals belong to the same species, thus indicating high diversity. The index score varies from zero to one.

Simpson's Diversity Index (λ'): $\lambda' = [\sum i (n_i (n_i - 1))] / n (n - 1)$

Specific Conductance (or Conductivity) – The measurement of a solution's ability to conduct an electrical current. The amount of inorganic dissolved minerals (salts) in water which can be naturally occurring.

Stream Condition Index (SCI) – Biological assessment method that includes collecting samples from the most productive habitats (leaf packs, snags, roots, rocks, and aquatic vegetation) and one less productive habitat such as sand. Samples are collected with 20 sweeps of a d-frame dipnet; organisms are sorted, identified, counted, and used to assess the biological health of sampling locations. The scores are interpreted as exceptional (68 to 100), healthy (35 to 67), or impaired (0 to 34).

Tannin – An organic acid derived from the decay of plants that stains water resulting in a tea color. Tannic is used to describe tea-colored surface water.

Tanytarsini – organisms that are midge larvae in the group *Tanytarsini*, which are sensitive to disturbance and selected as the best measure of the Chironomid assemblage – an important component of the stream community. Chironomids are a large family often occurring in high densities and diversity feeding on a variety of organic substrates.

Taxa – organism of a unique taxonomic category, as a species or genus.

Total Density (of Macroinvertebrates) - The abundance, density, or number of aquatic macroinvertebrates of the indicated group per unit area. Invertebrate abundance is presented as the number of individuals per square meter for quantitative samples and the number of individuals collected in each sample for qualitative samples. Abundance is an indicator of habitat availability and fish food abundance. Abundance may be reduced or increased depending on the type of impact or pollutant. Increased organic enrichment typically causes large increases in abundance of pollution tolerant taxa. High flows, increases in fine sediment, or the presence of toxic substances normally cause a decrease in invertebrate abundance.

Total Number of Taxa - The total taxa is the richness (count of unique taxa) within each specified group.

Total Maximum Daily Load (TMDL) – a scientific determination of the maximum amount of a given pollutant that a surface water can absorb and still meet water quality standards that protect human health and aquatic life. Water bodies that do not meet water quality standards are identified as "impaired" for the particular pollutants of concern--nutrients, bacteria, mercury, etc. TMDLs must be developed, adopted and implemented for the waterbody.

Trichoptera (Net or case-building caddisfly larvae) – generally sensitive to disturbances especially flow disruption, although some are able to withstand drought. The Trichoptera, or caddisflies, are one of the largest groups of aquatic insects. The adults are typically winged and the larvae aquatic, eating plant material (e.g., diatoms, decaying vascular plant tissue, etc.). Some forms are free-living; those that build nets, retreats, and portable cases do so with silk. Cases are made of natural materials such as a sand, shell or plant material.

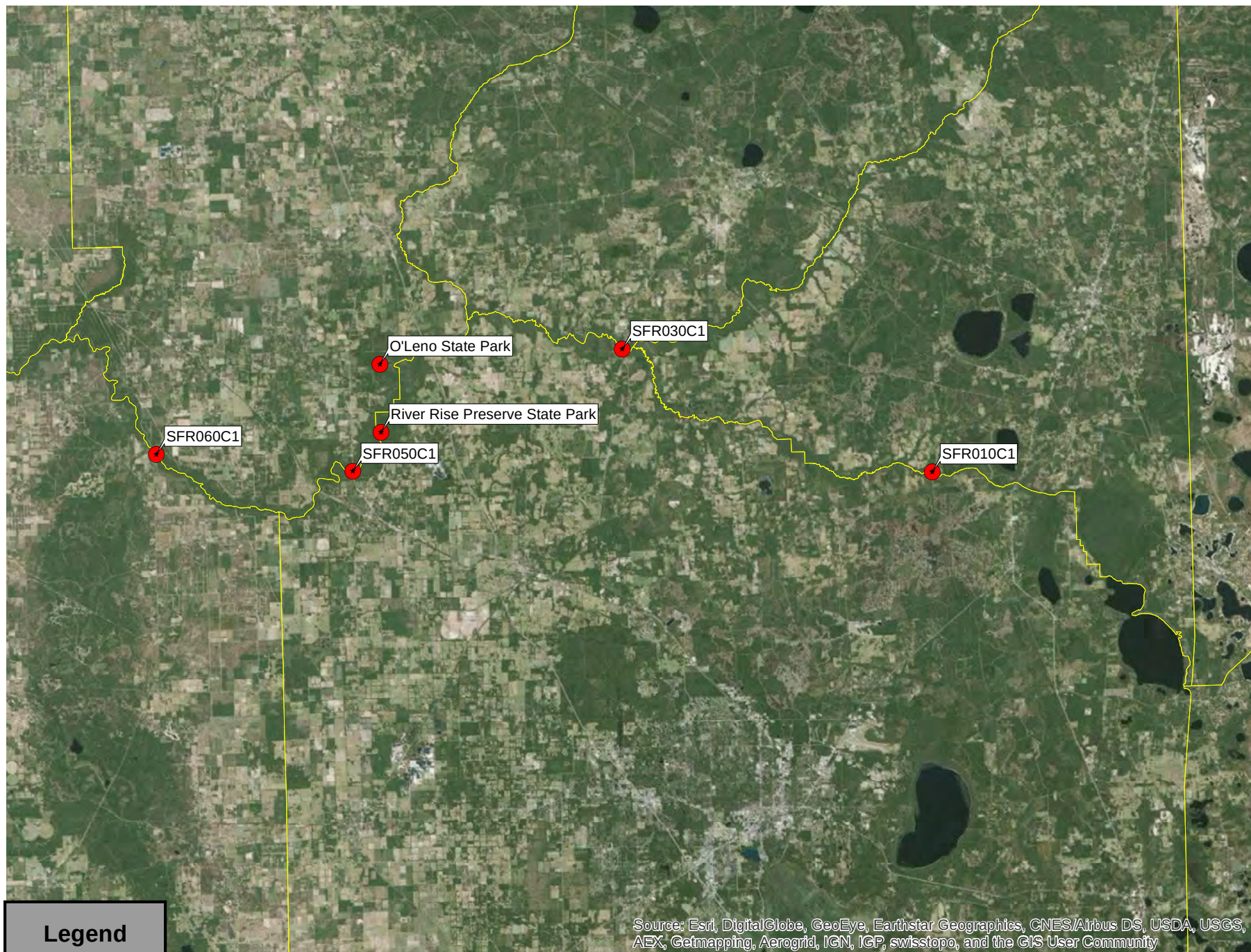
Turbidity – the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye. The measurement of turbidity is a key test of water quality.

Velocity – the speed of flowing water in a stream, usually reported in units of meter or feet per second (m/s or ft/s).

Very Tolerant Taxa – organisms that can tolerate human disturbances. Those macroinvertebrates that can exist where habitat conditions are degraded, e.g., low DO, elevated specific conductance, sand/silt smothering, etc.



FIGURE



Legend

• Points

0 4 8 16 Miles



FIGURE 1.
STREAM BIOASSESSMENT STUDY SITE LOCATIONS
SANTA FE RIVER, ALACHUA AND COLUMBIA COUNTIES, FLORIDA
Source: USDA/FSA - Aerial Photography Field Office, 2013; Water & Air Research, Inc., 2015.



TABLES

Table 1. Sampling Locations

Location	Station ID	Latitude	Longitude	County	Date Sampled
Santa Fe River near Graham (at Co Rd 225)	SFR010C1	29.84654	-82.22003	Alachua, Bradford	6/16/2015
Santa Fe River near Worthington Springs (at SR 121)	SFR030C1	29.92190	-82.42613	Alachua, Union	6/16/2015
Santa Fe River near High Springs (at US 441)	SFR050C1	29.85309	-82.60825	Alachua, Columbia	6/15/2015
Santa Fe River near Fort White (at SR 47)	SFR060C1	29.86487	-82.73976	Columbia, Gilchrist	6/15/2015

Table 2. Physical-Chemical Data

Station Sample Date	SFR010C1 6/16/2015	SFR030C1 6/16/2015	SFR050C1 6/15/2015	SFR060C1 6/15/2015
Time of collection (military time)	16:00	11:30	17:50	10:40
Temperature (°C)	26.7	26.0	24.3	23.4
pH	7.24	7.26	7.37	7.55
Dissolved Oxygen (mg/L)	5.76	5.07	3.83	5.67
Dissolved Oxygen (% saturation)	71.9	62.4	45.7	66.7
Specific Conductance, (µS/cm)	260	198	489	420
Salinity (ppt)	0.12	0.09	0.24	0.21
Secchi Depth (m)	> 0.4 (VOB*)	0.9	> 1.0 (VOB*)	> 2.1 (VOB*)
Total Depth (m)	0.4	1.0	1.0	2.1
Alkalinity (mg/l)	106.4	67.1	154.4	175.1
Ammonium-Dissolved (mg/L)	0.046	0.049	0.002	0.004
Total Kjeldahl Nitrogen - Total (mg/L)	0.716	0.818	0.228	0.114
Nitrate/Nitrite - Dissolved (mg/L)	0.148	0.265	0.397	0.875
Total Phosphorus (mg/L)	0.366	0.272	0.101	0.070
Phosphate - Dissolved (mg/L)	0.331	0.225	0.082	0.057
Sulfate (mg/l)	4.702	6.074	75.974	33.130
Chlorophyll a (mg/m ³)	0.040	1.802	0.885	1.903
Chlorophyll a corrected (mg/m ³)	0.240	1.655	0.774	1.335
Total Organic Carbon (mg/L)	16.270	16.230	3.980	1.710
Turbidity (NTU) (lab)	1.059	3.070	0.235	0.253
Color **(PCU)	205.257	146.206	25.686	10.206

* VOB: visible on bottom

**A more extensive table of chemical analyses is located in Appendix C. Color has eight different varieties of analysis, for instance, not included in this table.

Table 3. *In situ* Conditions

<i>In situ</i> Parameters	Station Sample Date	SFR010C1 6/16/2015	SFR030C1 6/16/2015	SFR050C1 6/15/2015	SFR060C1 6/15/2015
Local Watershed Erosion		None	Slight	None	Slight
Local NPS Pollution		No evidence	No evidence	Slight	Slight
Riparian Buffer on Least Buffered Side (m)		8	> 18 m	15	~ 18
High Water Mark (m)		1.0	1.0	0.7	0.8
Typical Width (m)		2.5	20	50	40
Typical Depth (m)		0.4	> 1	1.0	1.5
Greatest Velocity at Transect (m/s)		0.18	no flow	0.25	0.7
Artificial Channelization		No	No	No	No
Canopy Cover/Shade		Moderate	Light	Open	Open
Sediment Oils		Absent	Absent	Absent	Absent
Sediment Odors		Anaerobic	Normal	Normal	Normal
Sand Smothering		Moderate	Moderate	None	Moderate
Silt Smothering		Moderate	Moderate	Moderate	Slight
Algae Smothering		None	Slight	Moderate	Slight
Water Odors		Normal	Normal	Normal	Normal
Water Surface Oils		Normal	Sheen	Normal	Normal
Water Color		Tannic	Tannic	Tannic	Clear
Water Clarity		Slightly turbid	Turbid	Clear	Clear

Table 4. Abundance of Biota & Habitat Types

Station Sample Date	SFR010C1 6/16/2015	SFR030C1 6/16/2015	SFR050C1 6/15/2015	SFR060C1 6/15/2015
Organism Type	Abundance			
Periphyton	Rare	Rare	Abundant	Abundant
Fish	Abundant	Abundant	Abundant	Abundant
Aquatic Macrophytes	Not observed	Not observed	Abundant	Abundant
Iron/Sulfur Bacteria	Not observed	Not observed	Not observed	Not observed
Major Habitat	% Cover			
Woody Debris	5.7	10.0	< 0.1	7.0
Undercut Banks/Roots	2.7	4.0	0.2	1.0
Leaf Packs/Mats	0.8	0.0	0.0	0.0
Aquatic Vegetation	0.0	0.0	5.8	6.0
Rock or Shell Rubble	4.0	0.0	9.0	33.0

Table 5. Habitat Assessment Results

Station Sample Date	SFR010C1 6/16/2015	SFR030C1 6/16/2015	SFR050C1 6/15/2015	SFR060C1 6/15/2015
Primary Habitat Components				
Substrate Diversity	18	7	16	20
Substrate Availability	9	10	10	20
Water Velocity	13	1	15	20
Habitat Smothering	10	4	1	9
Primary Score	50	22	43	69
Secondary Habitat Components				
Artificial Channelization	20	20	20	20
Bank Stability (Right)	9	7	10	5
Bank Stability (Left)	9	7	10	5
Riparian Buffer Zone Width (Right)	9	10	8	8
Riparian Buffer Zone Width (Left)	9	8	10	10
Riparian Zone Vegetation (Right)	10	10	9	10
Riparian Zone Vegetation (Left)	10	10	9	10
Secondary Score	76	72	76	68
Habitat Assessment Score	126	94	118	137
Habitat Assessment Interpretation*	Optimal	Suboptimal	Suboptimal	Optimal

* Habitat Assessment scores from 0-39 are considered Poor
 Scores from 40-79 are classified as Marginal
 Scores from 80-123 are Suboptimal
 Scores from 124-160 are Optimal

Table 6. Biological Index Data

Station	Method	Date	Number of Species	Number of Individuals	Shannon-Wiener Diversity Index (Base 2)	Simpson's Diversity Index	Modified Hill's Evenness	EPT Score
SFR010C1	Modified Biorecon	06/16/2015	43	135	4.9747	0.0354	0.7396	11
SFR030C1	Modified Biorecon	06/16/2015	44	112	5.0285	0.0315	0.7551	8
SFR050C1	Modified Biorecon	06/15/2015	43	113	4.9869	0.0321	0.7685	6
SFR060C1	Modified Biorecon	06/15/2015	49	145	5.1087	0.0309	0.7635	11

Shannon Diversity Index Values of 3 - 5 are indicative of clean water and healthy biotic communities; 0 - 2 are characteristic of stressed communities.

Simpson's Diversity Index values range from 0 - 1. Values close to 0 indicate high diversity.

Hill's Modified Evenness values range from 0 - 1. A higher value indicates more evenness among numbers of individuals per species.

Table 7. FDEP BioRecon Results

Station Sample Date	SFR010C1 6/16/2015	SFR030C1 6/16/2015	SFR050C1 6/15/2015	SFR060C1 6/15/2015
Total Taxa Raw Metric	43	39	44	42
Total Taxa Score	1*	1*	1*	1*
Ephemeroptera Taxa Raw Metric	4	4	2	2
Ephemeroptera Taxa Score	1*	1*	1*	1*
Trichoptera Taxa Raw Metric	7	2	6	9
Trichoptera Taxa Score	1*	1*	1*	1*
Long-Lived Taxa Raw Metric	5	6	7	6
Long-Lived Taxa Score	1*	1*	1*	1*
Clinger Taxa Raw Metric	7	3	3	8
Clinger Taxa Score	1*	1*	1*	1*
Sensitive Taxa Raw Metric	6	4	6	10
Sensitive Taxa Score	0.6	0.4	0.6	1
Total Biorecon Score Raw Metric	5.6	5.4	5.6	6
Total Biorecon Score	9	9	9	10
Score Category	Category 1	Category 1	Category 1	Category 1
SCI Score Interpretation	Exceptional	Exceptional	Exceptional	Exceptional

Data have been up-collapsed so as not to inflate numbers

Sensitive Taxa have been found to be generally sensitive to pollution

Long-Lived Taxa have a life span longer than one year

Clinger Taxa require good current velocity

Table 8. Rapid Periphyton Survey Results

Station	SFR010C1	SFR030C1	SFR050C1	SFR060C1
Date	6/16/2015	6/16/2015	6/15/2015	6/15/2015
Secchi Depth	0.6 m	0.9	> 1.0	> 2.1
Number of estimated points	4	88	45	59
Number of points ranked 4-6	0	0	66	19
Total points assessed	99	99	66	99
Percent of points ranked 4-6	0	0	100	19
Algae Sample Collected	No	No	Yes	No
Dominant Algal Taxon Identified	N/A	N/A	<i>Spirogyra</i> sp.	N/A

Table 9A. Linear Vegetation Survey Results for SFR010C1 and SFR030C1

SFR010C1 on 6/16/2015			
Meter Mark	% Cover of Macrophytes	Dominant Species	Present Species
0-10	0-5	None	None
10-20	0-5	None	None
20-30	0-5	None	None
30-40	0-5	None	None
40-50	0-5	None	None
50-60	0-5	None	None
60-70	0-5	None	None
70-80	0-5	None	None
80-90	0-5	None	None
90-100	0-5	None	None

SFR030C1 on 6/16/2015			
Meter Mark	% Cover of Macrophytes	Dominant Species	Present Species
0-10	0-5	None	None
10-20	0-5	None	None
20-30	0-5	None	None
30-40	0-5	None	None
40-50	0-5	None	None
50-60	0-5	None	None
60-70	0-5	None	None
70-80	0-5	None	None
80-90	0-5	None	None
90-100	0-5	None	None

Table 9B. Linear Vegetation Survey Results for SFR050C1 and SFR060C1

LVS Results for SFR050C1 on 6/15/2015

	Meter Mark									
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
<i>Eichhornia crassipes</i>	X	X								
<i>Eleocharis</i> (wispy viviparous)					X					
<i>Hydrocotyle</i> sp.		X	X	D	D	X	C		D	D
<i>Hygrophila polysperma</i>				X		X	C	D		
<i>Lemna</i> sp.	X	X	X	X	X	X	X	X	X	X
<i>Ludwigia repens</i>							X			
<i>Myriophyllum aquaticum</i>	X				X	X				
<i>Polygonum</i> sp.	X	X	X	X	X	D	X	X	X	X
<i>Sagittaria</i> sp.						X				
<i>Salvinia minima</i>	X	X	X	X	X	X	X	X	X	X
<i>Carex</i> sp.					X	X				
<i>Packeria glabella</i>							X			
Total % Cover of Macrophytes	0-5	0-5	0-5	0-5	0-5	0-5	5-10	5-10	5-10	0-5

LVS Results for SFR060C1 on 6/15/2015

	Meter Mark									
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
<i>Eichhornia crassipes</i>			X							X
<i>Eleocharis</i> (wispy viviparous)						X				
<i>Hydrilla verticillata</i>	X									
<i>Hydrocotyle</i> sp.	X									
<i>Hygrophila polysperma</i>	D	D	D	D	D	D	D	D	D	D
<i>Ludwigia repens</i>		X								X
<i>Pistia stratiotes</i>			X			X		X		
<i>Vallisneria americana</i>	X	X								
<i>Eleocharis elongata</i>								X	X	
Total % Cover of Macrophytes	5-10	0-5	5-10	0-5	0-5	0-5	0-5	0-5	0-5	0-5

D = Dominant

C = Co-dominant

X = Present

FLEPPC Category I

Non-native

Table 9C. Coefficient of Conservatism Scores for SFR050C1 and SFR060C1

	Overall		
	Total # Occurrences	C of C Score	C of C Calc
<i>Eichhornia crassipes</i>	2	0.00	0.00
<i>Eleocharis</i> (wispy viviparous)	1	3.00	3.00
<i>Hydrocotyle</i> sp.	8	2.00	16.00
<i>Hygrophila polysperma</i>	4	0.00	0.00
<i>Lemna</i> sp.	10	1.00	10.00
<i>Ludwigia repens</i>	1	3.20	3.20
<i>Myriophyllum aquaticum</i>	3	0.98	2.94
<i>Polygonum</i> sp.	10	3.00	30.00
<i>Sagittaria</i> sp. *	1	3.50	3.50
<i>Salvinia minima</i>	10	0.00	0.00
<i>Carex</i> sp. **	2	5.07	10.14
<i>Packeria glabella</i>	1	2.33	2.33
Total % Cover of Macrophytes			
Total # Occurrences (All)	53		81.11
Mean C of C			1.53
% FLEPPC	30.19		

D = Dominant

C = Co-dominant

X = Present

FLEPPC Category I

Non-native

* C of C value of *S. latifolia*

** C of C value of *C. gigantea*

LVS Results for SFR060C1 on 6/15/2015

	Overall		
	Total # Occurrences	C of C Score	C of C Calc
<i>Eichhornia crassipes</i>	2	0.00	0.00
<i>Eleocharis</i> (wispy viviparous)	1	3.00	3.00
<i>Hydrilla verticillata</i>	1	0.00	0.00
<i>Hydrocotyle</i> sp.	1	2.00	2.00
<i>Hygrophila polysperma</i>	10	0.00	0.00
<i>Ludwigia repens</i>	2	3.20	6.40
<i>Pistia stratiotes</i>	3	0.00	0.00
<i>Vallisneria americana</i>	2	7.00	14.00
<i>Eleocharis elongata</i>	2	6.97	13.94
Total % Cover of Macrophytes			
Total # Occurrences (All)	24		39.34
Mean C of C			1.64
% FLEPPC	66.7		

D = Dominant

X = Present

FLEPPC Category I

Table 10. ACEPD Springs Algae Samples

Qualitative Algal Samples - list of dominant filamentous algal taxa and large chain-forming diatoms

Division or Class	Taxon	Fenceline		Twin Cypress		3 Vent Run		Watermelon 2		Watermelon 3	Poe River
		Green 7/31/2015 1015	Red/blue 7/31/2015 1015	Green 7/31/2015 1100	Red/blue 7/31/2015 1100	Green 7/31/2015 1136	Red 7/31/2015 1136	Green 7/31/2015 1205	Red 7/31/2015 1205	Green floating 7/31/2015 1220	Green 7/31/2015
		Dominance	Dominance	Dominance	Dominance	Dominance	Dominance	Dominance	Dominance	Dominance	Dominance
cyanobacteria	Oscillatoria limosa	2	1			1				1	
cyanobacteria	Phormidium sp. 3			1							
cyanobacteria	Phormidium sp. 4	1	1			1		1			
Chlorophyta	Closterium moniliferum			1				1			
Chlorophyta	Rhizocolonium hieroglyphicum						1			2	
Chlorophyta	Spirogyra spp.							1		1	1
Chlorophyta	Ulothrix sp.							3			
Xanthophyceae	Vaucheria sp.	3		1		3				2	3
Rhodophyta	Batrachospermum macrospora (chantransia stage)		3		3		3		3		
Bacillariophyceae	Cymbella mexicana	1	1								
Bacillariophyceae	Eunotia sp.			3		1		3		1	
Bacillariophyceae	Melosira undulata									1	
Bacillariophyceae	Melosira varians							1		1	1
Bacillariophyceae	Synedra ulna (large side by side diatom)	2		1	1	1	1	1	1	1	1
Bacillariophyceae	Terpsinoe musica (large, chain forming diatom)	1		2				1			

Relative Dominance (relative within sample - not between samples).

3 Taxa with large cells and common in sample.

2 Taxa with smaller cells or less common.

1 Taxa only occasionally seen in sample.

Notes:

Periphyton samples collected from natural substrata or floating mats.

Fenceline Red - Many diatoms present (primarily Navicula & Pinnularia).

Twin Cypress Green - Many diatoms (including Eunotia formica & Terpsinoe musica).

Twin Cypress Red/Blue - Fine reddish brown silt present.

Watermelon 3 Green Floating - abundant brown silt/detritus.



APPENDIX A

SITE PHOTOGRAPHS

SFR010C1



Looking upstream SFR010C1



Looking downstream SFR010C1



Left bank SFR010C1



Right bank at powerline cut (50 m) SFR010C1

SFR030C1



Looking upstream SFR030C1



Looking downstream SFR030C1



Right bank SFR030C1



Left bank SFR030C1

SFR050C1



Looking upstream SFR050C1



Looking downstream SFR050C1



Right bank SFR050C1



Left bank SFR050C1

SFR060C1



Looking upstream SFR060C1



Looking downstream SFR060C1



Right bank SFR060C1



Left bank SFR060C1



APPENDIX B

WATER QUALITY FIELD SHEET

SUWANNEE RIVER WATER MANAGEMENT DISTRICT SURFACE WATER FIELD DATA SHEET							
Date 6/15/2015		Samplers: ~~Bob Giambrone~~ ~~Dan Rich~~ ~~Kelly Williams~~ Laura Bedinger, Efrain Tavaréz				YSI Meter: ☐ WAR1YSI ☐ WAR2YSI ☒ Other (specify) WAR3YSI	
DI Source: ☒ AEL01 ☐ Pub02 ☐ SR03 ☐ Other (specify)		Acids: ☒ C151884 (Nitric) ☒ C141951 (Sulfuric) ☐ Pre-preserved ☐ Other (specify) C152862				Turbidimeter: ☐ WAR1TURB ☐ WAR2TURB ☒ Other (specify)	
Station 1 SFR060C1		Time (24;hh:mm) 1110		Login 20152534-002		Bottle Kit: ☒ SWCHL ☐ SW ☐ GW Subproject: SU	
Sample Type GRAB	Collection Device Sample Container Van Dorn	Water Temp (°C) 23.4	pH (SU) 7.55	DO (mg/L) 5.67	DO (%) 66.7	SpCond (uS/cm) 420	Salinity (ppt) 0.21
Collect Depth (m) 0.30	Total Depth (m) 2.1	Secchi Depth (m) 2.1	Air Temp (°C) 33.0 ^{AB}	Weather code 20	Cloud Cover (%) 10%	Wind Speed (mph) 1.0	Wind Dir (deg) 280
Stage ☐ Staff ☐ Wire	Turbidity (NTU) 0.91	Tidal Movement /	*Latitude (dec deg) 29.86487		*Longitude (dec deg) 082.73976		*Datum ☒ NAD83 ☐ Other (specify)
*Comments blanks at 1330 F-SU-2015234-003							*Flow (cfs)
Station 2 SFR050C1		Time (24;hh:mm) 1350 ^{AB}		Login 20152534-001		Bottle Kit: ☐ SWCHL ☐ SW ☐ GW Subproject: SU	
Sample Type GRAB	Collection Device Sample Container Van Dorn	Water Temp (°C) 24.3	pH (SU) 7.37	DO (mg/L) 3.83	DO (%) 45.7	SpCond (uS/cm) 489	Salinity (ppt) 0.24
Collect Depth (m) 0.3	Total Depth (m) 1.0	Secchi Depth (m) >1.0	Air Temp (°C) 34.0	Weather code 20	Cloud Cover (%) 25%	Wind Speed (mph) 0.7	Wind Direction (deg) 285
Stage ☐ Staff ☐ Wire	Turbidity (NTU) 1.04	Tidal Movement /	*Latitude (dec deg) 82.60825		*Longitude (dec deg) 29.85309		*Datum ☒ NAD83 ☐ Other (specify)
*Comments							*Flow (cfs)

DI Source: SR01 WQ Lab Sink, SR02 Henry's office sink, SR03 Direct Faucet on DI filter

Sample Type: Grab, Duplicate (DUP), Blank (BLK), Vertical Profile (P##), Integrated Vertical Profile (VERT-INT), Composite (COM), Time Series (TIME##)

Collection Device: 1 Sample Container, 2 Bottle Sampler (e.g. Van Dorn), 3 Tube Sampler (composite), 4 Bailer, 5 Autosampler, 7 Other Pump, 10 Lysimeter, 11 Piezometer, 17 Not Applicable

Bottle Kits: GW: C1 1-Qt, C4 16-oz, FC 8-oz, FC Vial, FSC 8-oz, N1 8-oz, SC 8-oz; SW: C1 1-Qt, C4 16-oz, FC 8-oz, FC Vial, FSC 8-oz, N1 8-oz, SC 8-oz; SWCHL: SW kit + CHL 1-L

Weather Codes: 20 No Rain, 54 Mod Drizzle, 64 Mod Rain, 66 Heavy Rain, 80 Scattered Showers, 90 Thunderstorm Series

*These parameters do not have fields in the FDE form... enter these parameters in the station comment area

SUWANNEE RIVER WATER MANAGEMENT DISTRICT SURFACE WATER FIELD DATA SHEET							
Date 6/16/2015		Samplers: ~~Bob Glambrone~~ ~~Dan Rich~~ ~~Kelly Williams~~ Efrain Tavaréz, Laura Bedinger				YSI Meter: ☐ WAR1YSI ☐ WAR2YSI ☐ Other (specify) WAR3YSI	
DI Source: ☒ AEL01 ☐ Pub02 ☐ SR03 ☐ Other (specify)		Acids: ☐ C131884(Nitric) ☐ C141951 (Sulfuric) ☐ Pre-preserved ☐ Other (specify) C152862				Turbidimeter: ☐ WAR1TURB ☒ WAR2TURB ☐ Other (specify)	
Station 3 SFR030C1		Time (24;hh:mm) 1020		Login P20152535-002		Bottle Kit: ☐ SWCHL ☐ SW ☐ GW Subproject: SU	
Sample Type GRAB	Collection Device Sample Container Van Dorn	Water Temp (°C) 26.0	pH (SU) 7.26	DO (mg/L) 5.07	DO (%) 62.4	SpCond (uS/cm) 198	Salinity (ppt) 0.09
Collect Depth (m) 0.3	Total Depth (m) 1.0	Secchi Depth (m) 0.9	Air Temp (°C) 26°C	Weather code 20	Cloud Cover (%) 0%	Wind Speed (mph) 1.5	Wind Dir (deg) 330
Stage ☐ Staff ☐ Wire	Turbidity (NTU) 3.99	Tidal Movement /	*Latitude (dec deg) 29.92190		*Longitude (dec deg) 082.42613		*Datum ☒ NAD83 ☐ Other (specify)
*Comments very low flow, tannic water, blanks at 1100 ~~6/16/2015~~ P20152535-003						*Flow (cfs)	
Station 4 SFR010C1		Time (24;hh:mm) 1530		Login P20152535-001		Bottle Kit: ☐ SWCHL ☐ SW ☐ GW Subproject: SU	
Sample Type GRAB	Collection Device Sample Container Van Dorn	Water Temp (°C) 26.7	pH (SU) 7.24	DO (mg/L) 5.76	DO (%) 71.9	SpCond (uS/cm) 260	Salinity (ppt) 0.12
Collect Depth (m) 0.3	Total Depth (m) 0.4	Secchi Depth (m) >0.4	Air Temp (°C) 34.0	Weather code 20	Cloud Cover (%) 50	Wind Speed (mph) 0.6	Wind Direction(deg) 250
Stage ☐ Staff ☐ Wire	Turbidity (NTU) 1.45	Tidal Movement /	*Latitude (dec deg) 29.84637		*Longitude (dec deg) 082.21922		*Datum ☒ NAD83 ☐ Other (specify)
*Comments						*Flow (cfs)	

DI Source: **SR01** WQ Lab Sink, **SR02** Henry's office sink, **SR03** Direct Faucet on DI filter

Sample Type: Grab, Duplicate (DUP), Blank (BLK), Vertical Profile (P##), Integrated Vertical Profile (VERT-INT), Composite (COM), Time Series (TIME##)

Collection Device: 1 Sample Container, 2 Bottle Sampler (e.g. Van Dorn), 3 Tube Sampler (composite), 4 Bailer, 5 Autosampler, 7 Other Pump, 10 Lysimeter, 11 Piezometer, 17 Not Applicable

Bottle Kits: **GW**: C1 1-Qt, C4 16-oz, FC 8-oz, FC Vial, FSC 8-oz, N1 8-oz, SC 8-oz; **SW**: C1 1-Qt, C4 16-oz, FC 8-oz, FC Vial, FSC 8-oz, N1 8-oz, SC 8-oz; **SWCHL**: SW kit + CHL 1-L

Weather Codes: **20** No Rain, **54** Mod Drizzle, **64** Mod Rain, **66** Heavy Rain, **80** Scattered Showers, **90** Thunderstorm Series

*These parameters do not have fields in the FDE form... enter these parameters in the station comment area

Field Instrument Calibration Log

PROJECT NAME: ACEPO

PROJECT LOCATION: Santa Fe River

INSTRUMENT # TB-2

TURBIDIMETER - SOP FT 1600									
	DATE	TIME	EXPIRATION DATE**	STD VALUE (NTU)	INSTRUMENT RESPONSE (NTU)	% DIFF	PASS (Y, N)***	SAMPLER INITIALS	COMMENTS
IV*	6/15/15	1056	9/10/15	5.98	5.93	0.5%	yes	ET	
	↓	1057	↓	54.6	53.8	1.5%	↓	↓	
		1058		512	485.10 510	0.4%			
CCV*	6/15/15	2015	9/10/15	5.98	5.89	1.5%	yes	ET	
	↓	2016	↓	54.6	54.2	0.7%	↓	↓	
		2017		512	510	0.4%	↓	↓	

Notes:

* IV= Initial Verification CCV= Continuing Calibration Verification

**Standard Purchased From Hach Company.

*** Acceptance Criteria: **Turbidity:** Theoretical value(NTU) of 0.1-10, within 10%; Theoretical value(NTU) of 11-40, within 8%; Theoretical value(NTU) of 41-100, within 6.5%; Theoretical value(NTU) of >100, within 5%

Field Instrument Calibration Log

PROJECT NAME: ACEPD

PROJECT LOCATION: Santa Fe River

INSTRUMENT # TB-2

TURBIDIMETER - SOP FT 1600									
	DATE	TIME	EXPIRATION DATE**	STD VALUE (NTU)	INSTRUMENT RESPONSE (NTU)	% DIFF	PASS (Y, N)***	SAMPLER INITIALS	COMMENTS
IV*	6/16/15	0826	9/10/15	5.98	5.95	0.5	Y	ET	
	↓	0827	↓	54.6	53.9	1.3	Y	↓	
	↓	0828	↓	512	511	0.2	Y	↓	
CCV*	6/16/15	1857	9/10/15	5.98	5.95	0.5	Y	ET	
	↓	1858	↓	54.6	54.8	0.7	Y	↓	
	↓	1859	↓	512	512	0	Y	↓	

Notes:

* IV= Initial Verification CCV= Continuing Calibration Verification

**Standard Purchased From Hach Company.

*** Acceptance Criteria: **Turbidity**: Theoretical value(NTU) of 0.1-10, within 10%; Theoretical value(NTU) of 11-40, within 8%; Theoretical value(NTU) of 41-100, within 6.5%; Theoretical value(NTU) of >100, within 5%

CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

11-10-05 version

Boldly "X" in box if there is qualified data on this page.

Project/Site: ACEPD/Santa Fe

Date: 6/15/15

Meter # 04C3936 AA

Temperature (Quarterly) For Date of Last Temperature Verification see in log book

Dissolved Oxygen	DEP SOP FT 1500	Initials	Date	Time	Probe Charge 50 +/- 25	Probe Gain -0.7 to +1.5	mg/L	Temp °c	% DO	Saturation mg/L (from chart)	Pass or Fail	
Acceptance Criteria: +/- 0.3mg/l												
CAL	ICV	CCV	ET	6/15/15	0735	35.9	1.13327	8.45	23.83	100.0	8.45	(P) F
CAL	ICV	CCV	↓	↓	1038	36.9	↓	7.94	26.36	98.7	8.06	(P) F
CAL	ICV	CCV	↓	↓	1813	36.9	↓	7.48	30.07	99.1	7.55	(P) F
CAL	ICV	CCV										P F
CAL	ICV	CCV										P F
CAL	ICV	CCV										P F
CAL	ICV	CCV										P F
CAL	ICV	CCV										P F

Specific Conductance	DEP SOP FT 1200	Initials	Date	Time	Standard $\mu\text{mhos/cm}$	Exp. Date	Lot #	Bottle #	Cell Constant	Reading $\mu\text{mhos/cm}$	Pass or Fail
Acceptance Criteria: +/- 5%											
CAL ICV CCV		ET	6/15/15	0800	1413	3/2016	150225C		5.38	1414	P F
CAL ICV CCV		↓	↓	0803	100	9/2015	150225B		↓	100	P F
CAL ICV CCV		↓	↓	1825	1413	3/2016	150225C		↓	1419	P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

pH	DEP SOP FT 1100	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
Acceptance Criteria: +/- 0.2 SU											
CAL	ICV	CCV	ET	6/15/15	0741	7.00	7/2016	141223C	-13.4	7.00	(P) F
CAL	ICV	CCV	↓	↓	0749	4.01	9/2015	140820A	164.4	4.01	(P) F
CAL	ICV	CCV	↓	↓	0753	10.00	7/2016	141223A	-186.7	9.99	(P) F
CAL	ICV	CCV	↓	↓	0809	7.00	7/2016	141223C	-13.5	7.03	(P) F
CAL	ICV	CCV	↓	↓	1818	7.00	7/2016	141223C	-14.7	7.05	(P) F
CAL	ICV	CCV	↓	↓	1821	10.00	7/2016	141223A	-187.2	9.94	(P) F
CAL	ICV	CCV									P F
CAL	ICV	CCV									P F
CAL	ICV	CCV									P F

Maintenance: Weekly pH Slope: Specific Conductance Probe Cleaned? Yes (X) No Dissolved Oxygen Membrane Changed: Yes (X) No

pH Cell Constant
4.00 SU: +180 MV +/- 50
7.00 SU: 0 MV +/- 50
10.00 SU: -180 MV +/- 50

Notes:

Perform only in Calibrate Mode:
Perform only in Run Mode:
Perform only in Run Mode:

CAL - Calibrate -
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

11-10-05 version

Boldly "X" the box if there is qualified data on this page.

Project/Site: ACEPD/Santa Fe River

Date: 6/16/2015

Meter # 04C3936AA

Temperature (Quarterly) For Date of Last Temperature Verification see in log book

Dissolved Oxygen	DEP SOP FT 1500	Initials	Date	Time	Probe Charge 50 +/- 25	Probe Gain -0.7 to +1.5	mg/L	Temp °C	% DO	Saturation mg/L (from chart)	Pass or Fail
Acceptance Criteria: +/- 0.3mg/l											
CAL ICV CCV		ET	6/16/15	0738	36.9	1.09898	8.28	24.89	100.0	8.28	(P) F
CAL ICV CCV				0740	38.0		8.46	24.86	100.0	8.28	(P) F
CAL ICV CCV		↓	↓	1535	36.9	↓	7.74	28.43	99.6	7.77	(P) F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

Specific Conductance	DEP SOP FT 1200	Initials	Date	Time	Standard μmhos/cm	Exp. Date	Lot #	Bottle #	Cell Constant	Reading μmhos/cm	Pass or Fail
Acceptance Criteria: +/- 5%											
CAL ICV CCV		ET	6/16/15	0809	1413	3/2016	150225C		5.38843	1413	(P) F
CAL ICV CCV		↓	↓	0811	100	9/2015	150225B		↓	100	(P) F
CAL ICV CCV		↓	↓	1752	1413	3/2016	150225C		↓	1420	(P) F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F
CAL ICV CCV											P F

pH	DEP SOP FT 1100	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
Acceptance Criteria: +/- 0.2 SU											
CAL ICV CCV		ET	6/16/15	0743	7.00	7/2016	141223C		-12.2	7.00	(P) F
CAL ICV CCV		↓	↓	0749	4.01	9/2015	140820A		165.9	4.01	(P) F
CAL ICV CCV		↓	↓	0803	10.012	7/2016	141223C		-185.3	10.98	(P) F
CAL ICV CCV		↓	↓	0815	7.00	↓	141223C		-12.5	7.04	(P) F
CAL ICV CCV		↓	↓	1741	7.00	↓	141223C		-14.0	7.06	(P) F
CAL ICV CCV		↓	↓	1744	10.00	↓	141223A		-187.9	9.95	(P) F
CAL ICV CCV											P F
CAL ICV CCV											P F

Maintenance: Weekly pH Slope: _____ Specific Conductance Probe Cleaned? Yes/No _____ Dissolved Oxygen Membrane Changed: Yes/No _____

pH Cell Constant
4.00 SU: +180 MV +/- 50
7.00 SU: 0 MV +/- 50
10.00 SU: -180 MV +/- 50

Notes:
CAL - Calibrate -
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Perform only in Calibrate Mode:
Perform only in Run Mode:
Perform only in Run Mode:



APPENDIX C

WATER QUALITY LABORATORY DATA

Appendix C
Water Quality Data Santa Fe River June, 2015 Sorted by Water Quality Parameter

VENDOR_NM	STN_NAME	PNT_LOC_DSC	WTR_QUAL_PARAM_NM	UOM_DSC	SMPL_FRAC_T_TP_NM	NO_OF_SGNF		SMPL_COLL_DT	MEAS_VAL	SMPL_TP_CD	SMPL_PRSRV_TP_NM	PRSRV_STTS_CD	ANLST_NM
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Air Temp	deg C	Total	3	6/16/2015 15:30	34		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR030C1		Air Temp	deg C	Total	3	6/16/2015 10:20	26		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR050C1		Air Temp	deg C	Total	3	6/15/2015 17:50	34		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR060C1		Air Temp	deg C	Total	3	6/15/2015 11:10	33		GRAB		Yes	ETavarez/LB edinger
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Alkalinity	mg/L	Total	3	6/16/2015 15:30	106.366119		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Alkalinity	mg/L	Total	3	6/16/2015 10:20	67.1115417		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Alkalinity	mg/L	Total	3	6/15/2015 17:50	154.388092		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Alkalinity	mg/L	Total	3	6/15/2015 11:10	175.148743		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Chl-a	mg/m3	Total	3	6/16/2015 15:30	0.04040999		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR030C1		Chl-a	mg/m3	Total	3	6/16/2015 10:20	1.80237999		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR050C1		Chl-a	mg/m3	Total	3	6/15/2015 17:50	0.88539005		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR060C1		Chl-a	mg/m3	Total	3	6/15/2015 11:10	1.90337005		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Chl-a Corrected	mg/m3	Total	3	6/16/2015 15:30	0.24030003		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR030C1		Chl-a Corrected	mg/m3	Total	3	6/16/2015 10:20	1.65539999		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR050C1		Chl-a Corrected	mg/m3	Total	3	6/15/2015 17:50	0.77430018		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR060C1		Chl-a Corrected	mg/m3	Total	3	6/15/2015 11:10	1.33500022		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Chl-b	mg/m3	Total	3	6/16/2015 15:30	-0.0714		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR030C1		Chl-b	mg/m3	Total	3	6/16/2015 10:20	-0.0044399		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR050C1		Chl-b	mg/m3	Total	3	6/15/2015 17:50	-0.08986		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR060C1		Chl-b	mg/m3	Total	3	6/15/2015 11:10	-0.0247999		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Chl-c	mg/m3	Total	3	6/16/2015 15:30	-0.05577		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR030C1		Chl-c	mg/m3	Total	3	6/16/2015 10:20	0.06377995		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR050C1		Chl-c	mg/m3	Total	3	6/15/2015 17:50	0.01193		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR060C1		Chl-c	mg/m3	Total	3	6/15/2015 11:10	0.34470989		GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Cl	mg/L	Total	3	6/16/2015 15:30	12.56		GRAB	None	Yes	2650
SJRWMD Laboratory Services	SFR030C1		Cl	mg/L	Total	3	6/16/2015 10:20	14.65		GRAB	None	Yes	2650
SJRWMD Laboratory Services	SFR050C1		Cl	mg/L	Total	3	6/15/2015 17:50	16.24		GRAB	None	Yes	2650
SJRWMD Laboratory Services	SFR060C1		Cl	mg/L	Total	3	6/15/2015 11:10	11.79		GRAB	None	Yes	2650
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Cloud Cover	percent		3	6/16/2015 15:30	50		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR030C1		Cloud Cover	percent		3	6/16/2015 10:20	0		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR050C1		Cloud Cover	percent		3	6/15/2015 17:50	25		GRAB		Yes	ETavarez/LB edinger
SJRWMD Field Data	SFR060C1		Cloud Cover	percent		3	6/15/2015 11:10	10		GRAB		Yes	ETavarez/LB edinger
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Color	cpu	Total	3	6/16/2015 15:30	205.257477		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color	cpu	Total	3	6/16/2015 10:20	146.205856		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color	cpu	Total	3	6/15/2015 17:50	25.6861782		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Color	cpu	Total	3	6/15/2015 11:10	10.2058945		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Color pH Adjusted	std units	Dissolved	3	6/16/2015 15:30	7.89961386		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color pH Adjusted	std units	Dissolved	3	6/16/2015 10:20	7.98892498		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color pH Adjusted	std units	Dissolved	3	6/15/2015 17:50	8.00974369		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Color pH Adjusted	std units	Dissolved	3	6/15/2015 11:10	8.1940155		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Color pH Initial	std units	Dissolved	3	6/16/2015 15:30	7.89961386		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color pH Initial	std units	Dissolved	3	6/16/2015 10:20	7.98892498		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color pH Initial	std units	Dissolved	3	6/15/2015 17:50	8.00974369		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Color pH Initial	std units	Dissolved	3	6/15/2015 11:10	8.1940155		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Color-Spec 410nm	cpu	Dissolved	3	6/16/2015 15:30	201.097305		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color-Spec 410nm	cpu	Dissolved	3	6/16/2015 10:20	150.653412		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color-Spec 410nm	cpu	Dissolved	3	6/15/2015 17:50	25.6316776		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Color-Spec 410nm	cpu	Dissolved	3	6/15/2015 11:10	9.84570599		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Abs	cpu	Dissolved	3	6/16/2015 15:30	0.51109999		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color-Spec 410nm Abs	cpu	Dissolved	3	6/16/2015 10:20	0.38370001		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color-Spec 410nm Abs	cpu	Dissolved	3	6/15/2015 17:50	0.0676		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1		Color-Spec 410nm Abs	cpu	Dissolved	3	6/15/2015 11:10	0.0271		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham Santa Fe River at Worthington Springs	Color-Spec 440nm	cpu	Dissolved	3	6/16/2015 15:30	290.954742		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1		Color-Spec 440nm	cpu	Dissolved	3	6/16/2015 10:20	210.892899		GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1		Color-Spec 440nm	cpu	Dissolved	3	6/15/2015 17:50	36.4755707		GRAB	Cool 4 deg C	Yes	2855

SMPLE_BATCH_ID	ANALYSIS_TYPE_CD	CNTNR_ID	INSTRMT_NM	DAYS_Q	LATITUDE_NO	LONGITUDE_NO	STATION_CATEGORY	STATION_STATUS	HIST_PROV_CD	ANLYT_MTRX_NM
QC20152936	I		NA		295045.996	821310.992	Surfacer	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacer	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacer	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacer	Active	P	FIELD DATA
QC20152899	I	L20152535-003-C	19863		295045.996	821310.992	Surfacer	Active	P	WATER
QC20152899	I	L20152535-001-C	19863		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152899	I	L20152534-003-C	19863		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152899	I	L20152534-001-C	19863		295152.992	824427.996	Surfacer	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441		295045.996	821310.992	Surfacer	Active	P	WATER
QC20153021	I	L20152535-001-CHL	22441		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441		295152.992	824427.996	Surfacer	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441		295045.996	821310.992	Surfacer	Active	P	WATER
QC20153021	I	L20152535-001-CHL	22441		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441		295152.992	824427.996	Surfacer	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441		295045.996	821310.992	Surfacer	Active	P	WATER
QC20153021	I	L20152535-001-CHL	22441		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441		295152.992	824427.996	Surfacer	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441		295045.996	821310.992	Surfacer	Active	P	WATER
QC20153021	I	L20152535-001-CHL	22441		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441		295152.992	824427.996	Surfacer	Active	P	WATER
QC20152976	I	L20152535-003-C	19744		295045.996	821310.992	Surfacer	Active	P	WATER
QC20152976	I	L20152535-001-C	19744		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152906	I	L20152534-003-C	19744		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152906	I	L20152534-001-C	19744		295152.992	824427.996	Surfacer	Active	P	WATER
QC20152936	I		NA		295045.996	821310.992	Surfacer	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacer	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacer	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacer	Active	P	FIELD DATA
QC20152893	I	L20152535-003-FC	22034		295045.996	821310.992	Surfacer	Active	P	WATER
QC20152893	I	L20152535-001-FC	22034		295518.012	822533.996	Surfacer	Active	P	WATER
QC20152883	I	L20152534-003-FC	22034		295110.008	823630.996	Surfacer	Active	P	WATER
QC20152883	I	L20152534-001-FC	22034		295152.992	824427.996	Surfacer	Active	P	WATER
QC20152893	I	L20152535-003-FC	22034		295045.996	821310.992	Surfacer	Active	P	W

VENDOR_NM	STN_NAME	PNT_LOC_DSC	WTR_QUAL_PARA M_NM	UOM_DSC	SMPL_FRAC T_TP_NM	NO_OF_S GNF		SMPL_COLL_DT	MEAS_VAL	SMPL_TP_CD	SMPL_PRSRV_TP_NM	PRSRV_STTS_CD		ANLST_NM
						T_FG								
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 440nm	cpu	Dissolved	3	6/15/2015 11:10	14.0266848	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Color-Spec 440nm Abs	cpu	Dissolved	3	6/16/2015 15:30	0.33140001	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 440nm Abs	cpu	Dissolved	3	6/16/2015 10:20	0.2397	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Color-Spec 440nm Abs	cpu	Dissolved	3	6/15/2015 17:50	0.0414	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 440nm Abs	cpu	Dissolved	3	6/15/2015 11:10	0.0159	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Color-Spec 455nm Abs	cpu	Dissolved	3	6/16/2015 15:30	0.27149999	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 455nm Abs	cpu	Dissolved	3	6/16/2015 10:20	0.1936	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Color-Spec 455nm Abs	cpu	Dissolved	3	6/15/2015 17:50	0.0339	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 455nm Abs	cpu	Dissolved	3	6/15/2015 11:10	0.0132	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Conductivity	umhos/cm	Total	3	6/16/2015 15:30	241	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Conductivity	umhos/cm	Total	3	6/16/2015 10:20	190.100006	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Conductivity	umhos/cm	Total	3	6/15/2015 17:50	475	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Conductivity	umhos/cm	Total	3	6/15/2015 11:10	416	GRAB	Cool 4 deg C	Yes	2855		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Conductivity-Field	umhos/cm	Total	4	6/16/2015 15:30	260	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Conductivity-Field	umhos/cm	Total	4	6/16/2015 10:20	198	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Conductivity-Field	umhos/cm	Total	4	6/15/2015 17:50	489	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Conductivity-Field	umhos/cm	Total	4	6/15/2015 11:10	420	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Depth of Collection-m	m		4	6/16/2015 15:30	0.3	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Depth of Collection-m	m		4	6/16/2015 10:20	0.3	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Depth of Collection-m	m		4	6/15/2015 17:50	0.3	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Depth of Collection-m	m		4	6/15/2015 11:10	0.3	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Depth of Stream-m	m		4	6/16/2015 15:30	0.4	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Depth of Stream-m	m		4	6/16/2015 10:20	1	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Depth of Stream-m	m		4	6/15/2015 17:50	1	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Depth of Stream-m	m		4	6/15/2015 11:10	2.1	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	DO	mg/L	Total	3	6/16/2015 15:30	5.76	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	DO	mg/L	Total	3	6/16/2015 10:20	5.07	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	DO	mg/L	Total	3	6/15/2015 17:50	3.83	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	DO	mg/L	Total	3	6/15/2015 11:10	5.67	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	DO-Percent Oxygen Saturation	percent	Total	3	6/16/2015 15:30	71.9	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	DO-Percent Oxygen Saturation	percent	Total	3	6/16/2015 10:20	62.4	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	DO-Percent Oxygen Saturation	percent	Total	3	6/15/2015 17:50	45.7	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	DO-Percent Oxygen Saturation	percent	Total	3	6/15/2015 11:10	66.7	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	NH4-D	mg/L	Dissolved	3	6/16/2015 15:30	0.045504	GRAB	H2SO4; Cool 4 deg C	Yes	523		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	NH4-D	mg/L	Dissolved	3	6/16/2015 10:20	0.049069	GRAB	H2SO4; Cool 4 deg C	Yes	523		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	NH4-D	mg/L	Dissolved	3	6/15/2015 17:50	0.00229	GRAB	H2SO4; Cool 4 deg C	Yes	523		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	NH4-D	mg/L	Dissolved	3	6/15/2015 11:10	0.0039	GRAB	H2SO4; Cool 4 deg C	Yes	523		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	NOx-D	mg/L	Dissolved	3	6/16/2015 15:30	0.1475	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	NOx-D	mg/L	Dissolved	3	6/16/2015 10:20	0.2646	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	NOx-D	mg/L	Dissolved	3	6/15/2015 17:50	0.3974	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	NOx-D	mg/L	Dissolved	3	6/15/2015 11:10	0.8746	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Pheophytin Corrected	mg/m3	Total	3	6/16/2015 15:30	-0.3524401	GRAB	Cool 4 deg C	Yes	3042		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Pheophytin Corrected	mg/m3	Total	3	6/16/2015 10:20	0.13884001	GRAB	Cool 4 deg C	Yes	3042		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Pheophytin Corrected	mg/m3	Total	3	6/15/2015 17:50	0.12281978	GRAB	Cool 4 deg C	Yes	3042		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Pheophytin Corrected	mg/m3	Total	3	6/15/2015 11:10	0.85172972	GRAB	Cool 4 deg C	Yes	3042		
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	pH-Field	std units	Total	3	6/16/2015 15:30	7.24	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	pH-Field	std units	Total	3	6/16/2015 10:20	7.26	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	pH-Field	std units	Total	3	6/15/2015 17:50	7.37	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	pH-Field	std units	Total	3	6/15/2015 11:10	7.55	GRAB		Yes	ETavarez/LB edinger		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	PO4-D	mg/L	Dissolved	3	6/16/2015 15:30	0.3314	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	PO4-D	mg/L	Dissolved	3	6/16/2015 10:20	0.2253	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	PO4-D	mg/L	Dissolved	3	6/15/2015 17:50	0.0824	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	PO4-D	mg/L	Dissolved	3	6/15/2015 11:10	0.0574	GRAB	Cool 4 deg C	Yes	2650		
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Ratio Chl-a/Pheo	ratio	Total	3	6/16/2015 15:30	-0.4999998	GRAB	Cool 4 deg C	Yes	3042		

SMPLE_BATCH_ID	ANALYSIS_TYPE_CD	INSTRMT_NM	DAYS_Q	LATITUDE_NO	LONGITUDE_NO	STATION_CATEGORY	STATION_STATUS	HIST_PROV_CD	ANLYT_MTRX_NM
QC20152883	I	L20152534-001-FC	22034	295152.992	824427.996	er	Active	P	WATER
QC20152893	I	L20152535-003-FC	22034	295045.996	821310.992	er	Active	P	WATER
QC20152893	I	L20152535-001-FC	22034	295518.012	822533.996	er	Active	P	WATER
QC20152883	I	L20152534-003-FC	22034	295110.008	823630.996	er	Active	P	WATER
QC20152883	I	L20152534-001-FC	22034	295152.992	824427.996	er	Active	P	WATER
QC20152893	I	L20152535-003-FC	22034	295045.996	821310.992	er	Active	P	WATER
QC20152893	I	L20152535-001-FC	22034	295518.012	822533.996	er	Active	P	WATER
QC20152883	I	L20152534-003-FC	22034	295110.008	823630.996	er	Active	P	WATER
QC20152883	I	L20152534-001-FC	22034	295152.992	824427.996	er	Active	P	WATER
QC20152899	I	L20152535-003-C	19863	295045.996	821310.992	er	Active	P	WATER
QC20152899	I	L20152535-001-C	19863	295518.012	822533.996	er	Active	P	WATER
QC20152899	I	L20152534-003-C	19863	295110.008	823630.996	er	Active	P	WATER
QC20152899	I	L20152534-001-C	19863	295152.992	824427.996	er	Active	P	WATER
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152891	I	L20152535-003-FSC	22271	295045.996	821310.992	er	Active	P	WATER
QC20152891	I	L20152535-001-FSC	22271	295518.012	822533.996	er	Active	P	WATER
QC20152884	I	L20152534-003-FSC	22271	295110.008	823630.996	er	Active	P	WATER
QC20152884	I	L20152534-001-FSC	22271	295152.992	824427.996	er	Active	P	WATER
QC20152895	I	L20152535-003-FC	21452	295045.996	821310.992	er	Active	P	WATER
QC20152895	I	L20152535-001-FC	21452	295518.012	822533.996	er	Active	P	WATER
QC20152888	I	L20152534-003-FC	21452	295110.008	823630.996	er	Active	P	WATER
QC20152888	I	L20152534-001-FC	21452	295152.992	824427.996	er	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441	295045.996	821310.992	er	Active	P	WATER
QC20153021	I	L20152535-001-CHL	22441	295518.012	822533.996	er	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441	295110.008	823630.996	er	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441	295152.992	824427.996	er	Active	P	WATER
QC20152936	I	WAR3YSI		295045.996	821310.992	er	Active	P	FIELD DATA
QC20152936	I	WAR3YSI		295518.012	822533.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295110.008	823630.996	er	Active	P	FIELD DATA
QC20153211	I	WAR3YSI		295152.992	824427.996	er	Active	P	FIELD DATA
QC20152895	I	L20152535-003-FC	21452	295045.996	821310.992	er	Active	P	WATER
QC20152895	I	L20152535-001-FC	21452	295518.012	822533.996	er	Active	P	WATER
QC20152888	I	L20152534-003-FC	21452	295110.008	823630.996	er	Active	P	WATER
QC20152888	I	L20152534-001-FC	21452	295152.992	824427.996	er	Active	P	WATER
QC20153021	I	L20152535-003-CHL	22441	295045.996	821310.992	er	Active	P	WATER

VENDOR_NM	STN_NAME	PNT_LOC_DSC	WTR_QUAL_PARA M_NM	UOM_DSC	SMPL_FRAC T_TP_NM	NO_OF_S GNF		MEAS_VAL	SMPL_TP_CD	SMPL_PRSRV_TP_NM	PRSRV	
						T_FG	SMPL_COLL_DT				CD	_STTS_CD
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Ratio Chl-a/Pheo	ratio	Total	3	6/16/2015 10:20	1.64583333	GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Ratio Chl-a/Pheo	ratio	Total	3	6/15/2015 17:50	1.60416683	GRAB	Cool 4 deg C	Yes	3042
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Ratio Chl-a/Pheo	ratio	Total	3	6/15/2015 11:10	1.42735051	GRAB	Cool 4 deg C	Yes	3042
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Salinity	ppth	Total	3	6/16/2015 15:30	0.12	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Salinity	ppth	Total	3	6/16/2015 10:20	0.09	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Salinity	ppth	Total	3	6/15/2015 17:50	0.24	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Salinity	ppth	Total	3	6/15/2015 11:10	0.21	GRAB		Yes	edinger
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Secchi	m		3	6/16/2015 15:30	0.4	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Secchi	m		3	6/16/2015 10:20	0.9	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Secchi	m		3	6/15/2015 17:50	1	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Secchi	m		3	6/15/2015 11:10	2.1	GRAB		Yes	edinger
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Si-T	mg/L	Total	3	6/16/2015 15:30	4.61062671	GRAB	Cool 4 deg C	Yes	523
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Si-T	mg/L	Total	3	6/16/2015 10:20	3.05397508	GRAB	Cool 4 deg C	Yes	523
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Si-T	mg/L	Total	3	6/15/2015 17:50	6.42773323	GRAB	Cool 4 deg C	Yes	523
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Si-T	mg/L	Total	3	6/15/2015 11:10	3.74043339	GRAB	Cool 4 deg C	Yes	523
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	SO4	mg/L	Total	3	6/16/2015 15:30	4.7019	GRAB	Cool 4 deg C	Yes	2650
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	SO4	mg/L	Total	3	6/16/2015 10:20	6.0743	GRAB	Cool 4 deg C	Yes	2650
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	SO4	mg/L	Total	3	6/15/2015 17:50	75.9743	GRAB	Cool 4 deg C	Yes	2650
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	SO4	mg/L	Total	3	6/15/2015 11:10	33.1295	GRAB	Cool 4 deg C	Yes	2650
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	TKN-T	mg/L	Total	3	6/16/2015 15:30	0.7156	GRAB	H2SO4; Cool 4 deg C	Yes	2053
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	TKN-T	mg/L	Total	3	6/16/2015 10:20	0.8181	GRAB	H2SO4; Cool 4 deg C	Yes	2053
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	TKN-T	mg/L	Total	3	6/15/2015 17:50	0.2275	GRAB	H2SO4; Cool 4 deg C	Yes	3096
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	TKN-T	mg/L	Total	3	6/15/2015 11:10	0.1138	GRAB	H2SO4; Cool 4 deg C	Yes	3096
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	TOC	mg/L	Total	3	6/16/2015 15:30	16.27	GRAB	H2SO4; Cool 4 deg C	Yes	3047
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	TOC	mg/L	Total	3	6/16/2015 10:20	16.23	GRAB	H2SO4; Cool 4 deg C	Yes	3047
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	TOC	mg/L	Total	3	6/15/2015 17:50	3.98	GRAB	H2SO4; Cool 4 deg C	Yes	3047
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	TOC	mg/L	Total	3	6/15/2015 11:10	1.71	GRAB	H2SO4; Cool 4 deg C	Yes	3047
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	TP-T	mg/L	Total	3	6/16/2015 15:30	0.3663	GRAB	H2SO4; Cool 4 deg C	Yes	2053
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	TP-T	mg/L	Total	3	6/16/2015 10:20	0.2716	GRAB	H2SO4; Cool 4 deg C	Yes	2053
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	TP-T	mg/L	Total	3	6/15/2015 17:50	0.1014	GRAB	H2SO4; Cool 4 deg C	Yes	3096
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	TP-T	mg/L	Total	3	6/15/2015 11:10	0.0702	GRAB	H2SO4; Cool 4 deg C	Yes	3096
SJRWMD Laboratory Services	SFR010C1	Santa Fe River near Graham	Turbidity	ntu	Total	3	6/16/2015 15:30	1.05919433	GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR030C1	Santa Fe River at Worthington Springs	Turbidity	ntu	Total	3	6/16/2015 10:20	3.07033229	GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR050C1	Santa Fe River at US 441	Turbidity	ntu	Total	3	6/15/2015 17:50	0.23475325	GRAB	Cool 4 deg C	Yes	2855
SJRWMD Laboratory Services	SFR060C1	Santa Fe River at SR 47 near Fort White	Turbidity	ntu	Total	3	6/15/2015 11:10	0.25254381	GRAB	Cool 4 deg C	Yes	2855
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Turbidity-Field	ntu	Total	3	6/16/2015 15:30	1.45	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Turbidity-Field	ntu	Total	3	6/16/2015 10:20	3.99	GRAB		Yes	edinger
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Water Temp	deg C	Total	4	6/16/2015 15:30	26.7	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Water Temp	deg C	Total	4	6/16/2015 10:20	26	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Water Temp	deg C	Total	4	6/15/2015 17:50	24.3	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Water Temp	deg C	Total	4	6/15/2015 11:10	23.4	GRAB		Yes	edinger
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Weather	code no.		2	6/16/2015 15:30	20	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Weather	code no.		2	6/16/2015 10:20	20	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Weather	code no.		2	6/15/2015 17:50	20	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Weather	code no.		2	6/15/2015 11:10	20	GRAB		Yes	edinger
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Wind Direction	degrees		3	6/16/2015 15:30	250	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Wind Direction	degrees		3	6/16/2015 10:20	330	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Wind Direction	degrees		3	6/15/2015 17:50	285	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Wind Direction	degrees		3	6/15/2015 11:10	280	GRAB		Yes	edinger
SJRWMD Field Data	SFR010C1	Santa Fe River near Graham	Wind Speed	mph		3	6/16/2015 15:30	0.6	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR030C1	Santa Fe River at Worthington Springs	Wind Speed	mph		3	6/16/2015 10:20	1.5	GRAB		Yes	edinger
SJRWMD Field Data	SFR050C1	Santa Fe River at US 441	Wind Speed	mph		3	6/15/2015 17:50	0.7	GRAB		Yes	ETavarez/LB
SJRWMD Field Data	SFR060C1	Santa Fe River at SR 47 near Fort White	Wind Speed	mph		3	6/15/2015 11:10	1	GRAB		Yes	edinger

SMPL_BATCH_ID	ANALYSIS_TYPE_CD	CNTNR_ID	INSTRMT_NM	DAYS_Q	LATITUDE_NO	LONGITUDE_NO	STATION_CATEGROY	STATION_S_TATUS	HIST_PROV_CD	ANLYT_MTRX_NM
QC20153021	I	L20152535-001-CHL	22441		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152889	I	L20152534-003-CHL	22441		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152889	I	L20152534-001-CHL	22441		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152936	I		WAR3YSI		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		WAR3YSI		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		WAR3YSI		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		WAR3YSI		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA
QC20152890	I	L20152535-003-C	22243		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152890	I	L20152535-001-C	22243		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152890	I	L20152534-003-C	22243		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152890	I	L20152534-001-C	22243		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152976	I	L20152535-003-C	19744		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152976	I	L20152535-001-C	19744		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152906	I	L20152534-003-C	19744		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152906	I	L20152534-001-C	19744		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152962	I	L20152535-003-SC	19505		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152962	I	L20152535-001-SC	19505		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152882	I	L20152534-003-SC	19505		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152882	I	L20152534-001-SC	19505		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152978	I	L20152535-003-SC	21446		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152978	I	L20152535-001-SC	21446		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152880	I	L20152534-003-SC	22244		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152880	I	L20152534-001-SC	22244		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152962	I	L20152535-003-SC	19505		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152962	I	L20152535-001-SC	19505		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152882	I	L20152534-003-SC	19505		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152882	I	L20152534-001-SC	19505		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152896	I	L20152535-003-C	22253		295045.996	821310.992	Surfacewater	Active	P	WATER
QC20152896	I	L20152535-001-C	22253		295518.012	822533.996	Surfacewater	Active	P	WATER
QC20152885	I	L20152534-003-C	22253		295110.008	823630.996	Surfacewater	Active	P	WATER
QC20152885	I	L20152534-001-C	22253		295152.992	824427.996	Surfacewater	Active	P	WATER
QC20152936	I		NA		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20152936	I		WAR3YSI		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		WAR3YSI		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		WAR3YSI		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		WAR3YSI		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295045.996	821310.992	Surfacewater	Active	P	FIELD DATA
QC20152936	I		NA		295518.012	822533.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295110.008	823630.996	Surfacewater	Active	P	FIELD DATA
QC20153211	I		NA		295152.992	824427.996	Surfacewater	Active	P	FIELD DATA

VENDOR_N M	STN_ID	STN_NAME	PNT_LOC_DSC	WTR_QUAL_ PARAM_NM	COLL_DEV_ DSC	MTRX_N M	WTR_QU	UOM_DS	STORET_	NO_OF_S	SEQUENC E_NO	MIR_CLS DSC	MNR_CLS _DSC	SMPL_COLL_OT	MEAS_VA L	LAB_RMR K_CD	SMPL_TP _CD	LAB_ANL_SM		LIMS_SMP L_ID	SUB_PRO J_NM	PROJ_NM	SMPL_CO LL_ORG	SMPL_COLL PRSN_NM	LIMS_LOGIN_ID
							AL_PARA M_ID	PARAM_ ID	SMPL_FRA CT_TP_NM	GNFT_FG RS								PL_CMNT_DS C	LAB_ANL_C MNT_DSC						
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color	Sample Container	Water	10011	cpu	80	Total	3	1040	Ambient	None	6/15/2015 11:10	10.20589		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color pH Adjusted	Sample Container	Water	11414	std units		Dissolved	3	1049	Ambient	None	6/15/2015 11:10	8.194016		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color pH Initial	Sample Container	Water	11413	std units		Dissolved	3	1048	Ambient	None	6/15/2015 11:10	8.194016		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 410nm	Sample Container	Water	11411	cpu		Dissolved	3	1044	Ambient	None	6/15/2015 11:10	9.845706 i		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 410nm Abs	Sample Container	Water	11412	cpu		Dissolved	3	1045	Ambient	None	6/15/2015 11:10	0.0271		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 440nm	Sample Container	Water	11409	cpu		Dissolved	3	1042	Ambient	None	6/15/2015 11:10	14.02668		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 440nm Abs	Sample Container	Water	11410	cpu		Dissolved	3	1043	Ambient	None	6/15/2015 11:10	0.0159		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Color-Spec 455nm Abs	Sample Container	Water	11408	cpu		Dissolved	3	1041	Ambient	None	6/15/2015 11:10	0.0132		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	NH4-D	Sample Container	Water	10026	mg/L	608	Dissolved	3	1560	Ambient	None	6/15/2015 11:10	0.0039 T		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Turbidity	Sample Container	Water	10177	ntu	82079	Total	3	1170	Ambient	None	6/15/2015 11:10	0.252544 T		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Chl-b	Sample Container	Water	10122	mg/m3	32212	Total	3	1230	Ambient	None	6/15/2015 11:10	-0.0248 T		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Chl-c	Sample Container	Water	10123	mg/m3	32214	Total	3	1240	Ambient	None	6/15/2015 11:10	0.34471 T		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Phaeophytin Corrected	Sample Container	Water	10124	mg/m3	32218	Total	3	1260	Ambient	None	6/15/2015 11:10	0.85173 T		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Ratio Chl- a/Pheo	Sample Container	Water	10125	ratio	32219	Total	3	1270	Ambient	None	6/15/2015 11:10	1.427351		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Chl-a	Sample Container	Water	10120	mg/m3	32210	Total	3	1220	Ambient	None	6/15/2015 11:10	1.90337 I		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Chl-a Corrected	Sample Container	Water	10121	mg/m3	32211	Total	3	1250	Ambient	None	6/15/2015 11:10	1.335 I		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	NOx-D	Sample Container	Water	10033	mg/L	631	Dissolved	3	1600	Ambient	None	6/15/2015 11:10	0.8746		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	PO4-D	Sample Container	Water	10038	mg/L	671	Dissolved	3	1480	Ambient	None	6/15/2015 11:10	0.0574		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Si-T	Sample Container	Water	10057	mg/L	958	Total	3	1420	Ambient	None	6/15/2015 11:10	3.740433		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	TKN-T	Sample Container	Water	10030	mg/L	625	Total	3	1510	Ambient	None	6/15/2015 11:10	0.1138		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	TP-T	Sample Container	Water	10035	mg/L	665	Total	3	1450	Ambient	None	6/15/2015 11:10	0.0702		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Cl	Sample Container	Water	10053	mg/L	940	Total	3	1030	Ambient	None	6/15/2015 11:10	11.79 I		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	SO4	Sample Container	Water	10054	mg/L	945	Total	3	1140	Ambient	None	6/15/2015 11:10	33.1295		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	TOC	Sample Container	Water	10039	mg/L	680	Total	3	1400	Ambient	None	6/15/2015 11:10	1.71 I		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Alkalinity	Sample Container	Water	10021	mg/L	410	Total	3	1000	Ambient	None	6/15/2015 11:10	175.1487		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Conductivity	Sample Container	Water	umhos/c 10014	m	95	Total	3	1070	Ambient	None	6/15/2015 11:10	416		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Air Temp	Sample Container	Water	10001	deg C	20	Total	3	80	Ambient	None	6/15/2015 11:10	33		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Cloud Cover	Sample Container	Water	10002	percent	32		3	450	Ambient	None	6/15/2015 11:10	10		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Conductivity- Field	Sample Container	Water	umhos/c 10013	m	94	Total	4	40	Ambient	None	6/15/2015 11:10	420		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Depth of Collection-m	Sample Container	Water	10016	m	98		4	60	Ambient	None	6/15/2015 11:10	0.3		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	Depth of Stream-m	Sample Container	Water	10181	m	82903		4	70	Ambient	None	6/15/2015 11:10	2.1		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	DO	Sample Container	Water	10017	mg/L	299	Total	3	30	Ambient	None	6/15/2015 11:10	5.67		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440799	SFR060C1	Santa Fe River at SR 47 near Fort White	DO-Percent Oxygen Saturation	Sample Container	Water	11553	percent	301	Total	3	35	Ambient	None	6/15/2015 11:10	66.7		GRAB	N 29.86487 W 82.73976	L20152534- 001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534

SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	pH-Field	Sample Container	Water	10019 std units	400 Total	3	20 Ambient	None	6/15/2015 11:10	7.55	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Salinity	Sample Container	Water	10023 ppth	480 Total	3	350 Ambient	None	6/15/2015 11:10	0.21	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Secchi	Sample Container	Water	10010 m	78	3	50 Ambient	None	6/15/2015 11:10	2.1 S	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Water Temp	Sample Container	Water	10000 deg C	10 Total	4	10 Ambient	None	6/15/2015 11:10	23.4	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Weather	Sample Container	Water	10005 code no.	41	2	90 Ambient	None	6/15/2015 11:10	20	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Wind Direction	Sample Container	Water	10004 degrees	36	3	460 Ambient	None	6/15/2015 11:10	280	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Field Data	440799 SFR060C1	Santa Fe River at SR 47 near Fort White	Wind Speed	Sample Container	Water	10003 mph	35	3	470 Ambient	None	6/15/2015 11:10	1	GRAB	N 29.86487 W 82.73976	L20152534-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color		Water	10011 cpu	80 Total	3	1040 Ambient	None	6/15/2015 13:30	0.238102 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color pH Adjusted		Water	11414 std units	Dissolved	3	1049 Ambient	None	6/15/2015 13:30	6.101564	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color pH Initial		Water	11413 std units	Dissolved	3	1048 Ambient	None	6/15/2015 13:30	6.101564	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 410nm		Water	11411 cpu	Dissolved	3	1044 Ambient	None	6/15/2015 13:30	0 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 410nm Abs		Water	11412 cpu	Dissolved	3	1045 Ambient	None	6/15/2015 13:30	0.001	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 440nm		Water	11409 cpu	Dissolved	3	1042 Ambient	None	6/15/2015 13:30	0.346895 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 440nm Abs		Water	11410 cpu	Dissolved	3	1043 Ambient	None	6/15/2015 13:30	-1E-04	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 455nm Abs		Water	11408 cpu	Dissolved	3	1041 Ambient	None	6/15/2015 13:30	0	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		NH4-D		Water	10026 mg/L	608 Dissolved	3	1560 Ambient	None	6/15/2015 13:30	-0.00318 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Turbidity		Water	10177 ntu	82079 Total	3	1170 Ambient	None	6/15/2015 13:30	0.1 W	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Chl-a		Water	10120 mg/m3	32210 Total	3	1220 Ambient	None	6/15/2015 13:30	-0.07698 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Chl-a Corrected		Water	10121 mg/m3	32211 Total	3	1250 Ambient	None	6/15/2015 13:30	0.0534 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Chl-b		Water	10122 mg/m3	32212 Total	3	1230 Ambient	None	6/15/2015 13:30	-0.15863 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Chl-c		Water	10123 mg/m3	32214 Total	3	1240 Ambient	None	6/15/2015 13:30	-0.17276 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Pheophytin Corrected		Water	10124 mg/m3	32218 Total	3	1260 Ambient	None	6/15/2015 13:30	-0.2403 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Ratio Chl-a/Pheo		Water	10125 ratio	32219 Total	3	1270 Ambient	None	6/15/2015 13:30	0.8	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		NOx-D		Water	10033 mg/L	631 Dissolved	3	1600 Ambient	None	6/15/2015 13:30	-0.0007 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		PO4-D		Water	10038 mg/L	671 Dissolved	3	1480 Ambient	None	6/15/2015 13:30	0.0112 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Si-T		Water	10057 mg/L	958 Total	3	1420 Ambient	None	6/15/2015 13:30	-0.02497 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		TKN-T		Water	10030 mg/L	625 Total	3	1510 Ambient	None	6/15/2015 13:30	-0.0191 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		TP-T		Water	10035 mg/L	665 Total	3	1450 Ambient	None	6/15/2015 13:30	0.0186 I	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Cl		Water	10053 mg/L	940 Total	3	1030 Ambient	None	6/15/2015 13:30	0.9 W	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		SO4		Water	10054 mg/L	945 Total	3	1140 Ambient	None	6/15/2015 13:30	0.9 W	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		TOC		Water	10039 mg/L	680 Total	3	1400 Ambient	None	6/15/2015 13:30	0 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Alkalinity		Water	10021 mg/L	410 Total	3	1000 Ambient	None	6/15/2015 13:30	2.20794 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	442313 F-SU--		Conductivity		Water	umhos/cm	10014 m	3	1070 Ambient	None	6/15/2015 13:30	3.36 T	BLK		L20152534-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	null		L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color	Sample Container	Water	10011 cpu	80 Total	3	1040 Ambient	None	6/15/2015 17:50	25.68618	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color pH Adjusted	Sample Container	Water	11414 std units	Dissolved	3	1049 Ambient	None	6/15/2015 17:50	8.009744	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color pH Initial	Sample Container	Water	11413 std units	Dissolved	3	1048 Ambient	None	6/15/2015 17:50	8.009744	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color-Spec 410nm	Sample Container	Water	11411 cpu	Dissolved	3	1044 Ambient	None	6/15/2015 17:50	25.63168	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color-Spec 410nm Abs	Sample Container	Water	11412 cpu	Dissolved	3	1045 Ambient	None	6/15/2015 17:50	0.0676	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color-Spec 440nm	Sample Container	Water	11409 cpu	Dissolved	3	1042 Ambient	None	6/15/2015 17:50	36.47557	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color-Spec 440nm Abs	Sample Container	Water	11410 cpu	Dissolved	3	1043 Ambient	None	6/15/2015 17:50	0.0414	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Color-Spec 455nm Abs	Sample Container	Water	11408 cpu	Dissolved	3	1041 Ambient	None	6/15/2015 17:50	0.0339	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	NH4-D	Sample Container	Water	10026 mg/L	608 Dissolved	3	1560 Ambient	None	6/15/2015 17:50	0.00229 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152534

SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Turbidity	Sample Container	Water	10177 ntu	82079 Total	3	1170 Ambient	None	6/15/2015 17:50	0.234753 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Chl-a	Sample Container	Water	10120 mg/m3	32210 Total	3	1220 Ambient	None	6/15/2015 17:50	0.88539 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Chl-a Corrected	Sample Container	Water	10121 mg/m3	32211 Total	3	1250 Ambient	None	6/15/2015 17:50	0.7743 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Chl-b	Sample Container	Water	10122 mg/m3	32212 Total	3	1230 Ambient	None	6/15/2015 17:50	-0.08986 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Chl-c	Sample Container	Water	10123 mg/m3	32214 Total	3	1240 Ambient	None	6/15/2015 17:50	0.01193 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Pheophytin Corrected	Sample Container	Water	10124 mg/m3	32218 Total	3	1260 Ambient	None	6/15/2015 17:50	0.12282 T	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Ratio Chl-a/Pheo	Sample Container	Water	10125 ratio	32219 Total	3	1270 Ambient	None	6/15/2015 17:50	1.604167	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	NOx-D	Sample Container	Water	10033 mg/L	631 Dissolved	3	1600 Ambient	None	6/15/2015 17:50	0.3974	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	PO4-D	Sample Container	Water	10038 mg/L	671 Dissolved	3	1480 Ambient	None	6/15/2015 17:50	0.0824	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Si-T	Sample Container	Water	10057 mg/L	958 Total	3	1420 Ambient	None	6/15/2015 17:50	6.427733	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	TKN-T	Sample Container	Water	10030 mg/L	625 Total	3	1510 Ambient	None	6/15/2015 17:50	0.2275	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	TP-T	Sample Container	Water	10035 mg/L	665 Total	3	1450 Ambient	None	6/15/2015 17:50	0.1014	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	SO4	Sample Container	Water	10054 mg/L	945 Total	3	1140 Ambient	None	6/15/2015 17:50	75.9743	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	TOC	Sample Container	Water	10039 mg/L	680 Total	3	1400 Ambient	None	6/15/2015 17:50	3.98 I	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Cl	Sample Container	Water	10053 mg/L	940 Total	3	1030 Ambient	None	6/15/2015 17:50	16.24	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Alkalinity	Sample Container	Water	10021 mg/L	410 Total	3	1000 Ambient	None	6/15/2015 17:50	154.3881	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440798 SFR050C1	Santa Fe River at US 441	Conductivity	Sample Container	Water	umhos/cm 10014 m	95 Total	3	1070 Ambient	None	6/15/2015 17:50	475	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Air Temp	Sample Container	Water	10001 deg C	20 Total	3	80 Ambient	None	6/15/2015 17:50	34	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Cloud Cover	Sample Container	Water	10002 percent	32	3	450 Ambient	None	6/15/2015 17:50	25	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Conductivity-Field	Sample Container	Water	umhos/cm 10013 m	94 Total	4	40 Ambient	None	6/15/2015 17:50	489	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Depth of Collection-m	Sample Container	Water	10016 m	98	4	60 Ambient	None	6/15/2015 17:50	0.3	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Depth of Stream-m	Sample Container	Water	10181 m	82903	4	70 Ambient	None	6/15/2015 17:50	1	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	DO DO-Percent Oxygen Saturation	Sample Container	Water	10017 mg/L	299 Total	3	30 Ambient	None	6/15/2015 17:50	3.83	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	pH-Field	Sample Container	Water	11553 percent	301 Total	3	35 Ambient	None	6/15/2015 17:50	45.7	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Salinity	Sample Container	Water	10019 std units	400 Total	3	20 Ambient	None	6/15/2015 17:50	7.37	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Secchi	Sample Container	Water	10023 ppth	480 Total	3	350 Ambient	None	6/15/2015 17:50	0.24	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Water Temp	Sample Container	Water	10010 m	78	3	50 Ambient	None	6/15/2015 17:50	1 S	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Weather	Sample Container	Water	10000 deg C	10 Total	4	10 Ambient	None	6/15/2015 17:50	24.3	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Wind Direction	Sample Container	Water	10005 code no.	41	2	90 Ambient	None	6/15/2015 17:50	20	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Field Data	440798 SFR050C1	Santa Fe River at US 441	Wind Speed	Sample Container	Water	10004 degrees	36	3	460 Ambient	None	6/15/2015 17:50	285	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	NH4-D	Sample Container	Water	10003 mph	35	3	470 Ambient	None	6/15/2015 17:50	0.7	GRAB	N 29.85309 W 82.60825	L20152534-003	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152534
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Cl	Sample Container	Water	10026 mg/L	608 Dissolved	3	1560 Ambient	None	6/16/2015 10:20	0.049069	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	SO4	Sample Container	Water	10053 mg/L	940 Total	3	1030 Ambient	None	6/16/2015 10:20	14.65	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color	Sample Container	Water	10054 mg/L	945 Total	3	1140 Ambient	None	6/16/2015 10:20	6.0743 I	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color pH Adjusted	Sample Container	Water	10011 cpu	80 Total	3	1040 Ambient	None	6/16/2015 10:20	146.2059	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color pH Initial	Sample Container	Water	11414 std units	Dissolved	3	1049 Ambient	None	6/16/2015 10:20	7.988925	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 410nm	Sample Container	Water	11413 std units	Dissolved	3	1048 Ambient	None	6/16/2015 10:20	7.988925	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 410nm Abs	Sample Container	Water	11411 cpu	Dissolved	3	1044 Ambient	None	6/16/2015 10:20	150.6534	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 440nm	Sample Container	Water	11412 cpu	Dissolved	3	1045 Ambient	None	6/16/2015 10:20	0.3837	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 440nm Abs	Sample Container	Water	11409 cpu	Dissolved	3	1042 Ambient	None	6/16/2015 10:20	210.8929	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Color-Spec 455nm Abs	Sample Container	Water	11410 cpu	Dissolved	3	1043 Ambient	None	6/16/2015 10:20	0.2397	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs		Sample Container	Water	11408 cpu	Dissolved	3	1041 Ambient	None	6/16/2015 10:20	0.1936	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535

SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	NOx-D	Sample Container	Water	10033 mg/L	631 Dissolved	3	1600 Ambient	None	6/16/2015 10:20	0.2646	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	PO4-D	Sample Container	Water	10038 mg/L	671 Dissolved	3	1480 Ambient	None	6/16/2015 10:20	0.2253	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Si-T	Sample Container	Water	10057 mg/L	958 Total	3	1420 Ambient	None	6/16/2015 10:20	3.053975	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Turbidity	Sample Container	Water	10177 ntu	82079 Total	3	1170 Ambient	None	6/16/2015 10:20	3.070332	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Chl-a	Sample Container	Water	10120 mg/m3	32210 Total	3	1220 Ambient	None	6/16/2015 10:20	1.802381	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Chl-a Corrected	Sample Container	Water	10121 mg/m3	32211 Total	3	1250 Ambient	None	6/16/2015 10:20	1.65541	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Chl-b	Sample Container	Water	10122 mg/m3	32212 Total	3	1230 Ambient	None	6/16/2015 10:20	-0.00444 T	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Chl-c	Sample Container	Water	10123 mg/m3	32214 Total	3	1240 Ambient	None	6/16/2015 10:20	0.06378 T	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Phaeophytin Corrected	Sample Container	Water	10124 mg/m3	32218 Total	3	1260 Ambient	None	6/16/2015 10:20	0.13884 T	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Ratio Chl-a/Phaeo	Sample Container	Water	10125 ratio	32219 Total	3	1270 Ambient	None	6/16/2015 10:20	1.645833	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	TKN-T	Sample Container	Water	10030 mg/L	625 Total	3	1510 Ambient	None	6/16/2015 10:20	0.8181	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	TP-T	Sample Container	Water	10035 mg/L	665 Total	3	1450 Ambient	None	6/16/2015 10:20	0.2716	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	DO	Sample Container	Water	10017 mg/L	299 Total	3	30 Ambient	None	6/16/2015 10:20	5.07	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	DO-Percent Oxygen Saturation	Sample Container	Water	11553 percent	301 Total	3	35 Ambient	None	6/16/2015 10:20	62.4	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Secchi	Sample Container	Water	10010 m	78	3	50 Ambient	None	6/16/2015 10:20	0.9	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Wind Speed	Sample Container	Water	10003 mph	35	3	470 Ambient	None	6/16/2015 10:20	1.5	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Air Temp	Sample Container	Water	10001 deg C	20 Total	3	80 Ambient	None	6/16/2015 10:20	26	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Cloud Cover	Sample Container	Water	10002 percent	32	3	450 Ambient	None	6/16/2015 10:20	0	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Conductivity-Field	Sample Container	Water	umhos/cm	10013 m	4	40 Ambient	None	6/16/2015 10:20	198	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Depth of Collection-m	Sample Container	Water	10016 m	98	4	60 Ambient	None	6/16/2015 10:20	0.3	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Depth of Stream-m	Sample Container	Water	10181 m	82903	4	70 Ambient	None	6/16/2015 10:20	1	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	pH-Field	Sample Container	Water	10019 std units	400 Total	3	20 Ambient	None	6/16/2015 10:20	7.26	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Salinity	Sample Container	Water	10023 ppt	480 Total	3	350 Ambient	None	6/16/2015 10:20	0.09	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Turbidity-Field	Sample Container	Water	10176 ntu	82078 Total	3	390 Ambient	None	6/16/2015 10:20	3.99	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Water Temp	Sample Container	Water	10000 deg C	10 Total	4	10 Ambient	None	6/16/2015 10:20	26	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Weather	Sample Container	Water	10005 code no.	41	2	90 Ambient	None	6/16/2015 10:20	20	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Field Data	440796 SFR030C1	Santa Fe River at Worthington Springs	Wind Direction	Sample Container	Water	10004 degrees	36	3	460 Ambient	None	6/16/2015 10:20	330	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	TOC	Sample Container	Water	10039 mg/L	680 Total	3	1400 Ambient	None	6/16/2015 10:20	16.23	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Alkalinity	Sample Container	Water	10021 mg/L	410 Total	3	1000 Ambient	None	6/16/2015 10:20	67.11154	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440796 SFR030C1	Santa Fe River at Worthington Springs	Conductivity	Sample Container	Water	umhos/cm	10014 m	3	1070 Ambient	None	6/16/2015 10:20	190.1	GRAB	N 29.92190 W 82.42613	L20152535-001	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		NH4-D	Sample Container	Water	10026 mg/L	608 Dissolved	3	1560 Ambient	None	6/16/2015 11:00	-0.00126 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color	Sample Container	Water	10011 cpu	80 Total	3	1040 Ambient	None	6/16/2015 11:00	0.238102 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color pH Adjusted	Sample Container	Water	11414 std units	Dissolved	3	1049 Ambient	None	6/16/2015 11:00	5.792905	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color pH Initial	Sample Container	Water	11413 std units	Dissolved	3	1048 Ambient	None	6/16/2015 11:00	5.792905	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 410nm	Sample Container	Water	11411 cpu	Dissolved	3	1044 Ambient	None	6/16/2015 11:00	0 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 410nm Abs	Sample Container	Water	11412 cpu	Dissolved	3	1045 Ambient	None	6/16/2015 11:00	0.0012	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 440nm	Sample Container	Water	11409 cpu	Dissolved	3	1042 Ambient	None	6/16/2015 11:00	0.434586 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 440nm Abs	Sample Container	Water	11410 cpu	Dissolved	3	1043 Ambient	None	6/16/2015 11:00	0	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Color-Spec 455nm Abs	Sample Container	Water	11408 cpu	Dissolved	3	1041 Ambient	None	6/16/2015 11:00	0.0004	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		NOx-D	Sample Container	Water	10033 mg/L	631 Dissolved	3	1600 Ambient	None	6/16/2015 11:00	0.0012 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		PO4-D	Sample Container	Water	10038 mg/L	671 Dissolved	3	1480 Ambient	None	6/16/2015 11:00	0.0095 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535
SIRWMD Laboratory Services	442313 F-SU--		Si-T	Sample Container	Water	10057 mg/L	958 Total	3	1420 Ambient	None	6/16/2015 11:00	0.003086 T	BLK		L20152535-002	SU15 SUQU SWCHL	SU SRWMD Water Quality Monitoring	WAR	Etavarez/LB edinger	L20152535

Laboratory Services	442313 F-SU--		Turbidity	Sample Container	Water	10177 ntu	82079 Total	3	1170 Ambient	None	6/16/2015 11:00	0.1 W	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Cl	Sample Container	Water	10053 mg/L	940 Total	3	1030 Ambient	None	6/16/2015 11:00	0.9 W	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		SO4	Sample Container	Water	10054 mg/L	945 Total	3	1140 Ambient	None	6/16/2015 11:00	0.9 W	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Chl-a	Sample Container	Water	10120 mg/m3	32210 Total	3	1220 Ambient	None	6/16/2015 11:00	-0.21432 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Chl-a Corrected	Sample Container	Water	10121 mg/m3	32211 Total	3	1250 Ambient	None	6/16/2015 11:00	0.0801 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Chl-b	Sample Container	Water	10122 mg/m3	32212 Total	3	1230 Ambient	None	6/16/2015 11:00	-0.14858 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Chl-c	Sample Container	Water	10123 mg/m3	32214 Total	3	1240 Ambient	None	6/16/2015 11:00	-0.20348 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Phaeophytin Corrected	Sample Container	Water	10124 mg/m3	32218 Total	3	1260 Ambient	None	6/16/2015 11:00	-0.50997 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Ratio Chl-a/Phco	Sample Container	Water	10125 ratio	32219 Total	3	1270 Ambient	None	6/16/2015 11:00	0.869565	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		TKN-T	Sample Container	Water	10030 mg/L	625 Total	3	1510 Ambient	None	6/16/2015 11:00	0.0476 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		TP-T	Sample Container	Water	10035 mg/L	665 Total	3	1450 Ambient	None	6/16/2015 11:00	-0.0035 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		TOC	Sample Container	Water	10039 mg/L	680 Total	3	1400 Ambient	None	6/16/2015 11:00	0 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Alkalinity	Sample Container	Water	10021 mg/L	410 Total	3	1000 Ambient	None	6/16/2015 11:00	1.026209 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	442313 F-SU--		Conductivity	Sample Container	Water	umhos/cm 10014 m	95 Total	3	1070 Ambient	None	6/16/2015 11:00	1.64 T	BLK	L20152535-002	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535	
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	NH4-D	Sample Container	Water	10026 mg/L	608 Dissolved	3	1560 Ambient	None	6/16/2015 15:30	0.045504	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color	Sample Container	Water	10011 cpu	80 Total	3	1040 Ambient	None	6/16/2015 15:30	205.2575	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color pH Adjusted	Sample Container	Water	11414 std units	Dissolved	3	1049 Ambient	None	6/16/2015 15:30	7.899614	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color pH Initial	Sample Container	Water	11413 std units	Dissolved	3	1048 Ambient	None	6/16/2015 15:30	7.899614	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color-Spec 410nm	Sample Container	Water	11411 cpu	Dissolved	3	1044 Ambient	None	6/16/2015 15:30	201.0973	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color-Spec 410nm Abs	Sample Container	Water	11412 cpu	Dissolved	3	1045 Ambient	None	6/16/2015 15:30	0.5111	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color-Spec 440nm	Sample Container	Water	11409 cpu	Dissolved	3	1042 Ambient	None	6/16/2015 15:30	290.9547	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color-Spec 440nm Abs	Sample Container	Water	11410 cpu	Dissolved	3	1043 Ambient	None	6/16/2015 15:30	0.3314	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Color-Spec 455nm Abs	Sample Container	Water	11408 cpu	Dissolved	3	1041 Ambient	None	6/16/2015 15:30	0.2715	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	NOx-D	Sample Container	Water	10033 mg/L	631 Dissolved	3	1600 Ambient	None	6/16/2015 15:30	0.1475	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	PO4-D	Sample Container	Water	10038 mg/L	671 Dissolved	3	1480 Ambient	None	6/16/2015 15:30	0.3314	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Si-T	Sample Container	Water	10057 mg/L	958 Total	3	1420 Ambient	None	6/16/2015 15:30	4.610627	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Turbidity	Sample Container	Water	10177 ntu	82079 Total	3	1170 Ambient	None	6/16/2015 15:30	1.059194 I	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Cl	Sample Container	Water	10053 mg/L	940 Total	3	1030 Ambient	None	6/16/2015 15:30	12.56	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	SO4	Sample Container	Water	10054 mg/L	945 Total	3	1140 Ambient	None	6/16/2015 15:30	4.7019 I	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Chl-a	Sample Container	Water	10120 mg/m3	32210 Total	3	1220 Ambient	None	6/16/2015 15:30	0.04041 T	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Chl-a Corrected	Sample Container	Water	10121 mg/m3	32211 Total	3	1250 Ambient	None	6/16/2015 15:30	0.2403 T	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Chl-b	Sample Container	Water	10122 mg/m3	32212 Total	3	1230 Ambient	None	6/16/2015 15:30	-0.0714 T	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Chl-c	Sample Container	Water	10123 mg/m3	32214 Total	3	1240 Ambient	None	6/16/2015 15:30	-0.05577 T	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Phaeophytin Corrected	Sample Container	Water	10124 mg/m3	32218 Total	3	1260 Ambient	None	6/16/2015 15:30	-0.35244 T	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Ratio Chl-a/Phco	Sample Container	Water	10125 ratio	32219 Total	3	1270 Ambient	None	6/16/2015 15:30	-0.5	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	TKN-T	Sample Container	Water	10030 mg/L	625 Total	3	1510 Ambient	None	6/16/2015 15:30	0.7156	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	TP-T	Sample Container	Water	10035 mg/L	665 Total	3	1450 Ambient	None	6/16/2015 15:30	0.3663	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Air Temp	Sample Container	Water	10001 deg C	20 Total	3	80 Ambient	None	6/16/2015 15:30	34	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Conductivity-Field	Sample Container	Water	umhos/cm 10013 m	94 Total	4	40 Ambient	None	6/16/2015 15:30	260	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Wind Direction	Sample Container	Water	10004 degrees	36	3	460 Ambient	None	6/16/2015 15:30	250	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Wind Speed	Sample Container	Water	10003 mph	35	3	470 Ambient	None	6/16/2015 15:30	0.6	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Cloud Cover	Sample Container	Water	10002 percent	32	3	450 Ambient	None	6/16/2015 15:30	50	GRAB	N 29.84637 W 82.21922	L20152535-003	SU15 SUQU	SU SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535

SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Depth of Collection-m	Sample Container	Water	10016 m	98	4	60 Ambient	None	6/16/2015 15:30	0.3	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Depth of Stream-m	Sample Container	Water	10181 m	82903	4	70 Ambient	None	6/16/2015 15:30	0.4	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	DO DO-Percent Oxygen	Sample Container	Water	10017 mg/L	299 Total	3	30 Ambient	None	6/16/2015 15:30	5.76	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Saturation	Sample Container	Water	11553 percent	301 Total	3	35 Ambient	None	6/16/2015 15:30	71.9	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	pH-Field	Sample Container	Water	10019 std units	400 Total	3	20 Ambient	None	6/16/2015 15:30	7.24	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Salinity	Sample Container	Water	10023 ppth	480 Total	3	350 Ambient	None	6/16/2015 15:30	0.12	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Secchi	Sample Container	Water	10010 m	78	3	50 Ambient	None	6/16/2015 15:30	0.4 5	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Turbidity- Field	Sample Container	Water	10176 ntu	82078 Total	3	390 Ambient	None	6/16/2015 15:30	1.45	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Water Temp	Sample Container	Water	10000 deg C	10 Total	4	10 Ambient	None	6/16/2015 15:30	26.7	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Field Data	440795 SFR010C1	Santa Fe River near Graham	Weather	Sample Container	Water	10005 code no.	41	2	90 Ambient	None	6/16/2015 15:30	20	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	TOC	Sample Container	Water	10039 mg/L	680 Total	3	1400 Ambient	None	6/16/2015 15:30	16.27	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Alkalinity	Sample Container	Water	10021 mg/L	410 Total	3	1000 Ambient	None	6/16/2015 15:30	106.3661	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535
SIRWMD Laboratory Services	440795 SFR010C1	Santa Fe River near Graham	Conductivity	Sample Container	Water	umhos/c 10014 m	95 Total	3	1070 Ambient	None	6/16/2015 15:30	241	GRAB	N 29.84637 W 82.21922	L20152535- 003	SU15 SUQU SWCHL	SJ SRWMD Water Quality Monitoring	WAR	ETavarez/LB edinger	L20152535

MTHD_D TCTN_LM T_VAL	SMPL_COLL_STRT_DT	SMPL_PREP_DT	MEAS_DT	ANL_MTH D_DSC SM 21st Ed 2120C (Modified)	PRVN_FIN MRY_CLS _CD	WBDY_PR WBDY_SC ND_CLS NM	PQL_VAL	DILUT_FA CTR_VAL	PREP_AN LST_NM	SMPL_PR EP_MTHD _NM	PREP_SM PL_BATC H_ID	SMPL_PRSRV _TP_NM	PRSRV _STTS CD	ANLST _NM	SMPL_B ATCH_I D	ANALYSIS TYPE_CD	CNTNR_I D	INSTRMT _NM	LATTITUDE _NO	LONGITU DE_NO	STATION_C CATEGORY	STATION_ STATUS	HIST_ PROV_ CD	ANLYT_M TRX_NM	
2	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None	10	1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None		1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None		1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
2	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None	10	1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None		1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
2	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None	10	1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER WATER
	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None		1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	
	6/15/2015 11:10		6/16/2015 13:12	SM 21st Ed 2120C (Modified)	P	River/Stre am None		1	No Prep		Cool 4 deg C	Yes	2855	2883	I	QC2015 4-001-FC	L2015253	22034	295152.99	824428	er	Surfacewat	Active	P	WATER
0.005	6/15/2015 11:10		6/16/2015 12:26 NH3	SM 21st Ed 4500G-	P	River/Stre am None	0.02	1	No Prep		H2SO4; Cool 4 deg C	Yes		QC2015 523	L2015253 4-001- FSC	22271	295152.99	824428	er	Surfacewat	Active	P		WATER	
0.5	6/15/2015 11:10		6/16/2015 16:10 EPA180.1 R2.0 1993	P	River/Stre am None	1.5	1	No Prep		Cool 4 deg C	Yes	2855	2885	I	QC2015 4-001-C	L2015253	22253	295152.99	824428	er	Surfacewat	Active	P	WATER	
1	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	3	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER
1	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	3	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER
1	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	3	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER
	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER	
1	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	3	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER
1	6/15/2015 11:10	6/16/2015 10:06	6/16/2015 14:36 10200H	P	River/Stre am None	3	1	LKELEY	SM 10200H	PB008149	Cool 4 deg C	Yes	3042	2889	I	QC2015 4-001- CHL	L2015253	22441	295152.99	824428	er	Surfacewat	Active	P	WATER
0.01	6/15/2015 11:10		6/16/2015 13:04 R2.0 1993	P	River/Stre am None	0.04	1	No Prep		Cool 4 deg C	Yes	2650	2888	I	QC2015 4-001-FC	L2015253	21452	295152.99	824428	er	Surfacewat	Active	P	WATER	
0.012	6/15/2015 11:10		6/16/2015 13:04 R2.0 1993	P	River/Stre am None	0.04	1	No Prep		Cool 4 deg C	Yes	2650	2888	I	QC2015 4-001-FC	L2015253	21452	295152.99	824428	er	Surfacewat	Active	P	WATER	
0.1	6/15/2015 11:10		6/17/2015 13:32 2700-85	P	River/Stre am None	0.5	1	No Prep		Cool 4 deg C	Yes	523	2890	I	QC2015 4-001-C	L2015253	22243	295152.99	824428	er	Surfacewat	Active	P	WATER	
0.05	6/15/2015 11:10	6/16/2015 13:00	6/17/2015 14:42 R2.0 1993	P	River/Stre am None	0.1	1	DMESSER	TP/TKN Prep	PB008146	H2SO4; Cool 4 deg C	Yes	3096	2882	I	QC2015 4-001-SC	L2015253	19505	295152.99	824428	er	Surfacewat	Active	P	WATER
0.01	6/15/2015 11:10	6/16/2015 13:00	6/17/2015 14:42 1974	P	River/Stre am None	0.04	1	DMESSER	TP/TKN Prep	PB008146	H2SO4; Cool 4 deg C	Yes	3096	2882	I	QC2015 4-001-SC	L2015253	19505	295152.99	824428	er	Surfacewat	Active	P	WATER
3	6/15/2015 11:10		6/19/2015 2:31 R2.1 1993	P	River/Stre am None	12	1	No Prep		No Prep	None	Yes	2650	2906	I	QC2015 4-001-C	L2015253	19744	295152.99	824428	er	Surfacewat	Active	P	WATER
3	6/15/2015 11:10		6/19/2015 2:31 R2.1 1993	P	River/Stre am None	12	1	No Prep		Cool 4 deg C	Yes	2650	2906	I	QC2015 4-001-C	L2015253	19744	295152.99	824428	er	Surfacewat	Active	P	WATER	
1	6/15/2015 11:10		6/16/2015 13:17 Ed 53108	P	River/Stre am None	10	1	No Prep		H2SO4; Cool 4 deg C	Yes	3047	2880	I	QC2015 4-001-SC	L2015253	22244	295152.99	824428	er	Surfacewat	Active	P	WATER	
5	6/15/2015 11:10		6/22/2015 15:01 Ed 23208	P	River/Stre am None	15	1	No Prep		Cool 4 deg C	Yes	2855	2899	I	QC2015 4-001-C	L2015253	19863	295152.99	824428	er	Surfacewat	Active	P	WATER	
50	6/15/2015 11:10		6/22/2015 15:01 1982	P	River/Stre am None	100	1	No Prep		Cool 4 deg C	Yes	2855	2899	I	QC2015 4-001-C	L2015253	19863	295152.99	824428	er	Surfacewat	Active	P	WATER	
	6/15/2015 11:10		DISTRICT	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		NA	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	
	6/15/2015 11:10		DISTRICT	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		NA	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	
	6/15/2015 11:10		6/15/2015 11:10 EPA 120.1	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		WAR3YSI	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	
	6/15/2015 11:10		DISTRICT	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		WAR3YSI	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	
	6/15/2015 11:10		6/15/2015 11:10 EPA 360.1	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		WAR3YSI	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	
	6/15/2015 11:10		6/15/2015 11:10 EPA 360.1	P	River/Stre am None		1	No Prep		No Prep		Yes	ETavarez /LBeding	QC2015 3211	I		NA	295152.99	824428	er	Surfacewat	Active	P	FIELD DATA	

	6/15/2015 11:10		6/15/2015 11:10 EPA 150.1 P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	WAR3YSI	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		OTHER/U 6/15/2015 11:10 NKNOWN P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	WAR3YSI	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		DISTRICT 6/15/2015 11:10 FIELD SOP P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	NA	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		6/15/2015 11:10 EPA 170.1 P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	WAR3YSI	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		OTHER/U 6/15/2015 11:10 NKNOWN P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	NA	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		DISTRICT 6/15/2015 11:10 FIELD SOP P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	NA	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 11:10		DISTRICT 6/15/2015 11:10 FIELD SOP P		River/Stream	None	1	No Prep	Yes	ETavarez /LBeding QC2015 3211 I	NA	295152.99	824428 er	Surfacewater	Active	P	FIELD DATA		
2	6/15/2015 13:30		6/16/2015 13:17) P				10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER		
	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER			
	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER			
2	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER		
	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER			
2	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER		
	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER			
	6/15/2015 13:30		Ed 2120C (Modified) 6/16/2015 13:17) P				1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-002-FC	22034		P	WATER			
0.005	6/15/2015 13:30		SM 21st Ed 4500G-NH3 P				0.02	1	No Prep	H2SO4; Cool 4 deg C	Yes	523 2884 I	L2015253 4-002-FSC	22271		P	WATER		
0.5	6/15/2015 13:30		6/16/2015 16:15 EPA180.1 R2.0 1993 P				1.5	1	No Prep	Cool 4 deg C	Yes	2855 2885 I	L2015253 4-002-C	22253		P	WATER		
1	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		3	1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER		
1	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		3	1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER		
1	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		3	1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER		
1	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		3	1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER		
1	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		3	1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER		
	6/15/2015 13:30	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P		SM 10200H		1	LKELLEY	PB008149 Cool 4 deg C	Yes	3042 2889 I	L2015253 4-002-CHL	22441		P	WATER			
0.01	6/15/2015 13:30		6/16/2015 13:05 EPA353.2 R2.0 1993 P				0.04	1	No Prep	Cool 4 deg C	Yes	2650 2888 I	L2015253 4-002-FC	21452		P	WATER		
0.012	6/15/2015 13:30		6/16/2015 13:05 EPA365.1 R2.0 1993 P				0.04	1	No Prep	Cool 4 deg C	Yes	2650 2888 I	L2015253 4-002-FC	21452		P	WATER		
0.1	6/15/2015 13:30		6/17/2015 13:36 USGS I-2700-85 P				0.5	1	No Prep	Cool 4 deg C	Yes	523 2890 I	L2015253 4-002-C	22243		P	WATER		
0.05	6/15/2015 13:30	6/16/2015 13:00	6/17/2015 15:12 EPA351.2 R2.0 1993 P		TP/TKN Prep	H2SO4; Cool 4 deg C	0.1	1	DMESSER	PB008146	Yes	3096 2882 I	L2015253 4-002-5C	19505		P	WATER		
0.01	6/15/2015 13:30	6/16/2015 13:00	6/17/2015 15:12 EPA365.4 1974 P		TP/TKN Prep	H2SO4; Cool 4 deg C	0.04	1	DMESSER	PB008146	Yes	3096 2882 I	L2015253 4-002-5C	19505		P	WATER		
3	6/15/2015 13:30		6/19/2015 2:56 EPA300.0 R2.1 1993 P				12	1	No Prep	None	Yes	2650 2906 I	L2015253 4-002-C	19744		P	WATER		
3	6/15/2015 13:30		6/19/2015 2:56 EPA300.0 R2.1 1993 P				12	1	No Prep	Cool 4 deg C	Yes	2650 2906 I	L2015253 4-002-C	19744		P	WATER		
1	6/15/2015 13:30		6/16/2015 13:17 SM 20th Ed 53108 P			H2SO4; Cool 4 deg C	10	1	No Prep	Yes	3047 2880 I	L2015253 4-002-5C	22244		P	WATER			
5	6/15/2015 13:30		6/22/2015 15:07 SM 20th Ed 23208 P				15	1	No Prep	Cool 4 deg C	Yes	2855 2899 I	L2015253 4-002-C	19863		P	WATER		
50	6/15/2015 13:30		6/22/2015 15:07 EPA120.1 1982 P				100	1	No Prep	Cool 4 deg C	Yes	2855 2899 I	L2015253 4-002-C	19863		P	WATER		
2	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER
	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER	
	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER	
2	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER
	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER	
2	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER
	6/15/2015 17:50		6/16/2015 13:23 Ed 2120C (Modified) P		River/Stream	None	1	No Prep	Cool 4 deg C	Yes	2855 2883 I	L2015253 4-003-FC	22034 295110.01	823631 er	Surfacewater	Active	P	WATER	
0.005	6/15/2015 17:50		6/16/2015 12:32 SM 21st Ed 4500G-NH3 P		River/Stream	None	0.02	1	No Prep	H2SO4; Cool 4 deg C	Yes	523 2884 I	L2015253 4-003-FSC	22271 295110.01	823631 er	Surfacewater	Active	P	WATER

0.5	6/15/2015 17:50		EPA180.1 6/16/2015 16:19 R2.0 1993 P	River/Stream	None	1.5	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2885	L2015253 4-003-C	22253	295110.01	823631	Surfacewater	Active	P	WATER		
1	6/15/2015 17:50	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008149	Cool 4 deg C	Yes	QC2015 3042 2889	L2015253 4-003-CHL	22441	295110.01	823631	Surfacewater	Active	P	WATER
1	6/15/2015 17:50	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008149	Cool 4 deg C	Yes	QC2015 3042 2889	L2015253 4-003-CHL	22441	295110.01	823631	Surfacewater	Active	P	WATER
1	6/15/2015 17:50	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008149	Cool 4 deg C	Yes	QC2015 3042 2889	L2015253 4-003-CHL	22441	295110.01	823631	Surfacewater	Active	P	WATER
1	6/15/2015 17:50	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008149	Cool 4 deg C	Yes	QC2015 3042 2889	L2015253 4-003-CHL	22441	295110.01	823631	Surfacewater	Active	P	WATER
1	6/15/2015 17:50	6/16/2015 10:06	SM 6/16/2015 14:36 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008149	Cool 4 deg C	Yes	QC2015 3042 2889	L2015253 4-003-CHL	22441	295110.01	823631	Surfacewater	Active	P	WATER
0.01	6/15/2015 17:50		EPA353.2 6/16/2015 13:06 R2.0 1993 P	River/Stream	None	0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2888	L2015253 4-003-FC	21452	295110.01	823631	Surfacewater	Active	P	WATER		
0.012	6/15/2015 17:50		EPA365.1 6/16/2015 13:06 R2.0 1993 P	River/Stream	None	0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2888	L2015253 4-003-FC	21452	295110.01	823631	Surfacewater	Active	P	WATER		
0.1	6/15/2015 17:50		USGS I- 6/17/2015 13:36 2700-85 P	River/Stream	None	0.5	1	No Prep	Cool 4 deg C	Yes	QC2015 523 2890	L2015253 4-003-C	22243	295110.01	823631	Surfacewater	Active	P	WATER		
0.05	6/15/2015 17:50	6/16/2015 13:00	EPA351.2 6/17/2015 15:13 R2.0 1993 P	River/Stream	None	0.1	1	DMESSER	TP/TKN Prep	PB008146	H2SO4; Cool 4 deg C	Yes	QC2015 3096 2882	L2015253 4-003-SC	19505	295110.01	823631	Surfacewater	Active	P	WATER
0.01	6/15/2015 17:50	6/16/2015 13:00	EPA365.4 6/17/2015 15:13 1974 P	River/Stream	None	0.04	1	DMESSER	TP/TKN Prep	PB008146	H2SO4; Cool 4 deg C	Yes	QC2015 3096 2882	L2015253 4-003-SC	19505	295110.01	823631	Surfacewater	Active	P	WATER
3	6/15/2015 17:50		EPA300.0 6/19/2015 3:08 R2.1 1993 P	River/Stream	None	12	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2906	L2015253 4-003-C	19744	295110.01	823631	Surfacewater	Active	P	WATER		
1	6/15/2015 17:50		SM 20th 6/16/2015 13:17 Ed 53108 P	River/Stream	None	10	1	No Prep	H2SO4; Cool 4 deg C	Yes	QC2015 3047 2880	L2015253 4-003-SC	22244	295110.01	823631	Surfacewater	Active	P	WATER		
3	6/15/2015 17:50		EPA300.0 6/19/2015 3:08 R2.1 1993 P	River/Stream	None	12	1	No Prep	None	Yes	QC2015 2650 2906	L2015253 4-003-C	19744	295110.01	823631	Surfacewater	Active	P	WATER		
5	6/15/2015 17:50		SM 20th 6/22/2015 15:14 Ed 23208 P	River/Stream	None	15	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899	L2015253 4-003-C	19863	295110.01	823631	Surfacewater	Active	P	WATER		
50	6/15/2015 17:50		EPA120.1 6/22/2015 15:14 1982 P	River/Stream	None	100	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899	L2015253 4-003-C	19863	295110.01	823631	Surfacewater	Active	P	WATER		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		6/15/2015 17:50 EPA 120.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		6/15/2015 17:50 EPA 360.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		6/15/2015 17:50 EPA 360.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		6/15/2015 17:50 EPA 150.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		OTHER/U 6/15/2015 17:50 NKNOWN P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		6/15/2015 17:50 EPA 170.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		WAR3YSI	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		OTHER/U 6/15/2015 17:50 NKNOWN P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
	6/15/2015 17:50		DISTRICT 6/15/2015 17:50 FIELD SOP P SM 21st Ed 4500G-	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 3211		NA	295110.01	823631	Surfacewater	Active	P	FIELD DATA		
0.005	6/16/2015 10:20		6/17/2015 12:36 NH3 P	River/Stream	None	0.02	1	No Prep	H2SO4; Cool 4 deg C	Yes	QC2015 523 2891	L2015253 5-001-FSC	22271	295518.01	822534	Surfacewater	Active	P	WATER		
3	6/16/2015 10:20		EPA300.0 6/24/2015 13:38 R2.1 1993 P	River/Stream	None	12	1	No Prep	None	Yes	QC2015 2650 2976	L2015253 5-001-C	19744	295518.01	822534	Surfacewater	Active	P	WATER		
3	6/16/2015 10:20		EPA300.0 6/24/2015 13:38 R2.1 1993 P	River/Stream	None	12	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2976	L2015253 5-001-C	19744	295518.01	822534	Surfacewater	Active	P	WATER		
2	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None	10	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
2	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None	10	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		
	6/16/2015 10:20		Ed 2120C (Modified) 6/17/2015 14:10) P	River/Stream	None		1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893	L2015253 5-001-FC	22034	295518.01	822534	Surfacewater	Active	P	WATER		

0.01	6/16/2015 10:20		EPA353.2 6/17/2015 13:22 R2.0 1993 P	River/Stream	None	0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2895 I	L2015253 5-001-FC	21452	295518.01	822534	Surfacewater	Active	P	WATER		
0.012	6/16/2015 10:20		EPA365.1 6/17/2015 13:22 R2.0 1993 P	River/Stream	None	0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2895 I	L2015253 5-001-FC	21452	295518.01	822534	Surfacewater	Active	P	WATER		
0.1	6/16/2015 10:20		USGS I- 6/17/2015 16:48 2700-85 P	River/Stream	None	0.5	1	No Prep	Cool 4 deg C	Yes	QC2015 523 2890 I	L2015253 5-001-C	22243	295518.01	822534	Surfacewater	Active	P	WATER		
0.5	6/16/2015 10:20		EPA180.1 6/17/2015 17:49 R2.0 1993 P	River/Stream	None	1.5	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2896 I	L2015253 5-001-C L2015253 5-001-CHL	22253	295518.01	822534	Surfacewater	Active	P	WATER		
1	6/16/2015 10:20	6/17/2015 13:11	SM 6/25/2015 13:42 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	QC2015 3042 3021 I	L2015253 5-001-CHL	22441	295518.01	822534	Surfacewater	Active	P	WATER
1	6/16/2015 10:20	6/17/2015 13:11	SM 6/25/2015 13:42 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	QC2015 3042 3021 I	L2015253 5-001-CHL	22441	295518.01	822534	Surfacewater	Active	P	WATER
1	6/16/2015 10:20	6/17/2015 13:11	SM 6/25/2015 13:42 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	QC2015 3042 3021 I	L2015253 5-001-CHL	22441	295518.01	822534	Surfacewater	Active	P	WATER
1	6/16/2015 10:20	6/17/2015 13:11	SM 6/25/2015 13:42 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	QC2015 3042 3021 I	L2015253 5-001-CHL	22441	295518.01	822534	Surfacewater	Active	P	WATER
1	6/16/2015 10:20	6/17/2015 13:11	SM 6/25/2015 13:42 10200H P	River/Stream	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	QC2015 3042 3021 I	L2015253 5-001-CHL	22441	295518.01	822534	Surfacewater	Active	P	WATER
0.05	6/16/2015 10:20	6/22/2015 0:00	EPA351.2 6/24/2015 16:19 R2.0 1993 P	River/Stream	None	0.1	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	QC2015 2053 2962 I	L2015253 5-001-SC	19505	295518.01	822534	Surfacewater	Active	P	WATER	
0.01	6/16/2015 10:20	6/22/2015 0:00	EPA365.4 6/24/2015 16:19 1974 P	River/Stream	None	0.04	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	QC2015 2053 2962 I	L2015253 5-001-SC	19505	295518.01	822534	Surfacewater	Active	P	WATER	
	6/16/2015 10:20		6/16/2015 10:20 EPA 360.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		6/16/2015 10:20 EPA 360.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		6/16/2015 10:20 EPA 120.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		6/16/2015 10:20 EPA 150.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		OTHER/U 6/16/2015 10:20 NKNOWN P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		6/16/2015 10:20 EPA 180.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		6/16/2015 10:20 EPA 170.1 P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	WAR3YSI	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		OTHER/U 6/16/2015 10:20 NKNOWN P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
	6/16/2015 10:20		DISTRICT 6/16/2015 10:20 FIELD SOP P	River/Stream	None		1	No Prep		Yes	ETavarez /Lbeding QC2015 er 2936 I	NA	295518.01	822534	Surfacewater	Active	P	FIELD DATA			
1	6/16/2015 10:20		SM 20th 6/25/2015 11:22 Ed 5310B P	River/Stream	None	10	1	No Prep	H2SO4; Cool 4 deg C	Yes	QC2015 3047 2978 I	L2015253 5-001-SC	21446	295518.01	822534	Surfacewater	Active	P	WATER		
5	6/16/2015 10:20		SM 20th 6/23/2015 2:53 Ed 2320B P	River/Stream	None	15	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899 I	L2015253 5-001-C	19863	295518.01	822534	Surfacewater	Active	P	WATER		
50	6/16/2015 10:20		EPA120.1 6/23/2015 2:53 1982 P	River/Stream	None	100	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899 I	L2015253 5-001-C	19863	295518.01	822534	Surfacewater	Active	P	WATER		
0.005	6/16/2015 11:00		SM 21st Ed 4500G- 6/17/2015 12:38 NH3 P		0.02	1	No Prep	H2SO4; Cool 4 deg C	Yes	QC2015 523 2891 I	L2015253 5-002-FSC	22271					P	WATER			
2	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P		10	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P			1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P			1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
2	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P		10	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P			1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
	6/16/2015 11:00		Ed 2120C (Modified 6/17/2015 14:15) P			1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2893 I	L2015253 5-002-FC	22034					P	WATER			
0.01	6/16/2015 11:00		EPA353.2 6/17/2015 13:23 R2.0 1993 P		0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2895 I	L2015253 5-002-FC	21452					P	WATER			
0.012	6/16/2015 11:00		EPA365.1 6/17/2015 13:23 R2.0 1993 P		0.04	1	No Prep	Cool 4 deg C	Yes	QC2015 2650 2895 I	L2015253 5-002-FC	21452					P	WATER			
0.1	6/16/2015 11:00		USGS I- 6/17/2015 16:49 2700-85 P		0.5	1	No Prep	Cool 4 deg C	Yes	QC2015 523 2890 I	L2015253 5-002-C	22243					P	WATER			

0.5	6/16/2015 11:00		EPA180.1 6/17/2015 17:53 R2.0 1993	P			1.5	1	No Prep	Cool 4 deg C	Yes	2855 2896	I	QC2015 L2015253 5-002-C	22253			P	WATER				
3	6/16/2015 11:00		EPA300.0 6/24/2015 14:02 R2.1 1993	P			12	1	No Prep	None	Yes	2650 2976	I	QC2015 L2015253 5-002-C	19744			P	WATER				
3	6/16/2015 11:00		EPA300.0 6/24/2015 14:02 R2.1 1993	P			12	1	No Prep	Cool 4 deg C	Yes	2650 2976	I	QC2015 L2015253 5-002-C	19744			P	WATER				
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
1	6/16/2015 11:00	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P			3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-002-CHL	22441		P	WATER			
0.05	6/16/2015 11:00	6/22/2015 0:00	EPA351.2 6/24/2015 16:21 R2.0 1993	P			0.1	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	2053 2962	I	QC2015 L2015253 5-002-SC	19505			P	WATER			
0.01	6/16/2015 11:00	6/22/2015 0:00	EPA365.4 6/24/2015 16:21 1974	P			0.04	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	2053 2962	I	QC2015 L2015253 5-002-SC	19505			P	WATER			
1	6/16/2015 11:00		SM 20th 6/25/2015 11:22 Ed 5310B	P			10	1	No Prep	H2SO4; Cool 4 deg C	Yes	3047 2978	I	QC2015 L2015253 5-002-SC	21446			P	WATER				
5	6/16/2015 11:00		SM 20th 6/23/2015 2:59 Ed 2320B	P			15	1	No Prep	Cool 4 deg C	Yes	2855 2899	I	QC2015 L2015253 5-002-C	19863			P	WATER				
50	6/16/2015 11:00		EPA120.1 6/23/2015 2:59 1982	P			100	1	No Prep	Cool 4 deg C	Yes	2855 2899	I	QC2015 L2015253 5-002-C	19863			P	WATER				
0.005	6/16/2015 15:30		SM 21st Ed 4500G- 6/17/2015 12:48 NH3	P	River/Strea m	None	0.02	1	No Prep	H2SO4; Cool 4 deg C	Yes	523 2891	I	QC2015 L2015253 5-003- FSC	22271	295046	821311	er	Surfacewater Active	P	WATER		
2	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	1	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	1	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
2	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	1	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
2	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	10	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	1	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
	6/16/2015 15:30		Ed 2120C (Modified 6/17/2015 14:20)	P	River/Strea m	None	1	1	No Prep	Cool 4 deg C	Yes	2855 2893	I	QC2015 L2015253 5-003-FC	22034	295046	821311	er	Surfacewater Active	P	WATER		
0.01	6/16/2015 15:30		EPA353.2 6/17/2015 13:24 R2.0 1993	P	River/Strea m	None	0.04	1	No Prep	Cool 4 deg C	Yes	2650 2895	I	QC2015 L2015253 5-003-FC	21452	295046	821311	er	Surfacewater Active	P	WATER		
0.012	6/16/2015 15:30		EPA365.1 6/17/2015 13:24 R2.0 1993	P	River/Strea m	None	0.04	1	No Prep	Cool 4 deg C	Yes	2650 2895	I	QC2015 L2015253 5-003-FC	21452	295046	821311	er	Surfacewater Active	P	WATER		
0.1	6/16/2015 15:30		USGS I- 6/17/2015 16:50 2700-85	P	River/Strea m	None	0.5	1	No Prep	Cool 4 deg C	Yes	523 2890	I	QC2015 L2015253 5-003-C	22243	295046	821311	er	Surfacewater Active	P	WATER		
0.5	6/16/2015 15:30		EPA180.1 6/17/2015 17:58 R2.0 1993	P	River/Strea m	None	1.5	1	No Prep	Cool 4 deg C	Yes	2855 2896	I	QC2015 L2015253 5-003-C	22253	295046	821311	er	Surfacewater Active	P	WATER		
3	6/16/2015 15:30		EPA300.0 6/24/2015 14:26 R2.1 1993	P	River/Strea m	None	12	1	No Prep	None	Yes	2650 2976	I	QC2015 L2015253 5-003-C	19744	295046	821311	er	Surfacewater Active	P	WATER		
3	6/16/2015 15:30		EPA300.0 6/24/2015 14:26 R2.1 1993	P	River/Strea m	None	12	1	No Prep	Cool 4 deg C	Yes	2650 2976	I	QC2015 L2015253 5-003-C	19744	295046	821311	er	Surfacewater Active	P	WATER		
1	6/16/2015 15:30	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P	River/Strea m	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-003-CHL	22441	295046	821311	er	Surfacewater Active	P	WATER
1	6/16/2015 15:30	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P	River/Strea m	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-003-CHL	22441	295046	821311	er	Surfacewater Active	P	WATER
1	6/16/2015 15:30	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P	River/Strea m	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-003-CHL	22441	295046	821311	er	Surfacewater Active	P	WATER
1	6/16/2015 15:30	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P	River/Strea m	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-003-CHL	22441	295046	821311	er	Surfacewater Active	P	WATER
1	6/16/2015 15:30	6/17/2015 13:11	SM 6/25/2015 13:42 10200H	P	River/Strea m	None	3	1	LKELLEY	SM 10200H	PB008169	Cool 4 deg C	Yes	3042 3021	I	CHL L2015253 5-003-CHL	22441	295046	821311	er	Surfacewater Active	P	WATER
0.05	6/16/2015 15:30	6/22/2015 0:00	EPA351.2 6/24/2015 16:22 R2.0 1993	P	River/Strea m	None	0.1	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	2053 2962	I	QC2015 L2015253 5-003-SC	19505	295046	821311	er	Surfacewater Active	P	WATER	
0.01	6/16/2015 15:30	6/22/2015 0:00	EPA365.4 6/24/2015 16:22 1974	P	River/Strea m	None	0.04	1	DMESSER	TP/TKN Prep	H2SO4; Cool 4 deg C	Yes	2053 2962	I	QC2015 L2015253 5-003-SC	19505	295046	821311	er	Surfacewater Active	P	WATER	
	6/16/2015 15:30		DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Strea m	None	1	1	No Prep		Yes	ETavarez /Lbeding er 2936	I	QC2015 L2015253 5-003-C	NA	295046	821311	er	Surfacewater Active	P	FIELD DATA		
	6/16/2015 15:30		6/16/2015 15:30 EPA 120.1	P	River/Strea m	None	1	1	No Prep		Yes	ETavarez /Lbeding er 2936	I	QC2015 L2015253 5-003-C	WAR3YSI	295046	821311	er	Surfacewater Active	P	FIELD DATA		
	6/16/2015 15:30		DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Strea m	None	1	1	No Prep		Yes	ETavarez /Lbeding er 2936	I	QC2015 L2015253 5-003-C	NA	295046	821311	er	Surfacewater Active	P	FIELD DATA		
	6/16/2015 15:30		DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Strea m	None	1	1	No Prep		Yes	ETavarez /Lbeding er 2936	I	QC2015 L2015253 5-003-C	NA	295046	821311	er	Surfacewater Active	P	FIELD DATA		
	6/16/2015 15:30		DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Strea m	None	1	1	No Prep		Yes	ETavarez /Lbeding er 2936	I	QC2015 L2015253 5-003-C	NA	295046	821311	er	Surfacewater Active	P	FIELD DATA		

	6/16/2015 15:30	DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	6/16/2015 15:30 EPA 360.1	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	6/16/2015 15:30 EPA 360.1	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	NA	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	6/16/2015 15:30 EPA 150.1	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	OTHER/U 6/16/2015 15:30 NKNOWN	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	DISTRICT 6/16/2015 15:30 FIELD SOP	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	NA	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	6/16/2015 15:30 EPA 180.1	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	NA	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	6/16/2015 15:30 EPA 170.1	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	WAR3YSI	295046	821311	er	Surfacewat Active	P	FIELD DATA			
	6/16/2015 15:30	OTHER/U 6/16/2015 15:30 NKNOWN	P	River/Stre am	None	1	No Prep	Yes	ETavarez /LBeding er QC2015 2936 I	NA	295046	821311	er	Surfacewat Active	P	FIELD DATA			
1	6/16/2015 15:30	SM 20th 6/25/2015 11:22 Ed 53108	P	River/Stre am	None	10	1	No Prep	H2SO4; Cool 4 deg C	Yes	QC2015 3047 2978 I	L2015253 5-003-SC	21446	295046	821311	er	Surfacewat Active	P	WATER
5	6/16/2015 15:30	SM 20th 6/23/2015 3:06 Ed 23208	P	River/Stre am	None	15	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899 I	L2015253 5-003-C	19863	295046	821311	er	Surfacewat Active	P	WATER
50	6/16/2015 15:30	EPA120.1 6/23/2015 3:06 1982	P	River/Stre am	None	100	1	No Prep	Cool 4 deg C	Yes	QC2015 2855 2899 I	L2015253 5-003-C	19863	295046	821311	er	Surfacewat Active	P	WATER

SJR Order #	SJR Alpha Order	COLUMN HEADING	Column Heading Translation	Column Heading Description
1	A	VENDOR_NM	Vendor Name	Lab that analyzed for the analyte
2	B	STN_ID	Station ID	Laboratory ID number(unique number for each sample: 44####)
3	C	STN_NAME	Station Name	SRWMD Station ID number (ex. SUW120C1)
4	D	PNT_LOC_DSC	Point Location Description	Name of water body and sampling location (Suwannee River at Dowling Park Bridge)
5	E	WTR_QUAL_PARAM_NM	Water Quality Parameter Name	Water quality parameter name(ex. TKN-T)
6	F	COLL_DEV_DSC	Collection Device Description	Sample collection equipment (Sample Container, Other Pump, Bottle Sampler)
7	G	MTRX_NM	Matrix Name	Water vs Soil
8	H	WTR_QUAL_PARAM_ID	Water Quality Parameter ID	SJR unique ID number for each parameter (ex. 10072 = Cr-T)
9	I	UOM_DSC	Units of Measure Description	Units of measure (mg/l, etc.)
10	J	STORET_PARAM_ID	STORET Parameter ID	STORET ID number for each parameter
11	K	WGHT_BASIS_NM	Weight Basis Name	Wet weight or dry weight
12	L	SMPL_FRACT_TP_NM	Sample Fraction Type Name	Dissolved, Suspended or Total
13	M	NO_OF_SGNFT_FGRS	Number of Significant Figures	Number of significant figures for measured value
14	N	SEQUENCE_NO		Used to order parameters displayed in ED into groups. This keeps the chlorophyll parameters and others together.
15	O	MJR_CLS_DSC	Major Class Description	Ambient, Other, etc.
16	P	MNR_CLS_DSC	Minor Class Description	Diagnostic, Experimental, etc.
17	Q	SMPL_COLL_DT	Sample Collection Date and Time	Date (mm/dd/yyyy) and 24-hour clock time (hh:mm)
18	R	MEAS_VAL	Measurement Value	Measured value for the parameter
19	S	CNFDNC_PCT	Confidence Percent	Confidence Percent (0 = no confidence)
20	T	LAB_RMRK_CD	Lab Remark Code	Lab Remark Code
21	U	DVR_CD		Ignore (used in the ED QA module)
22	V	SMPL_TP_CD	Sample Type Code	Sample Type
23	W	LAB_ANL_SMPL_CMNT_DSC	Lab Analyte Sample Comment Description	Field/Lab Sample Comments
24	X	PM_SMPL_CMNT_DSC	Project Management Sample Comment Description	Project Management Sample Comments
25	Y	PM_CMNT_DSC	Project Management Comment Description	Project Management Analyte Comments
26	Z	LAB_ANL_CMNT_DSC	Lab Analyte Comment Description	Field/Lab Analyte Comments
27	AA	LIMS_SMPL_ID	LIMS Sample ID	Sample ID (prelogin and login number)
28	AB	SUB_PROJ_NM	Sub-Project Name	Subproject Name
29	AC	PROJ_NM	Project Name	Project Name
30	AD	SMPL_COLL_ORG	Sample Collection Organization	Agency or contracted firm collecting the sample.
31	AE	SMPL_COLL_PRSN_NM	Sample Collection Person's Name	Sample Collection Person's Name
32	AF	LIMS_LOGIN_ID	LIMS Login ID	Login ID number
33	AG	REASON_DSC	Reason Description	Ignore (used in the ED QA module)
34	AH	CURRENT_SAMPLE	Current Sample	Ignore (used in the ED QA module)
35	AI	CURRENT_VALUE	Current Value	Ignore (used in the ED QA module)
36	AJ	MTHD_DTCTN_LMT_VAL	Method Detection Limit Value	Method Detection Limit
37	AK	SMPL_COLL_STRT_DT	Sample Collection Start Date	Collection Start Date and Time (if exists)
38	AL	SMPL_PREP_DT	Sample Preparation Date	Date that lab preped the sample
39	AM	MEAS_DT	Measurement Date	Date the measurement was taken
40	AN	ANL_MTHD_DSC	Analysis Method Description	Analysis Method for the analyte
41	AO	PRVN_FIN_CD	Provisional/Final Code	P'=Provisional Data; 'F'=Final QA/QC Data
42	AP	WBDY_PRMRY_CLS_NM	Waterbody Primary Classification Name	Primary Waterbody Type (Lake, River)
43	AQ	WBDY_SCND_CLS_NM	Waterbody Secondary Classification Name	Secondary Waterbody Type (Drainage, Transport)
44	AR	MJR_BSN_NM	Major Basin Name	Major Basin Name
45	AS	PLN_UNIT_NM	Planning Unit Name	Planning Unit Name
46	AT	PQL_VAL	Practical Quantification Limit Value	Practical Quantitation Limit
47	AU	DILUT_FACTR_VAL	Dilution Factor Value	Dilution Factor Value
48	AV	PREP_ANLST_NM	Prep Analyst Name	Sample Prep Analyst name
49	AW	SMPL_PREP_MTHD_NM	Sample Preparation Method Name	Sample Prep Method
50	AX	PREP_SMPL_BATCH_ID	Preparation Sample Batch ID	Prep Sample Batch ID
51	AY	SMPL_PRSRV_TP_NM	Sample Preservation Type Name	Sample Preservative Type
52	AZ	PRSRV_STTS_CD	Preservation Status Code	Preservative Status
53	BA	ANLST_NM	Analyst Name	Analyst Name
54	BB	SMPL_BATCH_ID	Sample Batch ID	Sample Batch ID
55	BC	ANALYSIS_TYPE_CD	Analysis Type Code	Analysis Type
56	BD	CNTNR_ID	Container ID	Container ID
57	BE	INSTRMT_NM	Instrument Name	Instrument Name
58	BF	DAYS_Q	Days Q	Days out of time-frame to Analysis date – (collection date + holding time) expressed to 3 significant figures
59	BG	LATTITUDE_NO	Latitude Number	Station Latitude
60	BH	LONGITUDE_NO	Longitude Number	Station Longitude
61	BI	STATION_CATEGORY	Station Category	Surfacewater or Groundwater
62	BJ	STATION_STATUS	Station Status	Active or Inactive
63	BK	HIST_PROV_CD	Historical / Provisional Code	Indicates whether it is in the Provisional Table (P) or the Historical table (H)
64	BL	ANLYT_MTRX_NM	Analyte Matrix Name	District analyte matrix (soil, water, sediment, air) which is distinct from sample matrix that relates to source of collection. SRWMD matrix will always be water.



APPENDIX D

BIOLOGY FIELD SHEETS

SAMPLE ID SFR010C1 ORG ID _____ LATITUDE see FD 9000-4
COUNTY _____ STORET # _____ LONGITUDE "
DATE 6/16/2013 TIME 1600 SAMPLING AGENCY Water and Air
SITE NAME Santa Fe River at 225
FIELD ID/NAME SFR010C1 RECEIVING BODY OF WATER Savannah River

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) :								Landscape Development Intensity Index (LDI)	
Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)		
Local Watershed Erosion (select one) : ☒ None ☒ Slight ☐ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect	
Local Watershed NPS Pollution : ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy								at 70m 0.03 m/s 29.02 0.35 m deep at 0m 0.18 m/s 5.49 0.1 m deep no flow at 70m 0.3 m deep	
Width of Riparian Vegetation (m) on Each Buffer Side				Hydrologic Modification Score (per FT 3101)					
Left Bank : 8m		Right Bank : 78m							
High Water Mark: 1.0 + 0.3 = 1.3 (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No					
Artificially ☒ No ☐ Mostly recovered, more sinuous				Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%)					
Channelized : ☐ Some recovery ☐ Recent, severe				☐ Heavily Shaded ☒ Moderate Shaded (46-80%)					

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse	Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☒ Anaerobic ☐ Other (Specify) :	Smothering of Substrates Sand Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Algae Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐
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Assessment Tool:	☐ SCI	☒ RPS	☒ LVS	☐ LCI	☒ BioRecon	INVERT	PERI	% Coverage	# Times Sampled	# Times Sampled	QUALITY	Depth (M)	Temp (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)			
Woody Debris (Snags)								5.66	67		Top :								>0.4			
Undercut Banks / Roots								2.66	7		Mid:	02	26.7	7.24	5.76	71.9	260	0.12	☒ VOB			
Leaf Packs or Mat								0.83	2		Bottom	0.4							TOTAL DEPTH			
Aquatic Vegetation											Meter ID:	WAR3YST								0.4		
Rock or Shell Rubble..								4.0	4		Water Odors	Normal	☒ Petroleum	☐	Water Surface Oils					Normal	☒ Sheen	☐
Sand.....											Sewage	☐ Chemical	☐ Other	☐	Globs	☐ Slick	☐ Other	☐	Color	Tannic	☒ Green (Algae)	☐
Mud / Muck / Silt											Water Sample Taken?	☒ Yes	☐ No	Clear					☒ Other (Specify)	☐		
Other											Sample Preserved?	☒ Yes	☐ No	Very Tannic								
Other											Lot Number:	Exp:							Clarity	Clear	☐ Slightly Turbid	☒
											Algae Sample Taken?	☐ Yes	☒ No						Turbid	☐ Opaque	☐	
											Sample Preserved?	☐ Yes	☐ No									
											Lot Number:	Exp:										

Periphyton:	☐	☒	☐	☐
Fish:	☐	☐	☐	☒
Aquatic Plants:	☒	☐	☐	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

sunny $\rightarrow$ 50% clouds, very light breeze hot humid
 snake (likely *Nerodia*)

☒ The antecedent hydrologic conditions have been met to my best knowledge.

E. Tavaréz and L. Bedinger

Taura Bedinger

6/16/2015

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: Water and Air Research		STORET STATION NUMBER:	DATE (MM/DD/YY): 6/15/15	RECEIVING BODY OF WATER: Suwannee River
REMARKS:	COUNTY: Alachua Bradford	LOCATION: Santa Fe Blvd @ SR 225	FIELD ID/NAME: SFR01UC1	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>18</u>	20 18 <u>18</u> 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>9</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 <u>9</u> 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>13</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 <u>13</u> 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering <u>10</u> ----- Primary Score <u>50</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). <u>10</u> 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>9</u> Left Bank <u>9</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 <u>9</u>	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>9</u> Left Bank <u>9</u>	Width of vegetation greater than 18 m 10 <u>9</u>	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>10</u> Left Bank <u>10</u> ----- Secondary Score <u>76</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. <u>10</u> 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

126

TOTAL SCORE

Date: <u>6/15/15</u>	Analyst: <u>Efrain Tavaraz</u>	Signature: <u>[Signature]</u>
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[illegible]

Powerline
cut

Plants observed / other notes:

n² (13%) lots of tilapia nests

40% (10m²)

10%

total area - 300m²
Revision Date: March 1, 2014

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>SFR01001</u>					County: <u>Alachua</u>		Date: <u>6/16/2015</u>		Investigators: <u>L. Bedinger / E. Tavaraz</u>	
					STORET Station Number:					

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	
0	1	N			60	1	N			
	2					2				
	3					3				
	4					4				
	5			80		5			80	
	6					6				
	7					7				
	8					8				
	9	N				9	N			
10	1	N			70	1	N			
	2					2				
	3					3				
	4					4				
	5			90		5			90	
	6					6				
	7					7				
	8					8				
	9	N				9	N			
20	1	N			80	1	N		under bridge	
	2					2				
	3					3				
	4					4				
	5			76		5			96	
	6					6				
	7					7				
	8					8				concrete not fixed
	9	N				9	N			
30	1	N			90	1	N			
	2					2				
	3					3				
	4					4				
	5			60		5			68	
	6					6				
	7					7				
	8					8				
	9	N				9	N			
40	1	N			100	1	N			
	2					2				
	3					3				
	4					4				
	5			84		5			84	
	6					6				
	7					7				
	8					8				
	9	N				9	N			
50	1	N				1	N			
	2					2				
	3					3				
	4					4				
	5			power line cut		5				
	6			too deep ~48		6				
	7					7				
	8					8				
	9	N				9	N			

Secchi depth	0.6
Estimated? #	Yes 4 point
# points ranked 4-6	0
total points assessed	99
% points ranked 4-6	0

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	✓
Water sample	✓
RQ-	

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

used densimeter squares out of 96

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densimeter quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: <i>SFR010C1</i>	Date: <i>6/16/2013</i>	County: <i>Alachua</i>	Storet Number:
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Date: 6/16/2015	County: Alachua	Storet Number:
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Storet Number:

Analyst: <u>L. Bedinger</u>	Signature: <u>L. Bedinger</u>
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Signature: L. Bedinger

Comments: No aquatic vegetation; small amounts of periphyton

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)	HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Alternanthera philoxeroides												Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monneri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nuphar luteum											
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens											
Cicuta maculata												Panicum rigidulum											
Cladium jamaicense												Pistia stratioides											
Colocasia esculenta												Polygonum glabra											
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum											
Crinum americanum												Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex											
Eleocharis (wispy viviparous)												Sacciolepis striata											
Hydrilla verticillata												Sagittaria kurziana											
Hydrocotyle												Sagittaria lancifolia											
Hygrophila polysperma												Sagittaria latifolia											
Hymenocallis												Salvinia minima											
Lachnanthes caroliniana												Samolus parviflora											
Landoltia punctata												Saururus cernuus											
Lemna												Sparganium americanum											
Limnophila sessiflora												Typha											
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							
If no Dominant or Co-Dominant were selected, indicate with "X"																							

no aquatic veg, small amounts of periphyton

DEP Form FD 9000-1: Biorecon Field Sheet

STORET Station <u>SFR010C1</u>	Location <u>Santa Fe River @ SR 225</u>
Latitude: N ° ' " Longitude: W ° ' "	Watershed / Basin <u>Sullivan Basin / Santa Fe</u>
Date/Time Collected <u>6/16/2015</u>	Collected, & Sorted By: <u>ET & LB</u>
Types of habitats sampled <u>snags, brush, rocks, vegetation</u>	QC'd By: <u>ET & LB</u>

*Rare (1-3), Common (4-10), Abundant (11-100), Dominant (>100).

Taxa	Tally	Abun Code	Taxa	Tally	Abun Code	Taxa	Tally	Abun Code
Diptera			Trombidiformes			Ephemeroptera		
Ceratopogonidae			Acarina	1	R	Acerpenna pygmaea		
Culicidae			Oligochaeta			Baetidae		
Empididae			Naididae			Baetis sp.		
Chironomidae	III	A	Lumbriculidae			Baetisca sp.		
Simulium sp.			Tubificidae			Brachycercus sp.		
Stratiomyidae			Hirudinea	III	C	Caenis sp.	II	R
Tipulidae			Pelecypoda			Callibaetis sp.		
			Corbicula fluminea			Centroptilum sp.		
			Elliptio sp.			Heptagenia sp.		
			Sphaeriidae (Pisidiidae)	II	R	Hexagenia sp.		
						Isonychia sp.		
Gastropoda			Megaloptera			Leptophlebia sp.		
Ancylidae	III	A	Corydalus cornutus	II	R	Neophemera sp.		
Pleurocera (Elimia) sp.			Sialis sp.	III	R	Stenacron sp.		
Physa sp.	III	C				Maccaffertium sp.	XXXX	A
Pomacea sp.			Hemiptera	II	C	Tricorythodes sp.		
Planorbella sp.			Belostoma sp.					
Hydrobiidae			Corixidae					
Viviparus sp.			Gerridae			Plecoptera		
Melanoides tuberculata			Hydrometra sp.			Acroneuria sp.		
			Pelocoris sp.			Amphinemura sp.		
			Pleidae			Hydroperla sp.		
Odonata			Ranatra sp.	III	R	Isoperla sp.		
Argia sp.	V	A	Velidae	II	R	Leuctra sp.		
Aeschnidae						Neoperla sp.		
Boyeria vinosa.	III	C	Other (name groups)			Paragnetina sp.		
Calopteryx sp.			Nematomorpha	1	R	Perlenta sp.		
Enallagma sp.	III	C				Perlina sp.		
Epitheca sp.						Pteronarcys sp.		
Erythemis simplicicollis						Taeniopteryx sp.		
Gomphus sp.						Talioptera sp.		
Hetaerina sp.								
Ischnura sp.						Trichoptera		
Libellulidae	I	R				Anisocentropus sp.		
Macromia sp.	II	R				Brachycentrus sp.		
Neurocordulia sp.						Cermetina sp.		
Progomphus sp.						Cheumatopsyche sp.	II	XXXX A
Pachydiplax longipennis						Chimarra sp.	XXXX	A
Hagenius sp.	II	R	Decapoda			Diplectrona sp.		
Dromogomphus ?	II	R	Palaemonetes sp.			Hydroptila sp.		
Coleoptera	III	R	Procambarus sp.	I	R	Hydropsyche sp.		
Ancyronyx variagata	III	R				Lype diversa	III	C
Curculionidae						Macrostemum sp.		
Dineutus sp.			Amphipoda			Nectopsyche sp.		
Dubiraphia vittata			Gammarus sp.			Oecetis sp.	II	R
Dytiscidae			Hyalella azteca	I	R	Oxyethira sp.		
Gyretes sp.	I	R	Crangonyx sp.			Polycentropus sp.	III	C
Microcyloepus pusillus						Trienodes sp.	XXXX	A
Stenelmis sp.	III	A	Isopoda					
			Caecidotea (Asellus) sp.	III	C			
Column Total: Taxa	14		Column Total: Taxa	12		Column Total: Taxa	8	

NOTE: The Biorecon field data sheet is to be used as an aid during sampling and organism field sorting (per BRN 1100). The calculated metrics should be retrieved from the Florida Statewide Biological Database or the same counting and collapsing procedures used, as described in BRN 2100.

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID SFR 030CI ORG ID _____ LATITUDE see FD 9000-4
 COUNTY Alachua/union STORET # _____ LONGITUDE _____
 DATE 6/16/2015 TIME 1130 SAMPLING AGENCY Water and Air
 SITE NAME SFR 030CI Santa Fe River at 121
 FIELD ID/NAME SFR 030CI / Santa Fe River RECEIVING BODY OF WATER Suwannee River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ Other (Specify) ☐								Landscape Development Intensity Index (LDI)
Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>20</u> m wide _____ m/s _____ m/s _____ m/s <u>no flow or wind driven</u> _____ m deep _____ m deep _____ m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>>18</u>				Hydrologic Modification Score (per FT 3101)				
High Water Mark: <u>1.0</u> + <u>1.5</u> = <u>2.5</u> (m) (above present water level) (present depth) (above bed) <u>but another higher mark at 2.0</u>				Artificially Impounded ☐ Yes ☒ No				
Artificially ☒ No ☐ Mostly recovered, more sinuous Channelized: ☐ Some recovery ☐ Recent, severe				Canopy Cover % ☐ Open ☒ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)				

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse	Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____	Smothering of Substrates Sand Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Algae Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐
--	---	---

SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS
☐ LCI ☒ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	<u>10</u>	<u>10</u>	
Undercut Banks / Roots	<u>4</u>	<u>10</u>	
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:								<u>0.9</u>
Mid:	<u>0.5</u>	<u>26.0</u>	<u>7.26</u>	<u>5.07</u>	<u>62.4</u>	<u>19.8</u>	<u>0.09</u>	☐ VOB
Bottom	<u>1.0</u>							TOTAL DEPTH
Meter ID:	<u>WAR 3 YSI</u>							<u>1.0</u>

Water Odors Normal ☒ Petroleum ☐
 Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☐ Sheen ☒
 Globbs ☐ Slick ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No
 Sample Preserved? ☒ Yes ☐ No
 Lot Number: _____ Exp: _____

Color Tannic ☒ Green (Algae) ☐
 Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☒ No
 Sample Preserved? ☐ Yes ☐ No
 Lot Number: _____ Exp: _____

Clarity Clear ☐ Slightly Turbid ☐
 Turbid ☒ Opaque ☐

3.99 NTU

ABUNDANCE

Not Obs. Rare Common Abundant

Periphyton: ☐ ☒ ☐ ☐
 Fish: ☐ ☐ ☐ ☒
 Aquatic Plants: ☒ ☐ ☐ ☐
 Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐

AMBIENT FIELD CONDITIONS / NOTES:

Sunny, warm, light breeze
barn swallows nesting under bridge
☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

E. Tavaroz and L. Bedinger

SIGNATURE:

L. Bedinger

DATE:

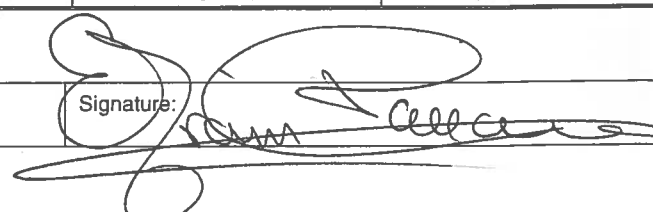
6/16/2015

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

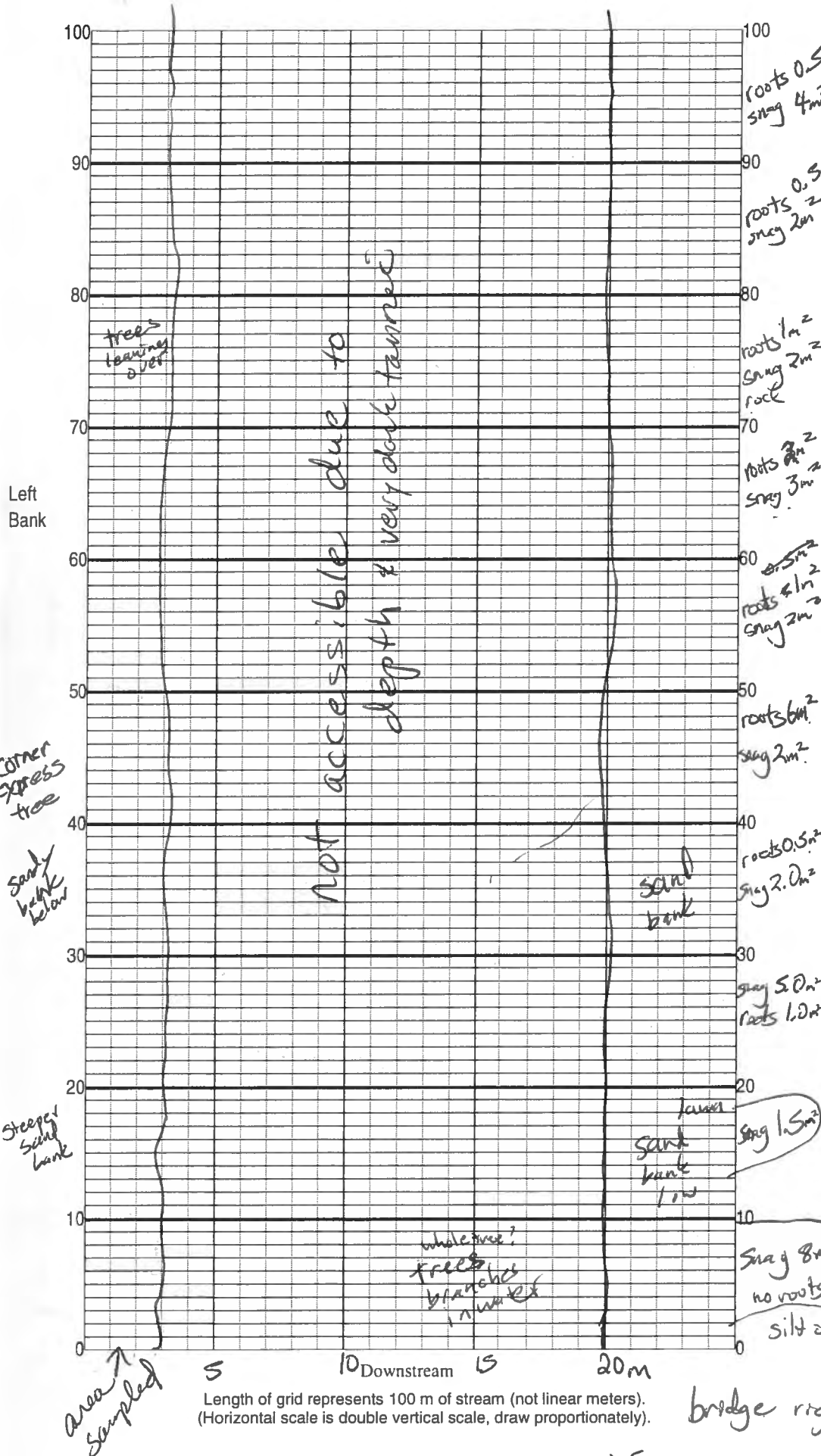
SAMPLING AGENCY: <u>Water and Air Research</u>		STORET STATION NUMBER:	DATE (MM/DD/YY): <u>6/15/15</u>	RECEIVING BODY OF WATER: <u>Savannah River</u>
REMARKS:	COUNTY: <u>Alachua</u> <u>Union</u>	LOCATION: <u>SQF 030 C1 @</u> <u>SQ 121-</u>	FIELD ID/NAME: <u>SFR030C1</u>	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>7</u> 6	5 4 3 2 1
Substrate Availability <u>10</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat <u>10</u> 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>1</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 <u>1</u>
Habitat Smothering <u>4</u> ----- Primary Score <u>22</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 <u>4</u> 3 2 1
Secondary Habitat Components	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>7</u> Left Bank <u>7</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 <u>7</u> 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>10</u> Left Bank <u>8</u>	Width of vegetation greater than 18 m <u>10</u> 9	Width of vegetation >12 to 18m <u>8</u> 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>10</u> Left Bank <u>10</u> ----- Secondary Score <u>72</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. <u>10</u> 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

94 TOTAL SCORE

Date: <u>6/15/2015</u>	Analyst: <u>Efrain Tavaraz</u>	Signature: 
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: SFR030 C1
 Date: 6/15/2015
 Sampler: L. Bedinger / E. Tavaras

100 m: Latitude 29.92155
 Longitude 082.42531
 0 m: Latitude 29.92190
 Longitude 082.42613

Substrates: Code key, draw proportionate habitat abundance.		%
☐	Snags	<u>10-10</u>
☐	Roots/undercut banks	<u>4.1</u>
☐	Leaf Packs (or mats)	
☐	Aquatic Macrophytes	
☐		
☐		
☐	Pools	total # observed = <u>not determined</u> # range expected = <u>1</u>

Average width 20 m
 Average depth unknown m >0.9
 Velocity measured at 0 meter mark. no flow
 WQ & chemistry taken at 0 meter mark.

Habitat Smothering:
 Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
 Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
 Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:
 erosion on both banks
 very little veg on banks
 but cypress knees/roots
 steep sl by bank ground
 40-50m especially,
 silt on sand

Length of grid represents 100 m of stream (not linear meters).
 (Horizontal scale is double vertical scale, draw proportionately).

$$\frac{1.5}{1.5} \times 100 = 300m$$

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: SFR030C.I County: Alachua Date: 6/16/2015 Investigators: E. T. Suarez and L. Bealinger

Transect (m) Point 1=right 9=left Algal Thickness Rank (N-6, X) Estimated Canopy Cover

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	3	✓	
	2	N	✓	
	3	N	✓	
	4	N	✓	
	5	N	✓	12%
	6	N	✓	
	7	N	✓	
	8	N	✓	
	9	N	✓	
10	1	3	✓	
	2	↑	✓	
	3	↑	✓	
	4	↑	✓	
	5	↑	✓	5%
	6	↑	✓	
	7	↑	✓	
	8	↑	✓	
	9	↑	✓	
20	1	N	✓	
	2	3	✓	
	3	N	✓	
	4	N	✓	
	5	N	✓	5%
	6	N	✓	
	7	N	✓	
	8	N	✓	
	9	N	✓	
30	1	N	✓	
	2	N	✓	
	3	N	✓	
	4	N	✓	
	5	N	✓	20%
	6	N	✓	
	7	N	✓	
	8	N	✓	
	9	N	✓	
40	1	3	✓	
	2	N	✓	
	3	N	✓	
	4	N	✓	
	5	N	✓	10%
	6	N	✓	
	7	N	✓	
	8	N	✓	
	9	N	✓	
50	1	N	✓	
	2	N	✓	
	3	N	✓	
	4	N	✓	
	5	N	✓	20%
	6	N	✓	
	7	N	✓	
	8	N	✓	
	9	N	✓	

STORET Station Number:

Secchi depth 0.9
Estimated? # points 88

points ranked 4-6 0
total points assessed 99
% points ranked 4-6 0

Check accompanying data collected at same site/date.
Algal mat sample ☐
Linear Veg Survey ☒
Habitat Assessment ☒
SCI/Biorecon ☒
Water sample ☒
RQ-

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

can't walk out into middle to take densimeter readings
estimated % cover of canopy

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.
Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.
Record canopy cover as the number of small densimeter quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.
Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

Waterbody: <u>STRO30C1</u>	Date: <u>6/16/2015</u>	County:	Storet Number:
Analyst: <u>L. Bedinger</u>	Signature: <u>L. Bedinger</u>		
Comments:			

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

[illegible]

No aquatic vegetation observed.

DEP Form FD 9000-1: Biorecon Field Sheet

STORET Station		Location <u>SFRD 30C7</u>	
Latitude: N ° ' "	Longitude: W ° ' "	Watershed / Basin	
Date/Time Collected <u>6/16/2013 11:30</u>		Collected, & Sorted By: <u>E. TAVARZ</u>	
Types of habitats sampled <u>roots, snag</u>		QC'd By:	

** Rare (1-3), Common (4-10), Abundant (11-100), Dominant (>100).

Taxa	Tally	Abun Code	Taxa	Tally	Abun Code	Taxa	Tally	Abun Code
Diptera			Trombidiformes			Ephemeroptera		
Ceratopogonidae			Acarina			Acerpenna pygmaea		
Culicidae			Oligochaeta			Baetidae		
Empididae			Naididae			Baetis sp.		
Chironomidae	I		Lumbriculidae			Baetisca sp.		
Simulium sp.			Tubificidae			Brachycercus sp.	? I	
Stratiomyidae			Hirudinea			Caenis sp.	I	
Tipulidae			Pelecypoda			Callibaetis sp.		
			Corbicula fluminea			Centropilum sp.		
			Elliptio sp.			Heptagenia sp.		
			Sphaeriidae (Pisidiidae)			Hexagenia sp.		
						Isonychia sp.		
Gastropoda			Megaloptera			Leptophlebia sp.		
Ancylidae	I		Corydalus cornutus			Neophemera sp.		
Pleurocera (Elimia) sp.			Sialis sp.			Stenacron sp.		
Physa sp.						Maccaffertium sp.		
Pomacea sp.	?		Hemiptera			Tricorythodes sp.		
Planorbella sp.	I		Belostoma sp.					
Hydrobiidae			Corixidae					
Viviparus sp.			Gerridae			Plecoptera		
Melanoides tuberculata			Hydrometra sp.			Acronuria sp.		
<i>Amnicola deli</i>			Pelocoris sp.			Amphinemura sp.		
			Pleidae			Hydroperla sp.		
Odonata			Ranatra sp.			Isoperla sp.		
Argia sp.			Velidae			Leuctra sp.		
Aeschnidae						Neoperla sp.		
Boyeria vinosa.			Other (name groups)			Paragnetina sp.		
Calopteryx sp.			<i>Sponge</i>	I		Perlesta sp.		
Enallagma sp.	VHtr					Perlinella sp.		
Epitheca sp.						Pteronarcys sp.		
Erythemis simplicicollis						Taeniopteryx sp.		
Gomphus sp.						Talioptera sp.		
Hetaerina sp.								
Ischnura sp.								
Libellulidae						Trichoptera	I	
Macromia sp.						Anisocentropus sp.		
Neurocordulia sp.						Brachycentrus sp.		
Progomphus sp.						Ceratomyza sp.		
Pachydiplax longipennis						Cheumatopsyche sp.		
			Decapoda			Chimarra sp.		
			Palaemonetes sp.			Diplectrona sp.		
Coleoptera	V		Procambarus sp.	I		Hydroptila sp.		
Ancyronyx variagata	I					Hydropsyche sp.		
Curculionidae						Lype diversa		
Dineutus sp.			Amphipoda			Macrostemum sp.		
Dubiraphia vittata	VI		Gammarus sp.			Nectopsyche sp.		
Dytiscidae			Hyalella azteca			Oecetis sp.		
Gyretes sp.	I		Crangonyx sp.			Oxyethira sp.		
Microcyllopus pusillus						Polycentropus sp.		
Stenelmis sp.	V		Isopoda			Trienodes sp.		
~~Stenelmis~~	?		Caecidotea (Asellus) sp.	I				
~~Stenelmis~~	? I							
<i>Saintes</i>	I							
Column Total: Taxa			Column Total: Taxa			Column Total: Taxa		

NOTE: The Biorecon field data sheet is to be used as an aid during sampling and organism field sorting (per BRN 1100). The calculated metrics should be retrieved from the Florida Statewide Biological Database or the same counting and collapsing procedures used, as described in BRN 2100.

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID SFR050C1 ORG ID _____ LATITUDE see FD 9000-4
COUNTY _____ STORET # _____ LONGITUDE _____
DATE 6/15/2015 TIME 1750 SAMPLING AGENCY Water and Air
SITE NAME Santa Fe River @ 441
FIELD ID/NAME SFR050C1/Santa Fe River RECEIVING BODY OF WATER Suwannee River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):								Landscape Development Intensity Index (LDI)	
Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)		
☐	☐	☐	☐	☐	☐	☐	☐		
Local Watershed Erosion (select one): ☒ None ☐ Slight ☐ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect	
Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy								<u>50</u> m wide	
Width of Riparian Vegetation (m) on Each Buffer Side				Hydrologic Modification Score (per FT 3101)					
Left Bank: <u>>18</u> Right Bank: <u>15</u>				☐					
High Water Mark: <u>0.7</u> + <u>1.0</u> = <u>1.7</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No					
Artificially ☒ No ☐ Mostly recovered, more sinuous				Canopy Cover % ☒ Open ☐ Lightly Shaded (11-45%)					
Channelized: ☐ Some recovery ☐ Recent, severe				☐ Heavily Shaded ☐ Moderate Shaded (46-80%)					

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse			Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____			Smothering of Substrates Sand Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Algae Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐					
SUBSTRATE TYPE Assessment Tool: ☐ SCI ☒ RPS ☒ LVS ☐ LCI ☒ BioRecon			WATER QUALITY								
			Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	
			Top:							<u>>1.0</u>	
			Mid:	<u>0.5</u>	<u>24.3</u>	<u>7.37</u>	<u>3.83</u>	<u>45.7</u>	<u>489</u>	<u>0.24</u>	
			Bottom:	<u>1.0</u>							
			Meter ID: <u>WAR3YSI</u>								<u>1.0</u>
			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐				Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐				
			Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____				Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐				
			Algae Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____				Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐				
			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐								
			ABUNDANCE								
			Not Obs.	Rare	Common	Abundant					
			Periphyton:	☐	☐	☐	☒				
			Fish:	☐	☐	☐	☒				
			Aquatic Plants:	☐	☐	☐	☒				
			Iron/Sulfur Bacteria:	☒	☐	☐	☐				
			AMBIENT FIELD CONDITIONS / NOTES: <u>sunny, clear, very little breeze</u> <u>swallow tail kite, hawk</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.								
SAMPLING TEAM <u>E. Tavaroz and L. Bedinger</u>			SIGNATURE: <u>[Signature]</u>				DATE: <u>6/15/2015</u>				

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>Water and Air Research</u>		STORET STATION NUMBER:	DATE (MM/DD/YY): <u>6/15/15</u>	RECEIVING BODY OF WATER: <u>Sunamnee river</u>
REMARKS:	COUNTY: <u>Alachua/Columbia</u>	LOCATION: <u>SFR 050C1 @ SR 441.</u>	FIELD ID/NAME: <u>SFR050C1</u>	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>16</u>	20 19 18 17 <u>16</u>	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>10</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 <u>11</u>	6% to 15% major productive habitat 15.06% <u>10</u> 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>15</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 <u>15</u> ~~14~~ 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering <u>1</u> ----- Primary Score <u>43</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 <u>1</u>
Secondary Habitat Components	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>10</u> Left Bank <u>10</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. <u>10</u> 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>8</u> Left Bank <u>10</u>	Width of vegetation greater than 18 m <u>10</u> 9	Width of vegetation >12 to 18m <u>8</u> 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>9</u> Left Bank <u>9</u> ----- Secondary Score <u>76</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 <u>9</u>	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

118

TOTAL SCORE

Date: <u>7/13/2015</u>	Analyst: <u>E. Frain Tavaréz</u>	Signature: <u>[Signature]</u>
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet

buffer
18m
snag 15m²
veg 25m²
rock 5m²

100 buffer 15m

snag 5m²
veg 5m²
rock 5m²

rock 5m²
veg 5m²

Left Bank

rock 5m²
veg 25m²

veg 25m²
rock 5m²

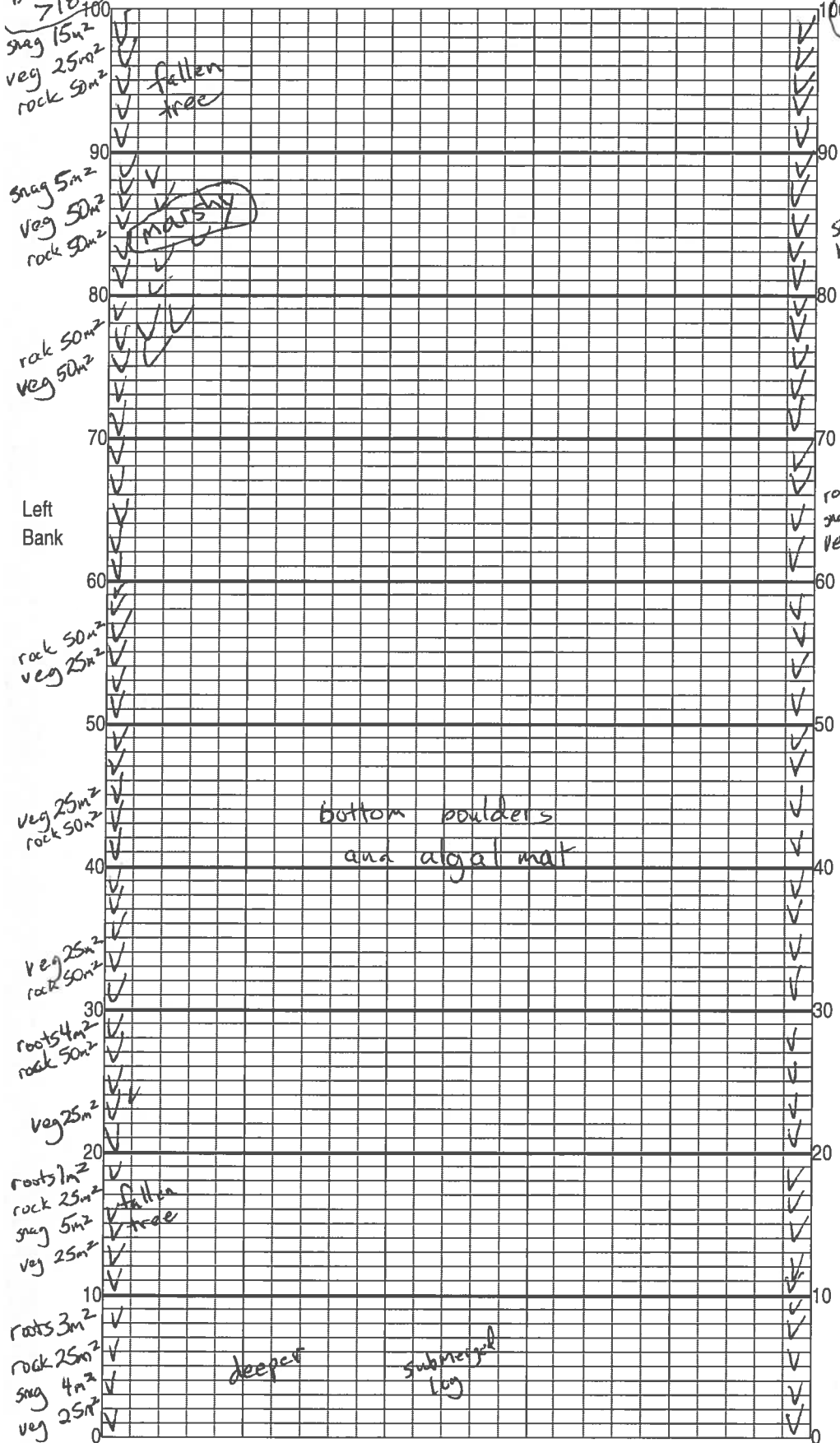
veg 25m²
rock 5m²

roots 1m²
rock 25m²
snag 5m²
veg 25m²

roots 3m²
rock 25m²
snag 4m²
veg 25m²

roots on bank edge

62-160.800, F.A.C



Location: SFR 050C1

Date: 6/15/2015

Sampler: L Bedinger / E Tavarez

100 m: Latitude 29.85289
Longitude -82.60722

0 m: Latitude 29.85309
Longitude -82.60825

Substrates: Code key, draw proportionate habitat abundance. %

☐	Snags	<u>< 0.1</u>
☐	Roots/undercut banks	<u>0.16</u>
☐	Leaf Packs (or mats)	<u>0</u>
☒	Aquatic Macrophytes	<u>5.8</u>
☐	rock (not algae smothered)	<u>9.0</u>
☐	Pools	total # observed = <u>> 1</u> # range expected = <u>1</u>

Average width ~50 m 45m at bridge

Average depth 1.0 m

Velocity measured at 0 meter mark.

WQ & chemistry taken at 0 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:
Fontinalis cypress knees and aquatic veg on sides
bottom of river alternating algal mat or long filaments patchy in nature
Vegetated habitat not totally smothered by algae

very low banks
low erosion

wth of river pretty constant slight variation

rock bottom w/ lots of algae

Revision Date: March 1, 2014

Most dip net sweeps conducted

Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

bridge 441

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: SFR050C1 County: Black Date: 6/15/2015 Investigators: E. Tavaraz and L. Bedinger

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	4			60	1	4		
	2	4				2	5	✓	
	3	4				3	6	✓	
	4	4				4	4	✓	
	5	6		8		5	5	✓	0
	6	4	✓			6	6	✓	
	7	4				7	X		
	8	X				8	X		
	9	X				9	X		
10	1	4			70	1	4		
	2	5	✓			2	5	✓	
	3	5	✓			3	6	✓	
	4	6	✓	0		4	5	✓	
	5	6	✓			5	5	✓	0
	6	5	✓			6	5	✓	
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
20	1	4			80	1	4		
	2	5	✓			2	4	✓	
	3	5	✓			3	6	✓	
	4	6	✓	0		4	6	✓	
	5	5	✓			5	5	✓	0
	6	6	✓			6	5	✓	
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
30	1	4			90	1	4		
	2	5	✓			2	5	✓	
	3	5	✓			3	5	✓	
	4	5	✓	0		4	5	✓	
	5	6	✓			5	6	✓	0
	6	6	✓			6	6	✓	
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
40	1	4			100	1	4		
	2	5	✓			2	4	✓	
	3	5	✓			3	4	✓	
	4	6	✓	0		4	5		
	5	5	✓			5	4		0
	6	4	✓			6	5	✓	
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
50	1	5			Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.				
	2	5			Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.				
	3	6			Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.				
	4	4		4	Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.				
	5	4							
	6	6	✓						
	7	X							
	8	X							
	9	X							

STORET Station Number:

Secchi depth >1.0
 Estimated? No
 # points estimated = 45
 # points ranked 4-6 66
 total points assessed 66
 % points ranked 4-6 100%

Check accompanying data collected at same site/date.
 Algal mat sample ☒
 Linear Veg Survey ☒
 Habitat Assessment ☒
 SCI/Biorecon ☒
 Water sample ☒
 RQ-

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

could not see points on left bank

collected algae sample at 10m

river width 50m
 some deeper and more distant points estimated
 long green filaments - see photo

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Santa Fe River SFROSOCI Date: 6/19/2015 County: Colombia/Alachua Storet Number: _____
 Analyst: Laura Bedinger/Efrain Tavaraz Signature: L. Bedinger

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)	HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Alternanthera philoxeroides	No											Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monnieri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nuphar luteum											
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens											
Cicuta maculata												Panicum rigidulum											
Cladium jamaicense												Pistia stratioides											
Colocasia esculenta												Polygonum glabra sp											
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum											
Crinum americanum												Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex											
Eleocharis (wispy viviparous)												Sagittaria kurziana											
Hydrilla verticillata												Sagittaria latifolia											
Hydrocotyle												Salvinia minima											
Hygrophila polysperma												Samolus parviflora											
Hymenocallis												Saururus cernuus											
Lachnanthes caroliniana												Sparganium americanum											
Landoltia punctata												Typha											
Lemna												Vallisneria americana											
Limnophila sessiflora												Zizania aquatica											
Ludwigia leptocarpa												unknown grass (Carex sp)											
Ludwigia palustris												Senecio glabellus											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							
If no Dominant or Co-Dominant were selected, indicate with "X"	X																						
Indicate % cover macrophytes per section																							
0-5% Macrophyte Coverage																							
>5 and ≤10% Macrophyte Coverage																							
>10 and ≤25% Macrophyte Coverage																							
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

Fontinalis moss observed

DEP Form FD 9000-1: Biorecon Field Sheet

SFR 050
Coll 6/15/15
Sort 6/16/15 LL
SAC

Taxa	Tally	Abun Code	Taxa	Tally	Abun Code	Taxa	Tally	Abun Code
Diptera			Trombidiformes			Ephemeroptera		
Chironomidae	///		Acarina	///		Baetidae	///	
Ceratopogonidae	/		Oligochaeta			Callibaetis	///	+
						Heptageniidae	///	
			Hirudinea	//		Tricorythodes	//	
			Pelecypoda					
			Corbicula	/				
			Elanoid					
Gastropoda			Megaloptera					
Physella	///		Corydalus	///				
Galathea	///							
Viviparus georgianus	///		Hemiptera					
Planorbella	///		Rhagovalia	/				
Pomacea	/		Pelocoris	/		Plecoptera		
			?	/				
Odonata								
Argia	///		Other (name groups)					
Enallagma	///		Paristira	/				
Ischnura	///							
Libellulidae	/							
Macromia	/							
						Trichoptera		
						Polycentropedidae	///	
						Hydroptilidae	//	
			Decapoda					
			Palaeomonetes p.	///				
Coleoptera			Cambaridae	//				
Gyrinidae	///							
Halipidae	///		Amphipoda					
Scirtidae	/		Gammarus	///				
Dubiraphia	/		Hyalella	///				
Noteridae	/							
			Isopoda					
			Caecidotea	///				
Column Total: Taxa	17	243	Column Total: Taxa	13	243	Column Total: Taxa	10	22

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID SFR060C1 ORG ID _____ LATITUDE see FD 9000-4
 COUNTY _____ STORET # _____ LONGITUDE _____
 DATE 6/15/2015 TIME 1040 SAMPLING AGENCY Water and Air Research
 SITE NAME Santa Fe River @ 47
 FIELD ID/NAME Santa Fe River / SFR060C1 RECEIVING BODY OF WATER Savannah River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) : Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ Other (Specify) ☐								Landscape Development Intensity Index (LDI)
Local Watershed Erosion (select one) : ☐ None ☒ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution : ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect 40 m wide
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank : <u>>18</u> Right Bank : <u>~18</u> near park 1065				Hydrologic Modification Score (per FT 3101)				<u>0.6</u> m/s <u>1.72</u> m deep <u>0.7</u> m/s <u>1.42</u> m deep <u>0.3</u> m/s <u>3.28</u> m deep
High Water Mark: <u>0.8</u> + <u>2.1</u> = <u>2.9</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No				
Artificially ☒ No ☐ Mostly recovered, more sinuous Channelized : ☐ Some recovery ☐ Recent, severe				Canopy Cover % ☒ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)				

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse	Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☒ Anaerobic ☐ Other (Specify) : _____	Smothering of Substrates Sand Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Silt Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐ Algae Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐
--	---	---

SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS

☐ LCI ☒ BioRecon ☐ MDD ☐ INVERT ☐ PERI

	% Coverage	# Times Sampled	# Times Sampled
Woody Debris (Snags)	<u>13.4</u>	<u>5</u>	
Undercut Banks / Roots	<u>10.5</u>	<u>5</u>	
Leaf Packs or Mat		<u>1</u>	
Aquatic Vegetation	<u>6%</u> <u>2.9</u>	<u>5</u>	
Rock or Shell Rubble	<u>33%</u> <u>6.6</u>	<u>5</u>	
Sand			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :								<u>2.1</u>
Mid:	<u>1.0</u>	<u>23.4</u>	<u>7.55</u>	<u>5.67</u>	<u>66.7</u>	<u>420</u>	<u>0.21</u>	☒ VOB
Bottom	<u>2.1</u>							
Meter ID: <u>WAR 34 SI</u>								TOTAL DEPTH <u>2.1</u>

Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐	Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐
Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____	Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐
Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____	Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☒
Fish:	☐	☐	☐	☒
Aquatic Plants:	☐	☐	☐	☒
Iron/Sulfur Bacteria:	☒	☐	☐	☐

SYSTEM TYPE

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐ river

AMBIENT FIELD CONDITIONS / NOTES:
Sunny, clear, light breeze to none 34°C
cattle egrets
turtles, bass.
☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

E. Tamez, L. Bedinger

SIGNATURE :

L. Bedinger

DATE :

6/15/2015

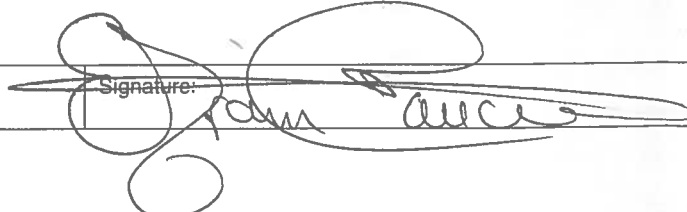
DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>Water and Air Research</u>		STORET STATION NUMBER:	DATE (MM/DD/YY): <u>6/15/2015</u>	RECEIVING BODY OF WATER: <u>Savannah River</u>
REMARKS:	COUNTY: <u>Mitchell</u> <u>Columbia</u>	LOCATION: <u>Santa Fe River</u> <u>@ Sta 47</u>	FIELD ID/NAME: <u>SFR060C1</u>	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>20</u>	(20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>20</u>	Greater than 30% major productive habitat present at site (20) 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>20</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 (20) 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering <u>9</u> ----- Primary Score <u>69</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 (9) 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	(20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>5</u> Left Bank <u>5</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. (5) 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>8</u> Left Bank <u>10</u>	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m (8) 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>10</u> Left Bank <u>10</u> ----- Secondary Score <u>68</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. (10) 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

137

TOTAL SCORE

Date: <u>6/15/2015</u>	Analyst: <u>Efrain Tavaraz</u>	Signature: 
------------------------	--------------------------------	---

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet

pipe clay on left side
undercut, some limestone

Location: SFR060C1

Date: 6/15/2015

Sampler: L. Bedinger / E. Tavoroz

100 m: Latitude 29.86536
Longitude 82.73787

0 m: Latitude 29.86487
Longitude 082.73976

Substrates: Code key, draw proportionate habitat abundance. %

☐	Snags	7% <u>3.4</u>
☐	Roots/undercut banks	1% <u>0.5</u>
☐	Leaf Packs (or mats)	0
☐	Aquatic Macrophytes	6% <u>2.9</u>
☐	rocks	86%
☐		33%
☐	Pools	total # observed = <u>6</u> # range expected = <u>1</u>

Average width 40 m

Average depth 1.5 m

Velocity measured at 0 meter mark.

WQ & chemistry taken at 0 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks. but not human caused

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

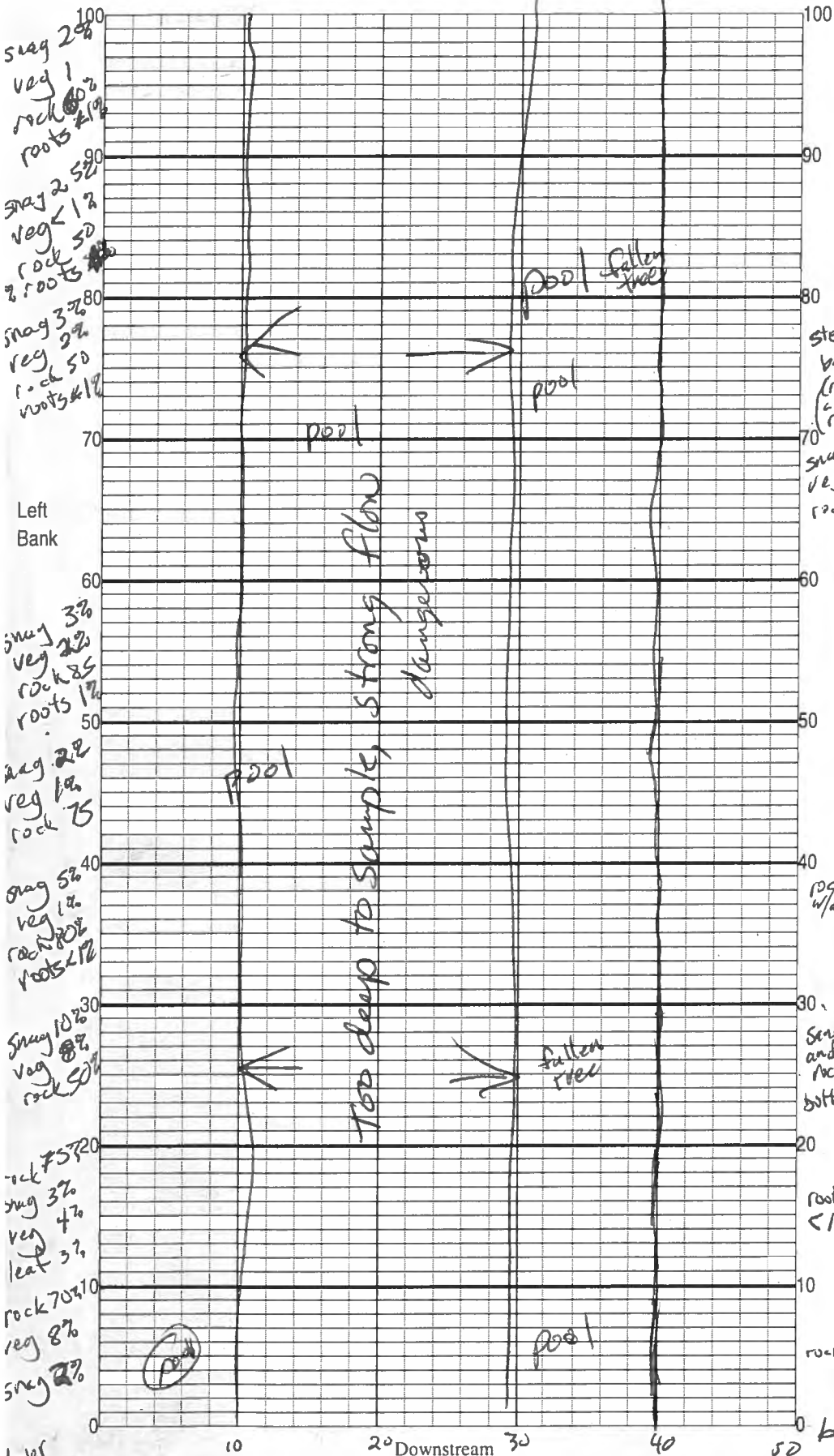
Hydrocotyle apple snails
Hydrophila
Filamentous algae
very short Val? - SD
Hydrilla
Eleocharis

boat ramp visible clams and mussel

more sand smothering on right side

rock on left undercut

Revision Date: March 1, 2014



Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

algae smothering in low flow

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: SFR 060CI County: Columbia Date: 6/15/2015 Investigators: E. Tavaraz, L. Bedinger

STORET Station Number:

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	3		0	60	1	3	✓	0
	2	3							
	3	3	✓						
	4	3	✓						
	5	3	✓						
	6	3	✓						
	7	3	✓						
	8	4							
	9	4							
10	1	3		0	70	1	3	✓	0
	2	3							
	3	3							
	4	3	✓						
	5	3	✓						
	6	3	✓						
	7	3	✓						
	8	4	✓						
	9	4	✓						
20	1	3	✓	0	80	1	3		0
	2	3	✓						
	3	3	✓						
	4	3	✓						
	5	3	✓						
	6	3	✓						
	7	4	✓						
	8	4							
	9	4							
30	1	3		0	90	1	3		0
	2	3							
	3	3	✓						
	4	3	✓						
	5	4	✓						
	6	4	✓						
	7	3	✓						
	8	3	✓						
	9	3							
40	1	3		0	100	1	3		4
	2	3							
	3	4	✓						
	4	4	✓						
	5	3	✓						
	6	4	✓						
	7	3	✓						
	8	3							
	9	4	✓						
50	1	3		0	50	1	3		0
	2	3							
	3	3							
	4	3	✓						
	5	3	✓						
	6	3	✓						
	7	4	✓						
	8	4							
	9	4							

Secchi depth 42.1
Estimated? # points 39

points ranked 4-6 19 LB
total points assessed 99
% points ranked 4-6 19

Check accompanying data collected at same site/date.
Algal mat sample ☐
Linear Veg Survey ☒
Habitat Assessment ☒
SCI/Biorecon ☒
Water sample ☒
RQ-

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

clear water
algae visible
on rocks
in deeper areas

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.
Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.
Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.
Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

Waterbody: Santa Fe River SFR060C1	Date: 6/15/2015	County: Columbia	Storet Number:
Analyst: F. Tavaraz / L. Bedinger	Signature: L. Bedinger		
Comments:			

[illegible]

~~S = sample collected~~ 48

DEP Form FD 9000-1: Biorecon Field Sheet

STORET Station		Location <u>SFR060C1</u>	
Latitude: N ° ' " Longitude: W ° ' "		Watershed / Basin	
Date/Time Collected <u>6/15/2015 11:30</u>		Collected, & Sorted By: <u>E. Tavaraz</u>	
Types of habitats sampled		QC'd By:	

** Rare (1-3), Common (4-10), Abundant (11-100), Dominant (>100).

Taxa	Tally	Abun Code	Taxa	Tally	Abun Code	Taxa	Tally	Abun Code
Diptera			Trombidiformes			Ephemeroptera		
Ceratopogonidae	I		Acarina	V		Acerpenna pygmaea		
Culicidae			Oligochaeta			Baetidae	III	
Empididae			Naidae			Baetis sp.		
Chironomidae	III		Lumbriculidae			Baetisca sp.		
Simulium sp.			Tubificidae			Brachycercus sp.		
Stratiomyidae			Hirudinea	II		Caenis sp.	XV	
Tipulidae			Pelecypoda			Callibaetis sp.		
			Corbicula fluminea			Centroptilum sp.		
			Elliptio sp.	II		Heptagenia sp.		
			Sphaeriidae (Pisidiidae)			Hexagenia sp.		
						Isonychia sp.		
Gastropoda	III		Megaloptera			Leptophlebia sp.		
Ancylidae	II		Corydalis cornutus	III		Neophemera sp.		
Pleurocera (Elimia) sp.			Sialis sp.			Stenacron sp.		
Physa sp.	II					Maccaffertium sp.	I	IIIIII
Pomacea sp.	I		Hemiptera			Tricorythodes sp.		
Planorbella sp.			Belostoma sp.					
Hydrobiidae			Corixidae					
Viviparus sp.			Gerridae			Plecoptera		
Melanoides tuberculata	IIIIII		Hydrometra sp.			Acronuria sp.		
			Pelocoris sp.			Amphinemura sp.		
			Pleidae			Hydroperla sp.		
Odonata			Ranatra sp.			Isoperla sp.		
Argia sp.	III		Velidae	I		Leuctra sp.		
Aeschnidae						Neoperla sp.		
Boyeria vinosa.			Other (name groups)			Paragnetina sp.		
Calopteryx sp.	III		<u>Planaricum</u>	III		Perlesta sp.		
Enallagma sp.	III		<u>Lepidoptera</u>	III		Perlina sp.		
Epitheca sp.						Pteronarcys sp.		
Erythemis simplicicollis						Taeniopteryx sp.		
Gomphus sp.						Talioptera sp.		
Hetaerina sp.								
Ischnura sp.	III							
Libellulidae	I					Trichoptera	IIII	
Macromia sp.						Anisocentropus sp.		
Neurocordulia sp.						Brachycentrus sp.		
Progomphus sp.						Ceratomyza sp.		
Pachydiplax longipennis						Cheumatopsyche sp.	XIII	
			Decapoda			Chimarra sp.		
			Palaemonetes sp.	III		Diplectrona sp.		
Coleoptera			Procambarus sp.			Hydroptila sp.		
Ancyronyx variagata						Hydropsyche sp.	I	
Curculionidae						Lype diversa		
Dineutus sp.			Amphipoda	XV		Macrostemum sp.		
Dubiraphia vittata			Gammarus sp.			Nectopsyche sp.		
Dytiscidae			Hyaella azteca			Oecetis sp.		
Gyretes sp.	IIII		Crangonyx sp.			Oxyethira sp.	II	
Microcyllopus pusillus						Polycentropus sp.		
Stenelmis sp.			Isopoda			Triaenodes sp.	III	
<u>Emidat</u>	V		Caecidotea (Asellus) sp.					
Column Total: Taxa			Column Total: Taxa			Column Total: Taxa		

NOTE: The Biorecon field data sheet is to be used as an aid during sampling and organism field sorting (per BRN 1100). The calculated metrics should be retrieved from the Florida Statewide Biological Database or the same counting and collapsing procedures used, as described in BRN 2100.



APPENDIX E

BENCH SHEETS

Project Information

Client Name	Alachua County EPD	Lab ID	30279	Station ID	SFR010C1
Project Name	Biorecon 2015	Project Number	14-5278-02	Replicate ID	Biorecon
Sample Group	Santa Fe River BioRecon			Collection Date	06/16/2015

Alachua Co
SR 225/227 near Graham

Sort Information

Sort QC: No

Date	Tech	Start	Finish	Total
06/17/2015	ET/LB			

Aliquot Information

Fraction:	# of Vials: 5 vials	# of Jars: /	# of Slides: /
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Identification Information

ID QC: No

Identified By	Complete Date	Sampling Method
L. Line	7/8/2015	Biorecon

Macroinvertebrate Identification

max #
to Retain

	Taxon	Count	Running Total	Tally / Comments
01	Hagenius brevistylus	2		
02	Boyeria vinosa	(3) 3		
03	Macromia illinoensis georgina	3		
04	Procambarus sp	1		
05	Corydalis cornutus	5		+
06	Ranatra australis	1		
07	Ranatra buenoi	2		
08	Dineutus serrulatus	1		
09	Neurocordulia sp.	2		
10	Gomphidius (LPIL)	2		immature Gomphus or Dromogomph
11	Argia tibialis	(2) 2		
12	Phyllocentropus placidus	(5) 5		Ref.
13	Nematomorpha (LPIL)	1		horsehair or gordian worm
14	Maccartterium smithae	15		V +
15	Caecidotea sp.	4		immature
16	Chironomus sp	(5) 5		
17	Caenis diminuta	2		
18	Enallagma weewa	3		
19	Dasyneura phalera Placobdella	5		new name
20	Micronematus dilatatus	3		
21	Physella cubensis	5		
22	Cheumatopsyche sp	(11) 11		V +
23	Stenelmis sp	7		V
24	Triadnodes perna/helo	5		
25	Triadnodes ignitus	(9) 9		+ immature Leptoceridae

QA Sort:	# Organisms:	Comments
Date:	# Organisms (QA):	
Reviewer:	% Sort Efficiency:	

Project Information

Client Name Alachua County EPD
 Project Name Biorecon 2015
 Sample Group Santa Fe River BioRecon

Lab ID 30279
 Project Number 14-5278-02

Station ID SFR010C1
 Replicate ID Biorecon
 Collection Date 06/16/2015

Macroinvertebrate Identification

	Taxon	Count	Running Total	Tally / Comments
26	<i>Lype diversa</i>	1	1	
27	<i>Dubiraphia vittata</i>	2	11	
28	<i>Helichus lithophilus</i>	1	1	
29	<i>Rhyogobelia choreutes</i>	1	1	
30	<i>Limnoporus canaliculatus</i>	1	1	Ref.
31	<i>Palmaricixa buenoi</i>	3	111	male & female kb
32	<i>Buenoa</i> sp.	1	1	Ref long, difficult + key to sp
33	<i>Pisidium</i> sp.	2	11	
34	<i>Crangonyx</i> sp.	1	1	
35	<i>Ancronyx variegata</i>	2	11	
36	<i>Decetis persimilis</i>	1	1	
37	<i>Ceratomyxa</i> sp.	3	111	
38	<i>Hydropsyche decalda</i>	4	1111	
39	<i>Acariformes (LPIL)</i>	1	1	
40	<i>Peltodytes</i> sp.	2	11	
41	<i>Nais iacchna pentacantha</i>	1	1	
42	<i>Ablabesmya mallochii</i>	1	1	
43	<i>Tribelos jucundum</i>	3	111	
44				
45				
46				
47				
48				
49				
50				

Project Information

Client Name Alachua County EPD Lab ID 30278 Station ID SFR030C1 Spr
 Project Name Biorecon 2015 Project Number 14-5278-02 Replicate ID Biorecon
 Sample Group Santa Fe River BioRecon Collection Date 06/16/2015

Alachua Co. near
 SR 121 Worthing

Sort Information

Sort QC: Yes

Date	Tech	Start	Finish	Total
06/16/2015	ET/LB			

Aliquot Information

Fraction: 100% # of Vials: 8 (Vouchers) # of Jars: 3 (2 are Vouchers) # of Slides: —

Identification Information

ID QC: No

Identified By	Complete Date	Sampling Method
L. Line	7/2/2015	Biorecon

Macroinvertebrate Identification

Max #
 to Retain

	Taxon	Count	Running Total	Tally / Comments
01	<i>Lampsilis floridensis</i>	1	1	male Ref. verified
02	~~<i>Elliptio ahenea</i>~~ w sp.	1	1	(immature) Ref.
03	<i>Elliptio jayensis</i> w up collapse	3	4	///
04	<i>Ranatra buenoi</i>	4	8	////
05	<i>Ranatra australis</i>	1	9	I
06	<i>Viviparus georgianus</i> w	5	14	HHH up collapse
07	<i>Ancronyx variegatus</i>	8	22	HHH III
08	<i>Nectopsyche exquisita</i>	2	24	II
09	<i>Chironomidae</i> (LPIL) <i>Atolabesmyia rhombea</i> sp.	1	25	I
10	<i>Macromia illinoensis georgina</i>	4	29	////
11	<i>Triaenodes ignitus</i>	4	33	////
12	<i>Stylurus</i> sp.	1	34	I Ref. immature
13	<i>Palaemonetes paludosus</i>	2	36	II
14	~~<i>Liopanax pilsbryi choctawatchensis</i>~~ w	1	37	I Ref. Viviporidae (LPIL)
15	<i>Gomphus</i> sp.	2	39	II immature
16	<i>Porifera</i> (LPIL)	1	40	III Colonies
17	<i>Triaenodes perna/helo</i>	1	41	I
18	<i>Dimentus</i> sp.	1	42	I larva
19	<i>Helichus lithophilus</i>	4	46	HHH I
20	<i>Dubirephia vittata</i>	5	51	HHH V I
21	<i>Argia tibialis</i>	2	53	II
22	~~<i>Enallagma</i>~~ sp up collapse	3	56	III damaged
23	<i>Cambaridae</i> (LPIL)	1	57	I immature
24	<i>Hyalella azteca complex</i> LeCroy	12	69	HHH IV II
25	<i>Hexagenia</i> sp	1	70	I

QA Sort:	# Organisms:	Comments
Date:	# Organisms (QA):	
Reviewer:	% Sort Efficiency:	

Project Information

Client Name Alachua County EPD
Project Name Biorecon 2015
Sample Group Santa Fe River BioRecon

Lab ID 30278
Project Number 14-5278-02

SR 121 near Worthington Springs
Station ID SFR030C1
Replicate ID Biorecon
Collection Date 06/16/2015

Macroinvertebrate Identification

	Taxon	Count	Running Total	Tally / Comments
26	<i>Physella cubensis</i>	4 ~~5~~ (5)		###
27	<i>Amnizola dalli</i>	4 ~~5~~ (5)		VII
28	<i>Pelocoris femoratus</i>	2		II
29	<i>Peltodytes oppositus</i>	4		IIII Ref.
30	<i>Micromenetus dilatatus</i>	1		I
31	<i>Micromenetus floridensis</i>	1		I
32	<i>Neoporus vittatipennis</i>	1		I
33	<i>Gyrinus elevatus</i>	2		II Ref.
34	<i>Hydrocanthus atripennis</i>	1		I
35	<i>Stenelmis convexula</i>	5 ~~8~~ (5)		VIII
36	<i>Caenis</i> sp.	1		I
37	<i>Enallagma weewa</i>	8 ~~8~~		VI + 3 Ref.
38	<i>Argia apicalis</i>	1		I Ref.
39	<i>Laevapex fuscus</i>	1		I
40	<i>Caecidotea</i> sp.	1		I
41	<i>Acanthodes</i>	2		II
42	<i>Lype diversa</i>	1		I
43	<i>Oecetis persimilis</i>	3		III
44	<i>Oecetis cinerascens</i>	2		II Ref.
45	<i>Stalis</i> sp.	1		I
46	<i>Oligochaeta</i> (bry.) <i>Ecdipidrilus</i> sp.	1		I
47	<i>Scirtes</i> sp.	1		I
48	<i>Gomphus</i> sp.			I
49				
50				

Over
leaf

Columbia Co.
AT US 441 Col

Project Information

Client Name	Alachua County EPD	Lab ID	30277	Station ID	SFR050C1
Project Name	Biorecon 2015	Project Number	14-5278-02	Replicate ID	Biorecon
Sample Group	Santa Fe River BioRecon			Collection Date	06/15/2015

Sort Information

Sort QC: No

Date	Tech	Start	Finish	Total
06/16/2015	LL/SC			

Aliquot Information

Fraction:	# of Vials:	# of Jars:	# of Slides:
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Identification Information

ID QC: No

Identified By	Complete Date	Sampling Method
L. Line	7/9/2015	Biorecon

Macroinvertebrate Identification

max # to Retain

	Taxon	Count	Running Total	Tally / Comments
01	Viviparus georgianus	3		✓ + III
02	Physella cubensis	2	5	II/I
03	Elimia atearni	4	9	VIII - to Ref. + III verified D. stream
04	Planorbella sp. scalaris	3	12	III I
05	Pomacea paludosa	1	13	I
06	Caecidotka sp. racovitzai australis	5	18	III III
07	Ceratopogonidae (LPIL)	1	19	I pupa
08	Palaeomonetes paludosus	3	22	III + III
09	Cambaridae (LPIL)	2	24	II
10	Porifera (LPIL)	1	25	I colony
11	Macromia illinoensis georgina	1	26	I ref.
12	Corydallus cornutus	4	30	IIII
13	Dineutus sp. serrulatus	4	34	III III III
14	Argia sedula	5	39	II.V + III
15	Gammarus sp.	10	49	III V + verified D. stream - check species ID when time
16	Hyaella arteca complex LeCroy	5	54	III
17	Peltodytes sp.	4	58	IIII
18	Enallagma signatum	5	63	II Ref. + III III
19	Ischnura posita	5	68	II Ref. + III imm/damage
20	~~Argia sedula~~	-		✓ + I
21	~~Planorbella scalaris~~	-		+
22	Rhagovalia choreutes	1	69	I
23	Dubiraphia vittata	1	70	I
24	Scirtes sp.	1	71	I
25	Corbicula fluminea	1	72	I

QA Sort:	# Organisms:	Comments
Date:	# Organisms (QA):	
Reviewer:	% Sort Efficiency:	

Project Information

Col. Co US

Client Name Alachua County EPD

Lab ID 30277

Station ID SFR050C10441

Project Name Biorecon 2015

Project Number 14-5278-02

Replicate ID Biorecon

Sample Group Santa Fe River BioRecon

Collection Date 06/15/2015

Macroinvertebrate Identification

	Taxon	Count	Running Total	Tally / Comments
26	Corduliidae (LPL)	1	73	1
27	Gyrinus sp.	1	74	1 cf. pachysomas
28	Hydrocanthus atripennis	2	76	11
29	Pelocoris sp.	2	78	11 immature
30	Ceratomyza sp.	7	85	V11
31	~~Desserobdella pholera~~ Placobdella	1	86	1 new name
32	Callibaetis floridanus	10	96	X
33	Tricorythodes albilineatus	2	98	11
34	Sternocranus inter punctatum	3	101	111
35	Platyvelia brachialis	1	102	1 Ref. P. brachialis
36	Labiobaetis sp.	1	103	1
37	Neotrichia sp.	2	105	11
38	~~Psephenotania reducta~~ Myzobdella	1	106	1 Ref. new name
39	Elmidae sp.	1	107	1 Ref. small like Vanhyningiana
40	Stenochironomus sp.	1	108	1
41	Tribelos fuscicornis	1	109	11
42	Ablabes myia rhamphe group Epler	1	110	1
43	Pseudochironomus sp.	1	111	1
44	Poly podium illinoense grp Epler	1	112	1
45	Cricotopus brevis	-		11
46	Myzobdella lugubris	1		1
47				
48				
49				
50				

Columbia Co.
SR 47 near Fr. Wh

Project Information

Client Name	Alachua County EPD	Lab ID	30276	Station ID	SFR060C1
Project Name	Biorecon 2015	Project Number	14-5278-02	Replicate ID	Biorecon
Sample Group	Santa Fe River BioRecon			Collection Date	06/15/2015

Sort Information

Sort QC: No

Date	Tech	Start	Finish	Total
06/15/2015	ET/LB			

Aliquot Information

Fraction:	# of Vials:	# of Jars:	# of Slides:
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Identification Information

ID QC: No

Identified By	Complete Date	Sampling Method
L. Line	7/14/2015	Biorecon

Macroinvertebrate Identification

	Taxon	Count	Running Total	Tally / Comments
01	<i>Elliptio jayensis</i>	2		
02	<i>Pomacea paludosa</i>	1		
03	<i>Corydalis cornutus</i>	3		
04	Cambaridae (LPIL)	3		
05	<i>Elimia atearni</i>	5		
06	~~Pomacea~~ <i>Palaeomonetes paludosus</i>	5		
07	<i>Dreissena serrulatus</i>	4		
08	<i>Tricorythodes albilineatus</i>	11		
09	<i>Gammarus</i> sp.	10		
10	<i>Hyalella arteca</i> complex LaCroy	5		
11	<i>Heteromys titra</i>	3		
12	<i>Argia sedula</i>	5		
13	<i>Myzobdella lugubris</i>	2		
14	<i>Neurocordulia</i> sp	1		
15	<i>Bezzia</i> / <i>Palpomyia</i> complex	1		
16	<i>Enallagma signatum</i>	4		
17	<i>Cheumatopsyche</i> sp.	10		
18	<i>Nectopsyche exquisita</i>	2		
19	<i>Triaxosoma parva</i> / <i>helo</i>	2		
20	<i>Stenelmis</i> sp. [✓] <i>convexula</i>	7		
21	<i>Physella cubensis</i>	3		
22	<i>Planorbella duryi</i>	1		
23	<i>Caecidotia</i> sp.	1		
24	<i>Rhyacotelia choreutes</i>	1		
25	<i>Desserobdella phalaris</i>	1		

QA Sort:	# Organisms:	Comments
Date:	# Organisms (QA):	
Reviewer:	% Sort Efficiency:	

Project Information

Client Name Alachua County EPD
Project Name Biorecon 2015
Sample Group Santa Fe River BioRecon

Lab ID 30276
Project Number 14-5278-02

Station ID SFR060C1
Replicate ID Biorecon
Collection Date 06/15/2015

near
SR 47 @ Ft. White

Macroinvertebrate Identification

	Taxon	Count	Running Total	Tally / Comments
26	<i>Micromenetus dilatatus</i>	1	1	/
27	<i>Stenochironomus</i> sp.	1	1	/
28	<i>Eclipidrilus</i> sp.	1	1A-1	
29	<i>Dreotendipes neomodestus</i>	1	1A-1	
30	<i>Pentaneura inconspicua</i>	1	1B-1	
31	<i>Polypedium flavum</i>	2	1B-11	
32	<i>Tanytarsus</i> sp. L Epler	1	1B-1	
33	<i>Tanytarsus</i> sp. S Epler	1	1B-1	
34	<i>Cricotopus breinatus</i>	1	1B-1	
35	<i>Helicopsyche borealis</i>	8	VIII	Ref. verified D. Strom
36	<i>Stenacron interpunctatum</i>	2	II	
37	<i>Maccaffertium exiguum</i>	8	III-11	
38	<i>Hydroptila</i> sp.	5	III-	
39	<i>Hydrodroma</i> sp.	2	II	
40	<i>Labriobaetis propinquus</i>	2	II	
41	<i>Ferrissia fragilis</i>	1	/	
42	<i>Gyrinus elevatus</i>	1	/	
43	<i>Microcylops pusillus</i>	1	/	
44	<i>Dubiraphia vittata</i>	1	/	
45	<i>Deceis avara</i>	1	/	Ref. ! verified D. Strom
46	<i>Hydropsyche rossi</i>	1	/	
47	<i>Paraponyx</i> sp.	1	/	branched gills
48	<i>Petrophila</i> sp.	1	/	unbranched gills ring
49	~~Crabidae (LPT)~~ <i>Elophila</i> ^{sp.} ~~microensis~~	1	/	no gills Ref. ver D. Strom
50	<i>Elimia</i> spp.	5	V	verified D. Strom

See



APPENDIX F

MACROINVERTEBRATE DATA REPORTS



Macroinvertebrate Results

Raw Data (Unpooled)

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015

Taxonomic Classification

Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Phylum Porifera				
Class Unspecified				
Order Unspecified				
Family Unspecified				
Porifera (LPIL)	-	1	1	-
Phylum Annelida				
Class Clitellata				
Order Lumbriculida				
Family Lumbriculidae				
<i>Eclipidrilus</i> sp.	1	-	1	-
Order Rhynchobdellida				
Family Glossiphoniidae				
<i>Desserobdella phalera</i>	1	-	-	-
<i>Placobdella phalera</i>	-	1	-	5
Family Piscicolidae				
<i>Myzobdella lugubris</i>	2	1	-	-
Order Unspecified				
Family Piscicolidae				
<i>Myzobdella reducta</i>	-	1	-	-
Phylum Arthropoda				
Class Malacostraca				
Order Amphipoda				
Family Crangonyctidae				
<i>Crangonyx</i> sp.	-	-	-	1
Family Gammaridae				
<i>Gammarus</i> sp.	10	10	-	-
Family Hyalellidae				
<i>Hyalella azteca</i> complex LeCroy	5	5	12	-
Order Decapoda				
Family Cambaridae				
Cambaridae (LPIL)	3	2	1	-
<i>Procambarus</i> sp.	-	-	-	1
Family Palaemonidae				
<i>Palaemonetes paludosus</i>	5	3	2	-
Order Isopoda				
Family Asellidae				
<i>Caecidotea racovitzai australis</i>	-	5	-	-
<i>Caecidotea</i> sp.	1	-	1	4
Class Arachnida				
Order Trombidiformes				
Family Hydrodromidae				
<i>Hydrodroma</i> sp.	2	-	-	-
Order Unspecified				
Family Unspecified				
Acariformes (LPIL)	-	-	2	1
Class Insecta				
Order Coleoptera				
Family Dryopidae				
<i>Helichus lithophilus</i>	-	-	6	1

Macroinvertebrate Results

Raw Data (Unpooled)

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015

Taxonomic Classification

	Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Family Dytiscidae					
<i>Neoporus vittatipennis</i>		-	-	1	-
Family Elmidae					
<i>Ancyronyx variegatus</i>		-	-	5	2
<i>Dubiraphia vittata</i>		1	1	5	2
<i>Microcyloopus pusillus</i>		1	-	-	-
<i>Stenelmis convexula</i>		7	-	5	-
<i>Stenelmis</i> sp.		-	-	-	7
Family Gyrinidae					
<i>Dineutus serrulatus</i>		4	4	-	1
<i>Dineutus</i> sp.		-	-	1	-
<i>Gyrinus elevatus</i>		1	-	2	-
<i>Gyrinus</i> sp.		-	1	-	-
Family Haliplidae					
<i>Peltodytes oppositus</i>		-	-	4	-
<i>Peltodytes</i> sp.		-	4	-	2
Family Noteridae					
<i>Hydrocanthus atripennis</i>		-	2	1	-
Family Scirtidae					
<i>Scirtes</i> sp.		-	1	1	-
Order Diptera					
Family Ceratopogonidae					
<i>Bezzia-Palpomyia</i> complex Brigham		1	-	-	-
Ceratopogonidae (LPIL)		-	1	-	-
Family Chironomidae					
<i>Ablabesmyia mallochi</i>		-	-	-	1
<i>Ablabesmyia rhamphe</i> group Epler		-	1	1	-
<i>Cricotopus bicinctus</i> group Epler		1	-	-	-
<i>Dicrotendipes neomodestus</i>		1	-	-	-
<i>Pentaneura inconspicua</i>		1	-	-	-
<i>Polypedilum flavum</i>		2	-	-	-
<i>Polypedilum illinoense</i> group Epler		-	1	-	-
<i>Pseudochironomus</i> sp.		-	1	-	-
<i>Stenochironomus</i> sp.		1	1	-	-
<i>Tanytarsus</i> sp. L Epler		1	-	-	-
<i>Tanytarsus</i> sp. S Epler		1	-	-	-
<i>Tribelos fuscicorne</i>		-	1	-	-
<i>Tribelos jucundum</i>		-	-	-	3
Order Ephemeroptera					
Family Baetidae					
<i>Callibaetis floridanus</i>		-	10	-	-
<i>Labiobaetis propinquus</i>		2	-	-	-
<i>Labiobaetis</i> sp.		-	1	-	-
Family Caenidae					
<i>Caenis diminuta</i>		-	-	-	2
<i>Caenis</i> sp.		-	-	1	-
Family Ephemeridae					
<i>Hexagenia</i> sp.		-	-	1	-

Macroinvertebrate Results

Raw Data (Unpooled)

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015

Taxonomic Classification

	Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Family Heptageniidae					
<i>Maccaffertium exiguum</i>		8	-	-	-
<i>Maccaffertium smithae</i>		-	-	-	15
<i>Stenacron interpunctatum</i>		2	3	-	-
Family Leptohyphidae					
<i>Tricorythodes albilineatus</i>		11	2	-	-
Order Hemiptera					
Family Corixidae					
<i>Palmarcorixa buenoi</i>		-	-	-	3
Family Gerridae					
<i>Limnoporus canaliculatus</i>		-	-	-	1
Family Naucoridae					
<i>Pelocoris femoratus</i>		-	-	2	-
<i>Pelocoris</i> sp.		-	2	-	-
Family Nepidae					
<i>Ranatra australis</i>		-	-	1	1
<i>Ranatra buenoi</i>		-	-	4	2
Family Notonectidae					
<i>Buenoa</i> sp.		-	-	-	1
Family Veliidae					
<i>Platyvelia brachialis</i>		-	1	-	-
<i>Rhagovelia choreutes</i>		1	1	-	1
Order Lepidoptera					
Family Crambidae					
<i>Parapoynx</i> sp.		1	-	-	-
<i>Petrophila</i> sp.		1	-	-	-
Order Megaloptera					
Family Corydalidae					
<i>Corydalus cornutus</i>		3	4	-	5
Family Sialidae					
<i>Sialis</i> sp.		-	-	1	-
Order Odonata					
Family Aeshnidae					
<i>Boyeria vinosa</i>		-	-	-	3
<i>Nasiaeschna pentacantha</i>		-	-	-	1
Family Calopterygidae					
<i>Hetaerina titia</i>		3	-	-	-
Family Coenagrionidae					
<i>Argia apicalis</i>		-	-	1	-
<i>Argia sedula</i>		5	5	-	-
<i>Argia tibialis</i>		-	-	2	2
<i>Enallagma signatum</i>		6	5	-	-
<i>Enallagma weewa</i>		-	-	8	3
<i>Ischnura posita</i>		-	5	-	-
Family Corduliidae					
Corduliidae (LPIL)		-	1	-	-
<i>Neurocordulia</i> sp.		1	-	-	2
Family Gomphidae					
Gomphidae (LPIL)		-	-	-	2

Macroinvertebrate Results

Raw Data (Unpooled)

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015

Taxonomic Classification		Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
	<i>Gomphus</i> sp.		-	-	2	-
	<i>Hagenius brevistylus</i>		-	-	-	2
	<i>Stylurus</i> sp.		-	-	1	-
Family	Macromiidae					
	<i>Macromia illinoiensis georgina</i>		-	1	4	3
Order	Trichoptera					
Family	Dipseudopsidae					
	<i>Phylocentropus placidus</i>		-	-	-	5
Family	Helicopsychidae					
	<i>Helicopsyche borealis</i>		8	-	-	-
Family	Hydropsychidae					
	<i>Cheumatopsyche</i> sp.		10	-	-	11
	<i>Hydropsyche decalda</i>		-	-	-	4
	<i>Hydropsyche rossi</i>		1	-	-	-
Family	Hydroptilidae					
	<i>Hydroptila</i> sp.		5	-	-	-
	<i>Neotrichia</i> sp.		-	2	-	-
Family	Leptoceridae					
	<i>Nectopsyche exquisita</i>		2	-	2	-
	<i>Oecetis avara</i>		1	-	-	-
	<i>Oecetis cinerascens</i>		-	-	2	-
	<i>Oecetis persimilis</i>		-	-	3	1
	<i>Triaenodes ignitus</i>		-	-	4	9
	<i>Triaenodes perna/helo</i> group Pescador		2	-	1	5
Family	Philopotamidae					
	<i>Chimarra</i> sp.		-	-	-	5
Family	Polycentropodidae					
	<i>Cernotina</i> sp.		-	7	-	3
Family	Psychomyiidae					
	<i>Lype diversa</i>		-	-	1	1
Phylum	Mollusca					
Class	Gastropoda					
Order	Architaenioglossa					
Family	Ampullariidae					
	<i>Pomacea paludosa</i>		1	1	-	-
Family	Viviparidae					
	<i>Viviparus georgianus</i>		-	3	5	-
Order	Basommatophora					
Family	Physidae					
	<i>Physella cubensis</i>		3	2	3	5
Family	Planorbidae					
	<i>Ferrissia fragilis</i>		1	-	-	-
	<i>Laevapex fuscus</i>		-	-	1	-
	<i>Micromenetus dilatatus</i>		1	-	1	3
	<i>Micromenetus floridensis</i>		-	-	1	-
	<i>Planorbella duryi</i>		1	-	-	-
	<i>Planorbella scalaris</i>		-	3	-	-
Order	Neotaenioglossa					
Family	Amnicolidae					



Macroinvertebrate Results Raw Data (Unpooled)

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015

Taxonomic Classification	Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
<i>Amnicola dalli</i>		-	-	4	-
Family Pleuroceridae					
<i>Elimia</i> sp.		5	1	-	-
Class Bivalvia					
Order Unionoida					
Family Unionidae					
<i>Elliptio jayensis</i>		2	-	3	-
<i>Lampsilis floridensis</i>		-	-	1	-
Order Veneroida					
Family Corbiculidae					
<i>Corbicula fluminea</i>		-	1	-	-
Family Sphaeriidae					
<i>Pisidium</i> sp.		-	-	-	2
Phylum Unspecified					
Class Gastropoda					
Order Neotaenioglossa					
Family Pleuroceridae					
<i>Elimia thearni</i>		5	4	-	-
Phylum Nematomorpha					
Class Unspecified					
Order Unspecified					
Family Unspecified					
Nematomorpha (LPIL)		-	-	-	1
Total Organisms†		145	113	112	135
Total Taxa		49	43	44	43

† Total densities reported on this table may differ slightly from the sum of individual taxa densities due to rounding.

Suwannee River Water Management District

Biorecon Macroinvertebrate Statistics April - June 2015

Station	Method	Replicate ID	Date	Number of Species	Number of Individuals per Replicate	Shannon-Wiener Diversity Index	Simpson's Diversity Index	Modified Hill's Evenness	EPT Score
						(Base 2)			
SFR060C1	Biorecon	Biorecon	06/15/2015	49	145	5.1087	0.0309	0.7635	11
SFR050C1	Biorecon	Biorecon	06/15/2015	43	113	4.9869	0.0321	0.7685	6
SFR030C1	Biorecon	Biorecon	06/16/2015	44	112	5.0285	0.0315	0.7551	8
SFR010C1	Biorecon	Biorecon	06/16/2015	43	135	4.9747	0.0354	0.7396	11

Suwannee River Water Management District

Biorecon Macroinvertebrate Statistics April - June 2015

Station	Method	Replicate ID	Date	Major Taxon	% Composition
SFR060C1	Biorecon		06/15/2015	Amphipoda	10.34
				Annelida	2.76
				Arthropoda	1.38
				Bivalvia	1.38
				Ceratopogonidae	0.69
				Chironomidae	5.52
				Coleoptera	9.66
				Decapoda	5.52
				Ephemeroptera	15.86
				Gastropoda	11.72
				Hemiptera	0.69
				Isopoda	0.69
				Lepidoptera	1.38
				Megaloptera	2.07
				Odonata	10.34
				Trichoptera	20
SFR050C1	Biorecon		06/15/2015	Amphipoda	13.27
				Annelida	2.65
				Bivalvia	0.88
				Ceratopogonidae	0.88
				Chironomidae	4.42
				Coleoptera	11.5
				Decapoda	4.42
				Ephemeroptera	14.16
				Gastropoda	12.39
				Hemiptera	3.54
				Isopoda	4.42
				Megaloptera	3.54
				Odonata	15.04
				Porifera	0.88
				Trichoptera	7.96
SFR030C1	Biorecon		06/16/2015	Amphipoda	10.71
				Annelida	0.89
				Arthropoda	1.79
				Bivalvia	3.57
				Chironomidae	0.89
				Coleoptera	27.68
				Decapoda	2.68
				Ephemeroptera	1.79
				Gastropoda	13.39
				Hemiptera	6.25
				Isopoda	0.89
				Megaloptera	0.89
				Odonata	16.07
				Porifera	0.89
				Trichoptera	11.61
SFR010C1	Biorecon		06/16/2015	Amphipoda	0.74
				Annelida	3.7
				Arthropoda	0.74
				Bivalvia	1.48
				Chironomidae	2.96
				Coleoptera	11.11
				Decapoda	0.74
				Ephemeroptera	12.59
				Gastropoda	5.93
				Hemiptera	6.67
				Isopoda	2.96
				Megaloptera	3.7
				Nematomorpha	0.74
				Odonata	13.33
				Trichoptera	32.59

Suwannee River Water Management District

Biorecon Macroinvertebrate Statistics April - June 2015

Station	Method	Replicate		Date	Major Taxon	Genus	Species	Number of	
		ID						Individuals	Guild
SFR060C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Dubiraphia	vittata	1	dasr
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Oecetis	avara	1	pcsh
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Hydropsyche	rossi	1	sf
SFR060C1	Biorecon	Biorecon		06/15/2015	Lepidoptera	Parapoynx	sp.	1	sh
SFR060C1	Biorecon	Biorecon		06/15/2015	Lepidoptera	Petrophila	sp.	1	sh
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Elimia	sp.	5	sr
SFR060C1	Biorecon	Biorecon		06/15/2015	Bivalvia	Elliptio	jayensis	2	sf
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Pomacea	paludosa	1	sr
SFR060C1	Biorecon	Biorecon		06/15/2015	Megaloptera	Corydalus	cornutus	3	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Decapoda	Cambaridae	(LPIL)	3	pcsv
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Elimia	athearni	5	
SFR060C1	Biorecon	Biorecon		06/15/2015	Decapoda	Palaemonetes	paludosus	5	bgs
SFR060C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Dineutus	serrulatus	4	pcsv
SFR060C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Tricorythodes	albilineatus	11	da
SFR060C1	Biorecon	Biorecon		06/15/2015	Amphipoda	Gammarus	sp.	10	bgs
SFR060C1	Biorecon	Biorecon		06/15/2015	Amphipoda	Hyaella	azteca complex LeCroy	5	dash
SFR060C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Hetaerina	titia	3	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Argia	sedula	5	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Annelida	Myzobdella	lugubris	2	papc
SFR060C1	Biorecon	Biorecon		06/15/2015	Anisoptera	Neurocordulia	sp.	1	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Ceratopogonidae	Bezzia-Palpomysia	complex Brigham	1	dapc
SFR060C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Enallagma	signatum	6	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Cheumatopsyche	sp.	10	sf
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Nectopsyche	exquisita	2	dash
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Triaenodes	perna/helo group Pescador	2	sh
SFR060C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Stenelmis	convexula	7	dasr
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Physella	cubensis	3	sr
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Planorbella	duryi	1	
SFR060C1	Biorecon	Biorecon		06/15/2015	Isopoda	Caecidotea	sp.	1	sv
SFR060C1	Biorecon	Biorecon		06/15/2015	Hemiptera	Rhagovelia	choreutes	1	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Annelida	Desserobdella	phalera	1	pa
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Micromenetus	dilatatus	1	sr
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Stenochironomus	sp.	1	dash
SFR060C1	Biorecon	Biorecon		06/15/2015	Annelida	Eclipidrilus	sp.	1	ds
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Dicrotendipes	neomodestus	1	sfda
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Pentaneura	inconspicua	1	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Polypedilum	flavum	2	dash
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Tanytarsus	sp. L Epler	1	sfda
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Tanytarsus	sp. S Epler	1	sfda
SFR060C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Cricotopus	bicinctus group Epler	1	dash
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Helicopsyche	borealis	8	
SFR060C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Stenacron	interpunctatum	2	dasr
SFR060C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Maccaffertium	exiguum	8	dasr
SFR060C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Hydroptila	sp.	5	pl
SFR060C1	Biorecon	Biorecon		06/15/2015	Arthropoda	Hydrodroma	sp.	2	pc
SFR060C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Labiobaetis	propinquus	2	dasr
SFR060C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Ferrissia	fragilis	1	sr
SFR060C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Gyrinus	elevatus	1	pcsv
SFR060C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Microcylloepus	pusillus	1	dasr
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Viviparus	georgianus	3	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Physella	cubensis	2	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Elimia	athearni	4	
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Planorbella	scalaris	3	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Pomacea	paludosa	1	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Isopoda	Caecidotea	racovitza australis	5	sv
SFR050C1	Biorecon	Biorecon		06/15/2015	Ceratopogonidae	Ceratopogonidae	(LPIL)	1	dapc
SFR050C1	Biorecon	Biorecon		06/15/2015	Decapoda	Palaemonetes	paludosus	3	bgs
SFR050C1	Biorecon	Biorecon		06/15/2015	Decapoda	Cambaridae	(LPIL)	2	pcsv
SFR050C1	Biorecon	Biorecon		06/15/2015	Porifera	Porifera	(LPIL)	1	sf
SFR050C1	Biorecon	Biorecon		06/15/2015	Anisoptera	Macromia	illinoensis georgina	1	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Megaloptera	Corydalus	cornutus	4	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Dineutus	serrulatus	4	pcsv

Suwannee River Water Management District

Biorecon Macroinvertebrate Statistics April - June 2015

Station	Method	Replicate		Date	Major Taxon	Genus	Species	Number of	
		ID						Individuals	Guild
SFR050C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Argia	sedula	5	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Amphipoda	Gammarus	sp.	10	bgs
SFR050C1	Biorecon	Biorecon		06/15/2015	Amphipoda	Hyalella	azteca complex LeCroy	5	dash
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Peltodytes	sp.	4	plsh
SFR050C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Enallagma	signatum	5	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Zygoptera	Ischnura	posita	5	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Hemiptera	Rhagovalia	choreutes	1	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Dubiraphia	vittata	1	dasr
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Scirtes	sp.	1	sh
SFR050C1	Biorecon	Biorecon		06/15/2015	Bivalvia	Corbicula	fluminea	1	sf
SFR050C1	Biorecon	Biorecon		06/15/2015	Anisoptera	Corduliidae	(LPIL)	1	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Gyrinus	sp.	1	pcsv
SFR050C1	Biorecon	Biorecon		06/15/2015	Coleoptera	Hydrocanthus	atripennis	2	dapc
SFR050C1	Biorecon	Biorecon		06/15/2015	Hemiptera	Pelocoris	sp.	2	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Cernotina	sp.	7	pc
SFR050C1	Biorecon	Biorecon		06/15/2015	Annelida	Placobdella	phalera	1	pa
SFR050C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Callibaetis	floridanus	10	da
SFR050C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Tricorythodes	albilineatus	2	da
SFR050C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Stenacron	interpunctatum	3	dasr
SFR050C1	Biorecon	Biorecon		06/15/2015	Hemiptera	Platyvelia	brachialis	1	
SFR050C1	Biorecon	Biorecon		06/15/2015	Ephemeroptera	Labiobaetis	sp.	1	dasr
SFR050C1	Biorecon	Biorecon		06/15/2015	Trichoptera	Neotrichia	sp.	2	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Annelida	Myzobdella	reducta	1	
SFR050C1	Biorecon	Biorecon		06/15/2015	Gastropoda	Elimia	sp.	1	sr
SFR050C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Stenochironomus	sp.	1	dash
SFR050C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Tribelos	fuscicorne	1	da
SFR050C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Ablabesmyia	rhamphe group Epler	1	dapc
SFR050C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Pseudochironomus	sp.	1	da
SFR050C1	Biorecon	Biorecon		06/15/2015	Chironomidae	Polypedilum	illinoense group Epler	1	dash
SFR050C1	Biorecon	Biorecon		06/15/2015	Annelida	Myzobdella	lugubris	1	papc
SFR030C1	Biorecon	Biorecon		06/16/2015	Bivalvia	Lampsilis	floridensis	1	sf
SFR030C1	Biorecon	Biorecon		06/16/2015	Bivalvia	Elliptio	jayensis	3	sf
SFR030C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Ranatra	buenoi	4	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Ranatra	australis	1	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Viviparus	georgianus	5	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Ancyronyx	variegatus	5	dasr
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Nectopsyche	exquisita	2	dash
SFR030C1	Biorecon	Biorecon		06/16/2015	Chironomidae	Ablabesmyia	rhamphe group Epler	1	dapc
SFR030C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Macromia	illinoensis georgina	4	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Triaenodes	ignitus	4	sh
SFR030C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Stylurus	sp.	1	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Decapoda	Palaemonetes	paludosus	2	bgs
SFR030C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Gomphus	sp.	2	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Porifera	Porifera	(LPIL)	1	sf
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Triaenodes	perna/helo group Pescador	1	sh
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Dineutus	sp.	1	pcsv
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Helichus	lithophilus	6	
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Dubiraphia	vittata	5	dasr
SFR030C1	Biorecon	Biorecon		06/16/2015	Zygoptera	Argia	tibialis	2	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Decapoda	Cambaridae	(LPIL)	1	pcsv
SFR030C1	Biorecon	Biorecon		06/16/2015	Amphipoda	Hyalella	azteca complex LeCroy	12	dash
SFR030C1	Biorecon	Biorecon		06/16/2015	Ephemeroptera	Hexagenia	sp.	1	da
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Physella	cubensis	3	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Amnicola	dalli	4	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Pelocoris	femoratus	2	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Peltodytes	oppositus	4	plsh
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Micromenetus	dilatatus	1	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Micromenetus	floridensis	1	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Neoporus	vittatipennis	1	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Gyrinus	elevatus	2	pcsv
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Hydrocanthus	atripennis	1	dapc
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Stenelmis	convexula	5	dasr

Suwannee River Water Management District

Biorecon Macroinvertebrate Statistics April - June 2015

Station	Method	Replicate		Date	Major Taxon	Genus	Species	Number of	
		ID						Individuals	Guild
SFR030C1	Biorecon	Biorecon		06/16/2015	Ephemeroptera	Caenis	sp.	1	dasr
SFR030C1	Biorecon	Biorecon		06/16/2015	Zygoptera	Enallagma	weewa	8	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Zygoptera	Argia	apicalis	1	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Laevapex	fuscus	1	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Isopoda	Caecidotea	sp.	1	sv
SFR030C1	Biorecon	Biorecon		06/16/2015	Arthropoda	Acariformes	(LPIL)	2	
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Lype	diversa	1	sr
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Oecetis	persimilis	3	pcsh
SFR030C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Oecetis	cinerascens	2	pcsh
SFR030C1	Biorecon	Biorecon		06/16/2015	Megaloptera	Sialis	sp.	1	pc
SFR030C1	Biorecon	Biorecon		06/16/2015	Annelida	Eclipidrilus	sp.	1	ds
SFR030C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Scirtes	sp.	1	sh
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Palmaecorixa	buenoi	3	plpc
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Buenoa	sp.	1	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Bivalvia	Pisidium	sp.	2	sf
SFR010C1	Biorecon	Biorecon		06/16/2015	Amphipoda	Crangonyx	sp.	1	dapc
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Ancrionyx	variegatus	2	dasr
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Oecetis	persimilis	1	pcsh
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Cernotina	sp.	3	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Hydropsyche	decalda	4	sf
SFR010C1	Biorecon	Biorecon		06/16/2015	Arthropoda	Acariformes	(LPIL)	1	
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Peltodytes	sp.	2	plsh
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Nasiaeschna	pentacantha	1	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Chironomidae	Ablabesmyia	mallochi	1	dapc
SFR010C1	Biorecon	Biorecon		06/16/2015	Chironomidae	Tribelos	jucundum	3	da
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Hagenius	brevistylus	2	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Boyeria	vinosa	3	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Macromia	illinoiensis georgina	3	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Decapoda	Procambarus	sp.	1	pcsv
SFR010C1	Biorecon	Biorecon		06/16/2015	Megaloptera	Corydalis	cornutus	5	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Ranatra	australis	1	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Ranatra	buenoi	2	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Dineutus	serrulatus	1	pcsv
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Neurocordulia	sp.	2	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Anisoptera	Gomphidae	(LPIL)	2	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Zygoptera	Argia	tibialis	2	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Phylocentropus	placidus	5	sf
SFR010C1	Biorecon	Biorecon		06/16/2015	Nematomorpha	Nematomorpha	(LPIL)	1	pa
SFR010C1	Biorecon	Biorecon		06/16/2015	Ephemeroptera	Maccaffertium	smithae	15	dasr
SFR010C1	Biorecon	Biorecon		06/16/2015	Isopoda	Caecidotea	sp.	4	sv
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Chimarra	sp.	5	sf
SFR010C1	Biorecon	Biorecon		06/16/2015	Ephemeroptera	Caenis	diminuta	2	dasr
SFR010C1	Biorecon	Biorecon		06/16/2015	Zygoptera	Enallagma	weewa	3	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Annelida	Placobdella	phalera	5	pa
SFR010C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Micromenetus	dilatatus	3	sr
SFR010C1	Biorecon	Biorecon		06/16/2015	Gastropoda	Physella	cubensis	5	sr
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Cheumatopsyche	sp.	11	sf
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Stenelmis	sp.	7	dasr
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Triaenodes	perna/helo group Pescador	5	sh
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Triaenodes	ignitus	9	sh
SFR010C1	Biorecon	Biorecon		06/16/2015	Trichoptera	Lype	diversa	1	sr
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Dubiraphia	vittata	2	dasr
SFR010C1	Biorecon	Biorecon		06/16/2015	Coleoptera	Helichus	lithophilus	1	
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Rhagovelia	choreutes	1	pc
SFR010C1	Biorecon	Biorecon		06/16/2015	Hemiptera	Limnporus	canaliculatus	1	pc



Macroinvertebrate Results

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015
Region: Big Bend

Taxonomic Classification	Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Total Taxa Raw Metric		49	43	44	43
Total Taxa Score		1*	1*	1*	1*
Ephemeroptera Taxa Raw Metric		4	4	2	2
Ephemeroptera Taxa Score		1*	1*	1*	1*
Trichoptera Taxa Raw Metric		7	2	6	9
Trichoptera Taxa Score		1*	1*	1*	1*
Long-Lived Taxa Raw Metric		5	6	7	6
Long-Lived Taxa Score		1*	1*	1*	1*
Clinger Taxa Raw Metric		7	3	3	8
Clinger Taxa Score		1*	1*	1*	1*
Sensitive Taxa Raw Metric		6	4	6	11
Sensitive Taxa Score		0.60	0.40	0.60	1*
Total Biorecon Score Raw Metric		5.60	5.40	5.60	6.00
Total Biorecon Score		9	9	9	10
SCI Score Interpretation		Category 1 (Exceptional)	Category 1 (Exceptional)	Category 1 (Exceptional)	Category 1 (Exceptional)



Macroinvertebrate Results

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon (Alternate)
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 08/05/2015
Region: Big Bend

Taxonomic Classification	Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Total Taxa Raw Metric		43	39	44	42
Total Taxa Score		1*	1*	1*	1*
Ephemeroptera Taxa Raw Metric		4	4	2	2
Ephemeroptera Taxa Score		1*	1*	1*	1*
Trichoptera Taxa Raw Metric		7	2	6	9
Trichoptera Taxa Score		1*	1*	1*	1*
Long-Lived Taxa Raw Metric		5	6	7	6
Long-Lived Taxa Score		1*	1*	1*	1*
Clinger Taxa Raw Metric		7	3	3	8
Clinger Taxa Score		1*	1*	1*	1*
Sensitive Taxa Raw Metric		6	4	6	10
Sensitive Taxa Score		0.60	0.40	0.60	1.00
Total Biorecon Score Raw Metric		5.60	5.40	5.60	6.00
Total Biorecon Score		9	9	9	10
SCI Score Interpretation		Category 1 (Exceptional)	Category 1 (Exceptional)	Category 1 (Exceptional)	Category 1 (Exceptional)



Macroinvertebrate Results

Clinger Taxa

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015
Region: Peninsula

Taxonomic Classification

Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Phylum Arthropoda				
Class Insecta				
Order Coleoptera				
Family Dryopidae				
<i>Helichus lithophilus</i>	-	-	6	1
Family Elmidae				
<i>Microcylloepus pusillus</i>	1	-	-	-
<i>Stenelmis convexula</i>	7	-	5	-
<i>Stenelmis</i> sp.	-	-	-	7
Order Ephemeroptera				
Family Heptageniidae				
<i>Maccaffertium exiguum</i>	8	-	-	-
<i>Maccaffertium smithae</i>	-	-	-	15
<i>Stenacron interpunctatum</i>	2	3	-	-
Order Trichoptera				
Family Hydropsychidae				
<i>Cheumatopsyche</i> sp.	10	-	-	11
<i>Hydropsyche decalda</i>	-	-	-	4
<i>Hydropsyche rossi</i>	1	-	-	-
Family Hydroptilidae				
<i>Hydroptila</i> sp.	5	-	-	-
<i>Neotrichia</i> sp.	-	2	-	-
Family Philopotamidae				
<i>Chimarra</i> sp.	-	-	-	5
Family Polycentropodidae				
<i>Cernotina</i> sp.	-	7	-	3
Family Psychomyiidae				
<i>Lype diversa</i>	-	-	1	1
Total Organisms	34	12	12	47
Total Taxa	7	3	3	8



Macroinvertebrate Results

Long Lived Taxa

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015
Region: Peninsula

Taxonomic Classification

Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Phylum Arthropoda				
Class Malacostraca				
Order Decapoda				
Family Cambaridae				
<i>Procambarus</i> sp.	-	-	-	1
Cambaridae (LPIL)	3	2	1	-
Family Palaemonidae				
<i>Palaemonetes paludosus</i>	5	3	2	-
Class Insecta				
Order Megaloptera				
Family Corydalidae				
<i>Corydalis cornutus</i>	3	4	-	5
Order Odonata				
Family Aeshnidae				
<i>Boyeria vinosa</i>	-	-	-	3
Family Gomphidae				
<i>Gomphus</i> sp.	-	-	2	-
<i>Hagenius brevistylus</i>	-	-	-	2
Family Macromiidae				
<i>Macromia illinoiensis georgina</i>	-	1	4	3
Order Trichoptera				
Family Psychomyiidae				
<i>Lype diversa</i>	-	-	1	1
Phylum Mollusca				
Class Gastropoda				
Order Architaenioglossa				
Family Ampullariidae				
<i>Pomacea paludosa</i>	1	1	-	-
Class Bivalvia				
Order Unionoida				
Family Unionidae				
<i>Elliptio jayensis</i>	2	-	3	-
<i>Lampsilis floridensis</i>	-	-	1	-
Order Veneroida				
Family Corbiculidae				
<i>Corbicula fluminea</i>	-	1	-	-
Total Organisms	14	12	14	15
Total Taxa	5	6	7	6



Macroinvertebrate Results Sensitive Taxa

Project: Biorecon 2015
Sample Group: Santa Fe River BioRecon
Prepared For: Alachua County EPD
Sample Method: Biorecon

Report Date: 07/24/2015
Region: Peninsula

Taxonomic Classification

Station Rep Collection Date	SFR060C1 Biorecon 06/15/15	SFR050C1 Biorecon 06/15/15	SFR030C1 Biorecon 06/16/15	SFR010C1 Biorecon 06/16/15
Phylum Arthropoda				
Class Malacostraca				
Order Amphipoda				
Family Crangonyctidae				
<i>Crangonyx sp.</i>	-	-	-	1
Order Isopoda				
Family Asellidae				
<i>Caecidotea racovitzai australis</i>	-	5	-	-
<i>Caecidotea sp.</i>	1	-	1	4
Class Insecta				
Order Coleoptera				
Family Elmidae				
<i>Ancyronyx variegatus</i>	-	-	5	2
Order Diptera				
Family Chironomidae				
<i>Tribelos jucundum</i>	-	-	-	3
Order Ephemeroptera				
Family Heptageniidae				
<i>Maccaffertium exiguum</i>	8	-	-	-
<i>Maccaffertium smithae</i>	-	-	-	15
<i>Stenacron interpunctatum</i>	2	3	-	-
Family Leptohyphidae				
<i>Tricorythodes albilineatus</i>	11	2	-	-
Order Odonata				
Family Macromiidae				
<i>Macromia illinoiensis georgina</i>	-	1	4	3
Order Trichoptera				
Family Hydropsychidae				
<i>Hydropsyche decalda</i>	-	-	-	4
<i>Hydropsyche rossi</i>	1	-	-	-
Family Leptoceridae				
<i>Triaenodes ignitus</i>	-	-	4	9
<i>Triaenodes perna/helo group</i> Pescador	2	-	1	5
Family Philopotamidae				
<i>Chimarra sp.</i>	-	-	-	5
Family Psychomyiidae				
<i>Lype diversa</i>	-	-	1	1
Total Organisms	25	11	16	52
Total Taxa	6	4	6	11



APPENDIX G

PERIPHYTON PHOTOGRAPHS AND ANALYSES COMMENTS

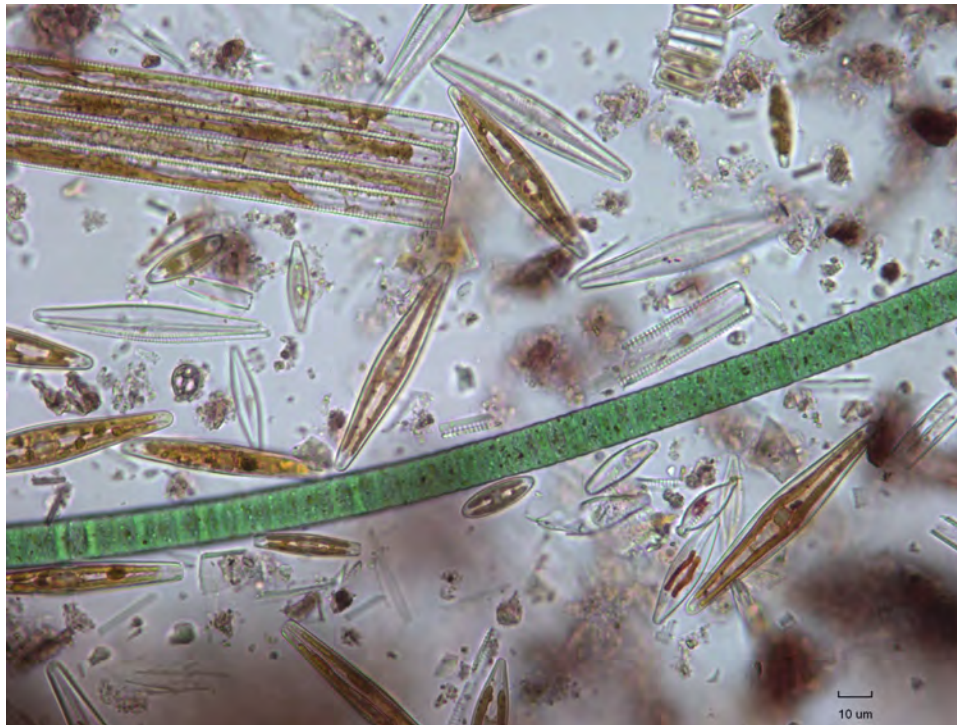
Algae Taxonomic Analysis for Rapid Periphyton Survey on Santa Fe River Station SFR050C1

The dominant visible filamentous algal taxon present in sample SFR050C1 collected 6/15/15 was a species of *Spirogyra* (Chlorophyta). There were also numerous diatoms present and some *Phormidium* (cyanobacteria).

Mike Hein

7/1/15

SFR050C1 Periphyton Analysis



Phoromidium sp. and diatoms from SFR050C1 (400x)



Spirogyra sp. at SFR050C1 (100x)



Environmental Engineers,
Biologists, & Planners

water & air RESEARCH, INC.

August 17, 2015

Ms. Robin Hallbourg
ACEPD
408 W. University Ave., Suite 106
Gainesville, FL 32601

Dear Ms. Hallbourg:

Ten periphyton samples from the Santa Fe River near Poe Springs were collected and delivered to Water & Air Research on 7/31/15 by Greg Owen. As requested, the samples were analyzed for the more abundant filamentous algae present. I also included larger chain forming diatoms in my analysis since they were abundant in some of the samples.

Included with this report is an Excel table of results and photos of the algae taxa observed in the samples. Also attached are PDF files of two publications I found on the internet with photos and information on the chantransia stage of *Batrachospermum macrosporum*, the dominant red algal taxon in some of the samples.

Confirmation of the chantransia stage of *Batrachospermum macrospora* was made by Dr. Morgan Vis-Chiasson of Ohio University. Andrew Chapman of GreenWater Lab also looked at it but suggested I contact Morgan since he was also unsure of its identification.

If you have any questions, please give me a call.

Sincerely,

Michael K. Hein
Consultant

Santa Fe River Periphyton Analyses Comments

A. GENERAL AND SPECIFIC COMMENTS

1. Ten periphyton samples collected from natural substrata were collected and delivered on 7/31/2015 by Greg Owen (ACEPD).
2. Portions of the samples were first examined with a Nikon dissecting microscope and then at higher magnification with a Leica inverted microscope. The more abundant filamentous algal taxa present were ranked from 1 to 3 based on filament size and abundance. Larger chain forming diatoms also were included in the analysis because of their abundance in some of the samples. The results were tabulated in the attached Excel table (ACEPD Springs Algae.xls).
3. The most abundant filamentous taxon present in the “red” and “red/blue” samples was the chroococcoid stage (tetrasporophyte) of the red algae (Rhodophyta) *Batrachospermum macrospora*. Attached are several papers with more information on the taxon. (Note: the “A”, “B”, “C”, etc. in the photo file names for this taxon do not designate different taxa and are used only to distinguish the file names.)
4. No taxa were observed in the samples that are considered potentially capable of producing toxins based on Table 1 in Landsberg (2002).
5. The chain forming diatoms present in the samples are generally common in freshwater habitats. *Cymbella mexicana* is a widely distributed taxon most often reported from hard waters. Species of *Eunotia* are generally characteristic of acidic water. *Melosira undulata* is reported to be a soil diatom, but is also found in oligotrophic rivers, lakes, and in freshwater springs with a pH of about 7.5 and specific conductance about 600 $\mu\text{S}/\text{cm}$. *Melosira varians* is a widely distributed taxon found in the benthos and plankton. *Synedra ulna* is widely distributed in freshwater habitats. *Terpsinoe musica* is widely distributed in freshwater to marine habitats. It has been suggested that *T. musica* is most frequent in hard waters with warm temperatures and found on submerged tree branches, roots, aquatic bryophytes, rocks, and on the surface of filamentous algae such as *Cladophora*.

References

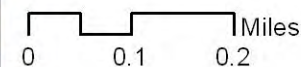
Landsberg, J. H. 2002. The effects of harmful algal blooms on aquatic organisms. Reviews in Fisheries Science 10(2):113-390.



Hydrogeologic Investigation of the Santa Fe River in the Poe Springs Vicinity

Legend

-  Springs
-  Roads
-  County Boundaries



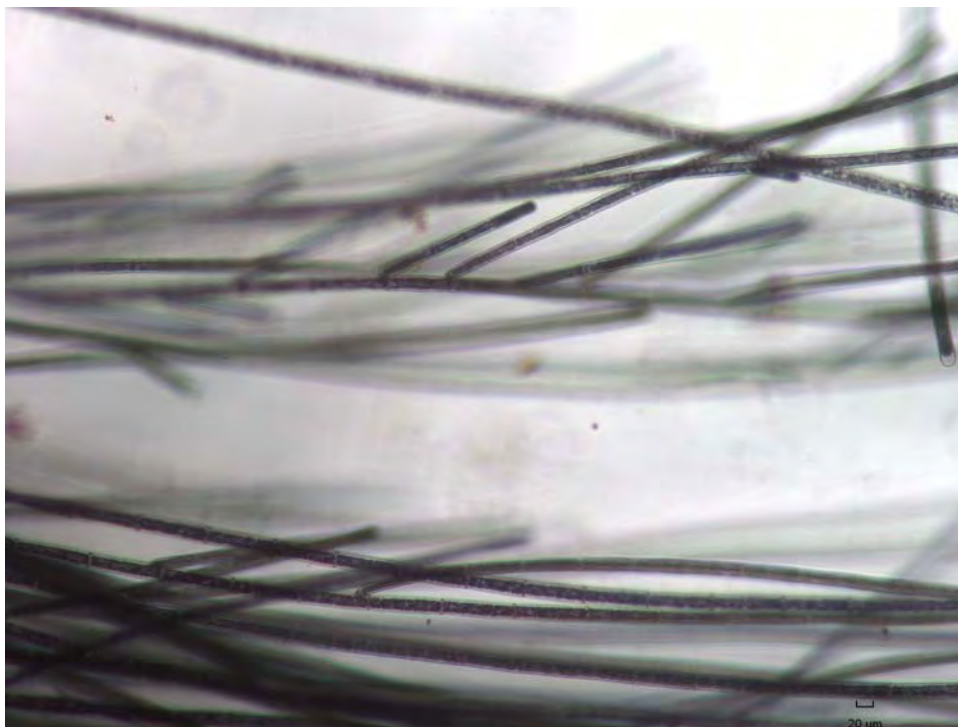
DISCLAIMER: This map and the spatial data it contains are made available as a public service, to be used for reference purposes only. The Alachua County Environmental Protection Department provides this information AS IS without warranty of any kind, implied or expressed, regarding accuracy, completeness, or fitness of use. The quality of the data is dependent on the various sources from which each data layer is obtained.



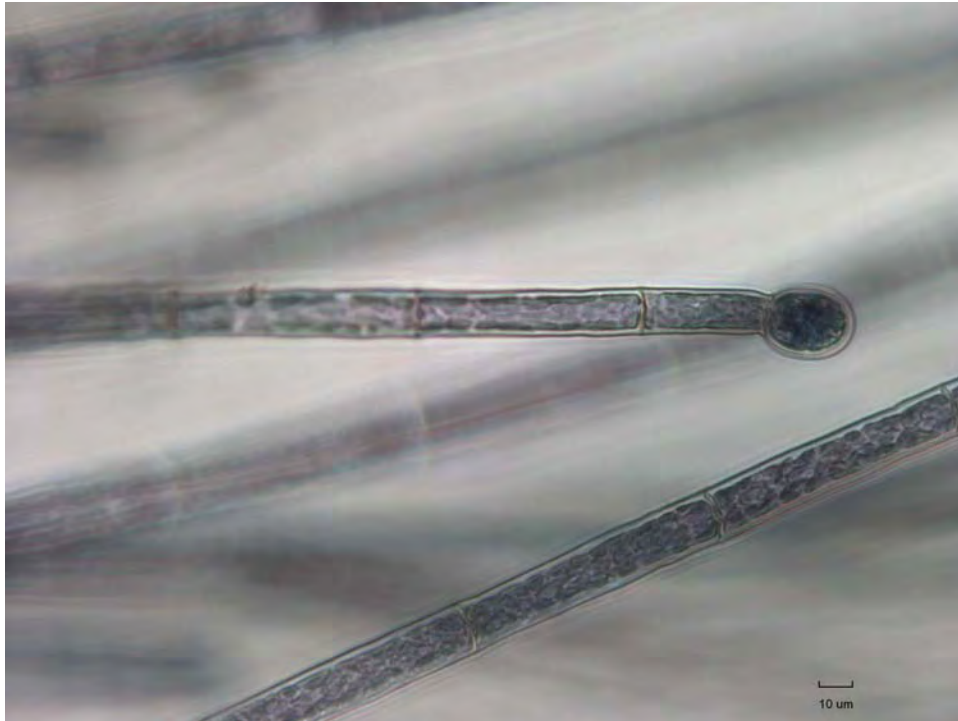
Algae Photographs from Santa Fe River near Poe Springs



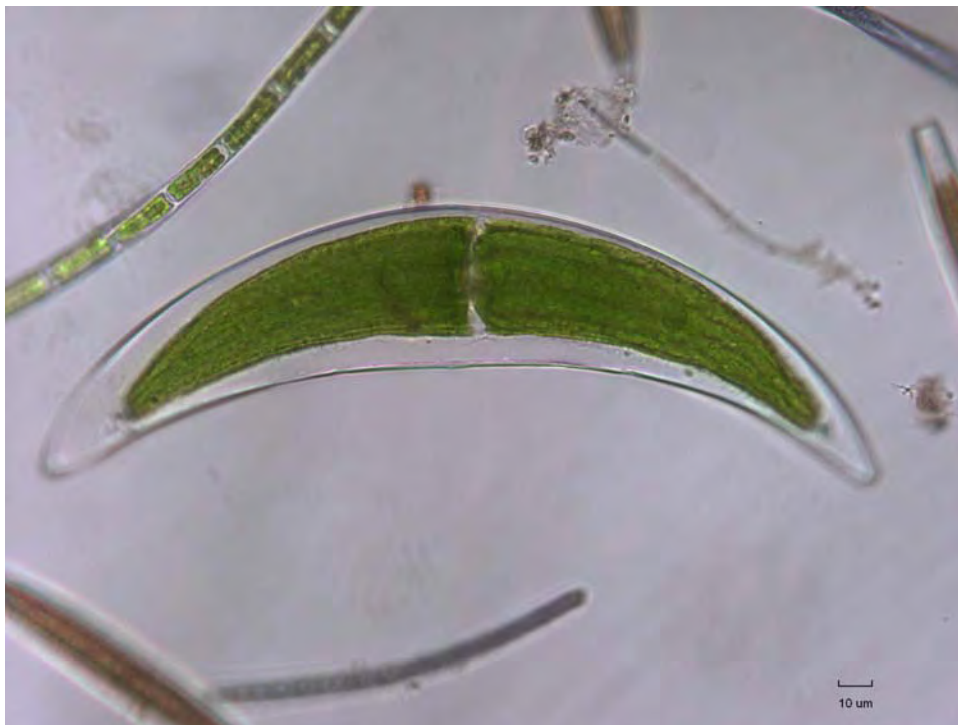
Batrachospermum macrospora



Batrachospermum macrospora 100X



Batrachospermum macrospora - monospore 400X



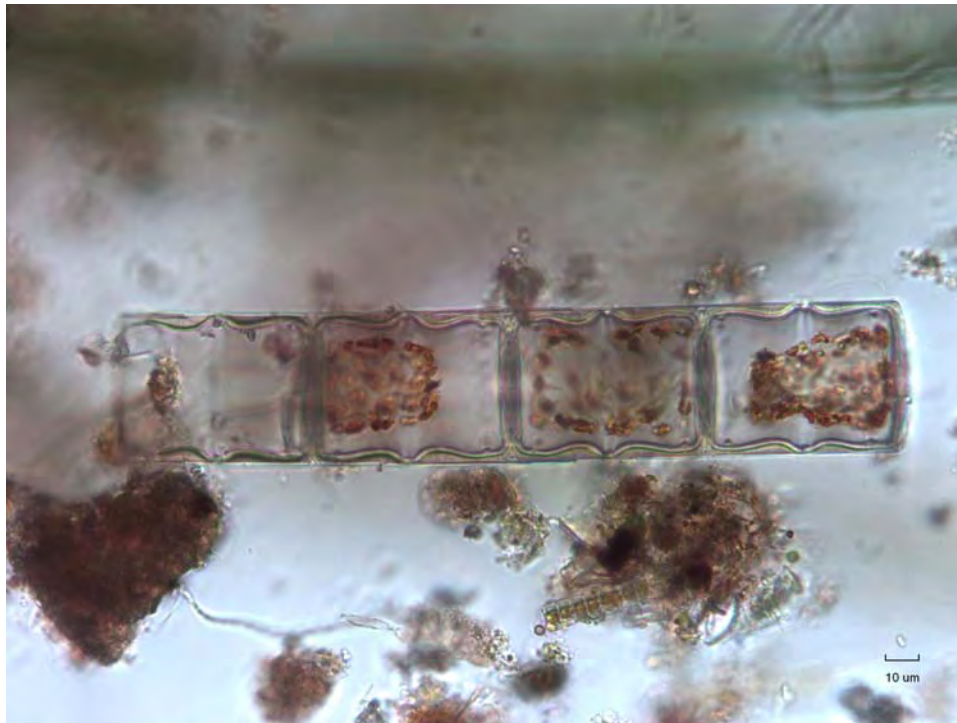
Closterium moniliferum 400X



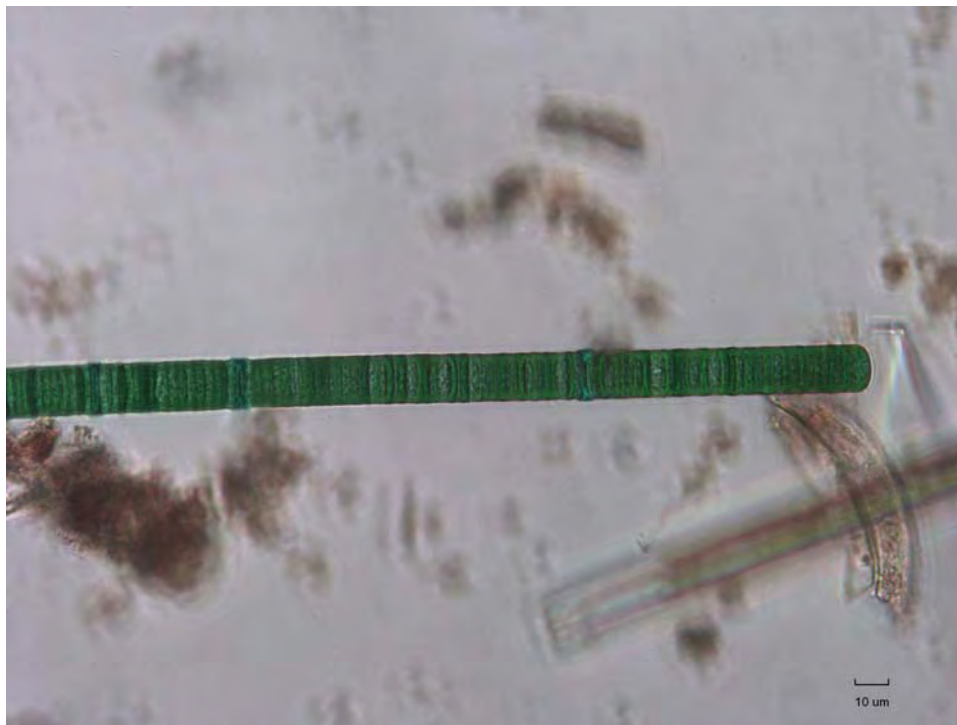
Eunotia sp. 100X



Station Fenceline - diatoms



Melosira undulata 400X



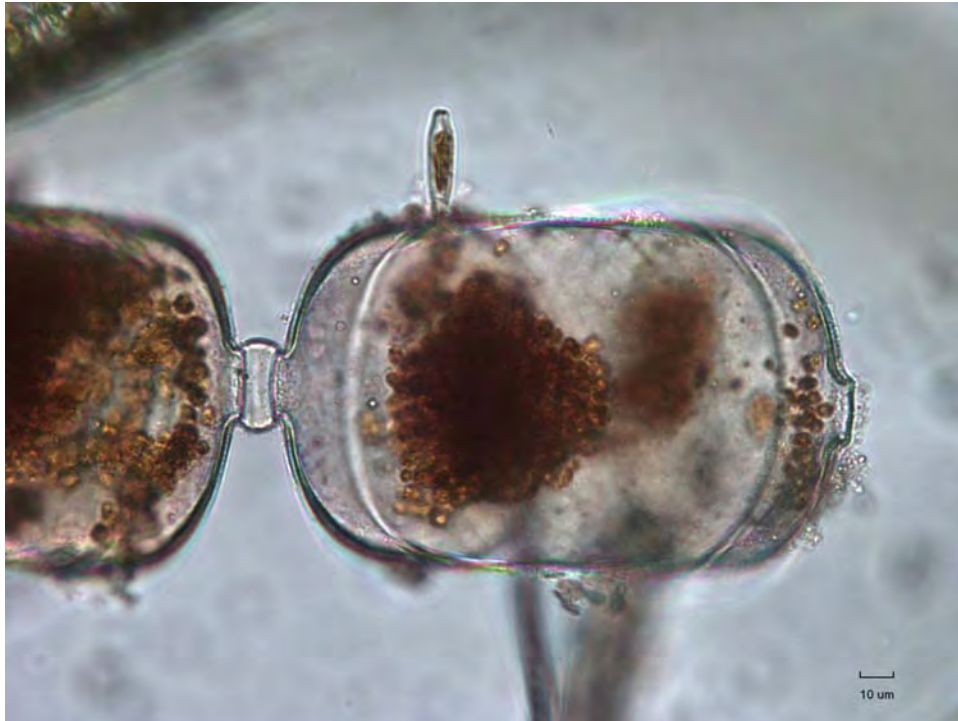
Oscillatoria limosa 400X



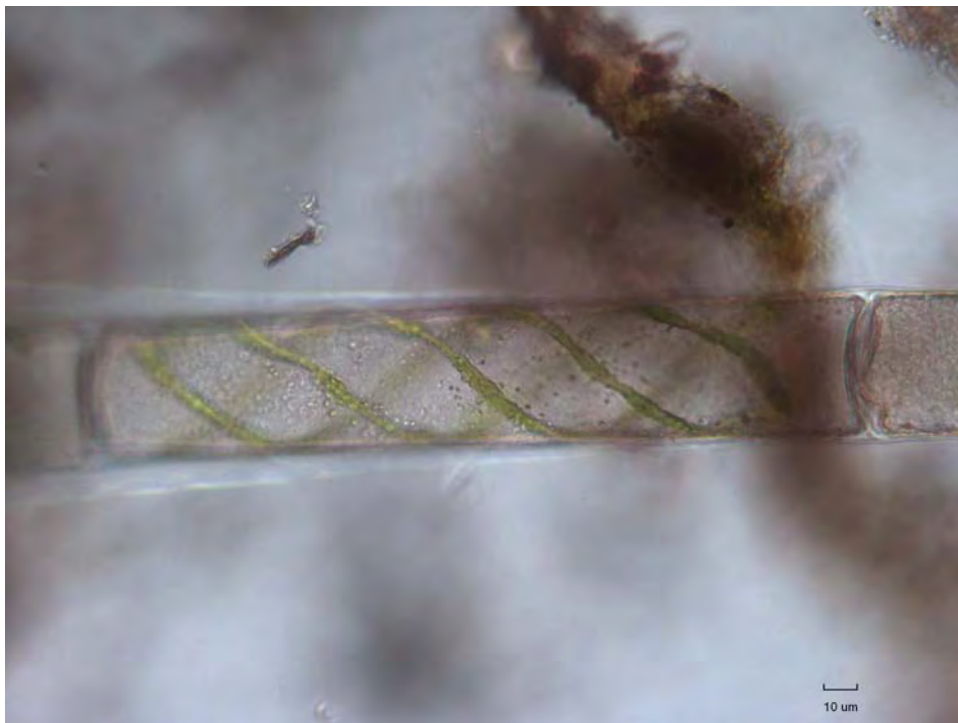
Phormidium sp. 3 1000X



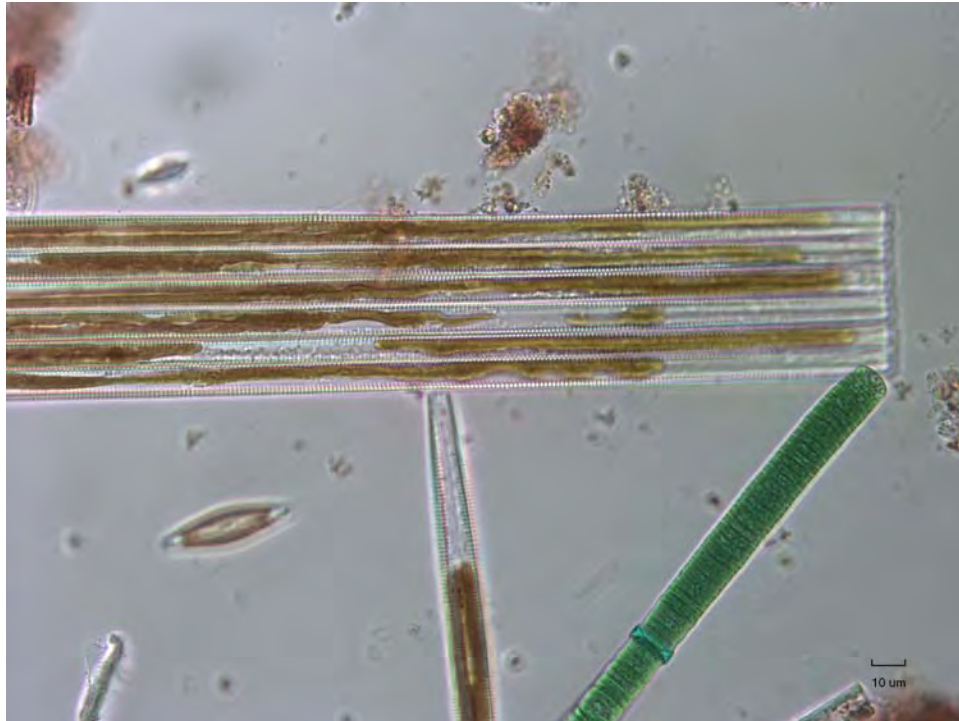
Phormidium sp. 4 400X



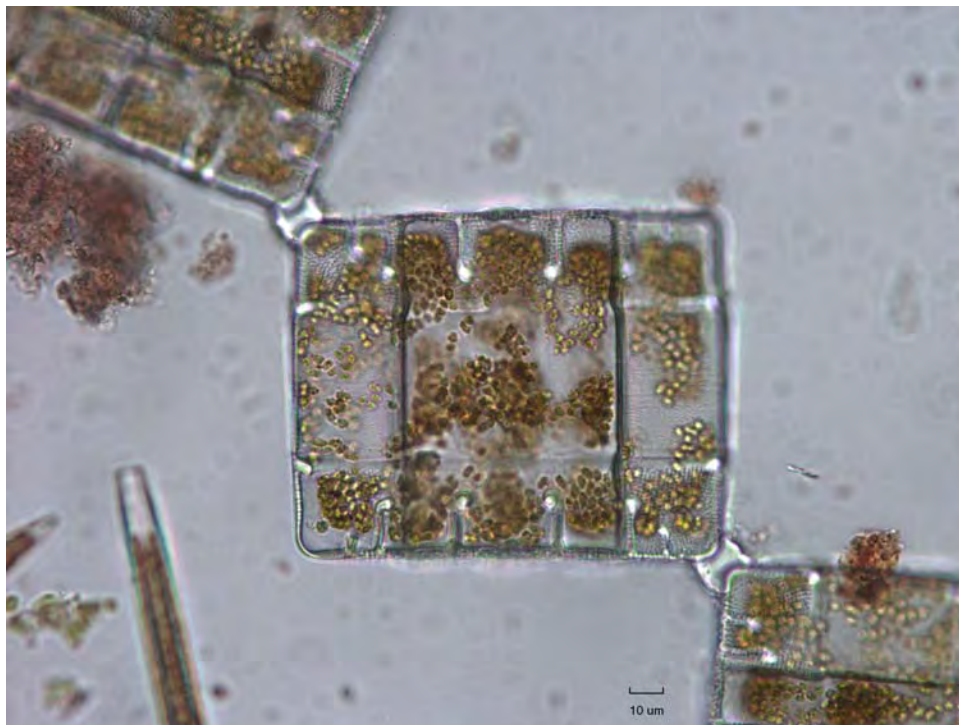
Pleurosira laevis 400X



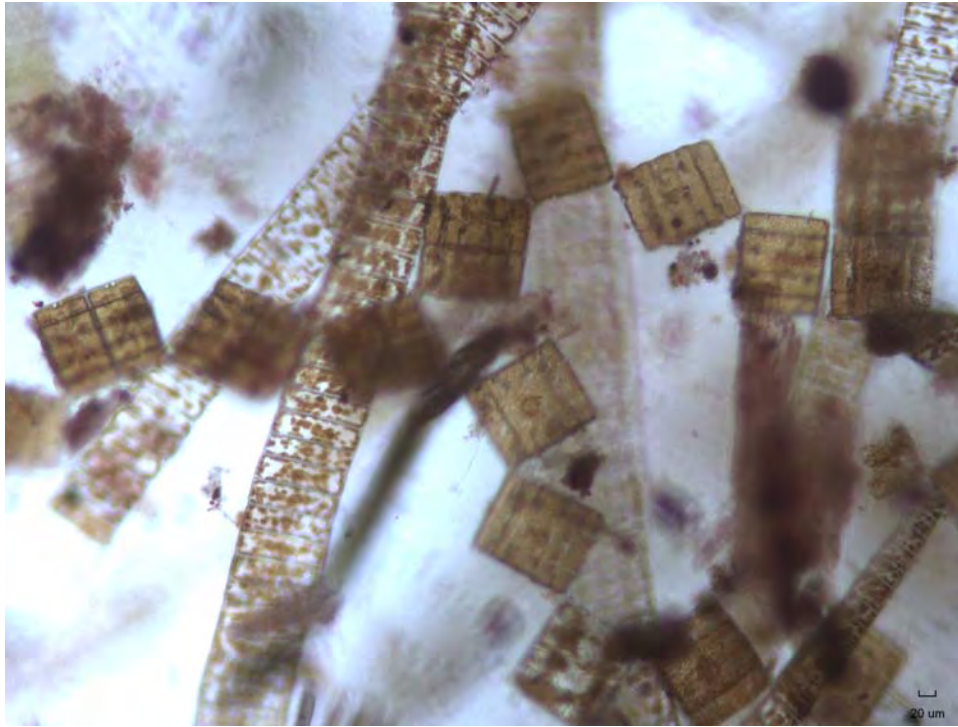
Spirogyra sp. 400X



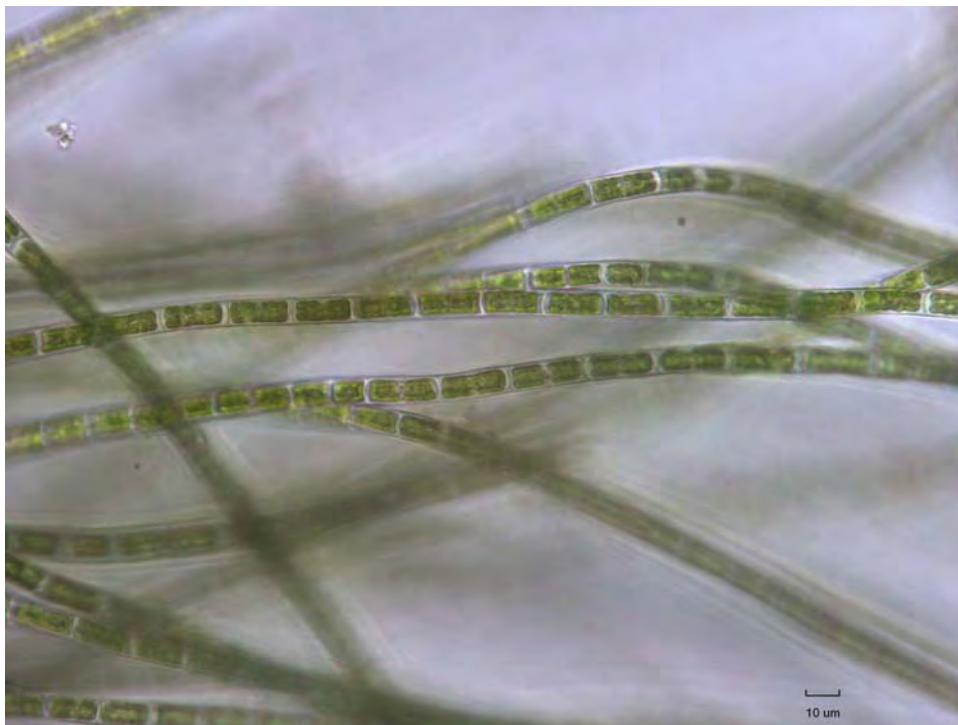
Synedra ulna 400X



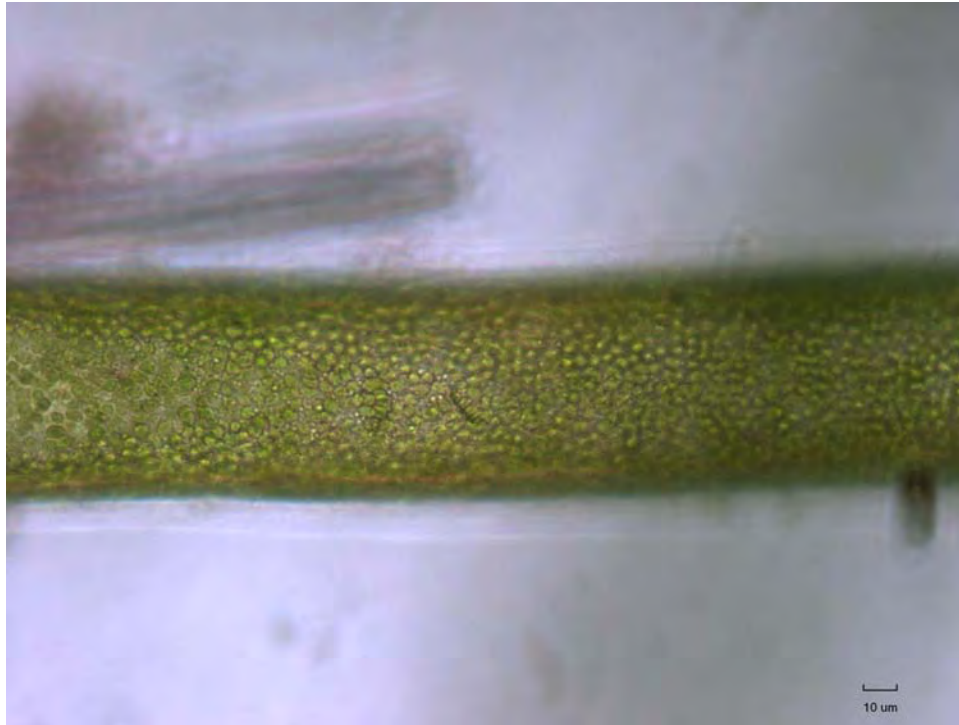
Terpsinoe musica 400X



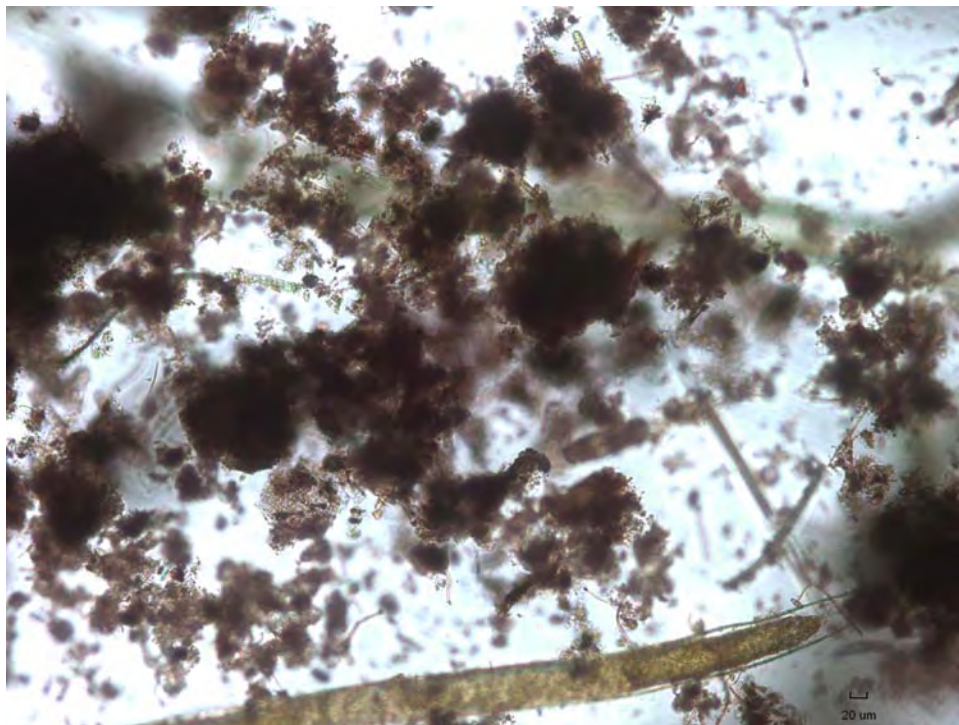
Twin Cypress - diatoms 100X



Ulothrix sp. 400X



Vaucheria sp. 400X



Watermelon 3 Silt-Detritus 100X



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Scientists, & Planners***