

Water Quality Monitoring Report
2015 Dredging and Decanting
for the
New NY Bridge Project

Revision 0
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1.0 Introduction

This report summarizes the results of water quality monitoring for dredging and decanting activities, in accordance with New York State Department of Environmental Conservation Permit DEC ID 3-9903-00043/00013 (NYSDEC Permit) Condition 65.

2.0 Dredging and Decanting Activities

Dredging operations commenced on August 1, 2015 and ended on September 17, 2015. Dredging activities were scheduled to occur seven (7) days a week, twenty-four (24) hours a day. All dredging operations were completed by Weeks Marine Inc. (WMI) as subcontractor to Tappan Zee Constructors LLC (TZC) using the WMI 506 dredge (506) and WMI 549 dredge (549). The Stage II Dredge Area was dredged by the 506 and 549 dredges; the 549 was used to dredge the areas beneath the existing bridge while the 506 was used for Stage II Area south of the existing bridge. The Access Area was dredged by the 506 and the 549. The East Sediment Mound and the Stage I East Area were both dredged by the 549.

Decanting of dredged material prior to transport to upland placement facilities commenced on August 4, 2015 and ended on December 11, 2015. Crane barge WMI 534 (534) and armoring barge WMI A263 (A263) were used for decanting operations. Decanting activities were scheduled to occur when necessary, during dredging operations. The 534 was used for all decanting activities during the dredging window. Decanting operations during dredging were completed on September 18, 2015. WMI elected to leave the scows used for decanting, the Weeks 70 and Weeks 74 barges, on location as a temporary mooring for armoring material. These barges contained settled solids from dredged decant water. From September 18, 2015 to December 2015 these scows were un-used for additional sediment storage but did collect rain water. On December 10, 2015 and December 11, 2015, the Weeks 70 and Weeks 74 were decanted for a final time by the A263, prior to removal from the site.

3.0 Water Quality Monitoring Activities

Water quality monitoring occurred in accordance with the approved Water Quality Monitoring Plan throughout the dredging season. Due to logistical (e.g., dredge scow availability) and equipment mechanical issues, there were multiple days when dredging and decanting did not occur as scheduled such that whole water samples were not collected.

From August 1 to August 13, 2015, whole water quality samples were collected each day dredging occurred in the Stage II dredging area, in accordance with Permit Condition 61. After five (5) consecutive sampling events without an exceedance a reduced monitoring request was submitted to the NYSDEC on August 7, 2015 and approved on August 13, 2015. Following the approval, monitoring was reduced to twice weekly Total Suspended Solids (TSS) sampling in accordance with Permit Condition 64.

From August 1 to September 17, 2015, whole water quality samples were collected each day dredging occurred in the Access Area, Sediment Mound 3, and the Stage I Dredging Area, in accordance with Permit Condition 61. The only exception was an uncollected sample during dredging in the Access Area on September 1, 2015. Approximately 50 minutes of dredging took place in the Access Area before an unanticipated mechanical failure on the 506 dredge occurred, shutting down dredging operations until after sunset. No sample was collected because the mechanical failure occurred shortly before the water quality monitoring vessel arrived on site, at the typical time of arrival for the monitoring vessel. The water quality monitoring vessel remained on standby for the rest of the day, however dredging activities did not resume before sunset. To prevent additional missed samples, dredging

superintendents were contacted by the water quality monitoring by the Environmental Compliance Team (ECT) the day before scheduled dredging to confirm the anticipated start time. The water quality monitoring crews would then arrive on site earlier than the anticipated start time. No additional dredging samples were missed.

From August 1 to December 11, 2015, whole water quality samples were collected each day decanting activities occurred, in accordance with Permit Condition 61, with the exception a missed sample on August 4, 2015. The sample was missed due to an unanticipated problem with communication between the decanting superintendent and water quality monitoring crew. A two hour notification prior to decanting was given at approximately 03:00 with decanting starting at approximately 05:00. Decanting had concluded before the water quality monitoring crew was able to collect a sample. A 2 hour notification provides insufficient time for water quality monitoring crews to arrive on site. To prevent additional missed samples, decanting crews were instructed to provide notification 12 hours prior to the start of decanting. A 12 hour notification period allowed sufficient time for a water quality monitoring crew to be deployed, therefore no additional decanting samples were missed.

4.0 Result

Attachments 1 through 5 provide a summary of whole water samples collected for dredging and decanting. Water quality samples were collected on 44 days during the dredging season and 2 days of decanting outside of the dredging season, for a total of 46 days. Water quality monitoring results indicate that there were no water quality exceedances during 36 of the 46 days sampled for dredging and decanting operations. Table 1 provides a summary of samples collected by dredge or decanting barge and the number of days that were in compliance with water quality standards.

Table 1. Number of Sample Events within NYSDEC Permit Condition 61 Standards

Permitted Activity	Number of Sample Events	No. Of Sample Exceedances	Percent of Samples Under Permit Limits
Stage 2	31	0	100%
Stage 2 Access Area	6	2 ¹	67%
East Sediment Mound 3	2	0	100%
Stage 1	2	0	100%
Decanting	100	11 ²	89%

¹ On August 28, 2015 exceedances were measured for both TSS and Total mercury in the same sampling event, see attachment 2 for details.

² On August 10, 2015 exceedances were measured for both TSS and Total Mercury in the same sampling event, see attachment 5 for details.

Thirteen (13) samples exceeded Permit Condition 61 water quality standards during the dredging season: two TSS exceedances and 13 for mercury. All samples that exceeded standards were collected in August and September, 2015. Tables 2 and 3 below summarize TSS and mercury exceedances, respectively. Both samples that exceeded TSS standards also exceeded the mercury standards. On September 4, 2015 and September 11, 2015, samples from multiple depths exceeded the mercury standards.

Table 2. TSS Exceedances during 2015 Dredging and Decanting

Date (mm/dd/yy)	Permitted Activity	Tide Cycle	Depth of Sample	Up-current concentration (mg/l)	Down-current concentration (mg/l)
08/10/15	Decanting	Flood	Bottom	52.7	246.0
08/28/15	Access Area	Ebb	Mid	23.0	145.0

Table 3. Mercury Exceedances during 2015 Dredging and Decanting

Date (mm/dd/yy)	Permitted Activity	Tide Cycle	Depth of Sample	Up-current concentration (ppb)	Down-current concentration (ppb)
08/07/15	Decanting	Flood	Bottom	ND	0.1
08/10/15	Decanting	Flood	Bottom	ND	0.1
08/14/15	Decanting	Flood	Bottom	ND	0.1
08/20/15	Decanting	Ebb	Bottom	ND	0.1
08/22/15	Decanting	Ebb	Bottom	ND	0.5
08/28/15	Access Area	Ebb	Mid	ND	0.2
08/31/15	Access Area	Flood	Mid	ND	0.2
09/04/15	Decanting	Ebb	Surface	ND	0.1
09/04/15	Decanting	Ebb	Bottom	0.2	0.6
09/04/15	Decanting	Flood	Surface	ND	0.06
09/11/15	Decanting	Ebb	Surface	ND	0.2
09/11/15	Decanting	Ebb	Bottom	0.06	0.3
09/13/15	Decanting	Flood	Bottom	ND	0.6

ND – Not detected

One sample that exceeded TSS standards was collected during dredging by the 506 in the Access area on August 28, 2015; the other was collected during decanting on August 10, 2015. Down-current concentrations were 93.3 and 22.0 ppm above the Permit Condition 61 standard respectively.

Mercury exceedances during dredging occurred on August 28, 2015 and August 31, 2015 when the 506 was dredging in the Access Area. Down-current concentrations on both days were 0.2 parts per billion (ppb) above up-current or background concentrations. There were no other mercury exceedances during dredging activities.

There were 11 samples collected on 8 days during decanting that exceeded Permit Condition 61 standards for total mercury. Samples from multiple depths exceeded the mercury standard on September 4, 2015 and September 11, 2015. Mercury exceedances ranged from 0.06 to 0.6 ppb above up-current concentrations.

On September 3, 2015 and September 8, 2015 water and sediment samples were collected from the Weeks 74 settling barge (Attachment 6). Mercury was detected in the sediment collected from the bottom of the settling barge; however, mercury was not detected in the scow water (Attachment 6). As shown in Attachment 8, TSS and Mercury samples on September 3, 2015 and September 8, 2015 were within permit conditions indicating that best management practices (BMPs) regarding sediment resuspension were adequately implemented. TZC also monitored dredging and decanting operations through daily visual monitoring for turbidity that resulted in a substantial visible contrast relative to the ambient conditions of the Hudson River outside of the 500-foot mixing zone. Visual monitoring was documented through environmental checklists, visual inspection forms, and/or field compliance reports. Table 4 below summarizes the visual monitoring completed for dredging and decanting operations.

Table 4. Summary of Visual Monitoring for Turbidity from August 1, 2015 to December 11, 2015

Construction Activity	No. of Observations	No. of Observations with Visible Turbidity	Percent of Observations Free of Visible Turbidity
Dredging: All Locations	116	0	100%
Decanting	89	3	97%
Total	205	3	99%

There were 116 visual observations of dredging activities conducted by both dredges at all dredging locations; there were 0 observations of visible turbidity beyond the 500-foot mixing zone. There were 89 visual observations of decanting activities and a total of 3 observations of visible turbidity beyond the 500-foot mixing zone. Turbidity was observed and noted in field compliance documents on August 7, 2015, August 14, 2015, and August 30, 2015. When visible turbidity was observed the pump intake was lifted higher above the sediments at the bottom of the settling barge. This was done to minimize the resuspension and discharge of sediments that had settled during the 12 hour settling period.

Attachment 1

Summary of Stage II Dredging Area Water Quality Monitoring

Stage 2 Area Dredging Water Quality Monitoring
New NY Bridge Project
8/1/2015 - 9/9/2015

**TAPPAN ZEE
CONSTRUCTORS, LLC**

Date	Dredge Number	Tidal Cycle	Sample Depth ¹	Upcurrent Samples													Downcurrent Samples													Sample Status ²				
				Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(e)pyrene	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(e)pyrene					
											Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260										Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260							
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)	(ppb)													(24:00)	(ppm)	(ppb)													(Exceedances and other observations)
8/1/2015	D506	Ebb	M	19:28	18.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19:17	24.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance					
8/2/2015	D506	Flood	S	9:45	11.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:00	27.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance					
8/2/2015	D506	Flood	B	9:42	11.0	ND	ND	ND	ND	ND	ND	ND	0.5 ³	ND	ND	9:55	25.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance					
8/3/2015	D506	Flood	S	12:00	52.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:40	23.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/3/2015	D506	Flood	B	11:58	99.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:37	49.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/3/2015	D506	Ebb	S	16:41	17.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17:01	61.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/3/2015	D506	Ebb	B	16:38	34.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16:55	105.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/4/2015	D506	Ebb	S	9:34	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:18	73.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/4/2015	D506	Ebb	B	9:32	19.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:15	111.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/5/2015	D506	Flood	S	14:40	7.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14:23	58.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/5/2015	D506	Flood	B	14:37	54.0	ND	ND	16 ³	ND	14	ND	ND	ND	ND	ND	14:20	77.3	ND	ND	ND ³	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/6/2015	D506	Ebb	M	8:49	61.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:29	66.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/7/2015	D506	Ebb	M	9:23	21.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:04	68.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/8/2015	D506	Ebb	M	8:48	14.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:35	39.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/9/2015	D506	Ebb	M	9:09	14.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:51	13.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/10/2015	D506	Flood	S	8:54	12.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:39	12.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/10/2015	D506	Flood	B	8:51	15.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:37	32.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/11/2015	D506	Flood	S	10:20	18.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:03	17.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/11/2015	D506	Flood	B	10:18	18.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:01	25.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/12/2015	D506	Flood	M	8:13	14.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:00	16.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/13/2015	D506	Flood	M	11:42	14.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:54	45.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance						
8/17/2015	D506	Flood	M	10:13	13.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	10:24	17.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
8/21/2015	D506	Ebb	M	8:34	48.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	8:22	53.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
8/24/2015	D506	Ebb	M	10:24	18.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	10:12	21.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
8/25/2015	D506	Ebb	M	9:29	11.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	9:19	48.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/3/2015	D549	Flood	S	13:30	11.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	13:42	26.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/3/2015	D549	Flood	B	13:30	78.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	13:41	90.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/4/2015	D549	Ebb	M	9:46	41.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	9:36	45.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/8/2015	D549	Ebb	S	10:09	8.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	9:40	21.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/8/2015	D549	Ebb	B	10:09	9.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	9:41	54.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						
9/9/2015	D549	Ebb	M	12:29	19.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	12:21	20.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	No exceedance						

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom

² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00013

³ Upcurrent (ambient) concentrations exceeds the Water Quality Standard, Downcurrent concentration is less than 30% over background.

Samples collected at the edge of the 500 ft mixing zone

ND = Not Detected

NR = Not Required for these parameters, due to approval of reduced monitoring of Stage 2 Dredging as of 8/13/2015, pursuant to Condition 64 of NYSDEC Permit Facility ID 3-9903-0043/00012-14

Attachment 2

Access Area Dredging Water Quality Monitoring

Access Area Dredging Water Quality Monitoring
New NY Bridge Project
8/28/2015 - 9/16/2015



Date	Dredge Number	Tidal Cycle	Sample Depth ¹	Upcurrent Samples													Downcurrent Samples											Sample Status ²		
				Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(a)pyrene	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB					Naphthalene	Benzo(a)pyrene
											Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260										Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260			
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)						(ppb)												(ppb)						(Exceedances and other observations)	
8/28/2015	D506	Ebb	M	11:53	23.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent TSS was 23.0 ppm, 145.0 ppm is an exceedance. Upcurrent Mercury was ND, 0.2 ppb is an exceedance.
8/30/2015	D506	Ebb	M	13:09	21.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
8/31/2015	D506	Flood	M	8:36	50.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent Mercury was ND, 0.2 ppb is an exceedance.	
9/2/2015	D506	Flood	M	11:11	25.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/14/2015	D549	Ebb	M	18:02	62.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/16/2015	D549	Ebb	M	15:53	23.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom

² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00013

Samples collected at the edge of the 500 ft mixing zone

ND = Not Detected

Attachment 3

East Sediment Mound 3 Dredging Water Quality Monitoring

East Sediment Mound #3 Dredging Water Quality Monitoring
 New NY Bridge Project
 9/14/2015 - 9/15/2015



Date	Dredge Number	Tidal Cycle	Sample Depth ¹	Upcurrent Samples												Downcurrent Samples										Sample Status ²										
				Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(e)pyrene	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(e)pyrene							
											Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260										Aroclor 1242	Aroclor 1248		Aroclor 1254			Aroclor 1260						
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)																								(ppb)							(Exceedances and other observations)
9/15/2015	D549	Flood	S	13:27	22.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No Exceedance	
9/15/2015	D549	Flood	B	13:25	64.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No Exceedance		

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom
² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00013
 Samples collected at the edge of the 500 ft mixing zone
 ND = Not Detected

Attachment 4

Stage I East Dredging Area Water Quality Monitoring

Stage 1 East Area Dredging Water Quality Monitoring
New NY Bridge Project
9/16/2015 - 9/17/2015

TAPPAN ZEE
CONSTRUCTORS, LLC

Date	Dredge Number	Tidal Cycle	Sample Depth ¹	Upcurrent Samples													Downcurrent Samples											Sample Status ²		
				Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(e)pyrene	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB					Naphthalene	Benzo(e)pyrene
											Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260										Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260			
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)																									(Exceedances and other observations)
9/17/2015	D549	Flood	S	9:05	31.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No Exceedance
9/17/2015	D549	Flood	B	9:02	37.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No Exceedance	

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom
² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00013
 Samples collected at the edge of the 500 ft mixing zone
 ND = Not Detected

Attachment 5

Decanting Water Quality Monitoring

Dredged Sediment Decanting Water Quality Monitoring
New NY Bridge Project
8/04/2015 - 9/18/2015, 12/10/2015 - 12/11/2015



TAPPAN ZEE CONSTRUCTORS, LLC			Upcurrent Samples														Downcurrent Samples														Sample Status ²
Date	Barge Number	Tidal Cycle	Sample Depth ¹	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(a)pyrene	Sample Time	Total Suspended Solids	Mercury	Nickel	Copper	Lead	Zinc	PCB				Naphthalene	Benzo(a)pyrene		
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)						Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260			(24:00)	(ppm)						Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260				
9/10/2015	D534	Flood	M	10:48	16.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:27	23.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance
9/10/2015	D534	Flood	B	10:45	47.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:26	53.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance
9/11/2015	D534	Ebb	S	15:53	76.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15:39	80.0	0.2 ⁴	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent Mercury was ND, 0.2 ppb is an exceedance
9/11/2015	D534	Ebb	B	15:50	89.3	0.06 ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15:36	117.0	0.3 ⁴	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent Mercury was 0.06 ppb, 0.3 ppb is an exceedance	
9/12/2015	D534	Ebb	S	12:58	8.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:41	12.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/12/2015	D534	Ebb	M	12:55	24.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:38	23.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/12/2015	D534	Ebb	B	12:53	21.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:36	27.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/13/2015	D534	Flood	S	11:24	20.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:03	31.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/13/2015	D534	Flood	M	11:20	49.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:00	39.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/13/2015	D534	Flood	B	11:17	60.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:58	111.0	0.6 ⁴	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent Mercury was ND, 0.6 ppb is an exceedance
9/14/2015	D534	Flood	S	9:48	16.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:04	18.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/14/2015	D534	Flood	M	9:47	53.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10:02	62.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/14/2015	D534	Flood	B	9:44	95.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:59	74.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/15/2015	D534	Ebb	S	17:08	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16:47	48.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/15/2015	D534	Ebb	B	17:02	30.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16:45	69.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/16/2015	D534	Flood	S	12:54	14.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:35	25.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/16/2015	D534	Flood	M	12:52	26.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:32	74.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/16/2015	D534	Flood	B	12:50	213.0	0.4 ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12:28	166.0	0.2 ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Upcurrent Mercury was 0.4 ppb, 0.2 ppb is not an exceedance
9/17/2015	D534	Flood	S	14:51	14.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14:30	26.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/17/2015	D534	Flood	M	14:49	42.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14:28	39.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/17/2015	D534	Flood	B	14:47	52.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14:26	52.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/18/2015	D534	Ebb	S	9:43	15.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:29	21.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
9/18/2015	D534	Ebb	B	9:49	26.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9:26	30.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/10/2015	A263	Ebb	S	12:00	11.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:41	15.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/10/2015	A263	Ebb	M	11:57	15.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:37	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/10/2015	A263	Ebb	B	11:55	26.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11:35	27.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/11/2015	A263	Flood	S	9:03	17.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:40	11.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/11/2015	A263	Flood	M	9:00	57.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:33	17.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	
12/11/2015	A263	Flood	B	8:55	103.0	0.06 ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8:30	78.7	ND ³	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	No exceedance	

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom

² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00013

³ Upcurrent (ambient) concentrations exceeds the Water Quality Standard, Downcurrent concentration is less than 30% over background.

⁴ Reported value exceeds the Water Quality Standards as stated in Condition 61 NYSDEC Permit Facility ID 3-9903-00043/00012-13

⁵ Upcurrent (ambient) concentrations exceeds the Water Quality Standard, Downcurrent concentration is more than 30% over background.

Samples collected at the edge of the 500 ft mixing zone

ND = Not Detected

Attachment 6

Summary of Dredged Material Decanting Barge Water and Sediment Sampling

Dredged Sediment Decanting and Associated Scow Water Quality Monitoring
New NY Bridge Project
9/3/2015, 9/8/2015



Date	Barge Number	Tidal Cycle	Sample Depth ¹	Upcurrent Samples			Downcurrent Samples			Scow Samples				Sample Status ²
				Sample Time	Total Suspended Solids	Mercury	Sample Time	Total Suspended Solids	Mercury	Scow Number	Decant Water Total Suspended Solids	Decant Water Mercury	Sediment Mercury	
(mm/dd/yyyy)	(DXXX)	(Flood or Ebb)	(S, M, B)	(24:00)	(ppm)	(ppb)	(24:00)	(ppm)	(ppb)	(70 / 74)	ppm	ppb	mg/kg	(Exceedances and other observations)
9/3/2015	D534	Flood	S	11:30	14.7	ND	11:54	30.0	ND	74	46.7	ND	0.5	No exceedance
9/3/2015	D534	Flood	B	11:29	57.7	ND	11:52	68.0	ND	74				No exceedance
9/8/2015	D534	Flood	S	9:08	9.3	ND	8:51	12.7	ND	74	53.5	ND	0.327	No exceedance
9/8/2015	D534	Flood	M	9:07	9.0	ND	8:49	10.0	ND	74				No exceedance
9/8/2015	D534	Flood	B	9:04	20.0	ND	8:47	27.3	ND	74				No exceedance

Notes: ¹ S = Near Surface, M = Mid-Depth, B = Near Bottom

² Exceedances based on New York State Department of Environmental Conservation (NYSDEC) Permit Condition 61 of the NYSDEC Permit ID 3-9903-00043/00012
 Upcurrent and Downcurrent samples collected at the edge of the 500 ft mixing zone

ND = Not Detected