

DEP Form FD 9006-5 Stream/River Habitat Assessment Field Sheet

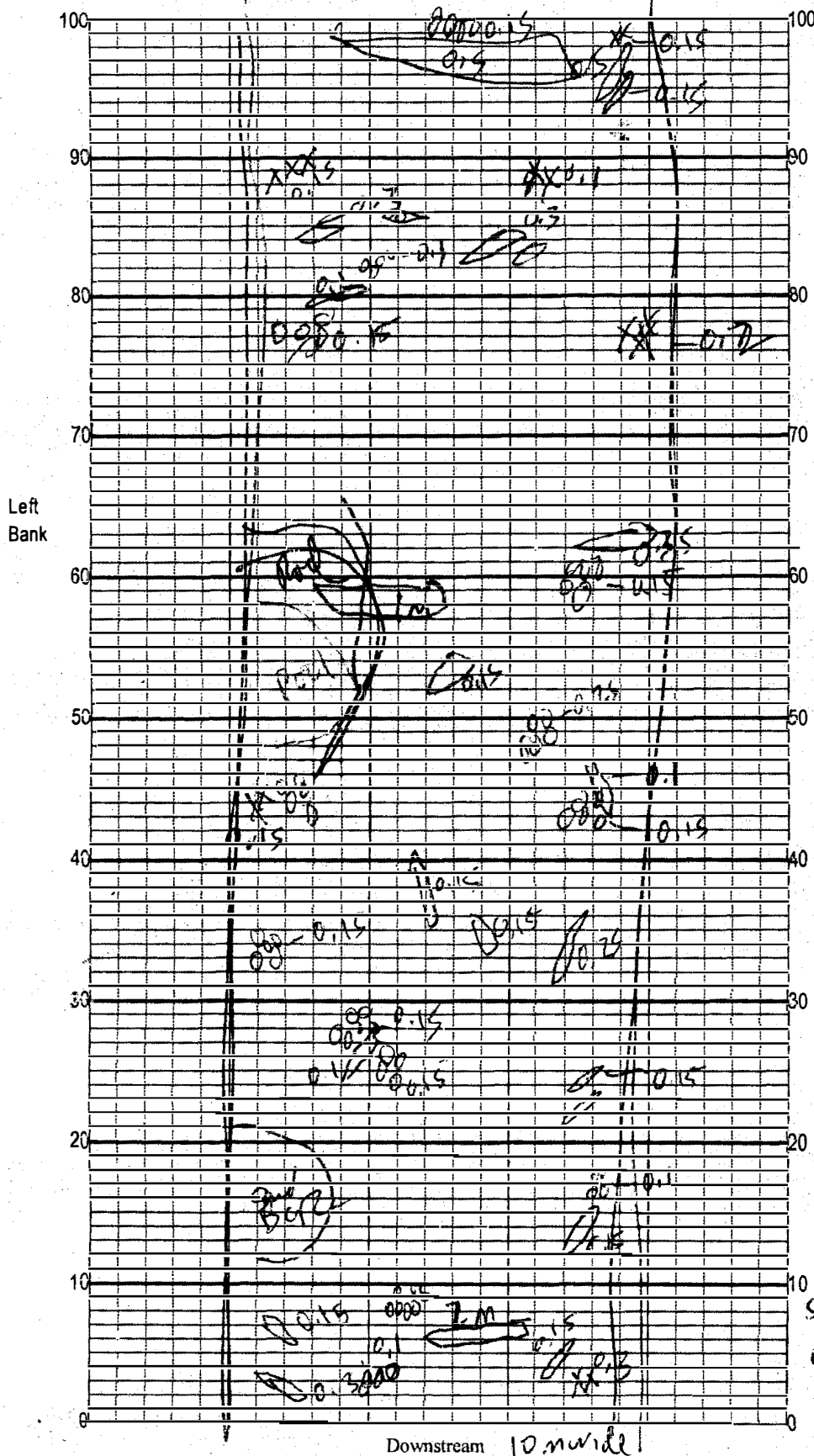
SAMPLING AGENCY: NE ROC		STORET STATION NUMBER: 20020404	DATE (MM/DD/YY): 3/15/21	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Polk	LOCATION: Orange Creek S. of Hwy 21	FIELD ID/NAME:	

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>10</u>	20 19 18 17 16	15 14 13 12 11	<u>10</u> 9 8 7 6	5 4 3 2 1
Substrate Availability <u>3</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 <u>3</u> 2 1
Water Velocity <u>20</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16 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>16</u> Primary Score <u>49</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 <u>16</u>	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>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability	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.	Only meets 2 of the 3 requirements for optimal bank stability.	Only meets 1 of the 3 requirements for optimal bank stability.	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas.
Right Bank <u>9</u> Left Bank <u>9</u>	10 <u>9</u>	8 7 6	5 4	3 2 1
Riparian Buffer Zone Width	Width of vegetation greater than 18 m	Width of vegetation > 12 to 18 m	Width of vegetation 6 to 12 m. human activities close to system	Less than 6 m of buffer zone due to intensive human activities
Right Bank <u>10</u> Left Bank <u>16</u>	<u>10</u> 9	8 7 6	5 4	3 2 1
Riparian Zone Vegetation Quality	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.	> 50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed.	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious.	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions).
Right Bank <u>10</u> Left Bank <u>10</u> Secondary Score <u>78</u>	<u>10</u> 9	8 7 6	5 4	3 2 1

127 TOTAL SCORE

Date: <u>3/15/21</u>	Analyst: <u>Jerome Carr</u>	Signature: <u>Jerome Carr</u>
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



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

20020404
Location: Orange Creek sam site
Date: 3/15/2021
Sampler: JPBD

100 m: Latitude _____
Longitude _____
0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance.

☒ Snags 1.5%
☒ Roots/undercut banks < 1%
☒ Leaf Packs (or mats) < 1%
☐ Aquatic Macrophytes _____
☐ _____
☐ _____
☐ Pools total # observed = _____
range expected = _____

Average width 9 m
Average depth 0.3 m

Velocity measured at 0 meter mark.

WQ & chemistry taken at N/A 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:

< 2 M of Macrophytes was observed while doing the LVS? YES or NO
root = 0.3, 0.2, 0.2 + 1.5 + 1.5 = 1.5m
snags = 2.6 + 0.4 + 0.75 + 1.2 + 0.3 + 0.4 + 0.5
lent = 0.25 + 0.25 + 0.4 + 0.15 + 0.3
0.33 m/sec
0.3 depth

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

SAMPLE ID sbio # 81929 ORG ID 21FLA LATITUDE _____
 COUNTY Putnam STORET # 20020404 LONGITUDE _____
 DATE 3/15/21 TIME 1100 SAMPLING AGENCY DEARIVEROC
 SITE NAME Orange Creek 50m above Hwy 21
 FIELD ID/NAME _____ RECEIVING BODY OF WATER _____

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 9-10 m wide _____ m/s <u>0.31</u> m/s _____ m/s _____ m deep <u>0.32</u> m deep _____ m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>218</u> Right Bank: <u>218</u>			Hydrologic Modification Score (per FT 3101) ☐				
High Water Mark: <u>1.2</u> + <u>1.3</u> = <u>1.5</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 ☐
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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>0.15</u> <u>19.6</u> <u>6.57</u> <u>7.70</u> <u>84.0</u> <u>95.5</u> <u>0.04</u> <u>0.32</u> Mid: _____ Bottom: _____ Meter ID: <u>Stitch</u>							
Woody Debris (Snags) <u>2</u> <u>7</u> ☐ Undercut Banks / Roots <u>41</u> <u>3</u> ☐ Leaf Packs or Mat <u>41</u> <u>2</u> ☐ Aquatic Vegetation ☐ ☐ ☐ Rock or Shell Rubble.. ☐ ☐ ☐ Sand..... <u>96</u> <u>3</u> ☐ Mud / Muck / Silt ☐ ☐ ☐ Other ☐ ☐ ☐ Other ☐ ☐ ☐				Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☒ No Lot Number: _____ Exp: _____				Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐ Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐			

ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐	System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐	
AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.		

SAMPLING TEAM J Parnish / B Davis SIGNATURE: JParnish DATE: 3/15/21

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Orange creek</u>					County: <u>Alamogordo</u>		Date: <u>3/15/21</u>		Investigators: <u>B. Anis</u>	
					STORET Station Number: <u>20020404</u>					
Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	
0	1	N	N		60	1	N	N		
	2					2				
	3					3				
	4					4				
	5			40		5	6		28	
	6					6	5			
	7					7	N			
	8					8				
	9					9				
10	1	N			70	1	N			
	2					2				
	3					3				
	4					4				
	5			52		5			52	
	6					6	5			
	7					7				
	8					8				
	9					9				
20	1	5			80	1	4			
	2	N				2	4			
	3					3	N			
	4					4				
	5			70		5			80	
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N			90	1	5			
	2					2	N			
	3					3				
	4					4	X			
	5			76		5	N		93	
	6					6				
	7					7				
	8					8				
	9					9	5			
40	1	4			100	1	N			
	2	N				2				
	3					3				
	4					4				
	5			64		5			90	
	6					6				
	7					7				
	8					8				
	9					9				
50	1	N			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%.					
	2									
	3									
	4									
	5			74						
	6									
	7									
	8									
	9									

Secchi depth 100
Estimated? 100

points ranked 4-6 5
total points assessed 5
% 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

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

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

Meter ID: 571764

RQ- 2021-02-08-50

Project: Orange Co. SCI

- Notes: (1) Always wait for meter to stabilize before recording any readings.
 (2) Report all digits displayed. Do not round before reporting measurements. (See special instructions for depth).
 (3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Temperature (Quarterly) FT 1400

Date of Last Temperature Verification 2/15/21

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp °C	Baro-meter mmHg	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	Buier D.	3/15/21	743	22.2	764.5	8.8	8.8	100.6	✓	1.05	ⓧ F	ⓧ F
ICV		↓	746	22.3	764.6	8.8	8.76	100.9	✓	1.05	ⓧ F	ⓧ F
CCV		↓	1512	23.6	764.1	8.5	8.70	102.7	✓	1.05	ⓧ F	ⓧ F
CCV											P / F	L / F

DO Acceptance criteria from Table ± 0.3 mg/L.

Rapid-Pulse Sensors: DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.

Optical: DO gain range 0.85 to 1.15 (Pro DSS 0.75 to 1.50); DO charge N/A. Steady-state & Galvanic Sensors: DO Gain & Charge N/A.

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard µmhos/cm	Meter Reading µmhos/cm	Pass / Fail	Lab / Field
Calibr.	Buier D.	3/15/21	750	201222B	1/22	1000	1000	ⓧ F	ⓧ F
ICV		↓	751	201222A	1/22	100	103.3	ⓧ F	ⓧ F
CCV		↓	1514	201222B	1/22	1000	982	ⓧ F	ⓧ F
CCV								P / F	L / F

Conductivity Acceptance criteria ± 5%

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Temp °C	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	Buier D.	3/15/21	757	2006F52	6/22	7.01	23.0	7.01	-16.1	ⓧ F	ⓧ F
Calibr.			800	2912B71	12/21	4.00	23.2	4.00	160.1	ⓧ F	ⓧ F
Calibr.			805	2012797	5/22	10.02	23.3	10.02	789.3	ⓧ F	ⓧ F
ICV			808	2006F52	6/22	7.01	23.2	7.03	-16.1	ⓧ F	ⓧ F
CCV			1518	2912B71	12/21	4.00	23.7	4.00	160.3	ⓧ F	ⓧ F
CCV										P / F	L / F

pH Acceptance criteria ± 0.2 SU; mV pH 7 Range 0 ± 50;

mV pH 4 Range +180 ± 50;

mV pH 10 Range -180 ± 50;

If mV are recorded: slope from 7 to 10 _____, slope from 4 to 7 _____ (both must be between 165 and 180 mV)

Does meter have a depth sensor that will be used to measure total depth & sample depth? YES / NO / NA (not surf. water project)

If YES, complete daily Calibr. & ICV below and list date of last quarterly depth verification: _____

If NO, what will be used? (circle one) Secchi Disk Line / Sonar Unique ID: _____; Date of last verification: _____

Depth Sensor (Daily Calibration & ICV)	Name	Date	Time CT-ET	Calibrated Value (0.00 or Offset), meters	ICV Value, meters	Pass / Fail	Lab / Field
Pressure mode in air	B = D.	3/15/21	810	0.00	0.00	ⓧ F	ⓧ F

Report two decimal places. Round numbers ≤ 4 down, ≥ 5 up. ICV acceptance criteria ± 5 % or ± 0.05m, whichever is greater.

COMMENTS:

SCI proficiency

Central Laboratory Submittal Form

last revised Jan 25, 2018

Customer: NE-DIST

Requester: Jeremy M. Parrish

Field Report Prepared By: J Parrish

Project ID: SCIREF

Collected By: J Parrish B Davis

Sampling Agency: DEP/NEROC

Location <i>Orange Creek 50m abv Hwy 21</i>		☐ Comp ☒ Grab		Collection (comp begin or grab) Date <i>3/15/21</i> Time <i>1100</i>		Eastern Central	Composite end Date Time		Bottle Group(s) (See pg 2)
Field ID		Matrix (type, e.g., Salt, Fresh, etc) <i>Fresh</i>		Diss. Oxygen <i>7.70</i>		☒ mg/L ☐ % sat		Total Res. Chlorine (mg/L)	<i>A</i>
WIN/STORET # <i>20020404</i>		Temp (C) <i>19.6</i>		pH <i>6.57</i>		Sample Depth <i>0.5</i>		Sp. Conductance (umho/cm) <i>95.5</i>	
Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms		Salinity (ppt) <i>0.04</i>		Comments <i>110.15</i>			
Location		☐ Comp ☐ Grab		Collection (comp begin or grab) Date Time		Eastern Central	Composite end Date Time		
Field ID		Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen		☐ mg/L ☐ % sat		Total Res. Chlorine (mg/L)	
WIN/STORET #		Temp (C)		pH		Sample Depth ☐ ft ☐ m		Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms		Salinity (ppt)		Comments			
Location		☐ Comp ☐ Grab		Collection (comp begin or grab) Date Time		Eastern Central	Composite end Date Time		
Field ID		Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen		☐ mg/L ☐ % sat		Total Res. Chlorine (mg/L)	
WIN/STORET #		Temp (C)		pH		Sample Depth ☐ ft ☐ m		Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms		Salinity (ppt)		Comments			
Location		☐ Comp ☐ Grab		Collection (comp begin or grab) Date Time		Eastern Central	Composite end Date Time		
Field ID		Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen		☐ mg/L ☐ % sat		Total Res. Chlorine (mg/L)	
WIN/STORET #		Temp (C)		pH		Sample Depth ☐ ft ☐ m		Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms		Salinity (ppt)		Comments			
Location		☐ Comp ☐ Grab		Collection (comp begin or grab) Date Time		Eastern Central	Composite end Date Time		
Field ID		Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen		☐ mg/L ☐ % sat		Total Res. Chlorine (mg/L)	
WIN/STORET #		Temp (C)		pH		Sample Depth ☐ ft ☐ m		Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms		Longitude ☐ dd ☐ dms		Salinity (ppt)		Comments			
Location		☐ Comp ☐ Grab		Collection (comp begin or grab) Date Time		Eastern Central	Composite end Date Time		

Relinquished By: <i>J Parrish</i>	Date/Time <i>3/15/21 1600</i>	Shipping Method <i>Fedex</i>	Number of Coolers Shipped: <i>1</i>	Received By:	Date/Time
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Group: A

Bottle Type:

PJ-2L

of Bottles: 2

Preservative:

Formalin

Enter Number of Bottles Sent to Lab

MI-FW-QLDC

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