Clean Water Act 404(b)1 Contaminant Determination Report

For

Waukegan Outer Harbor

Waukegan, Illinois

U.S. Army Corps of Engineers, Chicago District
111 N. Canal, Suite 600
Chicago, Illinois 60606

July 2012

Table of Contents

Introduction 1
Tier 1 Evaluation: History of the Waukegan Harbor Area 1
Past Sampling Events 2
2012 Sampling Event 4
Sediment Chemistry 5
Elutriate Chemistry 6
Evaluation of Upland Sediment Placement Impacts 6
Conclusions 7
Sediment Placement Recommendations 13
References 13
Appendix A: Sampling Plan
Appendix B: Analytical Results
Appendix C: 2006 Asbestos Results
Appendix D: Corresopndence

Tables

Table 1: Summary of Waukegan Outer Harbor Sediment Results, 1995 - 2006 3
Table 2: 2012 Sediment Results 9
Table 3: 2012 Elutriate Results 11

Figures

Figure 1: Site Map for Waukegan Harbor 14
Figure 2: Waukegan Harbor 15
Figure 3: 2012 Sampling Locations 16

Introduction

The U.S. Army Corps of Engineers (USACE), Chicago District, is preparing to dredge Waukegan Outer Harbor, in Waukegan, Illinois. Waukegan Harbor is located along the shoreline of Lake Michigan, several miles south of the Illinois/Wisconsin border (Figure 1). The federally maintained navigational facility consists of an approach channel, an outer harbor, an entrance channel, and an inner harbor. There are also privately owned and maintained slips and an extension to the inner harbor which is federally authorized but not maintained. Waukegan Harbor is used for both recreational and industrial activities.

The harbor is shown in Figure 2, with the outer harbor area outlined. Although the USACE regularly dredges shoaled sediment in the approach channel, the outer harbor has not been dredged in a number of years. A superfund project removed the most heavily contaminated sediment from the inner harbor, although PCBs are still present in the sediment of the inner harbor. USEPA is currently commencing an additional dredging project for the inner harbor, to remove the residual contaminated sediment. However, the outer harbor is not part of the remediation area and the outer harbor sediment is of better quality than the inner harbor sediment.

The Waukegan Outer Harbor requires maintenance dredging to remove shoaled sediment to a depth of -22' Low Water Datum (LWD) + 1' allowable overdredge. Sediment sampling and elutriate (supernatant) testing were conducted to determine the appropriate disposal for both the dredged sediment and the entrained water. The proposed project plan is to dredge mechanically and place the material upland at a former coke plant site that is adjacent to the inner harbor. Free water would be off-loaded with the sediment and would be allowed to seep into the ground at the site, while run-off and erosion would be prevented with berms or other appropriate structures. The sediment would be spread as needed to facilitate off-loading, would be seeded for erosion control, and would be left on site. The future anticipated use of the material is of general cover for the coke plant property, in anticipation of future development.

Tier 1 Evaluation: History of the Waukegan Harbor Area

Waukegan Harbor is a man-made harbor on southern Lake Michigan. The harbor was constructed in 1880, and has been expanded and modified over the years, with additional private slips constructed at various times. The current configuration, shown in Figure 2, has been the configuration since the 1990's.

Waukegan Harbor is currently used for recreational and industrial uses. Past land uses around the harbor have been substantially industrial in nature. Since the late 1800's, documented industry within a mile of Waukegan Harbor includes steel processing; paint and dye industry; foundry work; coking operation; manufacture of construction materials including wallboard, insulation and concrete products; wastewater and water treatment; and marine motor and vessel construction. Past activities and discharges of industry into the harbor led to contamination of the inner harbor sediment, and the adjacent industry and the inner harbor were placed on the

National Priority List in 1983. A large clean-up operation in the 1990's removed the most heavily contaminated sediment, however the inner harbor sediment still contains low concentrations of PCBs and metals, and the adjacent land still has soil and groundwater contamination. Other properties in the harbor area also have a history of contamination, due to more than 100 years of industrial activities. In general, due to elevated pollutant concentrations in the inner harbor, the inner harbor has not been federally maintained. Industrial and recreational uses of the harbor have continued regardless, but the shoaled sediment has been an impediment to full industrial use of the waterway since boats cannot enter the harbor fully loaded.

For the past 10 – 15 years, there have been numerous plans to complete the inner harbor remediation, so that routine harbor maintenance can resume. Various ideas have included dredging the inner harbor sediment and placing it in a dedicated disposal facility or disposing the material in connection with other contaminated materials from the Waukegan Harbor area. The current plan for the inner harbor involves dredging the inner harbor and placing sediment at the adjacent OMC site, as a USEPA Superfund project. USEPA is commencing the dredging project for the inner harbor in Summer 2012. This dredging project includes only the inner harbor, private slips, and entrance channel, but stops short of the outer harbor. With the dredging of the inner harbor, there is a need to dredge the outer harbor to ensure that the entire federal channel is clear for commercial vessel traffic.

Although the Waukegan Outer Harbor has not been dredged for a number of years, the sediment has been sampled extensively since 1995 (after the original inner harbor remediation). A summary of the historical sediment data are presented in the following section. In general, the outer harbor was less impacted by the industrial activities than the inner harbor. In the west end of the outer harbor, near the entrance channel, the sediment is finer grained and is likely at least partly material from the inner harbor that is moved by ships (note that the harbor has no tributary and thus there is no current that moves sediment toward Lake Michigan). In the east end of the outer harbor, near the end of the breakwaters, the material is from littoral drift. East of the outer harbor is an approach channel that is routinely dredged; the approach channel sediment is clean sand and is used for beach nourishment or placed in open water.

Past Sampling Events

There have been numerous sampling events over the recent past for Waukegan Harbor. These sampling events had various objectives, but included bulk sediment chemistry for various parameters. USACE sampling events at the inner and outer harbors occurred in 1995, 1998, 2003, and 2006 (USACE, 1998; QST, 1998; USACE, 2006). In addition, the USEPA conducted additional sampling in 2005 (CH2M Hill, 2005; Bishop and Stanca, 2005). Data from these sampling events indicate that the sediment in the outer harbor is fine sand and silt. The sediment contains low levels (< 1 mg/kg) of PCBs, and low levels of metals, pesticides, VOCs, and SVOCs. Ammonia and nutrient concentrations are somewhat elevated. Asbestos fibers have not been detected in the outer harbor within proposed dredging depths (-23 LWD) using PLM and TEM analysis techniques. Although the sediment contains low levels of some constituents, the levels are all below the Illinois Maximum Allowable Concentration for Uncontaminated Soil

(35 IAC 1100.Subpart F (proposed)), indicating that the material would be suitable for land application or beneficial re-use. Correspondence related to past determinations regarding the suitability of Waukegan Outer Harbor sediment for upland use are provided for reference purposes in Appendix D. Table 1 is a summary of past sediment data from the outer harbor. Table 1 lists only past detectable results within the outer harbor dredging limits (above -23 LWD). Previous asbestos results have been non-detectable using PLM and TEM analyses; past asbestos results are discussed in Appendix C.

Table 1: Summary of Waukegan Outer Harbor Sediment Results, 1995 - 2006

Constituent[1] (mg/kg unless otherwise noted)	Range of measured concentrations	Illinois Maximum Allowable Concentrations in Uncontaminated Soil[2]
Total PCBs	0.04 – 0.79	1
Aluminum	1920	background within the Metropolitan Statistical Area = 9500
Arsenic	1.7 – 7.4	0.4 (background within the Metropolitan Statistical Area = 13)
Barium	4.6 - 34	260
Calcium	400 – 84	background within the Metropolitan Statistical Area = 9300
Chromium	1.9 – 16.4	21
Cobalt	2.78	20
Copper	8.1 – 17.8	330
Iron	3500 – 19,000	15,000 (background within the Metropolitan Statistical Area = 15,900)
Lead	3.4 – 19	23
Magnesium	43 – 700	325,000
Manganese	407	630
Mercury	0.04 – 0.047	0.05
Nickel	3 – 21	20
Potassium	239	background within the Metropolitan Statistical Area = 1268
Sodium	165	background within the Metropolitan Statistical Area = 130
Vanadium	7.85	550
Zinc	28 – 95	1000
Ammonia as N	8.9 – 160	
pH	8.13	
Total Phosphorus	165	
Total Organic Carbon	55 – 900	
Phenol	0.7	100
Methylene Chloride	0.0086	0.02
Benzo(a)anthracene	0.26	0.9
Benzo(b)fluoranthene	0.26	0.9
Benzo(k)fluoranthene	0.21	9
Benzo(a)pyrene	0.119 – 0.22	2.1
Bis(2-ethylhexyl)phthalate	0.3	46
Chrysene	0.33	88

Constituent[1] (mg/kg unless otherwise noted)	Range of measured concentrations	Illinois Maximum Allowable Concentrations in Uncontaminated Soil[2]
Fluoranthene	0.52	3100
Naphthalene	0.12	1.8
Phenanthrene	0.41	background within the Metropolitan Statistical Area = 2.5
Pyrene	0.55	2300
DDD	0.0046 – 0.15	3
DDE	0.004 – 0.009	2
DDT	0.056	2
Aldrin	0.0039 – 0.012	0.94
Dieldrin	0.0062	0.603

[1]All constituents reported in mg/kg dry weight unless otherwise noted.
[2]Uncontaminated soil value is the TACO_Derived Maximum Allowable Concentration of Chemical Constituents in Uncontaminated Soil 35 IAC 1100.Subpart F (Proposed). Metropolitan statistical background concentrations from 35 IAC 742.

2012 Sampling Event

In May 2012, sediment data were collected at Waukegan Outer Harbor. The sampling plan is included in Appendix A. The objectives of the data collection were:

a. To obtain physical data for the material proposed to be dredged from Waukegan Outer Harbor in year 2013 or 2014. These data are being collected for engineering design purposes.

b. To obtain elutriate chemical data for determining quality of water that will be placed upland and will be allowed to infiltrate into the soil surface. These data will also be used for a 404(b)1 Contaminant Determination, to request for a waiver from the 401 Water Quality Certification (due to lack of return water), and for concurrence of the property owner.

c. To obtain sediment bulk chemistry data, to confirm that the material to be dredged meets the requirements of “uncontaminated soil” in Illinois and that the material is suitable for upland, unconfined placement.

To meet these data objectives, five grab samples were taken from the outer harbor. The actual sample locations are shown in Figure 3. The sediment and elutriate results are presented and discussed below. The complete laboratory results including field logs and a data quality assessment are given in Appendix B.

Sediment Chemistry

The purpose of the sediment analysis was to confirm that the Waukegan Outer Harbor sediment is suitable for unconfined upland placement, as a beneficial use. Previous sediment results had indicated that the material was suitable for use as clean fill. Due to changing regulations and also the dynamic nature of the sediment environment, it was necessary to confirm the status of the material. Five grab samples were taken in the Outer Harbor, and the material was analyzed for physical properties as well as bulk chemistry (TAL metals, VOCs, SVOCs, PCBs, common anions). Figure 3 shows the field locations of the core samples. Table 2 summarizes the chemistry and some of the physical property results.

The sediment chemistry was compared to the "Maximum Allowable Concentrations in Uncontaminated Soil" proposed under the Illinois Clean Construction and Demolition Debris regulation (referred to as MAC in the remainder of this report). Some parameters do not have established concentrations under the proposed regulation, and there are also established background concentrations of some materials within the metropolitan area (which includes Waukegan). Table 2 shows the "uncontaminated soil" requirements as well as the established background concentrations. There are no constituents that measured above both the MAC and the background levels. Arsenic, which is naturally occurring in Illinois, was measured above the MAC but below the Illinois Metropolitan Background concentration. This implies that this constituent is naturally occurring and is not an indication of anthropogenic influences. The calcium concentration is above the background (there is no MAC value) but since northeastern Illinois is underlain by dolomite (calcium magnesium carbonate), it is not surprising to find high concentrations of this constituents. Sodium was higher than the background concentration in some samples, and this may indicate the influence of road salt in non-point runoff. Since the sodium concentrations are still fairly low and are within the range of the historical samples, the results appear to confirm that this is the typical condition at Waukegan. Only trace concentrations of PCBs, VOCs, and SVOCs were detected. These concentrations are below the background and appear to reflect the urban nature of the harbor. It is common to find low levels of these compounds in urban areas and particularly in industrial areas; many of these compounds are combustion by-products and are ubiquitous in northeastern Illinois. Abestos concentrations were non-detectable, as has historically been the case for the Outer Harbor. In general, the absence of any high concentrations and the conformance with the MAC indicate that from a chemical quality perspective, the sediment is suitable for unconfined upland placement.

Physical properties of the sediment were also measured, including moisture content, grain size, density, atterberg limits, and soil classification. In general, the Waukegan Outer Harbor material consists of poorly graded silts and sands. The fines content varies widely, from a low of 1% passing a #230 sieve, to a high of 89% passing the #230 sieve. Because much of this material is so fine, it would not generally be considered an appropriate material for beach nourishment or open water placement. Fine grained materials tend to cause excessive turbidity during placement due to the long settling times, and also usually are associated with higher dissolved elutriate (supernatant) ammonia and other constituents.

Elutriate Chemistry

Two elutriate (supernatant) tests were run on composites of sediment samples from Waukegan Outer Harbor. One supernatant test used a settling time of zero hours, and one used a settling time of 4 hours. A sample of the Lake Michigan water used for conducting the supernatant tests was also analyzed. The results are summarized in Table 3. Complete analytical results are included in Appendix B.

The supernatant results indicate that the either the settled or unsettled water associated with the dredged sediment will be of generally good quality. Concentrations of metals were generally low, concentrations of VOCs and SVOCs were mostly non-detectable, PCBs were non-detectable. However, due to the fine nature of the sediment, the suspended solids concentration was very high. In addition, nutrients (ammonia and phosphorus) were higher than the Lake Michigan Water Quality Standard. For this reason, the supernatant does not appear to be suitable for direct, untreated return to Lake Michigan or its tributaries. Parameters that exceed the Lake Michigan Water Quality standards are highlighted in Table 3.

Evaluation of Upland Sediment Placement Impacts

The proposed upland placement site for the sediment and elutriate is a property known as the "Waukegan Coke Plant". This site is a former manufactured gas plant property adjacent to the inner harbor. The site has been remediated under Superfund, and is currently in monitored natural recovery. The use of the site with regard to HTRW issues has been evaluated elsewhere, however one consideration that was not discussed previously was the impact of placing the sediment on the site, with regard to sediment quality. In addition, new supernatant data allows an updated discussion of the impact of placing additional water on the site.

The sediment to be dredged from the Waukegan Outer Harbor is suitable for use as uncontaminated soil. From a chemical quality perspective, the sediment is similar to any other material that could be commercially obtained and used on the Coke Plant site as clean fill. Placing the sediment on the site would not introduce large quantities of deleterious compounds, and would not interfere with the proposed future residential use of the site. The sediment does not include any asbestos or other constituents that would be considered a human health risk either during construction or later during subsequent residential or public use. The sediment consists of silt and sand, which is the same general soil type as the Coke Plant and surrounding lands. The property on which the sediment would be placed was a dune area prior to development, and the sediment properties are consistent with the expected historical conditions. The material would be appropriate for supporting foundations or as a base for development of parks or open areas.

A potentially bigger issue than the sediment quality is the water quality and the impact of placing water on the site. Although the Coke Plant site has been remediated, the site contains some contaminants below and in the groundwater on site. The main constituents of concern are ammonia, arsenic, and phenolic compounds. The lowest concentrations measured on the site are 93, 0.45, and 0.32 mg/L, respectively. These concentrations are significantly higher than the four hour supernatant results, which have an ammonia concentration of 4.8 mg/L, arsenic less

than 0.02 mg/L, and only trace organic compounds (total phenolic compounds was not measured directly.) From a total compound load, the supernatant introduced onto the site will be much less than what already exists on the site.

The total amount of water was also previously discussed, based on anticipated sediment conditions, however that discussion is revisited here based on the measured sediment characteristics. Previously it was assumed that the moisture content of the sediment would be approximately 50%, however the average moisture content measured in the five samples is approximately 25%. Based on existing technical guidance (USACE ERDC, EL TR-08-29, 2008), the estimated water entrained with the sediment would be 0.25 cyd per cyd sediment, or approximately 50 gallons of water per cubic yard of sediment based on a volume analysis. For 100,000 cyd of sediment dredged the estimated water introduced to the site would be approximately 5 million gallons, which is half the previous estimate (stated in the HTRW evaluation). Of that water, some portion would remain in the soil held by pore pressure, a portion would evaporate (and spreading the material on the site would facilitate this), and the remainder would infiltrate into the soil on the site. Because it is difficult to estimate how much water would freely drain, a conservative quantity of 5 million gallons (all the entrained dredge water) was used. Assuming that the sediment is placed over a 10 acre area, the volume of 5 million gallons represents approximately 18" of water (assuming no water is retained in the dredged sediment or lost to evaporation.) This quantity of water should readily be absorbed into the site since the estimated annual infiltration rate is 11 to 15 inches per year. In addition, the (unsaturated) vadose zone will store water that infiltrates and will slowly release that water to the groundwater. Because the site has rapid infiltration and there is water storage capacity in the vadose zone, the estimated volume of water to be applied is not anticipated to be a problem.

Ammonia has the highest concentration of the constituents of concern for the site groundwater, and also has a relatively high concentration in the supernatant (compared to Lake Michigan Water Quality Standards.) Assuming a concentration of 4.8 mg/L ammonia and a total water volume of 5 million gallons, the mass of ammonia introduced to the site would be approximately 90 Kg. The site currently discharges approximately 8 Kg/day of ammonia to the lake and harbor via groundwater flows, so the total mass of ammonia being introduced is less than what typically leaves the site in a two week period. The introduced concentration of 4.8 mg/L is about 1/20th of the current groundwater concentration of 93+ mg/L. Since the supernatant has much lower concentrations of ammonia than the groundwater, it does not appear that the supernatant would affect the groundwater quality.

Conclusions

The sediment meets the criteria for use as clean fill in Illinois, and it is recommended that the material be placed unconfined at an upland site for beneficial reuse. The supernatant does not meet the water quality standards for Lake Michigan and any water entrained with the sediment also needs to be placed upland with run-off controls.

The sediment appears to be suitable in terms of chemical and physical characteristics for placement on the Waukegan Coke Plant site, which is proposed for future residential and/or public use. The supernatant has lower concentrations of ammonia than the groundwater, and it

does not appear that the supernatant would affect the groundwater quality. The anticipated quantity of water is the same as or less than the average infiltration, and does not appear to represent a potential impact to the site. The existing site material is of a relatively permeable nature, and is favorable for infiltration of the excess water from dredged material placement activities.

Table 2: 2012 Waukegan Outer Harbor Sediment Sampling Results

Metals, mg/Kg	Illinois Maximum Allowable Concentrations in Uncontaminated Soil[3]	Illinois Metropolitan Background[4]	WOH-2012-01	WOH-2012-02	WOH-2012-03	WOH-2012-04	WOH-2012-05	Average Sediment Results, 1995 - 2006
Aluminum		9500	1690	2650	2420	1220	1030	1920
Anitmony	5	4	3.74 J	4.9	4.42 J	3.26 J	2.41 J	
Arsenic	0.4	13	<1.15	2.34 J	2.32 J	<1.12	<1.15	4.09
Barium	260	110	8.39	14.9	13.7	5.5	4.66	17.7
Beryllium	1.1	0.59	<0.037	<0.0363	<0.366	<0.0359	<0.037	
Cadmium	1	0.6	0.755	0.896	0.968	0.557	0.522	
Calcium		9300	66,000	86,000	104,000	50,900	40,800	84,400
Chromium	21	21	5.94	9.32	7.83	3.97	3.85	7.7
Cobalt	20	8.9	2.39	3.2	3.07	1.84	1.71	2.78
Copper	330	19.6	7.41	17.6	15.2	3.7	2.59	14
Iron	15,000	15,900	5600	8090	8270	3780	3700	10,300
Lead	23	36	7.98	14.4	12.8	4.65	3.75	11.3
Magnesium	325,000	4820	17,600	19,400	20,300	14,900	13,800	43,700
Manganese	630	636	273	440	519	177	136	407
Nickel	20	18	4.62	7.49	7.01	3.24	2.86	10.5
Potassium		1268	379	705	662	258	200	239
Selenium	1.3	0.48	<1.3	<1.27	<1.29	<1.26	<1.30	
Silver	1	0.55	<0.06	<0.0588	<0.0594	<0.0583	<0.06	
Sodium		130	158	187	220	114	96.7	165
Thallium	1.6	0.32	0.812 J	0.922 J	0.922 J	<0.432	0.907 J	
Vanadium	550	25.2	11.4	10.2	8.89	8.55	11.3	7.85
Zinc	1,000	95	33.2	48.2	44.5	21.2	20.6	62.1
Asbestos, PLM			ND	ND	ND	ND	ND	
Asbestos, TEM			ND	ND	ND	ND	ND	
Mercury	0.05	0.06	<0.0255	0.0508 J	0.0433 J	0.0403 J	0.0228	0.0435
Total PCBs, mg/Kg (Arochlor 1248)	1		0.0233	0.0805	0.027	0.0319	<0.0217	0.157
					7			
General Chemistry, mg/Kg								
Ammonia Nitrogen, as N, mg/Kg			25.1	68.6	115	11.1	10.9	
Total Phosphorus, as P, mg/Kg			<2.6	<2.7	<2.7	<2.6	39	
Total Organic Carbon, mg/Kg			<73.4	2240	5580	963	74.3	

Metals, mg/Kg	Illinois Maximum Allowable Concentrations in Uncontaminated Soil[3]	Illinois Metropolitan Background[4]	WOH-2012-01	WOH-2012-02	WOH-2012-03	WOH-2012-04	WOH-2012-05	Average Sediment Results, 1995 - 2006
SVOCs/PAHs, mg/Kg[1]								
Benzo(a)anthracene	0.9	1.8		0.109				0.26
Benzo(a)pyrene	2.1	2.1		0.0927				0.169
Benzo(b)fluoranthene	0.9	1.7		0.16	0.108	0.0709		0.26
Benzo(g,h,i)perylene		1.7		0.0753				
Chrysene	88	2.7		0.123	0.0853			0.33
Fluoranthene	3100	4.1		0.247	0.162	0.139		0.52
Phenanthrene		2.5		0.22	0.0995	0.118		0.41
Pyrene	2300	3		0.217	0.137	0.111		0.55
VOCs, mg/Kg[2]								
Carbon disulfide	9				0.00561			
Chloroform	0.3						0.00248	
Methyl tert-butyl ether	0.32					0.00722	0.00956	
Methylene Chloride	0.02						0.0141	0.0086
Physical Characteristics								
Moisture content	NA		20.6%	25.8%	34.0%	22.5%	20.1%	
Fines (% passing #230)	NA		13.3%	62.1%	89.0%	11.0%	1.0%	
Density, pcf	NA		103.7	106.4	99.6			
Soil classification	NA		SP-SM	ML	ML	SP-SM	SP	

[1] Only detected SVOC/PAHs are shown

[2] Only detected VOCs are shown

[3] Uncontaminated soil value is the TACO_Derived Maximum Allowable Concentration of Chemical Constituents in Uncontaminated Soil 35 IAC 1100.Subpart F (Proposed)

[4] Metropolitan statistical background concentrations from 35 IAC 742

NA = not applicable; ND = not detected

Data flagged "J" are estimated values.

Table 3: 2012 Waukegan Outer Harbor Supernatant Results

Parameter Name	Units	Lake Michigan Water Quality Standard [1]	Water Sample from Waukegan Outer Harbor	Supernatant, zero hour settling time	Supernatant, four hour settling time
Ammonia	mg/L	2.1 [3]	0.033	5.24	4.82
Chloride	mg/L	12	9.99	13.7	11.6
Hardness as $CaCO_3$	mg/L		132	197	181
pH	pH units	7.0 - 9.0	8.51 (field)	8.14	8.24
Phosphorous	mg/L	0.007	0.0058 J	0.0389	0.305
Solids, Total Dissolved (TDS)	mg/L	180	159	31800	1070
Solids, Total Suspended (TSS)	mg/L	15	<0.4	81300	248
Solids, Total Volatile (TVS)	mg/L		43.6	780	69.4
Sulfate	mg/L	24	25.0	20.0	22
Total Organic Carbon (TOC)	mg/L		<1.0	11.2	2.52
Temperature (field)	C		24.7		
PCBs					
PCB, total	ug/L	26 pg/L (human health standard), PQL = 0.1 ug/L	<0.1	<0.1	<0.1
Volatile Organic Compounds					
Methyl tert-butly ether	ug/L				1.16
Semi-Volatile Organic Compounds					
Benzo(b)fluoranthene	ug/L				0.101
Fluoranthene	ug/L				0.173
Phenanthrene	ug/L				0.132
Pyrene	ug/L				0.145
Metals/Inorganics - Total					
Aluminum	ug/L	340	<17.4	1060	1840
Antimony	ug/L		<0.60	<0.60	<0.60
Arsenic	ug/L	50	<20.0	<20.0	<20.0
Barium	ug/L	1000	20	56.1	52.4
Beryllium	ug/L		<2.5	<2.5	<2.5

Parameter Name	Units	Lake Michigan Water Quality Standard [1]	Water Sample from Waukegan Outer Harbor	Supernatant, zero hour settling time	Supernatant, four hour settling time
Cadmium	ug/L	6.2	<1.0	<1.0	<1.0
Calcium	mg/L		33.1	53.3	46,600
Chromium (total)	ug/L	16	<5.0	<5.0	9.61
Cobalt	ug/L		<9.09	<9.09	<9.09
Copper	ug/L	18.2 (dissolved)	<2.99	4.19 J	18.0
Iron	ug/L	300 (dissolved)	21.2 J	1260	4620
Lead	ug/L	174.3 dissolved	<0.1	0.86	23.0
Magnesium	ug/L		11,900	15,500	15,800
Manganese (total)	ug/L	150	<8.8	42	136
Mercury	ng/L	1700 [2]	<200	<200	<200
Nickel	ug/L	593.4 (dissolved)	<4.0	<4.0	6.25 J
Potassium	ug/L		138	3100	2450
Selenium (total)	ug/L	5 (chronic)	<25.0	<25.0	<25.0
Silver	ug/L		<2.0	<2.0	<2.0
Sodium	ug/L		7070	7970	7760
Thallium	ug/L		<0.1	<0.1	<0.1
Vanadium	ug/L		<2.59	4.45 J	6.5 J
Zinc	ug/L	151.6 (dissolved)	<15.0	<15.0	45.7

1 Water Quality Standards are from IAC 35 Part 302 Subpart E. Unless otherwise noted, these are the acute standards.

2 For total mercury, the acute standard is 1700 ng/L, the chronic standard is 910 ng/L, the human health standard is 3.1 ng/L, and the wildlife standard is 1.3 ng/L.

3 Ammonia standard is 0.33 mg/L (acute standard for un-ionized ammonia, April through October), based on this the total concentration of ammonia for a pH of 8.5 and a temperature of 24.7 C is 2.1 mg/L

Data flagged "J" are estimated values.

Exceeds Lake Michigan WQ standard

Sediment Placement Recommendations

The Waukegan Outer Harbor sediment is fine sand and silt, with bulk constituents below the Illinois Maximum Allowable Concentrations for Uncontaminated Soils and the Metropolitan Background Concentrations. Due to the fine nature of the material, it is not suitable for open water or beach placement. It is recommended that upland placement be used for this material; the chemical quality of the sediment is sufficient to allow unrestricted placement in a beneficial location. Erosion control, such as topsoil and seeding or other cover, will be needed at the placement location to prevent the erosion of the material after placement.

Water that will be entrained with the sediment during dredging is likely to be high in some constituents (ammonia, turbidity/suspended solids) that make it unsuitable for direct, untreated return to Lake Michigan or other surface waters. The water quality is suitable to land applied with appropriate erosion control and runoff prevention.

References

a. QST Environmental, Report on the Collection of Sediment Samples from Waukegan Inner Harbor, January 1998.

b. CH2M Hill, Technical Memorandum: Data Evaluation Summary Report, Waukegan Harbor Area of Concern, Waukegan, Illinois, April 8, 2005.

c. US Environmental Protection Agency, EPA/600/R04/079, A. Singh, A. Singh, R. Maichle, ProUCL Version 3.0 User Guide, April 2004.

d. US Army Corps of Engineers, Chicago District, Summary of Sediment Sampling Events and Analytical Results for Waukegan Inner Harbor and Entrance Channel, April 1998.

e. US Army Corps of Engineers, Chicago District, Clean Water Act 404(b)1 Contaminant Determination Report for Waukegan Outer Harbor Waukegan, Illinois, October 2006.

Figure 1: Site Map for Waukegan Harbor

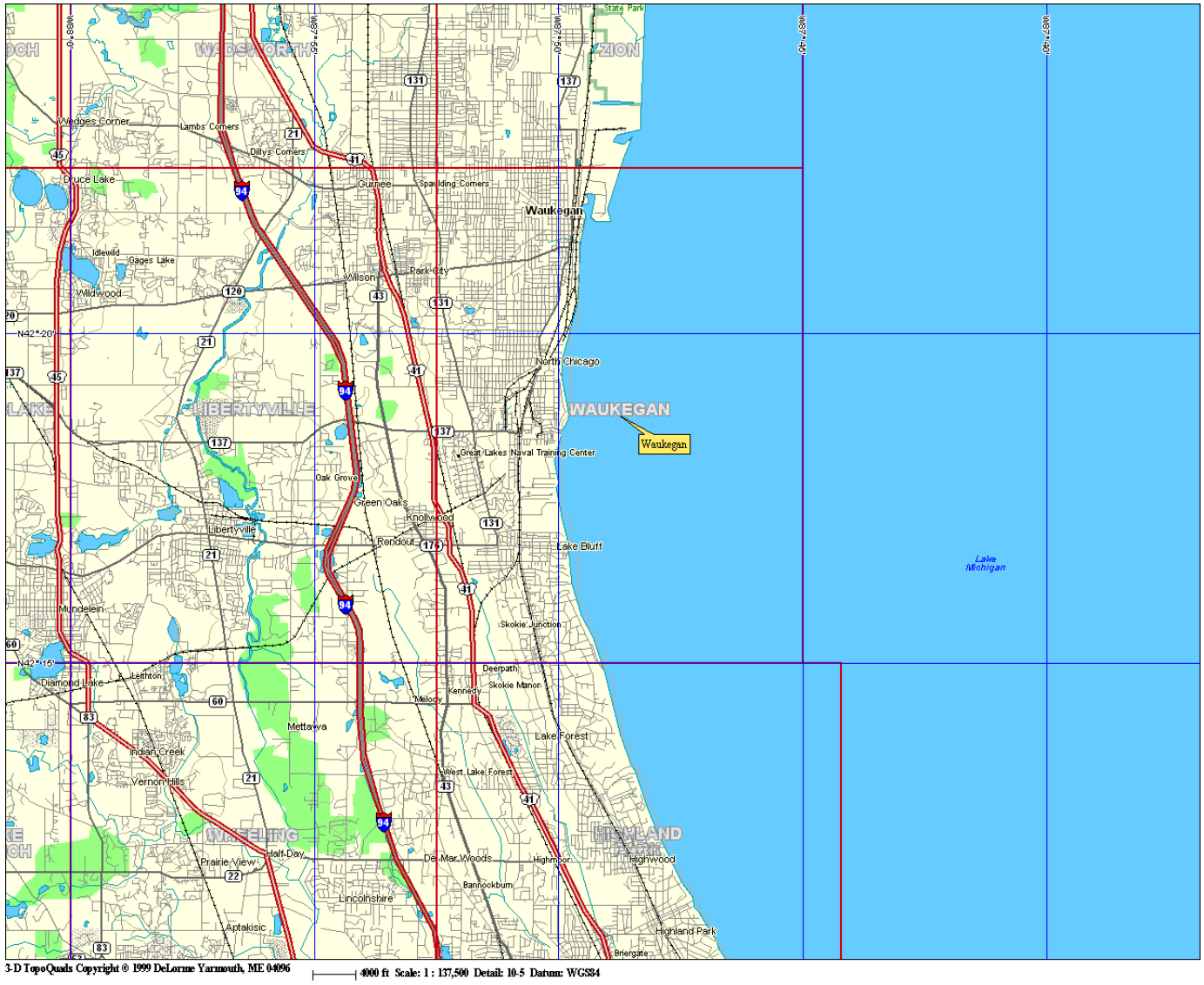
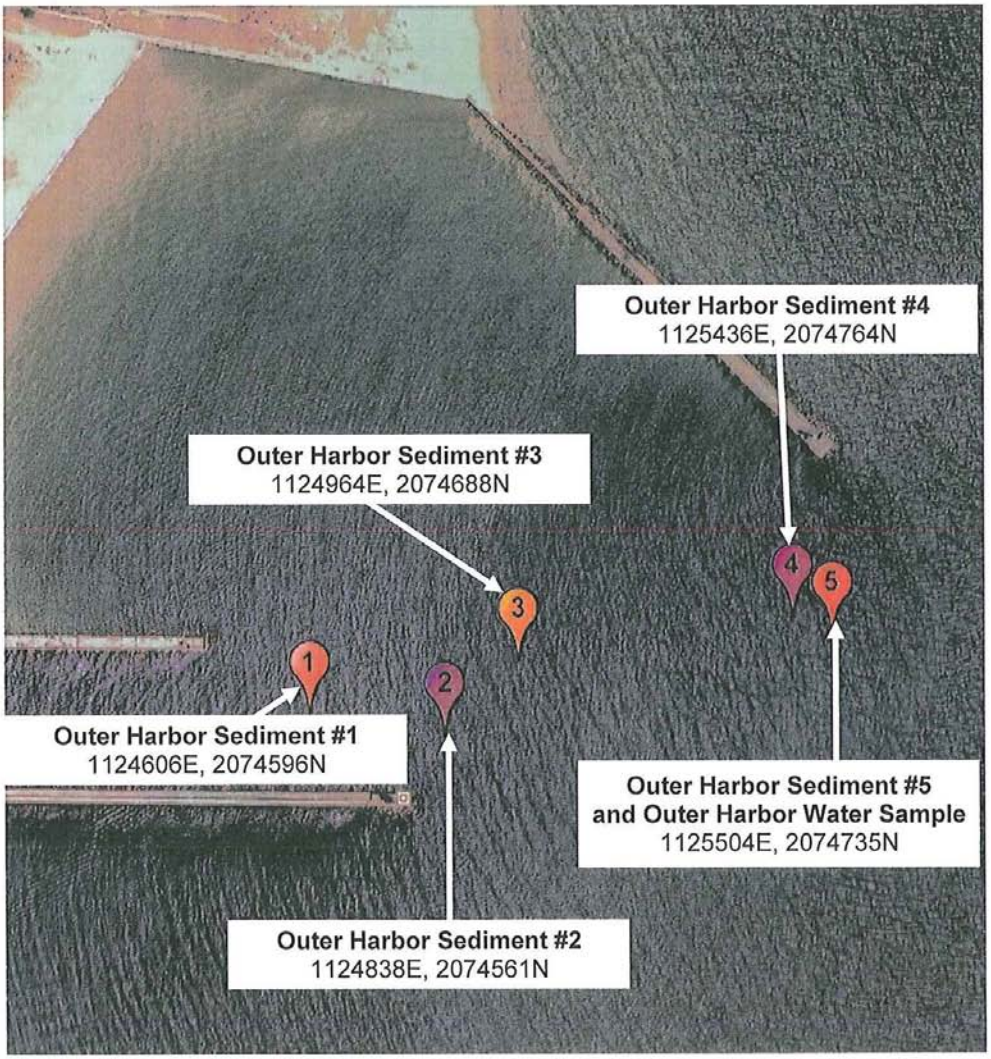


Figure 2: Waukegan Harbor

Figure 3: 2012 Sampling Locations



Appendix A
Sampling Plan

CELRC-TS-DH

FEB 9 2012

MEMORANDUM FOR: **TS-C-N**

THROUGH: **TS-DC** JAMO 31 JAN 12
TS-DG
TS-DT SRG 31 JAN 12
TS-DH 1/31/12
TS-D 2/6/12
TS-C MA 2/6/12
PM-PM

SUBJECT: **Modification of Contract**
PROJECT: **Waukegan Approach Channel Maintenance Dredging**
CONTRACT #: **W912P6-11-C-00[redacted]16**
MODIFICATION #: **P00001**
TITLE OF MODIFCATION: **Outer Harbor Sediment Sampling**

I) REASON FOR MODIFICATION: The Waukegan Outer Harbor is also in need of dredging. The timeframe for any dredging activity is uncertain, however sediment samples must be taken as soon as possible to accommodate the high priority nature of the outer harbor project. Adding the outer harbor sampling to the approach channel dredging contract is the fastest and easiest way to mobilize a contractor, since the work is very similar to the sediment sampling already included in that contract and the work area is adjacent to the approach channel.

II) DESCRIPTION OF MODIFICATION

1) Five sediment samples will be taken by bucket or other similar sampling method in the outer harbor. The samples will be analyzed for multiple parameters. Water will also be collected from the outer harbor for the purpose of preparing an elutriate sample for analysis. Section 01 35 45 has been modified to add the outer harbor sampling, with Table 3 giving sampling locations and Table 4 listing the analytical parameters. Figure 2 attached to Section 01 35 45 shows the sampling locations. One lump sum bid item (0012 Outer Harbor Sediment Sampling) is added to the bid schedule and to Section 01 22 00.00 10.

2) Because of the high priority nature of the outer harbor work, that sediment sampling should be conducted prior to start of dredging. It is anticipated that the outer harbor sampling will take one day or less to complete. A final report on the outer harbor sampling should be submitted within 30 days of completion of the sampling. The outer harbor report is a separate submittal; the submittal register was updated to reflect the new submittal.

III) DRAWING CHANGES

1) LIST OF MODIFIED CONTRACT DRAWINGS: None

IV) CHANGES TO SPECIFICATIONS

1) Bid Schedule
   A. Add bid item 0012 Outer Harbor Sediment Sampling

2) Section 012200 – Measurement and Payment
   A. Add paragraph 1.1.5 and sub-paragraphs to describe the new bid item.

3) Section 013300 – Submittal Procedures
   A. Change Section 01 35 45 Final Report to "Final Report for Outer Harbor Sampling"
   B. Add new submittal under same section "Final Report for Approach Channel and Reference Site Sampling; G, DH".

4) Section 013545 – Sediment Sampling
   A. See attached marked up document.
   B. Change paragraph 1.1 Scope to include a sediment sampling in outer harbor
   C. Change paragraph 1.4 Submittals, SD-06 Test Reports to add a separate submittal for the outer harbor and to rename the :final report".
   D. Change paragraph 1.7 to clarify "each" field log (one needed for each separate sampling event.)
   E. Change paragraph 1.8 to add language regarding separate final reports for each sampling event.
   F. Change paragraph 3.1.1. to add discussion regarding the outer harbor sampling.
   G. Change paragraph 3.1.4. Sampling Schedule to specify that outer harbor sampling must be conducted prior to dredging.
   H. Add paragraphs 3.1.5.1 Outer Harbor Sampling and Analysis, 3.1.5.2 Approach Channel and Reference Site Sampling and Analysis.
   I. Add paragraphs 3.2.3 Water Sampling for Outer Harbor and 3.2.3 Water Sampling for Approach Channel.
   J. Renumber paragraph 3.2.4 to 3.2.5 Reference Site Sample Analysis and update reference in paragraph
   K. Add Table 3: Waukegan Outer Harbor Sediment and Supernatant Analysis Parameters.
   L. Add Figure 2: Outer Harbor Sampling Locations

5) All Tables of Contents associated with the above mentioned specification sections will be affected in relation to the respective changes.

V) SUMMARY OF QUANTITIES

1) One new lump sum bid item added.

VI) SUMMARY OF COST ESTIMATE

1) The modifications to the contract is estimated to cost under $10,000 for the additional 5 samples plus analyses.

2) A PRAC has been created to fund this modification. PRAC %238911 is available for use.

VII) POINTS OF CONTACT

1) POC for this memorandum is Jennifer Miller, 312-846-5505.

Jennifer Miller, PhD, P.E.
Hydraulic and Environmental Engineering Section
USACE - Chicago District

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 22 00.00 10

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS
1.1.1 Mobilization and Demobilization (Bid Item 0001)
1.1.1.1 Payment
1.1.1.2 Unit of Measure
1.1.2 Water Quality Monitoring (Bid Item 0003)
1.1.2.1 Payment
1.1.2.2 Measurement
1.1.3 Sediment Sampling (Bid Item 0004)
1.1.3.1 Payment
1.1.3.2 Measurement
1.1.4 Performance and Payment Bonds (Bid Item 0005 & 0011)
1.1.4.1 Payment
1.1.4.2 Unit of Measurement
1.1.5 Outer Harbor Sediment Sampling (Bid Item 0012)
1.1.5.1 Payment
1.1.5.2 Unit of Measurement
1.2 UNIT PRICE PAYMENT ITEMS
1.2.1 Maintenance Dredging and Disposal - Placement Area 1 (Bid Items 0002AA & 0002AB)
1.2.1.1 Payment
1.2.1.2 Measurement
1.2.1.3 Unit of Measure
1.2.2 Optional Disposal - Placement Area 2, Priority 1, 2, 3, 4, and 5
1.2.2.1 Payment
1.2.2.2 Measurement
1.2.2.3 Unit of Measure

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section Table of Contents --

SECTION 01 22 00.00 10

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.1.1 Mobilization and Demobilization (Bid Item 0001)

1.1.1.1 Payment

Payment at the applicable lump sum price shall include all costs for mobilization and demobilization of all the Contractor's plant and equipment. Payment constitutes full compensation for all plant, labor, equipment, and incidentals associated with mobilization and demobilization as defined in the special clause payment for mobilization and demobilization.

1.1.1.2 Unit of Measure

Unit of measure: lump sum.

1.1.2 Water Quality Monitoring (Bid Item 0003)

1.1.2.1 Payment

Payment at the applicable lump sum price shall include costs for sampling, analyzing, and reporting for water quality monitoring, as required in Section 35 21 00.03, WATER QUALITY MONITORING.

1.1.2.2 Measurement

Unit of Measure: Lump Sum (LS)

1.1.3 Sediment Sampling (Bid Item 0004)

1.1.3.1 Payment

Payment at the applicable lump sum price shall include costs for sampling, analyzing, and reporting for sediment sampling, as required in Section 01 35 45, SEDIMENT SAMPLING.

1.1.3.2 Measurement

Unit of Measure: Lump Sum (LS)

1.1.4 Performance and Payment Bonds (Bid Item 0005 & 0011)

1.1.4.1 Payment

Payment will be made for the performance and payment bonds that are required as part of this contract. The Government will pay either the actual cost of the Performance and Payment Bonds or the Contractor's bid price, whichever is less. Costs associated with this item shall be included in the lump sum contract price. Payment for the performance and payment bonds under each option shall only cover the cost required to perform the work within that option.

1.1.4.2 Unit of Measurement

Unit of measure: Lump Sum (LS)

1.1.5 Outer Harbor Sediment Sampling (Bid Item 0012)

1.1.5.1 Payment

Payment at at the applicable lump sum price shall include costs for sampling, analyzing, and reporting for Outer Harbor sediment sampling prior to the start of dredging, as required in Section 01 35 45 SEDIMENT SAMPLING

1.1.5.2 Unit of Measurement

Unit of measure: Lump Sum (LS)

1.2 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.2.1 Maintenance Dredging and Disposal - Placement Area 1 (Bid Items 0002AA & 0002AB)

1.2.1.1 Payment

Payment for dredging, handling and disposal of dredged materials will be made at the contract unit price per cubic yard as described in Section 35 20 23.00 03 MECHANICAL DREDGING. Existing conditions shown on the drawings indicate conditions at the time of survey. Actual conditions may vary. Monthly partial payments will be based on approximate quantities determined by the progress payment quantity surveys taken by the Contractor or other means acceptable to the COR. All survey shall be performed in accordance to Section 35 20 23.00 03 MECHANICAL DREDGING, paragraph "Measurement".

1.2.1.2 Measurement

The Contractor shall, in the presence of the COR, take soundings after dredging to confirm that the proposed dredging depths have been completed. The program and methods for calculating quantities must be submitted in the dredging operation plans and approved by the COR prior to pre-dredging survey by the Contractor.

(a) Method of Measurement. The total amount of materials removed and to be paid for under the contract will be measured by the cubic yard in place by computing, within the limits of the allowances and tolerances the volume between the bottom surfaces shown by the prior and after survey soundings. The "after dredging survey" shall be made as soon as practicable after the work specified has been completed. Results of soundings by an approved method will be the basis for payment. Once the post-dredge soundings have confirmed that the proposed depths have been reached, the Contractor and the Government shall agree on an estimated percent of completion based upon plan quantities and surface area completed.

(b) Survey Prior and During Progress of Work. The contract drawings are believed to represent accurately the conditions existing at the time of survey, however, all soundings of the proposed dredging areas shown on the drawings shall be verified and corrected by a "prior dredging survey" consisting of soundings taken before dredging occurs. Contract depth will be determine by soundings or sweeping taken behind the dredge as work progresses. The Contractor shall take progress soundings or sweepings in the presence of the COR. The measurement and computation of payable quantities within the allowances and tolerances described in this section after having once been made, will not be reopened, except on evidence of collusion, fraud, or obvious error.

(c) Excessive Dredging. The Contractor will not be paid for material taken from beyond the limits specified in paragraphs "Allowable Dredging Prism" and "Side Slope" of Section 35 20 23.00 03 MECHANICAL DREDGING. The final pay quantity of material dredged shall not include any material dredged from beyond the specified limits. The final determination of the amounts of excessive dredging will be based wholly on the surveys made for final examination and acceptance. See paragraph, "Final Examination and Acceptance", of Section 35 20 23.00 03 MECHANICAL DREDGING.

(d) Pre, Post and Progress Payment Quantity Surveys shall be performed in accordance with Section 35 20 23.00 03 MECHANICAL DREDGING. Additional soundings will be taken as the COR may deem necessary.

(e) Monthly Estimate. Monthly estimates of work completed will be based on the result of soundings taken during the progress of the work based on an estimated percent of completion. Deductions will be made for dredging and disposal not in accordance with the specifications.

1.2.1.3 Unit of Measure

Unit of measure: cubic yard (CY)

1.2.2 Optional Disposal - Placement Area 2, Priority 1, 2, 3, 4, and 5 (Bid Items 0006, 0007, 0008, 0009, and 0010)

1.2.2.1 Payment

Full compensation for all labor, equipments, and materials for the transportation of the dredge material to the placement area 2, as shown in the contract drawings and in accordance to Section 35 25 00.00 03 TRANSPORTATION AND DISPOSAL OF DREDGED MATERIAL, shall be paid at the contract unit price of the bid items listed above of the bidding schedule.

1.2.2.2 Measurement

Measurement shall be determined by the dredge material placed in accordance to paragraph 1.2.1.2, Measurement.

1.2.2.3 Unit of Measure

Unit of measure: cubic yard (CY)

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 35 45

SEDIMENT SAMPLING

PART 1 GENERAL

1.1 SCOPE
1.2 PAYMENT
1.3.4.2 Measurement
1.3 REFERENCES
1.4 SUBMITTALS
1.5 SEDIMENT SAMPLER QUALIFICATIONS
1.6 SEDIMENT SAMPLING QUALITY CONTROL PLAN
1.7 SEDIMENT SAMPLING FIELD LOG
1.8 FINAL REPORT

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 ADVANCED MAINTENANCE AREA SAMPLING
3.1.1 General
3.1.2 Sampling
3.1.3 Sediment Sampling Procedure
3.1.4 Sampling Schedule
3.1.5 Sample Analysis
3.1.5.1 Outer Harbor Sample Analysis
3.1.5.2 Approach Channel and Reference Site Sample Analysis
3.2 BACKGROUND SAMPLING
3.2.1 General
3.2.2 Sediment Sampling
3.2.3 Water Sampling
3.2.3.1 Water Sampling for Approach Channel
3.2.3.2 Water Sampling for Outer Harbor
3.2.4 Reference Site Sample Analysis
3.3 SAMPLE PRESERVATION AND CONTROL
3.3.1 Samples
3.3.2 Chain of Custody
3.4 LABORATORY TURNAROUND TIME
3.5 LABORATORY REQUIREMENTS
3.5.1 Laboratory Soils Testing
3.6 LABORATORY QUALITY CONTROL
3.6.1 Batch of Samples
3.6.2 Pre-Sampling Quality Assurance/Quality Control Meeting

-- End of Section Table of Contents --

SECTION 01 35 45

SEDIMENT SAMPLING

PART 1 GENERAL

1.1 SCOPE

This section describes the collection and analysis of environmental samples in Lake Michigan. The sampling and analysis for the reference site and the approach channel described in this section must be completed only after all maintenance dredging activities are finished. The sampling and analysis for the outer harbor samples must be completed prior to the start of maintenance dredging activities.

1.2 PAYMENT

Payment at the applicable lump sum price shall include costs for sampling, analyzing, and reporting for sediment sampling, as required in this Section.

1.3.4.2 Measurement

Unit of Measure: Lump Sum (LS)

1.3 REFERENCES

The following publications of issues listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 600/4-79/020	(1983) Methods for Chemical Analysis of Water and Wastes
EPA SW-846.3-3	(1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

The SW-846 document is continually being updated, and the most recent versions of the SW-846 test methods are available on-line at http://www.epa.gov/epaoswer/hazwaste/test/main.htm.

ASTM INTERNATIONAL (ASTM)

ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 2216	(2010) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D 2850	(2003; R 2007) Standard Test Method for Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

ASTM D 4318	(2010) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 698	(2007e1) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-2-1906	(1986) Laboratory Soils Testing

1.4 SUBMITTALS

All submittals shall be in accordance with the "SUBMITTAL PROCEDURES" Section 01 33 00. In addition to *DH*, Environmental Engineering, other parties who will be reviewing the delineated submittal will be DG, Geotechnical Engineering.

SD-01 Preconstruction Submittals

Sediment Sampler Qualifications; G, DH

Sediment Sampling Quality Control Plan; G, *DH*

SD-06 Test Reports

Sediment Sampling Field Log; G, *DH*

Final Report; G, DH

Final Report for Outer Harbor Sampling; G,*DH*

Final Report for Approach Channel and Reference Site Sampling; G, *DH*

1.5 SEDIMENT SAMPLER QUALIFICATIONS

The individual(s) responsible for sampling shall be knowledgeable and practiced in environmental sample collection and have a minimum of three years experience in sample collection. The Contractor shall submit a Statement of Qualifications for the person(s) responsible for sample collection at least 30 days prior to any sampling.

1.6 SEDIMENT SAMPLING QUALITY CONTROL PLAN

The Contractor shall provide a Sediment Sampling Quality Control Plan. At a minimum, the plan shall include sampling procedures, sampling equipment, sample handling and custody, sampling schedule, project organization (points of contact for sampling and testing), analytical methods, required reporting limits, and quality assurance objectives for sampling. Any analytical methods that differ from the specified methods shall be noted. The sampling plan shall be submitted for review and approved by the COR prior to the start of any sampling as covered in this section. No sampling activities may begin without an approved sampling plan.

1.7 SEDIMENT SAMPLING FIELD LOG

The Contractor shall prepare a field log for ~~the~~each date of sample collection. This log shall include the following items: identification of the sampler and equipment used, weather and water conditions, times, dates, actual locations of sampling activities and corresponding sampling point number (if applicable), map showing actual sampling locations using consistant markings from field log to field log, field measurements, preservatives (if any), sample appearance, photos of samples taken in the field, chains of custody, and any other information that appears significant. Copies of the field log shall be submitted to the Contracting Officer's Representative . The field log shall be submitted and emailed no later than one day after the sampling event.

1.8 FINAL REPORT

The Contractor shall submit for review and approval ~~the~~a serparate Final Report for each sampling event within 30 days of sample receipt. The Government will review the document and the Contractor must revise as needed and resubmit. ~~The~~Each report shall be one complete paper copy, one complete pdf file (on CD) and an editable excel file of all field and analytical results (also on CD). The report shall include the following:

a. Analytical Data, including laboratory QA/QC data.

b. Field Log
Field log including chains of custody shall be included. These can be included only in pdf on the CD.

c. Quality Control Documentation
The Contractor shall describe any sampling or testing procedures, methods, or circumstances which may have limited or biased the accuracy of analytical results. The Quality Control (QC) results and analytical methods shall be reported along with calibration checks and all laboratory-generated QC acceptance criteria, as outlined in the "Laboratory Quality Control" paragraph of this section. These can be included only on the CD.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 ADVANCED MAINTENANCE AREA SAMPLING

3.1.1 General

Sediment samples shall be taken in Lake Michigan from Waukegan Outer Harbor prior to the start of any maintenance dredging activities. The Outer Harbor area is shown in Figure 2. The sediment in this area is sand and fine sand, so the sampling equipment needs to be appropriate for this material such as a clam shell dredge. This sampling requires the Contractor to manuever a vessel and employ sediment sampling equipment to collect samples from five (5) different pre-determined sampling locations possessing a minimum of two (2) feet of shoaling. The vessel shall have the capacity to seat two Government representatives as extra passengers. The vessel requires a depth indicator and GPS unit to help assess shoaling and provide guidance to the pre-determined sampling locations (see Figure 2). The vessel must also have the capability to be completely stabilized prior to sampling to ensure that the vessel does not drift and the sampling

equipment can be utilized repeatedly at the same location, if necessary. The use of a spud barge would be appropriate for these conditions. Samples shall be collected, handled, preserved and analyzed in accordance with publications listed in the EPA 600/4-79/020, EPA SW-846.3-3 and ASTM. The Contractor shall collect sufficient amount of sample to perform all the laboratory analyses outlined in this section. The Contracting Officer's Representative shall be notified one week in advance of scheduled sampling date so that a Government representative may be present at the site during sampling operations. The Contracting Officer Representative shall also be notified of changes to sampling scheduling date as soon as possible.

Sediment samples shall be taken in Lake Michigan from the Waukegan Harbor Advanced Maintenance Area after dredging and sediment disposal operations are complete. No sediment samples shall be taken from a location which has been dredged to project depth as a part of this contract. The Waukegan Harbor Advanced Maintenance Area is adjacent to the Approach Channel and East of the North Breakwater (see project drawings). The sediment in this area is sand, so the sampling equipment needs to be appropriate for this material such as a clam shell dredge. This sampling requires the Contractor to maneuver a vessel and employ sediment sampling equipment to collect samples from three (3) different pre-determined sampling locations posessing one to five (1-5) feet of shoaling. The vessel shall have the capacity to seat two Government representatives as extra passengers. The vessel requires a depth indicator and GPS unit to help assess shoaling and provide guidance to the pre-determined sampling locations (see Table 1 and Figure 1). The vessel must also have the capability to be completely stabilized prior to sampling to ensure that the vessel does not drift and the sampling equipment can be utilized repeatedly at the same location, if necessary. The use of a spud barge would be appropriate for these conditions. Samples shall be collected, handled, preserved and analyzed in accordance with publications listed in the EPA 600/4-79/020, EPA SW-846.3-3 and ASTM D 422. The Contractor shall collect sufficient amount of sample to perform all the laboratory analyses outlined in this section. The Contracting Officer's Representative shall be notified one week in advance of scheduled sampling date so that a Government representative may be present at the site during sampling operations. The Contracting Officer Representative shall also be notified of changes to sampling scheduling date as soon as possible.

3.1.2 Sampling

No sediment samples shall be taken from a pre-determined sampling location which falls within an area dredged to project depth as a part of this contract. The sediment samples from each shoaled location must be representative of the column of material, and the sample must include the material from the top of the sediment surface down to a depth of twenty-four (24) feet below Low Water Datum (LWD). The project depth is 22 feet below LWD. For shoaling to be present, the top of the sediment surface must be higher than the project depth, and then the amount of shoaling is the distance from the top of the sediment surface down to the project depth. Due to inaccuracies of the dredging processes, typically an additional two (2) feet of over-depth dredging below project depth are allowed. Therefore in order to remain representative, sediment samples must include the entire depth of material, from the top of the sediment surface down to a depth of twenty-four (24) feet below LWD. Depth shall be measured by checking the NOAA website to determine the lake level with respect to LWD, then in the field using a weighted tape measure to measure the depth. If there is insufficient shoaling at a pre-determined sampling location, the vessel shall then proceed sequentially to the next

pre-determined sampling location, until a location where one (1) foot or more of shoaling is reached. The Contractor shall document the date and time of the sampling and the sample depth below LWD at each location. The Contractor shall also document the measured latitude/longitude of the sample locations using GPS or other approved technology and name the corresponding pre-determined sample location. All information on the date, times, depths, and locations of the samples shall be reported in the Field Log and be submitted to the Government for approval, as required in paragraph "SEDIMENT SAMPLING FIELD LOG".

3.1.3 Sediment Sampling Procedure

The Contractor maneuvers the vessel to the pre-determined sampling location using the GPS unit and completely stabilizes it prior to sampling. Once a predetermined sampling location has been found with sufficient shoaling, a sediment sample is collected. See paragraph "Sampling" for how to determine shoaling. Small sediment samples are collected from throughout the column of sediment, and these sub-samples are placed in a large stainless steel mixing bowl. When the collection of sub-samples is complete, the remainder of the sediment from that sample is emptied away from the original sampling spot and the sampling equipment is lowered again to the site of the original sample. The Contractor shall evenly distribute any sediment returned to the water to avoid the artificial creation of additional shoaling. This procedure is repeated until a depth of twenty-four (24) feet below LWD is reached. If the sampling equipment is lowered and no noticeable change in depth is seen on the depth indicator of the sampling equipment, then the sample load shall be lifted and dumped without sampling to avoid re-sampling sediment that has collapsed back into the original hole. Once the complete sample has been acquired, the sediment is homogenized in the mixing bowl and placed into different containers for testing. The vessel shall proceed to the next pre-determined sampling location and repeat this process until all three (3) samples have been collected. The Contractor shall collect an amount of sediment sufficient to perform all analyses outlined in this section.

3.1.4 Sampling Schedule

The Contractor shall coordinate the sample collection date with the Contracting Officer Representative at least one (1) week prior to ~~the~~each proposed sampling date. Sediment samples in the outer harbor must be taken prior to the start of dredging activities. Sediment samples for the approach channel shall not be collected until dredging and disposal operations have ended and sediment samples shall not be taken from locations which have been dredged to project depth. Sampling shall not be performed if there are adverse weather conditions, such as high wind and waves. Locations of sediment sampling shall be coordinated with the Contracting Offcer Representative prior to sample collection date.

3.1.5 Sample Analysis

3.1.5.1 Outer Harbor Sample Analysis

Laboratory analysis of outer harbor samples shall include the parameters listed in Table 3. This table also shows the required reporting limits for analysis and reporting. The laboratory must meet the required reporting limits. The asbestos testing needs to be performed using both polarized light microscopy (PLM) and transmission electron microscopy (TEM) methods. Grain size shall be performed in accordance with ASTM D 422, employing a No. 230 sieve. In addition to ASTM D 422, particle size analysis shall be

conducted using the IEPA procedures for Material Analysis for Dredge and Fill Activities (See Attachment #1). Atterberg limits, lab compaction, and unconsolidated undrained triaxial shear tests will be performed on three samples only.

A composite sample of the five outer harbor samples shall be created by the laboratory. The composite sample shall be used for the supernatant analysis and shall be analyzed for the appropriate set of parameters listed in Table 3. The supernatant testing on the composite sample must be based on both zero hour and four hour settling periods. The sample must have a 1:4 ratio of sediment to natural background water (vol./vol.) using water collected from near-shore Lake Michigan at the reference site. The concentrations for supernatant analyses need to be reported in mass per unit volume. See supernatant procedure requirements in accordance with Attachment #1.

3.1.5.2 Approach Channel and Reference Site Sample Analysis

Laboratory analysis of approach channel and reference site samples shall include the parameters listed in Table 2. This table also shows the required reporting limits for analysis and reporting. The laboratory must meet the required reporting limits. The three (3) sediment samples shall be analyzed for asbestos, Total PCBs, and grain size. The asbestos testing needs to be performed using both polarized light microscopy (PLM) and transmission electron microscopy (TEM) methods. Grain size shall be performed in accordance with ASTM D_422, employing a No. 230 sieve. In addition to ASTM D 422, particle size analysis shall be conducted using the IEPA procedures for Material Analysis for Dredge and Fill Activities (See Attachment #1). A composite sample of the three advance maintenance area samples shall be created by the laboratory. The composite sample shall be used for the supernatant analysis and shall be analyzed for the appropriate set of parameters listed in Table 2. The supernatant testing on the composite sample must be based on both zero hour and four hour settling periods. The sample must have a 1:4 ratio of sediment to natural background water (vol./vol.) using water collected from near-shore Lake Michigan at the reference site. The concentrations for supernatant analyses need to be reported in mass per unit volume. See supernatant procedure requirements in accordance with Attachment #1.

3.2 BACKGROUND SAMPLING

3.2.1 General

Two (2) water samples and three (3) sediment samples shall be colleced from the Illinois Beach State Park reference site. Reference site sampling is done to compare the quality of the dredged material to the material at the disposal site. Previous disposal operations have taken place offshore of Illinois Beach State Park so it is important that samples are not collected from areas of prior disposal. The portion of Illinois Beach State Park reference site to be used for this sampling is an area commonly referred to as North Beach and is located directly north of North Point Marina and directly south of the Illinois/Wisconsin state line. The location of the reference site as well as the general locations of past disposal operations can be found on Figure 2. The Contractor shall collect sufficient amount of sample to perform all the laboratory analyses outlined in this paragraph. The Contracting Officer's Representative shall be notified one week in advance of scheduled sampling date so that a Government representative may be present at the site during sampling operations. The Contracting Officer Representative shall also be notified of changes to sampling scheduling date as soon as possible.

3.2.2 Sediment Sampling

A total of three (3) surface grab samples shall be collected from the reference site. These samples shall be taken approximately 300 feet from each other near to the water's edge. Samples are to be collected from below the water surface, to avoid beach debris such as bird waste and vegetation. The Contractor shall collect sufficient amount of sample to perform all the laboratory analyses outlined in this paragraph. The Contractor shall document the date and time of the sampling at each location. The Contractor shall also document the measured latitude/longitude of the sample locations using GPS or other approved technology. All information on the date, times, and locations of the samples shall be reported in the Field Log and shall be submitted to the Government for approval, as required in paragraph "SEDIMENT SAMPLING FIELD LOG".

3.2.3 Water Sampling

3.2.3.1 Water Sampling for Approach Channel

Two (2) water samples shall be collected from one near-shore Lake Michigan location at the Illinois Beach State Park reference site. The volume of water to be collected shall be determined by the laboratory. The water samples shall be field tested for pH and temperature and shall be reported in the Field Log as required in paragraph "SEDIMENT SAMPLING FIELD LOG".

3.2.3.2 Water Sampling for Outer Harbor

One (1) water sample shall be collected from the outer harbor area. The volume of water to be collected shall be determined by the laboratory; sufficient water shall be collected for water analyses and elutriate (supernatant) preparation and analysis. The water sample shall be field tested for pH and temperature and shall be reported in the Field Log as required in paragraph "SEDIMENT SAMPLING FIELD LOG".

3.2.4 Reference Site Sample Analysis

Laboratory analysis of samples shall include the parameters listed in Table 2. This table also shows the required reporting limits for analysis and reporting. The three (3) reference site sediment samples shall be analyzed for asbestos, Total PCBs, and grain size. See paragraph "Sample Analysis" for asbestos and grain size testing requirements. One (1) water sample shall be directly analyzed for the appropriate parameters listed in Table 2. The second water sample shall be used in the supernatant analysis. See paragraph "Approach Channel and Reference Site Sample Analysis" for supernatant testing requirements.

3.3 SAMPLE PRESERVATION AND CONTROL

3.3.1 Samples

All samples shall be placed in non-contaminating containers provided by the Contractor. Either before or immediately after filling, all containers must be properly labeled to include the sample location, date, and time of collection. If a sample requires the addition of a preservative, it must be added immediately using a solution made from fresh reagent stock. Samples must be maintained at a temperature less than 4°C until analyses are performed.

3.3.2 Chain of Custody

Proper chain of custody documentation shall accompany the collected samples. The chain of custody shall contain the sample numbers, analyses to be performed on each sample, the time and date of transfer, the condition of the samples, and the signature of each person involved in the transfer of samples. The chain of custody shall be placed in a water-resistant plastic bag and securely attached to the inside lid of the cooler. Indelible ink shall be used on the container labels and chain of custody. The chain of custody documentation shall be included in the Final Report.

3.4 LABORATORY TURNAROUND TIME

The results from measurements using field instrumentation, for pH and temperature, shall be submitted via email no later than one day following the day when the measurements were performed as required in paragraph "SEDIMENT SAMPLING FIELD LOG". The QC results, calibration checks, all laboratory-generated QC acceptance criteria, and final analytical results shall be submitted within 30 days of sample receipt as required in paragraph "FINAL REPORT".

3.5 LABORATORY REQUIREMENTS

Submittals of the laboratory results shall be in accordance with the "Submittals" paragraph of this section. The Contractor shall use the services of an analytical laboratory that has been accredited in accordance with The NELAC Institute's National Environmental Laboratory Accreditation Program (NELAP). The laboratory shall be accredited for the Clean Water Act (CWA) and Resource Conservation and Recovery Act (RCRA) fields of testing. The following web site has a list of NELAP laboratories and their accredited fields of testing: http://www.nelac-institute.org then click on "NELAP Accredited Labs".

3.5.1 Laboratory Soils Testing

Laboratories for testing soils, concrete and rock will be inspected by the Government for compliance with ASTM D 3740, "Standard Practice for Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as used in Engineering Design and Construction," and applicable tests in EM 1110-2-1906, "Laboratory Soils Testing". All laboratory testing shall be in compliance with the applicable ASTM(s). The Contractor is responsible for maintaining a USACE laboratory validation for all soil and rock laboratory testing. The Contractor shall notify the Contracting Officer if individual tests are dropped from the validation due to rarity of use.

3.6 LABORATORY QUALITY CONTROL

3.6.1 Batch of Samples

Laboratory quality control shall include calibration checks, method blanks, matrix spike, matrix spike duplicate, surrogate recoveries, laboratory control samples, and laboratory control samples duplicates. The Quality Control (QC) results, sample results, calibration checks, and all laboratory-generated QC acceptance criteria must be reported in the final report in accordance with the "Final Report" paragraph of this section.

3.6.2 Pre-Sampling Quality Assurance/Quality Control Meeting

A Pre-Sampling Quality Assurance/Quality Control meeting shall be held after the sampling plan submittal is received but before sampling begins. This meeting can be held as a conference call. The meeting will be attended by members of USACE - Chicago District, the Contractor performing the field sampling, and at least one lab chemist/analyst from each of the Contractors' laboratories. The purpose of this meeting is to discuss specific Data Quality Objectives required for this sampling project. Topics discussed at the meeting shall include but not be limited to: sampling methods and equipment, GPS location accuracy, decontamination methods, sample preservation and shipment, chain-of-custody procedures, laboratory certification, holding times, analytical methods, required detection limits, types and frequency of QC samples, and case narratives. It is critical that the laboratory personnel performing the physical and chemical testing of the samples be aware of the data quality issues associated with this project. This analytical testing and analysis is to comply with a Clean Water Act Section 401 Water Quality Certification, so it is very important that the laboratory produces data of known and acceptable quality. The Contractor must achieve the required reporting limits listed in Table 2 as these are permit requirements. The Contractor and the Contractors' laboratories shall incorporate any QA/QC reporting requirements into their protocol.

-- End of Section --

Table 3: Waukegan Outer Harbor Sediment and Supernatant Analysis Parameters

Parameter	Acceptable Method(s)	Required Reporting Limit
Sediment only		
Asbestos (PLM)	EPA 600 Series	< 1%
Asbestos (TEM)	EPA 600 series	< 1%
Grain size	ASTM D422[1]	NA
Atterberg Limits	ASTM D4318[2]	
Lab Compaction Characteristics (standard proctor method)	ASTM D698[3]	
Moisture Content	ASTM D2216	
Unconsolidated Undrained Triaxial Shear	ASTM D2850[3]	
Sediment and Water/Supernatant		
Total PCBs	8082A	0.01 mg/kg
TAL metals (Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn, Al, Ba, Ca, Co, Fe, Mg, Mn, K, Na, V)	6010B/7470/7471	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
TOC	415.1/5310C/9060	
Nitrogen as Ammonia	350.1/SM 4500-NH3-G	
Total Phosphorus	4500P F/365.4	
SVOCs	625/8270C	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
VOCs	624/5030B/8260B	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
Water/Supernatant only		
TSS	EPA 160.2/SM2540D	1 mg/L
TDS	EPA 160.1/SM2540C	1 mg/L
TVS	SM 2540G	1 mg/L
Sulfate	EPA 375.2	10 mg/L
Chloride	EPA 325.1	1 mg/L
Hardness	SM 2340B	5 mg/L
pH	EPA 150.1/Sm 4500-H+ B	+/- 0.05 pH unit
Temperature (Field)	EPA 170.1/ SM 2550B	+/- 0.1 °C

[1] Grain size testing by method ASTM D422 is to be performed down to the #230 sieve

[2] To be performed on three (3) samples with most fine grained materials

[3] To be performed on three (3) representative samples

Appendix B
Analytical Results

Summary data table included in hard copy.
Data Quality Assessment included in hard copy.
Complete analytical results in electronic format only.

DATA QUALITY ASSESSMENT WORKSHEET

Project Name: Waukegan Outer Harbor Dredging

Sample Medium: Sediment and Elutriate

Reviewer: Jennifer Miller

Review Date: 10 August 2012

Brief Description of Project: Dredging and upland placement of clean sand and water. Data objectives are to compare results to Illinois MAC for uncontaminated soil and to Illinois Lake Michigan water quality standards, to show material is suitable for intended placement location.

Objectives for Data Quality (See DQA Step 1):

Documents Reviewed (check all that apply):

- [X] Scope of Work
- [ ] Quality Assurance Project Plan
- [X] Data Quality Objectives
- [ ] Other: _____

Level of Review Required:

- [X] Level 1: (100% of analytical data, 100% of lab QC data)
- [ ] Level 2: (20% of analytical data, 100% of lab QC data)
- [ ] Level 3: (Only summary data of the laboratory analysis are evaluated)
- [ ] Level 4: (No additional assessment of the data is performed. The internalreviews performed by the laboratory are judged adequate for the project.)
- [ ] Other: (_____% of analytical data, _____% of lab QC data)

Data Presence (See DQA Step 2):

Is all the requested data present? [X] Yes [ ] No (describe missing data) _____

Holding Times (See DQA Step 3):

Were all analyte specific holding times met? [X] Yes [ ] No (list exceeded holding times) _____

Detection Limits (See DQA Step 4):

Were all required detection limits met? [ ] Yes [X] No (list exceeded detection limits and any explanation included in the lab report)

Elutriate results used method 7470 instead of 7471, with a resulting RL of 200 ng/L. This is less than the acute and chronic standards for mercury, but higher than the human health and wildlife standards. This error does not make the data unusable for the purpose, since the proposal is to place the water upland instead of in the lake.

Field and Method Blanks (See DQA Step 5):

Were field and method blanks run at the required frequency? [X] Yes [ ] No (describe deficiencies) _____

Were any quantifiable concentrations detected in the blanks? [ ] No [X] Yes (which analytes were detected?) _____

See memorandum for discussion

DATA QUALITY ASSESSMENT WORKSHEET (Page 2)

Matrix Spikes / Matrix Spike Duplicates (See DQA Step 6):

Were the Matrix Spikes / Matrix Spike Duplicates run at the required frequency? [X] Yes [ ] No (document any deficiencies)

Are the % recoveries within the limits established by the acceptance criteria? [ ] Yes [X] No (document any deficiencies)

Are the relative % differences within the limits established by the acceptance criteria? [ ] Yes [X] No (document any deficiencies)

See memorandum for discussion

Field and Laboratory Duplicates (See DQA Step 7):

Were the field and laboratory duplicates run at the required frequency? [X] Yes [ ] No (document any deficiencies)

Were the relative % differences within the limits established by the acceptance criteria? [X] Yes [ ] No (document any deficiencies)

Laboratory Control Samples (See DQA Step 8):

Were the laboratory control samples run at the required frequency? [X] Yes [ ] No (document any deficiencies)

Were the % recoveries (or other measures such as response factor, where appropriate) within the limits established by the acceptance criteria?

[ ] Yes [X] No (document any deficiencies) See memorandum for discussion

Surrogate Recoveries (See DQA Step 9):

Were the surrogate spikes run at the required frequency and with the correct analytes? [X] Yes [ ] No (document any deficiencies)

Were the % recoveries within the limits established by the acceptance criteria? [ ] Yes [X] No (document any deficiencies)

See memorandum for discussion

Corrective Action Forms (See DQA Step 10):

Are corrective action forms present for all deficiencies identified in the above steps? [ ] Yes [ ] No (document any deficiencies)

Are corrective actions documented sufficient and appropriate? [X] Yes [ ] No (document any deficiencies)

Related Laboratory Parameters (See DQA Step 11):

Are all related laboratory parameters logical and reasonable? (A more detailed discussion of this evaluation is found in the DQA Standard Operating Procedure) [X] Yes [ ] No (document any deficiencies)

Reviewer's Recommendation (See DQA Step 12):

Based on the review items outlined here, acceptance of this data package is (circle one) RECOMMENDED NOT RECOMMENDED

Is the data acceptable for its intended use? [X] Yes [ ] No

Reviewer's Signature:

If acceptance of the data package is not recommended, identify the deficiencies which must be corrected before the data package is accepted:

CELRC-TS-DH 10 August 2012

MEMORANDUM FOR RECORD

SUBJECT: Data Quality Assessment for Waukegan Outer Harbor Sediment and Elutriate Results

1. Sediment samples were taken on May 25 in Waukegan Outer Harbor for analysis. A water sample was taken on July 4 and was used with the sediment samples for preparing elutriate (supernatant) analyses. The data and laboratory quality control package were 100% reviewed for completeness and data quality. All data were present, and all reporting limits were met with the exception of mercury in the water and elutriate samples. The mercury reporting limit was higher than some of the Lake Michigan water quality standards, however since the proposed sediment/supernatant placement location is upland, this was determined not to be a data usability issue. During the review of the laboratory quality control package, the following potential issues were noted with regard to data quality.

2. A number of samples were flagged "J" with results detected below the quantitation limit. These results are considered to be estimated. For the Waukegan Harbor data, the data flags have been included in the data summary, but the estimated results are not considered to be an issue for data usability. The data objective was to demonstrate compliance with the Illinois clean soil and lake michigan water quality regulatory limits, and in all cases the results are below those limits.

3. A method blank for arsenic in sediment/soil for June 1, 2012 was detectable, although the low concentration measured below the PQL. A subsequent method blank for arsenic on June 4 was non-detectable for arsenic. The metals were actually analyzed on June 4, so it appears that there are no issues with metals in the method blank for the actual date of analysis. A method blank for calcium in sediment for June 6, 2012 was detectable for calcium, although the concentration was below the PQL. The sediment results have very high calcium, and the results do not appear to be unusable in spite of the method blank detection.

4. The matrix spike sediment samples were outside the acceptable surrogate recovery range for aluminum, calcium, iron, magnesium, and manganese. These same metals were also out of range for the matrix spike duplicate. It is anticipated that the recovery was impacted by the high concentrations of these metals. The laboratory control sample was within range for these metals. The low surrogate recovery in the matrix spike does not appear to be an issue for data usability for those parameters.

5. The surrogate dibromofluoromethane in the laboratory control sample of May 31, 2012 and for June 1, 2012 for volatiles in sediment was slightly out of range – high. This does not appear to have impacted the VOC results for the sediment samples, which were nearly all non-detectable. The matrix spike samples were all acceptable. The surrogate recovery for the samples analyzed on those dates was within range,

thus the laboratory control sample results do not appear to reflect a data issue for the sample results.

6. The matrix spike duplicate for mercury in sediment for June 1, 2012 was out of range – high. The duplicate and all other controls were within range, and the MSD results do not appear to reflect a data use issue.

7. The matrix spike sample for July 10, 2012 for water/elutriate was out of range – high for calcium. The matrix spike duplicate for calcium and magnesium were both high for the same date. The laboratory control sample for these parameters and this date were fine, and the method blank was non detectable for these parameters.

8. In summary, minor data quality issues were noted in the surrogate recoveries and laboratory control samples for some parameters. None of the data issues appears to reflect a systematic problem that would impact the data usability for this project. It is recommended that the data be used for the intended purpose with no qualifications on data use.

JENNIFER MILLER, PhD, PE
Chief, Environmental Engineering Team

RYBA MARINE CONSTRUCTION CO.

629 NORTH MAIN STREET • P. O. BOX 265
CHEBOYGAN, MICHIGAN 49721-0265
(231) 627-4333 • FAX (231) 627-4890

Project:	FY 11 Waukegan Harbor Dredging
Contract:	W912P6-11-C-0016
Date:	August 9, 2012
Transmittal No:	01 35 45 – 4.1
Section and Paragraph:	01 35 45 – 1.7
Items:	4 – Outer Harbor Sampling Final Report

We respectfully submit the attached Revised Final Report for the Outer Harbor Sampling.

RYBA MARINE CONSTRUCTION CO.

__X___ Approved
_____ Approved with corrections as noted on submittal data and/or attached sheet(s)

SIGNATURE: _____
Ralph W. Farver II
TITLE: Project Engineer

DATE: August 9, 2012

SUBURBAN LABORATORIES, Inc.

4140 Litt Drive Hillside, Illinois 60162
Tel. (708) 544-3260 Toll Free (800) 783-LABS
Fax (708) 544-8587
www.suburbanlabs.com

August 06, 2012

Workorder: 1205C25

Wayne Moon
Ryba Marine Construction Co.
629 N. Main Street
P.O. BOX 265
Cheboygan, Michigan 49721

TEL: (231) 420-4350
FAX:
RE: Waukegan Harbor Approach Channel Dredgin

Dear Wayne Moon:

Suburban Laboratories, Inc. received 6 sample(s) on 05/25/12 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation on, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (708) 544-3260.

Sincerely,

Melissa Amador

Melissa Amador
Project Manager

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Case Narrative

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
WorkOrder: **1205C25**
Temperature of samples upon receipt at SLI: **4 C**

Date: August 06, 2012
PO #:
QC Level:
Chain of Custody #: EV

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- Accreditation by the State of Illinois is not an endorsement or a guarantee of the validity of data generated.
- For more information about the laboratories' scope of accreditation, please contact us at (708) 544-3260 or the Agency at (217) 782-6455.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- In Laboratory: EPA recommends this analyte be analyzed "immediately" (e.g., tests that should be performed in the field within 15 minutes of collection). Analytes with "immediate" hold times are analyzed as soon as possible upon receipt by the laboratory.
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS (Surrogate Standard): Quality control compound added to the sample by the lab.

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Workorder Specific Comments:

ASBESTOS:
1205C25-001C, -002C, 003C, -004C, -005C: G = Samples subcontracted to United Analytical Services, Inc., Downers Grove, IL for the TEM and PLM analyses requested. Their report is attached.

Client:	Ryba Marine Construction Co.	**Date:**	August 06, 2012
Project:	Waukegan Harbor Approach Channel Dredgin	**PO #:**	
WorkOrder:	**1205C25**	**QC Level:**	
Temperature of samples upon receipt at SLI:	**4 C**	**Chain of Custody #:**	EV

Subcontracted Tests: 1205C25-001D, -002D, -003D, -004D, -005D
1. G = Moisture Content (ASTM D2216), Grain Size (ASTM D422), Particle Size (IEPA - Material Analysis For Dredge and Fill Activities), Atterberg Limits (ASTM D4318) , Lab Compaction Characteristics (ASTM D698 standard proctor method), Direct Shear (ASTM D3080) were subcontracted to Interra, Inc., Bolingbrook, IL (formerly Great Lakes Soil & Environmental Consultants), a USACE certified laboratory. Their reports are attached.
2. Direct Shear was performed in place of the Traxial Shear analysis requested due to the samples being non-cohesive. See narrative included in Interra's report.

Metals:
Sample 1205C25-005B: S=The MS percent recovery (67.49%) and the MSD percent recovery (64.31%) were outside laboratory control limits (70.0% - 130.0%) for manganese, possibly due to matrix interference.

Supernantant Prep:
An insufficient amount of Outer Harbor water was collected to perform the requested parameters on the sample and to perform a supernatant prep with both zero hour and four hour settling periods. Another sample of Outer Harbor water was collected 7/4/12 and those results can be found on the report for Suburban Laboratories' work order 1207119.

This report supersedes the report dated 7/11/12.

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1205C25**

Client Sample ID: Outer Harbor Sediment #1
Lab ID: 1205C25-001 **Date Received:** 05/25/2012 2:28 PM

Matrix: SEDIMENT
Collection Date: 05/25/2012 2:28 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	1,690	2.50		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Antimony	3.74	1.50	J	mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Arsenic	ND	1.15		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Barium	8.39	0.125		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Beryllium	ND	0.0370		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Cadmium	0.755	0.0750		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Calcium	66,000	1.25		mg/Kg-dry	2	06/05/2012 12:59 PM	9566
Chromium	5.94	0.0600		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Cobalt	2.39	0.125		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Copper	7.41	0.150		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Iron	5,600	0.625		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Lead	7.98	0.600		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Magnesium	17,600	0.625		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Manganese	273	0.0600		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Nickel	4.62	0.235		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Potassium	379	2.50		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Selenium	ND	1.30		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Silver	ND	0.0600		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Sodium	158	2.50		mg/Kg-dry	2	06/05/2012 12:59 PM	9566
Thallium	0.812	0.445	J	mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Vanadium	11.4	0.150		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
Zinc	33.2	0.0750		mg/Kg-dry	1	06/04/2012 6:19 PM	9566
PCBS		Method: EPA-8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Aroclor 1221	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Aroclor 1232	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Aroclor 1242	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Aroclor 1248	23.3	21.4		µg/Kg-dry	1	06/11/2012 6:03 PM	9667
Aroclor 1254	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Aroclor 1260	ND	21.4		µg/Kg-dry	1	06/08/2012 1:59 PM	9667
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	66.3	33.7-156		%REC	1	06/08/2012 1:59 PM	9667
VOLATILE ORGANIC COMPOUNDS		Method: EPA-8260B-Rev 2, Dec-96				Analyst: ms	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

VOLATILE ORGANIC COMPOUNDS Method: EPA-8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,1,2,2-Tetrachloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,1,2-Trichloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,1-Dichloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,1-Dichloroethene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,2-Dichloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
1,2-Dichloropropane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
2-Butanone	ND	24.6	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
2-Hexanone	ND	61.6	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
4-Methyl-2-pentanone	ND	61.6	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Acetone	ND	61.6	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Benzene	ND	0.616	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Bromodichloromethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Bromoform	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Bromomethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Carbon disulfide	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Carbon tetrachloride	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Chlorobenzene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Chloroethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Chloroform	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Chloromethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
cis-1,2-Dichloroethene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
cis-1,3-Dichloropropene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Dibromochloromethane	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Ethylbenzene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
m,p-Xylene	ND	4.93	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Methyl tert-butyl ether	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Methylene chloride	ND	12.3	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
o-Xylene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Total Xylenes	ND	4.93	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Styrene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Tetrachloroethene	ND	4.93	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Toluene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
trans-1,2-Dichloroethene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
trans-1,3-Dichloropropene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Trichloroethene	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Vinyl chloride	ND	2.46	µg/Kg-dry	1.92	05/31/2012 5:09 PM	R23532
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	104	61.55-121	%REC	1.92	05/31/2012 5:09 PM	R23532
SS: Dibromofluoromethane	122	71.4-147	%REC	1.92	05/31/2012 5:09 PM	R23532
SS: Toluene-d8	103	61-135	%REC	1.92	05/31/2012 5:09 PM	R23532

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
1,2-Dichlorobenzene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
1,3-Dichlorobenzene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
1,4-Dichlorobenzene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4,5-Trichlorophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4,6-Trichlorophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4-Dichlorophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4-Dimethylphenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4-Dinitrophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,4-Dinitrotoluene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2,6-Dinitrotoluene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2-Chloronaphthalene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2-Chlorophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2-Methylnaphthalene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2-Nitroaniline	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
2-Nitrophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
3,3-Dichlorobenzidine	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
3-Nitroaniline	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4,6-Dinitro-2-methylphenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Bromophenyl phenyl ether	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Chloro-3-methylphenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Chloroaniline	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Chlorophenyl phenyl ether	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Nitroaniline	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
4-Nitrophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Acenaphthene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Acenaphthylene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Anthracene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Benzo(a)anthracene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Benzo(a)pyrene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Benzo(b)fluoranthene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Benzo(g,h,i)perylene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Benzo(k)fluoranthene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Bis(2-chloroethoxy)methane	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Bis(2-chloroethyl)ether	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Bis(2-chloroisopropyl)ether	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Bis(2-ethylhexyl)phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Butyl benzyl phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Carbazole	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Chrysene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Dibenzo(a,h)anthracene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Dibenzofuran	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96			Analyst: ls	
Diethyl phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Dimethyl phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Di-n-butyl phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Di-n-octyl phthalate	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Fluoranthene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Fluorene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Hexachlorobenzene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Hexachlorobutadiene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Hexachlorocyclopentadiene	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Hexachloroethane	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Indeno(1,2,3-cd)pyrene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Isophorone	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
m,p-Cresol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Naphthalene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Nitrobenzene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
N-Nitrosodi-n-propylamine	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
N-Nitrosodiphenylamine	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
o-Cresol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Pentachlorophenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Phenanthrene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Phenol	ND	314	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Pyrene	ND	62.8	µg/Kg-dry	1	06/08/2012 7:34 PM	9632
Internal Quality Control Compounds						
SS: 2,4,6-Tribromophenol	87.3	0.1-136	%REC	1	06/08/2012 7:34 PM	9632
SS: 2-Fluorobiphenyl	44.9	16.3-118	%REC	1	06/08/2012 7:34 PM	9632
SS: 2-Fluorophenol	65.2	4.2-97	%REC	1	06/08/2012 7:34 PM	9632
SS: 4-Terphenyl-d14	68.9	0.1-147	%REC	1	06/08/2012 7:34 PM	9632
SS: Nitrobenzene-d5	51.9	0.1-119	%REC	1	06/08/2012 7:34 PM	9632
SS: Phenol-d5	65.4	9.82-111	%REC	1	06/08/2012 7:34 PM	9632
ASBESTOS		Method:			Analyst: maa	
Subcontracted Test	See Attached	0	G	1	06/04/2012 12:00 AM	R24205
MERCURY BY CVAA		Method: EPA-7471A-Rev 1, Sep-94			Analyst: jos	
Mercury	ND	0.0225	mg/Kg-dry	1	06/01/2012 4:35 PM	9565
METALS, PERCENT MOISTURE		Method: EPA-200.2-Rev 2.8, 1994			Analyst: aa	
ICP Specific Percent Moisture	24.04		wt%	1	05/29/2012 12:24 PM	R23439
AMMONIA, TITRIMETRIC		Method: SM-4500NH3 E-Rev 18Ed, 1992			Analyst: sb	
Nitrogen, Ammonia (As N)	25.1	6.41	mg/Kg-dry	1	06/05/2012 2:40 PM	9609

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

TOTAL PHOSPHORUS			Method: SM-4500P BE-Rev 18Ed, 1992		Analyst: vyc	
Phosphorus (As P)	ND	2.6	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
Total Phosporus(as PO4)	ND	7.7	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
PERCENT MOISTURE			Method: ASTM-D2216-Rev 2005		Analyst: sb	
Percent Moisture	22	1.0	wt%	1	05/31/2012 5:00 PM	R23552
SUBCONTRACTED TESTS			Method:		Analyst: maa	
Test	Attached	0		1	07/11/2012 12:00 AM	R24905
TOTAL ORGANIC CARBON			Method: EPA-9060-Rev 0, Sep-86		Analyst: mn	
Total Organic Carbon - Average	ND	73.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Max	ND	73.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Min	ND	73.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1205C25**

Client Sample ID: Outer Harbor Sediment #2
Lab ID: 1205C25-002 **Date Received:** 05/25/2012 2:28 PM

Matrix: SEDIMENT
Collection Date: 05/25/2012 2:28 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	2,650	2.45		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Antimony	4.90	1.47		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Arsenic	2.34	1.13	J	mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Barium	14.9	0.123		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Beryllium	ND	0.0363		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Cadmium	0.896	0.0735		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Calcium	86,000	1.23		mg/Kg-dry	2	06/05/2012 1:03 PM	9566
Chromium	9.32	0.0588		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Cobalt	3.20	0.123		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Copper	17.6	0.147		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Iron	8,090	0.613		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Lead	14.4	0.588		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Magnesium	19,400	0.613		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Manganese	440	0.0588		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Nickel	7.49	0.230		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Potassium	705	2.45		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Selenium	ND	1.27		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Silver	ND	0.0588		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Sodium	187	2.45		mg/Kg-dry	2	06/05/2012 1:03 PM	9566
Thallium	0.922	0.436	J	mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Vanadium	10.2	0.147		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
Zinc	48.2	0.0735		mg/Kg-dry	1	06/04/2012 6:29 PM	9566
PCBS		Method: EPA-8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Aroclor 1221	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Aroclor 1232	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Aroclor 1242	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Aroclor 1248	80.5	21.8		µg/Kg-dry	1	06/11/2012 6:22 PM	9667
Aroclor 1254	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Aroclor 1260	ND	21.8		µg/Kg-dry	1	06/08/2012 2:17 PM	9667
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	72.5	33.7-156		%REC	1	06/08/2012 2:17 PM	9667
VOLATILE ORGANIC COMPOUNDS		Method: EPA-8260B-Rev 2, Dec-96				Analyst: ms	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

VOLATILE ORGANIC COMPOUNDS Method: EPA-8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,1,2,2-Tetrachloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,1,2-Trichloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,1-Dichloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,1-Dichloroethene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,2-Dichloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
1,2-Dichloropropane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
2-Butanone	ND	25.6	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
2-Hexanone	ND	64.1	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
4-Methyl-2-pentanone	ND	64.1	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Acetone	ND	64.1	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Benzene	ND	0.641	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Bromodichloromethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Bromoform	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Bromomethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Carbon disulfide	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Carbon tetrachloride	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Chlorobenzene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Chloroethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Chloroform	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Chloromethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
cis-1,2-Dichloroethene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
cis-1,3-Dichloropropene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Dibromochloromethane	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Ethylbenzene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
m,p-Xylene	ND	5.12	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Methyl tert-butyl ether	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Methylene chloride	ND	12.8	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
o-Xylene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Total Xylenes	ND	5.12	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Styrene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Tetrachloroethene	ND	5.12	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Toluene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
trans-1,2-Dichloroethene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
trans-1,3-Dichloropropene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Trichloroethene	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Vinyl chloride	ND	2.56	µg/Kg-dry	1.93	05/31/2012 5:50 PM	R23532
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	103	61.55-121	%REC	1.93	05/31/2012 5:50 PM	R23532
SS: Dibromofluoromethane	119	71.4-147	%REC	1.93	05/31/2012 5:50 PM	R23532
SS: Toluene-d8	105	61-135	%REC	1.93	05/31/2012 5:50 PM	R23532

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
1,2-Dichlorobenzene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
1,3-Dichlorobenzene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
1,4-Dichlorobenzene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4,5-Trichlorophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4,6-Trichlorophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4-Dichlorophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4-Dimethylphenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4-Dinitrophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,4-Dinitrotoluene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2,6-Dinitrotoluene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2-Chloronaphthalene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2-Chlorophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2-Methylnaphthalene	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2-Nitroaniline	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
2-Nitrophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
3,3-Dichlorobenzidine	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
3-Nitroaniline	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4,6-Dinitro-2-methylphenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Bromophenyl phenyl ether	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Chloro-3-methylphenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Chloroaniline	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Chlorophenyl phenyl ether	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Nitroaniline	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
4-Nitrophenol	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Acenaphthene	ND	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Acenaphthylene	ND	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Anthracene	ND	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Benzo(a)anthracene	109	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Benzo(a)pyrene	92.7	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Benzo(b)fluoranthene	160	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Benzo(g,h,i)perylene	75.3	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Benzo(k)fluoranthene	ND	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Bis(2-chloroethoxy)methane	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Bis(2-chloroethyl)ether	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Bis(2-chloroisopropyl)ether	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Bis(2-ethylhexyl)phthalate	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Butyl benzyl phthalate	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Carbazole	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Chrysene	123	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Dibenzo(a,h)anthracene	ND	66.0	µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Dibenzofuran	ND	330	µg/Kg-dry	1	06/08/2012 8:15 PM	9632

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96				Analyst: ls	
Diethyl phthalate	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Dimethyl phthalate	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Di-n-butyl phthalate	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Di-n-octyl phthalate	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Fluoranthene	247	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Fluorene	ND	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Hexachlorobenzene	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Hexachlorobutadiene	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Hexachlorocyclopentadiene	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Hexachloroethane	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Indeno(1,2,3-cd)pyrene	ND	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Isophorone	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
m,p-Cresol	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Naphthalene	ND	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Nitrobenzene	ND	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
N-Nitrosodi-n-propylamine	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
N-Nitrosodiphenylamine	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
o-Cresol	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Pentachlorophenol	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Phenanthrene	220	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Phenol	ND	330		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Pyrene	217	66.0		µg/Kg-dry	1	06/08/2012 8:15 PM	9632
Internal Quality Control Compounds							
SS: 2,4,6-Tribromophenol	82.1	0.1-136		%REC	1	06/08/2012 8:15 PM	9632
SS: 2-Fluorobiphenyl	50.8	16.3-118		%REC	1	06/08/2012 8:15 PM	9632
SS: 2-Fluorophenol	62.6	4.2-97		%REC	1	06/08/2012 8:15 PM	9632
SS: 4-Terphenyl-d14	70.3	0.1-147		%REC	1	06/08/2012 8:15 PM	9632
SS: Nitrobenzene-d5	51.7	0.1-119		%REC	1	06/08/2012 8:15 PM	9632
SS: Phenol-d5	64.7	9.82-111		%REC	1	06/08/2012 8:15 PM	9632
ASBESTOS		Method:				Analyst: maa	
Subcontracted Test	See Attached	0	G		1	06/04/2012 12:00 AM	R24205
MERCURY BY CVAA		Method: EPA-7471A-Rev 1, Sep-94				Analyst: jos	
Mercury	0.0508	0.0252	J	mg/Kg-dry	1	06/01/2012 4:38 PM	9565
METALS, PERCENT MOISTURE		Method: EPA-200.2-Rev 2.8, 1994				Analyst: aa	
ICP Specific Percent Moisture	26.66			wt%	1	05/29/2012 12:24 PM	R23439
AMMONIA, TITRIMETRIC		Method: SM-4500NH3 E-Rev 18Ed, 1992				Analyst: sb	
Nitrogen, Ammonia (As N)	68.6	6.62		mg/Kg-dry	1	06/05/2012 2:40 PM	9609

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

TOTAL PHOSPHORUS			Method: SM-4500P BE-Rev 18Ed, 1992		Analyst: vyc	
Phosphorus (As P)	ND	2.7	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
Total Phosporus(as PO4)	ND	8.0	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
PERCENT MOISTURE			Method: ASTM-D2216-Rev 2005		Analyst: sb	
Percent Moisture	25	1.0	wt%	1	05/31/2012 5:00 PM	R23552
SUBCONTRACTED TESTS			Method:		Analyst: maa	
Test	Attached	0		1	07/11/2012 12:00 AM	R24905
TOTAL ORGANIC CARBON			Method: EPA-9060-Rev 0, Sep-86		Analyst: mn	
Total Organic Carbon - Average	2,240	75.9	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Max	4,490	75.9	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Min	ND	75.9	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1205C25**

Client Sample ID: Outer Harbor Sediment #3
Lab ID: 1205C25-003 **Date Received:** 05/25/2012 2:28 PM

Matrix: SEDIMENT
Collection Date: 05/25/2012 2:28 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	2,420	2.48		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Antimony	4.42	1.49	J	mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Arsenic	2.32	1.14	J	mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Barium	13.7	0.124		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Beryllium	ND	0.0366		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Cadmium	0.968	0.0743		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Calcium	104,000	3.09		mg/Kg-dry	5	06/06/2012 5:30 PM	9566
Chromium	7.83	0.0594		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Cobalt	3.07	0.124		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Copper	15.2	0.149		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Iron	8,270	0.619		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Lead	12.8	0.594		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Magnesium	20,300	0.619		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Manganese	519	0.0594		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Nickel	7.01	0.233		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Potassium	662	2.48		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Selenium	ND	1.29		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Silver	ND	0.0594		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Sodium	220	2.48		mg/Kg-dry	2	06/05/2012 1:08 PM	9566
Thallium	0.922	0.441	J	mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Vanadium	8.89	0.149		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
Zinc	44.5	0.0743		mg/Kg-dry	1	06/04/2012 6:40 PM	9566
PCBS		Method: EPA-8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Aroclor 1221	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Aroclor 1232	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Aroclor 1242	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Aroclor 1248	27.0	22.9		µg/Kg-dry	1	06/11/2012 6:40 PM	9667
Aroclor 1254	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Aroclor 1260	ND	22.9		µg/Kg-dry	1	06/08/2012 2:36 PM	9667
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	48.8	33.7-156		%REC	1	06/08/2012 2:36 PM	9667
VOLATILE ORGANIC COMPOUNDS		Method: EPA-8260B-Rev 2, Dec-96				Analyst: ms	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

VOLATILE ORGANIC COMPOUNDS Method: EPA-8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,1,2,2-Tetrachloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,1,2-Trichloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,1-Dichloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,1-Dichloroethene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,2-Dichloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
1,2-Dichloropropane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
2-Butanone	ND	27.2	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
2-Hexanone	ND	68.0	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
4-Methyl-2-pentanone	ND	68.0	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Acetone	ND	68.0	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Benzene	ND	0.680	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Bromodichloromethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Bromoform	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Bromomethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Carbon disulfide	5.61	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Carbon tetrachloride	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Chlorobenzene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Chloroethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Chloroform	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Chloromethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
cis-1,2-Dichloroethene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
cis-1,3-Dichloropropene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Dibromochloromethane	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Ethylbenzene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
m,p-Xylene	ND	5.44	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Methyl tert-butyl ether	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Methylene chloride	ND	13.6	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
o-Xylene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Total Xylenes	ND	5.44	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Styrene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Tetrachloroethene	ND	5.44	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Toluene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
trans-1,2-Dichloroethene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
trans-1,3-Dichloropropene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Trichloroethene	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Vinyl chloride	ND	2.72	µg/Kg-dry	1.98	06/01/2012 8:40 PM	R23569
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	106	61.55-121	%REC	1.98	06/01/2012 8:40 PM	R23569
SS: Dibromofluoromethane	119	71.4-147	%REC	1.98	06/01/2012 8:40 PM	R23569
SS: Toluene-d8	102	61-135	%REC	1.98	06/01/2012 8:40 PM	R23569

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
1,2-Dichlorobenzene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
1,3-Dichlorobenzene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
1,4-Dichlorobenzene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4,5-Trichlorophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4,6-Trichlorophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4-Dichlorophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4-Dimethylphenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4-Dinitrophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,4-Dinitrotoluene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2,6-Dinitrotoluene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2-Chloronaphthalene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2-Chlorophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2-Methylnaphthalene	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2-Nitroaniline	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
2-Nitrophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
3,3-Dichlorobenzidine	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
3-Nitroaniline	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4,6-Dinitro-2-methylphenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Bromophenyl phenyl ether	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Chloro-3-methylphenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Chloroaniline	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Chlorophenyl phenyl ether	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Nitroaniline	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
4-Nitrophenol	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Acenaphthene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Acenaphthylene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Anthracene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Benzo(a)anthracene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Benzo(a)pyrene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Benzo(b)fluoranthene	108	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Benzo(g,h,i)perylene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Benzo(k)fluoranthene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Bis(2-chloroethoxy)methane	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Bis(2-chloroethyl)ether	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Bis(2-chloroisopropyl)ether	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Bis(2-ethylhexyl)phthalate	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Butyl benzyl phthalate	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Carbazole	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Chrysene	83.5	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Dibenzo(a,h)anthracene	ND	68.2	µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Dibenzofuran	ND	341	µg/Kg-dry	1	06/08/2012 8:56 PM	9632

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96				Analyst: ls	
Diethyl phthalate	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Dimethyl phthalate	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Di-n-butyl phthalate	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Di-n-octyl phthalate	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Fluoranthene	162	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Fluorene	ND	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Hexachlorobenzene	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Hexachlorobutadiene	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Hexachlorocyclopentadiene	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Hexachloroethane	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Indeno(1,2,3-cd)pyrene	ND	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Isophorone	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
m,p-Cresol	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Naphthalene	ND	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Nitrobenzene	ND	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
N-Nitrosodi-n-propylamine	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
N-Nitrosodiphenylamine	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
o-Cresol	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Pentachlorophenol	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Phenanthrene	99.5	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Phenol	ND	341		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Pyrene	137	68.2		µg/Kg-dry	1	06/08/2012 8:56 PM	9632
Internal Quality Control Compounds							
SS: 2,4,6-Tribromophenol	63.5	0.1-136		%REC	1	06/08/2012 8:56 PM	9632
SS: 2-Fluorobiphenyl	37.9	16.3-118		%REC	1	06/08/2012 8:56 PM	9632
SS: 2-Fluorophenol	55.7	4.2-97		%REC	1	06/08/2012 8:56 PM	9632
SS: 4-Terphenyl-d14	51.6	0.1-147		%REC	1	06/08/2012 8:56 PM	9632
SS: Nitrobenzene-d5	45.1	0.1-119		%REC	1	06/08/2012 8:56 PM	9632
SS: Phenol-d5	55.3	9.82-111		%REC	1	06/08/2012 8:56 PM	9632
ASBESTOS		Method:				Analyst: maa	
Subcontracted Test	See Attached	0	G		1	06/04/2012 12:00 AM	R24205
MERCURY BY CVAA		Method: EPA-7471A-Rev 1, Sep-94				Analyst: jos	
Mercury	0.0433	0.0225	J	mg/Kg-dry	1	06/01/2012 4:45 PM	9565
METALS, PERCENT MOISTURE		Method: EPA-200.2-Rev 2.8, 1994				Analyst: aa	
ICP Specific Percent Moisture	29.96			wt%	1	05/29/2012 12:24 PM	R23439
AMMONIA, TITRIMETRIC		Method: SM-4500NH3 E-Rev 18Ed, 1992				Analyst: sb	
Nitrogen, Ammonia (As N)	115	6.85		mg/Kg-dry	1	06/05/2012 2:40 PM	9609

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

TOTAL PHOSPHORUS			Method: SM-4500P BE-Rev 18Ed, 1992		Analyst: vyc	
Phosphorus (As P)	ND	2.7	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
Total Phosporus(as PO4)	ND	8.2	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
PERCENT MOISTURE			Method: ASTM-D2216-Rev 2005		Analyst: sb	
Percent Moisture	27	1.0	wt%	1	05/31/2012 5:00 PM	R23552
SUBCONTRACTED TESTS			Method:		Analyst: maa	
Test	Attached	0		1	07/11/2012 12:00 AM	R24905
TOTAL ORGANIC CARBON			Method: EPA-9060-Rev 0, Sep-86		Analyst: mn	
Total Organic Carbon - Average	5,580	78.6	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Max	5,610	78.6	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Min	5,550	78.6	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1205C25**

Client Sample ID: Outer Harbor Sediment #4
Lab ID: 1205C25-004 **Date Received:** 05/25/2012 2:28 PM

Matrix: SEDIMENT
Collection Date: 05/25/2012 2:28 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	1,220	2.43		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Antimony	3.26	1.46	J	mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Arsenic	ND	1.12		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Barium	5.50	0.121		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Beryllium	ND	0.0359		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Cadmium	0.557	0.0728		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Calcium	50,900	1.21		mg/Kg-dry	2	06/05/2012 1:12 PM	9566
Chromium	3.97	0.0583		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Cobalt	1.84	0.121		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Copper	3.70	0.146		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Iron	3,780	0.607		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Lead	4.65	0.583		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Magnesium	14,900	0.607		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Manganese	177	0.0583		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Nickel	3.24	0.228		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Potassium	258	2.43		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Selenium	ND	1.26		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Silver	ND	0.0583		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Sodium	114	2.43		mg/Kg-dry	2	06/05/2012 1:12 PM	9566
Thallium	ND	0.432		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Vanadium	8.55	0.146		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
Zinc	21.2	0.0728		mg/Kg-dry	1	06/04/2012 6:51 PM	9566
PCBS		Method: EPA-8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Aroclor 1221	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Aroclor 1232	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Aroclor 1242	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Aroclor 1248	31.9	21.9		µg/Kg-dry	1	06/11/2012 6:59 PM	9667
Aroclor 1254	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Aroclor 1260	ND	21.9		µg/Kg-dry	1	06/08/2012 2:54 PM	9667
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	57.5	33.7-156		%REC	1	06/08/2012 2:54 PM	9667
VOLATILE ORGANIC COMPOUNDS		Method: EPA-8260B-Rev 2, Dec-96				Analyst: ms	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

VOLATILE ORGANIC COMPOUNDS Method: EPA-8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,1,2,2-Tetrachloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,1,2-Trichloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,1-Dichloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,1-Dichloroethene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,2-Dichloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
1,2-Dichloropropane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
2-Butanone	ND	26.0	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
2-Hexanone	ND	65.0	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
4-Methyl-2-pentanone	ND	65.0	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Acetone	ND	65.0	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Benzene	ND	0.650	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Bromodichloromethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Bromoform	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Bromomethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Carbon disulfide	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Carbon tetrachloride	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Chlorobenzene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Chloroethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Chloroform	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Chloromethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
cis-1,2-Dichloroethene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
cis-1,3-Dichloropropene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Dibromochloromethane	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Ethylbenzene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
m,p-Xylene	ND	5.20	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Methyl tert-butyl ether	7.22	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Methylene chloride	ND	13.0	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
o-Xylene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Total Xylenes	ND	5.20	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Styrene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Tetrachloroethene	ND	5.20	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Toluene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
trans-1,2-Dichloroethene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
trans-1,3-Dichloropropene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Trichloroethene	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Vinyl chloride	ND	2.60	µg/Kg-dry	1.97	06/01/2012 9:20 PM	R23569
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	107	61.55-121	%REC	1.97	06/01/2012 9:20 PM	R23569
SS: Dibromofluoromethane	127	71.4-147	%REC	1.97	06/01/2012 9:20 PM	R23569
SS: Toluene-d8	104	61-135	%REC	1.97	06/01/2012 9:20 PM	R23569

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
1,2-Dichlorobenzene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
1,3-Dichlorobenzene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
1,4-Dichlorobenzene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4,5-Trichlorophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4,6-Trichlorophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4-Dichlorophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4-Dimethylphenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4-Dinitrophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,4-Dinitrotoluene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2,6-Dinitrotoluene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2-Chloronaphthalene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2-Chlorophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2-Methylnaphthalene	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2-Nitroaniline	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
2-Nitrophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
3,3-Dichlorobenzidine	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
3-Nitroaniline	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4,6-Dinitro-2-methylphenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Bromophenyl phenyl ether	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Chloro-3-methylphenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Chloroaniline	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Chlorophenyl phenyl ether	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Nitroaniline	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
4-Nitrophenol	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Acenaphthene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Acenaphthylene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Anthracene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Benzo(a)anthracene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Benzo(a)pyrene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Benzo(b)fluoranthene	70.9	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Benzo(g,h,i)perylene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Benzo(k)fluoranthene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Bis(2-chloroethoxy)methane	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Bis(2-chloroethyl)ether	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Bis(2-chloroisopropyl)ether	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Bis(2-ethylhexyl)phthalate	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Butyl benzyl phthalate	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Carbazole	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Chrysene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Dibenzo(a,h)anthracene	ND	65.6	µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Dibenzofuran	ND	328	µg/Kg-dry	1	06/08/2012 9:37 PM	9632

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96				Analyst: ls	
Diethyl phthalate	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Dimethyl phthalate	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Di-n-butyl phthalate	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Di-n-octyl phthalate	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Fluoranthene	139	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Fluorene	ND	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Hexachlorobenzene	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Hexachlorobutadiene	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Hexachlorocyclopentadiene	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Hexachloroethane	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Indeno(1,2,3-cd)pyrene	ND	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Isophorone	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
m,p-Cresol	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Naphthalene	ND	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Nitrobenzene	ND	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
N-Nitrosodi-n-propylamine	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
N-Nitrosodiphenylamine	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
o-Cresol	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Pentachlorophenol	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Phenanthrene	118	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Phenol	ND	328		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Pyrene	111	65.6		µg/Kg-dry	1	06/08/2012 9:37 PM	9632
Internal Quality Control Compounds							
SS: 2,4,6-Tribromophenol	82.1	0.1-136		%REC	1	06/08/2012 9:37 PM	9632
SS: 2-Fluorobiphenyl	60.9	16.3-118		%REC	1	06/08/2012 9:37 PM	9632
SS: 2-Fluorophenol	68.8	4.2-97		%REC	1	06/08/2012 9:37 PM	9632
SS: 4-Terphenyl-d14	73.9	0.1-147		%REC	1	06/08/2012 9:37 PM	9632
SS: Nitrobenzene-d5	59.1	0.1-119		%REC	1	06/08/2012 9:37 PM	9632
SS: Phenol-d5	68.5	9.82-111		%REC	1	06/08/2012 9:37 PM	9632
ASBESTOS		Method:				Analyst: maa	
Subcontracted Test	See Attached	0	G		1	06/04/2012 12:00 AM	R24205
MERCURY BY CVAA		Method: EPA-7471A-Rev 1, Sep-94				Analyst: jos	
Mercury	0.0403	0.0257	J	mg/Kg-dry	1	06/01/2012 4:47 PM	9565
METALS, PERCENT MOISTURE		Method: EPA-200.2-Rev 2.8, 1994				Analyst: aa	
ICP Specific Percent Moisture	18.80			wt%	1	05/29/2012 12:24 PM	R23439
AMMONIA, TITRIMETRIC		Method: SM-4500NH3 E-Rev 18Ed, 1992				Analyst: sb	
Nitrogen, Ammonia (As N)	11.1	6.58		mg/Kg-dry	1	06/05/2012 2:40 PM	9609

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

TOTAL PHOSPHORUS			Method: SM-4500P BE-Rev 18Ed, 1992		Analyst: vyc	
Phosphorus (As P)	ND	2.6	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
Total Phosporus(as PO4)	ND	7.9	mg/Kg-dry	10	05/30/2012 11:32 AM	R23464
PERCENT MOISTURE			Method: ASTM-D2216-Rev 2005		Analyst: sb	
Percent Moisture	24	1.0	wt%	1	05/31/2012 5:00 PM	R23552
SUBCONTRACTED TESTS			Method:		Analyst: maa	
Test	Attached	0		1	07/11/2012 12:00 AM	R24905
TOTAL ORGANIC CARBON			Method: EPA-9060-Rev 0, Sep-86		Analyst: mn	
Total Organic Carbon - Average	963	75.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Max	1,930	75.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Min	ND	75.4	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1205C25**

Client Sample ID: Outer Harbor Sediment #5
Lab ID: 1205C25-005 **Date Received:** 05/25/2012 2:28 PM

Matrix: SEDIMENT
Collection Date: 05/25/2012 2:28 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	1,030	2.50		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Antimony	2.41	1.50	J	mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Arsenic	ND	1.15		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Barium	4.66	0.125		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Beryllium	ND	0.0370		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Cadmium	0.522	0.0750		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Calcium	40,800	0.625		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Chromium	3.85	0.0600		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Cobalt	1.71	0.125		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Copper	2.59	0.150		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Iron	3,700	0.625		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Lead	3.75	0.600		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Magnesium	13,800	0.625		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Manganese	136	0.0600	S	mg/Kg-dry	1	06/05/2012 1:17 PM	9566
Nickel	2.86	0.235		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Potassium	200	2.50		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Selenium	ND	1.30		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Silver	ND	0.0600		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Sodium	96.7	1.25		mg/Kg-dry	1	06/05/2012 1:17 PM	9566
Thallium	0.907	0.445	J	mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Vanadium	11.3	0.150		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
Zinc	20.6	0.0750		mg/Kg-dry	1	06/04/2012 7:02 PM	9566
PCBS		Method: EPA-8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Aroclor 1221	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Aroclor 1232	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Aroclor 1242	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Aroclor 1248	ND	21.7		µg/Kg-dry	1	06/11/2012 7:17 PM	9667
Aroclor 1254	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Aroclor 1260	ND	21.7		µg/Kg-dry	1	06/08/2012 3:12 PM	9667
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	56.3	33.7-156		%REC	1	06/08/2012 3:12 PM	9667
VOLATILE ORGANIC COMPOUNDS		Method: EPA-8260B-Rev 2, Dec-96				Analyst: ms	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

VOLATILE ORGANIC COMPOUNDS Method: EPA-8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,1,2,2-Tetrachloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,1,2-Trichloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,1-Dichloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,1-Dichloroethene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,2-Dichloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
1,2-Dichloropropane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
2-Butanone	ND	24.6	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
2-Hexanone	ND	61.4	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
4-Methyl-2-pentanone	ND	61.4	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Acetone	ND	61.4	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Benzene	ND	0.614	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Bromodichloromethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Bromoform	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Bromomethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Carbon disulfide	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Carbon tetrachloride	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Chlorobenzene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Chloroethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Chloroform	2.48	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Chloromethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
cis-1,2-Dichloroethene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
cis-1,3-Dichloropropene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Dibromochloromethane	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Ethylbenzene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
m,p-Xylene	ND	4.91	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Methyl tert-butyl ether	9.56	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Methylene chloride	14.1	12.3	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
o-Xylene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Total Xylenes	ND	4.91	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Styrene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Tetrachloroethene	ND	4.91	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Toluene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
trans-1,2-Dichloroethene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
trans-1,3-Dichloropropene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Trichloroethene	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Vinyl chloride	ND	2.46	µg/Kg-dry	1.89	06/01/2012 10:00 PM	R23569
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	107	61.55-121	%REC	1.89	06/01/2012 10:00 PM	R23569
SS: Dibromofluoromethane	123	71.4-147	%REC	1.89	06/01/2012 10:00 PM	R23569
SS: Toluene-d8	107	61-135	%REC	1.89	06/01/2012 10:00 PM	R23569

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
1,2-Dichlorobenzene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
1,3-Dichlorobenzene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
1,4-Dichlorobenzene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4,5-Trichlorophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4,6-Trichlorophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4-Dichlorophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4-Dimethylphenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4-Dinitrophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,4-Dinitrotoluene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2,6-Dinitrotoluene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2-Chloronaphthalene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2-Chlorophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2-Methylnaphthalene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2-Nitroaniline	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
2-Nitrophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
3,3-Dichlorobenzidine	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
3-Nitroaniline	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4,6-Dinitro-2-methylphenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Bromophenyl phenyl ether	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Chloro-3-methylphenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Chloroaniline	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Chlorophenyl phenyl ether	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Nitroaniline	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
4-Nitrophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Acenaphthene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Acenaphthylene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Anthracene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Benzo(a)anthracene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Benzo(a)pyrene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Benzo(b)fluoranthene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Benzo(g,h,i)perylene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Benzo(k)fluoranthene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Bis(2-chloroethoxy)methane	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Bis(2-chloroethyl)ether	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Bis(2-chloroisopropyl)ether	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Bis(2-ethylhexyl)phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Butyl benzyl phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Carbazole	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Chrysene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Dibenzo(a,h)anthracene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Dibenzofuran	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96			Analyst: ls	
Diethyl phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Dimethyl phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Di-n-butyl phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Di-n-octyl phthalate	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Fluoranthene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Fluorene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Hexachlorobenzene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Hexachlorobutadiene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Hexachlorocyclopentadiene	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Hexachloroethane	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Indeno(1,2,3-cd)pyrene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Isophorone	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
m,p-Cresol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Naphthalene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Nitrobenzene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
N-Nitrosodi-n-propylamine	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
N-Nitrosodiphenylamine	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
o-Cresol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Pentachlorophenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Phenanthrene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Phenol	ND	321	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Pyrene	ND	64.2	µg/Kg-dry	1	06/11/2012 1:52 PM	9632
Internal Quality Control Compounds						
SS: 2,4,6-Tribromophenol	91.1	0.1-136	%REC	1	06/11/2012 1:52 PM	9632
SS: 2-Fluorobiphenyl	51.8	16.3-118	%REC	1	06/11/2012 1:52 PM	9632
SS: 2-Fluorophenol	70.4	4.2-97	%REC	1	06/11/2012 1:52 PM	9632
SS: 4-Terphenyl-d14	73.5	0.1-147	%REC	1	06/11/2012 1:52 PM	9632
SS: Nitrobenzene-d5	59.6	0.1-119	%REC	1	06/11/2012 1:52 PM	9632
SS: Phenol-d5	68.9	9.82-111	%REC	1	06/11/2012 1:52 PM	9632
ASBESTOS		Method:			Analyst: maa	
Subcontracted Test	See Attached	0	G	1	06/04/2012 12:00 AM	R24205
MERCURY BY CVAA		Method: EPA-7471A-Rev 1, Sep-94			Analyst: jos	
Mercury	ND	0.0228	mg/Kg-dry	1	06/01/2012 4:49 PM	9565
METALS, PERCENT MOISTURE		Method: EPA-200.2-Rev 2.8, 1994			Analyst: aa	
ICP Specific Percent Moisture	24.41		wt%	1	05/29/2012 12:24 PM	R23439
AMMONIA, TITRIMETRIC		Method: SM-4500NH3 E-Rev 18Ed, 1992			Analyst: sb	
Nitrogen, Ammonia (As N)	10.9	6.49	mg/Kg-dry	1	06/05/2012 2:40 PM	9609

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1205C25

TOTAL PHOSPHORUS			Method: SM-4500P BE-Rev 18Ed, 1992		Analyst: vyc	
Phosphorus (As P)	39	13	mg/Kg-dry	50	05/30/2012 11:32 AM	R23464
Total Phosporus(as PO4)	120	39	mg/Kg-dry	50	05/30/2012 11:32 AM	R23464
PERCENT MOISTURE			Method: ASTM-D2216-Rev 2005		Analyst: sb	
Percent Moisture	23	1.0	wt%	1	06/01/2012 6:00 PM	R23585
SUBCONTRACTED TESTS			Method:		Analyst: maa	
Test	Attached	0		1	07/11/2012 12:00 AM	R24905
TOTAL ORGANIC CARBON			Method: EPA-9060-Rev 0, Sep-86		Analyst: mn	
Total Organic Carbon - Average	ND	74.3	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Max	ND	74.3	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911
Total Organic Carbon - Min	ND	74.3	mg/Kg-dry	1	06/12/2012 12:00 AM	R23911

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

PREP DATES REPORT

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Chan

Report Date: August 06, 2012
Lab Order: 1205C25

Sample ID	Collection Date	Batch ID	Prep Method	Prep Test Name	TCLP Date	Prep Date
1205C25-001B	05/25/12 2:28:55 PM	9609	NH3PR	AMMONIA, DISTILLATION		06/05/12
		9565	HG_SPR	Mercury Prep for Solids		06/01/12
		9632	3550_B	SOLID PREP SONICATION: BNA		06/06/12
		9667	3550_PCB	SOLID PREP SONICATION: PCB		06/07/12
		9566	200.2_ICP_PR	SOLID PREP TOTAL METALS: ICP		06/01/12
1205C25-002B		9609	NH3PR	AMMONIA, DISTILLATION		06/05/12
		9565	HG_SPR	Mercury Prep for Solids		06/01/12
		9632	3550_B	SOLID PREP SONICATION: BNA		06/06/12
		9667	3550_PCB	SOLID PREP SONICATION: PCB		06/07/12
		9566	200.2_ICP_PR	SOLID PREP TOTAL METALS: ICP		06/01/12
1205C25-003B		9609	NH3PR	AMMONIA, DISTILLATION		06/05/12
		9565	HG_SPR	Mercury Prep for Solids		06/01/12
		9632	3550_B	SOLID PREP SONICATION: BNA		06/06/12
		9667	3550_PCB	SOLID PREP SONICATION: PCB		06/07/12
		9566	200.2_ICP_PR	SOLID PREP TOTAL METALS: ICP		06/01/12
1205C25-004B		9609	NH3PR	AMMONIA, DISTILLATION		06/05/12
		9565	HG_SPR	Mercury Prep for Solids		06/01/12
		9632	3550_B	SOLID PREP SONICATION: BNA		06/06/12
		9667	3550_PCB	SOLID PREP SONICATION: PCB		06/07/12
		9566	200.2_ICP_PR	SOLID PREP TOTAL METALS: ICP		06/01/12
1205C25-005B		9609	NH3PR	AMMONIA, DISTILLATION		06/05/12
		9565	HG_SPR	Mercury Prep for Solids		06/01/12
		9632	3550_B	SOLID PREP SONICATION: BNA		06/06/12
		9667	3550_PCB	SOLID PREP SONICATION: PCB		06/07/12
		9566	200.2_ICP_PR	SOLID PREP TOTAL METALS: ICP		06/01/12
1205C25-006B		9536	P_WW_LOWPR	PHOSPHORUS, TOTAL		05/31/12
1205C25-006C		9545	200.2_ICPWW_	AQUEOUS PREP T/R METALS: ICP		05/31/12
		9507	200.2_ICPMS_W	AQUEOUS PREP TOTAL METALS: ICP		05/29/12
		9521	200.2_ICPW_PR	AQUEOUS PREP TOTAL METALS: ICP		05/30/12
		9512	HG_WPR	MERCURY PREP for AQUEOUS		05/30/12
1205C25-006E		9549	3510SIM_B	AQUEOUS PREP SEP FUNNEL: BNA		05/31/12
		9534	3510_B	AQUEOUS PREP SEP FUNNEL: BNA		05/30/12

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

PREP DATES REPORT

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Chan

Report Date: August 06, 2012
Lab Order: **1205C25**

Sample ID	Collection Date	Batch ID	Prep Method	Prep Test Name	TCLP Date	Prep Date
1205C25-006E	05/25/12 2:28:55 PM	9533	3510_PCB	AQUEOUS PREP SEP FUNNEL: PCB		05/30/12

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23578**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/01/12** SeqNo: **506622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.16	5.00									J
Barium	ND	0.250									
Cadmium	ND	0.250									
Chromium	ND	0.250									
Lead	ND	1.25									
Selenium	ND	5.00									
Silver	ND	0.250									

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23578**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/01/12** SeqNo: **506623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.8	5.00	50.00	0	95.6	85	115				
Barium	47.5	0.250	50.00	0	95.1	85	115				
Cadmium	47.1	0.250	50.00	0	94.2	85	115				
Chromium	48.1	0.250	50.00	0	96.2	85	115				
Lead	48.5	1.25	50.00	0	96.9	85	115				
Selenium	50.2	5.00	50.00	0	100	85	115				
Silver	47.7	0.250	50.00	0	95.3	85	115				

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23612**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	5.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23612**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	5.00									

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23612**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.3	5.00	50.00	0	103	85	115				
Selenium	54.8	5.00	50.00	0	110	85	115				

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	2.50									
Antimony	ND	5.00									
Arsenic	ND	5.00									
Barium	ND	0.250									
Beryllium	ND	0.250									
Cadmium	ND	0.250									
Calcium	ND	5.00									
Chromium	ND	0.250									
Cobalt	ND	1.25									
Copper	ND	0.250									
Iron	ND	1.73									
Lead	ND	1.25									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	ND	1.25									
Manganese	ND	0.250									
Nickel	ND	1.25									
Potassium	ND	25.0									
Selenium	ND	5.00									
Silver	ND	0.250									
Thallium	ND	1.25									
Vanadium	ND	1.25									
Zinc	ND	1.25									

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	48.6	2.50	50.00	0	97.2	85	115				
Antimony	50.2	5.00	50.00	0	100	85	115				
Arsenic	47.7	5.00	50.00	0	95.5	85	115				
Barium	50.8	0.250	50.00	0	102	85	115				
Beryllium	51.0	0.250	50.00	0	102	85	115				
Cadmium	49.1	0.250	50.00	0	98.3	85	115				
Calcium	45.9	5.00	50.00	0	91.7	85	115				
Chromium	51.0	0.250	50.00	0	102	85	115				
Cobalt	50.3	1.25	50.00	0	101	85	115				
Copper	50.3	0.250	50.00	0	101	85	115				
Iron	46.3	1.73	50.00	0	92.7	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	50.8	1.25	50.00	0	102	85	115				
Magnesium	48.1	1.25	50.00	0	96.3	85	115				
Manganese	49.7	0.250	50.00	0	99.4	85	115				
Nickel	50.6	1.25	50.00	0	101	85	115				
Potassium	502	25.0	500.0	0	100	85	115				
Selenium	50.1	5.00	50.00	0	100	85	115				
Silver	51.2	0.250	50.00	0	102	85	115				
Thallium	49.9	1.25	50.00	0	99.9	85	115				
Vanadium	51.5	1.25	50.00	0	103	85	115				
Zinc	50.3	1.25	50.00	0	101	85	115				

Sample ID: **1205C25-005BMS** SampType: **MS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1,020	2.50	50.00	1,028	-11.7	70	130				S
Antimony	49.4	5.00	50.00	2.410	94.0	70	130				
Arsenic	46.6	5.00	50.00	0	93.2	70	130				
Barium	49.3	0.250	50.00	4.659	89.2	70	130				
Beryllium	47.3	0.250	50.00	0	94.7	70	130				
Cadmium	47.7	0.250	50.00	0.5216	94.3	70	130				
Calcium	37,600	5.00	50.00	40,780	-6,370	70	130				S
Chromium	49.5	0.250	50.00	3.848	91.4	70	130				
Cobalt	45.7	1.25	50.00	1.707	87.9	70	130				
Copper	54.6	0.250	50.00	2.592	104	70	130				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **1205C25-005BMS** SampType: **MS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3,100	1.73	50.00	3,702	-1,200	70	130				S
Lead	47.8	1.25	50.00	3.754	88.1	70	130				
Magnesium	12,700	1.25	50.00	13,780	-2,090	70	130				S
Nickel	46.7	1.25	50.00	2.855	87.7	70	130				
Potassium	705	25.0	500.0	200.1	101	70	130				
Selenium	48.2	5.00	50.00	0	96.5	70	130				
Silver	51.8	0.250	50.00	0	104	70	130				
Thallium	45.3	1.25	50.00	0.9074	88.9	70	130				
Vanadium	56.4	1.25	50.00	11.32	90.1	70	130				
Zinc	64.0	1.25	50.00	20.64	86.7	70	130				

Sample ID: **1205C25-005BMSD** SampType: **MSD** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1,060	2.50	50.00	1,028	61.9	70	130	1,022	3.54	20	S
Antimony	49.5	5.00	50.00	2.410	94.2	70	130	49.42	0.187	20	
Arsenic	47.2	5.00	50.00	0	94.5	70	130	46.59	1.36	20	
Barium	50.4	0.250	50.00	4.659	91.5	70	130	49.25	2.32	20	
Beryllium	48.2	0.250	50.00	0	96.4	70	130	47.33	1.85	20	
Cadmium	48.7	0.250	50.00	0.5216	96.4	70	130	47.66	2.15	20	
Calcium	35,000	5.00	50.00	40,780	-11,500	70	130	37,590	7.08	20	S
Chromium	50.3	0.250	50.00	3.848	92.8	70	130	49.54	1.46	20	
Cobalt	46.8	1.25	50.00	1.707	90.2	70	130	45.66	2.45	20	
Copper	55.0	0.250	50.00	2.592	105	70	130	54.63	0.601	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **1205C25-005BMSD** SampType: **MSD** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23641**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/04/12** SeqNo: **507729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3,060	1.73	50.00	3,702	-1,280	70	130	3,099	1.16	20	S
Lead	48.1	1.25	50.00	3.754	88.8	70	130	47.79	0.735	20	
Magnesium	12,400	1.25	50.00	13,780	-2,840	70	130	12,730	2.98	20	S
Nickel	47.8	1.25	50.00	2.855	90.0	70	130	46.71	2.37	20	
Potassium	711	25.0	500.0	200.1	102	70	130	705.5	0.728	20	
Selenium	49.1	5.00	50.00	0	98.1	70	130	48.23	1.73	20	
Silver	52.9	0.250	50.00	0	106	70	130	51.81	2.00	20	
Thallium	46.1	1.25	50.00	0.9074	90.4	70	130	45.35	1.70	20	
Vanadium	56.7	1.25	50.00	11.32	90.7	70	130	56.39	0.528	20	
Zinc	62.2	1.25	50.00	20.64	83.1	70	130	64.00	2.90	20	

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23660**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/05/12** SeqNo: **508212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	5.00									
Manganese	ND	0.250									
Sodium	ND	5.00									

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23660**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/05/12** SeqNo: **508213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.9	5.00	50.00	0	97.8	85	115				
Manganese	49.6	0.250	50.00	0	99.3	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_S_2**

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23660**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/05/12** SeqNo: **508213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	48.2	5.00	50.00	0	96.5	85	115				

Sample ID: **1205C25-005BMS** SampType: **MS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23660**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/05/12** SeqNo: **508219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	170	0.250	50.00	136.5	67.5	70	130				S
Sodium	144	5.00	50.00	96.75	95.2	70	130				

Sample ID: **1205C25-005BMSD** SampType: **MSD** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23660**
Client ID: **Outer Harbor Sedim** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/05/12** SeqNo: **508220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	169	0.250	50.00	136.5	64.3	70	130	170.2	0.939	20	S
Sodium	142	5.00	50.00	96.75	91.4	70	130	144.3	1.31	20	

Sample ID: **MB-9566** SampType: **MBLK** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23726**
Client ID: **PBS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/06/12** SeqNo: **509911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.921	5.00									J

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **6010_S_2**

Sample ID: **LCS-9566** SampType: **LCS** TestCode: **6010_S_2** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23726**
Client ID: **LCSS** Batch ID: **9566** TestNo: **SW6010B** **E200.2** Analysis Date: **06/06/12** SeqNo: **509912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	49.5	5.00	50.00	0	98.9	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8082_S**

Sample ID: **1016/1260 ICV** SampType: **ICV** TestCode: **8082_S** Units: **%REC** Prep Date: RunNo: **23835**
Client ID: **ICV** Batch ID: **R23835** TestNo: **SW8082** Analysis Date: **06/08/12** SeqNo: **512231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0890		0.1000		89.0	85	115				
Surr: Tetrachloro-m-xylene	0.0860		0.1000		86.0	85	115				

Sample ID: **MB-9667** SampType: **mblk** TestCode: **8082_S** Units: **µg/Kg** Prep Date: **06/07/12** RunNo: **23835**
Client ID: **PBS** Batch ID: **9667** TestNo: **SW8082** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	16.7									
Aroclor 1221	ND	16.7									
Aroclor 1232	ND	16.7									
Aroclor 1242	ND	16.7									
Aroclor 1248	ND	16.7									
Aroclor 1254	ND	16.7									
Aroclor 1260	ND	16.7									
Surr: Decachlorobiphenyl	8.83		13.33		66.3	41.4	165				
Surr: Tetrachloro-m-xylene	8.00		13.33		60.0	33.7	156				

Sample ID: **lcs-9667** SampType: **lcs** TestCode: **8082_S** Units: **µg/Kg** Prep Date: **06/07/12** RunNo: **23835**
Client ID: **LCSS** Batch ID: **9667** TestNo: **SW8082** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	124	16.7	166.7	0	74.3	10	215				
Aroclor 1260	128	16.7	166.7	0	77.0	58.2	140				
Surr: Decachlorobiphenyl	9.83		13.33		73.8	41.4	165				
Surr: Tetrachloro-m-xylene	9.00		13.33		67.5	33.7	156				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8082_S**

Sample ID: **1016/1260 IC** SampType: **ICV** TestCode: **8082_S** Units: **%REC** Prep Date: RunNo: **23881**
Client ID: **ICV** Batch ID: **R23881** TestNo: **SW8082** Analysis Date: **06/11/12** SeqNo: **513261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.0930		0.1000		93.0	85	115				
Surr: Tetrachloro-m-xylene	0.0980		0.1000		98.0	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **CCV** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	57.8	1.00	50.00	0	116						
1,1,2,2-Tetrachloroethane	44.4	1.00	50.00	0	88.8						
1,1,2-Trichloroethane	52.3	1.00	50.00	0	105						
1,1-Dichloroethane	55.7	1.00	50.00	0	111						
1,1-Dichloroethene	56.8	1.00	50.00	0	114	80	120				
1,2-Dichloroethane	57.2	1.00	50.00	0	114						
1,2-Dichloropropane	48.7	1.00	50.00	0	97.4	80	120				
2-Butanone	122	10.0	100.0	0	122						
2-Hexanone	103	25.0	100.0	0	103						
4-Methyl-2-pentanone	108	25.0	100.0	0	108						
Acetone	115	25.0	100.0	0	115						
Benzene	49.3	0.250	50.00	0	98.5						
Bromodichloromethane	52.1	1.00	50.00	0	104						
Bromoform	43.4	1.00	50.00	0	86.7						
Bromomethane	129	1.00	50.00	0	258						
Carbon disulfide	58.3	1.00	50.00	0	117						
Carbon tetrachloride	50.5	1.00	50.00	0	101						
Chlorobenzene	43.3	1.00	50.00	0	86.5						
Chloroethane	68.7	1.00	50.00	0	137						
Chloroform	53.8	1.00	50.00	0	108	80	120				
Chloromethane	35.0	1.00	50.00	0	70.0						
cis-1,2-Dichloroethene	54.1	1.00	50.00	0	108						
cis-1,3-Dichloropropene	50.8	1.00	50.00	0	102						
Dibromochloromethane	46.0	1.00	50.00	0	91.9						
Ethylbenzene	42.4	1.00	50.00	0	84.8	80	120				
m,p-Xylene	84.0	2.00	100.0	0	84.0						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **CCV** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	54.8	1.00	50.00	0	110						
Methylene chloride	53.5	5.00	50.00	0	107						
o-Xylene	43.6	1.00	50.00	0	87.1						
Total Xylenes	128	2.00	150.0	0	85.1						
Styrene	44.4	1.00	50.00	0	88.8						
Tetrachloroethene	38.1	2.00	50.00	0	76.1						
Toluene	45.9	1.00	50.00	0	91.8	80	120				
trans-1,2-Dichloroethene	52.9	1.00	50.00	0	106						
trans-1,3-Dichloropropene	51.7	1.00	50.00	0	103						
Trichloroethene	46.5	1.00	50.00	0	93.0						
Vinyl chloride	52.6	1.00	50.00	0	105	80	120				
Surr: 4-Bromofluorobenzene	54.3		50.00		109						
Surr: Dibromofluoromethane	60.4		50.00		121						
Surr: Toluene-d8	50.1		50.00		100						

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **LCSS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	24.0	1.00	20.00	0	120						
1,1,2,2-Tetrachloroethane	19.1	1.00	20.00	0	95.7						
1,1,2-Trichloroethane	22.7	1.00	20.00	0	114						
1,1-Dichloroethane	24.0	1.00	20.00	0	120						
1,1-Dichloroethene	22.7	1.00	20.00	0	113	70	130				
1,2-Dichloroethane	24.1	1.00	20.00	0	121						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **LCSS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	21.6	1.00	20.00	0	108						
2-Butanone	42.8	10.0	40.00	0	107						
2-Hexanone	40.3	25.0	40.00	0	101						
4-Methyl-2-pentanone	44.4	25.0	40.00	0	111						
Acetone	50.1	25.0	40.00	0	125						
Benzene	21.8	0.250	20.00	0	109	70	130				
Bromodichloromethane	22.5	1.00	20.00	0	112						
Bromoform	19.1	1.00	20.00	0	95.4						
Bromomethane	129	1.00	20.00	0	645						
Carbon disulfide	21.0	1.00	20.00	0	105						
Carbon tetrachloride	21.9	1.00	20.00	0	110						
Chlorobenzene	18.9	1.00	20.00	0	94.4	70	130				
Chloroethane	66.4	1.00	20.00	0	332						
Chloroform	23.8	1.00	20.00	0	119						
Chloromethane	30.8	1.00	20.00	0	154						
cis-1,2-Dichloroethene	23.0	1.00	20.00	0	115						
cis-1,3-Dichloropropene	21.7	1.00	20.00	0	109						
Dibromochloromethane	20.4	1.00	20.00	0	102						
Ethylbenzene	19.3	1.00	20.00	0	96.7						
m,p-Xylene	37.5	2.00	20.00	0	188						
Methyl tert-butyl ether	22.2	1.00	20.00	0	111						
Methylene chloride	26.4	5.00	20.00	0	132						
o-Xylene	19.4	1.00	20.00	0	96.9						
Total Xylenes	56.9	2.00	50.00	0	114						
Styrene	20.2	1.00	20.00	0	101						
Tetrachloroethene	18.1	2.00	20.00	0	90.3						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **LCSS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	21.5	1.00	20.00	0	107	70	130				
trans-1,2-Dichloroethene	22.5	1.00	20.00	0	113						
trans-1,3-Dichloropropene	23.0	1.00	20.00	0	115						
Trichloroethene	20.5	1.00	20.00	0	102	70	130				
Vinyl chloride	49.6	1.00	20.00	0	248						
Surr: 4-Bromofluorobenzene	54.0		50.00		108	85.9	111				
Surr: Dibromofluoromethane	57.5		50.00		115	87.5	113				S
Surr: Toluene-d8	51.7		50.00		103	83.3	121				

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **PBS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,2-Dichloroethane	ND	1.00									
1,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Hexanone	ND	25.0									
4-Methyl-2-pentanone	ND	25.0									
Acetone	ND	25.0									
Benzene	ND	0.250									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_S**

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **PBS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	1.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	ND	1.00									
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	ND	5.00									
o-Xylene	ND	1.00									
Total Xylenes	ND	2.00									
Styrene	ND	1.00									
Tetrachloroethene	ND	2.00									
Toluene	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 4-Bromofluorobenzene	51.3		50.00		103	61.55	121				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_S**

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23532**
Client ID: **PBS** Batch ID: **R23532** TestNo: **SW8260B** Analysis Date: **05/31/12** SeqNo: **505666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	58.3		50.00		117	71.4	147				
Surr: Toluene-d8	51.5		50.00		103	61	135				

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **CCV** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	57.9	1.00	50.00	0	116						
1,1,2,2-Tetrachloroethane	44.4	1.00	50.00	0	88.8						
1,1,2-Trichloroethane	52.0	1.00	50.00	0	104						
1,1-Dichloroethane	55.0	1.00	50.00	0	110						
1,1-Dichloroethene	55.2	1.00	50.00	0	110	80	120				
1,2-Dichloroethane	58.7	1.00	50.00	0	117						
1,2-Dichloropropane	49.3	1.00	50.00	0	98.6	80	120				
2-Butanone	116	10.0	100.0	0	116						
2-Hexanone	101	25.0	100.0	0	101						
4-Methyl-2-pentanone	102	25.0	100.0	0	102						
Acetone	126	25.0	100.0	0	126						
Benzene	49.1	0.250	50.00	0	98.3						
Bromodichloromethane	53.4	1.00	50.00	0	107						
Bromoform	44.2	1.00	50.00	0	88.3						
Bromomethane	132	1.00	50.00	0	263						
Carbon disulfide	58.5	1.00	50.00	0	117						
Carbon tetrachloride	50.7	1.00	50.00	0	101						
Chlorobenzene	43.4	1.00	50.00	0	86.8						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **CCV** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroethane	61.6	1.00	50.00	0	123						
Chloroform	54.2	1.00	50.00	0	108	80	120				
Chloromethane	33.4	1.00	50.00	0	66.7						
cis-1,2-Dichloroethene	53.8	1.00	50.00	0	108						
cis-1,3-Dichloropropene	49.3	1.00	50.00	0	98.7						
Dibromochloromethane	47.0	1.00	50.00	0	93.9						
Ethylbenzene	43.7	1.00	50.00	0	87.5	80	120				
m,p-Xylene	84.7	2.00	100.0	0	84.7						
Methyl tert-butyl ether	74.3	1.00	50.00	0	149						
Methylene chloride	68.1	5.00	50.00	0	136						
o-Xylene	44.7	1.00	50.00	0	89.3						
Total Xylenes	129	2.00	150.0	0	86.2						
Styrene	46.4	1.00	50.00	0	92.9						
Tetrachloroethene	38.9	2.00	50.00	0	77.7						
Toluene	47.4	1.00	50.00	0	94.8	80	120				
trans-1,2-Dichloroethene	52.0	1.00	50.00	0	104						
trans-1,3-Dichloropropene	53.1	1.00	50.00	0	106						
Trichloroethene	46.7	1.00	50.00	0	93.3						
Vinyl chloride	51.1	1.00	50.00	0	102	80	120				
Surr: 4-Bromofluorobenzene	55.0		50.00		110						
Surr: Dibromofluoromethane	56.7		50.00		113						
Surr: Toluene-d8	50.8		50.00		102						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **LCSS** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	26.4	1.00	20.00	0	132						
1,1,2,2-Tetrachloroethane	19.7	1.00	20.00	0	98.4						
1,1,2-Trichloroethane	23.3	1.00	20.00	0	116						
1,1-Dichloroethane	25.3	1.00	20.00	0	127						
1,1-Dichloroethene	24.0	1.00	20.00	0	120	70	130				
1,2-Dichloroethane	25.9	1.00	20.00	0	129						
1,2-Dichloropropane	23.0	1.00	20.00	0	115						
2-Butanone	47.9	10.0	40.00	0	120						
2-Hexanone	39.9	25.0	40.00	0	99.8						
4-Methyl-2-pentanone	43.3	25.0	40.00	0	108						
Acetone	59.4	25.0	40.00	0	149						
Benzene	22.8	0.250	20.00	0	114	70	130				
Bromodichloromethane	24.4	1.00	20.00	0	122						
Bromoform	20.1	1.00	20.00	0	100						
Bromomethane	63.0	1.00	20.00	0	315						
Carbon disulfide	21.4	1.00	20.00	0	107						
Carbon tetrachloride	24.0	1.00	20.00	0	120						
Chlorobenzene	21.1	1.00	20.00	0	105	70	130				
Chloroethane	28.2	1.00	20.00	0	141						
Chloroform	26.8	1.00	20.00	0	134						
Chloromethane	14.2	1.00	20.00	0	71.2						
cis-1,2-Dichloroethene	25.0	1.00	20.00	0	125						
cis-1,3-Dichloropropene	22.4	1.00	20.00	0	112						
Dibromochloromethane	22.1	1.00	20.00	0	110						
Ethylbenzene	20.8	1.00	20.00	0	104						
m,p-Xylene	41.1	2.00	20.00	0	206						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_S**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **LCSS** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	43.3	1.00	20.00	0	216						
Methylene chloride	40.9	5.00	20.00	0	204						
o-Xylene	21.4	1.00	20.00	0	107						
Total Xylenes	62.5	2.00	50.00	0	125						
Styrene	21.9	1.00	20.00	0	109						
Tetrachloroethene	19.4	2.00	20.00	0	96.8						
Toluene	22.9	1.00	20.00	0	114	70	130				
trans-1,2-Dichloroethene	23.6	1.00	20.00	0	118						
trans-1,3-Dichloropropene	24.8	1.00	20.00	0	124						
Trichloroethene	22.0	1.00	20.00	0	110	70	130				
Vinyl chloride	22.2	1.00	20.00	0	111						
Surr: 4-Bromofluorobenzene	54.7		50.00		109	85.9	111				
Surr: Dibromofluoromethane	57.3		50.00		115	87.5	113				S
Surr: Toluene-d8	51.7		50.00		103	83.3	121				

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **PBS** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,2-Dichloroethane	ND	1.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_S**

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **PBS** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Hexanone	ND	25.0									
4-Methyl-2-pentanone	ND	25.0									
Acetone	ND	25.0									
Benzene	ND	0.250									
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	1.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	ND	1.00									
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	ND	5.00									
o-Xylene	ND	1.00									
Total Xylenes	ND	2.00									
Styrene	ND	1.00									
Tetrachloroethene	ND	2.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_S**

Sample ID: **SOIL BLANK** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **23569**
Client ID: **PBS** Batch ID: **R23569** TestNo: **SW8260B** Analysis Date: **06/01/12** SeqNo: **506361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 4-Bromofluorobenzene	53.6		50.00		107	85.9	111				
Surr: Dibromofluoromethane	56.3		50.00		113	87.5	113				
Surr: Toluene-d8	50.9		50.00		102	83.3	121				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_S**

Sample ID: **625/8270 50** SampType: **CCV** TestCode: **8270_S** Units: **%REC** Prep Date: RunNo: **23826**
Client ID: **CCV** Batch ID: **R23826** TestNo: **SW8270C** Analysis Date: **06/08/12** SeqNo: **512003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	54.6		50.00		109						
Surr: 2-Fluorobiphenyl	50.0		50.00		100						
Surr: 2-Fluorophenol	49.2		50.00		98.3						
Surr: 4-Terphenyl-d14	49.0		50.00		98.1						
Surr: Nitrobenzene-d5	50.5		50.00		101						
Surr: Phenol-d5	50.6		50.00		101						

Sample ID: **625/8270 ICV** SampType: **ICV** TestCode: **8270_S** Units: **%REC** Prep Date: RunNo: **23826**
Client ID: **ICV** Batch ID: **R23826** TestNo: **SW8270C** Analysis Date: **06/08/12** SeqNo: **512004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	96.9		80.00		121	60	140				
Surr: 2-Fluorobiphenyl	84.8		80.00		106	60	140				
Surr: 2-Fluorophenol	83.1		80.00		104	60	140				
Surr: 4-Terphenyl-d14	88.1		80.00		110	60	140				
Surr: Nitrobenzene-d5	82.2		80.00		103	60	140				
Surr: Phenol-d5	82.8		80.00		103	60	140				

Sample ID: **MB-9632** SampType: **MBLK** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **PBS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	250									
1,2-Dichlorobenzene	ND	250									
1,3-Dichlorobenzene	ND	250									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_S**

Sample ID: **MB-9632** SampType: **MBLK** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **PBS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	250									
2,4,5-Trichlorophenol	ND	250									
2,4,6-Trichlorophenol	ND	250									
2,4-Dichlorophenol	ND	250									
2,4-Dimethylphenol	ND	250									
2,4-Dinitrophenol	ND	250									
2,4-Dinitrotoluene	ND	250									
2,6-Dinitrotoluene	ND	250									
2-Chloronaphthalene	ND	250									
2-Chlorophenol	ND	250									
2-Methylnaphthalene	ND	250									
2-Nitroaniline	ND	250									
2-Nitrophenol	ND	250									
3,3-Dichlorobenzidine	ND	250									
3-Nitroaniline	ND	250									
4,6-Dinitro-2-methylphenol	ND	250									
4-Bromophenyl phenyl ether	ND	250									
4-Chloro-3-methylphenol	ND	250									
4-Chloroaniline	ND	250									
4-Chlorophenyl phenyl ether	ND	250									
4-Nitroaniline	ND	250									
4-Nitrophenol	ND	250									
Acenaphthene	ND	50.0									
Acenaphthylene	ND	50.0									
Anthracene	ND	50.0									
Benzo(a)anthracene	ND	50.0									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_S**

Sample ID: **MB-9632** SampType: **MBLK** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **PBS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Bis(2-chloroethoxy)methane	ND	250									
Bis(2-chloroethyl)ether	ND	250									
Bis(2-chloroisopropyl)ether	ND	250									
Bis(2-ethylhexyl)phthalate	ND	250									
Butyl benzyl phthalate	ND	250									
Carbazole	ND	250									
Chrysene	ND	50.0									
Dibenzo(a,h)anthracene	ND	50.0									
Dibenzofuran	ND	250									
Diethyl phthalate	ND	250									
Dimethyl phthalate	ND	250									
Di-n-butyl phthalate	ND	250									
Di-n-octyl phthalate	ND	250									
Fluoranthene	ND	50.0									
Fluorene	ND	50.0									
Hexachlorobenzene	ND	250									
Hexachlorobutadiene	ND	250									
Hexachlorocyclopentadiene	ND	250									
Hexachloroethane	ND	250									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Isophorone	ND	250									
m,p-Cresol	ND	250									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_S**

Sample ID: **MB-9632** SampType: **MBLK** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **PBS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
Nitrobenzene	ND	250									
N-Nitrosodi-n-propylamine	ND	250									
N-Nitrosodiphenylamine	ND	250									
o-Cresol	ND	250									
Pentachlorophenol	ND	250									
Phenanthrene	ND	50.0									
Phenol	ND	250									
Pyrene	ND	50.0									
Surr: 2,4,6-Tribromophenol	2,100		2,500		83.9	0.1	136				
Surr: 2-Fluorobiphenyl	933		1,250		74.6	16.3	118				
Surr: 2-Fluorophenol	1,700		2,500		68.2	4.2	97				
Surr: 4-Terphenyl-d14	1,070		1,250		85.7	0.1	147				
Surr: Nitrobenzene-d5	795		1,250		63.6	0.1	119				
Surr: Phenol-d5	1,710		2,500		68.4	9.82	111				

Sample ID: **LCS-9632** SampType: **LCS** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **LCSS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	983	250	1,250	0	78.6	44	115				
1,4-Dichlorobenzene	919	250	1,250	0	73.5	44	110				
2,4-Dinitrotoluene	929	250	1,250	0	74.3	47	130				
2-Chlorophenol	1,870	250	2,500	0	74.8	29	110				
4-Chloro-3-methylphenol	2,080	250	2,500	0	83.2	44	111				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_S**

Sample ID: **LCS-9632** SampType: **LCS** TestCode: **8270_S** Units: **µg/Kg** Prep Date: **06/06/12** RunNo: **23826**
Client ID: **LCSS** Batch ID: **9632** TestNo: **SW8270C** **SW3550B** Analysis Date: **06/08/12** SeqNo: **512006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Nitrophenol	1,640	250	2,500	0	65.8	33	173				
Acenaphthene	932	50.0	1,250	0	74.5	51	125				
N-Nitrosodi-n-propylamine	909	250	1,250	0	72.7	42	149				
Pentachlorophenol	1,990	250	2,500	0	79.6	36	144				
Phenol	1,790	250	2,500	0	71.6	39	110				
Pyrene	1,030	50.0	1,250	0	82.6	34	123				
Surr: 2,4,6-Tribromophenol	2,440		2,500		97.4	0.1	136				
Surr: 2-Fluorobiphenyl	1,070		1,250		85.7	16.3	118				
Surr: 2-Fluorophenol	1,940		2,500		77.4	4.2	97				
Surr: 4-Terphenyl-d14	1,140		1,250		91.0	0.1	147				
Surr: Nitrobenzene-d5	904		1,250		72.3	0.1	119				
Surr: Phenol-d5	1,950		2,500		77.9	9.82	111				

Sample ID: **625/8270 50** SampType: **CCV** TestCode: **8270_S** Units: **%REC** Prep Date: RunNo: **23878**
Client ID: **CCV** Batch ID: **R23878** TestNo: **SW8270C** Analysis Date: **06/11/12** SeqNo: **513208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	59.6		50.00		119						
Surr: 2-Fluorobiphenyl	50.8		50.00		102						
Surr: 2-Fluorophenol	47.1		50.00		94.2						
Surr: 4-Terphenyl-d14	47.3		50.00		94.6						
Surr: Nitrobenzene-d5	47.5		50.00		94.9						
Surr: Phenol-d5	49.1		50.00		98.1						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **HG_S**

Sample ID: **LCS-9565** SampType: **LCS** TestCode: **hg_s** Units: **mg/Kg** Prep Date: **06/01/12** RunNo: **23597**
Client ID: **LCSS** Batch ID: **9565** TestNo: **SW7471A** **SW7471A** Analysis Date: **06/01/12** SeqNo: **506879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.543	0.0830	0.5000	0	109	80	120				

Sample ID: **MB-9565** SampType: **mblk** TestCode: **hg_s** Units: **mg/Kg** Prep Date: **06/01/12** RunNo: **23597**
Client ID: **PBS** Batch ID: **9565** TestNo: **SW7471A** **SW7471A** Analysis Date: **06/01/12** SeqNo: **506880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0830									

Sample ID: **1205C99-001CMS** SampType: **MS** TestCode: **HG_S** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23597**
Client ID: **ZZZZZZ** Batch ID: **9565** TestNo: **SW7471A** **SW7471A** Analysis Date: **06/01/12** SeqNo: **506898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.21	0.398	2.397	1.629	108	70	130				

Sample ID: **1205C99-001CMSD** SampType: **MSD** TestCode: **HG_S** Units: **mg/Kg-dry** Prep Date: **06/01/12** RunNo: **23597**
Client ID: **ZZZZZZ** Batch ID: **9565** TestNo: **SW7471A** **SW7471A** Analysis Date: **06/01/12** SeqNo: **506899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.13	0.398	2.397	1.629	146	70	130	4.208	19.7	20	S

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **NH3_S**

Sample ID: **MB-9609** SampType: **MBLK** TestCode: **NH3_S** Units: **mg/Kg** Prep Date: **06/05/12** RunNo: **23664**
Client ID: **PBS** Batch ID: **9609** TestNo: **A4500-NH3 E A4500-NH3 B** Analysis Date: **06/05/12** SeqNo: **508312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	5.00									

Sample ID: **LCS-9609** SampType: **LCS** TestCode: **NH3_S** Units: **mg/Kg** Prep Date: **06/05/12** RunNo: **23664**
Client ID: **LCSS** Batch ID: **9609** TestNo: **A4500-NH3 E A4500-NH3 B** Analysis Date: **06/05/12** SeqNo: **508313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	190	5.00	200.0	0	95.2	80	120				

Sample ID: **1205D51-008AMS** SampType: **MS** TestCode: **NH3_S** Units: **mg/Kg-dry** Prep Date: **06/05/12** RunNo: **23664**
Client ID: **ZZZZZZ** Batch ID: **9609** TestNo: **A4500-NH3 E A4500-NH3 B** Analysis Date: **06/05/12** SeqNo: **508315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	11,900	235	9,413	2,899	95.2	80	120				

Sample ID: **1205D51-008AMSD** SampType: **MSD** TestCode: **NH3_S** Units: **mg/Kg-dry** Prep Date: **06/05/12** RunNo: **23664**
Client ID: **ZZZZZZ** Batch ID: **9609** TestNo: **A4500-NH3 E A4500-NH3 B** Analysis Date: **06/05/12** SeqNo: **508316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	11,700	235	9,413	2,899	93.8	80	120	11,860	1.12	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **PMOIST**

Sample ID: **1205C25-005ADUP** SampType: **DUP** TestCode: **PMOIST** Units: **wt%** Prep Date: RunNo: **23585**
Client ID: **Outer Harbor Sedim** Batch ID: **R23585** TestNo: **ASTM-D2216** Analysis Date: **06/01/12** SeqNo: **507131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	24	1.0						23.06	5.13	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1205C25**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **TOC_S**

Sample ID: **CCB** SampType: **MBLK** TestCode: **TOC_S** Units: **mg/Kg** Prep Date: RunNo: **23911**
Client ID: **PBS** Batch ID: **R23911** TestNo: **SW9060** Analysis Date: **06/12/12** SeqNo: **513989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon - Average	ND	57.2									
Total Organic Carbon - Max	ND	57.2									
Total Organic Carbon - Min	ND	57.2									

Sample ID: **TC LCS** SampType: **LCS** TestCode: **TOC_S** Units: **mg/Kg** Prep Date: RunNo: **23911**
Client ID: **LCSS** Batch ID: **R23911** TestNo: **SW9060** Analysis Date: **06/12/12** SeqNo: **513990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon - Average	461,000	57.2	470,000	0	98.1	90	110				

Sample ID: **TC CCV** SampType: **CCV** TestCode: **TOC_S** Units: **mg/Kg** Prep Date: RunNo: **23911**
Client ID: **CCV** Batch ID: **R23911** TestNo: **SW9060** Analysis Date: **06/12/12** SeqNo: **514374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon - Average	440,000	57.2	470,000	0	93.6	90	110				
Total Organic Carbon - Max	ND	57.2									
Total Organic Carbon - Min	ND	57.2									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

UNITED ANALYTICAL SERVICES, INC.
1129 CENTRE CIRCLE DRIVE, DOWNERS GROVE, IL 60515
PHONE (630) 691-8471 FAX (630) 691-1819

PLM LABORATORY REPORT

METHOD:	EPA/600/R-93/116 July 1993 PLM w/ Dispersion Staining	REPORT DATE:	June 4, 2012
		DATE RECEIVED:	May 30, 2012
CLIENT:	Suburban Laboratories, Inc.	UAS SAM#:	1216731
ATTENTION:	Melissa Amador	JOB LOCATION:	
email:	melissa@suburbanlabs.com		

LAB SAMPLE #	CLIENT SAMPLE #	COLOR	DESCRIPTION LOCATION	ASBESTOS TYPE	%	OTHER FIBERS	%	MATRIX	%
1216731 -01	1205C25-001C	Tan	Outer Harbor Sediment	ND	--	CELL	Trace	O	100
1216731 -02	1205C25-002C	Tan	Outer Harbor Sediment	ND	--	ND	--	O	100
1216731 -03	1205C25-003C	Tan	Outer Harbor Sediment	ND	--	ND	--	O	100
1216731 -04	1205C25-004C	Tan	Outer Harbor Sediment	ND	--	ND	--	O	100
1216731 -05	1205C25-005C	Tan	Outer Harbor Sediment	ND	--	ND	--	O	100

Analysis Comments:

Samples analyzed according to the EPA/600/r-93 116 July 1993 titled Method for the Determination of Asbestos in Bulk Building Materials
Further testing by Gravimetric or TEM methods are recommended for samples that are non-friable such as floor tiles, mastics, etc.
Report shall not be reproduced except in full, without the written approval of the laboratory.
Laboratory results pertain to those delivered for analysis.
Samples will be disgarded if not notified by the client within 90 days.

CODES ASBESTOS	CODES OTHER FIBERS	CODES MATRIX
ND-None Detected	FBGL-Fibrous Glass	G-Gypsum
CHRY-Chrysotile	CELL-Cellulose	C-Calcium Carbonate
AMOS-Amosite	SYN-Synthetic	M-Mica
CROC-Crocidolite	WOLL-Wollastonite	O-Other Matrix
TREM-Tremolite	H-Hair	
ACTN-Actinolite	O-Other (Specify)	
ANTH-Anthophyllite		

ANALYZED BY - Karen Buehler / Laboratory Manager — DATE ANALYZED: June 4, 2012

REVIEWED BY - Marcia DeMichael / Administrative Assistant — DATE REVIEWED: June 4, 2012

PLM & TEM
NVLAP
NVLAP Lab Code 101732

This report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government.

PLM Master Report/08-20-10/KB

UNITED ANALYTICAL SERVICES, INC.
1429 CENTRE CIRCLE DRIVE, DOWNERS GROVE, IL 60515
PHONE (630) 691-8271 FAX (630) 691-1819

TEM CHATFIELD LABORATORY REPORT

METHOD:	Chatfield Method SOP-1988-02	REPORT DATE:	June 4, 2012
		DATE RECEIVED:	May 30, 2012
CLIENT:	Suburban Laboratories, Inc.	UAS SAM #:	1216731B
ATTENTION:	Melissa Amador	JOB LOCATION:	-
email:	melissa@suburbanlabs.com		-

CLIENT SAMPLE #	LAB SAMPLE #	SAMPLE DESCRIPTION/LOCATION	% ORGANICS	% ACID SOLUBLE	ASBESTOS TYPE(S)	% ASBESTOS
1205C25-001C	1216731-01	Outer Harbor Sediment	--	--	ND	NSD
1205C25-002C	1216731-02	Outer Harbor Sediment	--	--	ND	NSD
1205C25-003C	1216731-03	Outer Harbor Sediment	--	--	ND	NSD
1205C25-004C	1216731-04	Outer Harbor Sediment	--	--	ND	NSD
1205C25-005C	1216731-05	Outer Harbor Sediment	--	--	ND	NSD

NSD=No Structures Detected

Comments:

Samples prepped according to Chatfield Method SOP-1988-02

Report shall not be reproduced in except in full, without the written approval of the laboratory.

Laboratory not responsible for the physical separation of layered materials.

Laboratory results only pertain to those items delivered.

Samples will be discarded if not notified by the client within 90 days.

ANALYZED BY- Karen Buehler / Laboratory Manager

June 4, 2012
DATE ANALYZED

PLM & TEM

NVLAP

NVLAP Laboratory # 101732

AIHA-AAR Participant # 101212

This report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government.

United Analytical Services, Inc./Laboratory/General/TEM/TEM Chatfield Laboratory Report/12.03

CHAIN OF CUSTODY RECORD

COC ID: | PAGE: 1 | OF: 1

12/0731

ADDRESS
Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260
FAX: 708-544-8587
Website: www.SuburbanLabs.com

Please Include Email Address of Report Recipient Whenever Possible!!!

SUB CONTRATOR: United Analytical | COMPANY: United Analytical Services
ADDRESS: 1429 Centre Circle Drive
CITY, STATE, ZIP: Downers Grove, IL 60515
PHONE: (630) 691-8271 | FAX: (630) 691-1819
ACCOUNT #: | EMAIL:

SPECIAL INSTRUCTIONS / COMMENTS:
Please analyze for PLM and TEM by EPA 600 Series. Email report and invoice to Melissa Amador (melissa@suburbanlabs.com).

ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description.
1	1205C25-001C	Outer Harbor Sedi	G-9oz-UN	Sediment	05/25/12 2:28:55 PM	1	
	ASBESTOS						
2	1205C25-002C	Outer Harbor Sedi	G-9oz-UN	Sediment	05/25/12 2:28:55 PM	1	
	ASBESTOS						
3	1205C25-003C	Outer Harbor Sedi	G-9oz-UN	Sediment	05/25/12 2:28:55 PM	1	
	ASBESTOS						
4	1205C25-004C	Outer Harbor Sedi	G-9oz-UN	Sediment	05/25/12 2:28:55 PM	-	
	ASBESTOS						
5	1205C25-005C	Outer Harbor Sedi	G-9oz-UN	Sediment	05/25/12 2:28:55 PM	1	
	ASBESTOS						

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
			C.H. DeDuckal	5/30/12	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples: _____ °C Attempt to Cool ? _____
Comments: _____

INTERRA
Engineering • Inspection • Testing

INTERRA, INC
600 Territorial Drive, Suite G
Bolingbrook, IL 60440

Ph 630-754-8700
Fax: 630-754-8705

08/03/12

Melissa Amador
Suburban Laboratories
4140 Litt Drive,
Hillside, IL 60162.

Subject: Laboratory Testing for USACE Sediment Samples – 1205C25 Samples

Dear Ms. Amador:

On 5/25/2012, Interra received five bulk (in five gallon pails) soil samples from Suburban laboratories for laboratory testing. Tests requested included moisture content (ASTM D2216), Atterberg Limits (ASTM D4318), grain size down to #230 sieve (ASTM D422), particle size (IEPA procedure), unconsolidated-undrained triaxial compression (ASTM D2850) and standard proctor (ASTM D698).

Following paragraph and the attached table summarize the test results.

Bulk Samples
Moisture contents, grain size analysis and particle size were performed on all samples. Standard proctor, Atterberg Limits and direct shear tests were performed on selected samples. All the samples were non-plastic with moisture content ranging from 20 to 34%. Based on the grain size analysis the samples could be classified as poorly graded sand with silt, poorly graded sand and silt. In addition, percent fines content ranges from 1 to 89% and the maximum standard dry density obtained from the proctor test from 99.6 pcf to 106.4 pcf. Also optimum moisture varied from 14 to 15.6%. It was recommended to change test method ASTM D2850 (Unconsolidated-Undrained) to test method ASTMD3080 (Direct shear) since the material was non-plastic and non-cohesive. Test method ASTM 2850 requires the sample to be cohesive. The internal angle of friction varies from 34 to 35 degrees and the cohesion between 100 psf to 200 psf.

Enclosed table summarizes all of the test results.

If you have any questions or need any additional information, please feel free to contact us.

Thank you.

Sincerely,

Interra, Inc.

Kenneth Darko-Kagya, Ph.D.
Senior Staff Engineer

Sanjeev Bandi, Ph.D., P.E.
Principal

INTERRA
Engineering • Inspection • Testing

Summary

Project	USACE Sediment Samples
Client	Suburban Laboratories-Hillside, IL
File #	6054

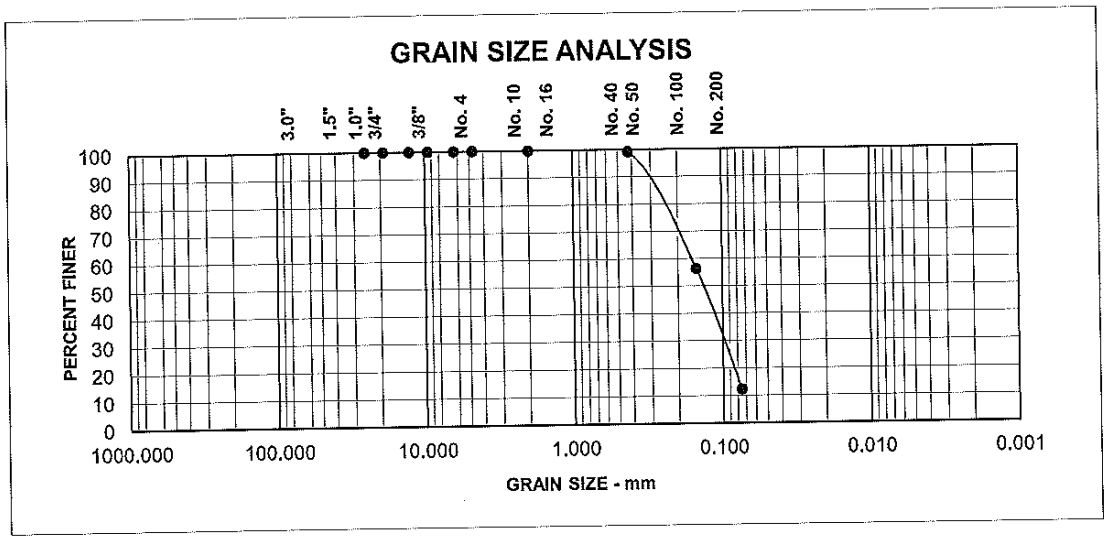
	Sample ID	Moisture Content, ASTM D2216	Atterberg, ASTM D4318	Grain Size, ASTM D422		IEPA	Standard Proctor, ASTM D698		Direct Shear, ASTM D3080	
				Classification	*Percent Fines, Sieve #230*	*Percent Fines, sieve #230*	*Maximum Density, pcf*	*Optimum Moisture, %*	*Cohesion, psf*	*Friction Angle, Deg*
1	1205C25-001D	20.63	Non-Plastic	SP-SM	10.3	13.3	103.7	14.1	200	34.1
2	1205C25-002D	25.83	Non-Plastic	ML	59	62.1	106.4	14	100	35
3	1205C25-003D	33.99	Non-Plastic	ML	85.7	89	99.6	15.6	130	34.7
4	1205C25-004D	22.47	N/A	SP-SM	9.6	11	N/A	N/A	N/A	N/A
5	1205C25-005D	20.09	N/A	SP	0.7	1	N/A	N/A	N/A	N/A

INTERRA

GRAIN SIZE ANALYSIS

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	Sample #	1205C25-001D	Date Tested	6/8/2012	Tested by:	PP
						Qc by:	KDK

Date Sample Received:	5/25/12
Sample Location:	
Sample Description:	Brown poorly graded sand with silt (Sediment)



% + 3"	% Gravel	% Sand	% Fines	
0.0	0.1	89.6	10.3	

Sieve Size	Percent Passing
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
1/4"	100.0
#4	100.0
#10	99.9
#40	99.2
#100	56.3
#200	12.3
#230	10.3

D85 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	Cc	Cu

Soil Classification	SP-SM
Soil Description	Poorly graded sand with silt
System	USCS

Remarks:

Test ID	48539

www.interra.co

INTERRA
Engineering • Inspection • Testing

IEPA

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-001D	**Date Tested**	6/8/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand with silt (Sediment)

Control Sieve No. : 230 (63-micron sieve)

Pan No. :	CC3	
Pan Weight :	156.29	gm
Pan + Dry Sample Weight Before Wash :	206.29	gm
Pan + Dry Sample Weight After Wash :	199.63	gm
Percent Fines :	**13.3**	**%**

Remarks

www.interra.co

Test ID	48630

INTERRA
Engineering • Inspection • Testing

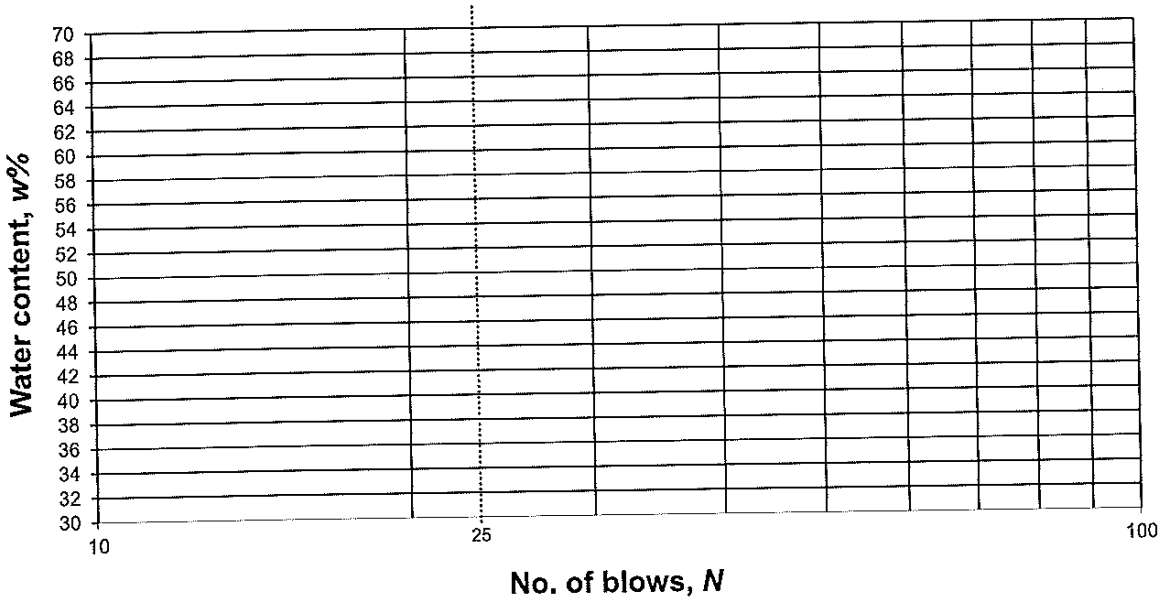
Atterberg Limits

ASTM D4318 / AASHTO T89, 90

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-001D	**Date Tested**	6/6/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Recd.	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand with silt (Sediment)

LIQUID LIMIT DETERMINATION



Results

Liquid Limit, LL	NP	**Plastic Limit, PL**	NP	**Plasticity Index, PI**	NP

Remarks

NP:Non-plastic soil

Test ID	48555

www.interra.co

INTERRA
Engineering • Inspection • Testing

Moisture Content
ASTM D2216 / AASHTO T265

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-001D	**Date Tested**	6/5/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand with silt (Sediment)

Can Number :	13	
Can Weight :	327.43	gm
Can + Wet Sample Weight :	604.53	gm
Can + Dry Sample Weight :	557.15	gm
Moisture Content :	**20.63**	%

Remarks

www.interra.co

Test ID	48540

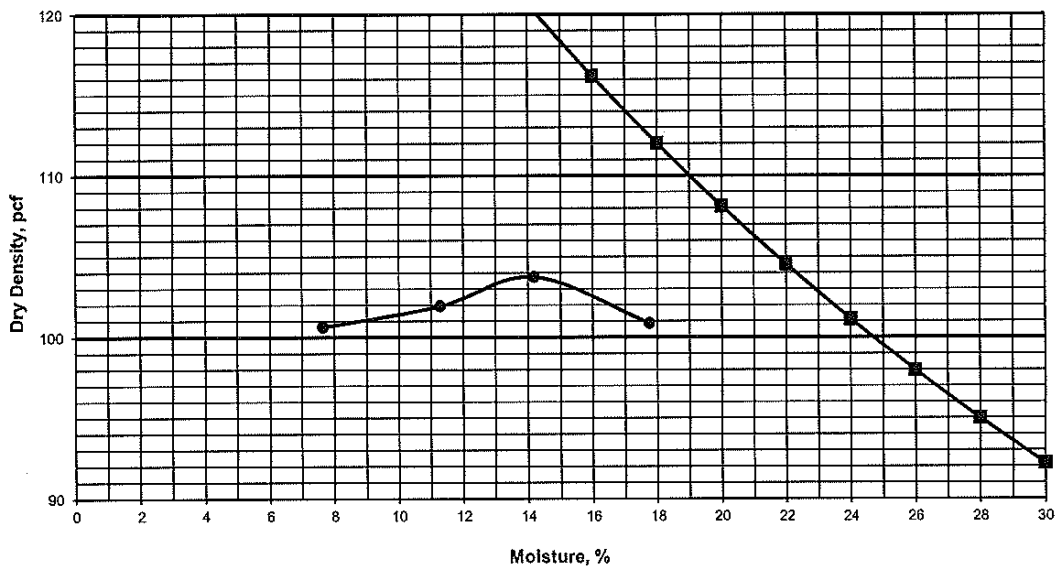
INTERRA
Engineering • Inspection • Testing

MOISTURE - DENSITY RELATIONSHIP CURVE

ASTM D698-91 / AASHTO T99

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-001D	**Date Tested**	6/7/2012	**Tested By**	HA
						Qc By	KDK

Date Sample Recd.	5/25/12								
Sample Location									
Sample Description	Brown poorly graded sand with silt (Sediment)								
Type of Proctor	Standard	**Method:**	A	**Mold Size, in.**	4	**Hammer Weight, lb.**	5.5	**Drop, in.**	12
No. of Layers	3	**No. of Blows per Layer**			25				



Zero Air Void Curve Specific Gravity: 2.65

Results

Maximum Dry Density, pcf	103.7	**Optimum Moisture Content, %**	14.1	**Natural Moisture Content, %**	12.2
Corrected Max. Dry Density, pcf		**Corrected Optimum Moisture Content, %**			

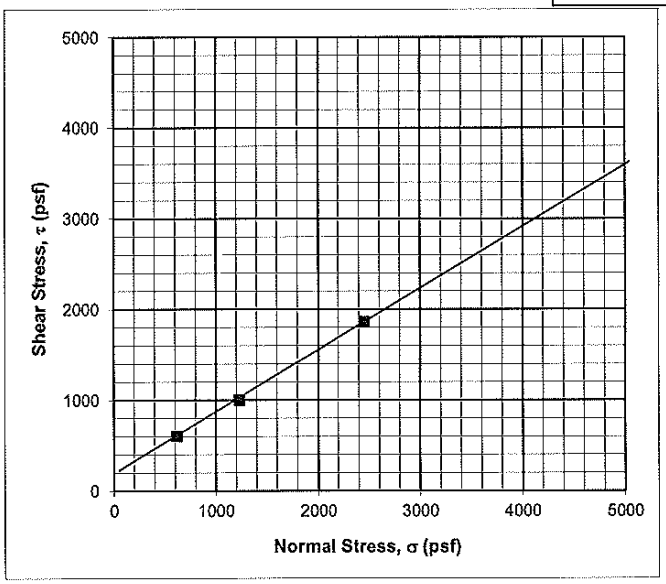
Remarks

www.interra.co

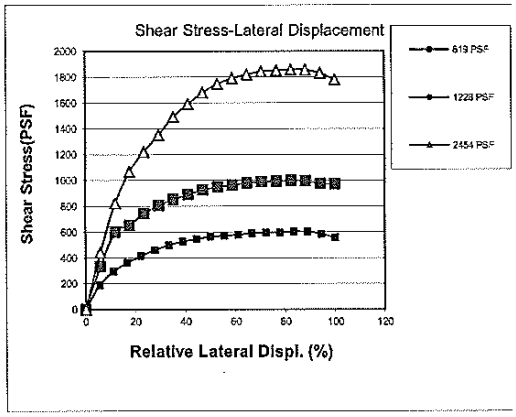
Test ID	48556

INTERRA Engineering • Inspection • Testing	Direct Shear Test AASHTO T236/ASTM D3080

Project	USACE Sediment Samples						
Client	Suburban Laboratories-Hillside, IL						
File No.	6054	Date	6/20/2012	Sample No.	1205C25-001D	Sample Type	Bulk
Description of Soil		Sand with silt			Location		
				Tested By	KDK	Checked By	SB



Specimen		1	2	3
Initial	Water content(%)	22.5	22.1	21.7
	Dry Density (g/cm^3)	1.58	1.59	1.59
	Void Ratio	0.67	0.67	0.66
Final	Water content(%)	N/A	N/A	N/A
	Dry Density (g/cm^3)	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
Specific Gravity, Gs(Assumed)		2.65	2.65	2.65
Normal Stress (psf)		619	1228	2454
Max. Shear Stress (psf)		603	998	1858
Displacement Rate (in/min)		0.02	0.02	0.02
Initial size(cm)		10.16	10.16	10.16
Initial Height (cm)		2.54	2.54	2.54



Results

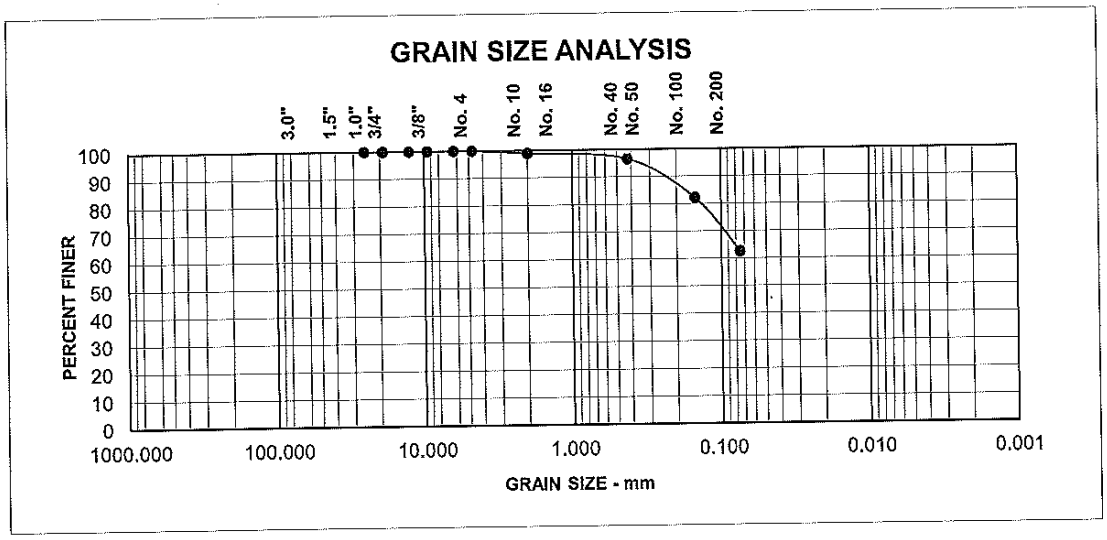
Strength Parameters	**Cohesion**	**200**	**PSF**	**Friction Angle**	**34.1**	**Deg.**

Remarks:	Material was prepared at 95% of standard maximum dry density. Test method ASTM D2850, "Unconsolidated - Undrained" intially specified was for cohesive materials. The material was not cohesive and difficult to prepare. Test method D3080/T236, "Direct Shear" was used instead.

INTERRA	GRAIN SIZE ANALYSIS

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	Sample #	1205C25-002D	Date Tested	6/8/2012	Tested by:	PP
						Qc by:	KDK

Date Sample Received:	5/25/12
Sample Location:	
Sample Description:	Brown silty sand (Sediment)



% + 3"	% Gravel	% Sand	% Fines	
0.0	1.1	39.9	59.0	

Sieve Size	Percent Passing
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
1/4"	100.0
#4	100.0
#10	98.9
#40	96.5
#100	82.1
#200	62.6
#230	59.0

D85 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	Cc	Cu

Soil Classification	SM
Soil Description	Silty sand
System	USCS

Remarks:

Test ID	48542

www.interra.co

INTERRA
Engineering • Inspection • Testing

IEPA

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-002D	**Date Tested**	6/8/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown silty sand (Sediment)

Control Sieve No. : 230 (63-micron sieve)

Pan No. :	MKN-4	
Pan Weight :	614.01	gm
Pan + Dry Sample Weight Before Wash :	664.01	gm
Pan + Dry Sample Weight After Wash :	632.97	gm
Percent Fines :	**62.1**	**%**

Remarks

www.interra.co

Test ID	48631

INTERRA
Engineering • Inspection • Testing

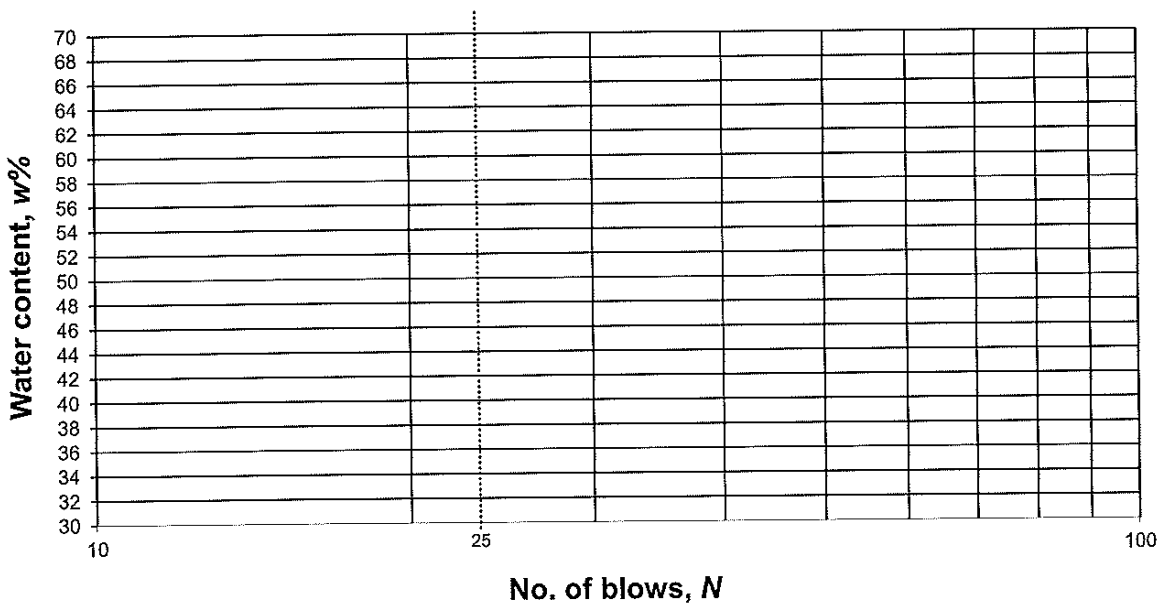
Atterberg Limits

ASTM D4318 / AASHTO T89, 90

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-002D	**Date Tested**	6/6/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Recd.	5/25/2012
Sample Location	
Sample Description	Brown silty sand (Sediment)

LIQUID LIMIT DETERMINATION



Results

Liquid Limit, LL	NP	**Plastic Limit, PL**	NP	**Plasticity Index, PI**	NP

Remarks

NP:Non-plastic soil

www.interra.co

Test ID	48557

INTERRA
Engineering • Inspection • Testing

Moisture Content
ASTM D2216 / AASHTO T265

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-002D	**Date Tested**	6/5/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown silty sand (Sediment)

Can Number :	27	
Can Weight :	313.03	gm
Can + Wet Sample Weight :	767.24	gm
Can + Dry Sample Weight :	674.00	gm
Moisture Content :	**25.83**	%

Remarks

www.interra.co

Test ID	48541

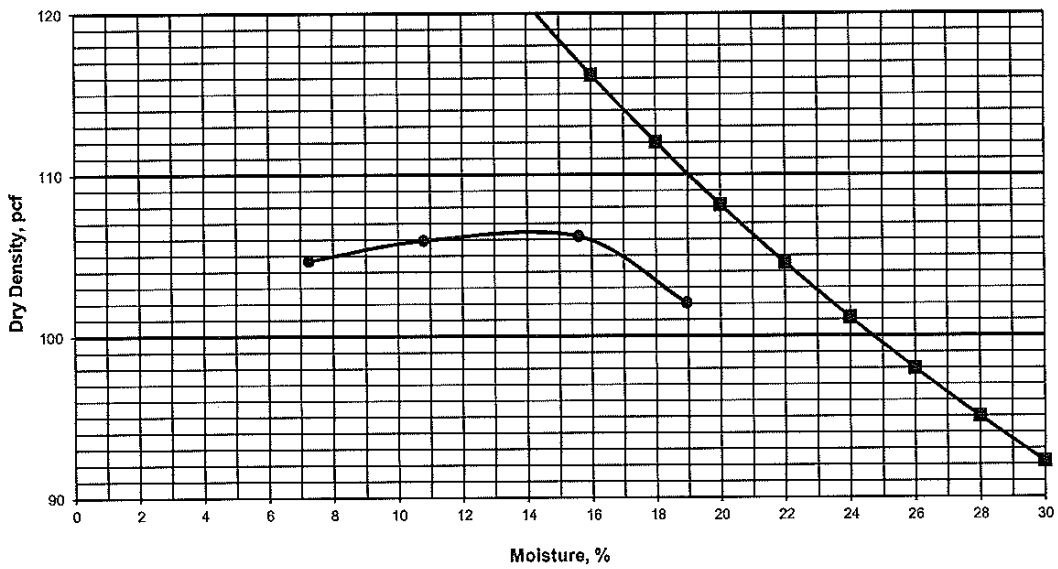
INTERRA
Engineering • Inspection • Testing

MOISTURE - DENSITY RELATIONSHIP CURVE

ASTM D698-91 / AASHTO T99

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-002D	**Date Tested**	6/7/2012	**Tested By**	HA
						Qc By	KDK

Date Sample Recd.	5/25/12								
Sample Location									
Sample Description	Brown silty sand (Sediment)								
Type of Proctor	Standard	**Method:**	A	**Mold Size, in.**	4	**Hammer Weight, lb.**	5.5	**Drop, in.**	12
No. of Layers	3	**No. of Blows per Layer**			25				



Zero Air Void Curve Specific Gravity: 2.65

Results

Maximum Dry Density, pcf	**106.4**	**Optimum Moisture Content, %**	**14**	**Natural Moisture Content, %**	**13.7**
Corrected Max. Dry Density, pcf		**Corrected Optimum Moisture Content, %**			

Remarks

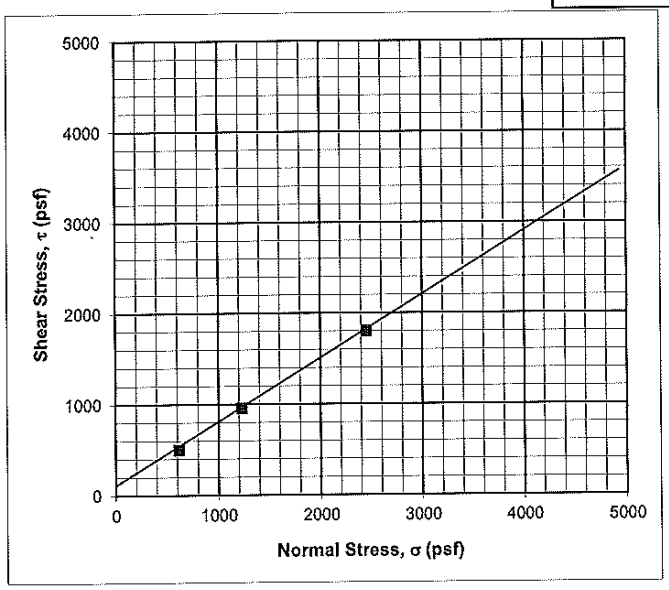
www.interra.co

Test ID	48558

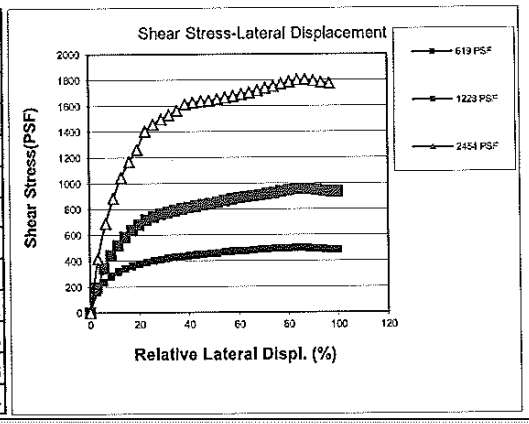
INTERRA
Engineering • Inspection • Testing

Direct Shear Test
AASHTO T236/ASTM D3080

Project	USACE Sediment Samples						
Client	Suburban Laboratories-Hillside, IL						
File No.	6054	Date	6/20/2012	Sample No.	1205C25-002D	Sample Type	Bulk
Description of Soil		Silt			Location		
				Tested By	KDK	Checked By	SB



Specimen		1	2	3
Initial	Water content(%)	25.2	26.4	25.7
	Dry Density (g/cm^3)	1.63	1.62	1.63
	Void Ratio	0.62	0.64	0.63
Final	Water content(%)	N/A	N/A	N/A
	Dry Density (g/cm^3)	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
Specific Gravity, Gs(Assumed)		2.65	2.65	2.65
Normal Stress (psf)		619	1228	2454
Max. Shear Stress (psf)		500	956	1802
Displacement Rate (in/min)		0.008	0.008	0.008
Initial size(cm)		10.16	10.16	10.16
Initial Height (cm)		2.54	2.54	2.54



Results

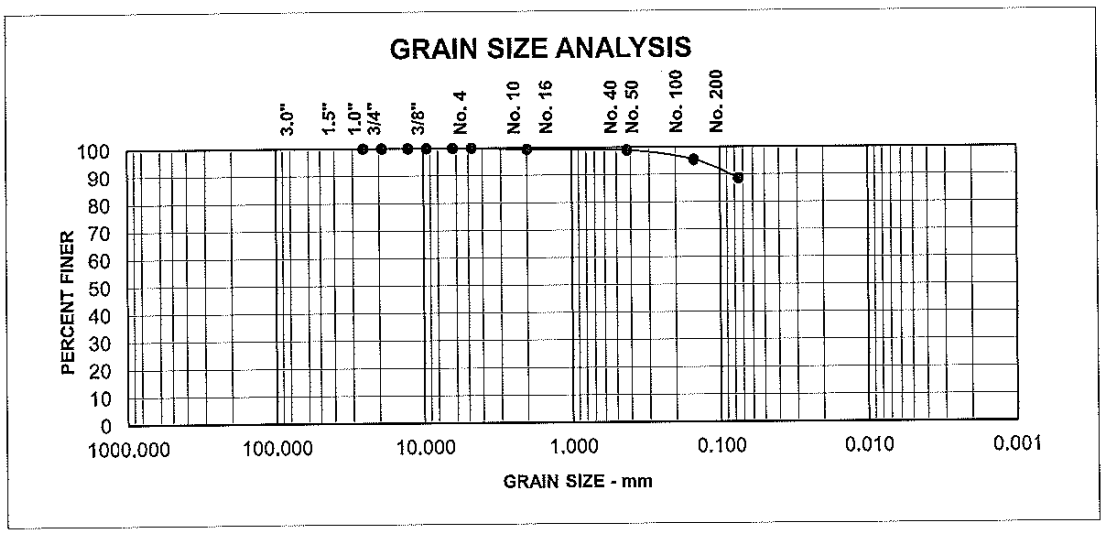
Strength Parameters	**Cohesion**	**100**	**PSF**	**Friction Angle**	**35.0**	**Deg.**

Remarks: Material was prepared at 95% of standard maximum dry density. Test method ASTM D2850, "Unconsolidated - Undrained" intially specified was for cohesive materials. The material was not cohesive and difficult to prepare. Test method D3080/T236, "Direct Shear" was used instead.

INTERRA	GRAIN SIZE ANALYSIS

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	Sample #	1205C25-003D	Date Tested	6/8/2012	Tested by:	PP
						Qc by:	KDK

Date Sample Received:	5/25/12
Sample Location:	
Sample Description:	Gray & tr. Brown silty sand (sediment)



% + 3"	% Gravel	% Sand	% Fines	
0.0	0.6	13.7	85.7	

Sieve Size	Percent Passing
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
1/4"	100.0
#4	100.0
#10	99.4
#40	98.9
#100	95.3
#200	88.6
#230	85.7

D85 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	Cc	Cu

Soil Classification	SM
Soil Description	Silty sand
System	USCS

Remarks:

Presence of trace shells

www.interra.co

Test ID	48544

INTERRA
Engineering • Inspection • Testing

IEPA

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-003D	**Date Tested**	6/8/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Gray & tr. Brown silty sand (sediment)

Control Sieve No. : 230 (63-micron sieve)

Pan No. :	CC-1	
Pan Weight :	172.31	gm
Pan + Dry Sample Weight Before Wash :	222.31	gm
Pan + Dry Sample Weight After Wash :	177.81	gm
Percent Fines :	**89.0**	**%**

Remarks

Test ID	48632

www.interra.co

INTERRA
Engineering • Inspection • Testing

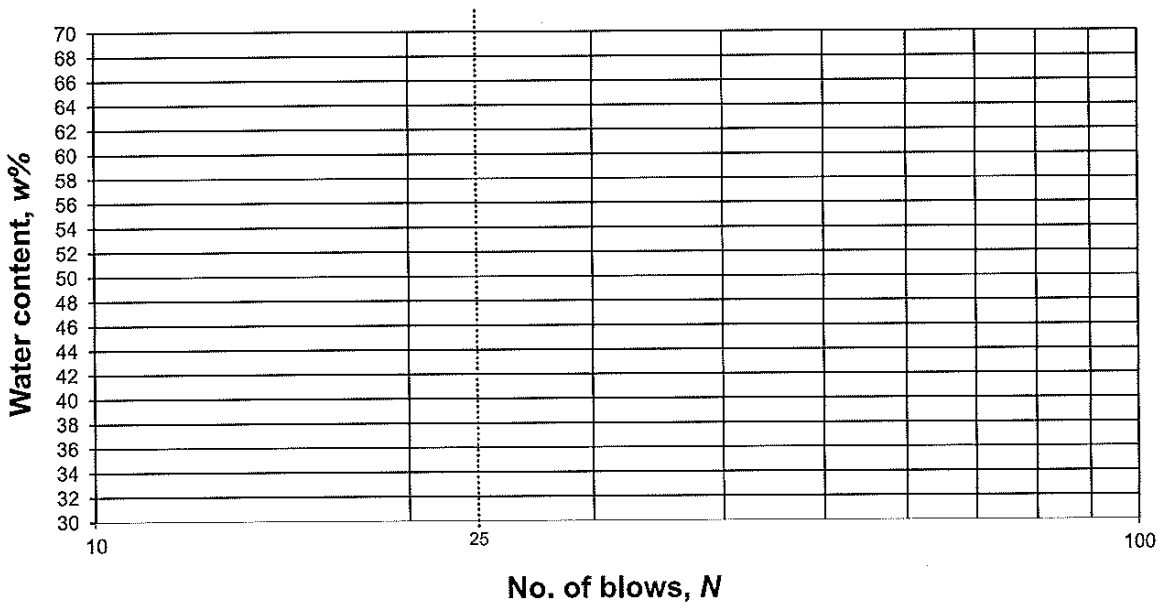
Atterberg Limits

ASTM D4318 / AASHTO T89, 90

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-003D	**Date Tested**	6/6/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Recd.	5/25/2012
Sample Location	
Sample Description	Gray & tr. Brown silty sand (sediment)

LIQUID LIMIT DETERMINATION



Results

Liquid Limit, LL	NP	**Plastic Limit, PL**	NP	**Plasticity Index, PI**	NP

Remarks

NP:Non-plastic soil

www.interra.co

Test ID	48560

INTERRA
Engineering • Inspection • Testing

Moisture Content
ASTM D2216 / AASHTO T265

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-003D	**Date Tested**	6/5/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Gray & tr. Brown silty sand (sediment)

Can Number :	31	
Can Weight :	316.61	gm
Can + Wet Sample Weight :	663.42	gm
Can + Dry Sample Weight :	575.45	gm
Moisture Content :	**33.99**	%

Remarks

www.interra.co

Test ID	48543

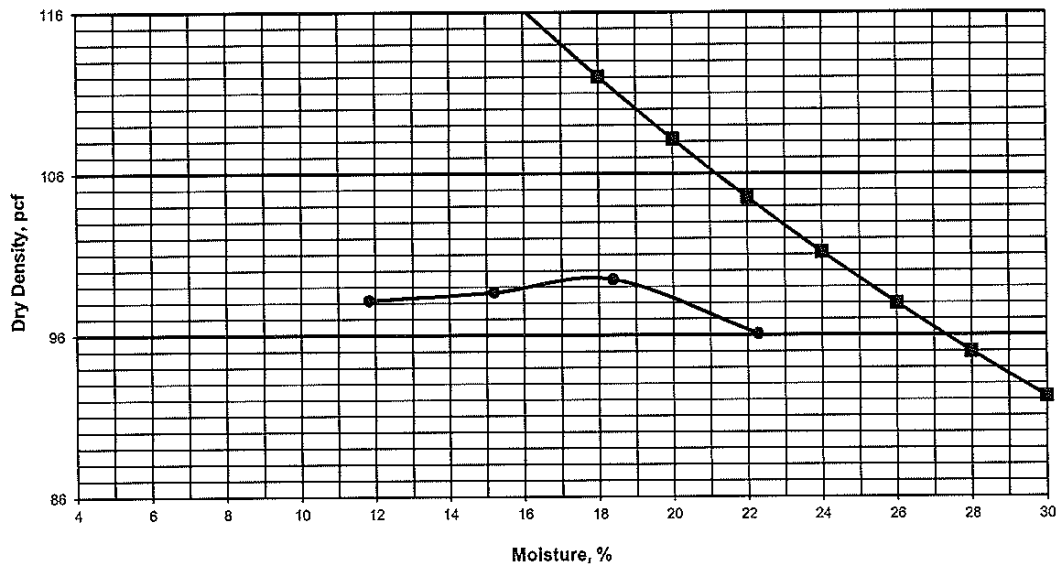
INTERRA
Engineering • Inspection • Testing

MOISTURE - DENSITY RELATIONSHIP CURVE

ASTM D698-91 / AASHTO T99

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-003D	**Date Tested**	6/7/2012	**Tested By**	HA
						Qc By	KDK

Date Sample Recd.	5/25/12								
Sample Location									
Sample Description	Gray & tr. Brown silty sand (sediment)								
Type of Proctor	Standard	**Method:**	A	**Mold Size, in.**	4	**Hammer Weight, lb.**	5.5	**Drop, in.**	12
No. of Layers	3	**No. of Blows per Layer**			25				



Zero Air Void Curve Specific Gravity: 2.65

Results

Maximum Dry Density, pcf	99.6	**Optimum Moisture Content, %**	15.6	**Natural Moisture Content, %**	20.5
Corrected Max. Dry Density, pcf		**Corrected Optimum Moisture Content, %**			

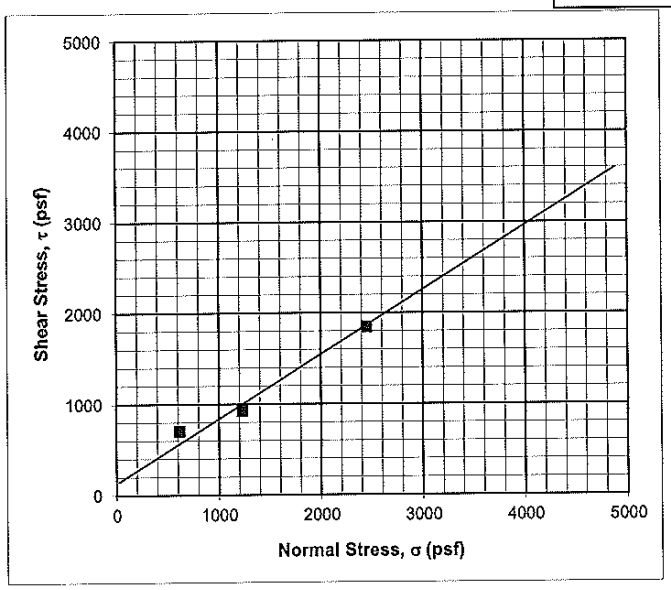
Remarks

www.interra.co

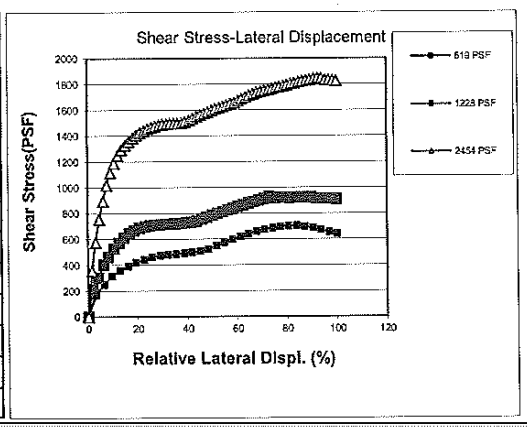
Test ID	48561

INTERRA Engineering • Inspection • Testing	Direct Shear Test AASHTO T236

Project	USACE Sediment Samples						
Client	Suburban Laboratories-Hillside, IL						
File No.	6054	Date	6/20/2012	Sample No.	1205C25-003D	Sample Type	Bulk
Description of Soil		Silt			Location		
				Tested By	KDK	Checked By	SB



Specimen		1	2	3
Initial	Water content(%)	33.1	33.6	33.9
	Dry Density (g/cm^3)	1.52	1.51	1.51
	Void Ratio	0.74	0.75	0.75
Final	Water content(%)	N/A	N/A	N/A
	Dry Density (g/cm^3)	N/A	N/A	N/A
	Void Ratio	N/A	N/A	N/A
Specific Gravity, Gs(Assumed)		2.65	2.65	2.65
Normal Stress (psf)		619	1228	2454
Max. Shear Stress (psf)		704	926	1845
Displacement Rate (in/min)		0.008	0.008	0.008
Initial size(cm)		10.16	10.16	10.16
Initial Height (cm)		2.54	2.54	2.54



Results

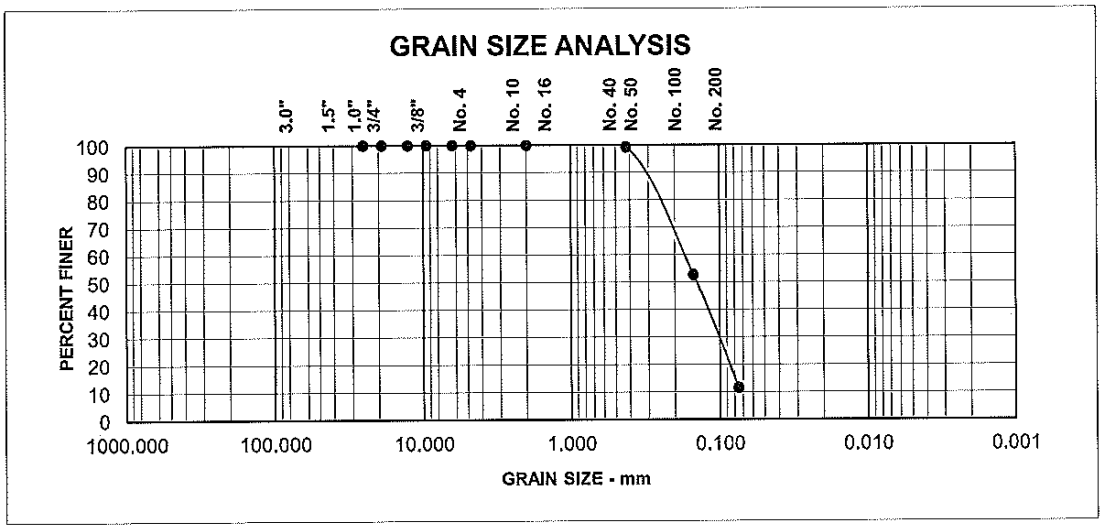
Strength Parameters	**Cohesion**	**130**	**PSF**	**Friction Angle**	**34.7**	**Deg.**

Remarks: Material was prepared at 95% of standard maximum dry density. Test method ASTM D2850, "Unconsolidated - Undrained" intially specified was for cohesive materials. The material was not cohesive and difficult to prepare. Test method D3080/T236, "Direct Shear" was used instead.

INTERRA	GRAIN SIZE ANALYSIS

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	Sample #	1205C25-004D	Date Tested	6/8/2012	Tested by:	PP
						Qc by:	KDK

Date Sample Received:	5/25/12
Sample Location:	
Sample Description:	Brown poorly graded sand with silt (Sediment)



% + 3"	% Gravel	% Sand	% Fines	
0.0	0.2	90.2	9.6	

Sieve Size	Percent Passing
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
1/4"	100.0
#4	100.0
#10	99.8
#40	99.2
#100	52.7
#200	11.6
#230	9.6

D85 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	Cc	Cu

Soil Classification	SP - SM
Soil Description	Poorly graded sand with silt
System	USCS

Remarks:

www.interra.co

Test ID	48546

INTERRA
Engineering • Inspection • Testing

IEPA

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-004D	**Date Tested**	6/8/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand with silt (Sediment)

Control Sieve No. : 230 (63-micron sieve)

Pan No. :	CC-6	
Pan Weight :	147.08	gm
Pan + Dry Sample Weight Before Wash :	197.08	gm
Pan + Dry Sample Weight After Wash :	191.6	gm
Percent Fines :	**11.0**	**%**

Remarks

www.interra.co

Test ID	48633

INTERRA
Engineering • Inspection • Testing

Moisture Content
ASTM D2216 / AASHTO T265

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-004D	**Date Tested**	6/5/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand with silt (Sediment)

Can Number :	29	
Can Weight :	317.88	gm
Can + Wet Sample Weight :	646.93	gm
Can + Dry Sample Weight :	586.56	gm
Moisture Content :	**22.47**	%

Remarks

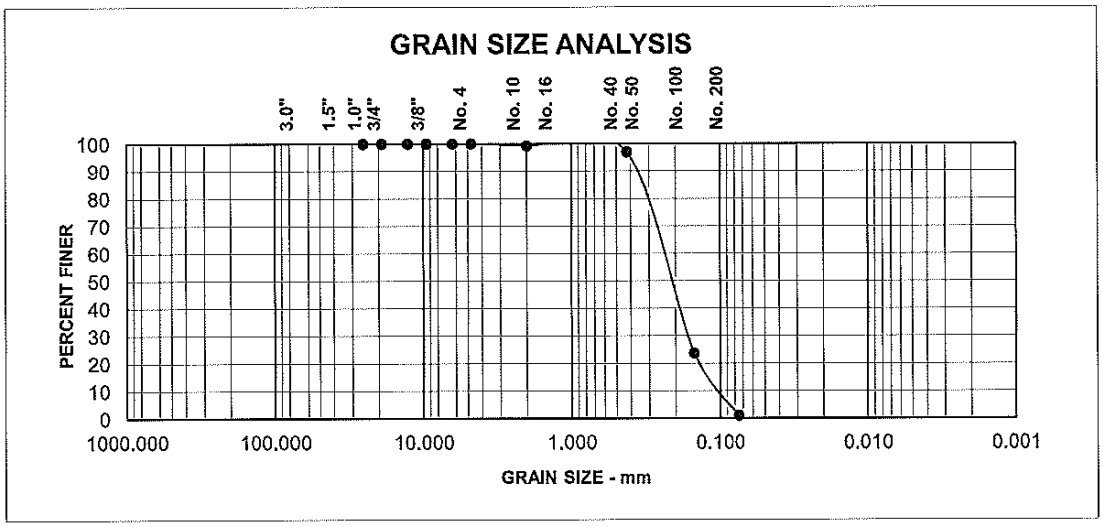
www.interra.co

Test ID	48545

INTERRA	GRAIN SIZE ANALYSIS

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	Sample #	1205C25-005D	Date Tested	6/8/2012	Tested by:	PP
						Qc by:	KDK

Date Sample Received:	5/25/12
Sample Location:	
Sample Description:	Brown poorly graded sand (Sediment)



% + 3"	% Gravel	% Sand	% Fines	
0.0	0.7	98.5	0.7	

Sieve Size	Percent Passing
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
1/4"	100.0
#4	100.0
#10	99.3
#40	96.9
#100	23.8
#200	1.0
#230	0.7

D85 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	Cc	Cu
0.33	0.23	0.18	0.11	1.3	2.1

Soil Classification	SP
Soil Description	Poorly graded sand
System	USCS

Remarks:

Presence of trace shells

www.interra.co

Test ID	48548

INTERRA
Engineering • Inspection • Testing

IEPA

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-005D	**Date Tested**	6/8/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand (Sediment)

Control Sieve No. : 230 (63-micron sieve)

Pan No. :	MKN-2	
Pan Weight :	612.36	gm
Pan + Dry Sample Weight Before Wash :	662.36	gm
Pan + Dry Sample Weight After Wash :	661.85	gm
Percent Fines :	**1.0**	**%**

Remarks

www.interra.co

Test ID	48634

INTERRA
Engineering • Inspection • Testing

Moisture Content
ASTM D2216 / AASHTO T265

Project	USACE Sediment Samples						
Client	Suburban Laboratories, 4140 Litt Dr., Hillside, IL 60162						
File No.	6054	**Sample #**	1205C25-005D	**Date Tested**	6/5/2012	**Tested By**	PP
						Qc By	KDK

Date Sample Received	5/25/2012
Sample Location	
Sample Description	Brown poorly graded sand (Sediment)

Can Number :	26	
Can Weight :	307.15	gm
Can + Wet Sample Weight :	698.08	gm
Can + Dry Sample Weight :	632.68	gm
Moisture Content :	**20.09**	%

Remarks

www.interra.co

Test ID	48547

SUBURBAN LABORATORIES, Inc.

4140 Litt Drive Hillside, IL 60162 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Ryba Marine
Company Address: 629 N. Main Street / PO Box 265
City: Cheboygan State: MI Zip: 49721
Phone: Fax: ☐ Fax Report
Email Address: ☑ Email Report
Project ID / Location: Waukegan Harbor Dredging FY11
Project Manager (Report to): Wayne Moon
Sample Collector(s): Patrick Rodriguez Pat Irelan

TURNAROUND TIME REQUESTED
☑ Normal ☐ RUSH* *Additional Rush Charges Approved.
*Date & Time Needed:
Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only
☐ LUST ☐ SRP ☐ SDWA
☐ 503 Sludge ☐ NPDES ☐ MWRDGC
☐ Disposal ☑ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED
Enter an "X" in box below for request

Page 1 of 1
PO No.
Shipping Method: SLI
QC Reporting Level ☐ 1 ☑ 2 ☐ 3
LAB USE ONLY
SLI Order No. 605C25
Sample containers supplied by customer? ☐ Yes
Temperature of Received Samples 4 °C
Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	see attached	Asbestos (PLM & TEM)	Grain Size*	Atterberg Limits**	Lab Compaction Characteristics***	Moisture Content	Unconsolidated Undrained	-Triaxial Shear***.				R	Condition	Split	LAB #
1	Outer Harbor Sediment #1	5/25/12	12:30	Sediment	G	3	5-Gal Bucket	none		X	X										001C/D	–	~~001A~~
2	↓	↓	↓	Sediment	G	2	1LG/9oz	none	X													–	001A/B
3	Outer Harbor Sediment #2	5/25/12	12:10	Sediment	G	3	5-Gal Bucket	none	~~X~~	X	X											–	002C/D
4	↓	↓	↓	Sediment	G	2	1LG/9oz	none	X													–	002A/B
5	Outer Harbor Sediment #3	5/25/12	1201	Sediment	G	3	5-Gal Bucket	none	~~X~~	X	X											–	003C/D
6	↓	↓	↓	Sediment	G	2	1LG/9oz	none	X													–	003A/B
7	Outer Harbor Sediment #4	5/25/12	1253	Sediment	G	3	5-Gal Bucket	none	~~X~~	X	X											–	004C/D
8	↓	↓	↓	Sediment	G	2	1LG/9oz	none	X													–	004A/B
9	Outer Harbor Sediment #5	5/25/12	13:07	Sediment	G	3	5-Gal Bucket	none	~~X~~	X	X											–	005C/D
10	↓	↓	↓	↓	↓	2	1LG/9oz	none	X													–	005A/B
11																							
12																							

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

Chicago District USACE - Waukegan Harbor Approach Channel Dredging project FY11

* Perform grain size by ASTM D422 down to #230 Sieve and partilce size by Material Analysis for Dredge & Fill
** Perform on the three samples with most fine grain size
*** Perform on three representative samples.

CONDITION CODES
1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
Tom Ryba	5/25/12						
Received By ☑ Ice	Time 15:25	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Melissa Amado

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

SUBURBAN LABORATORIES, Inc.

4140 Litt Drive Hillside, IL 60162 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Ryba Marine

Company Address: 629 N. Main Street / PO Box 265

City: Cheboygan State: MI Zip: 49721

Phone: Fax: ☐ Fax Report

Email Address: ☑ Email Report

Project ID / Location: Waukegan Harbor Dredging FY11

Project Manager (Report to): Wayne Moon

Sample Collector(s): Patrick Rodriguez Pat Irelan

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved.

*Date & Time Needed:

Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only

☐ LUST ☐ SRP ☐ SDWA

☐ 503 Sludge ☐ NPDES ☐ MWRDGC

☐ Disposal ☑ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

Page 1 of 1

PO No.

Shipping Method: SLI

QC Reporting Level ☐ 1 ☑ 2 ☐ 3

LAB USE ONLY

SLI Order No. 1205 C25

Sample containers supplied by customer? ☐ Yes

Temperature of Received Samples 4 °C

Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	VOCs	SVOCs, PCB's	TOC	TAL Metals, Hardness	Ammonia, Phosphorus	TSS, TDS, TVS	Sulfate, Chloride				R	Condition	Split	LAB #
1	Outer Harbor Water	5/25/12	13:14	SW	G	3	40 ml Vials	HCl	X												-	006F
2				SW	G	4	1L Amber	none		X											-	006E
3				SW	G	2	40 ml Vials	H2SO4			X										-	006D
4				SW	G	1	1L Plastic	HNO3				X									-	006C
5				SW	G	1	1L Plastic	H2SO4					X								-	006B
6				SW	G	4	1L Plastic	None						X	X						-	006A
7																						
8																						
9																						
10																						
11																						
12																						

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) CONTAINER: 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) PRESERVATIVE: H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

* Chicago District USACE - Waukegan Harbor Approach Channel Dredging project ~~2010~~ FY11

CONDITION CODES
1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
Kevin Ryba	5/25/12						
Received By: Melissa Amado ☑ Ice	Time 15:25	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

Table 3: Waukegan Outer Harbor Sediment and Supernatant Analysis Parameters

Parameter	Acceptable Method(s)	Required Reporting Limit
Sediment only		
Asbestos (PLM)	EPA 600 Series	< 1%
Asbestos (TEM)	EPA 600 series	< 1%
Grain size	ASTM D422[1]	NA
Atterberg Limits	ASTM D4318[2]	
Lab Compaction Characteristics (standard proctor method)	ASTM D698[3]	
Moisture Content	ASTM D2216	
Unconsolidated Undrained Triaxial Shear	ASTM D2850[3]	
Sediment and Water/Supernatant		
Total PCBs	8082A	0.01 mg/kg
TAL metals (Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn, Al, Ba, Ca, Co, Fe, Mg, Mn, K, Na, V)	6010B/7470/7471	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
TOC	415.1/5310C/9060	
Nitrogen as Ammonia	350.1/SM 4500-NH3-G	
Total Phosphorus	4500P F/365.4	
SVOCs	625/8270C	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
VOCs	624/5030B/8260B	Less than IEPA TACO Tier 1 Residential Concentration for sediment and less than Illinois Lake Michigan Water Quality standard for water/supernatant.
Water/Supernatant only		
TSS	EPA 160.2/SM2540D	1 mg/L
TDS	EPA 160.1/SM2540C	1 mg/L
TVS	SM 2540G	1 mg/L
Sulfate	EPA 375.2	10 mg/L
Chloride	EPA 325.1	1 mg/L
Hardness	SM 2340B	5 mg/L
pH	EPA 150.1/Sm 4500-H+ B	+/- 0.05 pH unit
Temperature (Field)	EPA 170.1/ SM 2550B	+/- 0.1 °C

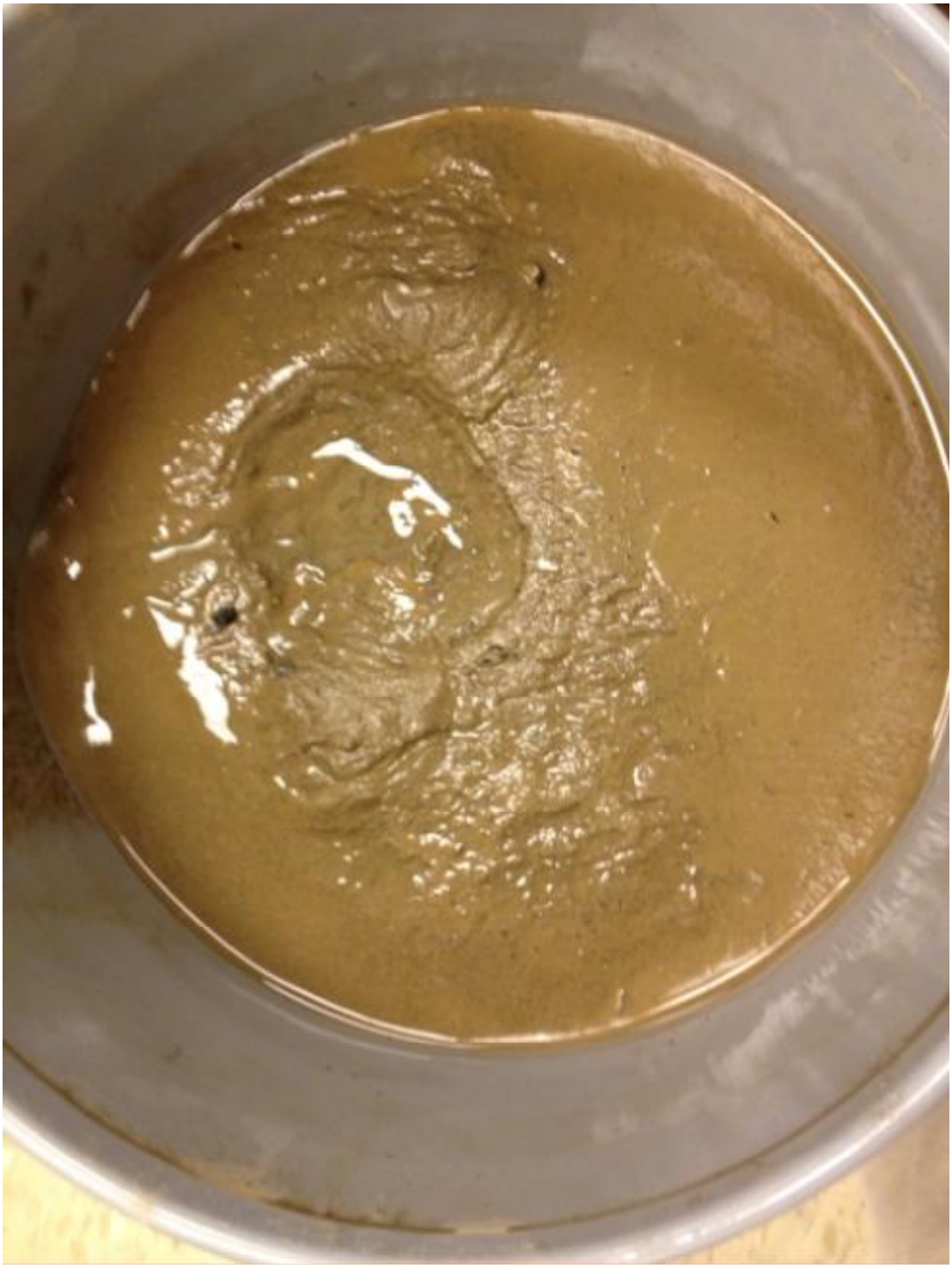
[1] Grain size testing by method ASTM D422 is to be performed down to the #230 sieve
[2] To be performed on three (3) samples with most fine grained materials
[3] To be performed on three (3) representative samples

Outer Harbor Sediment #1
SLI Sample ID: 1205C25-001

Outer Harbor Sediment #2
SLI Sample ID: 1205C25-002

Outer Harbor Sediment #3
SLI Sample ID: 1205C25-003

Outer Harbor Sediment #4
SLI Sample ID: 1205C25-004



Outer Harbor Sediment #5
SLI Sample ID: 1205C25-005

SUBURBAN LABORATORIES, Inc.

4140 Litt Drive Hillside, Illinois 60162
Tel. (708) 544-3260 Toll Free (800) 783-LABS
Fax (708) 544-8587
www.suburbanlabs.com

August 06, 2012

Workorder: 1207119

Wayne Moon
Ryba Marine Construction Co.
629 N. Main Street
P.O. BOX 265
Cheboygan, Michigan 49721

TEL: (231) 420-4350
FAX:
RE: Waukegan Harbor Approach Channel Dredgin

Dear Wayne Moon:

Suburban Laboratories, Inc. received 4 sample(s) on 07/04/12 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation on, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (708) 544-3260.

Sincerely,

Melissa Amador

Melissa Amador
Project Manager

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Case Narrative

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
WorkOrder: 1207119
Temperature of samples upon receipt at SLI: 5 C

Date: August 06, 2012
PO #:
QC Level:
Chain of Custody #: EV

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- Accreditation by the State of Illinois is not an endorsement or a guarantee of the validity of data generated.
- For more information about the laboratories' scope of accreditation, please contact us at (708) 544-3260 or the Agency at (217) 782-6455.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- In Laboratory: EPA recommends this analyte be analyzed "immediately" (e.g., tests that should be performed in the field within 15 minutes of collection). Analytes with "immediate" hold times are analyzed as soon as possible upon receipt by the laboratory.
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS (Surrogate Standard): Quality control compound added to the sample by the lab.

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Workorder Specific Comments:
Semivolatiles
Sample 1207119-001B: S=The MS and MSD recoveries (20.46, 22.02%) for 4-Nitrophenol was outside laboratory control limits (23-124%). The LCS was in control.

Client:	Ryba Marine Construction Co.	**Date:**	August 06, 2012
Project:	Waukegan Harbor Approach Channel Dredgin	**PO #:**	
WorkOrder:	**1207119**	**QC Level:**	
Temperature of samples upon receipt at SLI:	**5 C**	**Chain of Custody #:**	EV

Supernatant:
Supernatant sample created in the lab using the composite of the sediment samples 1205C25-001B, 002B, 003B, 004B, and 005B.

Mercury:
The mercury RL, which was to be less than Lake Michigan WQ standards, was not attainable by Method 7470A.

This report supersedes the report dated 7/19/12.

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1207119**

Client Sample ID: Outer Harbor Water

Lab ID: 1207119-001 **Date Received:** 07/04/2012 12:10 PM

Matrix: SURFACE WATER
Collection Date: 07/03/2012 3:47 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-SW6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	ND	0.0174		mg/L	1	07/10/2012 11:47 AM	10208
Arsenic	ND	0.0200		mg/L	1	07/10/2012 6:50 PM	10208
Barium	0.0200	0.00500		mg/L	1	07/10/2012 11:47 AM	10208
Beryllium	ND	0.00250		mg/L	1	07/10/2012 11:47 AM	10208
Cadmium	ND	0.00100		mg/L	1	07/10/2012 11:47 AM	10208
Calcium	33.1	0.0151		mg/L	1	07/10/2012 11:47 AM	10208
Chromium	ND	0.00500		mg/L	1	07/10/2012 11:47 AM	10208
Cobalt	ND	0.00909		mg/L	1	07/10/2012 11:47 AM	10208
Copper	ND	0.00299		mg/L	1	07/10/2012 11:47 AM	10208
Iron	0.0212	0.0117	J	mg/L	1	07/10/2012 11:47 AM	10208
Magnesium	11.9	0.0109		mg/L	1	07/10/2012 11:47 AM	10208
Manganese	ND	0.00882		mg/L	1	07/10/2012 11:47 AM	10208
Nickel	ND	0.00400		mg/L	1	07/10/2012 11:47 AM	10208
Potassium	1.38	0.0400		mg/L	1	07/10/2012 11:47 AM	10208
Selenium	ND	0.0250		mg/L	1	07/10/2012 6:50 PM	10208
Silver	ND	0.00200		mg/L	1	07/10/2012 11:47 AM	10208
Sodium	7.07	0.100		mg/L	1	07/10/2012 6:50 PM	10208
Vanadium	ND	0.00259		mg/L	1	07/10/2012 11:47 AM	10208
Zinc	ND	0.0150		mg/L	1	07/10/2012 11:47 AM	10208
METALS BY ICPMS		Method: SW846-SW6020-Rev 0, Sep-94				Analyst: dc	
Antimony	ND	0.00060		mg/L	1	07/10/2012 2:08 PM	10207
Lead	ND	0.00010		mg/L	1	07/10/2012 2:08 PM	10207
Thallium	ND	0.00010		mg/L	1	07/11/2012 6:49 PM	10207
PCBS		Method: EPA-SW8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1221	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1232	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1242	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1248	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1254	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Aroclor 1260	ND	0.100		µg/L	1	07/09/2012 8:34 PM	10209
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	63.8	40.4-143		%REC	1	07/09/2012 8:34 PM	10209

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

VOLATILE ORGANIC COMPOUNDS Method: EPA-SW8260B-Rev 2, Dec-96 Analyst: ks

1,1,1-Trichloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,1,2,2-Tetrachloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,1,2-Trichloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,1-Dichloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,1-Dichloroethene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,2-Dichloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
1,2-Dichloropropane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
2-Butanone	ND	10.0	µg/L	1	07/05/2012 3:48 PM	R24707
2-Hexanone	ND	25.0	µg/L	1	07/05/2012 3:48 PM	R24707
4-Methyl-2-pentanone	ND	25.0	µg/L	1	07/05/2012 3:48 PM	R24707
Acetone	ND	25.0	µg/L	1	07/05/2012 3:48 PM	R24707
Benzene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Bromodichloromethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Bromoform	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Bromomethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Carbon disulfide	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Carbon tetrachloride	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Chlorobenzene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Chloroethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Chloroform	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Chloromethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
cis-1,2-Dichloroethene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
cis-1,3-Dichloropropene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Dibromochloromethane	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Ethylbenzene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
m,p-Xylene	ND	2.00	µg/L	1	07/05/2012 3:48 PM	R24707
Methyl tert-butyl ether	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Methylene chloride	ND	5.00	µg/L	1	07/05/2012 3:48 PM	R24707
o-Xylene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Total Xylenes	ND	2.00	µg/L	1	07/05/2012 3:48 PM	R24707
Styrene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Tetrachloroethene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Toluene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
trans-1,2-Dichloroethene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
trans-1,3-Dichloropropene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Trichloroethene	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Vinyl chloride	ND	1.00	µg/L	1	07/05/2012 3:48 PM	R24707
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	98.6	67.9-119	%REC	1	07/05/2012 3:48 PM	R24707
SS: Dibromofluoromethane	93.6	62.3-122	%REC	1	07/05/2012 3:48 PM	R24707
SS: Toluene-d8	96.8	68.2-119	%REC	1	07/05/2012 3:48 PM	R24707

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
1,2-Dichlorobenzene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
1,3-Dichlorobenzene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
1,4-Dichlorobenzene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4,5-Trichlorophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4,6-Trichlorophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4-Dichlorophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4-Dimethylphenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4-Dinitrophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,4-Dinitrotoluene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2,6-Dinitrotoluene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2-Chloronaphthalene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2-Chlorophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2-Methylnaphthalene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2-Nitroaniline	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
2-Nitrophenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
3,3-Dichlorobenzidine	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
3-Nitroaniline	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4,6-Dinitro-2-methylphenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Bromophenyl phenyl ether	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Chloro-3-methylphenol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Chloroaniline	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Chlorophenyl phenyl ether	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Nitroaniline	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
4-Nitrophenol	ND	10.0	S	µg/L	1	07/10/2012 2:30 PM	10199
Bis(2-chloroethoxy)methane	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Bis(2-chloroethyl)ether	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Bis(2-chloroisopropyl)ether	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Bis(2-ethylhexyl)phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Butyl benzyl phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Carbazole	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Dibenzofuran	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Diethyl phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Dimethyl phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Di-n-butyl phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Di-n-octyl phthalate	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Hexachlorobenzene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Hexachlorobutadiene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Hexachlorocyclopentadiene	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Hexachloroethane	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
Isophorone	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199
m,p-Cresol	ND	10.0		µg/L	1	07/10/2012 2:30 PM	10199

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96			Analyst: ls	
Nitrobenzene	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
N-Nitrosodi-n-propylamine	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
N-Nitrosodiphenylamine	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
o-Cresol	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
Pentachlorophenol	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
Phenol	ND	10.0	µg/L	1	07/10/2012 2:30 PM	10199
Internal Quality Control Compounds						
SS: 2,4,6-Tribromophenol	111	36.6-133	%REC	1	07/10/2012 2:30 PM	10199
SS: 2-Fluorobiphenyl	67.6	26.8-113	%REC	1	07/10/2012 2:30 PM	10199
SS: 2-Fluorophenol	32.5	0.1-110	%REC	1	07/10/2012 2:30 PM	10199
SS: 4-Terphenyl-d14	78.4	31.3-152	%REC	1	07/10/2012 2:30 PM	10199
SS: Nitrobenzene-d5	67.4	13.8-115	%REC	1	07/10/2012 2:30 PM	10199
SS: Phenol-d6	19.3	1.14-110	%REC	1	07/10/2012 2:30 PM	10199

SEMIVOLATILE ORGANICS, BY GCMS SIM		Method: EPA-8270C-Rev 3, Dec-96			Analyst: ls	
Acenaphthene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Acenaphthylene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Anthracene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Benzo(a)anthracene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Benzo(a)pyrene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Benzo(b)fluoranthene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Benzo(g,h,i)perylene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Benzo(k)fluoranthene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Chrysene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Dibenzo(a,h)anthracene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Fluoranthene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Fluorene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Indeno(1,2,3-cd)pyrene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Naphthalene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Phenanthrene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Pyrene	ND	0.100	µg/L	1	07/09/2012 4:32 PM	10201
Internal Quality Control Compounds						
SS: 2-Fluorobiphenyl	64.7	26.8-113	%REC	1	07/09/2012 4:32 PM	10201
SS: 4-Terphenyl-d14	89.6	31.3-152	%REC	1	07/09/2012 4:32 PM	10201
SS: Nitrobenzene-d5	64.7	13.8-115	%REC	1	07/09/2012 4:32 PM	10201

CHLORIDE		Method: APHA-M4500-Cl⁻ E-Rev 18th, 1992			Analyst: LAP	
Chloride	9.99	0.500	mg/L	1	07/09/2012 1:32 PM	R24797

FIELD PARAMETERS		Method:		Analyst:
pH, Field	8.51		pH	

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co. **Report Date:** August 06, 2012
Project Name: Waukegan Harbor Approach Channel Dredgin **Workorder:** 1207119

FIELD PARAMETERS		Method:				Analyst:	
Temperature	24.7			C			
HARDNESS, TOTAL		Method: SM-2340B-Rev 18Ed, 1992				Analyst: jos	
Hardness, Ca/Mg (As CaCO3)	132	0.050	c	mg/L	1	07/10/2012 3:15 PM	10208
MERCURY BY CVAA		Method: EPA-SW7470A-Rev 1, Sep-94				Analyst: jos	
Mercury	ND	0.0002		mg/L	1	07/06/2012 2:24 PM	10181
AMMONIA, BY SELECTIVE ELECTRODE		Method: SM-M4500NH3 F-Rev 18Ed, 1992				Analyst: vyc	
Nitrogen, Ammonia (As N)	0.0330	0.0100		mg/L	1	07/10/2012 10:41 AM	R24825
PHOSPHORUS, TOTAL		Method: SM-M4500P BE-Rev 18Ed, 1992				Analyst: vyc	
Phosphorus (As P)	0.00580	0.00500	J	mg/L	1	07/09/2012 7:12 PM	10206
Total Phosphorus(as PO4)	0.0177	0.0153	J	mg/L	1	07/09/2012 7:12 PM	10206
SULFATE		Method: ASTM-ASTM D516-Rev 2004				Analyst: LAP	
Sulfate	25	1.0		mg/L	1	07/10/2012 4:49 PM	R24859
TOTAL DISSOLVED SOLIDS		Method: SM-M2540C-Rev 18Ed, 1992				Analyst: sb	
Residue, Filterable	159	0.100		mg/L	0.1	07/09/2012 9:29 AM	R24775
TOTAL ORGANIC CARBON		Method: EPA-9060-Rev 0, Sep-86				Analyst: mn	
Total Organic Carbon (TOC)	ND	1.00	c	mg/L	1	07/09/2012 12:00 AM	R24799
TOTAL SUSPENDED SOLIDS		Method: SM-M2540D-Rev 18Ed, 1992				Analyst: sb	
Residue, Non-Filterable	ND	0.400		mg/L	1	07/09/2012 1:32 PM	R24785
TOTAL VOLATILE SOLIDS		Method:				Analyst: sb	
Total Volatile Solids	43.6	1.00	c	mg/L	1	07/09/2012 9:32 AM	R24777

Client Sample ID: Supernatant **Matrix:** SURFACE WATER
Lab ID: 1207119-002 **Date Received:** 07/04/2012 12:10 PM **Collection Date:** 07/03/2012 3:47 PM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
SUPERNATANT		Method:				Analyst: LAP	
Supernatant	Complete	0			1	07/06/2012 12:35 PM	R24937

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1207119**

Client Sample ID: Elutriate - Zero Hour
Lab ID: 1207119-003 **Date Received:** 07/04/2012 12:10 PM

Matrix: SURFACE WATER
Collection Date: 07/05/2012 12:00 AM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-SW6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	1.06	0.0174		mg/L	1	07/10/2012 12:09 PM	10208
Arsenic	ND	0.0200		mg/L	1	07/10/2012 7:07 PM	10208
Barium	0.0561	0.00500		mg/L	1	07/10/2012 12:09 PM	10208
Beryllium	ND	0.00250		mg/L	1	07/10/2012 12:09 PM	10208
Cadmium	ND	0.00100		mg/L	1	07/10/2012 12:09 PM	10208
Calcium	53.3	0.0151		mg/L	1	07/10/2012 12:09 PM	10208
Chromium	ND	0.00500		mg/L	1	07/10/2012 12:09 PM	10208
Cobalt	ND	0.00909		mg/L	1	07/10/2012 12:09 PM	10208
Copper	0.00419	0.00299	J	mg/L	1	07/10/2012 12:09 PM	10208
Iron	1.26	0.0117		mg/L	1	07/10/2012 12:09 PM	10208
Magnesium	15.5	0.0109		mg/L	1	07/10/2012 12:09 PM	10208
Manganese	0.0420	0.00882		mg/L	1	07/10/2012 12:09 PM	10208
Nickel	ND	0.00400		mg/L	1	07/10/2012 12:09 PM	10208
Potassium	3.10	0.0400		mg/L	1	07/10/2012 12:09 PM	10208
Selenium	ND	0.0250		mg/L	1	07/10/2012 7:07 PM	10208
Silver	ND	0.00200		mg/L	1	07/10/2012 12:09 PM	10208
Sodium	7.97	0.100		mg/L	1	07/10/2012 7:07 PM	10208
Vanadium	0.00445	0.00259	J	mg/L	1	07/10/2012 12:09 PM	10208
Zinc	ND	0.0150		mg/L	1	07/10/2012 12:09 PM	10208
METALS BY ICPMS		Method: SW846-SW6020-Rev 0, Sep-94				Analyst: dc	
Antimony	ND	0.00060		mg/L	1	07/10/2012 2:27 PM	10207
Lead	0.00086	0.00010		mg/L	1	07/10/2012 2:27 PM	10207
Thallium	ND	0.00010		mg/L	1	07/11/2012 7:52 PM	10207
PCBS		Method: EPA-SW8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1221	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1232	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1242	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1248	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1254	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Aroclor 1260	ND	0.100		µg/L	1	07/09/2012 8:53 PM	10209
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	57.5	40.4-143		%REC	1	07/09/2012 8:53 PM	10209

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

VOLATILE ORGANIC COMPOUNDS Method: EPA-SW8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,1,2,2-Tetrachloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,1,2-Trichloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,1-Dichloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,1-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,2-Dichloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
1,2-Dichloropropane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
2-Butanone	ND	10.0	µg/L	1	07/09/2012 1:08 PM	R24791
2-Hexanone	ND	25.0	µg/L	1	07/09/2012 1:08 PM	R24791
4-Methyl-2-pentanone	ND	25.0	µg/L	1	07/09/2012 1:08 PM	R24791
Acetone	ND	25.0	µg/L	1	07/09/2012 1:08 PM	R24791
Benzene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Bromodichloromethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Bromoform	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Bromomethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Carbon disulfide	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Carbon tetrachloride	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Chlorobenzene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Chloroethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Chloroform	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Chloromethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
cis-1,2-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
cis-1,3-Dichloropropene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Dibromochloromethane	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Ethylbenzene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
m,p-Xylene	ND	2.00	µg/L	1	07/09/2012 1:08 PM	R24791
Methyl tert-butyl ether	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Methylene chloride	ND	5.00	µg/L	1	07/09/2012 1:08 PM	R24791
o-Xylene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Total Xylenes	ND	2.00	µg/L	1	07/09/2012 1:08 PM	R24791
Styrene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Tetrachloroethene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Toluene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
trans-1,2-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
trans-1,3-Dichloropropene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Trichloroethene	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Vinyl chloride	ND	1.00	µg/L	1	07/09/2012 1:08 PM	R24791
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	97.9	67.9-119	%REC	1	07/09/2012 1:08 PM	R24791
SS: Dibromofluoromethane	93.7	62.3-122	%REC	1	07/09/2012 1:08 PM	R24791
SS: Toluene-d8	95.0	68.2-119	%REC	1	07/09/2012 1:08 PM	R24791

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
1,2-Dichlorobenzene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
1,3-Dichlorobenzene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
1,4-Dichlorobenzene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4,5-Trichlorophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4,6-Trichlorophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4-Dichlorophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4-Dimethylphenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4-Dinitrophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,4-Dinitrotoluene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2,6-Dinitrotoluene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2-Chloronaphthalene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2-Chlorophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2-Methylnaphthalene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2-Nitroaniline	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
2-Nitrophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
3,3-Dichlorobenzidine	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
3-Nitroaniline	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4,6-Dinitro-2-methylphenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Bromophenyl phenyl ether	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Chloro-3-methylphenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Chloroaniline	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Chlorophenyl phenyl ether	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Nitroaniline	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
4-Nitrophenol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Bis(2-chloroethoxy)methane	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Bis(2-chloroethyl)ether	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Bis(2-chloroisopropyl)ether	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Bis(2-ethylhexyl)phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Butyl benzyl phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Carbazole	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Dibenzofuran	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Diethyl phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Dimethyl phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Di-n-butyl phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Di-n-octyl phthalate	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Hexachlorobenzene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Hexachlorobutadiene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Hexachlorocyclopentadiene	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Hexachloroethane	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
Isophorone	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199
m,p-Cresol	ND	10.0	µg/L	1	07/10/2012 3:14 PM	10199

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS) — Method: EPA-8270C-Rev 3, Dec-96 — Analyst: ls

Nitrobenzene	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
N-Nitrosodi-n-propylamine	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
N-Nitrosodiphenylamine	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
o-Cresol	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
Pentachlorophenol	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
Phenol	ND	10.0		µg/L	1	07/10/2012 3:14 PM	10199
Internal Quality Control Compounds							
SS: 2,4,6-Tribromophenol	107	36.6-133		%REC	1	07/10/2012 3:14 PM	10199
SS: 2-Fluorobiphenyl	57.9	26.8-113		%REC	1	07/10/2012 3:14 PM	10199
SS: 2-Fluorophenol	39.1	0.1-110		%REC	1	07/10/2012 3:14 PM	10199
SS: 4-Terphenyl-d14	37.7	31.3-152		%REC	1	07/10/2012 3:14 PM	10199
SS: Nitrobenzene-d5	55.8	13.8-115		%REC	1	07/10/2012 3:14 PM	10199
SS: Phenol-d6	26.5	1.14-110		%REC	1	07/10/2012 3:14 PM	10199

SEMIVOLATILE ORGANICS, BY GCMS SIM — Method: EPA-8270C-Rev 3, Dec-96 — Analyst: ls

Acenaphthene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Acenaphthylene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Anthracene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Benzo(a)anthracene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Benzo(a)pyrene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Benzo(b)fluoranthene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Benzo(k)fluoranthene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Chrysene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Dibenzo(a,h)anthracene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Fluoranthene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Fluorene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Naphthalene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Phenanthrene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Pyrene	ND	0.100		µg/L	1	07/09/2012 5:07 PM	10201
Internal Quality Control Compounds							
SS: 2-Fluorobiphenyl	88.3	26.8-113		%REC	1	07/09/2012 5:07 PM	10201
SS: 4-Terphenyl-d14	98.2	31.3-152		%REC	1	07/09/2012 5:07 PM	10201
SS: Nitrobenzene-d5	89.1	13.8-115		%REC	1	07/09/2012 5:07 PM	10201

CHLORIDE — Method: APHA-M4500-Cl⁻ E-Rev 18th, 1992 — Analyst: LAP

Chloride	13.7	0.500		mg/L	1	07/09/2012 1:32 PM	R24797

HARDNESS, TOTAL — Method: SM-2340B-Rev 18Ed, 1992 — Analyst: jos

Hardness, Ca/Mg (As CaCO3)	197	0.050	c	mg/L	1	07/10/2012 3:15 PM	10208

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

MERCURY BY CVAA		Method: EPA-SW7470A-Rev 1, Sep-94				Analyst: jos	
Mercury	ND	0.0002		mg/L	1	07/11/2012 1:07 PM	10242
AMMONIA, BY SELECTIVE ELECTRODE		Method: SM-M4500NH3 F-Rev 18Ed, 1992				Analyst: vyc	
Nitrogen, Ammonia (As N)	5.24	0.100		mg/L	10	07/10/2012 10:41 AM	R24825
PHOSPHORUS, TOTAL		Method: SM-M4500P BE-Rev 18Ed, 1992				Analyst: vyc	
Phosphorus (As P)	0.0389	0.00500		mg/L	1	07/10/2012 2:22 PM	10206
Total Phosphorus(as PO4)	0.119	0.0153		mg/L	1	07/10/2012 2:22 PM	10206
PH (IN LABORATORY) <ATC>		Method: EPA-SW9040B-Rev 3, Jan-95				Analyst: vyc	
pH	8.14	0	c	pH Units	1	07/06/2012 3:58 PM	R24764
SULFATE		Method: ASTM-ASTM D516-Rev 2004				Analyst: LAP	
Sulfate	20	1.0		mg/L	1	07/10/2012 3:37 PM	R24853
TOTAL DISSOLVED SOLIDS		Method: SM-M2540C-Rev 18Ed, 1992				Analyst: sb	
Residue, Filterable	31,800	50.0		mg/L	50	07/09/2012 9:29 AM	R24775
TOTAL ORGANIC CARBON		Method: EPA-9060-Rev 0, Sep-86				Analyst: mn	
Total Organic Carbon (TOC)	11.2	1.00	c	mg/L	1	07/09/2012 12:00 AM	R24799
TOTAL SUSPENDED SOLIDS		Method: SM-M2540D-Rev 18Ed, 1992				Analyst: sb	
Residue, Non-Filterable	81,300	100		mg/L	1	07/09/2012 1:32 PM	R24785
TOTAL VOLATILE SOLIDS		Method:				Analyst: sb	
Total Volatile Solids	780	1.00	c	mg/L	1	07/09/2012 9:32 AM	R24777

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: **1207119**

Client Sample ID: Elutriate - Four Hour

Lab ID: 1207119-004 **Date Received:** 07/04/2012 12:10 PM

Matrix: SURFACE WATER
Collection Date: 07/05/2012 12:00 AM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
METALS BY ICP		Method: EPA-SW6010B-Rev 2, Dec-96				Analyst: jos	
Aluminum	1.84	0.0174		mg/L	1	07/10/2012 12:17 PM	10208
Arsenic	ND	0.0200		mg/L	1	07/10/2012 7:13 PM	10208
Barium	0.0524	0.00500		mg/L	1	07/10/2012 12:17 PM	10208
Beryllium	ND	0.00250		mg/L	1	07/10/2012 12:17 PM	10208
Cadmium	ND	0.00100		mg/L	1	07/10/2012 12:17 PM	10208
Calcium	46.6	0.0151		mg/L	1	07/10/2012 12:17 PM	10208
Chromium	0.00961	0.00500		mg/L	1	07/10/2012 12:17 PM	10208
Cobalt	ND	0.00909		mg/L	1	07/10/2012 12:17 PM	10208
Copper	0.0180	0.00299		mg/L	1	07/10/2012 12:17 PM	10208
Iron	4.62	0.0117		mg/L	1	07/10/2012 12:17 PM	10208
Magnesium	15.8	0.0109		mg/L	1	07/10/2012 12:17 PM	10208
Manganese	0.136	0.00882		mg/L	1	07/10/2012 12:17 PM	10208
Nickel	0.00625	0.00400	J	mg/L	1	07/10/2012 12:17 PM	10208
Potassium	2.45	0.0400		mg/L	1	07/10/2012 12:17 PM	10208
Selenium	ND	0.0250		mg/L	1	07/10/2012 7:13 PM	10208
Silver	ND	0.00200		mg/L	1	07/10/2012 12:17 PM	10208
Sodium	7.76	0.100		mg/L	1	07/10/2012 7:13 PM	10208
Vanadium	0.00650	0.00259	J	mg/L	1	07/10/2012 12:17 PM	10208
Zinc	0.0457	0.0150		mg/L	1	07/10/2012 12:17 PM	10208
METALS BY ICPMS		Method: SW846-SW6020-Rev 0, Sep-94				Analyst: dc	
Antimony	ND	0.00060		mg/L	1	07/10/2012 2:33 PM	10207
Lead	0.0230	0.00010		mg/L	1	07/10/2012 2:33 PM	10207
Thallium	ND	0.00010		mg/L	1	07/11/2012 7:58 PM	10207
PCBS		Method: EPA-SW8082-Rev 0, Dec-96				Analyst: mn	
Aroclor 1016	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1221	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1232	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1242	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1248	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1254	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Aroclor 1260	ND	0.100		µg/L	1	07/09/2012 9:11 PM	10209
Internal Quality Control Compounds							
SS: Tetrachloro-m-xylene	70.0	40.4-143		%REC	1	07/09/2012 9:11 PM	10209

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

VOLATILE ORGANIC COMPOUNDS Method: EPA-SW8260B-Rev 2, Dec-96 Analyst: ms

1,1,1-Trichloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,1,2,2-Tetrachloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,1,2-Trichloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,1-Dichloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,1-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,2-Dichloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
1,2-Dichloropropane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
2-Butanone	ND	10.0	µg/L	1	07/09/2012 1:45 PM	R24791
2-Hexanone	ND	25.0	µg/L	1	07/09/2012 1:45 PM	R24791
4-Methyl-2-pentanone	ND	25.0	µg/L	1	07/09/2012 1:45 PM	R24791
Acetone	ND	25.0	µg/L	1	07/09/2012 1:45 PM	R24791
Benzene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Bromodichloromethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Bromoform	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Bromomethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Carbon disulfide	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Carbon tetrachloride	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Chlorobenzene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Chloroethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Chloroform	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Chloromethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
cis-1,2-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
cis-1,3-Dichloropropene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Dibromochloromethane	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Ethylbenzene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
m,p-Xylene	ND	2.00	µg/L	1	07/09/2012 1:45 PM	R24791
Methyl tert-butyl ether	1.16	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Methylene chloride	ND	5.00	µg/L	1	07/09/2012 1:45 PM	R24791
o-Xylene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Total Xylenes	ND	2.00	µg/L	1	07/09/2012 1:45 PM	R24791
Styrene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Tetrachloroethene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Toluene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
trans-1,2-Dichloroethene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
trans-1,3-Dichloropropene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Trichloroethene	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Vinyl chloride	ND	1.00	µg/L	1	07/09/2012 1:45 PM	R24791
Internal Quality Control Compounds						
SS: 4-Bromofluorobenzene	97.9	67.9-119	%REC	1	07/09/2012 1:45 PM	R24791
SS: Dibromofluoromethane	94.2	62.3-122	%REC	1	07/09/2012 1:45 PM	R24791
SS: Toluene-d8	93.5	68.2-119	%REC	1	07/09/2012 1:45 PM	R24791

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS) Method: EPA-8270C-Rev 3, Dec-96 Analyst: ls

1,2,4-Trichlorobenzene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
1,2-Dichlorobenzene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
1,3-Dichlorobenzene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
1,4-Dichlorobenzene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4,5-Trichlorophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4,6-Trichlorophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4-Dichlorophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4-Dimethylphenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4-Dinitrophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,4-Dinitrotoluene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2,6-Dinitrotoluene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2-Chloronaphthalene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2-Chlorophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2-Methylnaphthalene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2-Nitroaniline	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
2-Nitrophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
3,3-Dichlorobenzidine	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
3-Nitroaniline	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4,6-Dinitro-2-methylphenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Bromophenyl phenyl ether	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Chloro-3-methylphenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Chloroaniline	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Chlorophenyl phenyl ether	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Nitroaniline	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
4-Nitrophenol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Bis(2-chloroethoxy)methane	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Bis(2-chloroethyl)ether	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Bis(2-chloroisopropyl)ether	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Bis(2-ethylhexyl)phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Butyl benzyl phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Carbazole	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Dibenzofuran	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Diethyl phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Dimethyl phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Di-n-butyl phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Di-n-octyl phthalate	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Hexachlorobenzene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Hexachlorobutadiene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Hexachlorocyclopentadiene	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Hexachloroethane	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
Isophorone	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199
m,p-Cresol	ND	9.30	µg/L	1	07/10/2012 3:58 PM	10199

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

SEMIVOLATILE ORGANICS (BNAS)		Method: EPA-8270C-Rev 3, Dec-96				Analyst: ls	
Nitrobenzene	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
N-Nitrosodi-n-propylamine	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
N-Nitrosodiphenylamine	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
o-Cresol	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
Pentachlorophenol	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
Phenol	ND	9.30		µg/L	1	07/10/2012 3:58 PM	10199
Internal Quality Control Compounds							
SS: 2,4,6-Tribromophenol	121	36.6-133		%REC	1	07/10/2012 3:58 PM	10199
SS: 2-Fluorobiphenyl	63.0	26.8-113		%REC	1	07/10/2012 3:58 PM	10199
SS: 2-Fluorophenol	46.5	0.1-110		%REC	1	07/10/2012 3:58 PM	10199
SS: 4-Terphenyl-d14	55.8	31.3-152		%REC	1	07/10/2012 3:58 PM	10199
SS: Nitrobenzene-d5	61.0	13.8-115		%REC	1	07/10/2012 3:58 PM	10199
SS: Phenol-d6	29.3	1.14-110		%REC	1	07/10/2012 3:58 PM	10199
SEMIVOLATILE ORGANICS, BY GCMS SIM		Method: EPA-8270C-Rev 3, Dec-96				Analyst: ls	
Acenaphthene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Acenaphthylene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Anthracene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Benzo(a)anthracene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Benzo(a)pyrene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Benzo(b)fluoranthene	0.101	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Benzo(g,h,i)perylene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Benzo(k)fluoranthene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Chrysene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Dibenzo(a,h)anthracene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Fluoranthene	0.173	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Fluorene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Indeno(1,2,3-cd)pyrene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Naphthalene	ND	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Phenanthrene	0.132	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Pyrene	0.145	0.0930		µg/L	1	07/09/2012 5:41 PM	10201
Internal Quality Control Compounds							
SS: 2-Fluorobiphenyl	78.2	26.8-113		%REC	1	07/09/2012 5:41 PM	10201
SS: 4-Terphenyl-d14	82.0	31.3-152		%REC	1	07/09/2012 5:41 PM	10201
SS: Nitrobenzene-d5	80.3	13.8-115		%REC	1	07/09/2012 5:41 PM	10201
CHLORIDE		Method: APHA-M4500-Cl⁻ E-Rev 18th, 1992				Analyst: LAP	
Chloride	11.6	0.500		mg/L	1	07/09/2012 1:32 PM	R24797
HARDNESS, TOTAL		Method: SM-2340B-Rev 18Ed, 1992				Analyst: jos	
Hardness, Ca/Mg (As CaCO3)	181	0.050	c	mg/L	1	07/10/2012 3:15 PM	R24851

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.
4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

Laboratory Results

Client ID: Ryba Marine Construction Co.
Project Name: Waukegan Harbor Approach Channel Dredgin

Report Date: August 06, 2012
Workorder: 1207119

MERCURY BY CVAA		Method: EPA-SW7470A-Rev 1, Sep-94				Analyst: jos	
Mercury	ND	0.0002		mg/L	1	07/11/2012 1:09 PM	10242
AMMONIA, BY SELECTIVE ELECTRODE		Method: SM-M4500NH3 F-Rev 18Ed, 1992				Analyst: vyc	
Nitrogen, Ammonia (As N)	4.82	0.100		mg/L	10	07/10/2012 10:41 AM	R24825
PHOSPHORUS, TOTAL		Method: SM-M4500P BE-Rev 18Ed, 1992				Analyst: vyc	
Phosphorus (As P)	0.305	0.0250		mg/L	5	07/10/2012 2:22 PM	10206
Total Phosphorus(as PO4)	0.934	0.0765		mg/L	5	07/10/2012 2:22 PM	10206
PH (IN LABORATORY) <ATC>		Method: EPA-SW9040B-Rev 3, Jan-95				Analyst: vyc	
pH	8.24	0	c	pH Units	1	07/06/2012 4:03 PM	R24764
SULFATE		Method: ASTM-ASTM D516-Rev 2004				Analyst: LAP	
Sulfate	22	1.0		mg/L	1	07/10/2012 3:37 PM	R24853
TOTAL DISSOLVED SOLIDS		Method: SM-M2540C-Rev 18Ed, 1992				Analyst: sb	
Residue, Filterable	1,070	0.500		mg/L	0.5	07/09/2012 9:29 AM	R24775
TOTAL ORGANIC CARBON		Method: EPA-9060-Rev 0, Sep-86				Analyst: mn	
Total Organic Carbon (TOC)	2.52	1.00	c	mg/L	1	07/09/2012 12:00 AM	R24799
TOTAL SUSPENDED SOLIDS		Method: SM-M2540D-Rev 18Ed, 1992				Analyst: sb	
Residue, Non-Filterable	248	2.00		mg/L	1	07/09/2012 1:32 PM	R24785
TOTAL VOLATILE SOLIDS		Method:				Analyst: sb	
Total Volatile Solids	69.4	1.00	c	mg/L	1	07/09/2012 9:32 AM	R24777

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
c	Analyte not in SLI scope of accreditation	E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)	N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits		

Suburban Laboratories, Inc.

4140 Litt Drive, Hillside, IL 60162 (708) 544-3260

PREP DATES REPORT

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Chan

Report Date: August 06, 2012
Lab Order: **1207119**

Sample ID	Collection Date	Batch ID	Prep Method	Prep Test Name	TCLP Date	Prep Date
1207119-001B	07/03/12 3:47:00 PM	10199	3510_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10201	3510SIM_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10209	3510_PCB	AQUEOUS PREP SEP FUNNEL: PCB		07/09/12
1207119-001D		10207	200.2_ICPMS_W	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10208	200.2_ICPW_PR	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10181	HG_WPR	MERCURY PREP for AQUEOUS		07/06/12
1207119-001E		10206	P_WW_LOWPR	PHOSPHORUS, TOTAL		07/09/12
1207119-003B	07/05/12	10199	3510_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10201	3510SIM_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10209	3510_PCB	AQUEOUS PREP SEP FUNNEL: PCB		07/09/12
1207119-003D		10208	200.2_ICPW_PR	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10207	200.2_ICPMS_W	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10242	HG_WPR	MERCURY PREP for AQUEOUS		07/10/12
1207119-003E		10206	P_WW_LOWPR	PHOSPHORUS, TOTAL		07/09/12
		10225	P_WW_LOWPR	PHOSPHORUS, TOTAL		07/10/12
1207119-004B		10201	3510SIM_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10199	3510_B	AQUEOUS PREP SEP FUNNEL: BNA		07/09/12
		10209	3510_PCB	AQUEOUS PREP SEP FUNNEL: PCB		07/09/12
1207119-004D		10207	200.2_ICPMS_W	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10208	200.2_ICPW_PR	AQUEOUS PREP TOTAL METALS: ICP		07/09/12
		10242	HG_WPR	MERCURY PREP for AQUEOUS		07/10/12
1207119-004E		10225	P_WW_LOWPR	PHOSPHORUS, TOTAL		07/10/12
		10206	P_WW_LOWPR	PHOSPHORUS, TOTAL		07/09/12

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_W2**

Sample ID: **MB-10208** SampType: **MBLK** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **PBW** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0500									
Barium	ND	0.0100									
Beryllium	ND	0.0150									
Cadmium	ND	0.00500									
Calcium	ND	0.0500									
Chromium	ND	0.00500									
Cobalt	ND	0.0250									
Copper	ND	0.00500									
Iron	ND	0.0500									
Magnesium	ND	0.0500									
Manganese	ND	0.0250									
Nickel	ND	0.0100									
Potassium	ND	0.100									
Silver	ND	0.00250									
Vanadium	ND	0.0100									
Zinc	ND	0.0250									

Sample ID: **LCS-10208** SampType: **LCS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **LCSW** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.995	0.0500	1.000	0	99.5	85	115				
Barium	0.976	0.0100	1.000	0	97.6	85	115				
Beryllium	1.01	0.0150	1.000	0	101	85	115				
Cadmium	0.991	0.00500	1.000	0	99.1	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **6010_W2**

Sample ID: **LCS-10208** SampType: **LCS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **LCSW** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.986	0.0500	1.000	0	98.6	85	115				
Chromium	1.00	0.00500	1.000	0	100	85	115				
Cobalt	1.02	0.0250	1.000	0	102	85	115				
Copper	1.03	0.00500	1.000	0	103	85	115				
Iron	1.04	0.0500	1.000	0	104	85	115				
Magnesium	1.01	0.0500	1.000	0	101	85	115				
Manganese	1.01	0.0250	1.000	0	101	85	115				
Nickel	1.01	0.0100	1.000	0	101	85	115				
Potassium	9.82	0.100	10.00	0	98.2	85	115				
Silver	0.947	0.00250	1.000	0	94.7	85	115				
Vanadium	1.01	0.0100	1.000	0	101	85	115				
Zinc	1.02	0.0250	1.000	0	102	85	115				

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1.08	0.0500	1.000	0	108	70	130				
Barium	0.996	0.0100	1.000	0.01997	97.6	70	130				
Beryllium	1.03	0.0150	1.000	0	103	70	130				
Cadmium	1.01	0.00500	1.000	0	101	70	130				
Calcium	34.6	0.0500	1.000	33.15	149	70	130				S
Chromium	1.03	0.00500	1.000	0	103	70	130				
Cobalt	1.01	0.0250	1.000	0	101	70	130				
Copper	1.02	0.00500	1.000	0	102	70	130				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_W2**

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.08	0.0500	1.000	0.02121	106	70	130				
Magnesium	13.1	0.0500	1.000	11.86	121	70	130				
Manganese	1.03	0.0250	1.000	0	103	70	130				
Nickel	1.00	0.0100	1.000	0	100	70	130				
Potassium	11.3	0.100	10.00	1.385	99.3	70	130				
Silver	0.935	0.00250	1.000	0	93.5	70	130				
Vanadium	1.04	0.0100	1.000	0	104	70	130				
Zinc	1.01	0.0250	1.000	0	101	70	130				

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1.06	0.0500	1.000	0	106	70	130	1.078	1.53	20	
Barium	1.01	0.0100	1.000	0.01997	99.5	70	130	0.9962	1.87	20	
Beryllium	1.07	0.0150	1.000	0	107	70	130	1.033	3.28	20	
Cadmium	1.04	0.00500	1.000	0	104	70	130	1.013	2.90	20	
Calcium	36.1	0.0500	1.000	33.15	293	70	130	34.64	4.06	20	S
Chromium	1.06	0.00500	1.000	0	106	70	130	1.032	2.98	20	
Cobalt	1.04	0.0250	1.000	0	104	70	130	1.012	2.72	20	
Copper	1.04	0.00500	1.000	0	104	70	130	1.024	2.02	20	
Iron	1.10	0.0500	1.000	0.02121	108	70	130	1.084	1.83	20	
Magnesium	13.5	0.0500	1.000	11.86	164	70	130	13.06	3.26	20	S
Manganese	1.06	0.0250	1.000	0	106	70	130	1.033	2.38	20	
Nickel	1.03	0.0100	1.000	0	103	70	130	1.001	3.09	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6010_W2**

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24851**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	11.5	0.100	10.00	1.385	101	70	130	11.31	1.48	20	
Silver	0.965	0.00250	1.000	0	96.5	70	130	0.9355	3.12	20	
Vanadium	1.07	0.0100	1.000	0	107	70	130	1.043	2.93	20	
Zinc	1.05	0.0250	1.000	0	105	70	130	1.008	3.66	20	

Sample ID: **MB-10208** SampType: **MBLK** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24868**
Client ID: **PBW** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0250									
Selenium	ND	0.0500									
Sodium	ND	0.200									

Sample ID: **LCS-10208** SampType: **LCS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24868**
Client ID: **LCSW** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.06	0.0250	1.000	0	106	85	115				
Selenium	0.996	0.0500	1.000	0	99.6	85	115				
Sodium	0.960	0.200	1.000	0	96.0	85	115				

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24868**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **6010_W2**

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24868**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.07	0.0250	1.000	0	107	70	130				
Selenium	1.00	0.0500	1.000	0	100	70	130				
Sodium	8.13	0.200	1.000	7.069	106	70	130				

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **6010_W2** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24868**
Client ID: **Outer Harbor Water** Batch ID: **10208** TestNo: **SW6010B** **E200.2** Analysis Date: **07/10/12** SeqNo: **533987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.09	0.0250	1.000	0	109	70	130	1.067	2.13	20	
Selenium	1.02	0.0500	1.000	0	102	70	130	1.002	1.67	20	
Sodium	8.37	0.200	1.000	7.069	130	70	130	8.132	2.90	20	S

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6020_W**

Sample ID: **MB-10207** SampType: **MBLK** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24899**
Client ID: **PBW** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/10/12** SeqNo: **534752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.00060									
Lead	ND	0.00020									
Thallium	ND	0.00010									

Sample ID: **LCS-10207** SampType: **LCS** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24899**
Client ID: **LCSW** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/10/12** SeqNo: **534753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.0540	0.00060	0.05000	0	108	85	115				
Lead	0.0522	0.00020	0.05000	0	104	85	115				
Thallium	0.0500	0.00010	0.05000	0	99.9	85	115				

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24899**
Client ID: **Outer Harbor Water** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/10/12** SeqNo: **534755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.0504	0.00060	0.05000	0	101	70	130				
Lead	0.0449	0.00020	0.05000	0	89.8	70	130				

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24899**
Client ID: **Outer Harbor Water** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/10/12** SeqNo: **534756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.0482	0.00060	0.05000	0	96.4	70	130	0.05035	4.33	20	
Lead	0.0436	0.00020	0.05000	0	87.2	70	130	0.04488	2.94	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **6020_W**

Sample ID: **MB-10207** SampType: **MBLK** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24949**
Client ID: **PBW** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/11/12** SeqNo: **535989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	ND	0.00010									

Sample ID: **LCS-10207** SampType: **LCS** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24949**
Client ID: **LCSW** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/11/12** SeqNo: **535990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	0.0475	0.00010	0.05000	0	94.9	85	115				

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24949**
Client ID: **Outer Harbor Water** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/11/12** SeqNo: **535992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	0.0449	0.00010	0.05000	0	89.9	70	130				

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **6020_W** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24949**
Client ID: **Outer Harbor Water** Batch ID: **10207** TestNo: **SW6020** **E200.2** Analysis Date: **07/11/12** SeqNo: **535993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	0.0443	0.00010	0.05000	0	88.5	70	130	0.04494	1.52	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8082_W**

Sample ID: **1016/1260 Ca** SampType: **CCV** TestCode: **8082_W** Units: **%REC** Prep Date: RunNo: **24823**
Client ID: **CCV** Batch ID: **R24823** TestNo: **SW8082** Analysis Date: **07/09/12** SeqNo: **532944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	93.0		100.0		93.0	85	115				
Surr: Tetrachloro-m-xylene	99.0		100.0		99.0	85	115				

Sample ID: **MB-10209** SampType: **mblk** TestCode: **8082_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24823**
Client ID: **PBW** Batch ID: **10209** TestNo: **SW8082** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Surr: Decachlorobiphenyl	0.385		0.4000		96.3	10	200				
Surr: Tetrachloro-m-xylene	0.335		0.4000		83.8	40.4	143				

Sample ID: **LCS-10209** SampType: **lcs** TestCode: **8082_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24823**
Client ID: **LCSW** Batch ID: **10209** TestNo: **SW8082** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	3.86	0.100	5.000	0	77.1	10	215				
Aroclor 1260	3.76	0.100	5.000	0	75.2	63	135				
Surr: Decachlorobiphenyl	0.340		0.4000		85.0	10	200				
Surr: Tetrachloro-m-xylene	0.300		0.4000		75.0	40.4	143				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_W**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **CCV** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **530879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	54.1	1.00	50.00	0	108						
1,1,2,2-Tetrachloroethane	48.5	1.00	50.00	0	97.0						
1,1,2-Trichloroethane	52.4	1.00	50.00	0	105						
1,1-Dichloroethane	45.5	1.00	50.00	0	91.1						
1,1-Dichloroethene	48.3	1.00	50.00	0	96.6	80	120				
1,2-Dichloroethane	55.7	1.00	50.00	0	111						
1,2-Dichloropropane	44.9	1.00	50.00	0	89.9	80	120				
2-Butanone	95.3	10.0	100.0	0	95.3						
2-Hexanone	101	25.0	100.0	0	101						
4-Methyl-2-pentanone	104	25.0	100.0	0	104						
Acetone	84.6	25.0	100.0	0	84.6						
Benzene	46.0	1.00	50.00	0	91.9						
Bromodichloromethane	54.6	1.00	50.00	0	109						
Bromoform	54.8	1.00	50.00	0	110						
Bromomethane	44.1	1.00	50.00	0	88.1						
Carbon disulfide	45.7	1.00	50.00	0	91.5						
Carbon tetrachloride	55.4	1.00	50.00	0	111						
Chlorobenzene	54.0	1.00	50.00	0	108						
Chloroethane	52.0	1.00	50.00	0	104						
Chloroform	49.5	1.00	50.00	0	99.0	80	120				
Chloromethane	44.3	1.00	50.00	0	88.5						
cis-1,2-Dichloroethene	47.8	1.00	50.00	0	95.6						
cis-1,3-Dichloropropene	52.4	1.00	50.00	0	105						
Dibromochloromethane	56.4	1.00	50.00	0	113						
Ethylbenzene	53.2	1.00	50.00	0	106	80	120				
m,p-Xylene	109	2.00	100.0	0	109						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_W**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **CCV** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **530879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	45.7	1.00	50.00	0	91.5						
Methylene chloride	44.6	5.00	50.00	0	89.2						
o-Xylene	53.8	1.00	50.00	0	108						
Total Xylenes	163	2.00	150.0	0	109						
Styrene	55.1	1.00	50.00	0	110						
Tetrachloroethene	49.9	1.00	50.00	0	99.7						
Toluene	51.4	1.00	50.00	0	103	80	120				
trans-1,2-Dichloroethene	47.8	1.00	50.00	0	95.7						
trans-1,3-Dichloropropene	54.7	1.00	50.00	0	109						
Trichloroethene	55.4	1.00	50.00	0	111						
Vinyl chloride	44.5	1.00	50.00	0	89.0	80	120				
Surr: 4-Bromofluorobenzene	50.7		50.00		101						
Surr: Dibromofluoromethane	48.2		50.00		96.4						
Surr: Toluene-d8	48.7		50.00		97.3						

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **LCSW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **530880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	21.7	1.00	20.00	0	108						
1,1,2,2-Tetrachloroethane	19.6	1.00	20.00	0	97.9						
1,1,2-Trichloroethane	21.3	1.00	20.00	0	107						
1,1-Dichloroethane	18.0	1.00	20.00	0	90.1						
1,1-Dichloroethene	18.3	1.00	20.00	0	91.3	70	130				
1,2-Dichloroethane	22.9	1.00	20.00	0	114						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_W**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **LCSW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **530880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	19.2	1.00	20.00	0	95.9						
2-Butanone	34.1	10.0	40.00	0	85.2						
2-Hexanone	35.6	25.0	40.00	0	88.9						
4-Methyl-2-pentanone	39.3	25.0	40.00	0	98.4						
Acetone	30.8	25.0	40.00	0	77.1						
Benzene	19.0	1.00	20.00	0	94.9	70	130				
Bromodichloromethane	21.9	1.00	20.00	0	109						
Bromoform	21.7	1.00	20.00	0	109						
Bromomethane	19.7	1.00	20.00	0	98.4						
Carbon disulfide	16.7	1.00	20.00	0	83.6						
Carbon tetrachloride	23.0	1.00	20.00	0	115						
Chlorobenzene	21.9	1.00	20.00	0	109	70	130				
Chloroethane	22.1	1.00	20.00	0	110						
Chloroform	21.0	1.00	20.00	0	105						
Chloromethane	14.8	1.00	20.00	0	73.9						
cis-1,2-Dichloroethene	19.6	1.00	20.00	0	97.8						
cis-1,3-Dichloropropene	20.9	1.00	20.00	0	104						
Dibromochloromethane	22.4	1.00	20.00	0	112						
Ethylbenzene	21.4	1.00	20.00	0	107						
m,p-Xylene	43.9	2.00	40.00	0	110						
Methyl tert-butyl ether	20.3	1.00	20.00	0	101						
Methylene chloride	17.6	5.00	20.00	0	87.9						
o-Xylene	21.8	1.00	20.00	0	109						
Total Xylenes	65.7	2.00	60.00	0	110						
Styrene	22.1	1.00	20.00	0	111						
Tetrachloroethene	21.3	1.00	20.00	0	106						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_W**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **LCSW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **530880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	20.4	1.00	20.00	0	102	70	130				
trans-1,2-Dichloroethene	18.6	1.00	20.00	0	92.8						
trans-1,3-Dichloropropene	22.1	1.00	20.00	0	111						
Trichloroethene	23.0	1.00	20.00	0	115	70	130				
Vinyl chloride	16.1	1.00	20.00	0	80.4						
Surr: 4-Bromofluorobenzene	49.6		50.00		99.2	67.9	119				
Surr: Dibromofluoromethane	47.7		50.00		95.4	62.3	122				
Surr: Toluene-d8	49.4		50.00		98.8	68.2	119				

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **PBW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **531396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,2-Dichloroethane	ND	1.00									
1,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Hexanone	ND	25.0									
4-Methyl-2-pentanone	ND	25.0									
Acetone	ND	25.0									
Benzene	ND	1.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_W**

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **PBW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **531396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	1.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	ND	1.00									
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	ND	5.00									
o-Xylene	ND	1.00									
Total Xylenes	ND	2.00									
Styrene	ND	1.00									
Tetrachloroethene	ND	1.00									
Toluene	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 4-Bromofluorobenzene	49.8		50.00		99.7	67.9	119				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_W**

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24707**
Client ID: **PBW** Batch ID: **R24707** TestNo: **SW8260B** Analysis Date: **07/05/12** SeqNo: **531396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	46.6		50.00		93.1	62.3	122				
Surr: Toluene-d8	49.4		50.00		98.7	68.2	119				

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_W** Units: **%REC** Prep Date: RunNo: **24789**
Client ID: **CCV** Batch ID: **R24789** TestNo: **SW8260B** Analysis Date: **07/06/12** SeqNo: **532151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	50.9		50.00		102						
Surr: Dibromofluoromethane	46.7		50.00		93.4						
Surr: Toluene-d8	48.3		50.00		96.6						

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **%REC** Prep Date: RunNo: **24789**
Client ID: **LCSW** Batch ID: **R24789** TestNo: **SW8260B** Analysis Date: **07/06/12** SeqNo: **532152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	50.3		50.00		101	67.9	119				
Surr: Dibromofluoromethane	47.4		50.00		94.7	62.3	122				
Surr: Toluene-d8	48.3		50.00		96.6	68.2	119				

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **%REC** Prep Date: RunNo: **24789**
Client ID: **PBW** Batch ID: **R24789** TestNo: **SW8260B** Analysis Date: **07/06/12** SeqNo: **532153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	50.4		50.00		101	67.9	119				
Surr: Dibromofluoromethane	46.2		50.00		92.5	62.3	122				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_W**

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **%REC** Prep Date: RunNo: **24789**
Client ID: **PBW** Batch ID: **R24789** TestNo: **SW8260B** Analysis Date: **07/06/12** SeqNo: **532153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	48.1		50.00		96.2	68.2	119				

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **CCV** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	51.5	1.00	50.00	0	103						
1,1,2,2-Tetrachloroethane	38.2	1.00	50.00	0	76.4						
1,1,2-Trichloroethane	46.7	1.00	50.00	0	93.4						
1,1-Dichloroethane	39.9	1.00	50.00	0	79.8						
1,1-Dichloroethene	42.3	1.00	50.00	0	84.5	80	120				
1,2-Dichloroethane	54.2	1.00	50.00	0	108						
1,2-Dichloropropane	41.1	1.00	50.00	0	82.2	80	120				
2-Butanone	69.4	10.0	100.0	0	69.4						
2-Hexanone	73.0	25.0	100.0	0	73.0						
4-Methyl-2-pentanone	74.4	25.0	100.0	0	74.4						
Acetone	56.9	25.0	100.0	0	56.9						
Benzene	43.4	1.00	50.00	0	86.8						
Bromodichloromethane	53.8	1.00	50.00	0	108						
Bromoform	48.3	1.00	50.00	0	96.5						
Bromomethane	45.1	1.00	50.00	0	90.3						
Carbon disulfide	38.7	1.00	50.00	0	77.4						
Carbon tetrachloride	57.5	1.00	50.00	0	115						
Chlorobenzene	50.2	1.00	50.00	0	100						
Chloroethane	47.8	1.00	50.00	0	95.6						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8260_W**

Sample ID: **8260 CCV 50** SampType: **CCV** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **CCV** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroform	47.5	1.00	50.00	0	95.0	80	120				
Chloromethane	41.5	1.00	50.00	0	82.9						
cis-1,2-Dichloroethene	44.2	1.00	50.00	0	88.4						
cis-1,3-Dichloropropene	49.6	1.00	50.00	0	99.2						
Dibromochloromethane	53.6	1.00	50.00	0	107						
Ethylbenzene	50.7	1.00	50.00	0	101	80	120				
m,p-Xylene	104	2.00	100.0	0	104						
Methyl tert-butyl ether	37.8	1.00	50.00	0	75.6						
Methylene chloride	38.3	5.00	50.00	0	76.7						
o-Xylene	51.0	1.00	50.00	0	102						
Total Xylenes	155	2.00	150.0	0	103						
Styrene	51.7	1.00	50.00	0	103						
Tetrachloroethene	48.8	1.00	50.00	0	97.5						
Toluene	47.4	1.00	50.00	0	94.9	80	120				
trans-1,2-Dichloroethene	41.2	1.00	50.00	0	82.4						
trans-1,3-Dichloropropene	51.7	1.00	50.00	0	103						
Trichloroethene	53.4	1.00	50.00	0	107						
Vinyl chloride	42.7	1.00	50.00	0	85.3	80	120				
Surr: 4-Bromofluorobenzene	51.4		50.00		103						
Surr: Dibromofluoromethane	47.0		50.00		94.0						
Surr: Toluene-d8	48.5		50.00		97.0						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8260_W**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **LCSW** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	21.5	1.00	20.00	0	107						
1,1,2,2-Tetrachloroethane	15.9	1.00	20.00	0	79.6						
1,1,2-Trichloroethane	18.5	1.00	20.00	0	92.4						
1,1-Dichloroethane	15.9	1.00	20.00	0	79.6						
1,1-Dichloroethene	16.2	1.00	20.00	0	81.0	70	130				
1,2-Dichloroethane	22.0	1.00	20.00	0	110						
1,2-Dichloropropane	16.8	1.00	20.00	0	84.2						
2-Butanone	22.2	10.0	40.00	0	55.5						
2-Hexanone	27.7	25.0	40.00	0	69.3						
4-Methyl-2-pentanone	31.6	25.0	40.00	0	79.0						
Acetone	24.3	25.0	40.00	0	60.8						J
Benzene	17.1	1.00	20.00	0	85.4	70	130				
Bromodichloromethane	21.0	1.00	20.00	0	105						
Bromoform	20.3	1.00	20.00	0	101						
Bromomethane	19.2	1.00	20.00	0	96.2						
Carbon disulfide	14.4	1.00	20.00	0	71.8						
Carbon tetrachloride	23.6	1.00	20.00	0	118						
Chlorobenzene	20.7	1.00	20.00	0	104	70	130				
Chloroethane	19.0	1.00	20.00	0	95.0						
Chloroform	19.6	1.00	20.00	0	98.2						
Chloromethane	12.5	1.00	20.00	0	62.4						
cis-1,2-Dichloroethene	17.5	1.00	20.00	0	87.4						
cis-1,3-Dichloropropene	19.8	1.00	20.00	0	99.2						
Dibromochloromethane	21.9	1.00	20.00	0	109						
Ethylbenzene	20.6	1.00	20.00	0	103						
m,p-Xylene	42.0	2.00	40.00	0	105						

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_W**

Sample ID: **8260 LCS 20** SampType: **LCS** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **LCSW** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	17.0	1.00	20.00	0	85.2						
Methylene chloride	15.4	5.00	20.00	0	77.0						
o-Xylene	20.7	1.00	20.00	0	104						
Total Xylenes	62.7	2.00	60.00	0	105						
Styrene	20.2	1.00	20.00	0	101						
Tetrachloroethene	20.1	1.00	20.00	0	100						
Toluene	19.5	1.00	20.00	0	97.4	70	130				
trans-1,2-Dichloroethene	17.1	1.00	20.00	0	85.5						
trans-1,3-Dichloropropene	20.7	1.00	20.00	0	103						
Trichloroethene	21.8	1.00	20.00	0	109	70	130				
Vinyl chloride	14.6	1.00	20.00	0	72.9						
Surr: 4-Bromofluorobenzene	50.6		50.00		101	67.9	119				
Surr: Dibromofluoromethane	46.7		50.00		93.4	62.3	122				
Surr: Toluene-d8	47.7		50.00		95.4	68.2	119				

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **PBW** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,2-Dichloroethane	ND	1.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_W**

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **PBW** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Hexanone	ND	25.0									
4-Methyl-2-pentanone	ND	25.0									
Acetone	ND	25.0									
Benzene	ND	1.00									
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	1.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	ND	1.00									
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	ND	5.00									
o-Xylene	ND	1.00									
Total Xylenes	ND	2.00									
Styrene	ND	1.00									
Tetrachloroethene	ND	1.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **8260_W**

Sample ID: **WATER BLANK** SampType: **MBLK** TestCode: **8260_W** Units: **µg/L** Prep Date: RunNo: **24791**
Client ID: **PBW** Batch ID: **R24791** TestNo: **SW8260B** Analysis Date: **07/09/12** SeqNo: **532213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 4-Bromofluorobenzene	49.6		50.00		99.2	67.9	119				
Surr: Dibromofluoromethane	46.3		50.00		92.5	62.3	122				
Surr: Toluene-d8	47.8		50.00		95.6	68.2	119				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_W**

Sample ID: **625/8270 50** SampType: **CCV** TestCode: **8270_W** Units: **%REC** Prep Date: RunNo: **24855**
Client ID: **CCV** Batch ID: **R24855** TestNo: **SW8270C** Analysis Date: **07/10/12** SeqNo: **533754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	61.0		50.00		122						
Surr: 2-Fluorobiphenyl	48.6		50.00		97.1						
Surr: 2-Fluorophenol	45.2		50.00		90.5						
Surr: 4-Terphenyl-d14	47.2		50.00		94.4						
Surr: Nitrobenzene-d5	50.9		50.00		102						
Surr: Phenol-d6	45.0		50.00		90.1						

Sample ID: **MB-10199** SampType: **MBLK** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **PBW** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	10.0									
1,2-Dichlorobenzene	ND	10.0									
1,3-Dichlorobenzene	ND	10.0									
1,4-Dichlorobenzene	ND	10.0									
2,4,5-Trichlorophenol	ND	10.0									
2,4,6-Trichlorophenol	ND	10.0									
2,4-Dichlorophenol	ND	10.0									
2,4-Dimethylphenol	ND	10.0									
2,4-Dinitrophenol	ND	10.0									
2,4-Dinitrotoluene	ND	10.0									
2,6-Dinitrotoluene	ND	10.0									
2-Chloronaphthalene	ND	10.0									
2-Chlorophenol	ND	10.0									
2-Methylnaphthalene	ND	10.0									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_W**

Sample ID: **MB-10199** SampType: **MBLK** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **PBW** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Nitroaniline	ND	10.0									
2-Nitrophenol	ND	10.0									
3,3-Dichlorobenzidine	ND	10.0									
3-Nitroaniline	ND	10.0									
4,6-Dinitro-2-methylphenol	ND	10.0									
4-Bromophenyl phenyl ether	ND	10.0									
4-Chloro-3-methylphenol	ND	10.0									
4-Chloroaniline	ND	10.0									
4-Chlorophenyl phenyl ether	ND	10.0									
4-Nitroaniline	ND	10.0									
4-Nitrophenol	ND	10.0									
Bis(2-chloroethoxy)methane	ND	10.0									
Bis(2-chloroethyl)ether	ND	10.0									
Bis(2-chloroisopropyl)ether	ND	10.0									
Bis(2-ethylhexyl)phthalate	ND	10.0									
Butyl benzyl phthalate	ND	10.0									
Carbazole	ND	10.0									
Dibenzofuran	ND	10.0									
Diethyl phthalate	ND	10.0									
Dimethyl phthalate	ND	10.0									
Di-n-butyl phthalate	ND	10.0									
Di-n-octyl phthalate	ND	10.0									
Hexachlorobenzene	ND	10.0									
Hexachlorobutadiene	ND	10.0									
Hexachlorocyclopentadiene	ND	10.0									
Hexachloroethane	ND	10.0									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_W**

Sample ID: **MB-10199** SampType: **MBLK** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **PBW** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isophorone	ND	10.0									
m,p-Cresol	ND	10.0									
Nitrobenzene	ND	10.0									
N-Nitrosodi-n-propylamine	ND	10.0									
N-Nitrosodiphenylamine	ND	10.0									
o-Cresol	ND	10.0									
Pentachlorophenol	ND	10.0									
Phenol	ND	10.0									
Surr: 2,4,6-Tribromophenol	130		100.0		130	36.6	133				
Surr: 2-Fluorobiphenyl	34.8		50.00		69.7	26.8	113				
Surr: 2-Fluorophenol	45.2		100.0		45.2	0	110				
Surr: 4-Terphenyl-d14	46.8		50.00		93.6	31.3	152				
Surr: Nitrobenzene-d5	36.9		50.00		73.8	13.8	115				
Surr: Phenol-d6	27.4		100.0		27.5	1.14	110				

Sample ID: **LCS-10199** SampType: **LCS** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **LCSW** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	23.5	10.0	50.00	0	47.0	8.53	110				
1,4-Dichlorobenzene	20.6	10.0	50.00	0	41.3	12.8	110				
2,4-Dinitrotoluene	37.2	10.0	50.00	0	74.3	13.4	113				
2-Chlorophenol	51.2	10.0	100.0	0	51.2	11.2	110				
4-Chloro-3-methylphenol	68.1	10.0	100.0	0	68.1	17.4	114				
4-Nitrophenol	29.3	10.0	100.0	0	29.3	0.1	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_W**

Sample ID: **LCS-10199** SampType: **LCS** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **LCSW** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	29.4	10.0	50.00	0	58.8	5.41	129				
Pentachlorophenol	48.8	10.0	100.0	0	48.8	0.1	110				
Phenol	21.8	10.0	100.0	0	21.8	2.34	110				
Surr: 2,4,6-Tribromophenol	81.5		100.0		81.5	36.6	133				
Surr: 2-Fluorobiphenyl	28.1		50.00		56.2	26.8	113				
Surr: 2-Fluorophenol	32.3		100.0		32.3	0	110				
Surr: 4-Terphenyl-d14	40.0		50.00		79.9	31.3	152				
Surr: Nitrobenzene-d5	29.3		50.00		58.6	13.8	115				
Surr: Phenol-d6	21.6		100.0		21.6	1.14	110				

Sample ID: **1207119-001BMS** SampType: **MS** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **Outer Harbor Water** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	48.5	20.0	100.0	0	48.5	44	138				
1,4-Dichlorobenzene	44.6	20.0	100.0	0	44.6	38	117				
2,4-Dinitrotoluene	72.1	20.0	100.0	0	72.1	50	139				
2-Chlorophenol	118	20.0	200.0	0	58.9	28	110				
4-Chloro-3-methylphenol	136	20.0	200.0	0	67.8	30	125				
4-Nitrophenol	40.9	20.0	200.0	0	20.5	23	124				S
N-Nitrosodi-n-propylamine	61.2	20.0	100.0	0	61.2	44	148				
Pentachlorophenol	85.7	20.0	200.0	0	42.9	19	173				
Phenol	35.9	20.0	200.0	0	17.9	8	110				
Surr: 2,4,6-Tribromophenol	207		200.0		104	36.6	133				
Surr: 2-Fluorobiphenyl	62.9		100.0		62.9	26.8	113				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270_W**

Sample ID: **1207119-001BMS** SampType: **MS** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **Outer Harbor Water** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	59.4		200.0		29.7	0	110				
Surr: 4-Terphenyl-d14	74.5		100.0		74.5	31.3	152				
Surr: Nitrobenzene-d5	61.3		100.0		61.3	13.8	115				
Surr: Phenol-d6	35.3		200.0		17.6	1.14	110				

Sample ID: **1207119-001BMSD** SampType: **MSD** TestCode: **8270_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24855**
Client ID: **Outer Harbor Water** Batch ID: **10199** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/10/12** SeqNo: **533864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	52.5	20.0	100.0	0	52.5	44	138	48.52	7.80	26	
1,4-Dichlorobenzene	46.7	20.0	100.0	0	46.7	38	117	44.62	4.60	24	
2,4-Dinitrotoluene	76.7	20.0	100.0	0	76.7	50	139	72.06	6.26	21	
2-Chlorophenol	122	20.0	200.0	0	61.2	28	110	117.7	3.82	25	
4-Chloro-3-methylphenol	145	20.0	200.0	0	72.4	30	125	135.7	6.56	19	
4-Nitrophenol	44.0	20.0	200.0	0	22.0	23	124	40.92	7.34	39	S
N-Nitrosodi-n-propylamine	65.7	20.0	100.0	0	65.7	44	148	61.16	7.13	22	
Pentachlorophenol	107	20.0	200.0	0	53.4	19	173	85.74	21.8	22	
Phenol	36.9	20.0	200.0	0	18.4	8	110	35.88	2.69	31	
Surr: 2,4,6-Tribromophenol	236		200.0		118	36.6	133		0	0	
Surr: 2-Fluorobiphenyl	64.8		100.0		64.8	26.8	113		0	0	
Surr: 2-Fluorophenol	60.8		200.0		30.4	0	110		0	0	
Surr: 4-Terphenyl-d14	78.9		100.0		78.9	31.3	152		0	0	
Surr: Nitrobenzene-d5	66.3		100.0		66.3	13.8	115		0	0	
Surr: Phenol-d6	35.7		200.0		17.9	1.14	110		0	0	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **8270SIM_W**

Sample ID: **PNASIM 250 p** SampType: **CCV** TestCode: **8270SIM_W** Units: **%REC** Prep Date: RunNo: **24803**
Client ID: **CCV** Batch ID: **R24803** TestNo: **SW8270C** Analysis Date: **07/09/12** SeqNo: **532332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	252		250.0		101	80	120				
Surr: 4-Terphenyl-d14	247		250.0		98.7	80	120				
Surr: Nitrobenzene-d5	251		250.0		100	80	120				

Sample ID: **MB-10201** SampType: **MBLK** TestCode: **8270SIM_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24803**
Client ID: **PBW** Batch ID: **10201** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.100									
Acenaphthylene	ND	0.100									
Anthracene	ND	0.100									
Benzo(a)anthracene	ND	0.100									
Benzo(a)pyrene	ND	0.100									
Benzo(b)fluoranthene	ND	0.100									
Benzo(g,h,i)perylene	ND	0.100									
Benzo(k)fluoranthene	ND	0.100									
Chrysene	ND	0.100									
Dibenzo(a,h)anthracene	ND	0.100									
Fluoranthene	ND	0.100									
Fluorene	ND	0.100									
Indeno(1,2,3-cd)pyrene	ND	0.100									
Naphthalene	ND	0.100									
Phenanthrene	ND	0.100									
Pyrene	ND	0.100									
Surr: 2-Fluorobiphenyl	4.08		5.000		81.6	26.8	113				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8270SIM_W**

Sample ID: **MB-10201** SampType: **MBLK** TestCode: **8270SIM_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24803**
Client ID: **PBW** Batch ID: **10201** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	5.30		5.000		106	31.3	152				
Surr: Nitrobenzene-d5	4.02		5.000		80.5	13.8	115				

Sample ID: **LCS-10201** SampType: **LCS** TestCode: **8270SIM_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24803**
Client ID: **LCSW** Batch ID: **10201** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1.78	0.100	2.500	0	71.3	43.5	125				
Acenaphthylene	1.74	0.100	2.500	0	69.4	36.7	118				
Anthracene	2.02	0.100	2.500	0	80.9	43	116				
Benzo(a)anthracene	2.17	0.100	2.500	0	87.0	24	158				
Benzo(a)pyrene	2.23	0.100	2.500	0	89.0	44.6	116				
Benzo(b)fluoranthene	2.01	0.100	2.500	0	80.5	49.4	127				
Benzo(g,h,i)perylene	2.14	0.100	2.500	0	85.6	28.7	133				
Benzo(k)fluoranthene	2.10	0.100	2.500	0	84.1	43.8	132				
Chrysene	2.19	0.100	2.500	0	87.5	51.5	133				
Dibenzo(a,h)anthracene	1.97	0.100	2.500	0	78.6	31	120				
Fluoranthene	2.16	0.100	2.500	0	86.5	41.3	136				
Fluorene	1.91	0.100	2.500	0	76.3	43.4	129				
Indeno(1,2,3-cd)pyrene	2.14	0.100	2.500	0	85.6	24.4	126				
Naphthalene	1.55	0.100	2.500	0	62.1	33.8	123				
Phenanthrene	2.03	0.100	2.500	0	81.1	47.6	132				
Pyrene	2.17	0.100	2.500	0	86.8	44.6	144				
Surr: 2-Fluorobiphenyl	3.39		5.000		67.7	26.8	113				
Surr: 4-Terphenyl-d14	4.27		5.000		85.5	31.3	152				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **8270SIM_W**

Sample ID: **LCS-10201** SampType: **LCS** TestCode: **8270SIM_W** Units: **µg/L** Prep Date: **07/09/12** RunNo: **24803**
Client ID: **LCSW** Batch ID: **10201** TestNo: **SW8270C** **SW3510B** Analysis Date: **07/09/12** SeqNo: **532342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	3.23		5.000		64.6	13.8	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **CL_WW1**

Sample ID: **R24797CCB** SampType: **CCB** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCB** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	5.00									

Sample ID: **R24797CCV** SampType: **CCV** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCV** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	5.00	100.0	0	100	90	110				

Sample ID: **R24797ICV** SampType: **ICV** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **ICV** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	103	5.00	100.0	0	103	90	110				

Sample ID: **MB-R24797** SampType: **MBLK** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **PBW** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	5.00									

Sample ID: **LCS-R24797** SampType: **LCS** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **LCSW** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	95.7	5.00	100.0	0	95.7	85	115				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **CL_WW1**

Sample ID: **1207119-001FMS** SampType: **MS** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **Outer Harbor Water** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	109	5.00	100.0	9.990	98.6	80	120				

Sample ID: **1207119-001FMSD** SampType: **MSD** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **Outer Harbor Water** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	109	5.00	100.0	9.990	99.1	80	120	108.6	0.450	20	

Sample ID: **R24797CCV** SampType: **CCV** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCV** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	94.8	5.00	100.0	0	94.8	90	110				

Sample ID: **R24797CCB** SampType: **CCB** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCB** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	5.00									

Sample ID: **R24797CCV** SampType: **CCV** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCV** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	95.0	5.00	100.0	0	95.0	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **CL_WW1**

Sample ID: **R24797CCB** SampType: **CCB** TestCode: **CL_WW1** Units: **mg/L** Prep Date: RunNo: **24797**
Client ID: **CCB** Batch ID: **R24797** TestNo: **A4500-Cl- E** Analysis Date: **07/09/12** SeqNo: **532292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.720	5.00									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin **TestCode:** **HG_W**

Sample ID: **1207119-001DMS** SampType: **MS** TestCode: **hg_W** Units: **mg/L** Prep Date: **07/06/12** RunNo: **24762**
Client ID: **Outer Harbor Water** Batch ID: **10181** TestNo: **SW7470A** **E245.1** Analysis Date: **07/06/12** SeqNo: **531963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0029	0.0005	0.003000	0	98.1	70	130				

Sample ID: **1207119-001DMSD** SampType: **MSD** TestCode: **hg_W** Units: **mg/L** Prep Date: **07/06/12** RunNo: **24762**
Client ID: **Outer Harbor Water** Batch ID: **10181** TestNo: **SW7470A** **E245.1** Analysis Date: **07/06/12** SeqNo: **531964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0029	0.0005	0.003000	0	97.4	70	130	0.002942	0.704	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **NH3_WW_LOW**

Sample ID: **MB-R24825** SampType: **MBLK** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **PBW** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.0200									

Sample ID: **R24825ICV** SampType: **ICV** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **ICV** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.472	0.0200	0.5000	0	94.5	90	110				

Sample ID: **1207119-001EMS** SampType: **MS** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **Outer Harbor Water** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.470	0.0200	0.5000	0.03297	87.4	80	120				

Sample ID: **1207119-001EMSD** SampType: **MSD** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **Outer Harbor Water** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.471	0.0200	0.5000	0.03297	87.6	80	120	0.4699	0.187	20	

Sample ID: **R24825CCB** SampType: **CCB** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **CCB** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533019**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.0200									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **NH3_WW_LOW**

Sample ID: **R24825CCB** SampType: **CCB** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **CCB** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.0200									

Sample ID: **1207270-002BMS** SampType: **MS** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **ZZZZZZ** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.469	0.0200	0.5000	0.01137	91.5	80	120				

Sample ID: **1207270-002BMSD** SampType: **MSD** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **ZZZZZZ** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.467	0.0200	0.5000	0.01137	91.2	80	120	0.4690	0.380	20	

Sample ID: **R24825CCB** SampType: **CCB** TestCode: **NH3_WW_LO** Units: **mg/L** Prep Date: RunNo: **24825**
Client ID: **CCB** Batch ID: **R24825** TestNo: **A4500-NH3 D** Analysis Date: **07/10/12** SeqNo: **533049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.0200									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **P_WW_LOW**

Sample ID: **LCS-10206** SampType: **LCS** TestCode: **P_WW_LOW** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24814**
Client ID: **LCSW** Batch ID: **10206** TestNo: **A4500-P BE** **A4500-P BE** Analysis Date: **07/09/12** SeqNo: **532571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus (As P)	0.0482	0.0120	0.05000	0	96.5	85	115				

Sample ID: **MB-10206** SampType: **MBLK** TestCode: **P_WW_LOW** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24814**
Client ID: **PBW** Batch ID: **10206** TestNo: **A4500-P BE** **A4500-P BE** Analysis Date: **07/09/12** SeqNo: **532572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus (As P)	ND	0.0120									
Total Phosphorus(as PO4)	ND	0.0367									

Sample ID: **1207119-001EDUP** SampType: **DUP** TestCode: **P_WW_LOW** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24814**
Client ID: **Outer Harbor Water** Batch ID: **10206** TestNo: **A4500-P BE** **A4500-P BE** Analysis Date: **07/09/12** SeqNo: **532574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus (As P)	0.00638	0.0120						0.005800	9.45	20	J
Total Phosphorus(as PO4)	0.0195	0.0367						0.01775	9.45	0	J

Sample ID: **1207119-001EMS** SampType: **MS** TestCode: **P_WW_LOW** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24814**
Client ID: **Outer Harbor Water** Batch ID: **10206** TestNo: **A4500-P BE** **A4500-P BE** Analysis Date: **07/09/12** SeqNo: **532575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus (As P)	0.0523	0.0120	0.05000	0.005800	93.0	80	120				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **P_WW_LOW**

Sample ID: **1207119-001EMSD** SampType: **MSD** TestCode: **P_WW_LOW** Units: **mg/L** Prep Date: **07/09/12** RunNo: **24814**
Client ID: **Outer Harbor Water** Batch ID: **10206** TestNo: **A4500-P BE** **A4500-P BE** Analysis Date: **07/09/12** SeqNo: **532576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus (As P)	0.0546	0.0120	0.05000	0.005800	97.7	80	120	0.05230	4.35	13.7	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **PH_W**

Sample ID: **1207119-003FDUP** SampType: **DUP** TestCode: **pH_W** Units: **pH Units** Prep Date: RunNo: **24764**
Client ID: **Elutriate - Zero Hour** Batch ID: **R24764** TestNo: **SW9040B** Analysis Date: **07/06/12** SeqNo: **531754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.16	0						8.140	0.245	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **SO4_WW**

Sample ID: **R24853CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCB** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **R24853CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCV** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39	10	40.00	0	98.5	90	110				

Sample ID: **R24853ICV** SampType: **ICV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **ICV** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39	10	40.00	0	97.8	90	110				

Sample ID: **MB-R24853** SampType: **MBLK** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **PBW** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **LCS-R24853** SampType: **LCS** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **LCSW** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	41	10	40.00	0	103	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **SO4_WW**

Sample ID: **1207119-004FDUP** SampType: **DUP** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **Elutriate - Four Hou** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	22	10						22.17	1.87	20	

Sample ID: **R24853CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCV** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40	10	40.00	0	100	90	110				

Sample ID: **R24853CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCB** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **R24853CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCV** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39	10	40.00	0	96.4	90	110				

Sample ID: **R24853CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24853**
Client ID: **CCB** Batch ID: **R24853** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**
06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin
TestCode: **SO4_WW**

Sample ID: **R24859CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCB** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **R24859CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCV** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39	10	40.00	0	98.7	90	110				

Sample ID: **R24859ICV** SampType: **ICV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **ICV** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40	10	40.00	0	99.2	90	110				

Sample ID: **MB-R24859** SampType: **MBLK** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **PBW** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **LCS-R24859** SampType: **LCS** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **LCSW** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40	10	40.00	0	99.6	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **SO4_WW**

Sample ID: **1207119-001FMS** SampType: **MS** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **Outer Harbor Water** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	58	50	40.00	25.25	81.4	80	120				

Sample ID: **1207119-001FMSD** SampType: **MSD** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **Outer Harbor Water** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	58	50	40.00	25.25	81.8	80	120	57.80	0.259	20	

Sample ID: **R24859CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCV** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40	10	40.00	0	99.4	90	110				

Sample ID: **R24859CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCB** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Sample ID: **R24859CCV** SampType: **CCV** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCV** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40	10	40.00	0	99.1	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **SO4_WW**

Sample ID: **R24859CCB** SampType: **CCB** TestCode: **SO4_WW** Units: **mg/L** Prep Date: RunNo: **24859**
Client ID: **CCB** Batch ID: **R24859** TestNo: **ASTM-D516** Analysis Date: **07/10/12** SeqNo: **533829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	10									

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **TDS_WW_LOW**

Sample ID: **MB-R24775** SampType: **MBLK** TestCode: **TDS_WW_LO** Units: **mg/L** Prep Date: RunNo: **24775**
Client ID: **PBW** Batch ID: **R24775** TestNo: **A2540C** Analysis Date: **07/09/12** SeqNo: **534137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Filterable	ND	0.400									

Sample ID: **1207119-004FDUP** SampType: **DUP** TestCode: **TDS_WW_LO** Units: **mg/L** Prep Date: RunNo: **24775**
Client ID: **Elutriate - Four Hou** Batch ID: **R24775** TestNo: **A2540C** Analysis Date: **07/09/12** SeqNo: **534139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Filterable	976	2.00						1,070	9.19	10	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **TOC_W**

Sample ID: **1207119-001CMS** SampType: **MS** TestCode: **TOC_W** Units: **mg/L** Prep Date: RunNo: **24799**
Client ID: **Outer Harbor Water** Batch ID: **R24799** TestNo: **SW9060** Analysis Date: **07/09/12** SeqNo: **532304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon (TOC)	27.1	1.00	25.00	0	108	80	120				

Sample ID: **1207119-001CMSD** SampType: **MSD** TestCode: **TOC_W** Units: **mg/L** Prep Date: RunNo: **24799**
Client ID: **Outer Harbor Water** Batch ID: **R24799** TestNo: **SW9060** Analysis Date: **07/09/12** SeqNo: **532305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon (TOC)	27.2	1.00	25.00	0	109	80	120	27.09	0.332	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **TSS**

Sample ID: **MB-R24785** SampType: **MBLK** TestCode: **TSS** Units: **mg/L** Prep Date: RunNo: **24785**
Client ID: **PBW** Batch ID: **R24785** TestNo: **A2540D** Analysis Date: **07/09/12** SeqNo: **532758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Non-Filterable	ND	1.00									

Sample ID: **1207106-001ADUP** SampType: **DUP** TestCode: **TSS** Units: **mg/L** Prep Date: RunNo: **24785**
Client ID: **ZZZZZZ** Batch ID: **R24785** TestNo: **A2540D** Analysis Date: **07/09/12** SeqNo: **532772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Residue, Non-Filterable	23.0	5.00						21.00	9.09	10	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Suburban Laboratories, Inc.
4140 Litt Dr
Hillside, IL 60162
TEL: 708-544-3260 FAX: 708-544-8587
Website: www.SuburbanLabs.com

QC SUMMARY REPORT

WO#: **1207119**

06-Aug-12

Client: Ryba Marine Construction Co.
Project: Waukegan Harbor Approach Channel Dredgin

TestCode: **TVS_WW_LOW**

Sample ID: **MB-R24777** SampType: **MBLK** TestCode: **TVS_WW_LO** Units: **mg/L** Prep Date: RunNo: **24777**
Client ID: **PBW** Batch ID: **R24777** TestNo: **A2540E** Analysis Date: **07/09/12** SeqNo: **531937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Volatile Solids	ND	4.00									

Sample ID: **1207119-004FDUP** SampType: **DUP** TestCode: **TVS_WW_LO** Units: **mg/L** Prep Date: RunNo: **24777**
Client ID: **Elutriate - Four Hou** Batch ID: **R24777** TestNo: **A2540E** Analysis Date: **07/09/12** SeqNo: **531939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Volatile Solids	73.7	4.00						69.43	5.98	10	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Estimated, detected above quantitation range	H	Holding times for preparation or analysis exceede
M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit	P	Second column confirmation exceeds
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

SUBURBAN LABORATORIES, Inc.

4140 Litt Drive Hillside, IL 60162 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Ryba Marine
Company Address: 629 N. Main Street / PO Box 265
City: Cheboygan State: MI Zip: 49721
Phone: Fax: ☐ Fax Report
Email Address: ☑ Email Report
Project ID / Location: Waukegan Harbor Dredging FY11
Project Manager (Report to): Wayne Moon
Sample Collector(s): PAT IRELAN

TURNAROUND TIME REQUESTED
☑ Normal ☐ RUSH* *Additional Rush Charges Approved.
*Date & Time Needed:
Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only
☐ LUST ☐ SRP ☐ SDWA
☐ 503 Sludge ☐ NPDES ☐ MWRDGC
☐ Disposal ☑ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED
Enter an "X" in box below for request

Page 1 of 1
PO No.
Shipping Method: SLI
QC Reporting Level ☐ 1 ☑ 2 ☐ 3

LAB USE ONLY
SLI Order No. 120719
Sample containers supplied by customer? ☐ Yes
Temperature of Received Samples 5 °C
Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	VOCs	SVOCs, PCB's	TOC	TAL Metals, Hardness	Ammonia, Phosphorus	TSS, TDS, TVS	Sulfate, Chloride	Supernatant			R	Condition	Split	LAB #
1	Outer Harbor Water	9/13/12	3:47 pm	SW	G	3	40 ml Vials	HCl	X												-	001A
2				SW	G	4	1L Amber	none		X											-	001B
3				SW	G	2	40 ml Vials	H2SO4			X										-	001C
4				SW	G	1	1L Plastic	HNO3				X									-	001D
5				SW	G	1	1L Plastic	H2SO4					X								-	001E
6				SW	G	4	1L Plastic	None						X	X						-	001F
7				SW	G	24	1L Amber	None								X					-	002A
8																						
9																						
10																						
11																						
12																						

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) CONTAINER: 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) PRESERVATIVE: H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

* Chicago District USACE - Waukegan Harbor Approach Channel Dredging project FY11

CONDITION CODES
1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
	9/14/12						
Received By ☒ Ice	Time 12 pm	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

Appendix C
2006 Asbestos Results

A particular issue for the Waukegan Harbor area has been the issue of potential asbestos contamination of the sediment. The basis for the concern is the Johns Mannville Superfund Site, which is located north of the harbor and adjacent to Lake Michigan. It is suspected that over the years, some asbestos containing insulation and/or building materials were placed in the lake. The presence of building materials containing asbestos on the public beach has been documented at Illinois Beach State Park, which is located further north. Due to public concern with the issue and the known health implications associated with asbestos inhalation, the Illinois Environmental Protection Agency (IEPA) requires all coastal projects to complete extensive sampling and analysis using a specific method, to ensure that asbestos is not present in the sediment being disturbed. USACE completed that work in 2006, including a human health risk assessment. For completeness, the information obtained at that time is repeated here. The 2006 sampling consisted of 12 sediment cores taken in the outer harbor. All twelve cores were analyzed using the "Elutraitor" method for trace asbestos detection, as well as for grain size.

Grain size

Grain size analysis was conducted for samples from each of the twelve core locations. Table C-1 summarizes the results. In general, the sediment in Waukegan Outer Harbor is fine sand and silt. The average fines content (material passing a #230 sieve, or less than 63 µm) is 32.9%. In general, the fine nature of this sediment makes it inappropriate for beach application or open water disposal. The sediment would be suitable for upland application, however due to the fine nature of the material it may tend to drain slowly. Because of the high fine content, the Waukegan Outer Harbor sediment would be best suited to an application where slow drainage or limited ponding after heavy rains is not a problem.

Table C-1: 2006 Grain Size Analysis

Sieve Size (particle size)	WOH-2006-01	WOH-2006-02	WOH-2006-03	WOH-2006-04	WOH-2006-05	WOH-2006-06	WOH-2006-07	WOH-2006-08	WOH-2006-09	WOH-2006-10	WOH-2006-11	WOH-2006-12
% Coarse/ Medium sand	0.5	0.2	0.4	0.2	1.2	0.2 (0.4)*	0.4	0.4	0.5	0.6	0.3	0.5
% Fine sand	86.3	51.6	45.7	70.4	59.5	54.3 (54.1)	54.0	82.9	33.7	57.5	74.3	90.8
% Fines (passing 230 sieve, % <63 µm)	13.2	48.2	53.9	29.4	39.3	45.5 (45.5)	45.6	16.7	65.8	41.9	25.4	8.7

*value in parentheses is duplicate sample result

Asbestos

Asbestos was measured by Polarized Light Microscopy (PLM) and by Transmission Electron Microscopy (TEM). In addition, asbestos fibers were counted using the Superfund Method for the Determination of Releasable Asbestos in Soils and Bulk Materials (US EPA 540-R-97-028, 1997) and modified in the Draft Modified Elutriator Method for the Determination of Asbestos

in Soils and Bulk Material (Berman and Kolk, 2000; Berman, 2000); this method is referred to as the "elutriator" method in this report. The asbestos results are summarized in Table C-2.

Table C-2: 2006 Asbestos Results

Asbestos Analytical Method	WOH-2006-01	WOH-2006-02	WOH-2006-03	WOH-2006-04	WOH-2006-05	WOH-2006-06	WOH-2006-07	WOH-2006-08	WOH-2006-09	WOH-2006-10	WOH-2006-11	WOH-2006-12
PLM	ND[1]	ND	ND	ND	ND	ND (ND)[4]	ND	ND	ND	ND	ND	ND
TEM	<1%	<1%	<1%	<1%	1-2%	1-2% (<1%)	<1%	<1%	<1%	<1%	<1%	<1%
Elutriator, MF/g[2]	3.9[3]	0	1.0	0	0	0 (0)	0	1.0	0	0	2.9	0

[1]ND means that asbestos was not detected in this sample.
[2]Results for the Elutriator method are given in units of "million fibers per gram respirable material". Respirable material is considered to be the fraction passing a 200 sieve (material finer than 75 µm).
[3]Total Chrysotile and Amphibole fibers.
[4]Value in parenthesis is duplicate.

The Elutriator results were used for a statistical comparison to asbestos measurements made on beach material from Grant Park, Wisconsin, and Highland Park, Illinois. Data for Grant Park, Highland Park, and the Waukegan Approach Channel were taken from the report by Cali et al. (Cali et al., 2006) A summary of the statistical descriptors is given in Table C-3, including the statistics for the data sets reported by Cali et al and the calculated statistics for the Waukegan Outer Harbor data given in Table C-2. The 95% upper confidence level was calculated using ProUCL (USEPA, 2004). A non-parametric method, the Mann-Whitney test, was used to compare the two populations (the combined Grant Park and Highland Park data verses the Waukegan Outer Harbor data.) Table C-4 gives the probability and the Mann-Whitney U statistic. In addition to comparing the asbestos results to Grant Park and Highland Park, the Waukegan Outer Harbor data were compared to asbestos results for sediment taken in the Waukegan Approach Channel. It can be seen that the Waukegan Outer Harbor sediment is statistically different from the Grant Park/Highland Park beach material, as well as different from the Waukegan Approach Channel sediment. Because the Waukegan Outer Harbor sediment asbestos measurements are statistically different from the Grant Park/Highland Park results, a human health risk assessment was conducted.

The human health risk assessment was conducted assuming that the Waukegan Outer Harbor sediment would be used in an unconfined residential setting. The incremental cancer risk was calculated to be 4E-08, well below the acceptable risk limit of 1E-06. The very low amount of asbestos in the dredged material does not pose an unacceptable risk to human health, and would not preclude the use of the dredged material for beneficial re-use in a residential setting. The assumptions and calculations for the human health risk assessment are reported elsewhere (USACE Buffalo District, 2006).

Table C-3: 2006 Statistical Descriptors for Asbestos Results

	Grant Park, WI	Highland Park, IL	Waukegan Approach Channel	Waukegan Outer Harbor
# samples collected	12	12	12	12
# samples positive for Asbestos	2	1	12	4
Minimum Concentration (MF/g PM10)	0	0	1	0
Maximum Concentration (MF/g PM10)	0.97	0.97	25	3.9
Average Concentration (MF/g PM10)	0.16	0.08	6.24	0.73
95% UCL of Mean	0.63	0.43	10.19	2.39
Standard Deviation	0.38	0.28	6.46	1.32
Median	0	0	4	0

Table C-4: 2006 Mann Whitney Results

	Number of data points, set 1	Number of data points, set 2	U	p-value	Result
Grant + Highland vs. Waukegan Approach Channel	24	12	288	<0.0001	Difference is statistically significant at the 99% confidence level (2 tailed).
Grant + Highland vs. Waukegan Outer Harbor	24	12	180	0.0803	Difference is statistically significant at the 90% confidence level (2 tailed).
Waukegan Approach Channel vs. Waukegan Outer Harbor	12	12	9	<0.0001	Difference is statistically significant at the 99% confidence level (2 tailed).

References

Cali, Salvatore, Peter Scheff, Rosemary Sokas, and others, June 6, 2005, Illinois Beach State Park (IBSP): Determination of Asbestos Contamination in Beach Nourishment Sand, Interim Report of Findings, University of Illinois at Chicago.

US Army Corps of Engineers, Buffalo District, Human Health Risk Assessment Potentia, Asbestos Risks in Beneficial Use of Dredged Material from Waukegan Outer Harbor, Waukegan, Illinois, October 2006.

Appendix D
Correspondence

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 – (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 – (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

217/524-1655

February 16, 2007

Colonel John D. Drolet
Department of the Army
Corps of Engineers - Chicago District
111 North Canal Street
Chicago, Illinois 60606-7206

Re: 0971900017 – Lake County Waukegan Harbor Area of Concern
Outboard Marine Corporation NPL Site
Superfund/Technical Reports

Dear Colonel Drolet:

This is in response to your letters of November 17, 2006 and February 1, 2007 regarding the suitability of the dredge spoil (sediment) from the dredging of the Waukegan Harbor Outer Harbor as use as fill material in an upland location. I apologize for the delay in our response.

The Illinois Environmental Protection Agency (Illinois EPA) has performed the necessary assessment of chemical quality for the Waukegan Outer Harbor sediment and concurs with the findings of the human health risk assessment for asbestos that was attached to your November 17, 2006 submittal. Illinois EPA has determined that the risk assessment was developed in accordance with acceptable procedures and assumptions. There is one note of concern that was raised in our review. The assessment was only for outdoor inhalation exposures to asbestos, and it is possible that asbestos fibers could be tracked into the residences or brought in by pets or other transport mechanisms. However, even if the indoor level of asbestos in the air approached the outdoor level, the excess cancer risk estimate is still well below the 1×10^{-6} point of departure level for further analysis.

Based on the information provided in your submittal, Illinois EPA concurs that the Waukegan Harbor Outer Harbor sediment is suitable for use as fill as a non-regulated material in an upland location without a cap or cover as referenced in my March 31, 2006 letter to Colonel Gary E. Johnston (copy attached).

If you should have any questions, need any additional information or wish to discuss this matter further, please contact me or Sandra A. Bron of my staff at 217/557-3199.

Respectfully,

Clarence L. Smith, Manager
Federal Site Remediation Section
Division of Remediation Management
Bureau of Land

Attachment