Miami Ocean Dredged Material Disposal Site 2010 PCB and Copper Study

Advanced Chemical Monitoring

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2010 PCB and Copper Study

Advanced Chemical Monitoring

U.S. Environmental Protection Agency
Region 4
Water Protection Division
Coastal and Ocean Protection Section
Atlanta, GA

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1.0 Introduction

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. MPRSA, the Water Resources Development Act (WRDA) of 1992, and a Memorandum of Agreement between EPA and USACE require the joint development of site management and monitoring plans (SMMP) to specifically address the disposal of dredged material at ODMDSs. Additionally, the Memorandum of Understanding (MOU) between EPA Region 4 and the USACE South Atlantic Division specifies that it is in the best interest of the EPA and the USACE to act in partnership concerning the management and monitoring of all ODMDSs.

Management of ODMDSs involves regulating the times, the quantity, and the physical/chemical characteristics of dredged material that is dumped at the site; establishing disposal controls, conditions, and requirements to avoid and minimize potential impacts to the marine environment; and monitoring the site environs to verify that unanticipated or significant adverse effects are not occurring from past or continued use of the site and that permit terms are met.

The Miami ODMDS was designated by EPA in 1996. The center of the Miami ODMDS is located 4.7 nautical miles (nmi) offshore Miami Beach, Florida and is positioned over the upper continental slope with water depths ranging from 127 to 235 meters. The ODMDS measures 1 nmi by 1 nmi (1.85 km x 1 .85 km) square and is centered at 25^{o} 45.00’ N latitude and 80^{o} 03.37’ W longitude (see Figure 1). Dredged material has been disposed within the vicinity since 1957. Most recently, 4.4 million cubic yards of dredged material was disposed at the ODMDS from the Miami Harbor Phase II Deepening Project between 1995 and 2006. Material consisted of a mixture of sand, silt and crushed limestone.

A SMMP was developed and finalized by the EPA and USACE for the Miami ODMDS in 1995 as part of the designation process and reviewed and revised in 2008. The SMMP outlines strategies for monitoring the ODMDS and thresholds for taking action based on the results of those efforts. One of the monitoring goals is to periodically conduct trend assessment surveys of the ODMDS. The trend assessment survey consists of an evaluation of the water and sediment quality and an analysis of the benthic community. The results are reviewed for any progressive non-seasonal changes in water or sediment quality or the absence from the site of pollution sensitive biota. If changes are observed, additional monitoring and assessment is warranted.

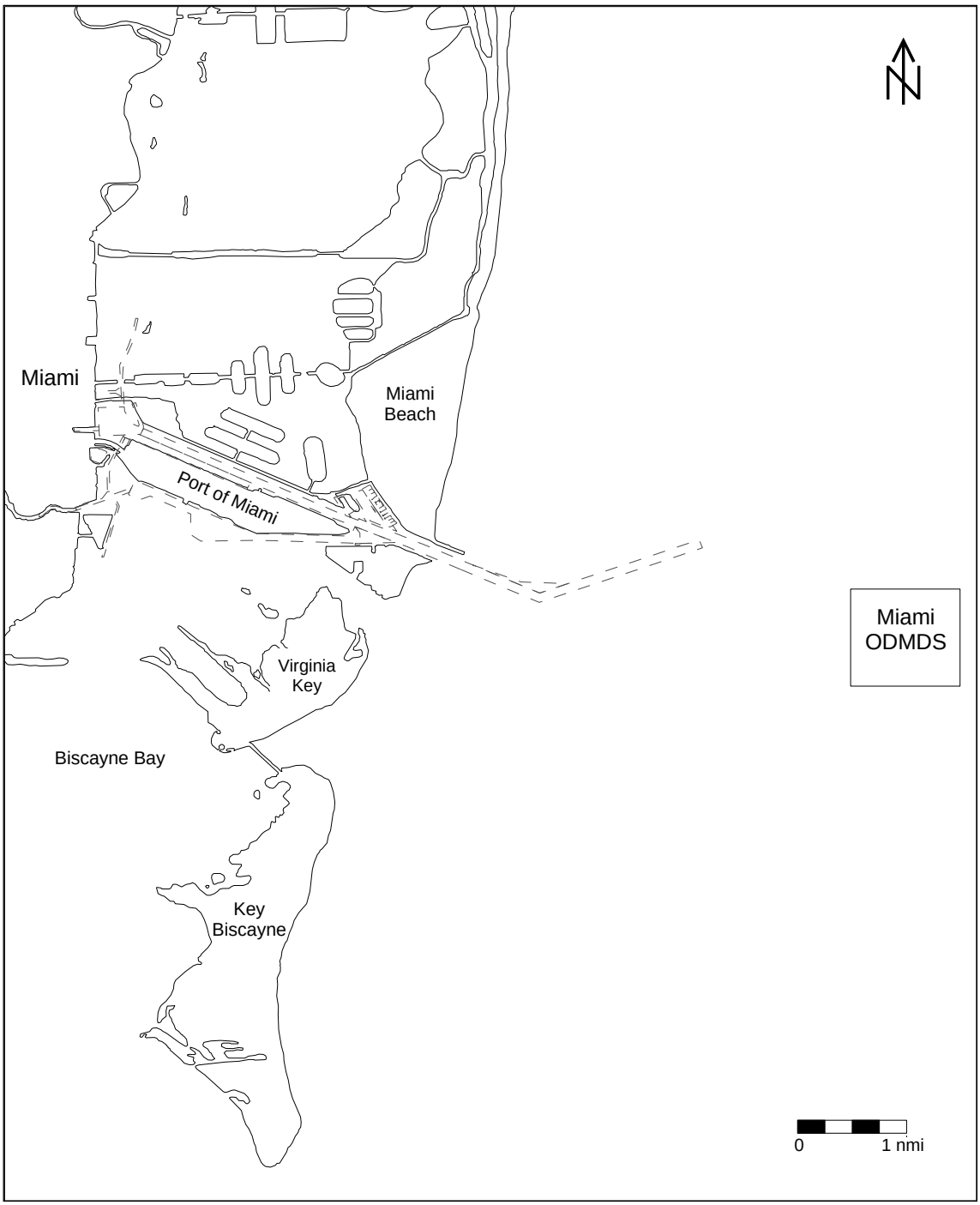

Figure 1: Miami ODMDS Location Map

Consistent with the Miami ODMDS SMMP, a trend assessment was conducted by EPA Region 4 in October 2007 (EPA, 2012). Results of the study did not show a statistically significant change in the benthic communities within the ODMDS. No changes were observed in the water quality at the site. However, changes were observed in the chemical characteristics of the sediments. The sediments had

elevated levels of copper, lead and PCBs. Concentrations were higher inside the site than out and higher than concentrations observed in the dredged material when it was tested prior to disposal. In addition, concentrations were in excess of NOAA sediment screening guidelines used to screen for substances that may threaten natural resources (Buchman, 2008). Results are summarized in Table 1 below and in Figures 2 and 3.

Table 1: Miami ODMDS 2007 Trend Assessment Sediment Chemistry Results

Contaminant	Concentration outside the ODMDS (ppm)	Concentration within the ODMDS (ppm)	Screening Level* (ppm)	Probability of Effect from Highest Observed Concentration**
Copper	Mean: 20.5 Range: 1.3-24	Mean: 6.5 Range: 3.3-49	TEL:18.7 ERL:34.0 PEL:108 ERM: 270	29%
Lead	Mean: 3.8 Range: 1.7-9	Mean: 17.5 Range: 2.7-34	TEL:20.2 ERL:46.7 PEL:112 ERM: 218	26%
Total PCBs	Mean: 5.0 Range: 0.8-21.0	Mean: 62.4 Range: 3.6-163	TEL:21.6 ERL:22.7 PEL:189 ERM: 180	41%

*Effects Range-Low (ERL) / Threshold Effects Levels (TELs): Concentrations below which adverse effects rarely occur.
Effects Range-Median (ERM) / Probable Effects Level (PEL): Concentrations above which effects frequently occur.
** from NOAA, 1999.

The ERL/ERM screening levels values were originally calculated to provide a means for interpreting monitoring data collected under the NOAA National Status and Trends Program. For copper, the percent incidence of adverse effects for concentrations between the ERL and the ERM was 29%. For concentrations above the ERM, the percent incidence of adverse effects is 84%. For PCBs, the percent incidence of effects for concentrations between the ERL and the ERM was 41%. For concentrations above the ERM, the percent incidence of effects is 51%. (NOAA, 1999)

TELs and PELs were originally developed for Florida coastal waters. For copper, the percent incidence of adverse effects for concentrations between the PEL and the TEL was 22%. For concentrations above the PEL, the percent incidence of adverse effects is 56%. For lead, the percent incidence of adverse effects for concentrations between the PEL and the TEL was 26%. For PCBs, the percent incidence of effects for concentrations between the PEL and the TEL was 37%. For concentrations above the TEL, the percent incidence of effects is 55%. (MacDonald et. al, 1996)

Based on the elevated concentration of these contaminants and the moderate probability of adverse biological effects, further studies were warranted to characterize the magnitude and distribution of the contamination within and around the Miami ODMDS.

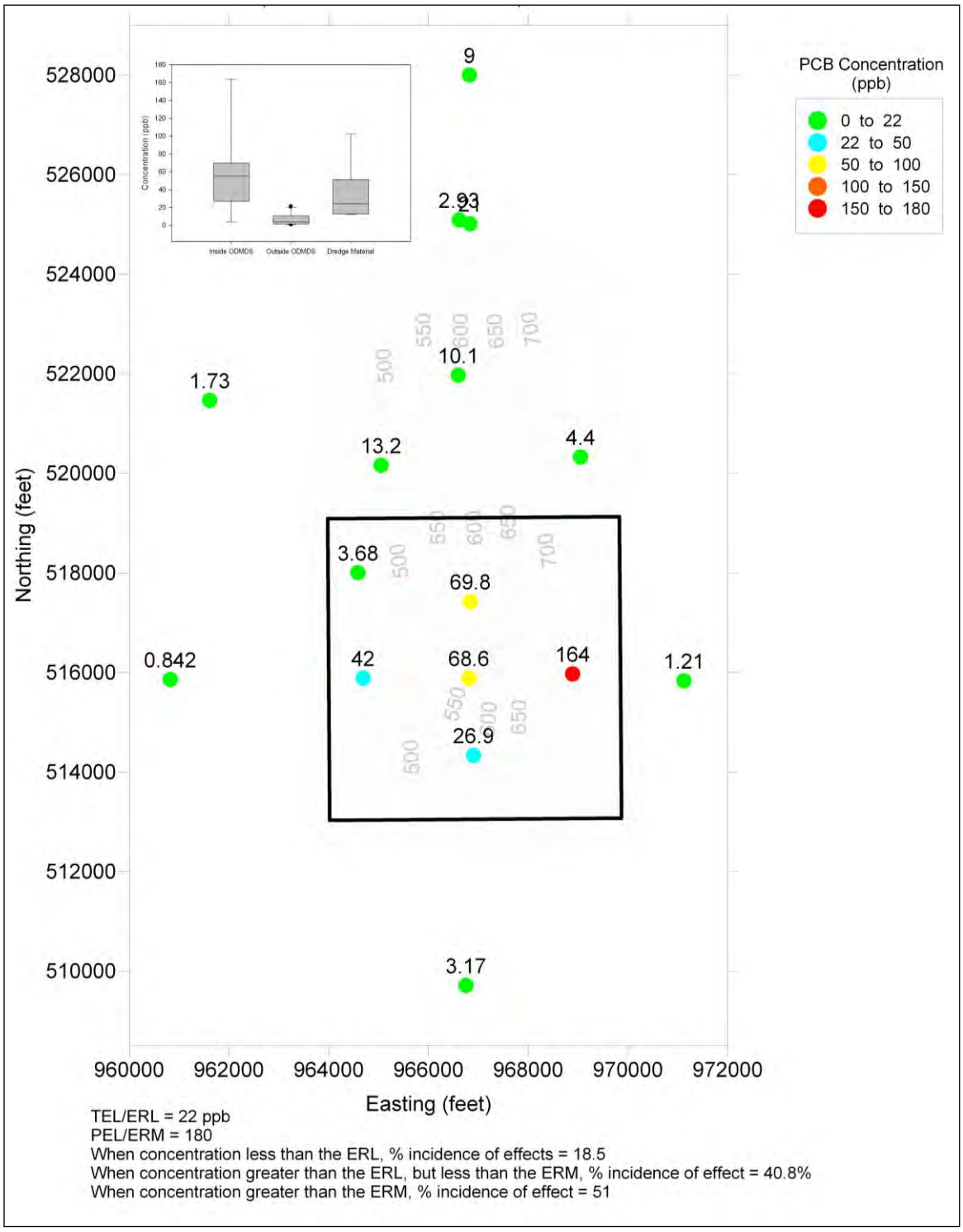

Figure 2: Total PCBs (NOAA Summation) at the Miami ODMDS from the 2007 Trend Assessment Survey

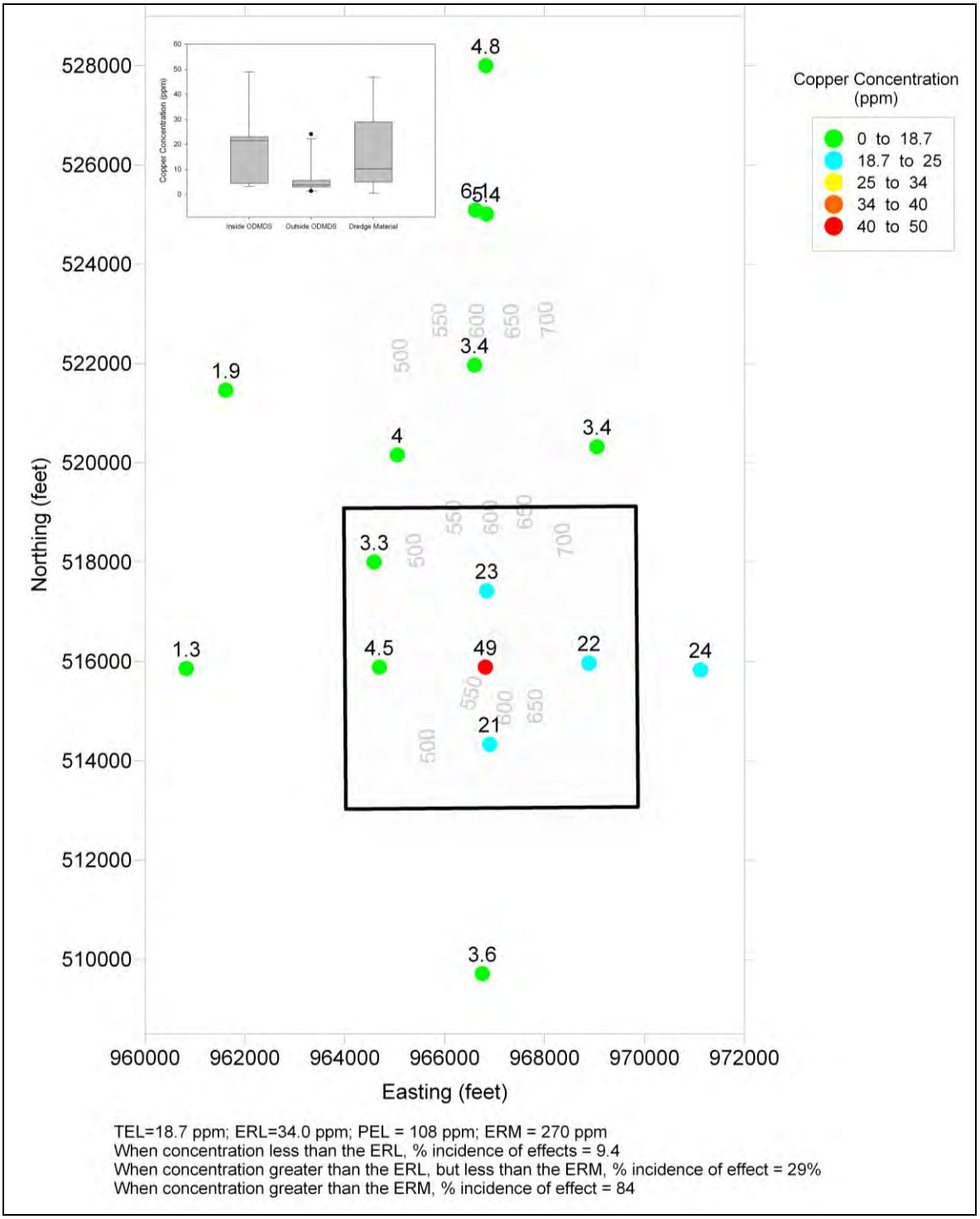

Figure 3: Copper Concentrations at the Miami ODMDS from the 2007 Trend Assessment Survey

2.0 Methods

2.1 Sediment Sampling

In order to map the concentrations of PCBs and metals within the sediments at the Miami ODMDS, sediment samples were collected from 30 stations within the ODMDS plus an additional 10 stations to the north and east of the ODMDS within the extended impact zone (Germano, 2006) and where elevated contaminant concentrations were observed (EPA, 2012). All samples were systematically selected using the EPA/DOE program, Visual Sample Plan (PNNL, 2007), to maximize the likelihood of delineating a contaminant footprint. Sediments were collected using a stainless steel Deep Ocean Van Veen grab sampler from the EPA Ocean Survey Vessel (OSV) *Bold* (see figure 4). The Deep Ocean Van Veen has a surface area of 0.18m^2 and a sampling depth of 30cm. Sediments were collected from the top 5-10 cm from the center of the grab sampler with a stainless steel spoon to minimize contact of the sample with the grab sampler. The position of the sample was recorded when the grab reached the seafloor utilizing Hypack software. Sampling was conducted from April 21, 2010 to April 22, 2010. Samples were homogenized and placed in two 237-ml pre-cleaned glass jars with Teflon lid liners. The jars of sediment were labeled and stored at approximately 4^{o}C in a refrigerator on board the OSV Bold. All samples were collected and processed on board the OSV Bold by ANAMAR Environmental Consulting, a contractor to the USACE Jacksonville District. Sample coordinates and descriptions are presented in Appendix A.

At the end of the survey, sediment samples were shipped via FedEx to Northeast Analytical (NEA) for analysis of total organic carbon (TOC), metals, and PCB congeners. Analytes and analytical methods are presented in Appendix B.

2.2 Tissue Sampling

A secondary objective of the sampling effort was to test the feasibility of collecting epibenthic organisms for tissue analysis to examine the bioaccumulation of the PCBs in future monitoring efforts. Shellfish and fishes were collected in a 7.3 m wide otter trawl having a stretch mesh size of 14 mm in the bag end, supplied by the OSV *Bold* (see figure 5). Each sample consisted of 5 to 15 minute tows at a speed over ground of between 1.7 knots and 1.8 knots. This provided a sampling area of approximately 11,110 m^2. Spatial coordinates were recorded at the beginning and at the end of each tow, along with the direction of travel, water depth, and tide sequence. Most tows were generally conducted against the prevailing current (i.e., the Florida Current), from north to south, to maximize trawl performance and ship maneuverability. Upon completion of each tow, specimens were carefully and thoroughly removed from the trawl net and bag, taking care not to overlook any still contained in the net (to avoid cross-contamination between samples). Individual organisms were taxonomically identified and sorted and later verified at the lab using taxonomic keys along with the consultation of taxonomists (ANAMAR, 2010). Individuals identified for tissue analysis were retained on ice for later tissue extraction. Trawl locations are provided in Appendix C.

Figure 4: Deep Ocean Van Veen

Figure 5: Otter Trawl

Taxa were selected for tissue analysis based on their known life history traits, availability, and degree of site specificity. In order to represent localized bioaccumulation within the Miami ODMDS, selected candidate taxa were non-migratory, thought to have relatively small home ranges, benthic to epibenthic most of their lives, and regularly appeared in trawl catches. Taxa selected for tissue sampling during this study consisted of Jonah crabs (*Cancer* spp.), spiny crabs (*Rochinia* sp.), Gulf Stream flounder (*Citharichthys arctifrons*), and larger members of the scorpionfish family (Scorpaenidae). Photographs of the selected taxa are presented in figure 6. Three additional taxa, the spider crab genus *Nibilia*, the rosette skate (*Leucoraja garmani*), and the hake genus *Urophycis* were deemed suitable but were either not collected (in the case of *Nibilia* sp.) or sufficient numbers were not available to facilitate tissue sampling.

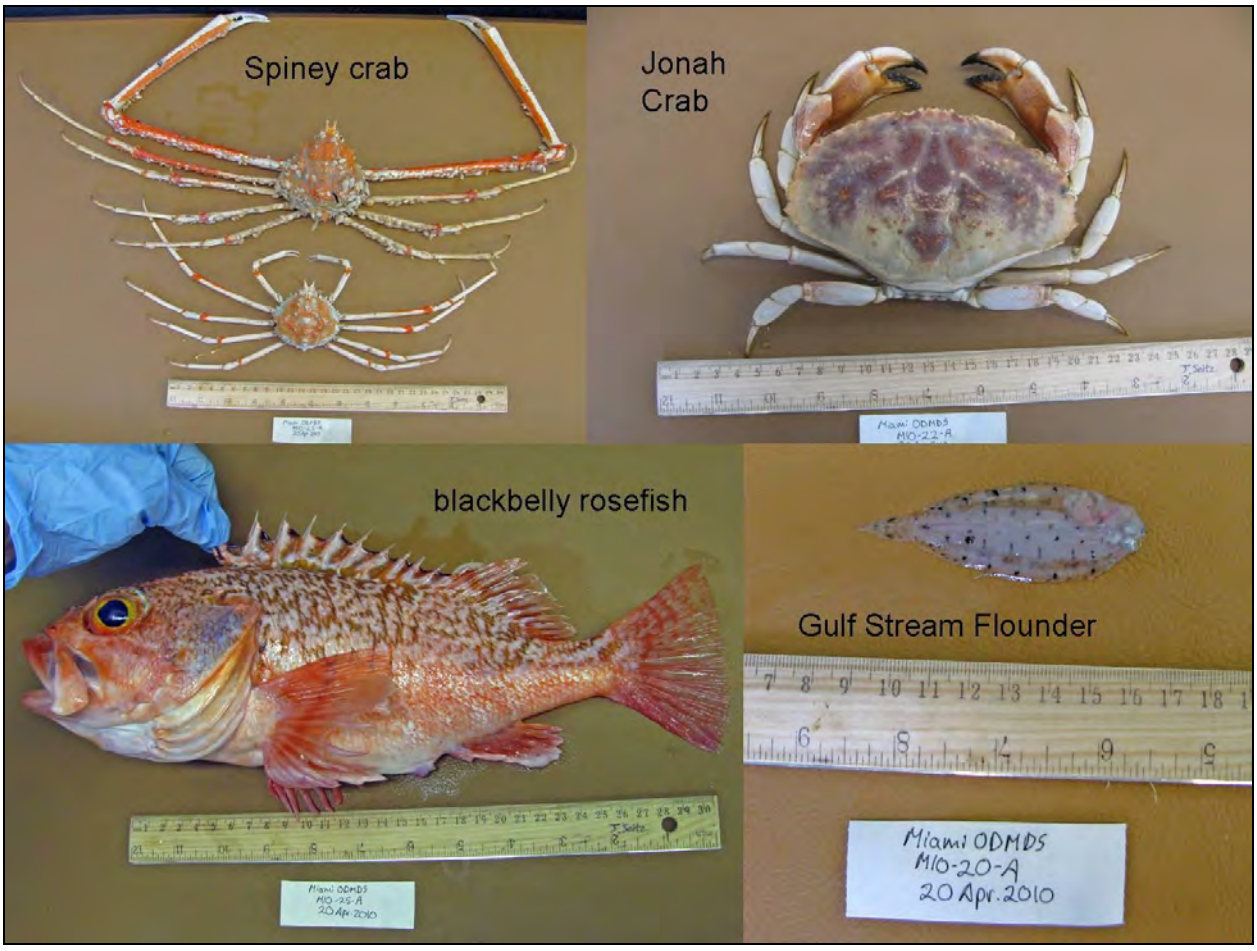

Figure 6: Examples of Taxa used for Tissue Sampling

All taxonomic identification and tissue sample processing was coordinated by ANAMAR Environmental Consulting. Cleaned and decontaminated stainless steel fillet knives and forceps were used to extract muscle tissues during sample extraction while on the OSV *Bold*. Equipment contacting tissue samples were first cleaned and decontaminated. Tissue sample methods and materials followed the guidance of Pequegnat et al. (1990), but differed in terms of the mass needed for analysis and by the use of Teflon® material in partial replacement of aluminum foil. Efforts were made to extract as much muscle tissue as possible from each sampled individual in an effort to allow for laboratory splitting of samples and/or archiving of extra tissues for later use. The minimum amount required by Northeast Analytical, Inc. was 10 grams per sample, but the preferred amount was ≥25 grams. Muscle tissues from multiple individuals of a given species and trawl attempts were often combined to allow adequate mass of tissue for PCB and metal analysis (see Table 2). Upon extraction of tissues, each sample was wrapped in a portion of pre-cleaned Teflon® bag and then wrapped in clean aluminum foil. The wrapped sample was then double-bagged in Ziploc® bags with attached labels and stored frozen onboard the ship. The temperature within the freezer was monitored using a thermometer and recorded on a temperature log. At the end of the survey, tissue samples were shipped via FedEx to NEA for analysis of percent lipids, metals, and PCB congeners. Analytes and analytical methods are presented in Appendix B.

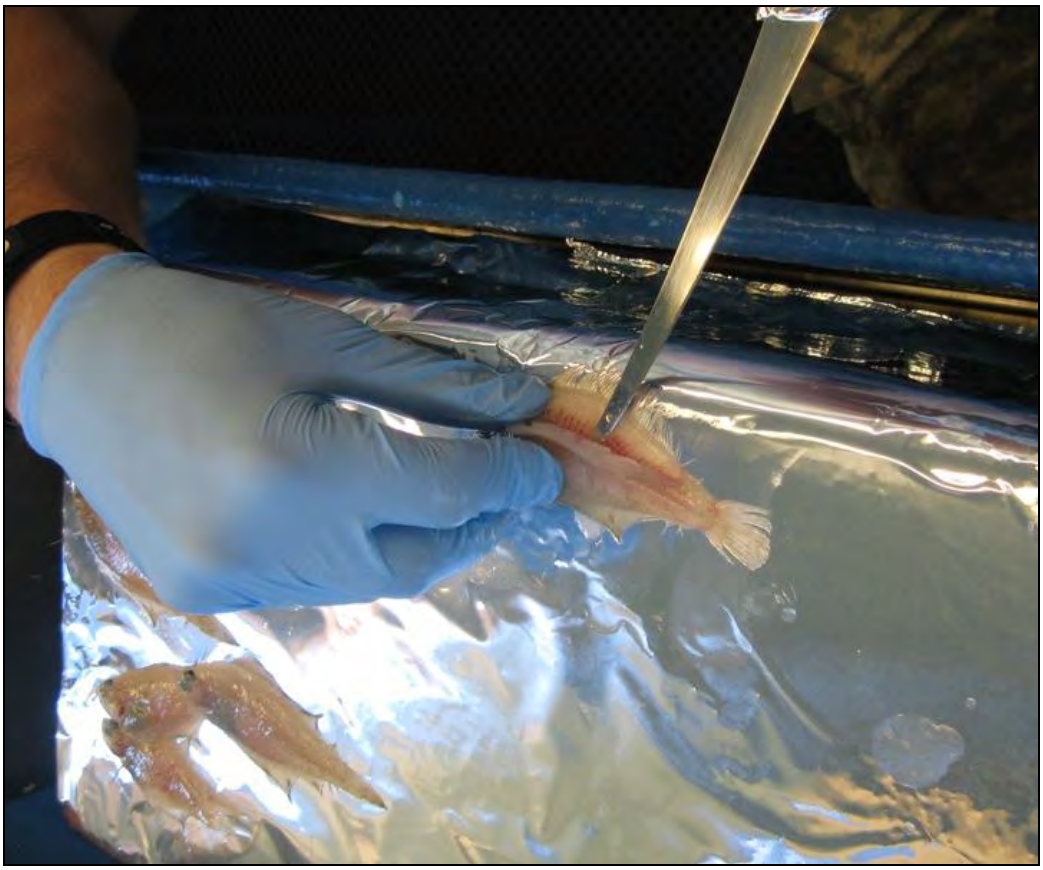

Figure 7: Filleting Gulfstream Flounder

Table 2: Summary of Invertebrates and Fishes Sampled for Tissue Analysis

Tissue Sample Number	Taxon Sampled	Number of Specimens Used in Sample	Estimated Tissue Wet Weight (grams)	Tow Number (Station Number)
MT10-01&07	*Citharichthys arctifrons* (Gulf Stream flounder)	29	65	M10-08-B M10-22-A
MT10-02&05	*Cancer borealis* (Jonah crab)	2	60	M10-08-A M10-22-A
MT10-03&04	*Rochinia* cf. *crassa* (spiny crab)	8	85	M10-08-A M10-22-A
MT10-06	*Helicolenus dactylopterus* (blackbelly rosefish)	1	200	M10-25-A

2.3 Sediment Chemistry Data Analysis

Total PCB concentration was calculated using two methods consistent with EPA Region 4 guidance (EPA, 2008). The first method included a summation of all 26 PCB congeners analyzed (see Appendix B). The second method included a summation of 18 congeners identified by NOAA (1989) to approximate aroclor mixtures. Estimated values (J-flag) were used in the summation, but non-detected congeners were not in order to minimize the effect of the elevated detection limits. PCB concentrations were also normalized to total organic carbon as the concentration of organic contaminants and the toxicity of these contaminants in sediments have been observed to correlate well with the organic carbon content of sediments (Michelsen, 1992).

Toxicity of sediments has been shown to increase coincidently with increases in both the number of sediment quality guidelines exceeded and with the chemical concentrations of the mixtures of substances in the bulk sediments. To account for the mixtures, mean ERM and mean PEL quotients can be derived as the average of the ratios between the chemical concentrations in the sediments and the respective ERM or PEL values (Long & MacDonald, 1998). Hyland et. al, (1999) proposed a combined mean ERM/PEL quotient to include more analytes. This method was used in this analysis to show areas with the greatest likelihood of adverse environmental effects.

Total PCBs, Copper and mean SQG quotient were analyzed, gridded and plotted with the Surfer® grid based graphics program utilizing kriging. Kriging is a geostatistical gridding method that makes predictions based upon a weighted mean of sample values. The linear variogram model was used with default parameters. A grid spacing of approximately 100 feet was used.

3.0 Results

3.1 Sediments

Sediment chemistry results are provided in Appendix D. Copper concentrations ranged from less than 2 ppm to 56.8 ppm near the center of the ODMDS. Copper concentrations were also elevated west of the ODMDS boundaries. The distribution of copper concentrations is shown in figure 8. Figures 9 and 10 show the Total PCBs concentration using the NOAA and EPA Region 4 summation techniques, respectively. Yellow areas represent areas with concentrations greater than the TEL and ERL. Orange areas represent areas with concentrations greater than the PEL and ERM. For the Region 4 summation, the total area above the TEL/ERL is 890 acres (3.6 km^2) or 51% of the survey area. The total area above the PEL/ERM is 60 acres (0.24 km2) or 36% of the survey area. There does not appear to be any single congener contributing to the elevated PCB concentrations. Organic carbon normalized PCB results are presented in figure 11 showing where PCBs are most highly bioavailable. Results of the sediment quality guideline quotient calculations are shown in figure 12. The total area above the level indicative of a high risk of benthic impacts is 324 acres (1.3 km2) or 19% of the survey area.

Table 3: Summary of Sediment Impacted by Elevated Copper and PCBs.

Criteria	Total Area (acres/km^2)
Above ERL for Copper	531/2.2
Above ERL for Total R4 PCBs	890/3.6
Above ERM for Total R4 PCBs	60/0.25
High Risk of benthic impacts	324/1.3
Moderate Probability of sediment toxicity	161/0.65

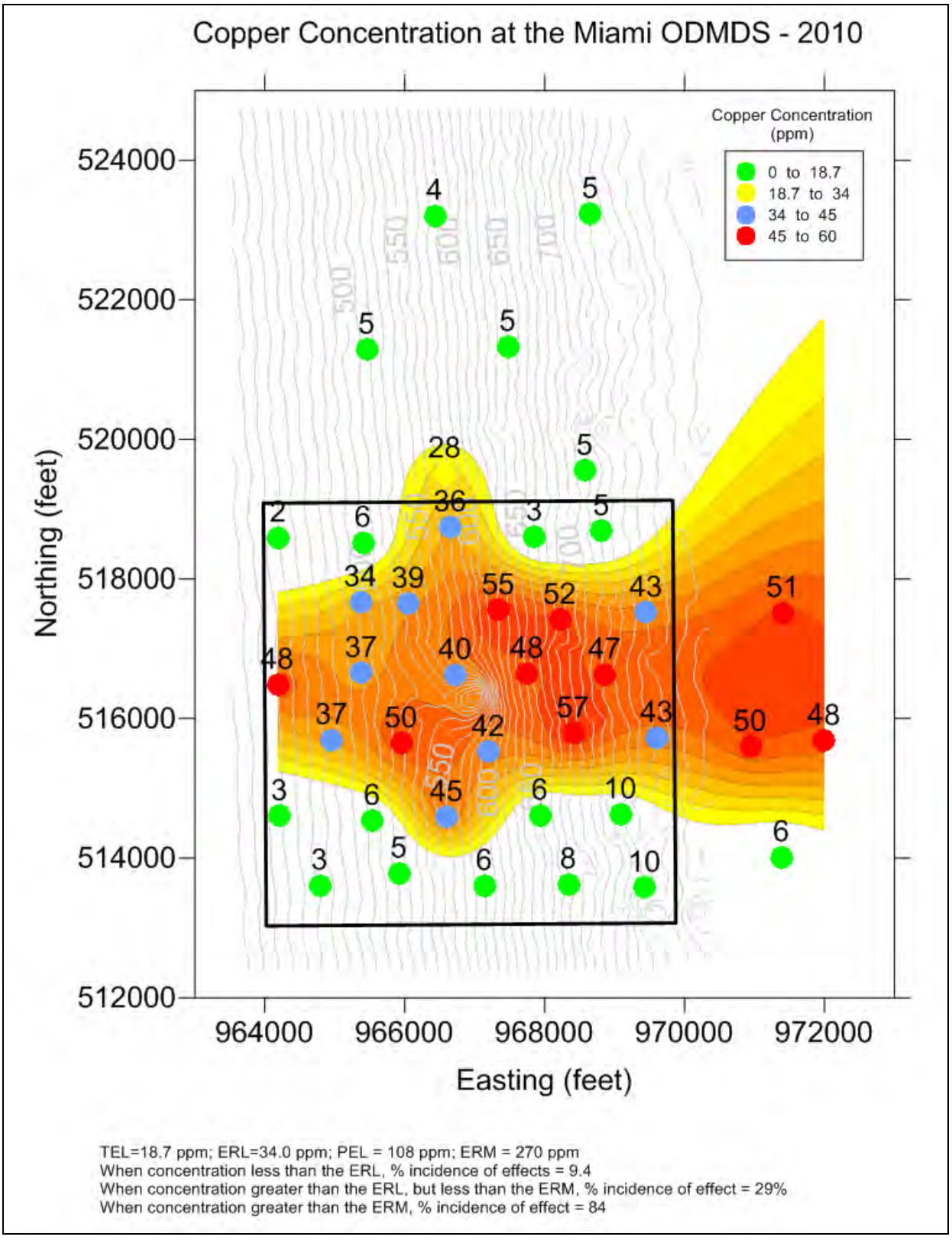

Figure 8: 2010 Copper Concentrations at the Miami ODMDS

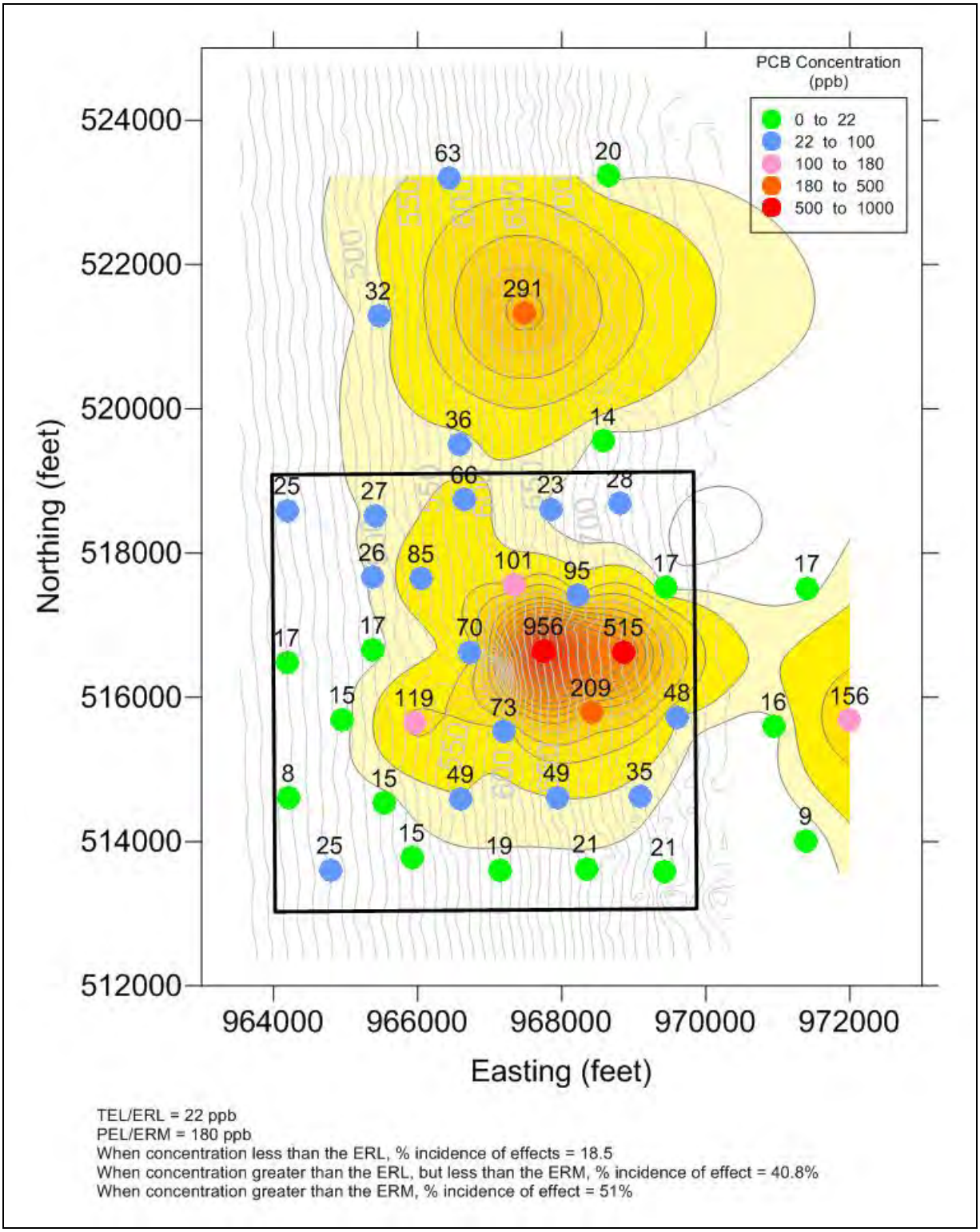

Figure 9: 2010 PCBs (NOAA Summation) Concentration at the Miami ODMDS

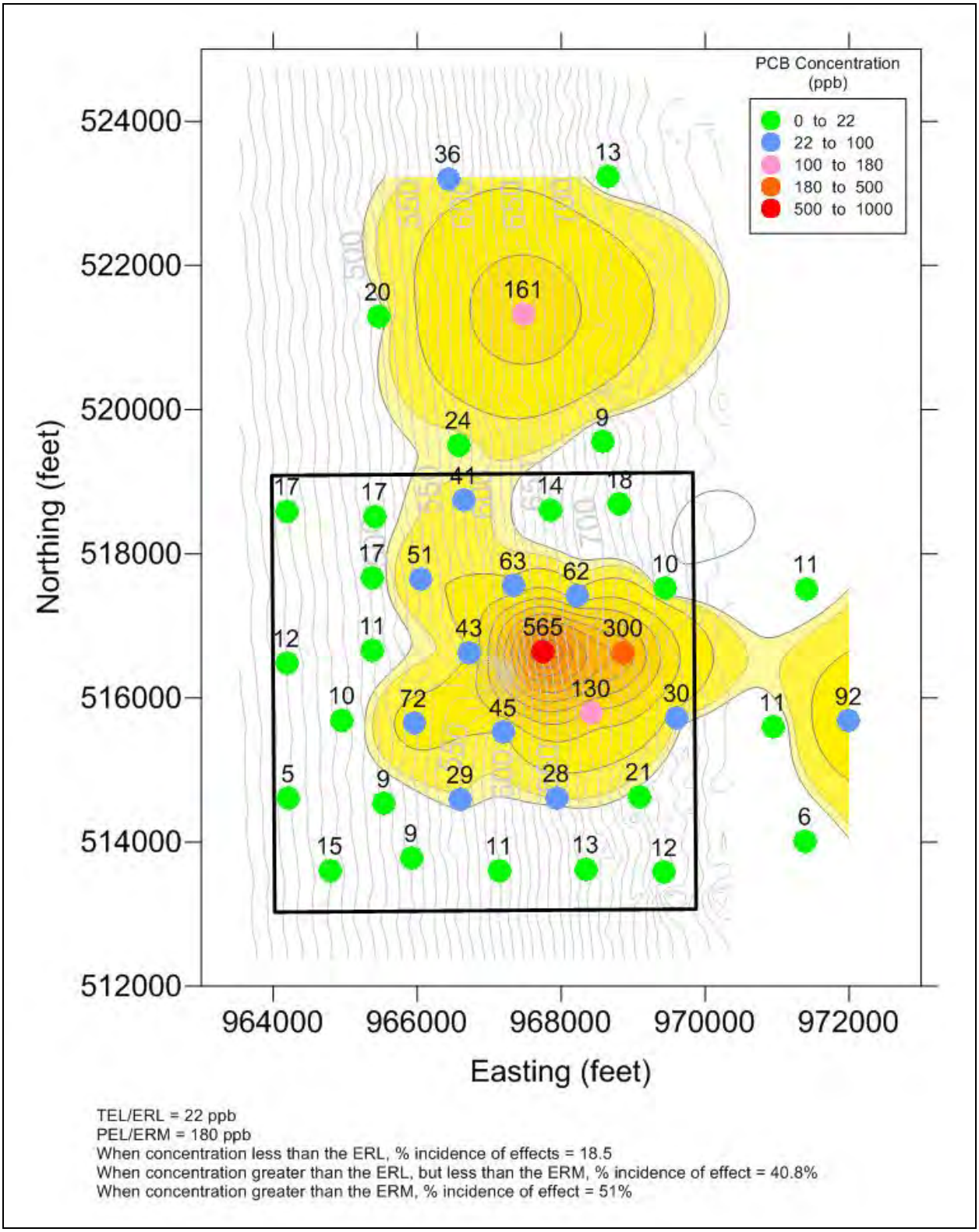

Figure 10: 2010 PCBs (Region 4 Total) Concentration at the Miami ODMDS

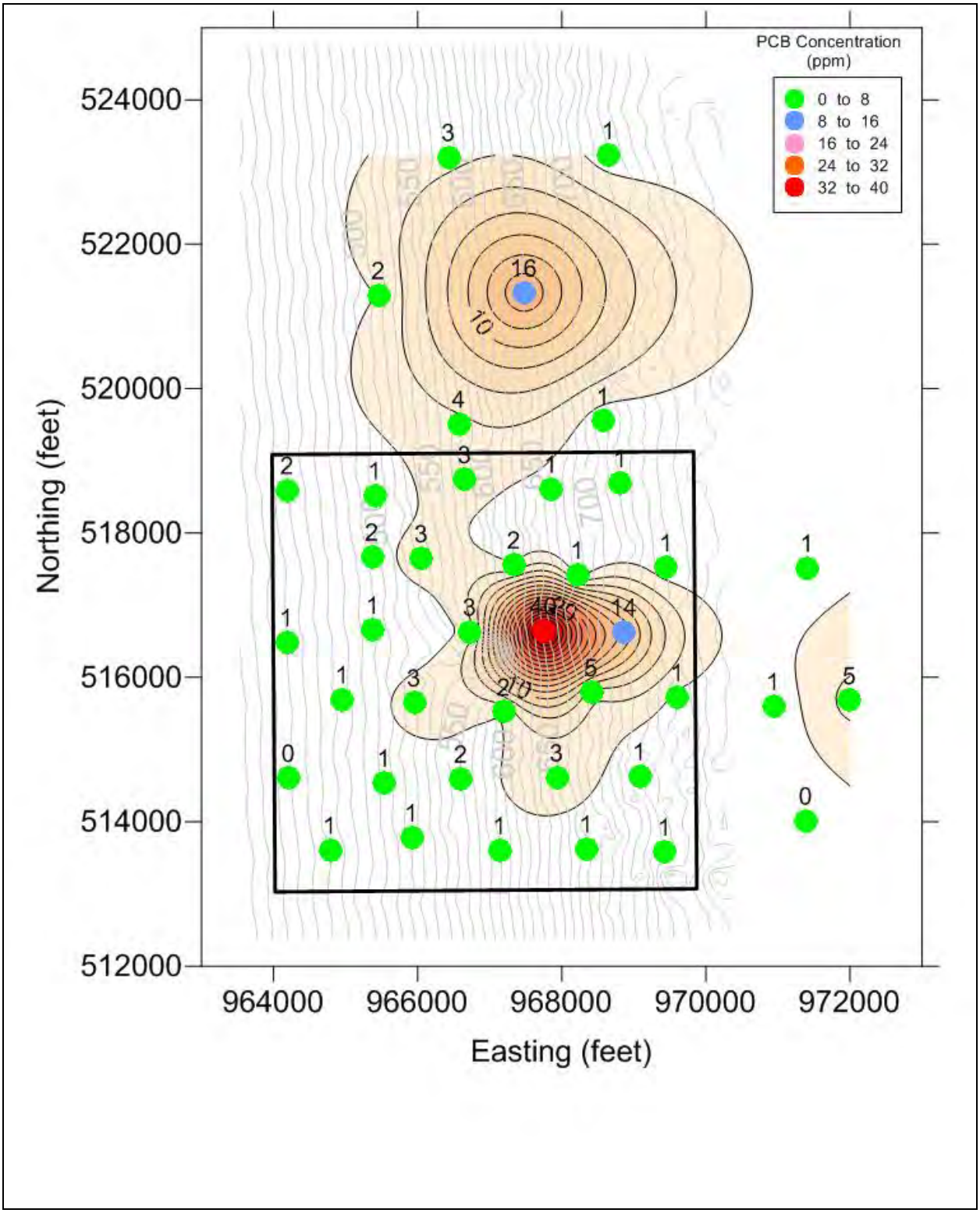

Figure 11: 2010 Total Organic Carbon Normalized Total PCBs (Region 4 Total) at the Miami ODMDS

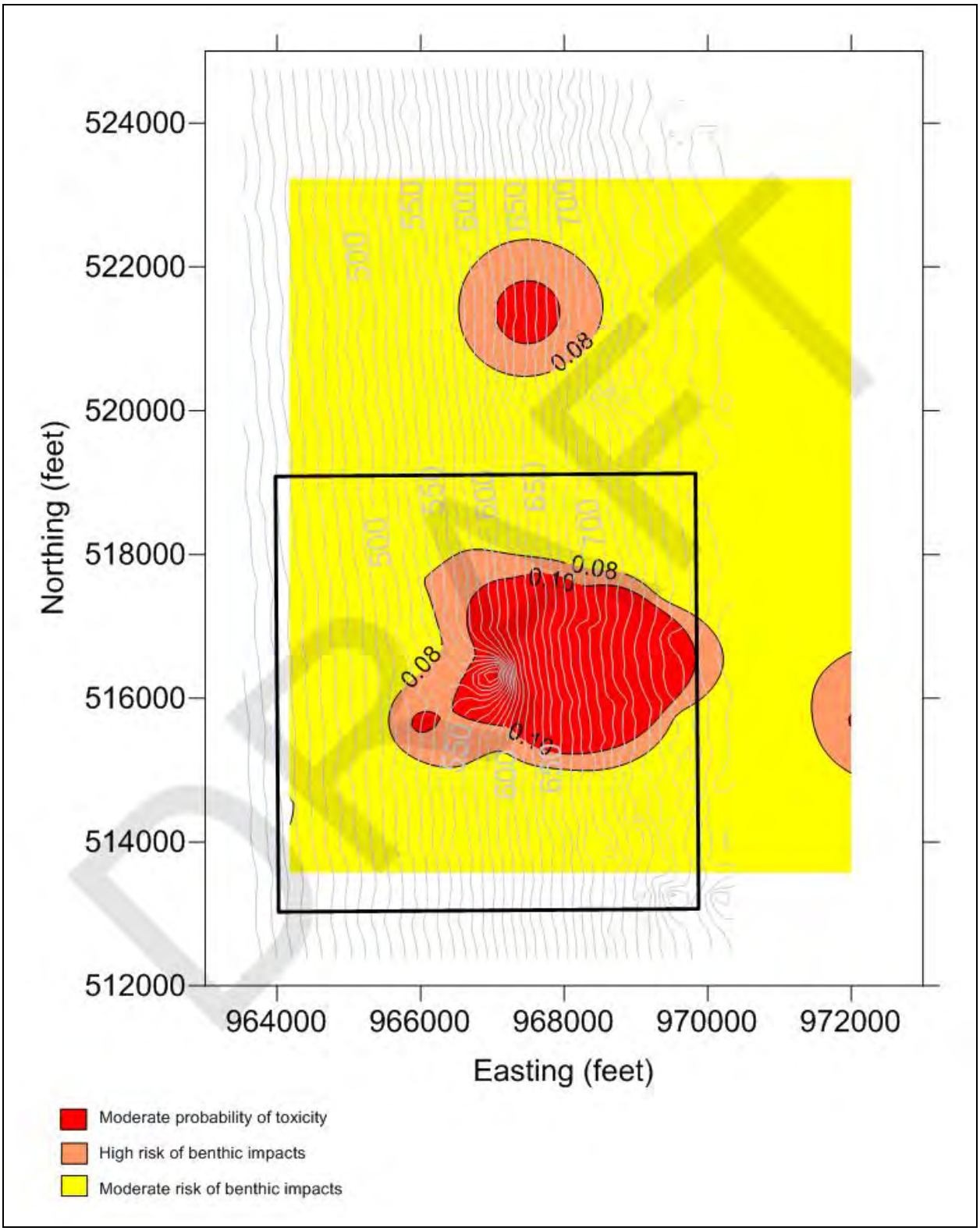

Figure 12: 2010 Mean Sediment Quality Guideline Quotient at the Miami ODMDS

3.2 Tissues

Tissue chemistry results are presented in Appendix E. Copper ranged from below reporting limits to 7.83 mg/kg. PCB congeners were below reporting limits for all samples except for congener 153 (1.29µg/kg) in the Spiny Crab. Results are summarized in table 4.

Table 4: Summary of Tissue Chemistry Results

Tissue Sample Number	Taxon Sampled	Copper Concentration (mg/kg)	Total Region 4 PCB Concentration (µg/kg)
MT10-01&07	*Citharichthys arctifrons* (Gulf Stream flounder)	<0.93	16.25*
MT10-02&05	*Cancer borealis* (Jonah crab)	7.83	16.02
MT10-03&04	*Rochinia cf. crassa* (spiny crab)	4.94	16.16
MT10-06	*Helicolenus dactylopterus* (blackbelly rosefish)	<1.00	16.29

*no PCB congeners detected. MDLs were used in the summation when a congener was not detected.

For comparison, EPA recently conducted tissue sampling at the Port Everglades ODMDS offshore Fort Lauderdale, Florida (ANAMAR, 2012). Copper tissue levels at and near the Port Everglades Harbor ODMDS were measured at 7.6 to 13.6 mg/kg for Jonah crab and 0.15 to 0.22 mg/kg for fish (spotted hake). Copper results from the Miami ODMDS study are not significantly higher than those offshore Fort Lauderdale, Florida. For PCBs, a comparison of PCB congener 153 shows higher concentrations at the Miami ODMDS. Congener 153 was measured at below reporting limits to 0.17 µg/kg in Jonah crab offshore Fort Lauderdale, Florida, which is lower than the below reporting limits to 1.29 µg/kg found in this study. A direct comparison of total PCBs is difficult due to the high number of non detected congeners and difference in reporting limits of the two studies.

Additionally, results for PCBs were compared to human health and wildlife criteria. Total PCBs were two orders of magnitude less than the U.S. Food and Drug Administration's tolerance level of 2 ppm for human seafood consumption (FDA, 1991) and one order of magnitude less than the 0.13 ppm criterion for the protection of wildlife that are fish consumers (Newell, 1987).

4.0 Quality Control

All sediment samples were found to have a hydrocarbon matrix interference. As a result, the laboratory reporting limits were elevated. Additionally, as a result of the matrix interference, the PCB Matrix Spike Samples and Matrix Spike Duplicate Samples were outside the quality control acceptance limits. Further investigation revealed that the sediment samples were likely contaminated by cable grease (DynaLube®) on the OSV *Bold* cable. The DynaLube was analyzed by NEA and found to be the contaminant present in the sediment samples (Appendix F). Three archived samples were also analyzed by the EPA Region 4 laboratory to confirm the matrix interference. The Region 4 laboratory found that the samples contained a number of large unidentified peaks, which caused interference with some of the PCB

congeners and raised the reporting limits (Appendix G). A comparison of the NEA and EPA Region 4 laboratory results are presented in table 5.

Table 5: Comparison of NEA and EPA Region 4 PCB Results (Total EPA Region 4 PCBs)

Sample	NEA	EPA Region 4 Laboratory
MT10-01	15.0	18.12
MT10-18	43.35	12.50
MT10-36	8.60	9.60

Two field splits were collected and analyzed. Results are compared in table 6.

Table 6: Comparison of Field Split Results

Analysis	Split 1		Split 2	
	M10-23	M10-42	M10-37	M10-41
PCB Congener #180 (µg/kg)	3.37	2.63	3.04	<1.91
Total Region 4 PCBs (µg/kg)	71.0	56.0	31.2	26.8
Copper	55.1	51.7	4.5	33.8
Total Organic Carbon	31000	22000	9500	8800
Percent Moisture	55.1	51.7	40.6	37.3

5.0 Recommendations

The monitoring activities to date have followed the recommended actions in the Miami ODMDS 2008 SMMP. The 2007 Trend Assessment Study indicated a non-seasonal change in sediment quality at the ODMDS thereby necessitating the need for additional chemical monitoring (this study). The chemical monitoring has indicated that PCBs and Copper are elevated as defined in the SMMP. Therefore additional monitoring is warranted. Pursuant to the SMMP, the site should be assessed to determine if it is a source of adverse bioaccumulation or sublethal changes in benthic organisms, which may endanger the marine environment. As a significant quantity of dredged material will be disposed at the ODMDS as part of the Miami Harbor Phase III Deepening Project, resulting in a substantial change in the benthic characteristics, it is recommended that that a follow-up chemical study be conducted following completion of the deepening project. A Sediment Profile Imaging Study should also be conducted to determine the footprint of the deepening project's disposal mound. This follow-up study should include the ODMDS, the mound footprint and an expanded area to the north and east of the previous survey area to attempt to further delineate the scope of the elevated copper and PCB levels. In the meantime, a risk assessment will be conducted using the Bioaccumulation Risk Assessment Modeling System (BRAMS). BRAMS is an executable program that can be used to calculate, with inputs provided by users, potential human health and ecological risks due to bioaccumulation of sediment-associated contaminants (ERDC, 2012). Due to the difficulties in collecting fish tissue samples, additional fish tissue sampling is not recommended at this time.

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APPENDIX A

Sediment Sample Locations and Descriptions

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Sediment Sampling Stations and Sample Characteristics

Station Number	Latitude	Longitude	Depth (m)	Sediment Texture	Sediment Color (after homogenization)	Further Notes
M10-01	25 44.617' N	80 3.745' W	135	V. FINE SAND	GREENISH GRAY	SOMEWHAT PLASTIC
M10-02	25 44.644' N	80 3.539' W	153	V. FINE SAND	LIGHT GRAY	
M10-03	25 44.614' N	80 3.316' W	179	V. FINE SAND	LIGHT GRAY	STRONG H_2S ODOR
M10-04	25 44.616' N	80 3.097' W	205	SLIGHT CLAY	LIGHT GRAY	SLIGHT ODOR
M10-05	25 44.607' N	80 2.899' W	226	SILT/CLAY	GREENISH GRAY	
M10-06	25 44.782' N	80 3.849' W	130	FINE SAND	LIGHT GRAY	
M10-07	25 44.769' N	80 3.607' W	150	FINE SAND	LIGHT GRAY	
M10-08	25 44.777' N	80 3.413' W	169	V. FINE SAND	GREENISH GRAY	
M10-09	25 44.779' N	80 3.17' W	198	FINE SAND	LIGHT GRAY	
M10-10	25 44.781' N	80 2.961' W	222	V. FINE SAND	LIGHT GRAY	
M10-11	25 44.961' N	80 3.712' W	141	SILT/CLAY	GREENISH GRAY	
M10-12	25 44.952' N	80 3.531' W	158	SILT/CLAY	LIGHT GRAY	
M10-13	25 44.93' N	80 3.303' W	183	FINE SAND	LIGHT GRAY	
M10-14	25 44.973' N	80 3.082' W	208	SILT/CLAY	LIGHT GRAY	
M10-15	25 44.961' N	80 2.864' W	230	FINE SAND	LIGHT GRAY	
M10-16	25 45.093' N	80 3.851' W	131	SILT/CLAY	LIGHT GRAY	
M10-17	25 45.119' N	80 3.633' W	149	FINE SAND	LIGHT GRAY	
M10-18	25 45.113' N	80 3.388' W	165	FINE SAND	LIGHT GRAY	
M10-19	25 45.115' N	80 3.201' W	193	MED SAND	OLIVE GRAY	
M10-20	25 45.111' N	80 2.998' W	218	V. FINE SAND	LIGHT GRAY	
M10-21	2545.287' N	80 3.634' W	152	FINE SAND	LIGHT GRAY	
M10-22	25 45.282' N	80 3.509' W	164	FINE SAND	LIGHT GRAY	
M10-23	25 45.266' N	80 3.275' W	186	V. FINE SAND	LIGHT GRAY	FIELD SPLIT: M10-42
M10-24	25 45.242' N	80 3.114' W	212	V. FINE SAND	LIGHT GRAY	
M10-25	25 45.257' N	80 2.89' W	232	V. FINE SAND	LIGHT GRAY	
M10-26	25 45.423' N	80 3.858' W	130	FINE SAND	LIGHT GRAY	
M10-26R	25 45.44' N	80 3.847' W	134	MED. SAND	LIGHT GRAY	RE-SAMPLED
M10-27	25 45.428' N	80 3.626' W	150	V. FINE SAND	LIGHT GRAY	
M10-28	25 45.462' N	80 3.398' W	174	FINE SAND	LIGHT GRAY	
M10-29	25 45.439' N	80 3.18' W	200	V FINE SAND	LIGHT GRAY	NO ODOR, CHUNKS OF LIMESTONE
M10-30	25 45.451' N	80 3.004' W	222	V. FINE SAND	LIGHT GRAY	TUBE WORMS AND SMALL ROCKS
M10-31	25 44.676' N	80 2.541' W	245	V. FINE SAND	LIGHT GRAY	
M10-32	25 44.938' N	80 2.621' W	243	SILT/CLAY	GREENISH GRAY	NO ODOR
M10-33	2545.254' N	802.533' W	246	V. FINE SAND	LIGHT GRAY	*MUNIDA* SP., NO ODOR
M10-34	25 44.95' N	80 2.428' W	248	FINE SAND	GREENISH GRAY	NO ODOR
M10-35	25 45.589' N	80 3.412' W	175	FINE SAND	OLIVE GRAY	
M10-36	25 45.594' N	80 3.047' W	218	V. FINE SAND	LIGHT GRAY	
M10-37	25 45.884' N	80 3.613' W	156	V.FINE SAND	LIGHT GRAY	FIELD SPLIT: M10-41
M10-38	25 45.888' N	80 3.245' W	198	V. FINE SAND	LIGHT GRAY	
M10-39	25 46.199' N	80 3.433' W	179	V. FINE SAND	LIGHT GRAY	
M10-40	25 46.201' N	80 3.028' W	225	SILT/CLAY	LIGHT GRAY	

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APPENDIX B

Analytes, Methods and Detection Limits

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Analytes and Analytical Methods

PCB Congener	Congener Number	Matrix	Method
2,4' diCB	8	Sediments/Tissue	SW-846 Method 8082
2,2',5 triCB	18	Sediments/Tissue	SW-846 Method 8082
2,4,4' triCB	28	Sediments/Tissue	SW-846 Method 8082
2,2',3,5' tetraCB	44	Sediments/Tissue	SW-846 Method 8082
2,2',4',5 tetraCB	49	Sediments/Tissue	SW-846 Method 8082
2,2'5,5' tetraCB	52	Sediments/Tissue	SW-846 Method 8082
2,3',4,4' tetraCB	66	Sediments/Tissue	SW-846 Method 8082
3,3',4,4' tetraCB	77	Sediments/Tissue	SW-846 Method 8082
2,2',3,4,5' pentaCB	87	Sediments/Tissue	SW-846 Method 8082
2,2',4,5,5' pentaCB	101	Sediments/Tissue	SW-846 Method 8082
2,3,3'4,4' pentaCB	105	Sediments/Tissue	SW-846 Method 8082
2,3',4,4',5 pentaCB	118	Sediments/Tissue	SW-846 Method 8082
3,3',4,4',5 pentaCB	126	Sediments/Tissue	SW-846 Method 8082
2,3,3',4,4' pentaCB	128	Sediments/Tissue	SW-846 Method 8082
2,2',3,4,4',5' hexaCB	138	Sediments/Tissue	SW-846 Method 8082
2,2',4,4',5,5' hexaCB	153	Sediments/Tissue	SW-846 Method 8082
2,3,3',4,4',5 hexaCB	156	Sediments/Tissue	SW-846 Method 8082
3,3',4,4',5,5' hexaCB	169	Sediments/Tissue	SW-846 Method 8082
2,2',3,3',4,4'5 heptaCB	170	Sediments/Tissue	SW-846 Method 8082
2,2',3,4,4',5,5' heptaCB	180	Sediments/Tissue	SW-846 Method 8082
2,2',3,4,4',5',6 heptaCB	183	Sediments/Tissue	SW-846 Method 8082
2,2',3,4,4',6,6' heptaCB	184	Sediments/Tissue	SW-846 Method 8082
2,2',3,4',5,5',6 heptaCB	187	Sediments/Tissue	SW-846 Method 8082
2,2',3,3',4,4',5,6 octaCB	195	Sediments/Tissue	SW-846 Method 8082
2,2',3,3',4,4',5,5',6 nonaCB	206	Sediments/Tissue	SW-846 Method 8082
2,2',3,3',4,4',5,5',6,6' decaCB	209	Sediments/Tissue	SW-846 Method 8082

Metal	Matrix	Method
Arsenic	Sediments/Tissue	SW-846 6010B
Cadmium	Sediments/Tissue	SW-846 6010B
Chromium	Sediments/Tissue	SW-846 6010B
Copper	Sediments/Tissue	SW-846 6010B
Lead	Sediments/Tissue	SW-846 6010B
Nickel	6020	SW-846 6010B
Silver	6020	SW-846 6010B
Zinc	6020	SW-846 6010B

Analysis	Matrix	Method
Total Organic Carbon	Sediments	High-temperature Combustion
Percent Moisture	Sediments	SW-846 3545 DRV. 7.2.1.
Lipids	Tissue	NEA SOP NEI158.05

APPENDIX C

Trawl Locations

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Epibenthic Trawls

Eight epibenthic trawls were conducted of 5 to 15 minutes in duration at speeds of 1.7 to 1.8 knots over ground. Two trawls resulted in no organisms collected due to net damage or net loss and two trawls did not have either any taxa of interest or insufficient body mass for tissue collection. The four successful trawls are shown in figure 1 below:

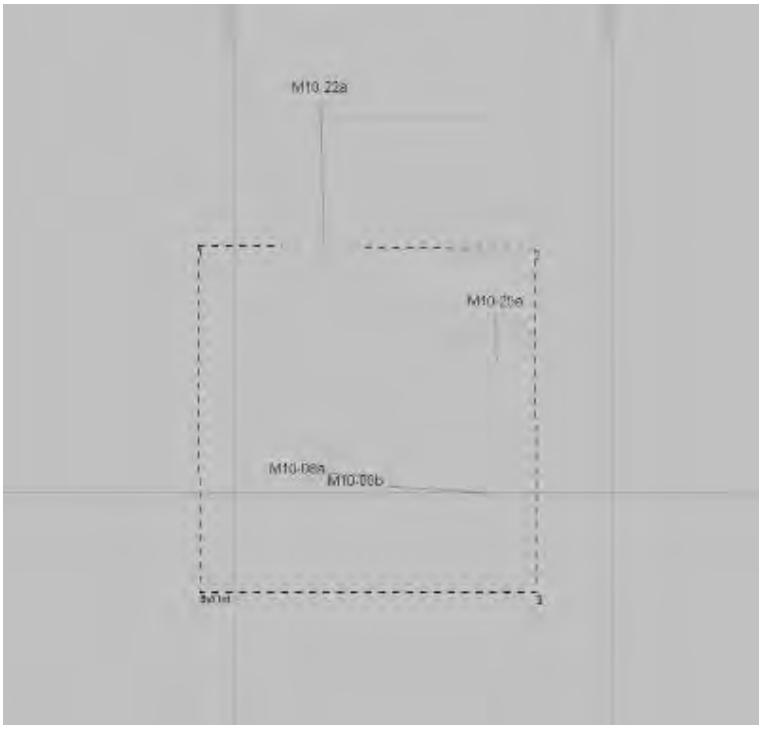

Figure C-1: Epibenthic Trawls

A summary of the trawls is provided in table C-1 and table C-2 presents a summary of the tissue samples collected. Table C-3 provides a list of all taxa identified from the trawl catches.

Table C-1: Trawl Summary

Tow Number	Start of Tow		End of Tow		Depth Range (m)	Bottom Time (minutes)	Notes
	Latitude	Longitude	Latitude	Longitude			
M10-08-A	25 44.874 N	80 3.475 W	25 44.861 N	80 3.295 W	195–217	5	Bridle twisted, limestone rubble in net, 5 taxa caught
M10-08-B	25 44.836 N	80 3.291 W	25 44.814 N	80 2.957 W	208–238	10	Only 2 taxa caught
M10-20-A	25 45.214 N	80 3.021 W	25 45.059 N	80 3.020 W	221–222	6	Net damaged, tickler chain damaged, 4 taxa caught
M10-22-A	25 45.730 N	80 3.489 W	25 45.254 N	80 3.480 W	165–168	17	Net damaged, portion of tow was outside of ODMDS, 20 taxa caught
M10-22-B	25 45.571 N	80 3.488 W	25 45.114 N	80 3.501 W	159–165	16	Net lost, otter doors badly damaged but retrieved
M10-24-A	25 45.423 N	80 3.087 W	25 44.969 N	80 3.143 W	204–211	16	Net badly damaged, no taxa caught
M10-25-A	25 45.338 N	80 2.937 W	25 45.197 N	80 2.935 W	231–232	6	1 m diameter truck tire in net, 4 taxa caught
M10-25-B	25 45.424 N	80 2.917 W	25 45.138 N	80 2.915 W	231–232	11	Limestone rubble in net, 2 taxa caught

Table C-2: Summary of Invertebrates and Fishes Sampled for Tissue Analysis

Tissue Sample Number	Taxon Sampled	Number of Specimens Used in Sample	Estimated Tissue Wet Weight (grams)	Tow Number (Station Number)
MT10-01	*Citharichthys arctifrons* (Gulf Stream flounder)	5	15	M10-08-B (M10-08)
MT10-02	*Cancer borealis* (Jonah crab)	1	30	M10-08-A (M10-08)
MT10-03	*Rochinia* cf. *crassa* (spiny crab)	2	35	M10-08-A (M10-08)
MT10-04	*Rochinia* cf. *crassa* (spiny crab)	Approx. 6	50	M10-22-A (M10-22)
MT10-05	*Cancer borealis* (Jonah crab)	1	30	M10-22-A (M10-22)
MT10-06	*Helicolenus dactylopterus* (blackbelly rosefish)	1	200	M10-25-A (M10-25)
MT10-07	*Citharichthys arctifrons* (Gulf Stream flounder)	Approx. 24	50	M10-22-A (M10-22)

Table C-3: Taxa Identified from Trawl Catches

Taxon	**Common Name**
Cerianthidae	Burrowing anemone
Hexactinellida	Glass sponge
Polychaeta	Polychaete worm
Polystira sp.	Giant turris
Scaphella dorni	Dohrn's volute
Loliginidae	Squid
Penaeidae	Penaeid shrimp
Munida sp.	Squat lobster
Bathynectes longispina	Bathyal swimming crab
Cancer borealis	Jonah crab
Rochinia cf. *crassa*	Spiny crab
Leucoraja garmani	Rosette skate
Lepophidium profundorum	Fawn cusk-eel
Bregmaceros sp.	Codlet
Urophycis cf. *chesteri*	Longfin hake
Zalieutes mcgintys	Tricorn batfish
Macroramphosus scolopax	Longspine snipefish
Helicolenus dactylopterus	Blackbelly rosefish
Pontinus longispinus	Longspine scorpionfish
Peristedion miniatum	Armored searobin
Anthias nicholsi	Yellowfin bass
Foetorepus goodenbeani	Palefin dragonet
Citharichthys arctifrons	Gulf Stream flounder
Monolene sessilicauda	Deepwater flounder
Symphurus cf. *pusillus*	Northern tonguefish
Laemonema barbatulum	Shortbeard codling

Taxa identification by ANAMAR Environmental Consulting, Inc.

APPENDIX D

Sediment Chemistry Results

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Station M10-			1				2				3				4			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #018		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #028	20,45,51	mg/kg	0 00104	J	0.00195	0.00039	0.000979	J	0.00207	0 000415	0.000829	J	0.00174	0.000348	0.00124	J	0.00226	0.000452
PCB Congener #044	47,39,65	mg/kg	0.000989	J	0.00195	0.00039	0.00135	J	0.00207	0 000415	0 00162	J	0.00174	0.000348	0.00253		0.00226	0.000452
PCB Congener #049	36	mg/kg	0 00101	J	0.00195	0.00039	0.0013	J	0.00207	0 000415	0.0012	J	0.00174	0.000348	0.00189	J	0.00226	0.000452
PCB Congener #052		mg/kg	0 00126	J	0.00195	0.00039	0.00152	J	0.00207	0 000415	0.000824	J	0.00174	0.000348	0.00164	J	0.00226	0.000452
PCB Congener #066		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	0.000351	J	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #077	111,151	mg/kg	0.000557	J	0.00195	0.00039	ND	U	0.00207	0 000415	0.000381	J	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #087		mg/kg	0.000649	J	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #101	90,113,150	mg/kg	0 00177	J	0.00195	0.00039	0.000583	J	0.00207	0 000415	0 00111	J	0.00174	0.000348	0.000788	J	0.00226	0.000452
PCB Congener #105	146	mg/kg	0.000985	J	0.00195	0.00039	ND	U	0.00207	0 000415	0.000655	J	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #118		mg/kg	0 00141	J	0.00195	0.00039	ND	U	0.00207	0 000415	0.000623	J	0.00174	0.000348	0.000646	J	0.00226	0.000452
PCB Congener #126	182	mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #128	166	mg/kg	0.000413	J	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #138	129,163	mg/kg	0 00234		0.00195	0.00039	0.000892	J	0.00207	0 000415	0 00126	J	0.00174	0.000348	0.00132	J	0.00226	0.000452
PCB Congener #153	168	mg/kg	0 00159	J	0.00195	0.00039	0.000742	J	0.00207	0 000415	0 00122	J	0.00174	0.000348	0.00122	J	0.00226	0.000452
PCB Congener #156	157,197	mg/kg	0 00048	J	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #169		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #170		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #180	193	mg/kg	0.000502	J	0.00195	0.00039	0.000591	J	0.00207	0 000415	0.000745	J	0.00174	0.000348	0.000732	J	0.00226	0.000452
PCB Congener #183		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #184	165	mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #187		mg/kg	ND	U	0.00195	0.00039	0.000438	J	0.00207	0 000415	0.000496	J	0.00174	0.000348	0.000519	J	0.00226	0.000452
PCB Congener #195		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #206		mg/kg	ND	U	0.00195	0.00039	ND	U	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
PCB Congener #209		mg/kg	ND	U	0.00195	0.00039	0.000494	J	0.00207	0 000415	ND	U	0.00174	0.000348	ND	U	0.00226	0.000452
Nonachlorobiphenyl		mg/Kg	0.0699				0.0737				0.0592				0.0833			
Total Organic Carbon		mg/kg	11000		320		10000		340		7700		270		13000		370	
% Moisture		%	39 2		0.0205		42.8		0 0186		32.5		0.02		45.5		0 0196	
Arsenic		mg/kg	2.77		1.48		3.16		1.6		3.53		1.38		2.79		1.74	
Cadmium		mg/kg	ND	U	0.148		ND	U	0.16		ND	U	0.138		ND	U	0.174	
Chromium		mg/kg	7.34		1.48		8.53		1.6		7.68		1.38		10.5		1.74	
Copper		mg/kg	3.38		1.48		4.7		1.6		5.97		1.38		7.58		1.74	
Lead		mg/kg	1.7		0.738		3.28		0.801		5.64		0.69		5.08		0.872	
Nickel		mg/kg	2.7		1.48		2.81		1.6		1.9		1.38		3.81		1.74	
Silver		mg/kg	ND	U	0.295		0 336		0.321		0.395		0.276		ND	U	0.349	
Zinc		mg/kg	4.55		1.48		6.39		1.6		8.69		1.38		10.1		1.74	
J-Denotes concentration result greater thant he MDL, but less than the PQL																		
U-Denotes analyte not observed at a concentration greater than the MDL																		

Station M10-			5				31				10				9			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	0.00164	J	0.00187	0.000374
PCB Congener #018		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	0.00107	J	0.00187	0.000374
PCB Congener #028	20,45,51	mg/kg	0.001	J	0.00235	0.000469	0.000898	J	0 0023	0 000459	0 00128	J	0.0024	0 00048	0.0057		0.00187	0.000374
PCB Congener #044	47,39,65	mg/kg	0 00132	J	0.00235	0.000469	0.000966	J	0 0023	0 000459	0 00165	J	0.0024	0 00048	0.00404		0.00187	0.000374
PCB Congener #049	36	mg/kg	0.0016	J	0.00235	0.000469	0.00154	J	0 0023	0 000459	0 00273		0.0024	0 00048	0.00317		0.00187	0.000374
PCB Congener #052		mg/kg	0.0016	J	0.00235	0.000469	0.00265		0 0023	0 000459	0 00315		0.0024	0 00048	0.00388		0.00187	0.000374
PCB Congener #066		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	0.000716	J	0.0024	0 00048	0.00169	J	0.00187	0.000374
PCB Congener #077	111,151	mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	0.000415	J	0.00187	0.000374
PCB Congener #087		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #101	90,113,150	mg/kg	0 00107	J	0.00235	0.000469	ND	U	0 0023	0 000459	0 00176	J	0.0024	0 00048	0.00124	J	0.00187	0.000374
PCB Congener #105	146	mg/kg	0.000522	J	0.00235	0.000469	ND	U	0 0023	0 000459	0.000898	J	0.0024	0 00048	0.000661	J	0.00187	0.000374
PCB Congener #118		mg/kg	0.000563	J	0.00235	0.000469	ND	U	0 0023	0 000459	0 00134	J	0.0024	0 00048	0.000945	J	0.00187	0.000374
PCB Congener #126	182	mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #128	166	mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #138	129,163	mg/kg	0 00141	J	0.00235	0.000469	ND	U	0 0023	0 000459	0 00213	J	0.0024	0 00048	0.00139	J	0.00187	0.000374
PCB Congener #153	168	mg/kg	0 00151	J	0.00235	0.000469	ND	U	0 0023	0 000459	0 00192	J	0.0024	0 00048	0.00114	J	0.00187	0.000374
PCB Congener #156	157,197	mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	0.000539	J	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #169		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #170		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	0.000495	J	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #180	193	mg/kg	0.000798	J	0.00235	0.000469	ND	U	0 0023	0 000459	0 00107	J	0.0024	0 00048	0.000705	J	0.00187	0.000374
PCB Congener #183		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #184	165	mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #187		mg/kg	0.000574	J	0.00235	0.000469	ND	U	0 0023	0 000459	0.000619	J	0.0024	0 00048	0.000474	J	0.00187	0.000374
PCB Congener #195		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #206		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	ND	U	0.0024	0 00048	ND	U	0.00187	0.000374
PCB Congener #209		mg/kg	ND	U	0.00235	0.000469	ND	U	0 0023	0 000459	0 00055	J	0.0024	0 00048	ND	U	0.00187	0.000374
Nonachlorobiphenyl		mg/Kg	0.0853				0.0843				0.0882				0.0683			
Total Organic Carbon		mg/kg	16000		390		15000		350		17000		380		8600		300	
% Moisture		%	48		0.0191		48.9		0 0198		49.4		0.0197		37		0 0179	
Arsenic		mg/kg	3.41		1.9		3.54		1.83		3.74		1.75		3.39		1.44	
Cadmium		mg/kg	ND	U	0.19		ND	U	0.183		ND	U	0.175		ND	U	0.144	
Chromium		mg/kg	10 9		1.9		10.1		1.83		10.7		1.75		8		1.44	
Copper		mg/kg	9.93		1.9		5.53		1.83		10		1.75		6.01		1.44	
Lead		mg/kg	6.56		0 95		3.62		0.913		8.78		0.877		5.25		0.718	
Nickel		mg/kg	4.34		1.9		4.97		1.83		3.65		1.75		2.35		1.44	
Silver		mg/kg	ND	U	0 38		0 386		0.365		ND	U	0.351		ND	U	0.287	
Zinc		mg/kg	11.6		1.9		8.58		1.83		13.2		1.75		8.46		1.44	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			8				7				6				39			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.00241		0.00185	0.000369
PCB Congener #018		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.0021		0.00185	0.000369
PCB Congener #028	20,45,51	mg/kg	0 00215	J	0.00224	0.000448	0.00142	J	0.00242	0 000484	0 00109	J	0.00188	0.000376	0.00631		0.00185	0.000369
PCB Congener #044	47,39,65	mg/kg	0 00492		0.00224	0.000448	0.00226	J	0.00242	0 000484	0.000545	J	0.00188	0.000376	0.00348		0.00185	0.000369
PCB Congener #049	36	mg/kg	0 00259		0.00224	0.000448	0.00196	J	0.00242	0 000484	0 00121	J	0.00188	0.000376	0.00304		0.00185	0.000369
PCB Congener #052		mg/kg	0 00217	J	0.00224	0.000448	0.00182	J	0.00242	0 000484	0 00172	J	0.00188	0.000376	0.00359		0.00185	0.000369
PCB Congener #066		mg/kg	0.000843	J	0.00224	0.000448	ND	U	0.00242	0 000484	0.000422	J	0.00188	0.000376	0.00195		0.00185	0.000369
PCB Congener #077	111,151	mg/kg	0.000737	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000993	J	0.00185	0.000369
PCB Congener #087		mg/kg	0.000727	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000488	J	0.00185	0.000369
PCB Congener #101	90,113,150	mg/kg	0 00255		0.00224	0.000448	0.000513	J	0.00242	0 000484	ND	U	0.00188	0.000376	0.00176	J	0.00185	0.000369
PCB Congener #105	146	mg/kg	0.0012	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000775	J	0.00185	0.000369
PCB Congener #118		mg/kg	0.0017	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000895	J	0.00185	0.000369
PCB Congener #126	182	mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #128	166	mg/kg	0 00047	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #138	129,163	mg/kg	0 00293		0.00224	0.000448	0.000685	J	0.00242	0 000484	ND	U	0.00188	0.000376	0.00217		0.00185	0.000369
PCB Congener #153	168	mg/kg	0 00274		0.00224	0.000448	0.000629	J	0.00242	0 000484	ND	U	0.00188	0.000376	0.00231		0.00185	0.000369
PCB Congener #156	157,197	mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000431	J	0.00185	0.000369
PCB Congener #169		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #170		mg/kg	0 00056	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.000657	J	0.00185	0.000369
PCB Congener #180	193	mg/kg	0 00143	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.00192		0.00185	0.000369
PCB Congener #183		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #184	165	mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #187		mg/kg	0 00108	J	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	0.00106	J	0.00185	0.000369
PCB Congener #195		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #206		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
PCB Congener #209		mg/kg	ND	U	0.00224	0.000448	ND	U	0.00242	0 000484	ND	U	0.00188	0.000376	ND	U	0.00185	0.000369
Nonachlorobiphenyl		mg/Kg	0.0832				0.0896				0.0685				0.0681			
Total Organic Carbon		mg/kg	15000		360		13000		370		10000		310		11000		290	
% Moisture		%	46		0.0186		49.9		0 0189		36.9		0.0187		33.1		0 0182	
Arsenic		mg/kg	2.93		1.71		3.05		1.81		2.3		1.47		2.91		1.36	
Cadmium		mg/kg	ND	U	0.171		ND	U	0.181		ND	U	0.147		ND	U	0.136	
Chromium		mg/kg	11.6		1.71		9.74		1.81		7.47		1.47		6.99		1.36	
Copper		mg/kg	44 9		1.71		5.67		1.81		3.45		1.47		4.43		1.36	
Lead		mg/kg	10 9		0.857		3.61		0.907		1.58		0.735		3		0.682	
Nickel		mg/kg	3.24		1.71		3.72		1.81		2.81		1.47		1.89		1.36	
Silver		mg/kg	ND	U	0.343		ND	U	0.363		ND	U	0.294		ND	U	0.273	
Zinc		mg/kg	15.4		1.71		7.72		1.81		4.52		1.47		6.4		1.36	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			40				38				37				36			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00242	0.000485	0.0186		0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #018		mg/kg	ND	U	0.00242	0.000485	0.0296		0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #028	20,45,51	mg/kg	0 00254		0.00242	0.000485	0.0403		0.002	0.0004	0 00173	J	0.00209	0.000417	0.000913	J	0.00219	0.000439
PCB Congener #044	47,39,65	mg/kg	0 00215	J	0.00242	0.000485	0.0194		0.002	0.0004	0.000923	J	0.00209	0.000417	0.00199	J	0.00219	0.000439
PCB Congener #049	36	mg/kg	0 00238	J	0.00242	0.000485	0.0126		0.002	0.0004	0 00189	J	0.00209	0.000417	0.00169	J	0.00219	0.000439
PCB Congener #052		mg/kg	0 00292		0.00242	0.000485	0.0147		0.002	0.0004	0 00295		0.00209	0.000417	0.00191	J	0.00219	0.000439
PCB Congener #066		mg/kg	0.000771	J	0.00242	0.000485	0.0118		0.002	0.0004	0.000497	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #077	111,151	mg/kg	ND	U	0.00242	0.000485	0.000825	J	0.002	0.0004	0.000661	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #087		mg/kg	ND	U	0.00242	0.000485	0.00193	J	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #101	90,113,150	mg/kg	0.000786	J	0.00242	0.000485	0.00339		0.002	0.0004	0.000452	J	0.00209	0.000417	0.000524	J	0.00219	0.000439
PCB Congener #105	146	mg/kg	ND	U	0.00242	0.000485	0.0017	J	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #118		mg/kg	0 00049	J	0.00242	0.000485	0.00296		0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #126	182	mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #128	166	mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #138	129,163	mg/kg	0.000575	J	0.00242	0.000485	0.00147	J	0.002	0.0004	0 00151	J	0.00209	0.000417	0.00051	J	0.00219	0.000439
PCB Congener #153	168	mg/kg	ND	U	0.00242	0.000485	0.00109	J	0.002	0.0004	0 00196	J	0.00209	0.000417	0.00061	J	0.00219	0.000439
PCB Congener #156	157,197	mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	0.000421	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #169		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #170		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	0 00101	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #180	193	mg/kg	ND	U	0.00242	0.000485	0.000485	J	0.002	0.0004	0 00304		0.00209	0.000417	0.000449	J	0.00219	0.000439
PCB Congener #183		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	0.000608	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #184	165	mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #187		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	0 00167	J	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #195		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #206		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	ND	U	0.00209	0.000417	ND	U	0.00219	0.000439
PCB Congener #209		mg/kg	ND	U	0.00242	0.000485	ND	U	0.002	0.0004	0.000422	J	0.00209	0.000417	ND	U	0.00219	0.000439
Nonachlorobiphenyl		mg/Kg	0.0899				0.0718				0.0744				0.0777			
Total Organic Carbon		mg/kg	18000		380		9900		300		9500		330		13000		330	
% Moisture		%	49 3		0.0194		39.9		0 0175		40.6		0.0199		44.4		0 0191	
Arsenic		mg/kg	4.25		1 81		2.58		1.55		3.78		1.64		ND	U	1.63	
Cadmium		mg/kg	ND	U	0.181		ND	U	0.155		ND	U	0.164		ND	U	0.163	
Chromium		mg/kg	9 3		1 81		8.02		1.55		7.54		1.64		8.66		1.63	
Copper		mg/kg	5.39		1 81		5.09		1.55		4.5		1.64		4.66		1.63	
Lead		mg/kg	2.63		0.905		3.2		0.777		9.44		0.819		2.63		0.816	
Nickel		mg/kg	4.17		1 81		2.57		1.55		2.34		1.64		3.88		1.63	
Silver		mg/kg	ND	U	0.362		ND	U	0.311		ND	U	0.328		ND	U	0.326	
Zinc		mg/kg	7.37		1 81		6.47		1.55		5.36		1.64		6.02		1.63	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			30				29				28				27			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	0.000531	J	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #018		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #028	20,45,51	mg/kg	0 00165	J	0.00213	0.000426	0.000916	J	0.00187	0 000375	0 00293		0.00185	0 00037	0.00204	J	0 0023	0.000461
PCB Congener #044	47,39,65	mg/kg	0 00301		0.00213	0.000426	0.00297		0.00187	0 000375	0 00534		0.00185	0 00037	0.00358		0 0023	0.000461
PCB Congener #049	36	mg/kg	0.003		0.00213	0.000426	0.00259		0.00187	0 000375	0 00543		0.00185	0 00037	0.00305		0 0023	0.000461
PCB Congener #052		mg/kg	0 00316		0.00213	0.000426	0.00376		0.00187	0 000375	0 00492		0.00185	0 00037	0.00254		0 0023	0.000461
PCB Congener #066		mg/kg	0.000447	J	0.00213	0.000426	ND	U	0.00187	0 000375	0.000869	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #077	111,151	mg/kg	0.000456	J	0.00213	0.000426	ND	U	0.00187	0 000375	0 00107	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #087		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0.000805	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #101	90,113,150	mg/kg	0.000602	J	0.00213	0.000426	0.000709	J	0.00187	0 000375	0 00291		0.00185	0 00037	0.000854	J	0 0023	0.000461
PCB Congener #105	146	mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0 00113	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #118		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0 00205		0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #126	182	mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #128	166	mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0.000869	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #138	129,163	mg/kg	0 00101	J	0.00213	0.000426	0.000787	J	0.00187	0 000375	0 00372		0.00185	0 00037	0.00131	J	0 0023	0.000461
PCB Congener #153	168	mg/kg	0 00119	J	0.00213	0.000426	0.00079	J	0.00187	0 000375	0 00333		0.00185	0 00037	0.0012	J	0 0023	0.000461
PCB Congener #156	157,197	mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0.000602	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #169		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #170		mg/kg	0.000469	J	0.00213	0.000426	ND	U	0.00187	0 000375	0.000662	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #180	193	mg/kg	0 00135	J	0.00213	0.000426	0.000771	J	0.00187	0 000375	0 00215		0.00185	0 00037	0.000782	J	0 0023	0.000461
PCB Congener #183		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0.000445	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #184	165	mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #187		mg/kg	0.0008	J	0.00213	0.000426	0.000602	J	0.00187	0 000375	0 00161	J	0.00185	0 00037	0.000856	J	0 0023	0.000461
PCB Congener #195		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #206		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	0.000376	J	0.00185	0 00037	ND	U	0 0023	0.000461
PCB Congener #209		mg/kg	ND	U	0.00213	0.000426	ND	U	0.00187	0 000375	ND	U	0.00185	0 00037	0.000528	J	0 0023	0.000461
Nonachlorobiphenyl		mg/Kg	0.0825				0.0634				0.0721				0.0833			
Total Organic Carbon		mg/kg	16000		330		9400		280		13000		300		22000		350	
% Moisture		%	44		0.0204		35		0.019		34.4		0.0189		47.1		0 0186	
Arsenic		mg/kg	ND	U	1.67		2.13		1.47		4.16		1.49		2.06		1.7	
Cadmium		mg/kg	ND	U	0.167		ND	U	0.147		ND	U	0.149		ND	U	0.17	
Chromium		mg/kg	8.55		1.67		6.52		1.47		9.07		1.49		9.96		1.7	
Copper		mg/kg	4.61		1.67		3.46		1.47		36.2		1.49		6.41		1.7	
Lead		mg/kg	1 8		0.835		1.4		0.737		10.6		0.745		4.31		0.85	
Nickel		mg/kg	3.81		1.67		1.98		1.47		2.11		1.49		3.46		1.7	
Silver		mg/kg	ND	U	0.334		ND	U	0.295		ND	U	0.298		ND	U	0.34	
Zinc		mg/kg	8.34		1.67		4.3		1.47		17		1.49		7.71		1.7	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			26R				32				34				25			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	ND	U	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #018		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	ND	U	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #028	20,45,51	mg/kg	0 00229		0.00182	0.000365	0.00167	J	0.00226	0 000452	0 00392		0.00213	0.000427	0.000994	J	0.00226	0.000452
PCB Congener #044	47,39,65	mg/kg	0.000842	J	0.00182	0.000365	0.000793	J	0.00226	0 000452	0 00226		0.00213	0.000427	0.00196	J	0.00226	0.000452
PCB Congener #049	36	mg/kg	0 00462		0.00182	0.000365	0.00288		0.00226	0 000452	0 00267		0.00213	0.000427	0.00185	J	0.00226	0.000452
PCB Congener #052		mg/kg	0 00908		0.00182	0.000365	0.00449		0.00226	0 000452	0 00414		0.00213	0.000427	0.00249		0.00226	0.000452
PCB Congener #066		mg/kg	ND	U	0.00182	0.000365	0.000633	J	0.00226	0 000452	0 00153	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #077	111,151	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00117	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #087		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00227		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #101	90,113,150	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00321		0.00213	0.000427	0.000491	J	0.00226	0.000452
PCB Congener #105	146	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00642		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #118		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00687		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #126	182	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	ND	U	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #128	166	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00623		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #138	129,163	mg/kg	0.000473	J	0.00182	0.000365	ND	U	0.00226	0 000452	0.0161		0.00213	0.000427	0.000679	J	0.00226	0.000452
PCB Congener #153	168	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00537		0.00213	0.000427	0.000672	J	0.00226	0.000452
PCB Congener #156	157,197	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00701		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #169		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	ND	U	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #170		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00815		0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #180	193	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00942		0.00213	0.000427	0.000603	J	0.00226	0.000452
PCB Congener #183		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0.000925	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #184	165	mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	ND	U	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #187		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00165	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #195		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0 00119	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #206		mg/kg	ND	U	0.00182	0.000365	ND	U	0.00226	0 000452	0.001	J	0.00213	0.000427	ND	U	0.00226	0.000452
PCB Congener #209		mg/kg	ND	U	0.00182	0.000365	0.000532	J	0.00226	0 000452	0.000459	J	0.00213	0.000427	0.000453	J	0.00226	0.000452
Nonachlorobiphenyl		mg/Kg	0.0679				0.0843				0.0763				0.0835			
Total Organic Carbon		mg/kg	11000		270		16000		370		19000		330		15000		360	
% Moisture		%	34 3		0.019		47.3		0 0202		44.2		0.019		46.7		0 0205	
Arsenic		mg/kg	1.99		1.42		2.02		1.87		3.29		1.73		3.62		1.84	
Cadmium		mg/kg	ND	U	0.142		0.2		0.187		ND	U	0.173		ND	U	0.184	
Chromium		mg/kg	6.32		1.42		9.94		1.87		9.09		1.73		10		1.84	
Copper		mg/kg	2.36		1.42		49.8		1.87		48.3		1.73		42.6		1.84	
Lead		mg/kg	ND	U	0.711		2.54		0.935		ND	U	0.865		3.64		0.918	
Nickel		mg/kg	2.27		1.42		4.99		1.87		4.72		1.73		4.29		1.84	
Silver		mg/kg	ND	U	0.284		ND	U	0.374		ND	U	0.346		ND	U	0.367	
Zinc		mg/kg	3.14		1.42		6.63		1.87		6.16		1.73		7.37		1.84	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			20				15				14				19			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	0.000599	J	0.00219	0.000437	ND	U	0.00222	0 000445	0.000833	J	0.00238	0.000476	ND	U	0.00179	0.000358
PCB Congener #018		mg/kg	ND	U	0.00219	0.000437	ND	U	0.00222	0 000445	ND	U	0.00238	0.000476	ND	U	0.00179	0.000358
PCB Congener #028	20,45,51	mg/kg	0 00609		0.00219	0.000437	0.00195	J	0.00222	0 000445	0 00785		0.00238	0.000476	0.00527		0.00179	0.000358
PCB Congener #044	47,39,65	mg/kg	0.0114		0.00219	0.000437	0.00261		0.00222	0 000445	0 00557		0.00238	0.000476	0.00921		0.00179	0.000358
PCB Congener #049	36	mg/kg	0.01		0.00219	0.000437	0.00423		0.00222	0 000445	0.0129		0.00238	0.000476	0.00634		0.00179	0.000358
PCB Congener #052		mg/kg	0 00729		0.00219	0.000437	0.00392		0.00222	0 000445	0.0147		0.00238	0.000476	0.00574		0.00179	0.000358
PCB Congener #066		mg/kg	0 00125	J	0.00219	0.000437	0.000652	J	0.00222	0 000445	0 00213	J	0.00238	0.000476	0.00172	J	0.00179	0.000358
PCB Congener #077	111,151	mg/kg	0.0126		0.00219	0.000437	0.000849	J	0.00222	0 000445	0 00339		0.00238	0.000476	0.0439		0.00179	0.000358
PCB Congener #087		mg/kg	0 00063	J	0.00219	0.000437	ND	U	0.00222	0 000445	0 00503		0.00238	0.000476	0.00338		0.00179	0.000358
PCB Congener #101	90,113,150	mg/kg	0 00665		0.00219	0.000437	0.00205	J	0.00222	0 000445	0.0128		0.00238	0.000476	0.0314		0.00179	0.000358
PCB Congener #105	146	mg/kg	0 00551		0.00219	0.000437	0.00119	J	0.00222	0 000445	0 00672		0.00238	0.000476	0.0127		0.00179	0.000358
PCB Congener #118		mg/kg	0 00273		0.00219	0.000437	0.00161	J	0.00222	0 000445	0.0107		0.00238	0.000476	0.00534		0.00179	0.000358
PCB Congener #126	182	mg/kg	ND	U	0.00219	0.000437	ND	U	0.00222	0 000445	ND	U	0.00238	0.000476	ND	U	0.00179	0.000358
PCB Congener #128	166	mg/kg	0 00138	J	0.00219	0.000437	ND	U	0.00222	0 000445	0 00328		0.00238	0.000476	0.00451		0.00179	0.000358
PCB Congener #138	129,163	mg/kg	0.0253		0.00219	0.000437	0.00293		0.00222	0 000445	0.0159		0.00238	0.000476	0.0772		0.00179	0.000358
PCB Congener #153	168	mg/kg	0.0377		0.00219	0.000437	0.0026		0.00222	0 000445	0.0111		0.00238	0.000476	0.0874		0.00179	0.000358
PCB Congener #156	157,197	mg/kg	0.0028		0.00219	0.000437	0.000588	J	0.00222	0 000445	0 00252		0.00238	0.000476	0.00594		0.00179	0.000358
PCB Congener #169		mg/kg	ND	U	0.00219	0.000437	ND	U	0.00222	0 000445	ND	U	0.00238	0.000476	ND	U	0.00179	0.000358
PCB Congener #170		mg/kg	0.0245		0.00219	0.000437	0.000672	J	0.00222	0 000445	0 00261		0.00238	0.000476	0.0399		0.00179	0.000358
PCB Congener #180	193	mg/kg	0.0744		0.00219	0.000437	0.00198	J	0.00222	0 000445	0 00521		0.00238	0.000476	0.122		0.003576	0.000715
PCB Congener #183		mg/kg	0.016		0.00219	0.000437	0.000567	J	0.00222	0 000445	0 00166	J	0.00238	0.000476	0.0276		0.00179	0.000358
PCB Congener #184	165	mg/kg	ND	U	0.00219	0.000437	ND	U	0.00222	0 000445	ND	U	0.00238	0.000476	ND	U	0.00179	0.000358
PCB Congener #187		mg/kg	0.0386		0.00219	0.000437	0.00128	J	0.00222	0 000445	0 00319		0.00238	0.000476	0.058		0.00179	0.000358
PCB Congener #195		mg/kg	0 00842		0.00219	0.000437	ND	U	0.00222	0 000445	0.000534	J	0.00238	0.000476	0.011		0.00179	0.000358
PCB Congener #206		mg/kg	0 00512		0.00219	0.000437	ND	U	0.00222	0 000445	0.000492	J	0.00238	0.000476	0.00597		0.00179	0.000358
PCB Congener #209		mg/kg	0.000674	J	0.00219	0.000437	0.000453	J	0.00222	0 000445	0.000776	J	0.00238	0.000476	0.00059	J	0.00179	0.000358
Nonachlorobiphenyl		mg/Kg	0.0768				0.0821				0.0851				0.064			
Total Organic Carbon		mg/kg	22000		350		21000		330		28000		390		14000		290	
% Moisture		%	44.7		0.0186		43.8		0 0193		49.7		0.0179		35.1		0.02	
Arsenic		mg/kg	5.22		1.79		3.41		1.67		6.07		1.86		3.75		1.39	
Cadmium		mg/kg	ND	U	0.179		ND	U	0.167		0.196		0.186		ND	U	0.139	
Chromium		mg/kg	12.7		1.79		11		1.67		16.5		1.86		9.96		1.39	
Copper		mg/kg	47 3		1.79		42.6		1.67		56.8		1.86		47.5		1.39	
Lead		mg/kg	16.4		0.894		10.5		0.837		26.3		0.929		16		0.697	
Nickel		mg/kg	3.04		1.79		3.66		1.67		3.67		1.86		2.9		1.39	
Silver		mg/kg	0.456		0.358		ND	U	0.335		0.382		0.371		ND	U	0.279	
Zinc		mg/kg	23.7		1.79		15.7		1.67		37.3		1.86		21.2		1.39	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			24				23				18				13			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #018		mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #028	20,45,51	mg/kg	0 00552		0.00244	0.000489	0.00411		0.00253	0 000506	0 00189		0.00186	0.000372	0.00296		0.00211	0.000422
PCB Congener #044	47,39,65	mg/kg	0 00652		0.00244	0.000489	0.00362		0.00253	0 000506	0 00296		0.00186	0.000372	0.00265		0.00211	0.000422
PCB Congener #049	36	mg/kg	0.0103		0.00244	0.000489	0.00779		0.00253	0 000506	0 00475		0.00186	0.000372	0.0049		0.00211	0.000422
PCB Congener #052		mg/kg	0 00896		0.00244	0.000489	0.00888		0.00253	0 000506	0 00539		0.00186	0.000372	0.00471		0.00211	0.000422
PCB Congener #066		mg/kg	0 00146	J	0.00244	0.000489	0.00168	J	0.00253	0 000506	0 00114	J	0.00186	0.000372	0.00119	J	0.00211	0.000422
PCB Congener #077	111,151	mg/kg	0 00119	J	0.00244	0.000489	0.00166	J	0.00253	0 000506	0 00132	J	0.00186	0.000372	0.00134	J	0.00211	0.000422
PCB Congener #087		mg/kg	0.000856	J	0.00244	0.000489	0.00103	J	0.00253	0 000506	0 00103	J	0.00186	0.000372	0.000934	J	0.00211	0.000422
PCB Congener #101	90,113,150	mg/kg	0 00381		0.00244	0.000489	0.00468		0.00253	0 000506	0 00384		0.00186	0.000372	0.00355		0.00211	0.000422
PCB Congener #105	146	mg/kg	0 00173	J	0.00244	0.000489	0.00257		0.00253	0 000506	0 00212		0.00186	0.000372	0.00223		0.00211	0.000422
PCB Congener #118		mg/kg	0 00293		0.00244	0.000489	0.00364		0.00253	0 000506	0.0031		0.00186	0.000372	0.0031		0.00211	0.000422
PCB Congener #126	182	mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #128	166	mg/kg	0 00068	J	0.00244	0.000489	0.00118	J	0.00253	0 000506	0.000869	J	0.00186	0.000372	0.00102	J	0.00211	0.000422
PCB Congener #138	129,163	mg/kg	0 00496		0.00244	0.000489	0.00637		0.00253	0 000506	0 00474		0.00186	0.000372	0.00507		0.00211	0.000422
PCB Congener #153	168	mg/kg	0 00477		0.00244	0.000489	0.00565		0.00253	0 000506	0 00419		0.00186	0.000372	0.00433		0.00211	0.000422
PCB Congener #156	157,197	mg/kg	0.000917	J	0.00244	0.000489	0.000923	J	0.00253	0 000506	0.000686	J	0.00186	0.000372	0.000892	J	0.00211	0.000422
PCB Congener #169		mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #170		mg/kg	0 00106	J	0.00244	0.000489	0.0014	J	0.00253	0 000506	0.000884	J	0.00186	0.000372	0.00108	J	0.00211	0.000422
PCB Congener #180	193	mg/kg	0 00264		0.00244	0.000489	0.00337		0.00253	0 000506	0 00228		0.00186	0.000372	0.00237		0.00211	0.000422
PCB Congener #183		mg/kg	0.000932	J	0.00244	0.000489	0.000843	J	0.00253	0 000506	0.000591	J	0.00186	0.000372	0.000806	J	0.00211	0.000422
PCB Congener #184	165	mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #187		mg/kg	0 00201	J	0.00244	0.000489	0.00237	J	0.00253	0 000506	0 00157	J	0.00186	0.000372	0.00175	J	0.00211	0.000422
PCB Congener #195		mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #206		mg/kg	ND	U	0.00244	0.000489	ND	U	0.00253	0 000506	ND	U	0.00186	0.000372	ND	U	0.00211	0.000422
PCB Congener #209		mg/kg	0.000573	J	0.00244	0.000489	0.000757	J	0.00253	0 000506	ND	U	0.00186	0.000372	0.000436	J	0.00211	0.000422
Nonachlorobiphenyl		mg/Kg	0.087				0.0913				0.0609				0.0753			
Total Organic Carbon		mg/kg	52000		350		31000		370		16000		290		21000		330	
% Moisture		%	50 2		0.0181		51.3		0.018		34.8		0.0189		43.7		0 0191	
Arsenic		mg/kg	6.12		1 98		5.91		1.86		4.99		1.46		4.79		1.7	
Cadmium		mg/kg	0.249		0.198		0 233		0.186		0.157		0.146		0.22		0.17	
Chromium		mg/kg	14 8		1 98		15.5		1.86		12.1		1.46		12.2		1.7	
Copper		mg/kg	52 2		1 98		55.1		1.86		40.2		1.46		42.3		1.7	
Lead		mg/kg	17 8		0 99		22.6		0.929		18.4		0.732		16.5		0.85	
Nickel		mg/kg	4		1 98		3.61		1.86		2.5		1.46		3.1		1.7	
Silver		mg/kg	0.462		0.396		ND	U	0.372		0.403		0.293		ND	U	0.34	
Zinc		mg/kg	27		1 98		34.3		1.86		22.2		1.46		25.1		1.7	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			12				17				22				42			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #018		mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #028	20,45,51	mg/kg	0 00355		0.00246	0.000491	0.00148	J	0.00204	0 000409	0.0038		0.00203	0.000405	0.0023	J	0.00242	0.000484
PCB Congener #044	47,39,65	mg/kg	0 00513		0.00246	0.000491	0.00151	J	0.00204	0 000409	0.0103		0.00203	0.000405	0.00373		0.00242	0.000484
PCB Congener #049	36	mg/kg	0 00572		0.00246	0.000491	0.0021		0.00204	0 000409	0 00588		0.00203	0.000405	0.00426		0.00242	0.000484
PCB Congener #052		mg/kg	0 00427		0.00246	0.000491	0.00203	J	0.00204	0 000409	0 00328		0.00203	0.000405	0.0048		0.00242	0.000484
PCB Congener #066		mg/kg	0 00107	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000676	J	0.00203	0.000405	0.00107	J	0.00242	0.000484
PCB Congener #077	111,151	mg/kg	0.0024	J	0.00246	0.000491	ND	U	0.00204	0 000409	0 00136	J	0.00203	0.000405	0.00131	J	0.00242	0.000484
PCB Congener #087		mg/kg	0.000837	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000418	J	0.00203	0.000405	0.00114	J	0.00242	0.000484
PCB Congener #101	90,113,150	mg/kg	0 00417		0.00246	0.000491	0.000597	J	0.00204	0 000409	0 00281		0.00203	0.000405	0.00417		0.00242	0.000484
PCB Congener #105	146	mg/kg	0 00272		0.00246	0.000491	ND	U	0.00204	0 000409	0 00127	J	0.00203	0.000405	0.00245		0.00242	0.000484
PCB Congener #118		mg/kg	0 00289		0.00246	0.000491	ND	U	0.00204	0 000409	0.0016	J	0.00203	0.000405	0.00334		0.00242	0.000484
PCB Congener #126	182	mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #128	166	mg/kg	0 00108	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000527	J	0.00203	0.000405	0.00103	J	0.00242	0.000484
PCB Congener #138	129,163	mg/kg	0 00914		0.00246	0.000491	0.000966	J	0.00204	0 000409	0 00408		0.00203	0.000405	0.0051		0.00242	0.000484
PCB Congener #153	168	mg/kg	0 00943		0.00246	0.000491	0.000899	J	0.00204	0 000409	0 00463		0.00203	0.000405	0.00505		0.00242	0.000484
PCB Congener #156	157,197	mg/kg	0 00138	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000531	J	0.00203	0.000405	0.000793	J	0.00242	0.000484
PCB Congener #169		mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #170		mg/kg	0 00354		0.00246	0.000491	ND	U	0.00204	0 000409	0 00151	J	0.00203	0.000405	0.000982	J	0.00242	0.000484
PCB Congener #180	193	mg/kg	0 00833		0.00246	0.000491	0.000465	J	0.00204	0 000409	0.0044		0.00203	0.000405	0.00263		0.00242	0.000484
PCB Congener #183		mg/kg	0 00202	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000867	J	0.00203	0.000405	0.000702	J	0.00242	0.000484
PCB Congener #184	165	mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #187		mg/kg	0 00354		0.00246	0.000491	0.000525	J	0.00204	0 000409	0 00269		0.00203	0.000405	0.00205	J	0.00242	0.000484
PCB Congener #195		mg/kg	0.000563	J	0.00246	0.000491	ND	U	0.00204	0 000409	0.000421	J	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #206		mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	ND	U	0.00203	0.000405	ND	U	0.00242	0.000484
PCB Congener #209		mg/kg	ND	U	0.00246	0.000491	ND	U	0.00204	0 000409	0.000441	J	0.00203	0.000405	0.000613	J	0.00242	0.000484
Nonachlorobiphenyl		mg/Kg	0.0873				0.0727				0.0709				0.0859			
Total Organic Carbon		mg/kg	24000		390		21000		310		18000		320		22000		360	
% Moisture		%	51 3		0 02		40.4		0 0188		41.1		0.0207		50.1		0 0177	
Arsenic		mg/kg	5.09		1 96		3.29		1.57		3.54		1.55		5.32		1.83	
Cadmium		mg/kg	ND	U	0.196		ND	U	0.157		ND	U	0.155		0.199		0.183	
Chromium		mg/kg	14.4		1 96		9.95		1.57		11.2		1.55		15.3		1.83	
Copper		mg/kg	50 3		1 96		37.3		1.57		39		1.55		51.7		1.83	
Lead		mg/kg	13.7		0.982		3.85		0.783		9.81		0.773		24.7		0.916	
Nickel		mg/kg	4.45		1 96		3.17		1.57		2.93		1.55		3.31		1.83	
Silver		mg/kg	ND	U	0.393		ND	U	0.313		ND	U	0.309		0.386		0.366	
Zinc		mg/kg	23		1 96		8.72		1.57		15.9		1.55		31.5		1.83	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			41				33				16				11			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #018		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #028	20,45,51	mg/kg	0 00104	J	0.00191	0.000383	0.00131	J	0.00222	0 000443	0.0023	J	0.00246	0.000493	0.00179	J	0 0023	0.000459
PCB Congener #044	47,39,65	mg/kg	0.000939	J	0.00191	0.000383	0.00152	J	0.00222	0 000443	0 00138	J	0.00246	0.000493	0.00133	J	0 0023	0.000459
PCB Congener #049	36	mg/kg	0 00167	J	0.00191	0.000383	0.00265		0.00222	0 000443	0 00367		0.00246	0.000493	0.0028		0 0023	0.000459
PCB Congener #052		mg/kg	0 00214		0.00191	0.000383	0.00355		0.00222	0 000443	0 00422		0.00246	0.000493	0.00236		0 0023	0.000459
PCB Congener #066		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	0.000515	J	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #077	111,151	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #087		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #101	90,113,150	mg/kg	ND	U	0.00191	0.000383	0.000446	J	0.00222	0 000443	ND	U	0.00246	0.000493	0.000473	J	0 0023	0.000459
PCB Congener #105	146	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #118		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #126	182	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #128	166	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #138	129,163	mg/kg	ND	U	0.00191	0.000383	0.000698	J	0.00222	0 000443	ND	U	0.00246	0.000493	0.000699	J	0 0023	0.000459
PCB Congener #153	168	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	0.000521	J	0 0023	0.000459
PCB Congener #156	157,197	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #169		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #170		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #180	193	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #183		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #184	165	mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #187		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	0.000461	J	0 0023	0.000459
PCB Congener #195		mg/kg	ND	U	0.00191	0.000383	ND	U	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #206		mg/kg	ND	U	0.00191	0.000383	0.000706	J	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
PCB Congener #209		mg/kg	ND	U	0.00191	0.000383	0.000486	J	0.00222	0 000443	ND	U	0.00246	0.000493	ND	U	0 0023	0.000459
Nonachlorobiphenyl		mg/Kg	0.0693				0.0776				0.0932				0.0826			
Total Organic Carbon		mg/kg	8800		300		12000		350		14000		370		13000		330	
% Moisture		%	37 3		0.0177		45.5		0 0196		50.2		0.018		46.9		0 0182	
Arsenic		mg/kg	1.67		1 52		1.92		1.72		2.76		1.92		2.85		1.84	
Cadmium		mg/kg	ND	U	0.152		ND	U	0.172		ND	U	0.192		ND	U	0.184	
Chromium		mg/kg	7.92		1 52		9.37		1.72		10.2		1.92		9.24		1.84	
Copper		mg/kg	33 8		1 52		51.1		1.72		48.3		1.92		36.5		1.84	
Lead		mg/kg	2.54		0.761		ND	U	0.861		2.41		0.96		2.23		0.922	
Nickel		mg/kg	2.76		1 52		4.61		1.72		4.2		1.92		3.6		1.84	
Silver		mg/kg	ND	U	0.304		ND	U	0.345		ND	U	0.384		ND	U	0.369	
Zinc		mg/kg	5		1 52		6.56		1.72		6.42		1.92		6.33		1.84	
J-Denotes concentration result greater thant he M																		
U-Denotes analyte not observed at a concentrati																		

Station M10-			21				35			
ANALYTE			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #018		mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #028	20,45,51	mg/kg	0 00211		0.00206	0.000412	0.0022		0.00176	0 000352
PCB Congener #044	47,39,65	mg/kg	0 00245		0.00206	0.000412	0.00189		0.00176	0 000352
PCB Congener #049	36	mg/kg	0 00353		0.00206	0.000412	0.00461		0.00176	0 000352
PCB Congener #052		mg/kg	0 00351		0.00206	0.000412	0.00596		0.00176	0 000352
PCB Congener #066		mg/kg	0.000605	J	0.00206	0.000412	0.00106	J	0.00176	0 000352
PCB Congener #077	111,151	mg/kg	ND	U	0.00206	0.000412	0.000484	J	0.00176	0 000352
PCB Congener #087		mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #101	90,113,150	mg/kg	0.000823	J	0.00206	0.000412	0.00109	J	0.00176	0 000352
PCB Congener #105	146	mg/kg	ND	U	0.00206	0.000412	0.000597	J	0.00176	0 000352
PCB Congener #118		mg/kg	ND	U	0.00206	0.000412	0.000775	J	0.00176	0 000352
PCB Congener #126	182	mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #128	166	mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #138	129,163	mg/kg	0.000749	J	0.00206	0.000412	0.0014	J	0.00176	0 000352
PCB Congener #153	168	mg/kg	0.000771	J	0.00206	0.000412	0.00144	J	0.00176	0 000352
PCB Congener #156	157,197	mg/kg	ND	U	0.00206	0.000412	0.000597	J	0.00176	0 000352
PCB Congener #169		mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #170		mg/kg	ND	U	0.00206	0.000412	0.000358	J	0.00176	0 000352
PCB Congener #180	193	mg/kg	0.000695	J	0.00206	0.000412	0.000844	J	0.00176	0 000352
PCB Congener #183		mg/kg	ND	U	0.00206	0.000412	0.000429	J	0.00176	0 000352
PCB Congener #184	165	mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #187		mg/kg	0.000473	J	0.00206	0.000412	0.000553	J	0.00176	0 000352
PCB Congener #195		mg/kg	ND	U	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #206		mg/kg	0.000426	J	0.00206	0.000412	ND	U	0.00176	0 000352
PCB Congener #209		mg/kg	0.000449	J	0.00206	0.000412	ND	U	0.00176	0 000352
Nonachlorobiphenyl		mg/Kg	0.0744				0.0615			
Total Organic Carbon		mg/kg	11000		300		6900		260	
% Moisture		%	41.1		0 02		31.3		0 0206	
Arsenic		mg/kg	2.71		1.69		ND	U	1.42	
Cadmium		mg/kg	ND	U	0.169		ND	U	0.142	
Chromium		mg/kg	9.24		1.69		7.28		1.42	
Copper		mg/kg	34 3		1.69		28.1		1.42	
Lead		mg/kg	3.36		0.843		4.66		0.712	
Nickel		mg/kg	2.97		1.69		ND	U	1.42	
Silver		mg/kg	ND	U	0.337		ND	U	0.285	
Zinc		mg/kg	6.98		1.69		9.72		1.42	
J-Denotes concentration result greater thant he M										
U-Denotes analyte not observed at a concentrati										

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APPENDIX E

Tissue Chemistry Results

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			MT10-1 & MT10-7				MT10-2 & MT10-5				MT10-03 & MT10-04				MT10-06			
Analyte			CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL	CONC	FLAG	PQL	MDL
PCB Congener #008		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #018		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #028	20,45,51	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000344	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #044	47,39,65	mg/kg	ND	U	0.00125	0.00025	0.000999	J	0.00125	0.00025	0.000315	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #049	36	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #052		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #066		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000257	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #077	111,151	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #087		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #101	90,113,150	mg/kg	ND	U	0.00125	0.00025	0.000364	J	0.00125	0.00025	0.000563	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #105	146	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000616	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #118		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000843	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #126	182	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #128	166	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #138	129,163	mg/kg	ND	U	0.00125	0.00025	0.000539	J	0.00125	0.00025	0.00112	J	0.00125	0.00025	0.000587	J	0.00125	0.00025
PCB Congener #153	168	mg/kg	ND	U	0.00125	0.00025	0.000371	J	0.00125	0.00025	0.00129		0.00125	0.00025	0.000703	J	0.00125	0.00025
PCB Congener #156	157,197	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #169		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #170		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #180	193	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000464	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #183		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #184	165	mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #187		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	0.000351	J	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #195		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #206		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
PCB Congener #209		mg/kg	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025	ND	U	0.00125	0.00025
NOAA PCB		ug/kg	9				11.546				16.326				10.58			
Total R4 PCB		ug/kg	6.5				7.773				10.163				7.29			
Lipids		%	0.226		0.01		0.361		0.01		0.47		0.01		0.843		0.01	
Arsenic		mg/kg	23.3		0.928		144		0.959		190		0.912		2.59		0.995	
Cadmium		mg/kg	ND	U	0.0928		ND	U	0.0959		ND	U	0.0912		ND	U	0.0995	
Chromium		mg/kg	ND	U	0.928		ND	U	0.959		ND	U	0.912		ND	U	0.995	
Copper		mg/kg	ND	U	0.928		7.83		0.959		4.94		0.912		ND	U	0.995	
Lead		mg/kg	ND	U	0.464		ND	U	0.479		ND	U	0.456		ND	U	0.498	
Nickel		mg/kg	ND	U	0.928		ND	U	0.959		ND	U	0.912		ND	U	0.995	
Silver		mg/kg	ND	U	0.186		0.47		0.192		0.239		0.182		ND	U	0.199	
Zinc		mg/kg	2.78		0.928		61.7		0.959		50.2		0.912		2.78		0.995	
J-Denotes concentration result greater thant he MDL, but less than the PQL																		
U-Denotes analyte not observed at a concentration greater than the MDL																		

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APPENDIX F

Hydrocarbon Contamination Investigation

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SAMPLE DATA SUMMARY PACKAGE FOR:
USEPA REGION 4
MAIL DROP 3707 AP 22 RTP-FC
MAIL CODE: D-143-02
DURHAM, NC 27711
CONTACT: CHRIS MCARTHUR

HYDROCARBON CONTAMINATION INVESTIGATION

NYS-DOH 310-14 Petroleum Identification by NEA SOP NE136-04
Confirmation by GC/MS 8270C TICS by NEA SOP NE045-07

Case Narrative

September 14, 2010

CASE NARRATIVE

History & Overview

The USEPA Region 4 sediment samples for the Analysis of Marine Sediment and Tissue project were found to have a contamination pattern. The contamination was hydrocarbon based. The GC/MS analysis of the sediment extracts showed an elevated baseline and a library search of the sediment extract was made for the purpose of tentative identification (TICS). Based on the Ions found we identified Docosane, Eicosane and Undecane as Tentivtely Identified Compounds (TICS). All of these compounds are typical components used in greases and lubricants.

NEA was requested by the USEPA Region 4 to look at cable grease (DynaLube) that was used on the sampler cable and a bolt that was on sampler during the time of sampling. We extracted the bolt and the cable grease for Petroleum Identification. These analyses compare it the contamination pattern we had found in sediment samples submitted for PCB analysis to the product used in the field.

Dyna-Blue® Cable Pulling Lubricant was a light blue paste like grease. According to the literature DynaLube is an environmentally friendly product and is a clean, slow-drying, easy-to-apply gel lubricant.

The bolt was covered in a black/gray paste like grease. The grease that was present on the bolt was removed with a cotton gauze pad. The pad was extracted with the grease. The other sample of the DynaLube product was sub sampled from the 8oz received into a 10g sample for extraction.

This data package (NEA SDG ID: 10070245) consists of two samples, a bolt and a jar of DynaLube.

Sample Delivery and Receipt Conditions

(1.) DynaLube sample was delivered to the laboratory via FEDEX delivery service on 07/07/2010. In that delivery a jar marked bolt was present but no bolt was in the jar. Sample was held until the bolt arrived and both samples were logged in.
(2.) The Bolt sample was delivered to the laboratory via FEDEX delivery service on 07/27/2010.
(3.) All samples were received at the laboratory intact and within holding times.
(4.) The following temperatures were recorded at sample receipt: 24, 26.4 degrees Celsius.

NYS-DOH 310-14 Petroleum Identification by NEA SOP NE136-04

Analysis for PET ID (NEA SOP NE136_04). Samples were extracted by Solvent Extraction Method (EPA - Method 3580). The following technical and administrative items were noted for the analysis:

(1.) The bolt was wiped and the 0.524g of the grease was obtained for extraction.
(2.) DynaLube sub sample was weight at 10g for extraction.
(3.) The samples were extracted with Hexane.
(4.) Both samples were confirmed as lubricate based on standards and library match for presents of a lubricant.
    a. MOTOR OIL COMPOSITE STANDARD
    b. HYDRAULIC OIL STANDARD
(5.) All quality assurance parameters were met for the analysis.

Confirmation by GC/MS 8270C TICS by NEA SOP NE045-07

Analysis for Confirmation/Comparison by GC/MS 8270C TICS (NEA SOP NE045-07). Both Sample extracts were analyzed by GC/MS SIM.

(1.) All quality assurance parameters were met for the analysis.

(2.) The overlay of the sediment chromatogram and the DynaLube and the bolt was not a complete match. It is our opinion that the match is sufficient to say that the DynaLube was the contaminate present in the sediment samples.
(3.) The pure product DynaLube matched the sediment in the 14 to 26 minute and again we identified Docosane, Eicosane and Undecane as Tentivtely Identified Compounds (TICS).
(4.) The overlay of the 3 samples shows a shift of baseline response this is most likely due to product weathering and dilution of the product into water and sediment.

Qualifier Summary

(1.) B-Denotes analyte observed in associated method blank at a concentration exceeding the MDL.
(2.) J-Denotes concentration result greater than the MDL but less than the PQL.
(3.) U-Denotes analyte not observed at a concentration greater than the MDL.

Respectfully submitted,

Ann C. Casey
Client Services

Sample Chain Of Custody

CHAIN OF CUSTODY RECORD

NORTHEAST ANALYTICAL, INC.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.nealab.com information @nealab.com

PAGE 1 OF 1

<10070245P1>

LRF # 100702451

DISPOSAL REQUIREMENTS: (To be filled in by Client)

- ○ RETURN TO CLIENT
- ○ DISPOSAL BY NORTHEAST ANALYTICAL
- ⊗ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): USEPA - Region 4	PROJECT#/PROJECT NAME: EP104/Miami ODMDS
PROJECT MANAGER: Chris Macarthur	PROJECT LOCATION (CITY/STATE) ADDRESS: RFQ-GA-10-0009
PHONE: 401 556 9253	
SAMPLED BY: (Please Print) Matthew Lowe	REQUIRED TURN AROUND TIME: STD-10
SAMPLING FIRM: OSV BOLD	NAME OF COURIER (IF USED): FedEx
	Data Report: ☑ CLP* ☐ Certificates Only
ELECTRONIC RESULTS FORMAT: .PDF ☑ EXCEL (.CSV) ☐	E-MAIL ADDRESS:
FAXED RESULTS ☐	FAX #:

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

PRESERVATIVE CODE
BOTTLE TYPE:
BOTTLE SIZE:

PRESERVATIVE KEY: 0 - NONE; 1 - HCL; 2 - HNO3; 3 - H2SO4; 4 - NaOH; 5 - Zn. Acetate; 6 - MeOH; 7 - NaHSO4; 8 - Other

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (NEA USE ONLY)	NUMBER OF CONTAINERS	PET-ID	GC/MS Confirm	REMARKS:
Dynaluxe	7/6/10		solid		AN10002	1	X		
Bolt	7/21/10		Solid		AN10003	1	X		Hold on to the Bolt after EXT DO NOT dispose

AMBIENT OR CHILLED: TEMP: 26.4 COC TAPE: Y (N) PROPERLY PRESERVED: (Y) N OTHER NOTES:

RECEIVED BROKEN OR LEAKING: Y (N) COC DISCREPANCIES: Y (N) RECVD W/I HOLDING TIMES: Y (N)

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE	SIGNATURE A.Moore	SIGNATURE	SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME Matthew Lowe	PRINTED NAME A.MOORE	PRINTED NAME	PRINTED NAME	PRINTED NAME	PRINTED NAME
COMPANY OSV BOLD	COMPANY NEA	COMPANY	COMPANY	COMPANY	COMPANY
DATE/TIME	DATE/TIME 7/27/10 1025	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME

* CLP LIKE DATA PACKAGE ADDITIONAL COST

NEA SAMPLE RECEIPT REPORT

CLIENT: USEPA REGION 4
PROJECT: EP104000082/ MIAMI ODMDS PCB STUDY
NEA LRF: 10070245
REPORT: CERTIFICATES & DATA PACKAGE
EDD: YES
TAT: 2 WEEK

RECEIVED DATE: 07/29/2010 10:25
SHIPPED VIA: FEDEX
SHIPPING ID: 862927500130
NUMBER OF COOLERS: 0
CUSTODY SEAL INTACT: NA
TEMPERATURE(S): 26 4 °C
COMMENTS:

SAMPLE SEALS INTACT: NA
SAMPLES PROPERLY PRESERVED: NA
SAMPLES REC'D IN HOLDTIME: NO
DISPOSAL: HOLD SAMPLES
COC DISCREPANCY: NO

CLIENT ID (NEA ID)	DATE-TIME SAMPLED	MATRIX	METHOD	TEST DESCRIPTION	QC REQUESTED
DYNALUBE (AN10002)	07/06/2010	Solid			
			NYS-DOH 310-14	Petroleum Identification	
BOLT (AN10003)	07/21/2010	Solid			
			NYS-DOH 310-14	Petroleum Identification	

2190 Technology Drive Schenectady, NY 12308 Phone 518.346.4592 Fax 518.381.6055 Email : information@nealab.com

Internal Sample Tracking Record

EXTRACTION LOG

Pace Analytical®

Prep Date: 07/30/10 **Batch ID: 11479**

	Prep ID	NEA Sample ID	Alt Sample ID	Matrix	pH	Analysis Required	Extract Type / Unit	Percent Total Solids	Sample Amount (g or mL)	Extract Time On - 1	Extract Time Off - 1	Extract Time On - 2	Extract Time Off - 2	Initial for required Clean Up Steps: Date Acid Cleaned (MM/DD)	Date TBA Cleaned (MM/DD)	Date Florisil Shake (MM/DD)	Date Hg Shake (MM/DD)	Final Ext. Vol (mL)	Date Conc (MM/DD)	Comments
1	109411	DBLK-36	AN10002B	Solid		E PETID S	SHAKE	N/A	10.000	NA	NA	NA	NA	NA	NA	NA	NA	10	07/30	
2	109409	10070245-01	AN10002	Solid		E PETID S	SHAKE	100	0.524	NA	NA	NA	NA	NA	NA	NA	NA	10	07/30	
3	109410	10070245-02	AN10003	Solid		E PETID S	SHAKE	100	10.000	NA	NA	NA	NA	NA	NA	NA	NA	10	07/30	

Solvent, Surrogate, Spike, and Acid Information

Item	Lot Number	Amount (uL)	Conc (ug/mL)	B	L	LD	S	D	M	K
Hexane	DA239	NA		☑	☐	☐	☑	☐	☐	☐

Analyst Review: Jillian L Grygas
Northeast Analytical, Inc.
Jill Grygas

Peer Review: Carrie Barss
LRF 10070245
Carrie Barss

Sample Analysis Data

CERTIFICATE OF ANALYSIS
08/11/2010
USEPA REGION 4
MAIL DROP 3707 AP 22 RTP-FC
MAIL CODE: D-143-02
DURHAM, NC 27711
CONTACT: CHRIS MCARTHUR

CUSTOMER ID: DYNALUBE
NEA ID: AN10002 **NEA LRF:** 10070245-01
MATRIX: SOLID
DATE SAMPLED: 07/06/2010 **TIME:** N/A
DATE RECEIVED: 07/27/2010 **TIME:** 10:25
PROJECT: EP104000082/ MIAMI ODMDS PCB STUDY
SAMPLED BY: M. LOWE
LOCATION:
CUSTOMER PO: EP104000082
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Petroleum ID Scan by NYS-DOH 310-14					
Diesel Fuel	Not Present	0.00		08/05/2010	
Fuel Oil (#2)	Not Present	0.00		08/05/2010	
Fuel Oil (#4)	Not Present	0.00		08/05/2010	
Fuel Oil (#5)	Not Present	0.00		08/05/2010	
Fuel Oil (#6)	Not Present	0.00		08/05/2010	
Gasoline	Not Present	0.00		08/05/2010	
Kerosene	Not Present	0.00		08/05/2010	
Lubricating Oil	Present	0.00		08/05/2010	

Notes: ND (Not Detected) Denotes analyte not detected at a concentration greater than the RL
RL: Denotes the reporting limit for the sample
Note: Chromatographic pattern most closely resembles Lubricating Oil.

AUTHORIZED SIGNATURE:

William A Kotas
Sr Laboratory Representative
Robert E Wagner
Laboratory Director

2190 Technology Drive Schenectady, NY 12308 Phone 518.346.4592 Fax 518.381.6055 Email : information@nealab.com

CERTIFICATE OF ANALYSIS
08/11/2010
USEPA REGION 4
MAIL DROP 3707 AP 22 RTP-FC
MAIL CODE: D-143-02
DURHAM, NC 27711
CONTACT: CHRIS MCARTHUR

CUSTOMER ID:	BOLT	**NEA ID:** AN10003	**NEA LRF:** 10070245-02
MATRIX:	SOLID	**DATE SAMPLED:** 07/21/2010	**TIME:** N/A
DATE RECEIVED:	07/27/2010 **TIME:** 10:25	**PROJECT:**	EP104000082/ MIAMI ODMDS PCB STUDY
SAMPLED BY:	M. LOWE	**LOCATION:**	
CUSTOMER PO:	EP104000082	**LAB ELAP#:**	11078

PARAMETER PERFORMED	RESULTS	RL	UNITS	DATE ANALYZED	FLAGS
Petroleum ID Scan by NYS-DOH 310-14					
Diesel Fuel	Not Present	0.00		08/05/2010	
Fuel Oil (#2)	Not Present	0.00		08/05/2010	
Fuel Oil (#4)	Not Present	0.00		08/05/2010	
Fuel Oil (#5)	Not Present	0.00		08/05/2010	
Fuel Oil (#6)	Not Present	0.00		08/05/2010	
Gasoline	Not Present	0.00		08/05/2010	
Kerosene	Not Present	0.00		08/05/2010	
Lubricating Oil	Present	0.00		08/05/2010	

Notes: ND (Not Detected) Denotes analyte not detected at a concentration greater than the RL
RL: Denotes the reporting limit for the sample
Note: Chromatographic pattern most closely resembles Lubricating Oil.

AUTHORIZED SIGNATURE:

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Sr Laboratory Representative
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Laboratory Director

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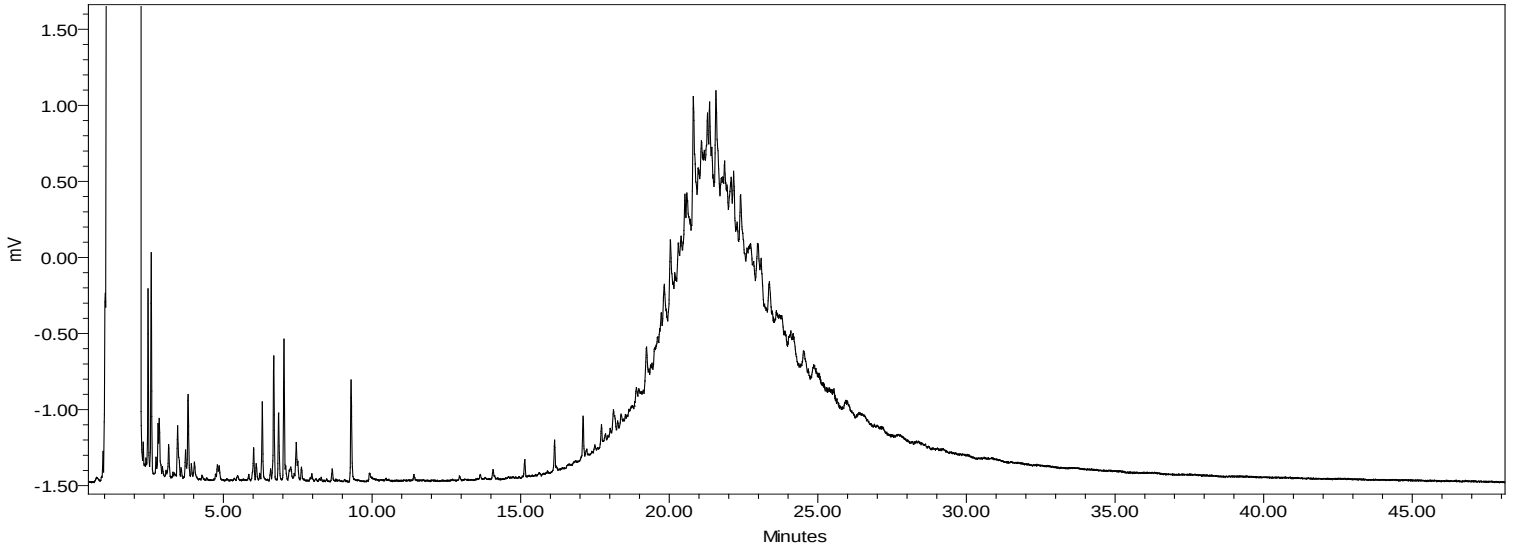
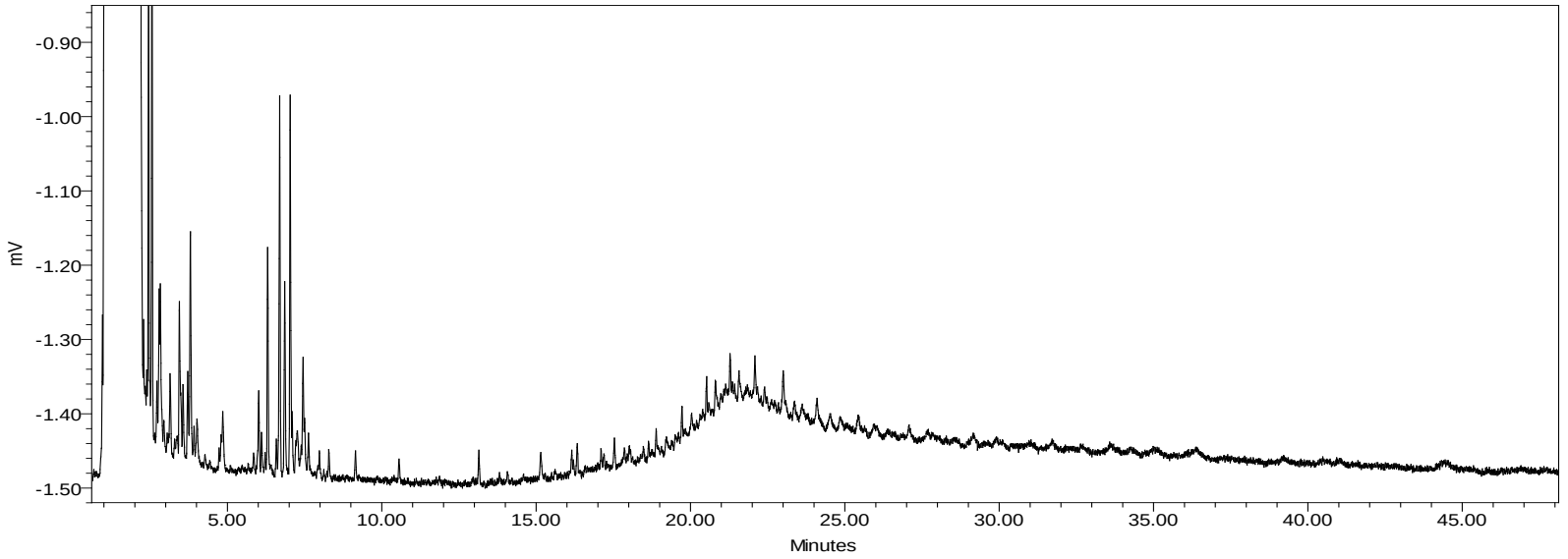
The PETID of the bolt and DynaLube did indeed confirm that both samples were lubricating oil. The best match was hydraulic oil standard and the motor oil composite standard as seen in the following chromatograms. This confirmed that the product of interest was a petroleum lubricating. The bolt and Dyna Lube were match to each other and then to the standards. All of the normal standard chromatograms have been included for review and reference.

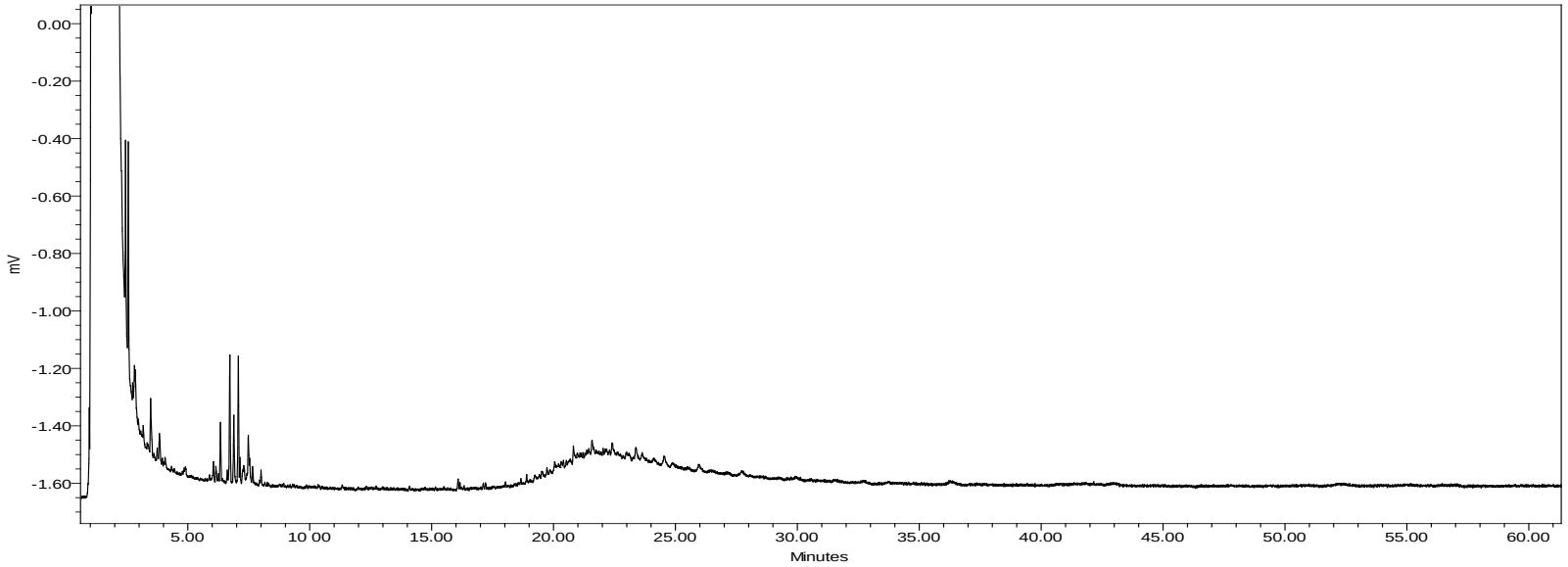
AN10002 – DYNALUBE PETID Chromatogram



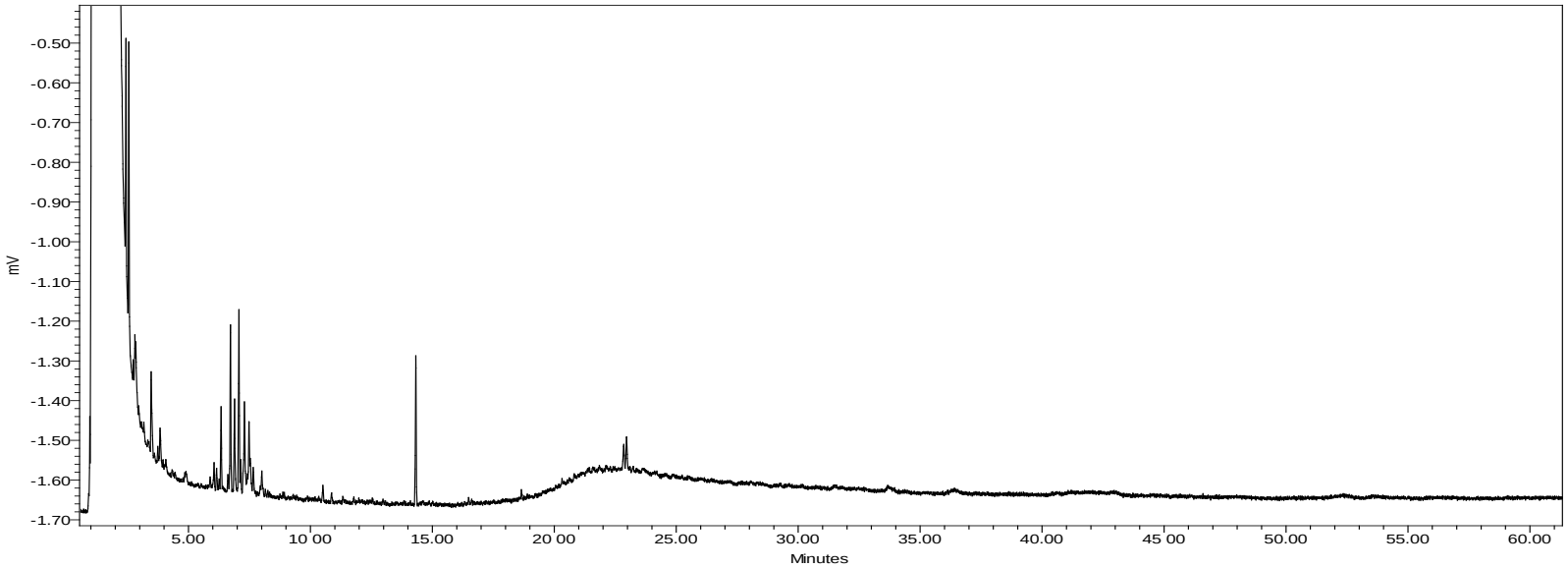
AN10003 - BOLT PETID Chromatogram



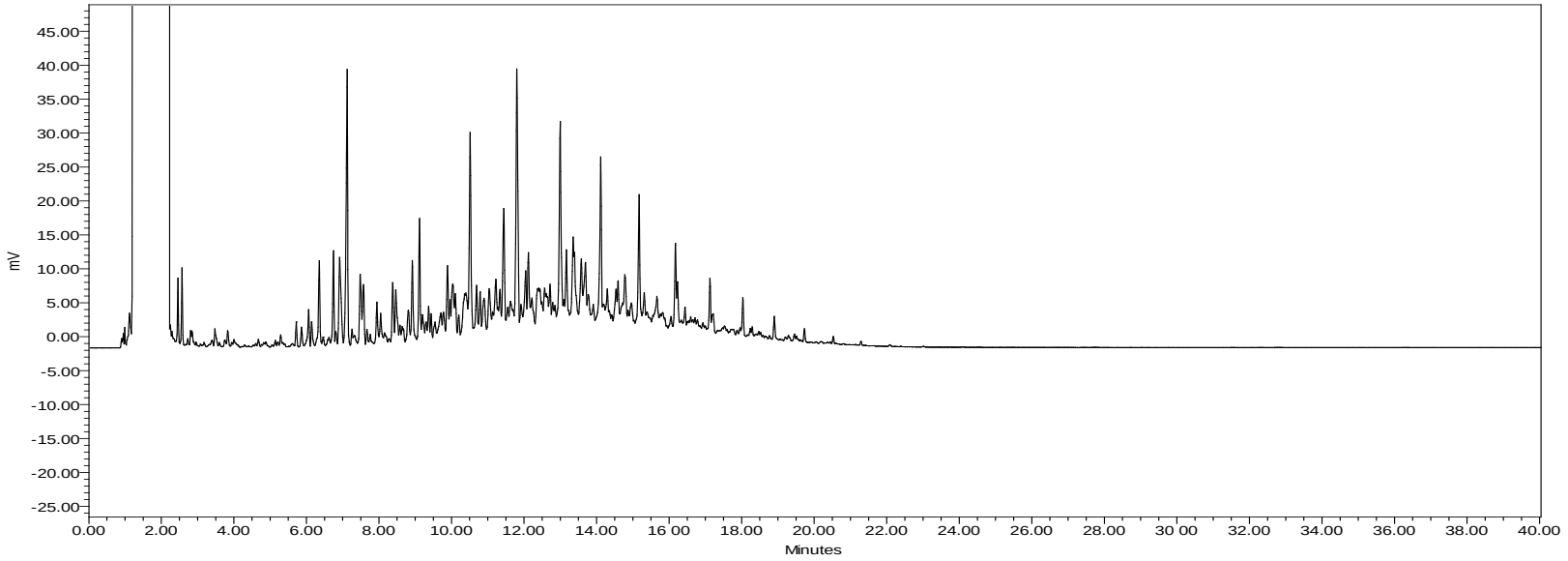
MOTOR OIL COMPOSITE STANDARD PETID Chromatogram



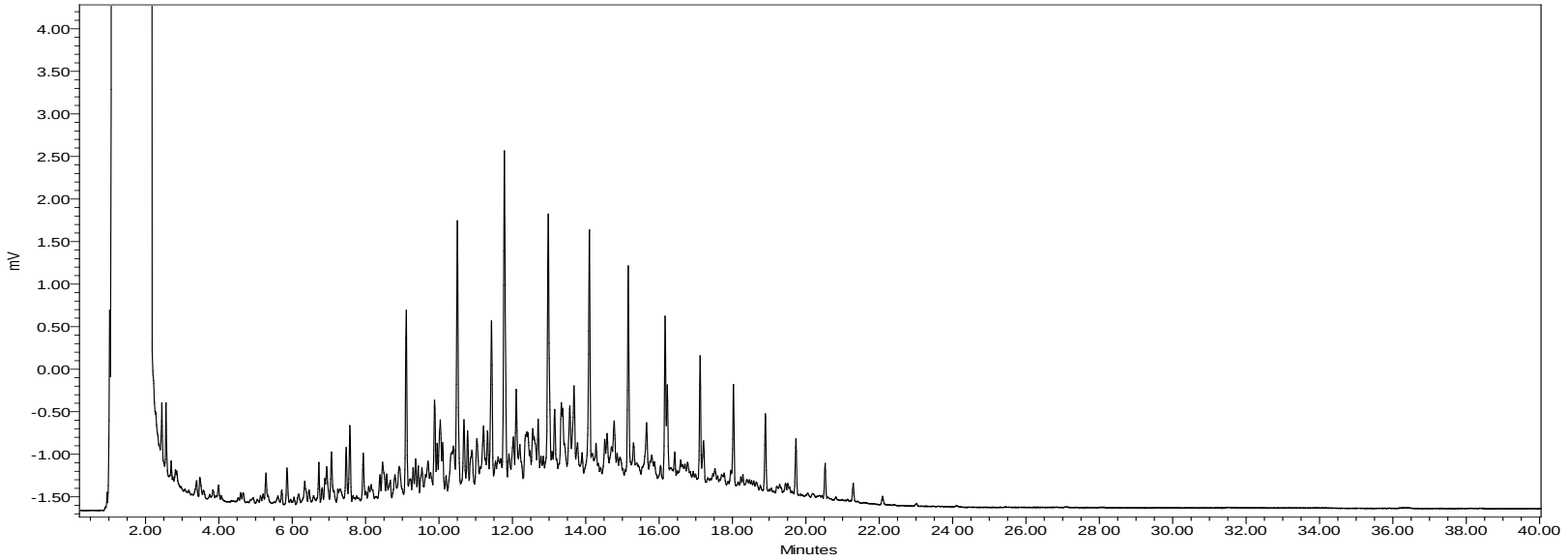
HYDRAULIC OIL STANDARD PETID Chromatogram



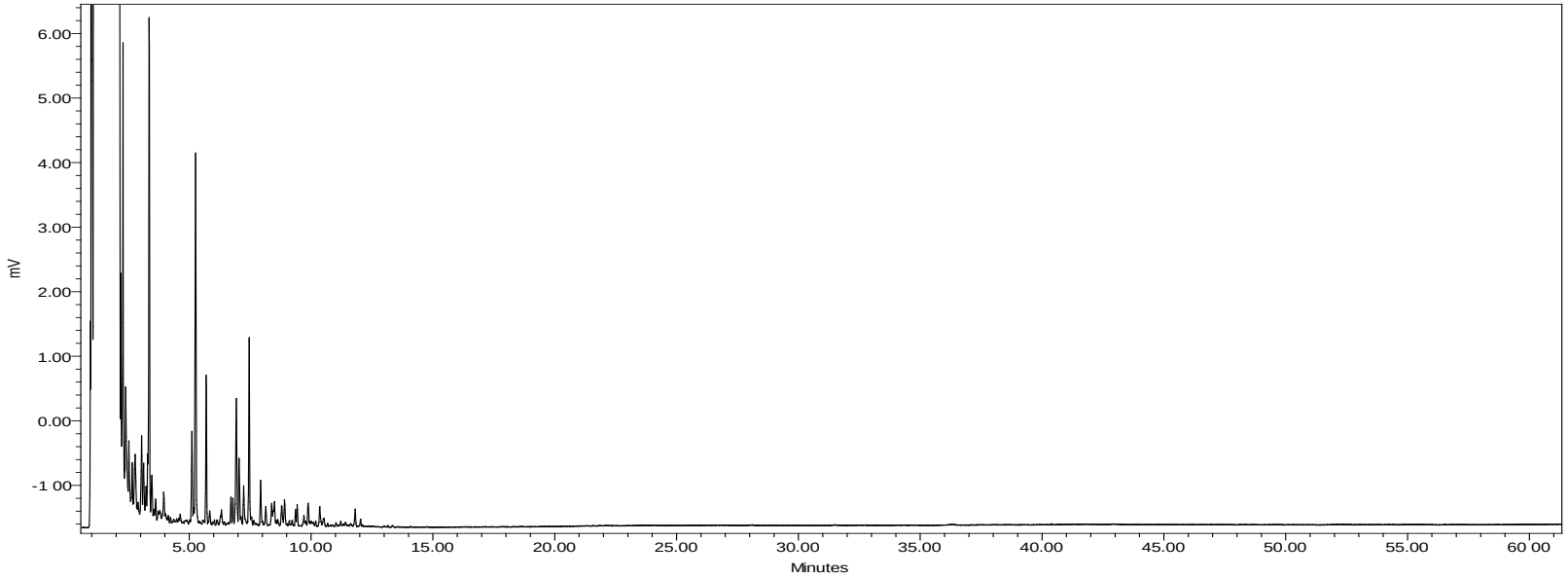
FUEL OIL #2 (HOME HEATING OIL) STANDARD PETID Chromatogram



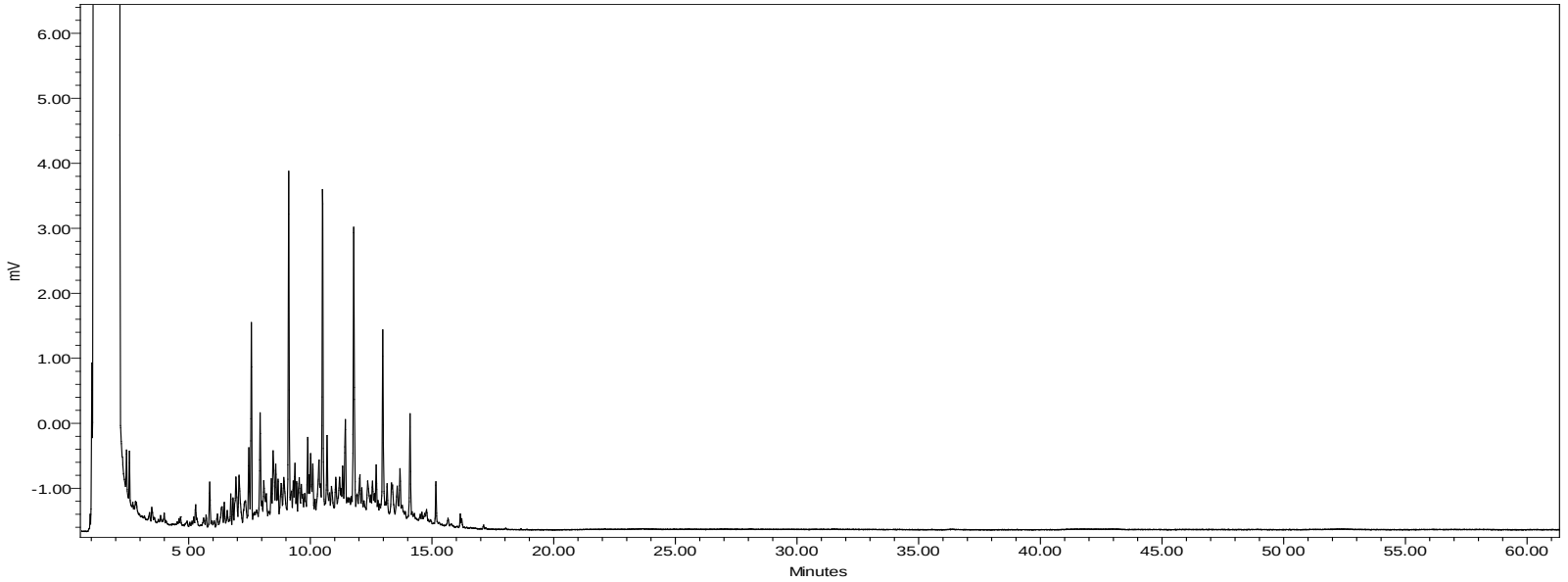
DIESEL FUEL STANDARD PETID Chromatogram



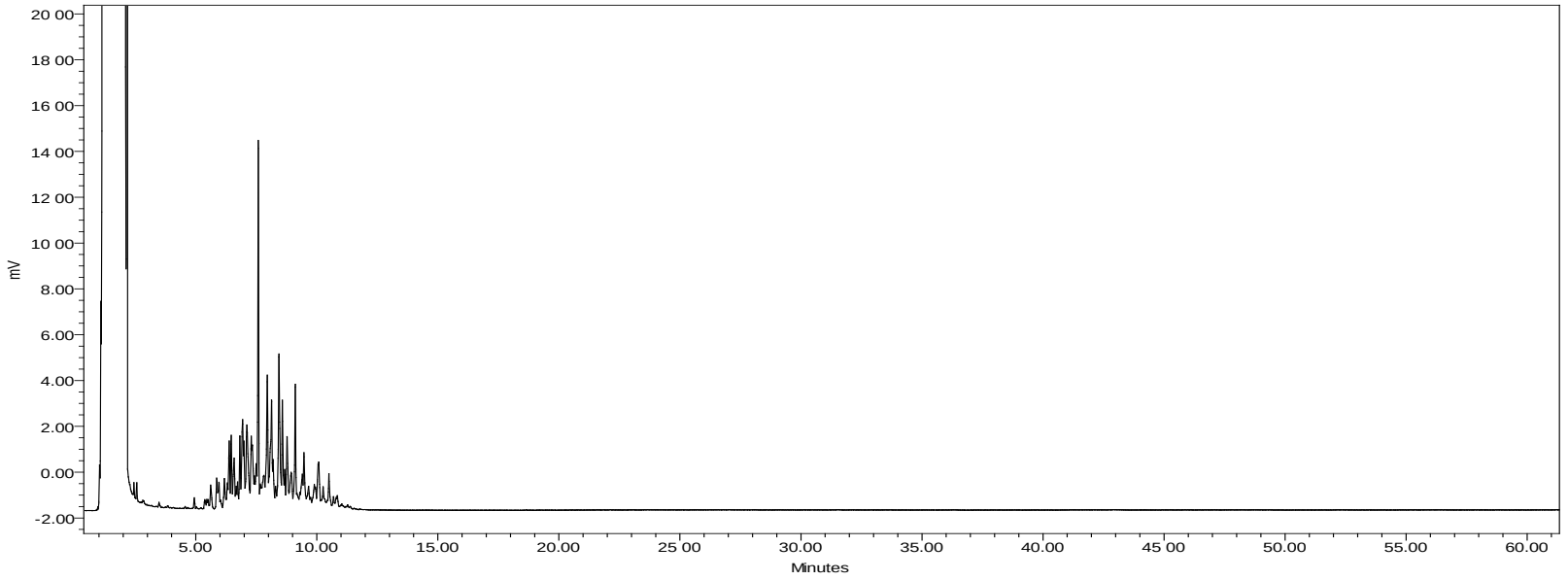
UNLEADED GASOLINE STANDARD PETID Chromatogram



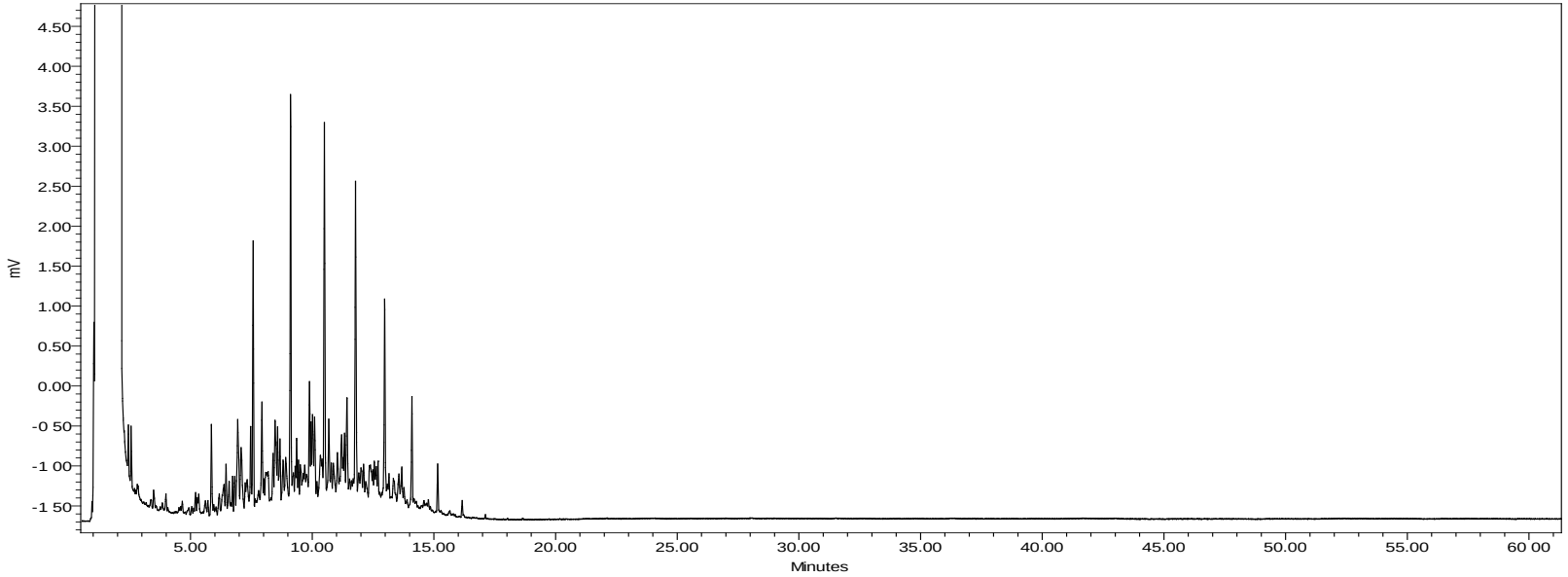
COMPOSITE KEROSENE STANDARD PETID Chromatogram



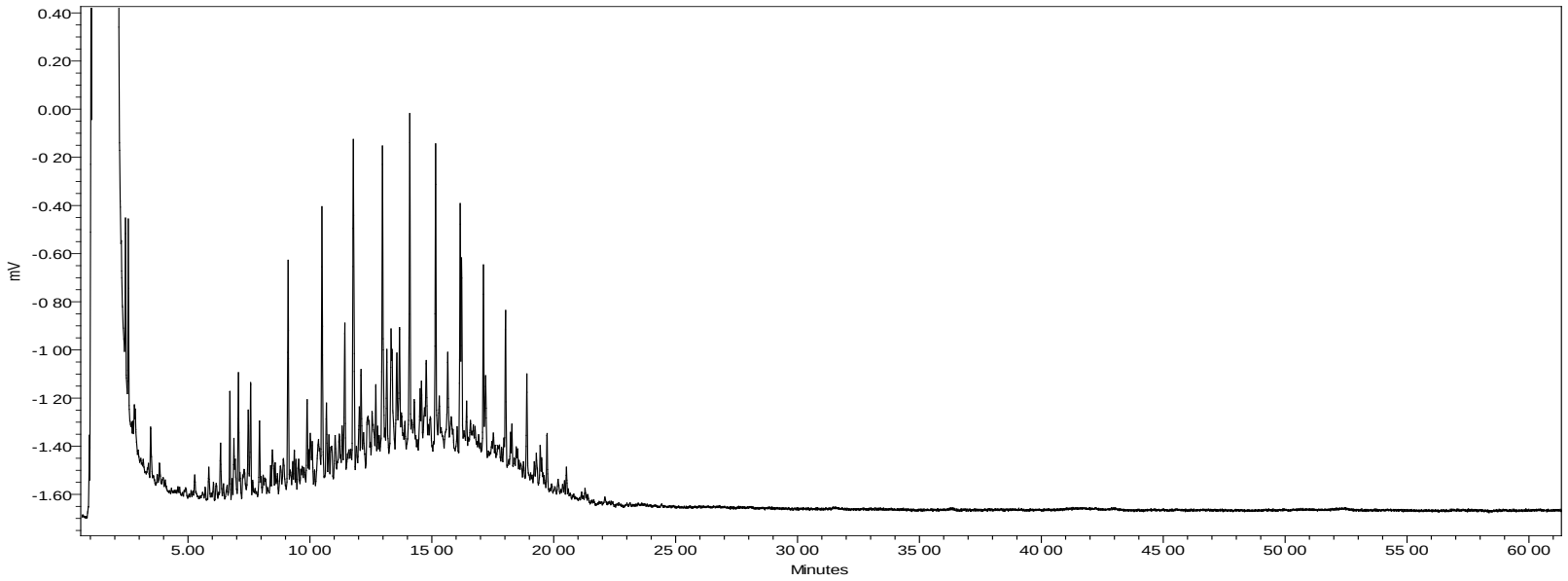
MINERAL SPIRITS PETID Chromatogram



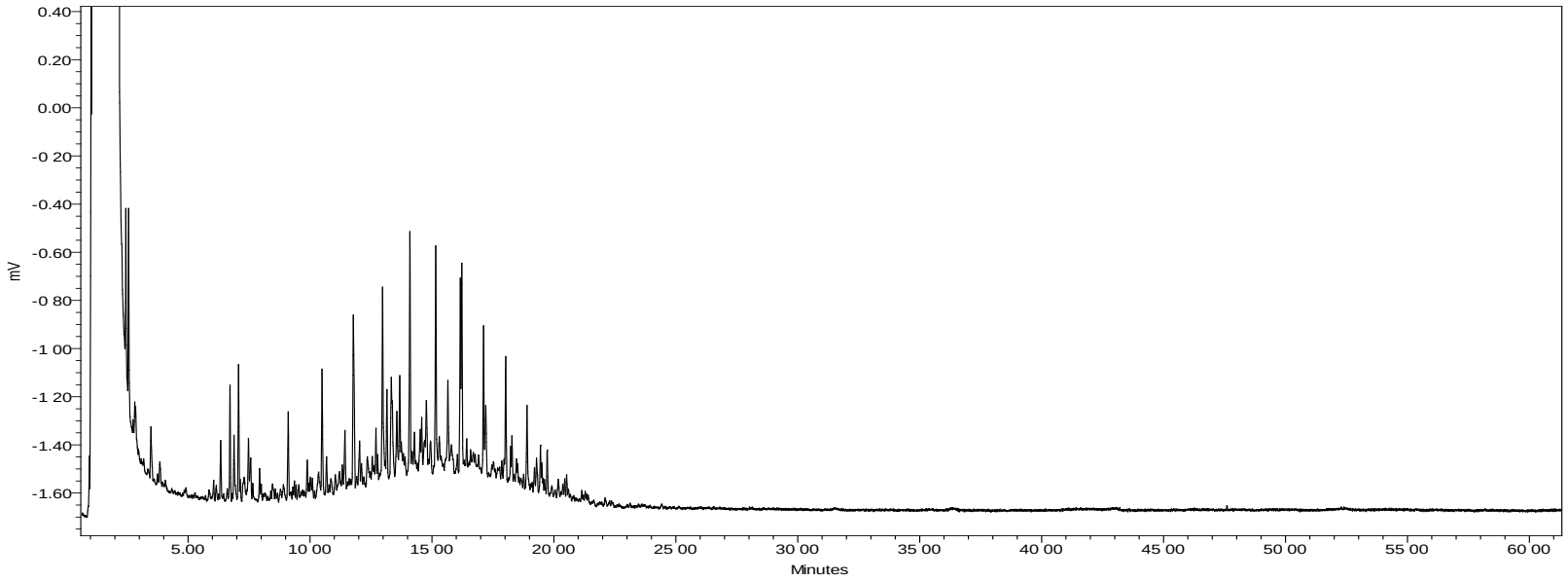
JET FUEL A PETID Chromatogram



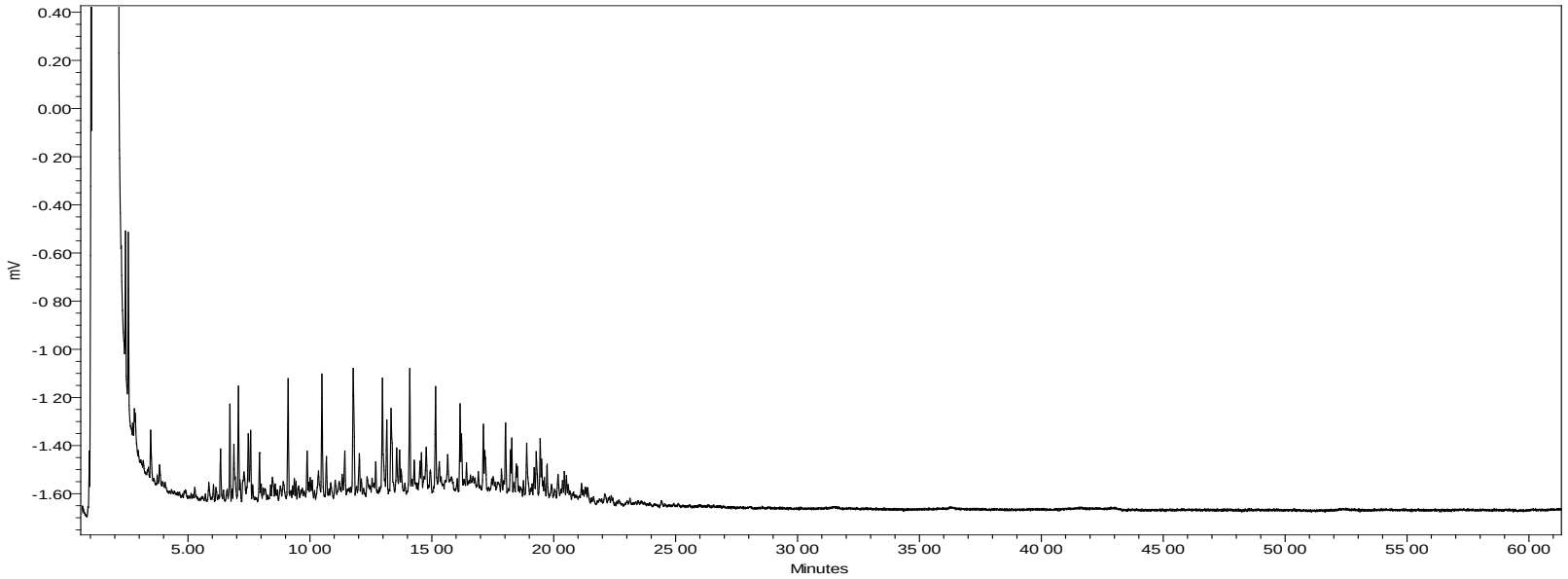
FUEL OIL #4 PETID Chromatogram



FUEL OIL #5 PETID Chromatogram

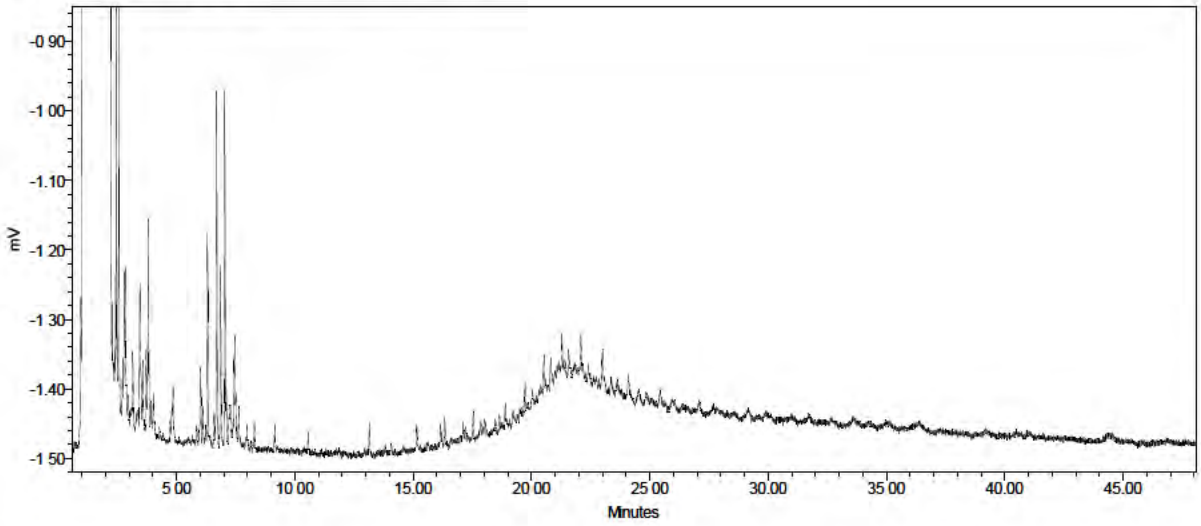


FUEL OIL #6 PETID Chromatogram

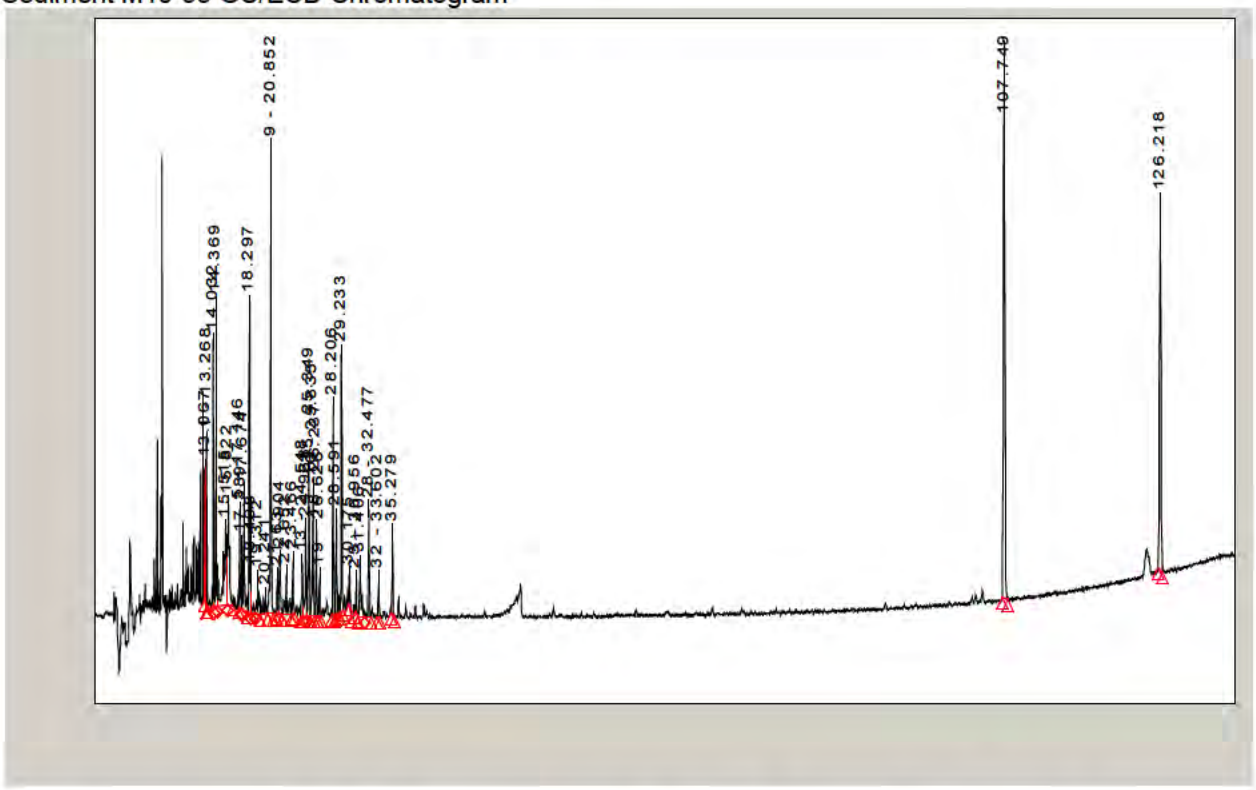


The PETID of the bolt compared to one of the sediment sample (GC/ECD) analysis. Show a very nice pattern match to the 35minuets. The interferences from the DynaLube made it very difficult to measure the PCB congeners of interest in the sediment samples.

AN10003 – BOLT PETID Chromatogram



Sediment M10-35 GC/ECD Chromatogram

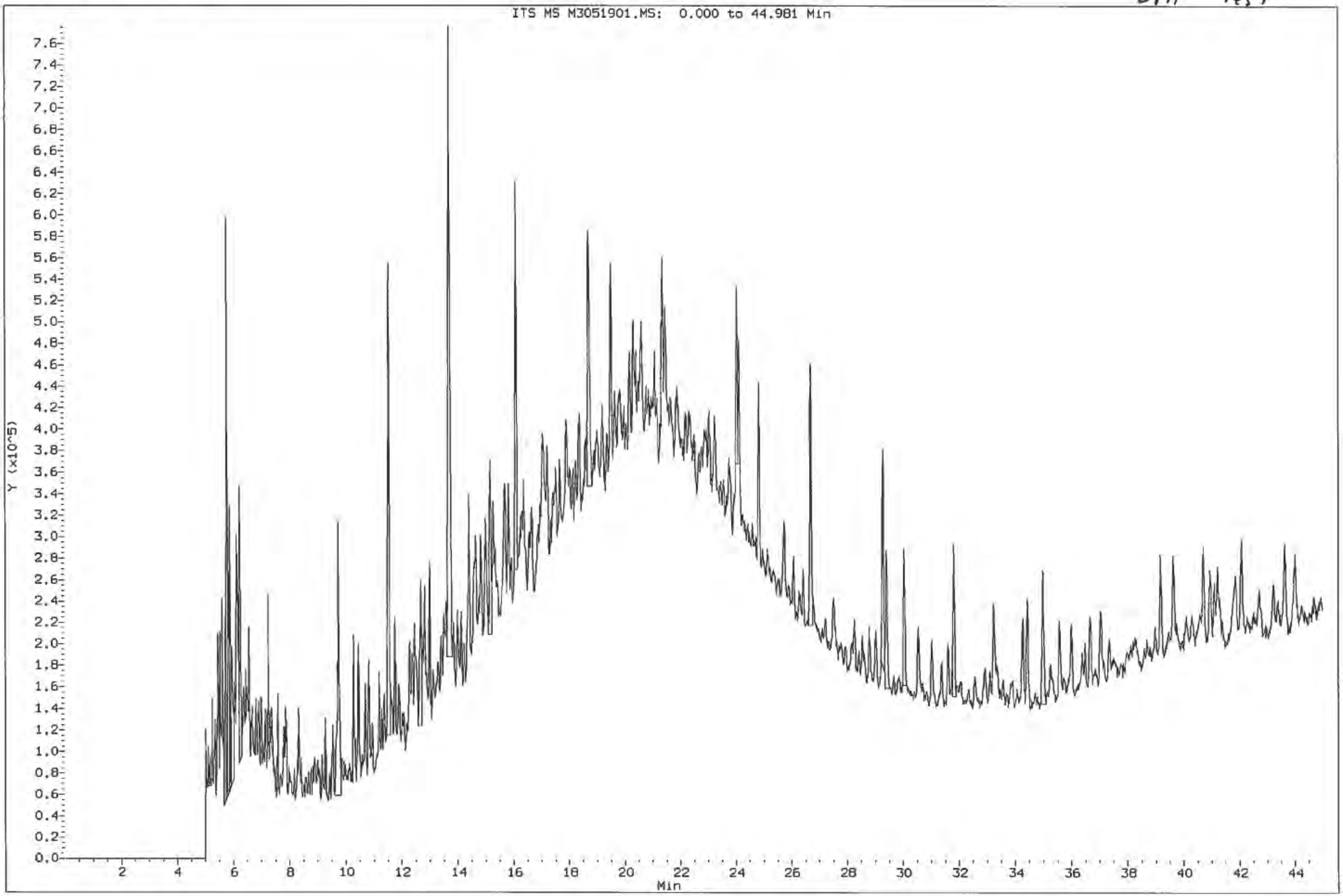


The Chromatograms of the GC/MS TICS analysis was more difficult to overlay. This is due to dilution/weathering of the bolt and sediment samples verses the pure product. The shift of the 3 samples does not

overlay as well but the main components Docosane, Eicosane and Undecane as Tentivtely Identified Compounds (TICS) match across all 3 samples.

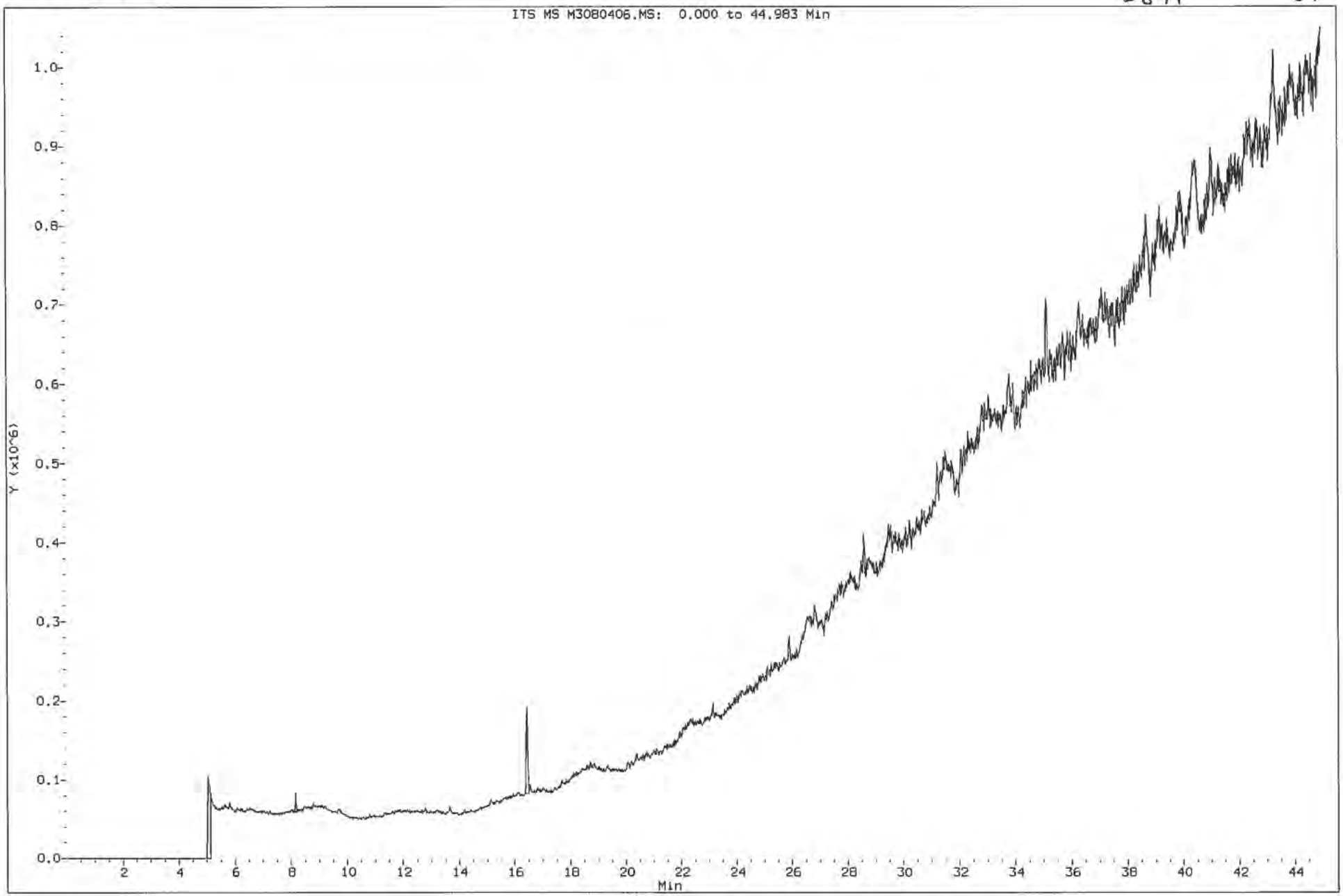
Data File: \\APOLLO\GCMS\TP10\GCMS03\080410.b\M3051901.d/M3051901.MS
Injection Date: 19-MAY-2010 15:59
Instrument: GCMS03.i
Client Sample ID: EPA4 TEST

EPA Test



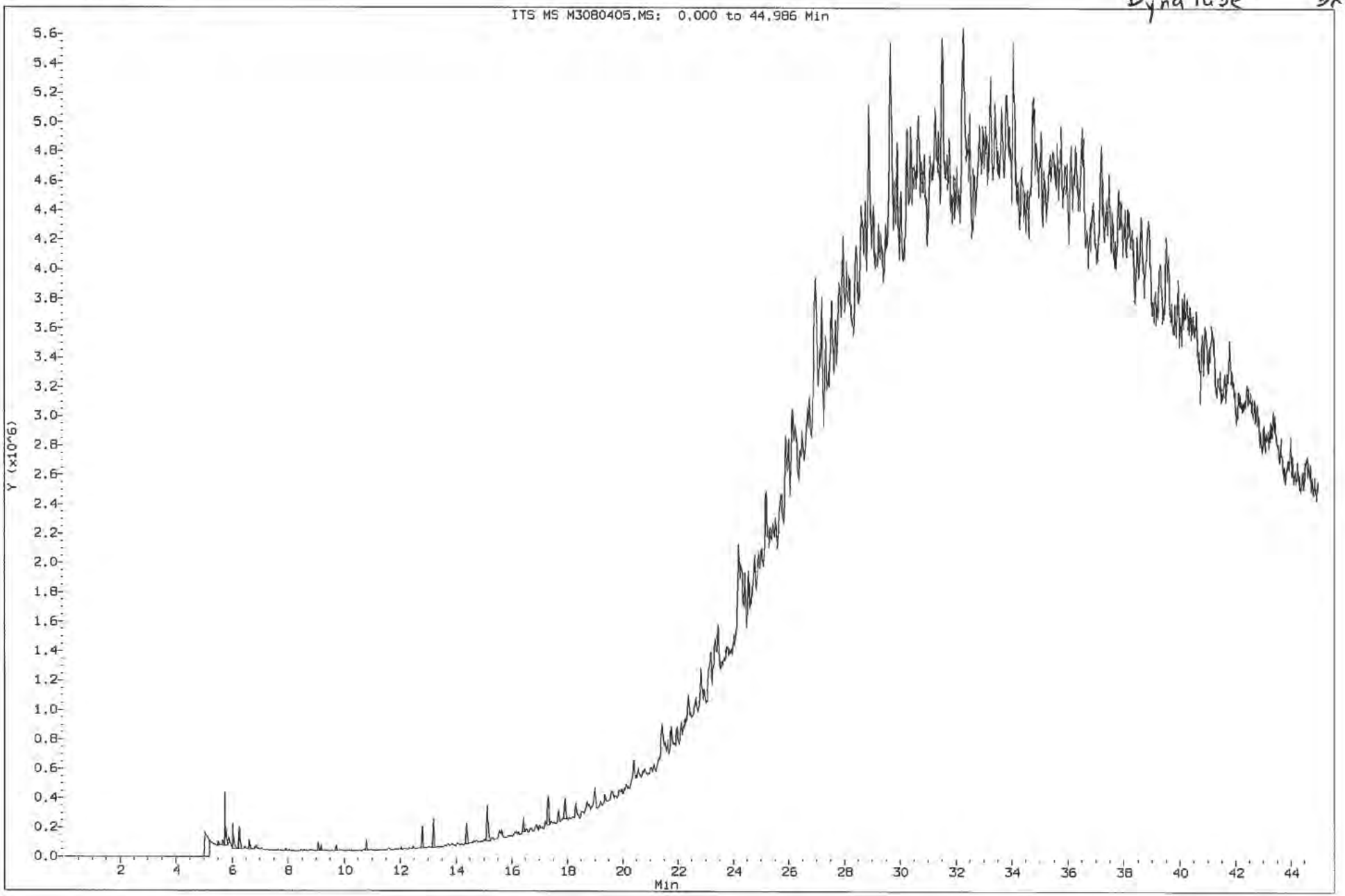
Data File: \\APOLLO\GCMS\TP10\GCMS03\080410.b\M3080406.d/M3080406.MS
Injection Date: 04-AUG-2010 17:25
Instrument: GCMS03.i
Client Sample ID: AN10003

Bo H 5x

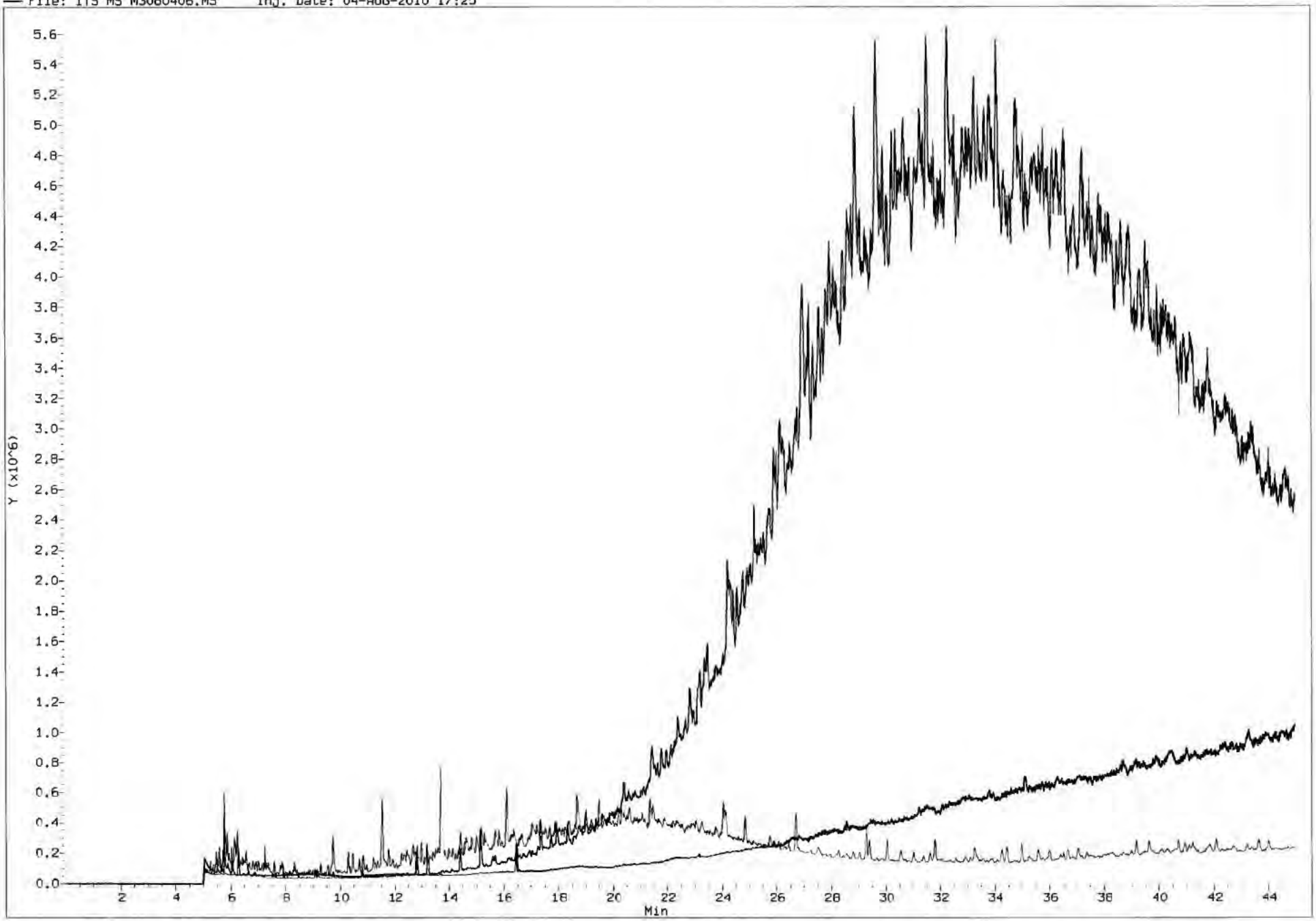


Data File: \\APOLLO\GCMS\TP10\GCMS03\080410.b\M3080405.d/M3080405.MS
Injection Date: 04-AUG-2010 16:36
Instrument: GCMS03.i
Client Sample ID: AN10002

Dynalube 5r



— File: ITS MS M3051901.MS Inj. Date: 19-MAY-2010 15:59
— File: ITS MS M3080405.MS Inj. Date: 04-AUG-2010 16:36
— File: ITS MS M3080406.MS Inj. Date: 04-AUG-2010 17:25



FORM 1
PCB ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

EPA4 TEST

Lab Name: NORTHEAST ANALYTICAL Contract:

Lab Code: 11078 Case No.: SAS No.: SDG No.: 0519.B

Matrix: (soil/water) WATER Lab Sample ID: EPA4 TEST

Sample wt/vol: 1000 (g/mL) ML Lab File ID: M3051901

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N)___ Date Extracted:

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/19/10

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	629-03-8	HEXANE, 1,6-DIBROMO-	5.74	0.547	NJ
2.	102-82-9	TRIBUTYLAMINE	5.77	1.21	NJ
3.		UNKNOWN	5.82	0.821	J
4.		UNKNOWN	5.88	0.734	J
5.		UNKNOWN	5.94	0.636	J
6.	504-44-9	HEXADECANE, 2,6,11,15-TETRAM	6.23	0.797	NJ
7.	1120-21-4	UNDECANE	9.74	1.15	NJ
8.	56862-62-5	10-METHYLNONADECANE	11.53	1.63	NJ
9.	112-95-8	EICOSANE	13.69	2.79	NJ
10.	629-97-0	DOCOSANE	18.69	1.26	NJ
11.		UNKNOWN	24.04	0.546	J
12.	62238-13-5	DECANE, 2,3,7-TRIMETHYL-	26.68	0.962	NJ
13.	630-07-9	PENTATRIACONTANE	29.29	0.810	NJ
14.	609-26-7	PENTANE, 3-ETHYL-2-METHYL-	29.40	0.538	NJ
15.	3746-39-2	N-DODECYLTHIOGLYCOLATE	30.05	0.517	NJ
16.		UNKNOWN	31.81	0.549	J
17.	2885-00-9	1-OCTADECANETHIOL	34.98	0.604	NJ
18.					
19.					
20.					
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24.					
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FORM I PCB-TIC

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APPENDIX G

EPA Region 4 Laboratory
PCB Analysis Results

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 10-0375
Project: 10-0466, Miami ODMDS - Reported by Jason Collum

June 17, 2010

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 10-0466, Miami ODMDS
Surface Water Protection

FROM: Jason Collum
ASB Analyst

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Morris Flexner

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and may have been qualified if the applicable quality control criteria were not met. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:
PCB Congeners (PCBC)	
PCB Congeners	EPA 8082

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Report Narrative for Work Order E102114, Project: 10-0466

The samples contained a number of large unidentified peaks which caused interference with some of the PCB Congeners. Samples E102114-01 (MT10-01) and -03 (MT10-36) contained peaks which interfered with PCB Congener 8, while sample E102114-02 (MT10-18) contained peaks which interfered with PCB Congeners 8, 52, and 101. Due to this interference, the MRLs for all of these Congeners were raised.

All three samples were also extracted in dichloromethane and analyzed on the GC/MS. The GC/MS results showed possible interfering peaks, but showed no evidence of PCB Congeners 8, 52 and 101.

Sample E102114-02 (MT10-18) was found to contain the presence of a PCB. The possible PCB in the sample is Ar1260 at an estimated value of 13 NJ ug/kg. Congeners were also reported in E102114-02 (MT10-18).

There was no clear evidence of an oil residue/"humpogram" in any of the samples.

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days

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Project: 10-0466, Miami ODMDS - Reported by Jason Collum

SAMPLES INCLUDED IN THIS REPORT

Project: 10-0466, Miami ODMDS

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
MT10-01	E102114-01	Sediment	4/21/10 10:01	5/18/10 10:10
MT10-18	E102114-02	Sediment	4/22/10 11:50	5/18/10 10:10
MT10-36	E102114-03	Sediment	4/21/10 16:03	5/18/10 10:10

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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
QS-3	Surrogate recovery is lower than established control limits.

ACRONYMS AND ABBREVIATIONS

CAS — Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL — Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL — Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC — Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

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D.A.R.T. Id: 10-0375
Project: 10-0466, Miami ODMDS - Reported by Jason Collum

PCB Congeners

Project: 10-0466, Miami ODMDS

Sample ID: MT10-01 **Lab ID:** E102114-01
Station ID: MT01 **Matrix:** Sediment

Date Collected: 4/21/10 10:01

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
34883-43-7	PCB Congener # 8	0.88	U, J, D-4, QS-3	ug/kg dry	0.88	5/20/10 13 06	6/07/10 13:57	EPA 8082
37680-65-2	PCB Congener # 18	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
7012-37-5	PCB Congener # 28	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
41464-39-5	PCB Congener # 44	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
41464-40-8	PCB Congener # 49	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
35693-99-3	PCB Congener # 52	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
32598-10-0	PCB Congener # 66	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
32598-13-3	PCB Congener # 77	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
38380-02-8	PCB Congener # 87	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
37680-73-2	PCB Congener #101	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
32598-14-4	PCB Congener #105	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
31508-00-6	PCB Congener #118	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
57465-28-8	PCB Congener #126	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
38380-07-3	PCB Congener #128	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
35065-28-2	PCB Congener #138	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
35065-27-1	PCB Congener #153	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
38380-08-4	PCB Congener #156	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
32774-16-6	PCB Congener #169	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
35065-30-6	PCB Congener #170	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
35065-29-3	PCB Congener #180	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
52663-69-1	PCB Congener #183	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
74472-48-3	PCB Congener #184	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
52663-68-0	PCB Congener #187	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
52663-78-2	PCB Congener #195	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
40186-72-9	PCB Congener #206	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082
2051-24-3	PCB Congener #209	0.69	U, J, QS-3	ug/kg dry	0.69	5/20/10 13 06	6/07/10 13:57	EPA 8082

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 10-0375
Project: 10-0466, Miami ODMDS - Reported by Jason Collum

PCB Congeners

Project: 10-0466, Miami ODMDS

Sample ID: MT10-18 **Lab ID:** E102114-02
Station ID: MT18 **Matrix:** Sediment

Date Collected: 4/22/10 11:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
34883-43-7	PCB Congener # 8	1.8	U, D-4	ug/kg dry	1.8	5/20/10 13 06	6/07/10 14:14	EPA 8082
37680-65-2	PCB Congener # 18	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
7012-37-5	PCB Congener # 28	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
41464-39-5	PCB Congener # 44	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
41464-40-8	PCB Congener # 49	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
35693-99-3	PCB Congener # 52	0.64	U, D-4	ug/kg dry	0.64	5/20/10 13 06	6/07/10 14:14	EPA 8082
32598-10-0	PCB Congener # 66	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
32598-13-3	PCB Congener # 77	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
38380-02-8	PCB Congener # 87	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
37680-73-2	PCB Congener #101	1.6	U, D-4	ug/kg dry	1.6	5/20/10 13 06	6/07/10 14:14	EPA 8082
32598-14-4	PCB Congener #105	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
31508-00-6	PCB Congener #118	1.0		ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
57465-28-8	PCB Congener #126	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
38380-07-3	PCB Congener #128	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
35065-28-2	PCB Congener #138	1.9		ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
35065-27-1	PCB Congener #153	1.6		ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
38380-08-4	PCB Congener #156	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
32774-16-6	PCB Congener #169	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
35065-30-6	PCB Congener #170	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
35065-29-3	PCB Congener #180	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
52663-69-1	PCB Congener #183	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
74472-48-3	PCB Congener #184	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
52663-68-0	PCB Congener #187	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
52663-78-2	PCB Congener #195	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
40186-72-9	PCB Congener #206	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082
2051-24-3	PCB Congener #209	0.63	U	ug/kg dry	0.63	5/20/10 13 06	6/07/10 14:14	EPA 8082

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 10-0375
Project: 10-0466, Miami ODMDS - Reported by Jason Collum

PCB Congeners

Project: 10-0466, Miami ODMDS

Sample ID: MT10-36 **Lab ID:** E102114-03
Station ID: MT36 **Matrix:** Sediment

Date Collected: 4/21/10 16:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
34883-43-7	PCB Congener # 8	1.2	U, D-4	ug/kg dry	1.2	5/20/10 13 06	6/07/10 14:32	EPA 8082
37680-65-2	PCB Congener # 18	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
7012-37-5	PCB Congener # 28	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
41464-39-5	PCB Congener # 44	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
41464-40-8	PCB Congener # 49	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
35693-99-3	PCB Congener # 52	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
32598-10-0	PCB Congener # 66	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
32598-13-3	PCB Congener # 77	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
38380-02-8	PCB Congener # 87	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
37680-73-2	PCB Congener #101	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
32598-14-4	PCB Congener #105	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
31508-00-6	PCB Congener #118	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
57465-28-8	PCB Congener #126	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
38380-07-3	PCB Congener #128	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
35065-28-2	PCB Congener #138	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
35065-27-1	PCB Congener #153	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
38380-08-4	PCB Congener #156	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
32774-16-6	PCB Congener #169	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
35065-30-6	PCB Congener #170	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
35065-29-3	PCB Congener #180	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
52663-69-1	PCB Congener #183	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
74472-48-3	PCB Congener #184	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
52663-68-0	PCB Congener #187	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
52663-78-2	PCB Congener #195	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
40186-72-9	PCB Congener #206	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082
2051-24-3	PCB Congener #209	0.72	U	ug/kg dry	0.72	5/20/10 13 06	6/07/10 14:32	EPA 8082