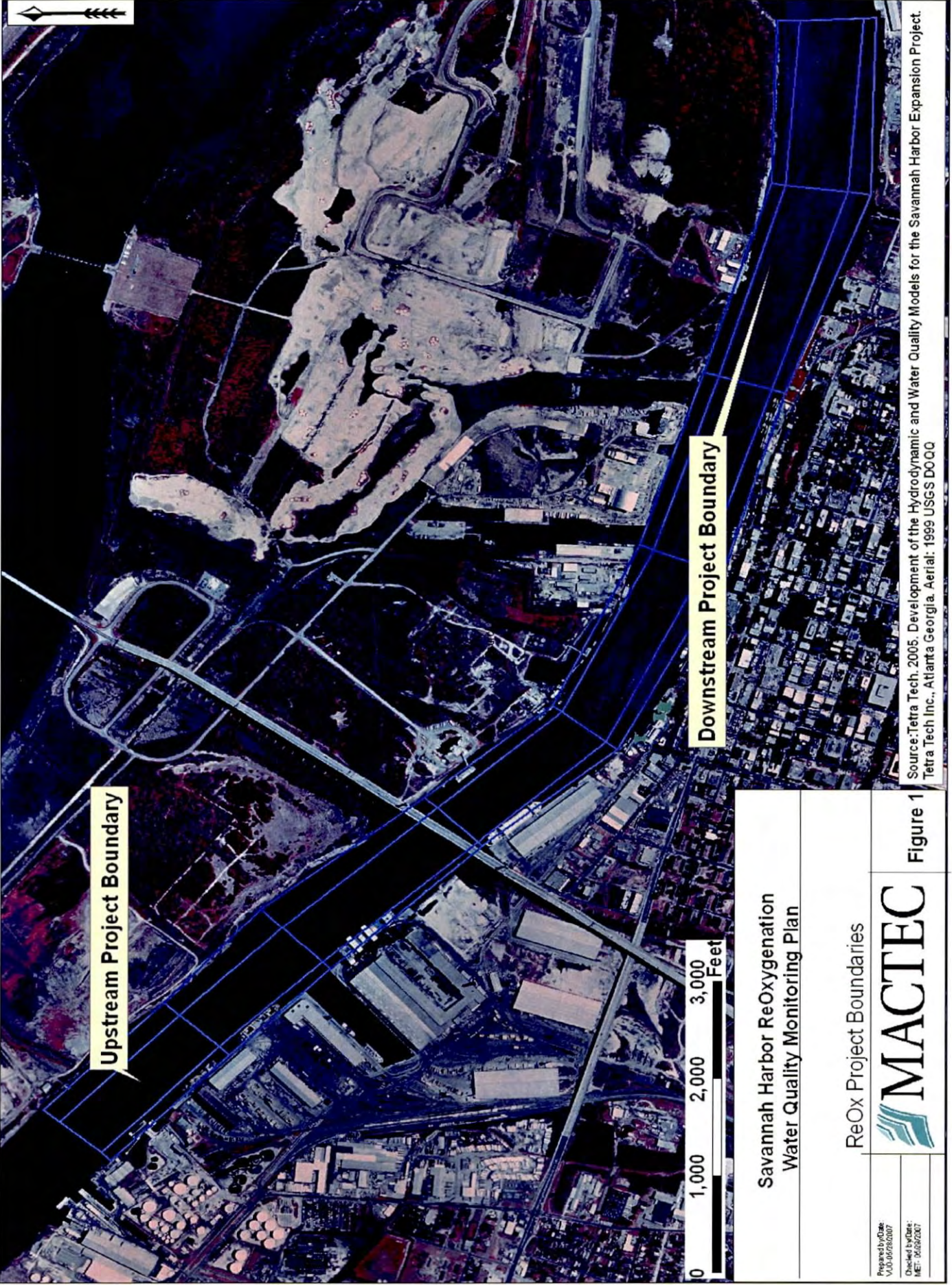


## 6 REFERENCES

Tetra Tech. 2005. *Development of the Hydrodynamic and Water Quality Models for the Savannah Harbor Expansion Project*. Tetra Tech Inc., Atlanta Georgia.

## FIGURES









**Legend**

- Continuous Sampling Locations
- ▲ 97-99 stations

**Savannah Harbor ReOxygenation  
Water Quality Monitoring Plan**

**ReOx Project Continuous Sampling Locations**

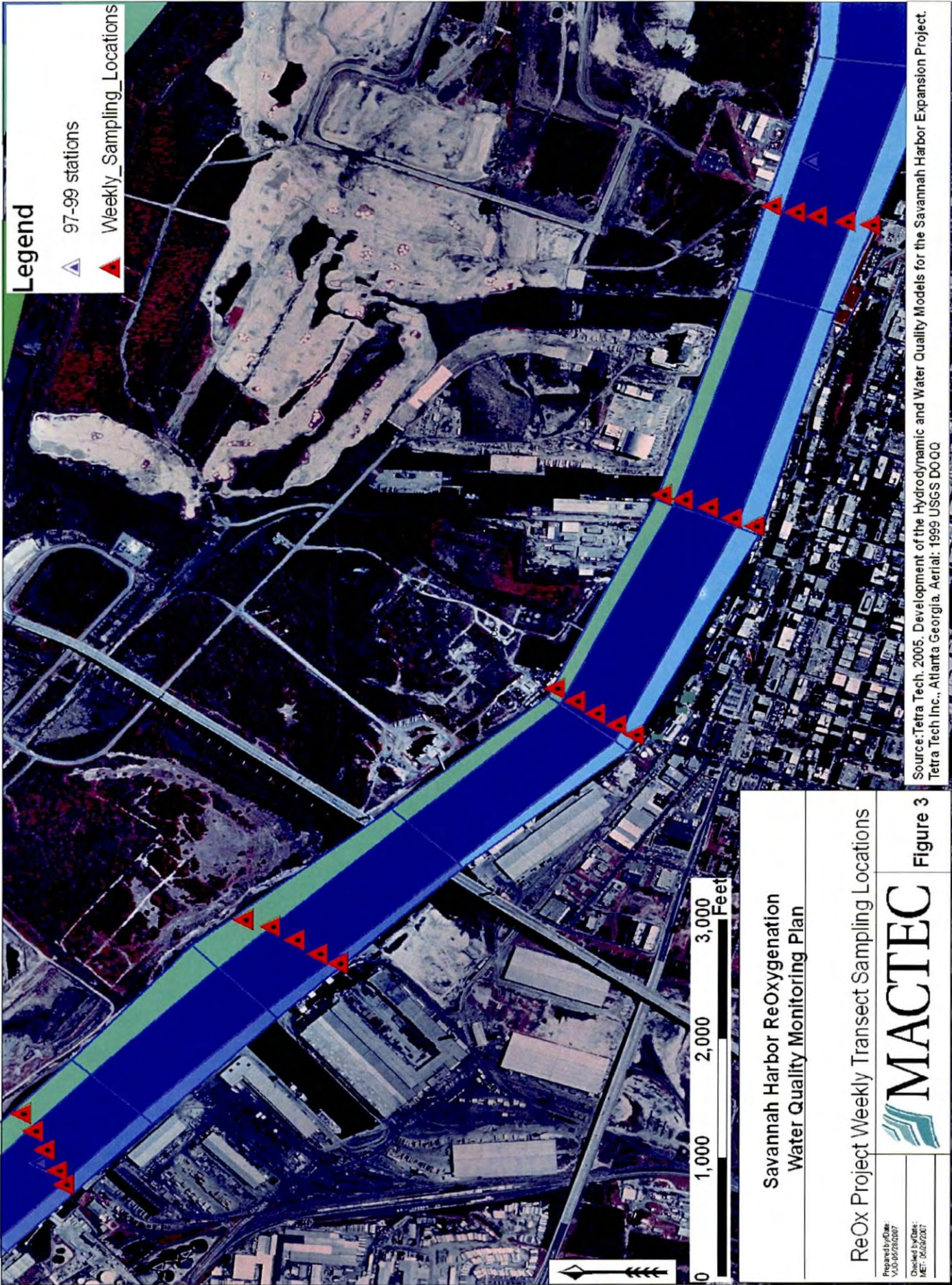


**Figure 2**


Prepared by Date:  
VJO-05/28/2007  
Checked by Date:  
MEI-06/20/2007

Source: Tetra Tech. 2005. Development of the Hydrodynamic and Water Quality Models for the Savannah Harbor Expansion Project. Tetra Tech Inc., Atlanta Georgia. Aerial: 1999 USGS DOQQ





**Legend**

-  97-99 stations
-  Weekly\_Sampling\_Locations

0 1,000 2,000 3,000 Feet

Savannah Harbor ReOxygenation  
Water Quality Monitoring Plan

ReOx Project Weekly Transect Sampling Locations



Figure 3

Prepared by/Date:  
VJO/06/26/2007

Checked by/Date:  
MEF/06/26/2007

Source: Tetra Tech. 2005. Development of the Hydrodynamic and Water Quality Models for the Savannah Harbor Expansion Project. Tetra Tech Inc., Atlanta Georgia. Aerial: 1999 USGS DOQQ





**Legend**

- ▲ 97-99 stations
- ◆ Mid\_Channel\_Sampling\_Locations

FR-06

Savannah Harbor ReOxygenation  
Water Quality Monitoring Plan

ReOx Project Longitudinal Sampling Locations



Figure 4

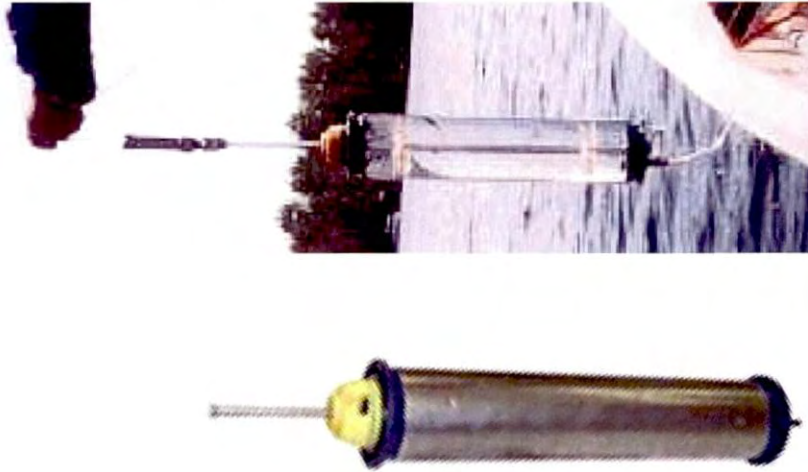
Prepared by/Date:  
VJO/05/28/07  
Checked by/Date:  
ME/ 06/20/07

Source: Tetra Tech. 2005. Development of the Hydrodynamic and Water Quality Models for the Savannah Harbor Expansion Project. Tetra Tech Inc., Atlanta Georgia. Aerial: 1999 USGS DOQQ

FR-21



Typical samplers that will be used for collecting dissolved oxygen discrete quality assurance samples during weekly river transects.



Kemmerer Type Samplers



Van Dorn Type Samplers

Georgia Ports Authority  
Savannah Harbor ReOx Project  
Savannah, Georgia



Dissolved Oxygen Water Samplers

MACTEC Project Number: 6110070004

Figure 5

**APPENDIX A**



**Calibration:** The detailed procedure for the calibration of field instruments used to measure water quality parameters are outlined below:

**DO:** The DO probe will be calibrated the Winkler titration approach as outlined below:

**Measure Dissolve Oxygen on at least two subsamples, for quality control.** Results of two iodometric titrations should agree within 0.1 mg/L. If they do not agree, repeat the titration on a third subsample.

Follow steps step 1 and continue to the end to perform the iodometric titration in duplicate.

1. Fill a 2,000-mL beaker with deionized water that is near DO saturation. The water temperature should be close to the ambient (field or laboratory) temperature.
2. Prepare the DO instrument for operation according to the manufacturer's instructions.
3. Place the DO sensor in a beaker of distilled water. With a magnetic stirrer, maintain a velocity of at least 1 ft/s past the DO sensor.
4. Monitor the DO concentrations of the deionized water with the DO instrument and record the value after the readings have stabilized.
5. Carefully fill two biochemical oxygen demand (BOD) bottles with deionized water from the beaker, taking care to avoid introducing any air bubbles, and overflowing the bottles adequately to remove any trapped air bubbles.
6. Determine the DO concentration of the water in each BOD bottle, as follows:
  - a. Add one each of the following dry reagent pillow packets:
    - Alkaline iodide-azide (white powder).
    - Manganous sulfate (pinkish-colored powder).
  - b. Recap the bottle. **Do not allow air bubbles to be trapped in the bottle.**
  - c. Invert the bottle 25 times or more to completely dissolve the reagents.
    - An orange-brown flocculent indicates the presence of DO.
    - Allow the flocculent to settle halfway down the bottle (approximately 5 minutes).
    - Invert the bottle 25 times again; let the flocculent settle again until the upper half of the solution is clear.
  - d. Add one reagent pillow of sulfamic acid.
  - e. Recap the bottle without introducing air or air bubbles. Invert the bottle 25 times until all of the flocculent and granules are dissolved, leaving a yellow color.



- f. Fill a clean 25-mL burette with 0.025 *N (Normal)* sodium thiosulfate titrant. Remove any air bubbles from the delivery tube beneath the stopcock and zero the meniscus.
- g. Use a clean, graduated cylinder to measure 200 mL of the sample and pour the sample into a clean, wide-mouth Erlenmeyer flask.
- h. Place the flask on a magnetic stirrer. Add a clean Teflon™ stirring bar and stir the sample at a moderate rate **without aerating the sample**.
- i. Add increments of sodium thiosulfate titrant until the color turns pale straw-yellow.
- j. Add 1 to 2 mL of starch indicator solution. (This causes the sample to turn dark blue.)
- k. Very slowly add more sodium thiosulfate titrant until the sample just turns clear. (A white background behind the bottle will help you see the color change.)
- l. Record the volume of sodium thiosulfate titrant used, in milliliters.
  - For a 200-mL sample, the volume of titrant added is directly proportional to the amount of DO in milligrams per liter.
  - To calculate DO for a sample volume greater or less than 200 mL,

$$DO(\text{mg/L}) = \left( \frac{200}{\text{Sample Volume}} \right) \times \text{titrant added, in mL}$$

- m. Record the DO value. Rinse the equipment with deionized water.
- n. **Quality control**—The titration values for the duplicate samples should agree within 0.1 mg/L. If they do not, repeat the titration on a third sample.

7. Recheck the field instrument for proper functioning, following the manufacturer's instructions. Adjust the calibration control until the DO instrument system reads the DO concentration determined from the iodometric measurement.

NOTE: Be very careful when doing DO analyses. The reagents are corrosive, so keep them away from your skin and clothes. Wear safety goggles and wash your hands when you are done.

**Temperature:** Perform calibration according to manufacturer's suggestion, and compare results from two or more different temperature sensors taken at the same time and location.



**pH:** Perform calibration according to manufacturer's direction. Use of two buffers (pH 7 and 10) for calibration is recommended.

**Specific Conductivity:** Perform calibration according to manufacturer's direction. At least two standards should be used in specific conductivity calibration. One standard will serve as the approximate sample conductivity and the second standard as a calibration check.

**Salinity:** Perform calibration according to procedures outlined in manufacturers manual.

**Water depth:** Perform calibration according to procedures outlined in manufacturers manual.

**Field Measurement:** The detailed procedure that will be used to obtain the temperature, salinity, conductivity, pH, and DO at the sampling locations are outlined below.

- At each station, turn the meter on and place the probe into the water column;
- Allow sufficient time for the probe to stabilize before sampling the parameters;
- Record the reading;
- For the weekly field sampling, check the calibration of the instruments at the end of the day;
- Rinse the probe with distilled water;
- Turn off the instrument and handle the probe carefully so as not to damage it while in the field;
- Recheck the standard of the instrument at the end of each sampling and record the reading;
- Collect at least 10% of the samples from the weekly field monitoring locations and compare the results with the corresponding parameter on data logs.
- At least 10% of the DO measured each week should be compared to DO measurements using the Winkler method for samples collected from corresponding locations.



**APPENDIX C**

**USACE Water Quality Monitoring Data, 2007**



## APPENDIX C

### USACE Water Quality Monitoring Data, 2007

The USACE Water Quality Monitoring Data as provided by the USACE, Savannah District is provided here in tabular format. This data is also available on the Project DVD (Appendix A).

Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Direction	Tides-Bull/Slack	Time Stage	Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Location-800ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (C)	Sp Cond (µmhos/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments			
7/2/2007	Outgoing	0.0	18:59	96-50	81-12387	32-11211	Up-current (Inland)	Center	81-12808	32-11308	11:25	20.16	20.84	12.47	42.61	7.34	116.5	80.4	3.61	1	Bottom					
											11:26	20.18	19.23	9.45	20.64	7.39	32.9	51.1	3.72	2	Middle					
											11:27	20.20	18.41	4.65	20.64	7.5	18.1	83.8	3.78	3	Surface					
											11:28	20.18	12.43	12.43	38.07	7.31	32.9	50.5	3.62	4	Bottom					
											11:30	20.07	15.95	8.9	16.94	7.39	18.1	62.7	3.65	5	Middle					
											11:31	20.07	19.32	4.91	3.70	7.44	15.6	78.8	3.75	6	Surface					
											11:34	20.18	21.15	12.61	42.38	7.41	18.7	62.5	3.66	7	Bottom					
											11:35	20.18	18.32	8.31	23.75	7.34	18.7	62.5	3.66	8	Middle					
											11:36	20.18	15.95	5.9	13.82	7.41	18.6	7.2	4.28	9	Surface					
											11:37	20.18	13.82	3.82	13.82	7.41	18.6	7.2	4.28	10	Bottom					
7/3/2007	Outgoing	17:43	0.0	90-460	81-12357	32-11222	Down-current (Oceanward)	Left	81-12283	32-11189	11:20	20.11	19.95	9.9	19.95	7.41	28.9	3.94	3.15	12	Surface					
											11:21	20.32	8.28	4.57	0.82	7.31	15.6	55.3	4.9	12	Surface					
											12:57	20.84	19.06	11.26	41.68	7.4	27.6	50.9	3.69	1	Bottom					
											12:58	20.75	16.71	6.76	23.69	7.39	22.3	51.4	3.78	2	Middle					
											12:59	20.41	11.65	0.62	0.18	7.38	19.5	59.5	4.46	3	Surface					
											13:04	20.76	18.99	11.21	41.48	7.39	28.3	53.3	3.67	4	Bottom					
											13:05	20.84	15.49	6.69	21.14	7.39	15.3	54.4	4	5	Middle					
											13:06	20.49	12.57	7.17	0.10	7.35	15.4	62.5	4.66	6	Surface					
											13:12	20.52	19.97	11.84	40.93	7.41	25.8	52.1	3.78	7	Bottom					
											13:14	20.73	16.67	9.92	21.24	7.39	20.3	51.8	3.77	8	Middle					
7/5/2007	Incoming	12:48	7.9	92+000	81-12666	32-11423	Down-current (Oceanward)	Left	81-12174	32-11145	13:14	20.77	18.78	11.08	33.67	7.38	145.1	51.7	3.75	10	Bottom					
											13:20	20.65	15.08	5.73	18.71	7.35	18.5	53.4	3.94	11	Middle					
											13:21	20.44	12.81	7.19	0.21	7.32	15.3	51	4.55	12	Surface					
											13:23	20.48	10.89	6.98	17.83	7.33	95.5	53.3	3.98	1	Bottom					
											13:27	21.67	6.345	3.49	5.03	7.39	68.9	51.7	3.86	2	Middle					
											13:29	21.67	18.39	9.57	37.52	7.22	781.6	54.3	4.30	3	Surface					
											13:30	21.67	16.39	8.57	37.52	7.22	781.6	54.3	4.30	4	Bottom					
											13:31	21.67	16.39	8.57	37.52	7.22	781.6	54.3	4.30	5	Middle					
											13:32	21.67	16.39	8.57	37.52	7.22	781.6	54.3	4.30	6	Surface					
											13:33	21.67	16.39	8.57	37.52	7.22	781.6	54.3	4.30	7	Bottom					
7/6/2007	Incoming	13:47	8.1	91+660	81-12662	32-11376	Down-current (Inland)	Right	81-12688	32-11612	12:10	27.33	10.25	5.76	20.65	7.37	781.7	59.3	4.30	6	Surface					
											12:10	27.36	6.612	3.14	0.08	7.41	782.9	62.8	4.88	6	Surface					
											12:16	27.85	17.74	10.42	45.13	7.31	145.2	54.9	4.08	7	Bottom					
											12:17	27.76	15.11	8.76	24.21	7.35	57.2	56.5	4.18	8	Middle					
											12:17	27.81	7.664	4.21	0.04	7.45	30.3	59.2	4.54	9	Surface					
											12:19	27.69	17.85	10.6	43.29	7.32	241.5	53.9	3.99	10	Bottom					
											12:20	27.74	13.81	7.64	23.07	7.36	76.6	54.1	4.07	11	Middle					
											12:21	27.69	4.254	2.26	0.00	7.5	19.6	66.8	5.25	12	Surface					
											10:48	27.61	13.3	7.63	42.48	7.23	517.1	51.9	3.92	1	Bottom					
											10:49	27.17	5.335	2.97	23.92	7.29	48.7	61.8	4.94	2	Middle					
7/9/2007	Incoming	16:43	8.7	90+270	81-12399	32-11073	Up-Current (Oceanward)	Center	81-12399	32-11073	12:20	28.07	10.3	5.7	39.45	7.32	41.5	merit equip								
											12:22	27.96	6.82	3.73	13.20	7.29	42.1	merit equip								
											12:24	28.03	3.359	1.76	0.40	7.28	42	merit equip								
											12:26	28.09	14.44	5.39	38.47	7.38	172	merit equip								
											12:30	27.92	6.4	3.56	13.30	7.26	32	merit equip								
											12:33	28.16	3.506	1.82	0.50	7.27	28.5	merit equip								
											12:04	28.31	15.75	9.19	40.99	7.31	140.8	42.7	3.10	1	Bottom					
											12:06	28.32	9.055	5.04	18.98	7.24	37.8	50.7	3.84	2	Middle					
											12:08	28.53	3.493	1.82	0.92	7.19	28.5	67.3	5.17	3	Surface					
											12:08	28.31	17.3	10.14	39.67	7.34	66.6	45.9	3.38	7	Bottom					
7/11/2007	Outgoing	12:46	-0.3	92+000	81-12702	32-11479	Up-Current (Inland)	Center	81-12851	32-11566	12:08	28.75	9.427	5.28	35.38	7.25	112.6	55.7	4.41	1	Bottom					
											12:10	28.76	0.076	3.95	15.92	7.24	70.9	54.8	4.14	2	Middle					
											12:11	28.76	0.076	3.95	15.92	7.24	70.9	54.8	4.14	2	Middle					
											12:15	28.96	9.31	5.73	3.56	7.24	283.9	69.1	5.26	3	Surface					
											12:16	28.96	9.31	5.73	3.56	7.24	283.9	69.1	5.26	3	Surface					
											12:18	29.81	6.818	3.71	3.16	7.19	114.2	51.2	3.84	7	Bottom					
											12:18	29.81	6.818	3.71	3.16	7.19	114.2	51.2	3.84	7	Bottom					
											12:19	28.92	4.064	1.94	0.55	7.26	18.4	65.4	5.01	8	Middle					
											12:19	28.92	4.064	1.94	0.55	7.26	18.4	65.4	5.01	8	Middle					



Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides-Bull St.		Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Len. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTUs)	DO% (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time																				
7/12/2007	Outgoing	13:44 - 0:3	81+570	81.12559	32.11398	Up-Current(Inland)	Center	81.12522	32.11313	10:44	28.08	15.87	9.29	30.74	7.52	56.5	44.2	3.23	1	Bottom		The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										10:45	28.08	10.17	5.7	16.39	7.4	30.1	50.6	3.79	2	Middle		
										10:46	28.21	9.47	3.78	0.70	7.39	25.9	62.9	4.72	3	Surface		
7/13/2007	Outgoing	14:41 - 0:4	81+200	81.12532	32.11298	Down-Current(Oceanward)	Center	81.12780	32.11603	10:43	28.03	21.5	17.83	38.82	7.57	62.3	45.3	3.25	3	Bottom		The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										10:44	28.03	15.33	8.3	15.23	7.52	71.8	43.9	3.55	4	Middle		
										10:45	28.06	6.74	4.34	3.74	7.37	18	53.3	4.23	5	Surface		
7/19/2007	Outgoing	17:12 - 0:1	86+600	81.12534	32.11294	Up-Current(Inland)	Center	81.12522	32.11193	10:47	28.19	17.88	10.49	41.55	7.51	107.5	48.5	3.81	1	Bottom		They lifted the cutter head as we began checking directly down from it
										10:48	28.16	15.09	8.73	20.81	7.46	45.4	48.1	3.59	2	Middle		
										10:49	28.22	6.906	5.18	0.93	7.39	11.1	61.2	4.60	3	Surface		
										10:50	28.22	20.47	12.16	40.95	7.56	155.5	48.0	3.49	7	Bottom		
										10:54	28.2	18.81	11.09	20.42	7.54	183.4	45.5	3.49	8	Middle		
										10:54	28.27	11.18	6.31	0.90	7.43	146.5	58	4.14	9	Surface		
										12:25	28.54	36.55	23.01	40.95	7.07	27.6	45.5	3.05	1	Bottom		
										12:26	28.5	29.32	18.02	20.33	7.07	25	45.9	3.17	2	Middle		
										12:27	28.64	9.2	6.94	7.02	30.8	35	44	3.00	4	Bottom		
										12:28	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom		
										12:29	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom		
										12:30	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom		
12:31	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:32	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:33	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:34	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:35	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:36	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:37	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:38	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:39	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:40	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:41	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:42	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:43	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:44	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:45	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:46	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:47	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:48	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:49	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:50	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:51	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:52	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:53	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:54	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:55	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:56	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:57	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:58	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
12:59	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:00	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:01	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:02	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:03	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:04	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:05	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:06	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:07	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:08	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:09	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:10	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:11	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:12	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:13	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:14	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:15	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:16	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:17	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:18	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:19	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:20	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:21	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:22	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:23	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:24	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:25	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:26	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:27	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:28	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:29	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:30	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:31	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:32	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:33	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:34	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:35	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:36	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:37	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:38	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:39	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:40	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:41	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:42	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:43	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:44	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:45	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:46	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:47	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:48	28.95	38.53	22.87	40.95	7.08	35	44	3.00	4	Bottom												
13:																						

Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides/Bull St.		Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	D.O. (mg/L)	Sils	Notes	Personnel	Comments	
	Direction	Time																				
7/24/2007	Outgoing	10:40	89-400	81.12243	32.10872	Center	81.12385	32.11076	10:22	28.47	30.37	16.73	43.22	7.55	27	45.7	3.01	1	Bottom		The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
									10:25	28.45	30.41	17.02	20.94	7.53	13.4	52.2	3.72	2	Middle			
									10:28	28.43	30.45	17.36	10.97	7.52	8.0	67.3	4.94	3	Surface			
						Down-Current(Oceanward)			10:14	28.52	28.34	17.36	10.97	7.52	8.0	67.3	4.94	3	Bottom			
									10:16	28.51	28.34	17.36	10.97	7.52	8.0	67.3	4.94	3	Middle			
									10:18	28.55	14.37	8.28	0.64	7.51	8.6	68	4.82	9	Surface			
7/25/2007	Incoming	18:01	89-940	81.12284	32.10951	Center	81.12012	32.10849	12:01	28.23	30.65	19.07	41.31	7.55	28.6	44.8	3.08	1	Bottom		The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
						Up-Current(Oceanward)			12:02	28.28	17.43	10.21	20.63	7.53	11.6	50.8	4.11	2	Middle			
									12:03	28.27	13.72	7.67	0.35	7.5	9.3	86.1	4.85	3	Surface			
						Down-Current(Inland)			12:20	28.23	30.85	19.13	44.19	7.52	55.8	45	3.1	7	Bottom			
									12:21	28.27	18.35	10.8	21.82	7.48	12.3	55.5	4	8	Middle			
									12:22	28.34	10.49	5.89	0.16	7.52	9.5	73.3	5.42	6	Surface			
7/28/2007	Outgoing	12:29	89-742	81.12184	32.11040	Center	81.12311	32.11139	11:33	28.06	28.86	18.45	42.18	7.45	20	45	3.12	1	Bottom	Crosby Reynolds	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
						Up-Current(Inland)			11:34	28.15	20.36	12.09	20.95	7.48	18.9	46.5	3.48	2	Middle			
						Down-Current(Oceanward)			11:35	28.49	13.69	7.85	0.28	7.47	9	64.3	4.7	3	Surface			
									11:36	28.49	13.69	7.85	0.28	7.47	9	64.3	4.7	3	Bottom			
									11:37	28.45	20.41	12.13	24.83	7.48	16.2	49.7	3.49	5	Middle			
									11:37	28.6	13.88	5.93	0.29	7.48	8.5	64.5	4.7	9	Surface			
7/27/2007	Outgoing	9:03	89-220	81.12073	32.10818	Center	81.12286	32.11091	9:08	28.63	32.05	18.89	48.93	7.8	17.7	46.9	3.23	7	Bottom	Reynolds Kuhnert	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
						Up-Current(Inland)			9:06	28.04	25.21	15.27	23.70	7.58	14.7	43.9	3.42	8	Middle			
						Down-Current(Oceanward)			9:10	28.75	7.29	0.78	0.56	9.8	9.2	83.8	4.75	6	Surface			
									9:03	28.93	32.32	20.08	45.88	7.50	44.6	46.5	3.21	1	Bottom			
									9:04	28.02	24.22	14.62	21.87	7.53	10.1	51.2	3.83	2	Middle			
									9:05	28.7	12.16	6.92	0.55	7.56	7.4	65.3	4.86	3	Surface			
						Center of KITB			10:30	28.99	23.85	14.36	49.72	7.28	62	41.8	2.97	13	Bottom	Reynolds Crosby	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
						Center of KITB			10:31	28.92	20.41	12.13	24.83	7.13	13.8	57.3	4.2	15	Middle			
						Center of KITB			10:29	28.14	14.91	8.62	0.67	7.19	13.6	45.9	2.95	13	Bottom			
						Center of KITB			13:00	28.67	18.84	11.76	50.05	7.19	82.7	48.9	2.85	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			13:01	28.85	15.32	8.88	24.11	7.23	27.8	45.1	3.31	14	Middle			
						Center of KITB			13:02	28.23	12.9	7.37	0.97	7.21	17.6	55.3	4.07	15	Surface			
						Center of KITB			13:30	28.89	21.5	12.84	48.40	7.28	106.1	40.3	2.9	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			13:31	28.89	16.96	9.97	23.88	7.31	28.1	41.8	3.05	14	Middle			
						Center of KITB			13:32	28.83	11.1	6.26	0.88	7.32	20.8	57.8	4.23	15	Surface			
						Center of KITB			13:33	28.01	15.45	5.98	47.89	7.17	27.0	40.8	2.89	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			13:34	28.7	17.68	6.95	24.22	7.16	49.1	47.8	3.95	14	Middle			
						Center of KITB			13:35	28.05	18.03	5.39	1.16	7.16	20.1	58.8	4.42	15	Surface			
						Center of KITB			12:08	28.05	14.86	5.38	83.03	7.22	251.6	44.8	3.28	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			12:09	28.01	14.86	5.38	83.03	7.22	251.6	44.8	3.28	14	Middle			
						Center of KITB			12:07	28.57	8.034	4.48	24.17	7.21	16.3	45.8	3.58	14	Surface			
						Center of KITB			13:12	28.73	15.92	5.25	49.38	7.21	253.2	53.3	2.81	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			13:13	28.73	11.21	6.33	27.65	7.24	79.7	47.8	3.68	13	Bottom	Reynolds Crosby	Pre O2 test data	
						Center of KITB			13:15	28.07	4.383	2.32	0.18	7.37	11.3	70.6	5.95	15	Surface			
						Center of KITB			10:47	28.03	12.7	7.24	44.28	8.91	25.4	45.5	3.96	13	Bottom	Reynolds Crosby	Pre O2 test data, O2 diffusers started at 13:00 today	
						Center of KITB			10:48	28.95	5.614	3.19	22.41	8.93	14	63.8	4.63	14	Middle			
						Center of KITB			10:49	28.07	3.195	1.66	1.24	8.84	5.3	73.0	6.9	15	Surface			
						Center of KITB			10:55	28.2	20.73	12.33	44.17	7.71	34.9	47.4	3.2	13	Bottom	Crosby	O2 test data	
						Center of KITB			10:56	28.92	7.647	4.19	21.72	7.84	30.1	87.4	5.02	14	Middle			
						Center of KITB			10:57	28.92	2.25	1.18	0.11	8	18.4	6.9	6.25	15	Surface			
						Center of KITB			10:08	28.76	30.92	18.1	48.47	7.37	78.6	41	2.8	13	Bottom	Crosby	O2 test data	
						Center of KITB			10:09	28.96	22.66	13.8	23.80	7.35	65.4	34.9	3.43	15	Surface			
						Center of KITB			10:10	30.28	14.81	6.54	0.60	7.35	25.2	60.7	4.39	15	Bottom	Crosby	O2 test data	
						Center of KITB			8:27	30.14	38.43	24.28	49.69	7.28	34.3	44	2.81	13	Bottom	Meek	O2 test data	
						Center of KITB			8:28	30.25	15.98	8.8	0.50	7.32	10.1	80.7	4.35	15	Surface			
						Center of KITB			9:31	31.27	18.56	6.63	59.11	7.2	248.9	42.7	3	13	Bottom	Meek	O2 test data	
						Center of KITB			9:33	31.27	11.73	6.69	26.35	7.17	24.0	46.8	3.34	14	Middle	Crosby	O2 test data	
						Center of KITB			9:34	31.27	8.288	4.56	0.10	7.17	14.7	56	3.87	16	Surface			
						Center of KITB			14:58	30.76	31.89	19.74	51.62	7.69	35.6	45.8	3.1	8	Bottom	Williams	O2 test data	
						Center of KITB			15:00	30.9	28.14	17.19	27.85	7.56	12.7	46.8	3.1	8	Middle			
						Center of KITB			15:01	31.95	10.27	5.74	1.18	7.72	9	75	6.35	9	Surface			



Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Direction	Tides-Bul-St.	Time	Stage	Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Location - 500ft from the Dredge	Channel Position	Len. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	Site	Notes	Personnel	Comments	
8/20/2007	Outgoing	20:59	20:59	2.0	N/A	N/A	N/A	Center of Channel at DO demo project	Center	81.0904	32.06302	15:17	30.44	35.66	24.55	50.63	7.8	30.7	51.2	10	Bottom	Ward	O2 test data	
8/21/2007	Incoming	15:28	15:28	7.6	N/A	N/A	N/A	Center of KTB	Center	81.13747	32.13228	11:07	30.96	26.91	16.37	48.09	7.96	5.4	58.4	12	Surface	Williams	O2 test data	
8/21/2007	Incoming	15:28	15:28	7.6	N/A	N/A	N/A	Center of Channel at DO demo project	Center	81.0904	32.06302	11:39	30.93	33.25	12.59	30.23	7.82	17.7	73.8	3	Surface	Williams	O2 test data	
8/24/2007	Outgoing	11:55	11:55	1.1	N/A	N/A	N/A	Station 101 - Across from Dredge at GPA bath	Center	81.14141	32.13851	10:00	30.91	30.77	18.69	38.97	7.8	5.1	30.5	2	Surface	Ward	O2 test data	
8/24/2007	Outgoing	11:55	11:55	1.1	N/A	N/A	N/A	Down-current (Inland)	Center	81.14024	32.13522	16:27	30.9	28.8	17.64	43.62	7.67	63.3	47.7	3	Surface	Ward	O2 test data	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.14028	32.13507	16:28	30.92	9.146	5.07	0.00	7.7	7	81.2	6.89	2	Surface	Ward	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Up-current (Oceanward)	Center	81.13744	32.13553	18:32	30.9	23.53	14	18.29	7.54	12.7	43.9	3.02	5	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Up-current (Oceanward)	Right	81.13837	32.13077	18:38	30.88	29.87	16.23	85.01	7.6	48.6	48.5	3.13	7	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Up-current (Oceanward)	Center	81.13533	32.13153	18:40	30.89	57.02	5.4	0.08	7.64	8	79.8	5.32	8	Surface	Ward	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13950	32.13154	18:03	31.03	19.51	11.51	26.84	7.47	15.2	49	3.42	8	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13812	32.13227	18:10	30.87	18.6	10.93	18.24	7.45	39.6	43.2	3.03	11	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.14011	32.13346	18:29	30.82	24.5	14.97	51.67	7.49	55	43.2	2.87	1	Bottom	Ward	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.14082	32.13470	18:38	30.89	17.89	10.54	7.73	7.4	12.3	42.8	3.01	2	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13952	32.13278	18:40	30.82	23.73	14.27	31.77	7.48	27.8	42.4	2.82	4	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13872	32.13284	18:41	30.82	20.32	6.04	0.60	7.42	13	43.3	3.03	5	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13954	32.13190	18:48	30.78	25.67	15.21	50.01	7.51	39.3	50.4	3.01	9	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13823	32.13285	18:51	30.81	22.56	13.49	32.83	7.49	19.8	41.8	3	Bottom	Williams		
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13834	32.13302	18:52	30.74	20.69	12.26	13.21	7.41	12.1	43.1	3.01	11	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.1384	32.13309	18:53	30.47	14.21	6.17	1.43	7.45	7.4	32.2	3.74	12	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.14172	32.13342	12:10	30.65	19.33	11.4	45.11	7.27	49.5	37	2.6	1	Bottom	Ward	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.14145	32.13348	12:14	30.62	15.14	6.74	0.48	7.16	53.8	42	3	Bottom	Williams		
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.14166	32.13355	12:15	30.4	13.62	7.92	0.80	7.14	27.1	46.2	3.32	3	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13768	32.13522	12:20	30.55	22.2	13.29	42.55	7.26	48.1	40.8	2.82	4	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13779	32.13521	12:22	30.47	17.67	10.34	21.70	7.21	8.9	42.3	3	Bottom	Williams		
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.1377	32.13521	12:23	30.47	18.33	6.97	1.21	7.19	6.4	47.8	3.42	5	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.1381	32.13531	12:32	30.59	21.41	12.75	42.85	7.25	165.9	40.4	2.82	7	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13899	32.13557	12:34	30.53	17.05	9.95	26.04	7.15	34.9	43	3.05	8	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13874	32.13555	12:35	30.44	13.55	7.75	0.79	7.18	17.3	48	3.45	9	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13894	32.13178	12:39	30.54	19.85	11.61	31.25	7.23	20.8	41.2	2.89	10	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Center	81.13853	32.13187	12:41	30.48	17.81	10.24	19.87	7.19	37.3	42.3	3.05	11	Bottom	Williams	
8/25/2007	Incoming	18:13	18:13	8.9	89-500	81.13647	32.13402	Down-current (Inland)	Right	81.13850	32.13192	12:42	30.5	14.85	8.96	0.69	7.18	19.3	45.8	3.38	12	Bottom	Williams	





Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides-Bill St.		Dredge Station	Dredge Lon. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTUs)	DO% (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time																				
8/4/2007	High	6.6	100-632	81.14001	32.13560	Up-current (Inland)	Center	81.1428	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1429	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1430	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1431	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1432	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1433	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1434	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1435	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1436	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1437	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1438	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1439	32.13730	15:28	28.33	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
8/5/2007	Incoming	6.6	100-767	81.14009	32.13602	Down-current (Inland)	Right	81.1408	32.13765	12:14	28.00	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1409	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1410	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1411	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1412	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1413	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1414	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1415	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1416	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1417	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1418	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1419	32.13765	12:17	27.74	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
8/6/2007	Incoming	6.6	89-677	81.13886	32.13364	Down-current (Inland)	Center	81.1403	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1404	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1405	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1406	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1407	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1408	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1409	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1410	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1411	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1412	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1413	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1414	32.13165	15:14	28.17	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
8/7/2007	Incoming	0.7	99-675	81.13708	32.13362	Down-current (Inland)	Center	81.1414	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1415	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1416	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1417	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1418	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1419	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1420	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1421	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1422	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1423	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1424	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1425	32.13405	14:46	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
8/10/2007	Outgoing	0.2	98-666	81.13615	32.13138	Down-current (Inland)	Center	81.1393	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1394	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1395	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1396	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1397	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1398	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1399	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1400	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1401	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1402	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1403	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1404	32.13261	13:10	28.16	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
8/11/2007	Outgoing	0.3	98-316	81.13501	32.13080	Down-current (Inland)	Center	81.1381	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1382	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1383	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1384	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1385	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1386	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1387	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1388	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1389	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1390	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1391	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5	3.6	1	Bottom	J. Ward	
								81.1392	32.12774	12:21	28.51	22.59	19.55	50.24	7.32	82.6	46.5</					

Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tide/Bull St.		Dredge Station	Dredge Lon. (W)	Dredge Lat. (N)	Location: 500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (ms/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO <sub>2</sub> (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time																				
8/12/2007	Outgoing	0.4	88+050	81.13660	32.13727	Up-current (Inland)	Center	81.1369	32.13377	14:16	28.38	20.47	12.17	47.81	7.51	45.6	48.9	3.66	1	Bottom	J. Wallace	
								81.1369	32.13384	14:17	28.52	11.87	5.8	23.33	7.81	88.8	57.8	3.99	2	Surface	C. Williams	
								81.1369	32.13391	14:18	28.65	11.87	5.8	23.33	7.81	88.8	57.8	3.99	3	Surface		
								81.1369	32.13398	14:19	28.79	11.87	5.8	23.33	7.81	88.8	57.8	3.99	4	Surface		
								81.1369	32.13405	14:20	28.92	11.87	5.8	23.33	7.81	88.8	57.8	3.99	5	Surface		
								81.1369	32.13412	14:21	29.06	11.87	5.8	23.33	7.81	88.8	57.8	3.99	6	Surface		
								81.1369	32.13419	14:22	29.19	11.87	5.8	23.33	7.81	88.8	57.8	3.99	7	Surface		
								81.1369	32.13426	14:23	29.32	11.87	5.8	23.33	7.81	88.8	57.8	3.99	8	Surface		
								81.1369	32.13433	14:24	29.45	11.87	5.8	23.33	7.81	88.8	57.8	3.99	9	Surface		
								81.1369	32.13440	14:25	29.58	11.87	5.8	23.33	7.81	88.8	57.8	3.99	10	Surface		
								81.1369	32.13447	14:26	29.71	11.87	5.8	23.33	7.81	88.8	57.8	3.99	11	Surface		
								81.1369	32.13454	14:27	29.84	11.87	5.8	23.33	7.81	88.8	57.8	3.99	12	Surface		
8/14/2007	Outgoing	0.8	88+080	81.13680	32.13768	Down-current (Oceanward)	Center	81.1373	32.12860	14:31	28.36	11.88	5.82	21.84	7.81	44.2	57.3	3.71	6	Bottom	J. Wallace	
								81.1369	32.12867	14:32	28.50	11.88	5.82	21.84	7.81	44.2	57.3	3.71	7	Bottom		
								81.1370	32.12874	14:33	28.63	11.88	5.82	21.84	7.81	44.2	57.3	3.71	8	Bottom		
								81.1371	32.12881	14:34	28.77	11.88	5.82	21.84	7.81	44.2	57.3	3.71	9	Bottom		
								81.1372	32.12888	14:35	28.90	11.88	5.82	21.84	7.81	44.2	57.3	3.71	10	Bottom		
								81.1373	32.12895	14:36	29.04	11.88	5.82	21.84	7.81	44.2	57.3	3.71	11	Bottom		
								81.1374	32.12902	14:37	29.17	11.88	5.82	21.84	7.81	44.2	57.3	3.71	12	Bottom		
								81.1375	32.12909	14:38	29.31	11.88	5.82	21.84	7.81	44.2	57.3	3.71	1	Bottom		
								81.1376	32.12916	14:39	29.44	11.88	5.82	21.84	7.81	44.2	57.3	3.71	2	Bottom		
								81.1377	32.12923	14:40	29.58	11.88	5.82	21.84	7.81	44.2	57.3	3.71	3	Bottom		
								81.1378	32.12930	14:41	29.71	11.88	5.82	21.84	7.81	44.2	57.3	3.71	4	Bottom		
								81.1379	32.12937	14:42	29.84	11.88	5.82	21.84	7.81	44.2	57.3	3.71	5	Bottom		
8/16/2007	Incoming	7.8	88+250	81.13654	32.13287	Down-current (Inland)	Center	81.1400	32.13212	14:12	27.52	32.08	20.63	55.06	7.8	89.8	55.2	3.89	1	Bottom	J. Wallace	
								81.1401	32.13219	14:13	27.65	32.08	20.63	55.06	7.8	89.8	55.2	3.89	2	Bottom		
								81.1402	32.13226	14:14	27.78	32.08	20.63	55.06	7.8	89.8	55.2	3.89	3	Bottom		
								81.1403	32.13233	14:15	27.91	32.08	20.63	55.06	7.8	89.8	55.2	3.89	4	Bottom		
								81.1404	32.13240	14:16	28.04	32.08	20.63	55.06	7.8	89.8	55.2	3.89	5	Bottom		
								81.1405	32.13247	14:17	28.17	32.08	20.63	55.06	7.8	89.8	55.2	3.89	6	Bottom		
								81.1406	32.13254	14:18	28.30	32.08	20.63	55.06	7.8	89.8	55.2	3.89	7	Bottom		
								81.1407	32.13261	14:19	28.43	32.08	20.63	55.06	7.8	89.8	55.2	3.89	8	Bottom		
								81.1408	32.13268	14:20	28.56	32.08	20.63	55.06	7.8	89.8	55.2	3.89	9	Bottom		
								81.1409	32.13275	14:21	28.69	32.08	20.63	55.06	7.8	89.8	55.2	3.89	10	Bottom		
								81.1410	32.13282	14:22	28.82	32.08	20.63	55.06	7.8	89.8	55.2	3.89	11	Bottom		
								81.1411	32.13289	14:23	28.95	32.08	20.63	55.06	7.8	89.8	55.2	3.89	12	Bottom		
8/18/2007	Incoming	7.8	88+450	81.13618	32.13059	Down-current (Inland)	Center	81.1450	32.13212	14:12	27.52	32.08	20.63	55.06	7.8	89.8	55.2	3.89	1	Bottom	J. Wallace	
								81.1451	32.13219	14:13	27.65	32.08	20.63	55.06	7.8	89.8	55.2	3.89	2	Bottom		
								81.1452	32.13226	14:14	27.78	32.08	20.63	55.06	7.8	89.8	55.2	3.89	3	Bottom		
								81.1453	32.13233	14:15	27.91	32.08	20.63	55.06	7.8	89.8	55.2	3.89	4	Bottom		
								81.1454	32.13240	14:16	28.04	32.08	20.63	55.06	7.8	89.8	55.2	3.89	5	Bottom		
								81.1455	32.13247	14:17	28.17	32.08	20.63	55.06	7.8	89.8	55.2	3.89	6	Bottom		
								81.1456	32.13254	14:18	28.30	32.08	20.63	55.06	7.8	89.8	55.2	3.89	7	Bottom		
								81.1457	32.13261	14:19	28.43	32.08	20.63	55.06	7.8	89.8	55.2	3.89	8	Bottom		
								81.1458	32.13268	14:20	28.56	32.08	20.63	55.06	7.8	89.8	55.2	3.89	9	Bottom		
								81.1459	32.13275	14:21	28.69	32.08	20.63	55.06	7.8	89.8	55.2	3.89	10	Bottom		
								81.1460	32.13282	14:22	28.82	32.08	20.63	55.06	7.8	89.8	55.2	3.89	11	Bottom		
								81.1461	32.13289	14:23	28.95	32.08	20.63	55.06	7.8	89.8	55.2	3.89	12	Bottom		
8/20/2007	Incoming	8.0	88+810	81.13611	32.13218	Down-current (Inland)	Center	81.1375	32.12848	14:39	28.68	11.45	6.49	0.04	7.89	82	76	5.65	3	Surface		
								81.1376	32.12855	14:40	28.81	11.45	6.49	0.04	7.89	82	76	5.65	4	Surface		
								81.1377	32.12862	14:41	28.94	11.45	6.49	0.04	7.89	82	76	5.65	5	Surface		
								81.1378	32.12869	14:42	29.07	11.45	6.49	0.04	7.89	82	76	5.65	6	Surface		
								81.1379	32.12876	14:43	29.20	11.45	6.49	0.04	7.89	82	76	5.65	7	Surface		
								81.1380	32.12883	14:44	29.33	11.45	6.49	0.04	7.89	82	76	5.65	8	Surface		
								81.1381	32.12890	14:45	29.46	11.45	6.49	0.04	7.89	82	76	5.65	9	Surface		
								81.1382	32.12897	14:46	29.59	11.45	6.49	0.04	7.89	82	76	5.65	10	Surface		
								81.1383	32.12904	14:47	29.72	11.45	6.49	0.04	7.89	82	76	5.65	11	Surface		
								81.1384	32.12911	14:48	29.85	11.45	6.49	0.04	7.89	82	76	5.65	12	Surface		
								81.1385	32.12918	14:49	29.98	11.45	6.49	0.04	7.89	82	76	5.65	1	Surface		
								81.1386	32.12925	14:50	30.11	11.45	6.49	0.04	7.89	82	76	5.65	2	Surface		



Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides-Bull St.		Dredge Station	Dredge Lon. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTUs)	DO <sub>2</sub> (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time																				
8/21/2007	Incoming	14:30	88+10	81.13616	32.13071		Center	81.1388	32.13045	14:21	28.61	32.64	20.34	44.80	7.55	56.2	46.7	3.34	1	Bottom	J. Wallace	
								81.1389	32.13041	14:22	28.42	21.77	13.05	21.61	7.82	7.4	63.2	3.99	2	Middle	C. Gallowood	
								81.1400	32.13046	14:24	28.31	6.39	3.45	0.37	7.7	7.6	72.6	5.85	3	Surface		
								81.1750	32.13231	14:28	28.5	33.57	20.99	46.52	7.56	104.8	50.4	3.6	4	Bottom		
								81.1381	32.13259	14:28	28.47	24.62	15.13	24.60	7.81	4.7	75.1	3.65	5	Middle		
								81.1384	32.13265	14:30	28.73	7.85	4.23	0.29	7.81	4.7	75.1	3.65	6	Surface		
								81.1372	32.13251	14:30	28.48	33.6	21.15	47.20	7.84	76.5	51.2	3.65	7	Bottom		
								81.1378	32.13253	14:30	28.45	7.13	16.33	25.19	7.83	72	55.8	3.85	8	Middle		
								81.1378	32.13253	14:30	28.45	7.13	16.33	25.19	7.83	72	55.8	3.85	8	Middle		
								81.1378	32.13253	14:30	28.45	7.13	16.33	25.19	7.83	72	55.8	3.85	8	Middle		
								81.1357	32.13255	14:42	28.36	22.84	13.75	21.88	7.88	37.6	52.9	3.7	10	Bottom		
								81.1358	32.13251	14:43	28.8	6.853	4.95	0.33	7.83	4.8	72	4.15	11	Surface		

Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Time	Direction	Tide/Bull St.	Stage	Dredge Station	Dredge Lon. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	Site	Notes	Personnel	Comments	
																								Time
7/2/2007	18:56	Outgoing	0.0	80-50	81.12898	32.11211	32.11211	Center	Up-current (Inland)	81.12898	32.11306	11:23	26.18	20.94	12.47	42.81	7.34	116.5	50.4	3.81	1	Bottom		
												11:24	26.11	20.94	12.47	42.81	7.34	116.5	50.4	3.81	2	Middle		
												11:25	26.04	20.94	12.47	42.81	7.34	116.5	50.4	3.81	3	Surface		
												11:26	25.97	20.94	12.47	42.81	7.34	116.5	50.4	3.81	4	Bottom		
												11:27	25.90	20.94	12.47	42.81	7.34	116.5	50.4	3.81	5	Middle		
												11:28	25.83	20.94	12.47	42.81	7.34	116.5	50.4	3.81	6	Surface		
												11:29	25.76	20.94	12.47	42.81	7.34	116.5	50.4	3.81	7	Bottom		
												11:30	25.69	20.94	12.47	42.81	7.34	116.5	50.4	3.81	8	Middle		
												11:31	25.62	20.94	12.47	42.81	7.34	116.5	50.4	3.81	9	Surface		
												11:32	25.55	20.94	12.47	42.81	7.34	116.5	50.4	3.81	10	Bottom		
7/2/2007	17:43	Outgoing	0.0	80-460	81.12857	32.11222	32.11222	Center	Up-current (Inland)	81.12858	32.11206	12:57	26.84	19.08	11.26	41.89	7.4	27.6	50.8	3.88	1	Bottom		
												12:58	26.75	19.08	11.26	41.89	7.4	27.6	50.8	3.88	2	Middle		
												12:59	26.66	19.08	11.26	41.89	7.4	27.6	50.8	3.88	3	Surface		
												13:00	26.57	19.08	11.26	41.89	7.4	27.6	50.8	3.88	4	Bottom		
												13:01	26.48	19.08	11.26	41.89	7.4	27.6	50.8	3.88	5	Middle		
												13:02	26.39	19.08	11.26	41.89	7.4	27.6	50.8	3.88	6	Surface		
												13:03	26.30	19.08	11.26	41.89	7.4	27.6	50.8	3.88	7	Bottom		
												13:04	26.21	19.08	11.26	41.89	7.4	27.6	50.8	3.88	8	Middle		
												13:05	26.12	19.08	11.26	41.89	7.4	27.6	50.8	3.88	9	Surface		
												13:06	26.03	19.08	11.26	41.89	7.4	27.6	50.8	3.88	10	Bottom		
7/5/2007	12:48	Incoming	7.9	82-000	81.12896	32.11423	32.11423	Right	Down-current (Inland)	81.12898	32.11612	12:07	27.65	11.08	5.25	24.60	7.38	86.8	57.7	3.85	1	Bottom		
												12:08	27.57	11.08	5.25	24.60	7.38	86.8	57.7	3.85	2	Middle		
												12:09	27.49	11.08	5.25	24.60	7.38	86.8	57.7	3.85	3	Surface		
												12:10	27.41	11.08	5.25	24.60	7.38	86.8	57.7	3.85	4	Bottom		
												12:11	27.33	11.08	5.25	24.60	7.38	86.8	57.7	3.85	5	Middle		
												12:12	27.25	11.08	5.25	24.60	7.38	86.8	57.7	3.85	6	Surface		
												12:13	27.17	11.08	5.25	24.60	7.38	86.8	57.7	3.85	7	Bottom		
												12:14	27.09	11.08	5.25	24.60	7.38	86.8	57.7	3.85	8	Middle		
												12:15	27.01	11.08	5.25	24.60	7.38	86.8	57.7	3.85	9	Surface		
												12:16	26.93	11.08	5.25	24.60	7.38	86.8	57.7	3.85	10	Bottom		
7/5/2007	13:47	Incoming	8.1	91-680	81.12862	32.11378	32.11378	Center	Down-current (Inland)	81.12898	32.11584	10:46	27.61	13.3	7.63	42.46	7.28	51.71	51.0	3.82	1	Bottom		
												10:47	27.53	13.3	7.63	42.46	7.28	51.71	51.0	3.82	2	Middle		
												10:48	27.45	13.3	7.63	42.46	7.28	51.71	51.0	3.82	3	Surface		
												10:49	27.37	13.3	7.63	42.46	7.28	51.71	51.0	3.82	4	Bottom		
												10:50	27.29	13.3	7.63	42.46	7.28	51.71	51.0	3.82	5	Middle		
												10:51	27.21	13.3	7.63	42.46	7.28	51.71	51.0	3.82	6	Surface		
												10:52	27.13	13.3	7.63	42.46	7.28	51.71	51.0	3.82	7	Bottom		
												10:53	27.05	13.3	7.63	42.46	7.28	51.71	51.0	3.82	8	Middle		
												10:54	26.97	13.3	7.63	42.46	7.28	51.71	51.0	3.82	9	Surface		
												10:55	26.89	13.3	7.63	42.46	7.28	51.71	51.0	3.82	10	Bottom		
7/9/2007	16:43	Incoming	8.7	90-270	81.12389	32.11073	32.11073	Center	Up-Current (Coastward)	81.12389	32.11073	12:20	28.07	10.3	5.7	38.45	7.32	41.5	ment					
												12:21	27.99	10.3	5.7	38.45	7.32	41.5	ment					
												12:22	27.91	10.3	5.7	38.45	7.32	41.5	ment					
												12:23	27.83	10.3	5.7	38.45	7.32	41.5	ment					
												12:24	27.75	10.3	5.7	38.45	7.32	41.5	ment					
												12:25	27.67	10.3	5.7	38.45	7.32	41.5	ment					
												12:26	27.59	10.3	5.7	38.45	7.32	41.5	ment					
												12:27	27.51	10.3	5.7	38.45	7.32	41.5	ment					
												12:28	27.43	10.3	5.7	38.45	7.32	41.5	ment					
												12:29	27.35	10.3	5.7	38.45	7.32	41.5	ment					
7/10/2007	11:54	Incoming	-0.4	80-332	81.12382	32.11087	32.11087	Center	Up-Current (Coastward)	81.12389	32.11254	12:04	28.31	15.75	9.16	40.99	7.51	140.8	49.7	3.16	1	Bottom		
												12:05	28.23	15.75	9.16	40.99	7.51	140.8	49.7	3.16	2	Middle		
												12:06	28.15	15.75	9.16	40.99	7.51	140.8	49.7	3.16	3	Surface		
												12:07	28.07	15.75	9.16	40.99	7.51	140.8	49.7	3.16	4	Bottom		
												12:08	27.99	15.75	9.16	40.99	7.51	140.8	49.7	3.16	5	Middle		
												12:09	27.91	15.75	9.16	40.99	7.51	140.8	49.7	3.16	6	Surface		
												12:10	27.83	15.75	9.16	40.99	7.51	140.8	49.7	3.16	7	Bottom		
												12:11	27.75	15.75	9.16	40.99	7.51	140.8	49.7	3.16	8	Middle		
												12:12	27.67	15.75	9.16	40.99	7.51	140.8	49.7	3.16	9	Surface		
												12:13	27.59	15.75	9.16	40.99	7.51	140.8	49.7	3.16	10	Bottom		
7/11/2007	12:46	Outgoing	-0.3	92-000	81.12792	32.11478	32.11478	Center	Up-Current (Inland)	81.12858	32.11586	12:06	28.75	9.427	5.28	35.36	7.25	112.8	58.7	4.41	1	Bottom		
												12:07	28.67	9.427	5.28	35.36	7.25	112.8	58.7	4.41	2	Middle		
												12:08	28.59	9.427	5.28	35.36	7.25	112.8	58.7	4.41	3	Surface		
												12:09	28.51	9.427	5.28	35.36	7.25	112.8	58.7	4.41	4	Bottom		
												12:10	28.43	9.427	5.28	35.36	7.25	112.8	58.7	4.41	5	Middle		
												12:11	28.35	9.427	5.28	35.36	7.25	112.8	58.7	4.41	6	Surface		
												12:12	28.27	9.427	5.28	35.36	7.25	112.8	58.7	4.41	7	Bottom		
												12:13	28.19	9.427	5.28	35.36	7.25	112.8	58.7	4.41	8	Middle		
												12:14	28.11	9.427	5.28	35.36	7.25	112.8	58.7	4.41	9	Surface		
												12:15	28.03	9.427	5.28	35.36	7.25	112.8	58.7	4.41	10	Bottom		



Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides-Bull St.		Dredge Station	Dredge Lon. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time																			
7/12/2007	Outgoing	13:44 -0.3	91+570	81.12569	32.11388	Up-Current(Inland)	Center	81.12522	32.1113	10:44	28.88	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										10:45	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:46	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:47	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:48	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:49	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:50	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:51	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
										10:52	28.87	15.97	6.29	30.74	7.62	58.5	44.2	3.23	1	Bottom	
7/19/2007	Outgoing	14:41 -0.4	91+200	81.12532	32.11296	Up-Current(Inland)	Center	81.12310	32.1108	10:47	29.19	17.88	10.49	41.55	7.51	187.5	48.5	3.51	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										10:48	29.18	15.09	8.73	20.81	7.46	45.4	48.1	3.59	2	Middle	
										10:49	29.22	9.306	5.18	6.93	7.36	11.1	81.2	4.56	3	Surface	
										10:50	29.22	9.306	5.18	6.93	7.36	11.1	81.2	4.56	3	Surface	
										10:51	29.22	9.306	5.18	6.93	7.36	11.1	81.2	4.56	3	Surface	
										10:52	29.22	9.306	5.18	6.93	7.36	11.1	81.2	4.56	3	Surface	
										10:53	29.22	9.306	5.18	6.93	7.36	11.1	81.2	4.56	3	Surface	
										10:54	29.27	11.18	8.31	8.60	7.43	148.5	56	4.14	9	Surface	
										10:55	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
7/19/2007	Outgoing	17:12 -0.1	88+600	81.1234	32.11220	Down-Current (Oceanward)	Left	81.12220	32.1108	12:23	29.51	15.94	3.2	3.94	7.02	30.8	64.9	3.87	3	Surface	They lifted the cutter head as we began checking directly down from it
										12:24	29.51	15.94	3.2	3.94	7.02	30.8	64.9	3.87	3	Surface	
										12:25	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:26	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:27	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:28	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:29	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:30	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
										12:31	29.54	38.89	23.01	40.95	7.08	27.6	45.9	3.06	1	Bottom	
7/19/2007	Outgoing	17:55 0.2	91+200	81.12541	32.11288	Up-Current (Inland)	Center	81.12728	32.11443	11:29	29.49	16.49	10.98	43.40	7.42	104.1	48.5	3.34	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										11:30	29.45	14.49	8.35	22.77	7.36	24.9	50.1	3.85	2	Middle	
										11:31	29.49	7.769	4.23	6.63	7.43	25.6	50.8	3.77	3	Surface	
										11:32	29.50	16.77	11.08	43.68	7.37	89.8	46.7	3.35	7	Bottom	
										11:33	29.47	15.95	9.28	21.89	7.36	44	49.5	3.69	8	Middle	
										11:34	29.45	10.1	5.35	6.73	7.38	26.1	55.5	4.1	9	Surface	
										11:35	29.45	10.1	5.35	6.73	7.38	26.1	55.5	4.1	9	Surface	
										11:36	29.45	10.1	5.35	6.73	7.38	26.1	55.5	4.1	9	Surface	
										11:37	29.45	10.1	5.35	6.73	7.38	26.1	55.5	4.1	9	Surface	
7/19/2007	Outgoing	18:37 0.7	88+200	81.12512	32.11213	Up-Current (Inland)	Center	81.12832	32.11983	12:43	29.63	20.72	12.32	48.70	7.48	138.4	49.5	3.52	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										12:44	29.62	17.55	10.05	21.02	7.48	80.5	49.5	3.52	1	Bottom	
										12:45	29.62	13.36	7.84	6.76	7.45	30.2	69.1	4.36	3	Surface	
										12:46	29.63	21.35	12.73	49.42	7.48	97.6	49.4	3.5	7	Bottom	
										12:47	29.63	21.35	12.73	49.42	7.48	97.6	49.4	3.5	7	Bottom	
										12:48	29.63	21.35	12.73	49.42	7.48	97.6	49.4	3.5	7	Bottom	
										12:49	29.63	21.35	12.73	49.42	7.48	97.6	49.4	3.5	7	Bottom	
										12:50	29.63	21.35	12.73	49.42	7.48	97.6	49.4	3.5	7	Bottom	
										12:51	29.65	14.05	6.07	6.68	7.48	30.8	58.5	4.09	9	Surface	
7/19/2007	Incoming	13:16 7.4	80+380	81.12405	32.11064	Up-Current (Oceanward)	Center	81.12321	32.10987	11:40	29.79	23.57	14.44	43.62	7.38	144.3	51.7	3.62	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										11:41	29.69	15.78	6.16	22.63	7.33	32.0	64	3.9	2	Middle	
										11:42	29.61	6.41	4.64	6.47	7.33	19.7	68.8	5.08	3	Surface	
										11:43	29.79	24.6	14.86	46.67	7.4	188.9	51	3.66	7	Bottom	
										11:44	29.75	17.54	10.27	22.61	7.39	61.9	62.7	3.78	8	Middle	
										11:45	29.68	8.501	4.7	6.39	7.38	18.9	66.3	4.9	9	Surface	
										11:46	29.68	8.501	4.7	6.39	7.38	18.9	66.3	4.9	9	Surface	
										11:47	29.68	8.501	4.7	6.39	7.38	18.9	66.3	4.9	9	Surface	
										11:48	29.68	8.501	4.7	6.39	7.38	18.9	66.3	4.9	9	Surface	
7/20/2007	Incoming	14:04 7.4	80+800	81.12449	32.11181	Up-Current (Oceanward)	Center	81.12239	32.00175	11:48	29.88	31.65	16.6	45.80	7.22	173.6	49	3.33	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										11:49	29.82	18.65	10.05	21.02	7.16	23.2	68.5	4.03	2	Middle	
										11:50	29.84	11.05	6.76	6.76	7.16	19.3	67.2	3.97	3	Surface	
										11:51	29.84	30.65	19.05	48.70	7.18	93	52	3.77	9	Bottom	
										11:52	29.84	30.65	19.05	48.70	7.18	93	52	3.77	9	Bottom	
										11:53	29.84	30.65	19.05	48.70	7.18	93	52	3.77	9	Bottom	
										11:54	29.84	30.65	19.05	48.70	7.18	93	52	3.77	9	Bottom	
										11:55	29.84	30.65	19.05	48.70	7.18	93	52	3.77	9	Bottom	
										11:56	30.07	10.46	5.67	1.02	7.31	13.1	70.4	5.15	9	Surface	
7/23/2007	Incoming	16:20 7.8	88+600	81.12204	32.10963	Up-Current (Oceanward)	Center	81.12141	32.10767	10:21	29.72	30.12	16.56	39.98	7.5	28.7	46.1	3.16	1	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river
										10:22	29.52	20.26	12.02	24.25	7.5	16.8	57.5	4.1	2	Middle	
										10:23	29.4	15.37	6.91	6.83	7.5	10.6	86.2	4.96	3	Surface	
										10:24	29.72	28.3	17.39	38.84	7.5	71	50.3	3.47	7	Bottom	
										10:25	29.55	19.78	11.71	22.24	7.51	15.2	69.6	4.04	8	Middle	
										10:26	29.39	12.85	7.34	6.87	7.52	10	70.6	5.15	9	Surface	
										10:27	29.39	12.85	7.34	6.87	7.52	10	70.6	5.15	9	Surface	
										10:28	29.39	12.85	7.34	6.87	7.52	10	70.6	5.15	9	Surface	
										10:29	29.39	12.85	7.34	6.87	7.52	10	70.6	5.15	9	Surface	

Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tide	Direction	Time	Stage	Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Location-300ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (mS/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	Site	Notes	Personnel	Comments
7/24/2007	Outgoing	10:40	1.1	89+400	81-12243	32-10872	Center	Up-Current (Inland)	Center	81-12385	32-11079	10:22	28.47	30.37	15.73	43.22	7.55	27	43.7	3.01	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
												10:24	28.55	20.41	12.12	20.90	7.5	13.4	52.2	3.72	Middle		
7/25/2007	Incoming	18:01	7.9	89+640	81-12254	32-10951	Center	Up-Current (Oceanward)	Center	81-12068	32-10688	13:25	28.28	13.21	17.58	40.17	7.52	28.9	45.1	3.12	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
												13:14	28.28	23.54	17.58	40.17	7.52	28.9	45.1	3.12	Middle		
7/28/2007	Outgoing	12:28	0.8	89+742	81-12164	32-11040	Center	Up-Current (Inland)	Center	81-12311	32-11139	11:33	28.06	28.95	15.46	42.15	7.45	20	45	3.12	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
												11:34	28.15	20.35	12.09	20.85	7.46	18.9	46.5	3.49	Middle		
7/27/2007	Outgoing	9:03	0.6	89+220	81-12073	32-10818	Center	Up-Current (Inland)	Center	81-12686	32-11091	9:05	28.04	25.21	15.27	23.70	7.56	17.7	48.9	3.23	Bottom	The dredge was located in the center of the navigation channel, so just Center was taken 500 feet up and down river	
												9:10	28.75	12.73	7.28	0.79	7.59	9.2	43.9	4.75	9		Surface
7/29/2007	Outgoing	15:57	-0.1	N/A	N/A	N/A	Center	Center of K1TB	Center	81-12029	32-1078	9:03	28.93	32.32	20.08	45.89	7.56	44.6	46.5	3.21	Bottom	The center of the Kings Island turning	
												9:04	28.02	24.22	14.52	21.87	7.53	10.1	51.2	3.63	2		Middle
7/31/2007	Outgoing	18:44	-0.2	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	10:30	28.99	23.85	14.99	49.72	7.28	62	41.8	4.87	Bottom	Pre O2 test data	
												10:31	28.92	20.41	12.13	24.83	7.3	24.5	43.5	3.13	14		Surface
8/1/2007	Outgoing	17:31	-0.2	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	13:00	28.87	19.64	11.78	50.06	7.19	92.7	40.8	2.85	Bottom	Pre O2 test data	
												13:02	28.23	12.9	7.37	0.97	7.21	17.6	55.3	4.07	15		Surface
8/2/2007	Outgoing	11:38	8.4	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	13:05	28.01	15.45	8.98	47.69	7.17	27.0	40.8	2.85	Bottom	Pre O2 test data	
												13:07	28.9	12.05	6.35	24.22	7.16	49.1	47.8	3.95	14		Surface
8/3/2007	Incoming	12:30	8.5	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	13:03	28.76	18.75	6.39	1.19	7.16	20.1	58.3	4.42	Bottom	Pre O2 test data	
												13:04	28.76	18.75	6.39	1.19	7.16	20.1	58.3	4.42	Bottom		
8/9/2007	Incoming	15:30	8.6	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	13:12	28.73	15.92	9.25	43.26	7.21	15.2	65.8	4.86	Bottom	Pre O2 test data	
												13:13	28.73	11.74	6.33	21.65	7.21	29.5	42.4	3.26	13		Middle
8/7/2007	Incoming	16:31	8.6	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	10:47	29.03	12.7	7.24	44.29	6.91	25.4	45.5	3.36	Bottom	Pre O2 test data, O2 diffusers started at 15:00 today	
												10:48	28.95	5.814	3.13	22.41	6.83	14	63.8	4.86	14		Middle
8/8/2007	Outgoing	11:30	0.1	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	10:49	29.07	3.195	1.66	1.24	6.84	5.1	73.8	5.6	15	Surface	O2 test data
												10:55	29.2	20.73	12.33	44.17	7.71	34.9	44.7	3.2	13	Bottom	
8/9/2007	Outgoing	12:31	0.1	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	10:57	29.92	2.28	1.16	0.11	6	18.4	63	6.25	15	Surface	O2 test data
												10:58	29.76	30.92	19.1	48.47	7.37	79.8	41	2.8	13	Bottom	
8/10/2007	Outgoing	13:28	0.0	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	10:10	30.29	22.89	13.8	23.50	7.35	65.4	48.9	3.49	14	Middle	O2 test data
												8:27	30.14	38.43	24.29	48.69	7.36	34.9	46	2.91	13	Bottom	
8/15/2007	Incoming	11:04	7.9	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	8:29	30.25	16.39	8.8	0.50	7.32	10.1	40.7	4.35	15	Surface	O2 test data
												8:31	31.27	19.55	9.65	53.11	7.2	246.9	42.7	3	13	Bottom	
8/20/2007	Outgoing	20:59	2.0	N/A	N/A	N/A	Center	Center of K1TB	Center	81-13747	32-13228	8:54	31.27	2.86	4.56	0.10	7.17	24.6	46.9	3.34	14	Middle	O2 test data
												14:55	30.75	31.89	19.74	51.82	7.66	35.5	49.1	3.29	7	Bottom	
												15:01	31.83	10.27	5.74	1.18	7.72	9	79	6.35	9	Surface	



Appendix C  
 USACE Dredge Water Quality Monitoring Data

Date	Tides-Bull St.		Dredge Station	Dredge Len. (W)	Dredge Lat. (N)	Location-500ft from the Dredge	Channel Position	Lon. (W)	Lat. (N)	Time	Temp (°C)	Sp Cond (µmhos/cm)	Salinity (ppt)	Depth (ft)	pH	Turbidity (NTU)	DO% (mg/L)	D.O. (mg/L)	Site	Notes	Personnel	Comments
	Direction	Time Stage																				
8/20/2007	Outgoing	20:59	N/A	N/A	N/A	Center of Channel at DC demo project	Center	81.0904	32.08302	15:17	30.44	38.86	24.58	60.83	7.8	30.7	51.2	3.38	10	Bottom	Ward	O2 test data
8/21/2007	Incoming	16:29	N/A	N/A	N/A	Center of KTB	Center	81.13747	32.19229	11:07	30.98	26.81	18.37	46.89	7.58	95.4	40.3	3.64	11	Middle	Williams	O2 test data
8/21/2007	Incoming	16:29	N/A	N/A	N/A	Center of Channel at DC demo project	Center	81.0904	32.08302	11:37	30.53	39.45	22.85	48.61	7.77	58	47.8	3.13	1	Bottom	Ward	O2 test data
8/24/2007	Outgoing	11:55	N/A	N/A	N/A	Center of KTB	Center	81.13747	32.19229	8:42	30.77	34.53	21.98	47.11	7.89	151	42.2	2.8	10	Bottom	Ward	O2 test data
8/24/2007	Outgoing	11:55	N/A	N/A	N/A	Station 101 - Across from Dredge at GPA bath	Center	81.14141	32.13651	10:03	31.11	17.03	8.93	0.15	7.51	6.3	64.1	4.5	12	Surface	Ward	O2 test data
8/25/2007	Incoming	18:13	98+500	81.13847	32.13402	Down-current (Inland)	Center	81.13747	32.19229	15:23	30.93	27.54	18.81	33.91	7.54	21.7	46	3.09	6	Middle	Ward	
8/25/2007	Incoming	18:13	98+500	81.13765	32.13416	Down-current (Inland)	Right	81.13729	32.13553	15:32	30.9	28.32	17.32	29.43	7.65	38.5	45.9	3.11	4	Bottom	Ward	
8/25/2007	Incoming	18:13	98+500	81.13765	32.13416	Up-current (Oceanward)	Center	81.13767	32.13077	15:38	30.88	28.67	18.23	55.01	7.6	46.6	46.5	3.13	7	Bottom	Ward	
8/25/2007	Incoming	18:13	98+500	81.13765	32.13416	Up-current (Oceanward)	Right	81.13833	32.13008	16:36	31.01	26.22	15.81	27.80	7.59	11.9	49.6	3.36	6	Middle	Ward	
8/25/2007	Incoming	18:13	98+500	81.13765	32.13416	Down-current (Inland)	Center	81.14111	32.13548	17:47	30.89	22.9	13.62	45.88	7.45	430.8	39.8	2.76	1	Bottom	Ward	Dredge had just shut down briefly for minor repairs
8/25/2007	Incoming	20:04	98+500	81.13765	32.13416	Down-current (Inland)	Right	81.14172	32.13548	17:47	30.89	22.9	13.62	45.88	7.45	430.8	39.8	2.76	1	Bottom	Ward	
8/27/2007	Outgoing	14:46	98+30	81.13763	32.13481	Down-current (Oceanward)	Center	81.13820	32.13132	16:02	30.86	23.89	14.36	53.15	7.46	107.8	43.7	3.01	7	Bottom	C. Williams	
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Up-current (Inland)	Center	81.14148	32.13548	12:14	30.52	15.14	6.74	8.48	7.19	12.3	42.6	3.01	2	Middle	Ward	
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Up-current (Inland)	Right	81.14160	32.13555	12:15	30.4	13.92	7.92	6.60	7.14	27.1	46.2	3.32	3	Surface	J. Williams	
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Center	81.13793	32.13522	12:20	30.85	22.2	13.26	42.55	7.29	48.1	40.6	2.92	4	Bottom	C. Gatewood	
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Right	81.13777	32.13521	12:23	30.47	17.57	10.34	21.70	7.21	8.9	42.3	3	5	Middle		
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Center	81.1381	32.13001	12:32	30.59	21.41	12.75	42.86	7.25	155.9	40.4	2.82	7	Bottom		
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Right	81.13874	32.12957	12:34	30.53	17.05	9.95	25.04	7.15	34.9	43.5	3.05	8	Middle		
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Center	81.13841	32.13178	12:39	30.54	13.55	7.75	0.79	7.19	17.3	48	3.45	9	Surface		
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Right	81.13941	32.13182	12:41	30.46	17.51	10.24	19.67	7.16	37.3	41.2	2.89	10	Bottom		
8/28/2007	Outgoing	16:38	-0.2	98+525	81.13654	Down-current (Oceanward)	Center	81.13901	32.13182	12:42	30.5	14.85	8.56	5.09	7.18	19.3	48.9	3.36	12	Surface		