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INVESTIGATION OF FISH IN KOPPERS POND
FOR THE
KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
HORSEHEADS, NEW YORK

CEC Project 230607

July 25, 2003

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1.0 INTRODUCTION

Viacom Inc. (Viacom) requested that Civil & Environmental Consultants, Inc. (CEC) assist with the development of a Work Plan (WP) and to collect site-specific fish tissue data for poly chlorinated biphenyls (PCBs) and metals at Koppers Pond located in the Village of Horseheads, Chemung County, New York. CEC was also retained to perform a limited re-analysis of the resultant data relative to the human health advisories and risks to selected ecological receptors developed by the United States Environmental Protection Agency and its contractor CDM Federal Programs Corporation (CDM, 1995; CDM, 1999). The WP addressed the collection of representative and appropriate fish samples, preparation and analysis of selected samples, and use of the resultant data in updating the human health fish advisories and ecological risk assessment. The WP was based on discussions with U.S. Environmental Protection Agency (EPA) personnel, knowledge of site conditions, and a review of the background ecological risk assessment documents (TES, 1996; EPA, 1996; CDM, 1999). A draft WP was submitted to EPA on May 2, 2003. Pursuant to comments received from Christina Dowd, New York State Department of Environmental Conservation (NYSDEC) and Chuck Merckel, United States Fish and Wildlife Service (FWS), Viacom submitted a revised WP to EPA on May 27, 2003 and received EPA approval to proceed with the work.

2.0 FISH SAMPLING

CEC performed a fishery survey of Koppers Pond on June 4, 2003. The work was performed in accordance with the WP and in consideration of the guidance provided in EPA (2000) and NYSDEC (2002) documents. In addition, fish sampling was conducted in accordance with conditions set forth in New York State Fish and Wildlife License Number LCP03-382.

Electrofishing was conducted during daylight in the various available habitats (i.e., near and off-shore) that exist in Koppers Pond using the appropriate gear (e.g., boat-mounted, back-pack) for the habitat. One biologist operated and maneuvered the boat and two biologists operated the electrofishing unit and netted stunned fish from the bow of the boat. Netted fish will be placed into a boat-mounted livewell. One of the netters operated a bow-mounted safety foot pedal that controls (on and off) the electric current. During the boat electrofishing surveys, all personnel on board wore U.S. Coast Guard-approved personal floatation devices and abide by CEC's Boating and Diving Health and Safety Plan..

Fish collected from the survey were identified to species, weighed to the nearest gram and measured (total body length in mm) prior to freezing. Fish not retained for tissue analysis were returned to the pond alive. The presence of fish disease, tumors, lesions, erosions, fin damage, deformities, and/or skeletal anomalies was recorded. These data were recorded on fish sampling field data sheets provided in Attachment A.

A total of 24 individual fish were collected and sent for tissue analysis to En Chem Inc. (En Chem) located in Green Bay, Wisconsin.' The fish species collected were five common carp *(Cyprinus carpio),* five white sucker *(Catostomus commersoni),*

two largemouth bass *(Micropterus salmoides),* six pumpkinseed *(Lepomis gibbosus),* three black crappie *(Pomoxis nigromaculatus),* and three green sunfish *(Lepomis cyanellus).* As noted above, the objective of the survey was to collect fish for the human health advisory analysis and fish for the ecological receptor analysis. Common carp and white sucker are recommended bottom-feeding species for human health fish advisory assessments (EPA, 2000) while the largemouth bass represents a predatory fish species. EPA (2000) recommends that whole fish be analyzed to mirror the way some consumers may prepare the fish (e.g., stew or soup); however, skin-on fillets with the belly flap included are often used to more closely portray the standard filleting method used by recreational fishermen (NYSDEC, 2002) and all individual fish were analyzed in this manner. Smaller fish (e.g., pumpkinseed, green sunfish, black crappie) that might be preyed upon by the selected, higher trophic level ecological receptors (i.e., great blue heron, mink) were collected for the ecological risk evaluation.

In addition, CEC collected supportive fishery and habitat data for this survey. The supportive data consisted of the following information: in-situ measurements of surface water temperature, conductivity, pH, and dissolved oxygen; measurements of water depth; an assessment of the in-pond cover (e.g., large woody debris, root wads, root mats, undercut banks, gravel bars, and macrophytes) present; floodplain and land use around the pond; and degree of canopy cover (Attachment A).

After initial processing to determine species, size, and morphological abnormalities, each fish selected for analysis was placed in a waterproof plastic bag and sealed with a label placed on the outside of the bag. The samples were cooled immediately after packaging, frozen, and preserved on dry ice for shipping to the analytical laboratory (En Chem) within 24 hours. The chain of custody form associated with the samples is provided in Attachment B.

3.0 SAMPLE ANALYSIS

En Chem Inc. of Green Bay, Wisconsin provided the analytical services for this project. The laboratory processed and prepared the samples (e.g., weighing, filleting, homogenizing) in accordance with accepted protocols (NYSDEC, 2002). The samples were prepared and analyzed for the following:

- Polychlorinated biphenyls (PCBs) (seven common Aroclors) - SW-846 Method 8082;
- Target Analyte List metals - SW-846 Methods 6010B/7471 (Mercury);
- Percent lipids - EPA Method 3540C, Soxhlet Extraction; and
- Wet weight (moisture) - EPA Method 160.3 (modified).

En Chem provided the results with full (Type I) data packages on July 18, 2003 (Attachment C).

4.0 DATA EVALUATION

The data evaluation has two major components: a human health evaluation and an ecological receptor evaluation. The following sections present those evaluations.

4.1 Human Health Evaluation

The human health evaluation focuses on total PCBs (i.e., Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260) and how the fish tissue concentrations in the 2003 survey compare to prior survey results, current fish advisories and screening levels, and risks.

The total PCB results for the 24 fish collected in 2003 averaged 793 ug/kg and ranged from 270 (largemouth bass) to 2,400 (ig/kg (common carp, Table 1). PCBs were detected in all the fish collected for analysis. Three Aroclors, 1248, 1254, and 1260 were detected in the fish tissue and generally Aroclor-1254 was dominant. The maximum PCB value of 2,400 jig/kg for a carp collected in the 2003 sampling is lower than the 3,980 ug/kg reported by NYSDEC for a carp (approximately 18 inches) collected from Koppers Pond in 1988 but higher than the maximum value of 537 ug/kg reported for a white sucker (between 6 and 9 inches) collected in 1995 (CDM, 1995).

CEC screened the total PCB data against the fish advisory values used in previous reports for the site and recent screening values proposed by EPA (2000) for recreational and subsistence fishers (Table 1). The United States Food and Drug Administration (FDA, 2003) limit for PCBs in the edible portion of fish is 2,000 ug/kg and only one of the 24 fish collected in 2003 had a fish tissue value that

exceeded the limit (see Table 1, common carp, CC-4, the largest fish collected about 28 inches in length).

The EPA (2000) has developed screening values (SVs) which are "defined as concentrations of target analytes in fish or shellfish tissue that are of potential public health concern and that are used as threshold values against which levels of contamination in similar tissue collected from the ambient environment can be compared. Exceedance of these SVs should be taken as an indication that more intensive monitoring and/or evaluation of human health risk should be conducted." The total PCBs measured in the individual fish collected from Koppers Pond exceed the SVs proposed by EPA for recreational and subsistence fishers (Table 1). It should be noted that the SVs are based on a number of assumptions that may or may not be appropriate for this site. For example, the acceptable risk level is assumed to be 10-^{5}, the fish intake consumption for the general adult population and recreational fishers is 17.5 grams per day (g/d), and the fish intake consumption for the subsistence fishers is 142.4 g/d.

The Final Baseline Human Health Risk Assessment for the site presented the results of carcinogenic risk and noncarcinogenic hazard index calculations for present and potential future use scenarios for area resident ingestion of fish from Koppers Pond (CDM, 1995, Table C-80). In 1995, the carcinogenic risk for the ingestion of PCBs in fish by an adult was calculated as 3.6E-04 which is above EPA's target range of 10^{*4} to 10^{6}. In 2003, all the same input parameters were used to calculate the carcinogenic risk attributable to PCBs, except the most recent sampling 95% upper confidence level (UCL) concentration for PCBs in fish (i.e., 1 mg/kg, Table 2) was used in the intake calculation. The reasonable maximum exposure (RME) results in a carcinogenic risk of 1.1E-03 (Table C-80 Revised, RME), while the central tendency exposure results in a carcinogenic risk of 5.4E-05

(Table C-80 Revised, CTE). The CTE estimate is based on an average PCB tissue concentration (0.793 mg/kg, Table 1), mean residency time (9 years, EPA, 1997), mean ingestion rate for recreational anglers in New York (0.005 kg/day, EPA, 1997), and all other input parameters are the same as employed in the RME calculations.

In 1995, the hazard quotient (HQ) calculation for the ingestion of PCBs in fish was calculated as *6.8* (CDM, 1995, Table C-80). In 2003, all the same input parameters were used to calculate the noncarci no genie HQ, except the most recent sampling 95% UCL concentration for PCBs in fish tissue (i.e., 1 mg/kg, Table 2) was used in the intake calculation. The reasonable maximum exposure (RME) calculation results in an HQ of 21 (Table C-80 Revised, RME), while a central tendency exposure results in an HQ of 2.7 (Table C-80 Revised, CTE). The input parameters for the CTE calculation are the same as described above for the carcinogenic CTE calculations.

4.2 Ecological Receptor Evaluation

CEC also used the analytical data to re-analyze the risk to great blue heron and mink from eating the fish at the site. Specifically, CEC re-calculated the hazard quotients for each receptor and updated (site-specific) data tables using the most recent fish tissue data for PCBs and metals (see CDM, 1999 and enclosed Revised Tables B-5, B-7, B-ll, and B-12).

The risks to potential food chain receptors were modeled by CDM in 1999. Risks to the selected receptors were evaluated using hazard quotients (HQs) which were determined for each contaminant of concern (COC) by dividing the estimated exposure doses by benchmark values (e.g., No-Observed-Adverse-Effects-Level;

NOAEL). Cumulative Hazard Indices (His) were determined by summing all of the individual COC HQs. The results were assessed in the following manner:

HQ or HI < 1	no adverse effects
HQ or HI > 1	potential adverse effects

The following presents an evaluation by ecological receptor.

Great Blue Heron

Using a food chain model, the HI to the great blue heron from sediments in Koppers Pond was calculated at 1,900 (CDM, 1999, Table B-5) with chromium, zinc, and endrin contributing approximately 88, 6, and 2 percent, respectively, to the HI. Other COCs with HQs greater than one were barium, cadmium, copper, lead, and cyanide. Using the maximum concentrations for total PCBs and metals from the 2003 fish tissue data (Attachment C) in place of the hypothetical BAF information, the re-calculated HI is 214 with chromium, endrin, and zinc contributing 53, 22, and 17 percent, respectively, to the HI (Table B-5 Revised). Other COCs in 2003 with HQs greater than one were cadmium, lead, and cyanide.

In 1999, risk to the great blue heron was also calculated using the food chain exposure dose models based on just a diet of fish (both average and maximum fish tissue concentration data for Aroclor-1254 were evaluated) and incidental ingestion of the maximum concentration of Aroclor-1254 measured in sediments in Koppers Pond (CDM, 1999). The resultant HQs for the average (1.04 mg/kg) and maximum (1.51 mg/kg) fish concentration plus maximum sediment concentration (4.5 mg/kg) were 1.74E-02 and 2.39E-02, respectively, (CDM, 1999, Table B-ll). Using the average and maximum concentrations for total PCBs from the 2003 fish tissue data

(Table 1), the re-calculated HQs are 1.41E-02 and 3.6E-02, respectively (Table B-ll Revised).

Mink

Using a food chain model, the HI to the mink heron from sediments in Koppers Pond was calculated at 1,550 (CDM, 1999, Table B-7) with lead, cadmium, and chromium contributing approximately 67, 10 and 10 percent, respectively, to the HI. Other COCs with HQs greater than one were.endrin, Aroclor-1254, aluminum, antimony, barium, cobalt, copper, mercury, nickel, silver, vanadium, and zinc. Using the maximum concentrations for total PCBs and metals from the 2003 fish tissue data (Attachment C) in place of the hypothetical BAF information, the re-calculated HI is 280 with lead, cadmium, and total Aroclors contributing 43, 41, and 5 percent, respectively, to the HI (Table B-7 Revised). Other COCs in 2003 with HQs greater than one were endrin, aluminum, antimony, barium, chromium, copper, mercury, silver, and zinc.

In 1999, risk to the mink was'also calculated using the food chain exposure dose models based on just a diet of fish (both average and maximum fish tissue concentration data for Aroclor-1254 were evaluated) and incidental ingestion of the maximum concentration of Aroclor-1254 measured in sediments in Koppers Pond (CDM, 1999). The resultant HQs for the average (1.04 mg/kg) and maximum (1.51 mg/kg) fish concentration plus maximum sediment concentration (4.5 mg/kg) were 4.17 and 5.7, respectively, (CDM, 1999, Table B-12). Using the average and maximum concentrations for total PCBs from the 2003 fish tissue data (Table 1), the re-calculated HQs are 3.36 and 8.61, respectively (Table B-12 Revised).

5.0 REFERENCES

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TABLES

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Kentucky Avenue Wellfield Site
Koppers Pond; Horseheads, New York
Viacom, Inc.
June 4, 2003
CEC Project Number 230607

Table 1
Comparison of Fish Tissue PCB Concentrations to Fish Advisory Values

Fish Code	Fish Species	Total Length, millmelers	Total Weight, grams	Total PCBs, Mg'kg	FDA Level*", ug/kg	NYSDEC Level[111] ug/kg	Recreational Fisher Screening Value ·]|, ug/kg Non-carcinogen	Recreational Fisher Screening Value ug/kg Carcinogen	Subsistence Fisher Screening Value '*', ug/kg Non-carcinogen	Subsistence Fisher Screening Value ug/kg : V'v Carclnog<
WS-1-LS	While sucker	350	402	720	2,000	110	80	20	9.83	O0 2.45
WS-2-LS	White sucker	312	360	340	2,000	110	80	20	9.83	2.45
WS-3-LS	White sucker	365	514	640	2.000	110	80	20	9.83	2.45
WS-4-RS	White sucker	341	350	410	2,000	110	80	20	9.83	2.45
WS-5-RS	White sucker	340	372	1,500	2,000	110	80	20	9.83	2.45
CC-1-LS	Common carp	567	2.980 •—	850	2.000	110	80	20	9.83	2.45
CC-2-LS	Common carp	528	1.960	1,200	2,000	110	80	20	9.83	2.45
CC-3-LS	Common carp	492	1,570	-»-1.700	2.000	110	80	20	983	2.45
CC-4-RS	Common carp	700	4,360 •:	^ 4 0 0 \ '	2,000	110	80	20	9.83	2.45
CC-5-RS	Common carp	441	1,130	650	2,000	110	80	20	9.83	2.45
LB-1-RS	Largemouth bass	353	600 "'	510	2,000	110	80	20	9.83	2.45
LB-2-RS	Largemouth bass	363	654	270	2,000	110	80	20	9.83	2.45
PS-1	Pumpkinseed	96	20	"560	2,000	110	80	20	9.83	2.45
PS-2	Pumpkinseed	98	18	600	2.000	110	60	20	9.83	2.45
PS-3	Pumpkinseed	100	20	1,300	2,000	110	80	20	9.83	2.45
PS-4	Pumpkinseed	162	84	1,100	2,000	110	80	20	9.83	2.45
PS-5	Pumpkinseed	162	82	340	2,000	110	80	20	9.83	2.45
PS-6	Pumpkinseed	157	72	870	2,000	110	80	20	9.83	2.45
BC-1-RS	Black crappie	162	50	• • 350	2.000	110	80	20	9.83	2.45
BC-2-RS	Black crappie	184	72	610	2,000	110	80	20	9.83	2.45
BC-3-RS	Black crappie	162	54	640	2.000	110	80	20	9.83	2.45
GS-1-RS	Green sunfish	164	74	450	2.000	110	80	20	9.83	2.45
GS-2-RS	Green sunfish	170	88	610	2.000	110	80	20	9.83	2.45
GS-3-RS	Green sunfish	165	80	410	2,000	110	80	20	9.83	2.45
Average		269	665	793						
Standard Deviation		163	1051	501						

" United States Food and Drug Administration Advisory (2003).
[m] Screening Level Ecological Risk Assessment for the Kentucky Wellfield Superfund Sile (USEPA, 1996) references Niagara River Biota Contamination Projecl Newell et al. 1987).
(3) Carcinogenic screening value for a recreational fisher using a slope factor of 2, a fish consumption \ rate of 17,5 g/d, 70 kg body weight, 10^{s} risk level, and 70-yr lifetime {USEPA, 2000).
[HI] Carcinogenic screening value for a recreational fisher using a slope factor of 2. a fish consumption rate of 142.4 g/d, 70 kg body weight, 10^{s} risk level, and 70-yr lifetime (USEPA, 2000), . -

Table 2

Calculation of 95% Upper Confidence Level for Total PCBs in Fish Tissue

Kentucky Avenue Well field Site

Koppers Pond: Horseheads, New York

Total PCBs	ln	mean	STDEV	n	H	95% UCL
pe/ke						
720.0	6.579251	6.513874	0.561389	24	2.025	1000.7
340.0	5.828946					
640.0	6.461468					
410.0	6.016157					
1.500.0	7.31322					
850.0	6.745236					
1,200.0	7.090077					
1,700.0	7.438384					
2.400.0	7.783224					
650.0	6.476972					
510.0	6.234411					
270.0	5.598422					
560.0	6.327937					
600.0	6.39693					
1,300.0	7.17012					
1,100.0	7.003065					
340.0	5.828946					
870.0	6.768493					
350.0	5.857933					
610.0	6.413459					
640.0	6.461468					
450.0	6.109248					
610.0	6.413459					
410.0	6.016157					

TABLE C-80 Revised, Central Tendency Exposure to a Resident Adult from Ingestion of PCBs in Fish Tissue

Project No. 230607
SITE: Kentuck Avenue Wellfietd Site OU III
RECEPTOR: RESIDENT ADULT; CENTRAL TENDENCY EXPOSURE
MEDIUM: FISH TISSUE
PATHWAY: INGESTION

COCs	Average Concentration Detected (mq/kq)	RFDo _(mg/kg/day)	(i) CSFo (mg/kg/day)-1
Total PCBs	0.793	2.00E-05	7.7
1			

Equation: Intake = (mg/kg-day) $\frac{CS \times IR \times CF \times Fl \times EF \times ED}{BW \times AT}$

Intakes Carcinogens	HTotal PCBs	6.98E-06	Cancer Risk HTotal PCBs	Inlake x Slope Faclor	**Cancer Risk** 5.4E-05
Intakes Noncarcinogens	HTotal PCBs	5.43E-05	Hazard Quotient [[Total PCBs	Intake /Reference Dose	**Hazard) Quotient/Index** 2.7E+00

			Values Used	Reference
CS	chemical concentration In fish tissue	(mg/kg)	0.793	Average concentration ot total PCBs detected in fish samples collected in 2003
IR	ingestion rale	(kg/day)	0.005	EPA (1997j Table 10-84)¡mean value for recreational freshwater anglers in New York.
Fl	fraction Invested	unilless	1	CDM (j 9*95)"
EF	exposure frequency	jdays/yrj	350 .	CDM (1995)
ED	exposure duration	(years)	9	EPA (1997, Table 15-174)^ mean residency time
BW	body weight	m	70	COM (j 9*95)"
ATc	averaging time carcinogens	(days)	25550	CDM (1995)
ATnc	averaging time noncarcinogens	(days)	3285	C DM (1995)
				-

(1) Slope Factors and Reference Doses obtained from CDM (1995).

TABLE C-80 Revised, Reasonable Maximum Exposure to a Resident Adult from Ingestion of PCBs in Fish Tissue

Project No. 230607
SITE: Kentuck Avenue Wellfield Site OU III
RECEPTOR: RESIDENT ADULT; REASONABLE MAXIMUM EXPOSURE
MEDIUM: FISH TISSUE
PATHWAY: INGESTION

COCs	95% UCL Concentration Detected (mg/kg)	in RFDo (mg/kg/day)	(i) CSFo (mg/kg/day)-1
Total PCBs	1	2.00E-05	7.7

Equation: Intake = (mg/kg-day) $\frac{CS \times IR \times CF \times Fl \times EF \times ED}{BW \times AT}$

Intakes Carcinogens	||Total PCBs |	1.41E-04	Cancer Risk ||Total PCBs	**Cancer Risk** Intake **x** Slope Factor **1.1** E-03
Intakes Noncarcinogens	UTotal PCBs	4.11 E-04	Hazard Quotient llTotalPCBs	**Hazard Quotient/Index** Intake /Reference Dose **2.1 E+01**

			Values Used	Reference
CS	chemical concentration in fish tissue	$X^{m}SM$	**1**	95% upper confidence level (UCL) concentration of total PCBs, Table 2
IR	ingestion rate	jkg/dayi	"6*03	**CDM** "(1995). . . . .
Fl	_ traction ingested	unitless	1	**9PM ii???)!]!!!!!."!!!!!!]!!!!!."."."!!!!."!!!!!!!!"!!!!."]!!!!!!**
EF	exposure frequency	(days/yr)	350"	CDM (1995)
ED	exposure duration	.(years)^	24	CDM "(1995)
BW	body weight	.<&!	"70	CDM "(j 995)
ATc	averaging time carcinogens	(daysj	25550	CDM "(1995)
ATnc	averaging time noncarcinogens	Jd^{a}.¥?l.	""876*0"	CDM (1*995)

(1) Slope Factors and Reference Doses obtained from CDM (1995).

TABLE B-5 REVISED
HAZARD QUOTIENT CALCULATIONS FOR GREAT BLUE HERON FOR KOPPERS POND
KENTUCKY AVENUE WELLFIELD SITE
HORSEHEADS, NEW YORK

Great Blue Heron

Assessment Inputs	
Body weight	2.204 kg
Food Ingestion Rate	0.396 kg/day
Diet: sediment	5%
Diet: herpetofauna	5%
Diet: fish	90%

Maximum Concentrations

COC	Sediment Concentration mg/kg	Sediment Contribution mg/day	BAF tor Invertebrates unitless	BAF for Herpetofauna unitless	Herpetofauna Contribution mg/day	BAF for Fish' unitless	Fish Contribution mg/day*	Dose mg/kg/day	NOAEL mg/kg/day	Hazard Quotient HQ	Percent HQ % '	Rank
Endrin (total)	0.28	5.54E-03	0.26	10	1.44E-02	10	**9.98E-01**	4.62E-01	0.01	**4.62E+01**	**2.16E+01**	
Endosulfan II	0.0091	1 80E-04	0.26	1	4.68E-05	1	3.24E-03	1.57E-03				
4,4'-DDD	0.046	9.11E-04	0.26	10	2.37E-03	10	1.64E-01	7.59E-02	11.58	6.55E-03	3.06E-03	
4,4'-DDT	0.48	9.50E-03	0.26	1.67	4.13E-03	1.67	2.86E-01	1.36E-01	5	2.72E-02	1.27E-02	
Endrin ketone	0.062	1 23E-03	0.26	1	3.19E-04	1	2.21E-02	1.07E-02				
Alpha-chlordane	0.18	356E-03	0.26	4.77	4.42E-03	4.77	3.06E-01	1.42E-01	0.282	5.05E-01	2.36E-01	
Gamma-chlordane	0.28	5.54E-03	0.26	1	1.44E-03	1	9.98E-02	4.84E-02	0.282	1.72E-01	8.03E-02	
Total Aroclor	4.5	8.91E-02	2.10	5.	9.36E-01		9.50E-01	8.96E-01	12.5	7.17E-02	3.35E-02	
Aluminum	10000	1.98E+02	1	1	-' 1.98E+02		2.77E+01	1.92E+02				
Antimony	14.5	2.87E-01	1	1	2.87E-01		1.78E-01	3.41E-01				
Barium	565	1.12E+01	1	1	1.12E+01		1.58E+00	1.09E+01	20.8	5.23E-01	2.44E-01	
Beryllium	0.87	1J2E-02	1	1	1.72E-02		5.94E-02	4.26E-02				
Cadmium	502	9.94E+00	17.40	1	1.73E+02		2.14E-01	8.31E+01	7.5	**1.11E+01**	**5.18E+00**	
Chromium	329	**6.51 E+00**	0.25	1	1.63E+00		3.96E-01	3.87E+00	0.034	**1.14E+02**	**5.33E+01**	
Cobalt	10.8	2.14E-01	1	1	2.14E-01		9.90E-02.	2.39E-01				
Copper	541	1.07E+01	0.35	1	3.75E+00		8.71E-01	6.96E+00	47	**1.48E-01**	6.92E-02	
Lead	734	**1.45E+01**	0.20	t	2.91 E+00		832E-01	8.29E+0O	3.85	**2.15E+00**	**1.01 E+00**	
Mercury	1.2	2.38E-02	**1**	1	2.38E-02		3.96E-02	3.95E-02	0.45	8.78E-02	4.11E-02	
Nickel	156	3.09E+00	**1**	1	3.09E+00		1.98E-01	2.89E+00	77.4	3.74E-02	1.75E-02	
Silver	25.6	5.07E-01	**1**	1	5.07E-01		9.90E-02	5.05E-01				
Vanadium	22.1	4.38E-01	1	1	4.38E-01		9.90E-02	4.42E-01	11.4	3.88E-02	1.81 E-02	
Zinc	6680	1.32E+02	7.67	1	1.01 E+03		1.31E+01	5.26E+02	14.5	**3.63E+01**	**1.70E+01**	
Cyanide	1.2	2.38E-02	**1**	1	2.38E-02		**4.28E-01**	2.16E-01	0.08	**2.70E+00**	**1.26E+00**	
								Hazard Index =		2.14E+02	1 00E+02	

Fish contribution for Total Aroclor and metals is based on maximum concentation measured in fish collected on June 4, 2003 times the ingestion rate.

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TABLE B-7 REVISED
HAZARD QUOTIENT CALCULATIONS FOR MINK FOR KOPPERS POND
KENTUCKY AVENUE WELLFIELD SITE
HORSEHEADS, NEW YORK

Mink

Assessment Inputs

Body weight	0.55 kg
Food Ingestion Rate	0.121 kg/day
Diet: sediment	5%
Diet: fish	85%
Diet: mammals	10%

Maximum Concentrations

COC	Sediment Concentration mg/kg	Sediment Contribution mg/day	BAFfor Fish unitless	Fish Contribution mg/day"	BAF for Vegetation unitless	BAF for Mammals unitless	Mammal Contribution mg/day	Dose mg/kg/day	NOAEL mg/kg/day	Hazard Quotient HQ	Percent HQ %	Rank
Endrln (total)	0.28	1.69E-03	10	2.88E-01	6.39	1	2.16E-02	5.66E-01	0.092	**6.15E+00**	**2.20E+00**	
Endosulfan II	0.0091	5.51E-05	1	9.36E-04	1	**1**	1.10E-04	2.00E-03				
4,4'-DDD	0.046	2.78E-04	10	4.73E-02	2.41	1.12	1.50E-03	8.93E-02	2.26	3.95E-02	1.41 E-02	
4,4'-DDT	0.48	2.90E-O3	1.67	8.24E-02	2.44	0.61	8.64E-03	1.71E-01	8.1	2.11E-02	7.53E-03	
Endrin ketone	0.062	3.75E-04	**1**	6.38E-03	1	1	7.50E-04	1.36E-02				
Alpha-chlordane	0.18	1.09E-03	4.77	8.83E-02	6.35	0.35	4.84E-03	1.71E-01	25	6.85E-03	2.45E-03	
Gamma-chlordane	0.28	1.69E-03	1	2.88E-02	5.25	0.35	6.23E-03	6.68E-02	25	2.67E-03	9.53E-04	
Total Aroclor	4.5	2.72E-02		2.90E-01	2.26	1.54	1.90E-01	9.22E-01	0.064	**1.44E+01**	**5.14E+00**	3
Aluminum	10000	**6.05E+01**		8.47E+00	0.004		4.84E-01	1.26E+02	100	**1.26E+00**	**4.51 E-01**	10
Antimony	14.5	**8.77E-02**		5.45E-02	0.01		1.75E-03	2.62E-01	0.125	**2.09E+00**	**7.47E-01**	7
Barium	565	**3.42E+00**		4.84E-01	0.0015		1.03E-02	7.11E+00	5.1	**1.39E+00**	**2.33E-02**	12
Beryllium	0,87	5.26E-03		1.82E-02	0.03		3.16E-04	4.31E-02	0.66	6.54E-02	2.33E-02	
Cadmium	502	3.04E+00		6.53E-02	11.00		**1.34E+02**	2.49E+02	2.15	**1.16E+02**	**4.13E+01**	2
Chromium	329	**1.99E+00**		1.21E-01	0.04		1.59E-01	4.13E+00	0.42	**9.83E+00**	**3.51E+00**	4
Cobalt	10.8	6.53E-02		3.03E-02	0.15		1.96E-02	2.09E-01	1.6	1.31 E-01	4.67E-02	
Copper	541	3.27E+00		2.66E-01	0.70		**4.58E+00**	1.48E+01	13	**1.14E+00**	**4.05E-01**	**11**
Lead	734	4.44E+00		2.54E-01	0.60		**5.33E+00**	**1.82E+01**	**0.15**	**1.21E+02**	**4.34E+01**	**1**
Mercury	1.2	7.26E-03		**1.21** E-02	0.75		1.09E-02	5.50E-02	0.032	**1.72E+00**	**6.13E-01**	8
Nickel	156	9.44E-01		6.05E-02	0.07		1.32E-01	2.07E+00	25	8.26E-02	2.95E-02	
Silver	25.6	**1.55E-01**		3.03E-02	0.40		1.24E-01	5.62E-01	0.4	**1.40E+00**	**5.01 E-01**	9
Vanadium	22.1	1.34E-01		3.03E-02	0.05		1.34E-02	3.22E-01	2.24	1.44E-01	5.14E-02	
Zinc	6680	4.04E+01		3.99E+00	0.85	0.77	**5.29E+01**	**1.77E+02**	**55**	**3.22E+00**	**1.15E+00**	6
Cyanide	1.2	7.26E-03		1.23E-01	**1**	1	1.45E-02	2.64E-01	68.7	3.84E-03	1.37E-03	
								Hazard Index =		2.80E+02	9.95E+01	

Fish contribution for Total Aroclor and metals is based on maximum concentation measured in fish collected on June 4, 2003 times the ingestion rate.

TABLE B-11 REVISED
HAZARD QUOTIENT CALCULATIONS FOR GREAT BLUE HERON USING FISH TISSUE DATA"
KENTUCKY AVENUE WELLFIELD SITE
HORSEHEADS, NEW YORK

Great Blue Heron

Assessment Inputs

Body weight	2.204 kg .
Food Ingestion Rate	0.396 kg/day
Diet: sediment	5%
Diet: fish	95%

Koppers Pond

COC	Sediment Concentration mg/kg	Sediment Contribution mg/day	Fish Concentration mg/kg	Fish Contribution mg/day[a]	Dose mg/kg/day	NOAEL mg/kg/day	Hazard Quotient HQ
Aroclor-1254/Total Aroclor[b]	4.5	8.91E-02	2.4 (maximum)	9.03E-01	4.50E-01	12.5	3.60E-02
Aroclor-1254/Total Aroclor	4.5	8.91 E-02	0.793 (average)	2.98E-01	1.76E-01	12.5	1.41E-02

[a] Fish contribution for Total Aroclor is based on concentations measured in fish collected on June 4, 2003 times the ingestion rate and times the percent of diet that is fish.

[0] Only Aroclor 1254 measured in sediment and fish prior to 2003.

TABLE B-12 REVISED
HAZARD QUOTIENT CALCULATIONS FOR MINK USING FISH TISSUE DATA[0]
KENTUCKY AVENUE WELLFIELD SITE
HORSEHEADS, NEW YORK

Mink

Assessment Inputs

Body weight	0.55
Food Ingestion Rate	0.121 kg/day
Diet: sediment	5%
Diet: fish	95%

Koppers Pond

COC	Sediment Concentration mg/kg	Sediment Contribution mg/day	Fish Concentration mg/kg	Fish Contribution mg/day[a]	Dose mg/kg/day	NOAEL mg/kg/day	Hazard Quotient HQ
Aroclor-1254/Total Aroclor[b]	4.5	2.72E-02	2.4 (maximum)	2.76E-01	5.51 E-01	0.064	8.61 E+00
Aroclor-1254<a"otal Aroclor	4,5	2.72E-02	0.793 (average)	9.12E-02	2.15E-01	0.064	3.36E+00

[a] Fish contribution for Total Aroclor is based on concentations measured in fish collected on June 4, 2003 times the ingestion rate and times the percent of diet that is fish.
[b] Only Aroclor 1254 measured in sediment and fish prior to 2003.

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ATTACHMENT A

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FIELD DATA SHEETS

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (FRONT)

5TRLAMNAML H ^ « ^ V"iocA	LULAilUN *ira.-X.* S'>cX« »"* *>r& " W W -2-	
STATION # RTVERMILE	STREAM CLASS	
LAT LONG	RIVER BASIN	
STOR£t#	AGENCY *C&C*	
INVESTIGATORS O M S , H U ' i		
FORM COMPLETED BY	DATE fi-S'-Ol TIME (AJ? m	REASON FOR SURVEY

WEATHER CONDITIONS

Now

- Q siorm (heavy rain)
- Q rain (steady rain)
- Q showers (intermittent)
- %cloud cover
- Q clear/sunny

Past 24 hours

a g

ajcov.

Q

Has there been a heavy rain in the last 7 days?
3 Yes Q No

v

Air Temperature 55 *S^f*

0ther _____

SITE LOCATION/MAP Draw a map of the site and indicate the areas sampled (or attach a photograph)

STREAM CHARACTERIZATION

Stream Subsystem
Q Perennial Q intermittent O Tidal

Stream Origin
Q Glacial
Q Non-glacial montane
Q Swamp and bog
Q Spring-fed
Q Mixture of origins
Q Other_____

Stream Type
Q Coldwatcr Q Warmwatcr

Catchment Area km^1

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES

Predominant Surrounding Landuse
B Forest O Commercial
O Field/Pasture 8 Industrial
Q Agricultural *O* Other_____
Q Residential

Local Watershed NPS Pollution
Q No evidence Q Some potential sources
S3 Obvious sources

Local Watershed Erosion
Q None Q Moderate H Heavy

RIPARIAN VEGETATION (18 meter buffer)

Indicate the dominant type and record the dominant species present
(B Trees 3 Shrubs 55^/, G Grasses Q Herbaceous
dominant species present V\. Sc-t-^Ne. ~* c^tcgot^oooi

INSTREAM FEATURES

Estimated Reach Length	m
Estimated Stream Width	m
Sampling Reach Area	m^1
Area in km^1 (rn'iIOOO)	knr
Estimated Stream Depth	m
Surface Velocity {at thalweg)	m/sec

Canopy Cover
Q Partly open Q Partly shaded Q Shaded

High Water Mark_____m

Proportion of Reach Represented by Stream Morphology Types
Q Riffle_____% Q Run_____%
Q Pool_____%

Channelized Q Yes QNo

Dam Present Q Yes Q No

LARGE WOODY DEBRIS

LWD	m^J
Density of LWD	mVknr (L

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
Q Rooted emergent Q Rooted submergent Q Rooted floating Q Free floating
B Floating Algae Q Attached Algae

dominant species present _____

Portion of the reach with aquatic vegetation Q %

WATER QUALITY

Temperature /£- *5* " C

Sp»cifi« CuwducUiin *l\ II.*

Dissolved Oxygen \I-7W

pH_8jfi_

Turbidity_____

WQ Instrument Used T^GI

Water Odors
Q Normal/None B Sewage
Q Petroleum B Chemical
Q Fishy Q Other____

Water Surface Otis
Q Slick Q Sheen Q Globs Q Flecks
Q None Q Other

Turbidity (if not measured)
Q Clear H Slightly turbid Q Turbid
Q Opaque Q Stained Q Other_

SEDIMENT/ SUBSTRATE

Odors
Q Normal Q Sewage Q Petroleum
B Chemical 8 Anaerobic QNone
QOther

Oib
8 Absent Q Slight O Moderate O Profuse

Deposits
B Sludge Q Sawdust Q Paper fiber Q Sand
Q Relict shells Q Other_____

Looking at stones which are not deeply embedded, are the undersides black in color?
SYes QNo

INORGANIC SUBSTRATE COMPONENTS (should add up to 100*/*)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	*Vu* Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5--I0")		Muck-Mud	black, very fire organic (FPOM)	/OO
Gravel	2-64mm(0.!"-2.5")				
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-O.06 mm	/CO			
Clay	< 0.004 mm (slick)				

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (FRONT)

•STREAM NAME V ^ g ^ r S 'v b o ^ LOCATION G , ^ t r Q 4 ^ 0 ^ - W O T .

STATION # RJVERMILE STREAM CLASS

LAT LONG RIVER BASIN

STORET *tt* AGENCY *C £~^c-*

INVESTIGATORS C H S , H L S

FORM COMPLETED BY DATE 6-S~-<^S REASON FOR SURVEY
TIME_____(£5} PM

WEATHER CONDITIONS

Now		Past 24 hours
Q	storm (heavy rain)	**a**
Q	rain (steady rain)	Q
Q	showers (intermittent)	Q
	%cloud cover	
Q	clear/sunny	am%
		Q

Has there been a heavy rain in the last 7 days[9]
Yes Q No

Air Temperature 5S~ *"$*

Other

SITE LOCATION/MAP Draw a map of the site and indicate the areas sampled (or attach a photograph)

Ss.e «tu-cWcA %\-t*_ {N^>_

STREAM CHARACTERIZATION

Stream Subsystem
O Perennial Q Intercnirtent Q Tidal

Stream Origin
Q Glacial
Q Non-glacial montane
O Swamp and bog
Q Spring-fed
• Mixture of origins
Q Other

Stream Type
Q Coldwaler Q Warmwaler

Catchment Area km[1]

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (BACK)

WQl *Z.3'*

WATERSHED FEATURES	Predominant Surrounding Landuse 8 Forest Q Commercial Q Field/Pasture a Industrial Q Agricultural Q Other U Residential Local Watershed NPS Pollution Q No evidence O Some potential sources B Obvious sources Local Watershed Erosion Q None Q Moderate 5 Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant specie* present R Trees .B Shrubs $<-) */0 Q Grasses Q Herbaceous dominant species present *fio^e.^ *>~t* fc.\e ?- C^tioi iOc«<J
INSTREAM FEATURES	Estimated Reach Length m Estimated Stream Width m Sampling Reach Area m^1 Area in km* (m'xlOOO) knr Estimated Stream Depth m Surface Velocity (at thalweg) m/sec Canopy Cover Q Partly open O Partly shaded Q Shaded High Water Mark m Proportion of Reach Represented by Stream Morphology Types Q Riffle % Q Run % QPool % Channelized Q Yes QNo Dam Present Q Yes Q No
LARGE WOODV DEBRIS	LWD m' Density of LWD mVtcnr (LWD/ reach area)
AQUATIC VEGETATION	Indicate the dominant type and record the dominant species present Q Rooted emergent Q Rooted submergent Q Rooted floating Q Free floating S Floating Algae Q Attached Algae dominant species present Portion of the reach with aquatic vegetation O %
WATER QUALITY	Temperature */&•% "C WiterOdors Q Normal/None B Sewage Q Fishy Q Other Dissolved OxYEen ^ .^ i DH ?. *1*5 Water Surface Oils Q Slick Q Sheen Q Globs Q Recks ST None Q Other Turbidity WO Instrument Used " o - L Turbidity (if not measured) 0 Clear S Slightly turbid Q Turbid Q Opaque Q Stained Q Other
SEDIMENT/ SUBSTRATE	Odors Q Normal Q Sewage Q Petroleum WChemtcal H Anaerobic Q None Deposits CI Sludge Q Sawdust Q Paper fiber Q Sand Q Relict shells Q Other Li Other Oils H Absent Q Slight Q Moderate Q Profuse Looking at stones which are not deeply embedded, are the undersides black in color? (SYes QNo

INORGANIC SUBSTRATE COMPONENTS (should add up to 100$/.)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily «dd up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")		Muck-Mud	black, very fine organic. (FPOM)	**/OO**
Gravel	2-64 mm (0.1 "-2.5")				
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-O.06 mm	**/OO**			
Clay	< 0.004 mm (slick)				

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (FRONT)

jfKliAMNAML KoDP«r1> \&^J	LUCAI1UN *Center* o* Wes (- u » u - WU -^	
STATION # RIVERMILE	STREAM CLASS	
LAT LONG	RIVER BASIN	
STORETfl	AGENCY *C£t-*	
INVESTIGATORS £, Hi, VALS		
FORM COMPLETED BY	DATE 6-£"-o3 TIME «(KF> rM	REASON FOR SURVEY

WEATHER CONDITIONS

Now		Past 24 hours
Q	stomi (heavy rain)	**a**
Q	rain (steady rain)	**a**
Q	showers (intermittent)	
	%cloud cover	Q
Q	clear/sunny	
		Q

Has there been a heavy rain in the last 7 days'*
a Yes QNo

Air Temperature

Other

SITE LOCATION/MAP Draw a map or the site and indicate the areas sampled (or attach a photograph)

ofciS. c - t ^ c ^ e J S'"^e ^ p

STREAM CHARACTERIZATION

Stream Subsystem
Q Perennial Q Intermittent Q Tidal

Stream Origin
Q Glacial Q Spring-fed
Q Non-glacial montane O Mixture of origins
Q Swamp and bog Q Other

Stream Type
Q Coldwater Q Warmwater

Catchment Area **km**[2]

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES

Predominant Surrounding Landuse
Q Forest Q Commercial
Q Field/Pasture S Industrial
Q Agricultural Q Other_____
Q Residential

Local Watershed NPS Pollution
Q No evidence Q Some potential sources
0 Obvious sources

Local Watershed Erosion
Q None Q Moderate 0 Heavy

RIPARIAN VEGETATION (18 meter buffer)

Indicate the dominant type and record the dominant species present
& B. Trees Trees Q Shrubs 5 C % Q Grasses • Herbaceous
dominant species present

INSTREAM FEATURES

Estimated Reach Length

Estimated Stream Width _m

Sampling Reach Area **V**

Area tn km' (m'xIOOO) _km'

Estimated Stream Depth m

Surface Velocity (at thalweg) m/sec

Canopy Cover
Q Partly open Q Partly shaded Q Shaded

High Water Mark_____m

Proportion ofReach Represented by Stream Morphology Types
Q Riffle_____% Q Run_____%

Q Pool_____%

Channelized Q Yes Q No

Dam Present Q Yes Q No

LARGE WOODY DEBRIS

LWD

Density of LWD _m7knr (LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent Q Rooted submcrgeni O Rooted floating Q Free floating
J2 Floating Algae Q Attached Algae

dominant species present _____

Portion ofthe reach with aquatic vegetation Q> %

WATER QUALITY

Temneralure 17-1 "C

***r"'Tifm-'-'""-_^_!,3-**

Dissolved Oxygen %-lQ

Turbidity_____

WQ Instrument Used V S X

Water Odors
Q Normal/None J3 Sewage
Q Petroleum B Chemical
Q Fishy Q Other____

Water Surface Oils
Q Slick Q Sheen Q Globs Q Flecks
H None Q Other

Turbidity (if not measured)
Q Clear H Slightly turbid Q Turbid
Q Opaque Q Stained Q Olhcr_

SEDIMENT/ SUBSTRATE

Odors
Q Normal 13 Sewage • Petroleum
3 Chemical. S Anaerobic QNone
• Other

Oils
[»Absent Q Slight Q Moderate Q Profuse {3 Yes Q No

Deposits
B Sludge Q Sawdust Q Paper fiber OSand
Q Relict shells Q Other_____

Looking at stones which are not deeply embedded, are the undersides black in color?

INORGANIC SUBSTRATE COMPONENTS (should add up to 100'/.)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	*/- Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")				
Cobble	64-256 mm <2.5"-I0")		Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1 "-2.5")				**/CO**
Sand	0.06-2 mm (gritry)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm	**/Cd>**			
Clay	< 0.004 mm (slick)				

PHYSICAL CHARACTERIZATIONAVATER QUALITY FIELD DATA SHEET (FRONT)

	U_n_Ail<JPi KJ<to,r _Ln\«U ,VN We<.<- i-ab«.- W U M	
STATION # R1VERMILE	STREAM CLASS	
LAT LONG	RIVER BASIN	
STORET #	AGENCY < ^ e	
INVESTIGATORS 6-K S , M. LS		
FORM COMPLETED BY MLS	DATE 6-^-03 TIME tf*0 PM	REASON FOR SURVEY

WEATHER CONDITIONS

Now		Past 24 hours
Q	storm (heavy rain)	a
Q	rain (steady rain)	a
Q	showers (intermittent)	Q
/Jo %B	%cloud cover	B /6t> %
Q	clear/sunny	Q

Has there been **a heavy rain** in the last 7 days?
B-Yes Q No _

Air Temperature, *5S'/*

Other

SITE LOCATION/MAP Draw a map of the site and indicate the areas sampled (or attach a **photograph)**

See cv"t\.^x^oA S * "Ls. r>^7p~

STREAM CHARACTERIZATION

Stream Subsystem
Q Perennial Q Intermittent Q Tidal

Stream Origin
Q Glacial Q Spring-fed
Q Non-glacial montane Q Mixture of origins
Q Swamp and bog Q Other_____

Stream Type
Q Coldwaier Q Warmwater

Catchment Area knv

PHYSICAL CHARACTERIZATIONAVATER QUAUTY FIELD DATA SHEET (BACK)

WQM I.

WATERSHED FEATURES	Predominant Surrounding Landuse *JB* Forest Q Commercial Q Field/Pasture jainduitriaj O Agricultural Q Other U Residential Local Watershed NPS Pollution Q No evidence Q Some potential sources -B Obvious sources Local Watershed Erosion QNone Q Moderate 8 Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present -Q Trees 19 Shrubs ^t?X- ^ Grasses Q Herbaceous dominant species present &>+€•* *fac* k.\e_ "^- f *o^\e>^* i-3=o»^
INSTREAM FEATURES	Estimated Reach Length m Estimated Stream Width m Sampling Keach Area m' Area in km[1] (m'xlOOO) km* Estimated Stream Depth m Surface Velocity m/sec (at thalweg) Canopy Cover Q Partly open Q Partly shaded Q Shaded High Water Mark m Proportion ol Reach Represented by Stream ' Morphology Types Q Riffle % QRun % Q Pool % Channelized O Yes QNo Dam Present Q Yes Q No
LARGE WOODY DEBRIS	LWD m' Density of LWD mVknr (LWD/ reach area)
AQUATIC VEGETATION	Indicate the dominant type and record the dominant species present Q Rooted emergent Q Rooted submergenl Q Rooted floating Q Free floating fij Floating Algae Q Attached Algae dominant species present Portion of the reach with aquatic vegetation *0* %
WATER QUALITY	Temperature l&.ft °C Dissolved Oxveen / • o j DH '• = Z. Turbidity WO Instrument Used H ^ j - Water Odors Q Normal/None 8 Sewage QFishv • Other Water Surface Oils Q Slick Q Sheen Q Globs Q Flecks B None Q Other Turbidity (if not measured) Q Clear HSliEhtlV turbid Q Turbid Q Opaque Q Stained Q Other
SEDIMENT/ SUBSTRATE	Odors 0 Normal Q Sewage Q Petroleum 69 Chemical 0 Anaerobic Q None U Other Oils &T Absent O Slight Q Moderate Q Profuse Deposits H Sludge Q Sawdust Q Paper fiber Q Sand 0 Relict shells Q Other Looking at stones which are not deeply embedded, are the undersides black in color? 1 0 Yes QNo 1

INORGANIC SUBSTRATE COMPONENTS (should **add** up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily **add** up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling **Area**
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5M0")		Muck-Mud	black, very fine organic (FPOM)	**/&o**
Gravel	2-o4mm(0.!"-2.5")				
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm	**/oo**			
Clay	< 0.004 mm (slick)				

FISH SAMPLING FIELD DATA SHEET (FRONT) *tledlcfc&w^*

STREAM NAME *U^^dak^aM* **LOCATION** [f ^ g ^ (Jf

STATION *U* **RIVERMILE** **STREAM CLASS** ^ *QxdCf*

LAT **LONG** **RIVER BASIN**

STORET* AGENCY £££C

GEAR R K ^ D r , ^ ^ ^ gfflA^rINVESTIGATORS ***JM , G$\6 M*)***

FORM COMPLETED BY **DATE** **TIME** REASON FOR SURVEY

SAMPLE COLLECTION

How were the fish captured? QTback pack O lotc barge Q other

Block nets used? O YES I0NO

Sampling Duration Start time_____ End time_____ Duration ***3d* /H/Ocf^Tr**

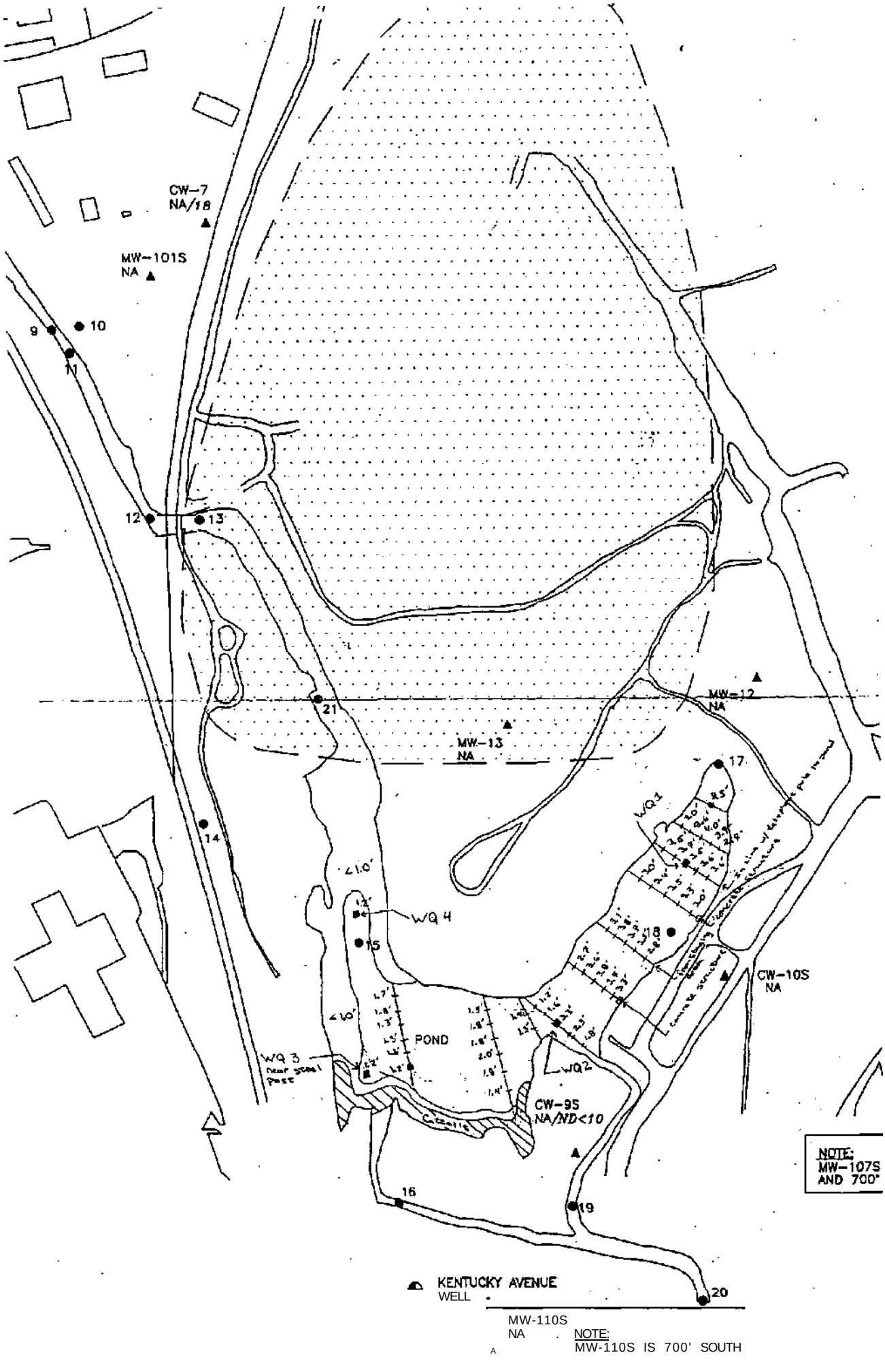
Stream width (in meters) Max - D Mean ***H***

HABITAT TYPES

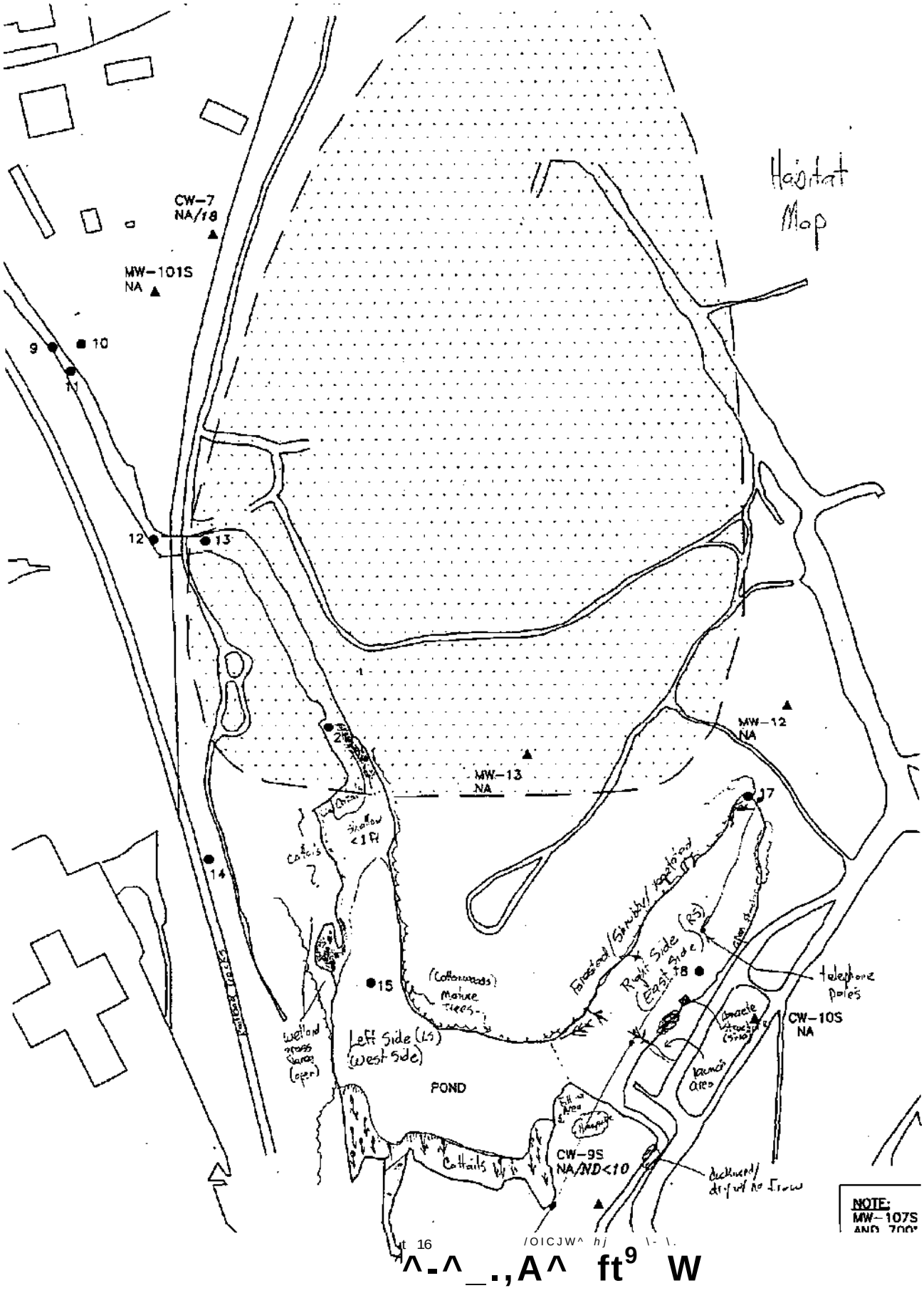
Indicate the percentage of eich habitat type present
Q Riffles \ % Q Pooh T4 % Q Runs % Q Snags_____•/.
Q Submerged Macrophytes_____% Q Other ( )_____%

GENERAL COMMENTS *\Jert 4<\ty OJ^UXJ di4clwz*a* fr.W^ry 4fcw* /i^ps R=*\c{.*

SPECIES	TOTAL (COUNT)	OPTIONAL: LENGTH (mm/WEIGHT (g)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Rm|<iinia^ia	*"tea-ISO*													
Bro^*M)MJ /T)*														
Bfcd(iv>s^ Doo?. r<30														
-leta/i/ Darter (£*)														
fote^ &^s (D*														



USSE
(D i nrATinu nr i Awncii i • rami



^-^_.,A^ ft9 W

4i KENTUCKY AVENUE J / \ \

<v WELL —y V20

MW-110S
NA NOTE:
MW-110S IS 700' SOUTH

NOTE

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STOEAMS (FRONT)

STREAM NAME t ^ ^ S *VbA J*
LOCATION *Wnr€.\«=G&n & V*
STATION # R1VERMILE
STREAM CLASS **GW**
LAT LONG
RIVER BASIN
STORET #
AGENCY *LXL*
INVESTIGATORS 9M . G7fl6 , fl^
FORM COMPLETED BY *VftM*
DATE *(>.* ">-6b*
TIME *9-.QQ* g T)
REASON FOR SURVEY iV

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
I. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of ncwfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20;.-19 „. I8>:.17. ,;16	.35p:.14 .£13"?i2TT-U-:	*Wj:.9:>:£V$&mS-*	*'i^m^mm:*
1. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20^19^ IS -'M70J6"-	^K\;tl4^3/(ilM^lI:;	*%mm*mm mmmmm*	
3. Pool VariEbility	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20.--I9 .:I8 ^17^-16	;is^r4v	*•$2JZ-IY.* *wmzmm>£&* K ^	***Zmm***
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 .19 18i-:17 " 16	:15i-'il'4?.M3^I2.'".'.n;	. I 0 : ; ; s ; ? ^ 8 ^ 7 ^	***£K^8KB&feo;***
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 *(iij)* 17 16~ -15 14 i i 3 12 11		10 ~9~ • 8 6	*\S.* ;4^;3^2;-.l-.0*

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; scream with normal partem.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present ^	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE	20.: 19 18 17 16	15. T4 13 12 (\\J	10 9 8 7 6	5 4. *3* .2 . 1- 0
	7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
	SCORE	2b;:-;i9:.>18 *:'IV',16.*	• I5^143T3^J2 .til?	**•10 -;?;7 *s---'Ar 6***	5 M;:-3.>#E$:p:
1 5 1 f	8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. ^T-N	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosion a! scars.
	SCORE____(LB)	**:^ft;Ba^^%::_IQ^9'4**	***^M^&m^M***	V3"v> 4 ".- 3	**:^?^^S^pMi**
	SCORE____(RB)	•Righi.Bank^i10;^;i	***^j^zmzigi***	*'&%$ffiS$&Mz£'i3 ?•*	*&mgmmm*
S C 7 E 2 £	9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or non woody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE____(LB)	*'(^Ba^rMM^^*	***'^£i:Mi£&fe$***	:.£:5.Vy-:^;4-^ 3 . *j:*	***^:'B^W^mM***
	SCORE____(RB)	Right^Bimlti^lO^S ;i	/ ^ 8 ^ g & ^ ^ £	*-^±2z^*'-^* "5.7,^»",-" ^f-\"::	*tmm&z&Mz*
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE____(LB)	UftBaiik,: 10... 9..	***":\lS-:X-£&..&r\W***	•-.•5..-:- 4; 3 '"::	***2 :•'';'•• l-^y^'p-'^***
	SCORE____(RB)	Right Bank . TO., 9 ;	*s/*'££(i®l..y*'•* :	",-•3'A- 4 :\ 3 .£"	**-::fe"£tfi*J&&££**

Total Score

~*Xftdta*^ Trib Fn^ *\ob\sth Vo^o*

(Pootjo-upe)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME lUfe/s R*v^attw>Ta LOCATION *W0t^ate jif*

STATION *M* RIVERMILE STREAM CLASS *fir* ty^ef*

LAT LONG RiVER BASIN

STOR£T# AGENCY *tec*

INVESTIGATORS pftyyl *Crflfi6.* flA^

FORM COMPLETED BY *'V0* PATE *&-*S-Q?>* TIME *g-.or^* *(M)* **rM** REASON FOR SURVEY *WoiMfy* (Wfn, *r£cP. Qi'k'SoMoA*

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	Poor
I. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; welt-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE				
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	AH mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	[illegible]	[illegible]	[illegible]	[illegible]
3. Pool Variability	Even mix of large-shallow. large-deep, small-shallow, small-deep pools present	Majority of pools large-deqj;very few shall;./.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in - bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new pavel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent-	Heavy deposits of fine materia], increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantia] sediment deposition.
SCORE	So s»Mis>	ft*3ft	SKtfJ:	
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. ^^ ,	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE				

(Pot>i-/&Ub£)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas or bridge abutments, evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80*/. of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	2*Pt8£;il	W^$3Vvl2 .'l;l.i	Jomm.7<m	^isi^i
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Notc-channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straighl line.	Channel straight; waterway has been channelized for a long distance.
SCORE		SISS^^M		^aas^
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has ' crosional scars.
SCORE J_ (LB)	oi			
SCORE 1 CRB)	•mmmmM^mtz^mmmm			
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream,	More ihan 90S of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of (he streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in avenge stubble height.
SCORE V> (LB)		BESSB&.-&		
SCO RE £2. (RB)				
10. Riparian Vegetative Z-one Width (score each bank riparian zone)	Width of riparian zone > 1S meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE _3_ (LB)				
SCORE 5\RB)				

Total Score **66**

BIOTA COLLECTION RECORD

Project name, location and waterbody: Y . UoffaeSer-W , V f . *Y^>fe*<~>* Ezn^L

Collections made by (names): £rc^ S^^rtk'. "^u^ Wfrtcsg . YW^*»/\ SWv^a

Preservation method: ^Freezing^ Other (specify)_____

	Lab Use only Lab Number	Sample or Tag number	Species	Date,.; taken-'	•Sarnpling" '; i,!;L6c'ai|6'n, ."	;" .Method of : '"•Collection	• Length . (mm)	'.Weight"' (grams)	Remarks
*		MS--1- <-S	WW-ie; S^cVcr	6-V-03			'3S0	*HO^*	
				1			2S?		
							28©		
SK		VS-Z-LS					312.	3tO	
*		VS-5-LG					^fcS	577	
							3o5*		
							"?>"-		
							"505		7
							"SO?-		
			\/				2°I5		
*		CC-1-Z.S	somw(if\ C^fp				5C?	Z^SO	
*		OL-Z-<-S					5Z&	Hfeo-	
*		CC-3-LS					*1°\Z*	/5?0	
			*/	*'	N/	\>	38Co		

T I^oV.^-teS «>pa<-'^e*S tW*t i-oe-re SE«t. to t\e' \^t,.

ta£3i] {±&J t^-^d \z-tid JSfWff

BIOTA COLLECTION RECORD

Project name, location and watcrbody: Viacom IWse^-vecg^s^ V^_____^«₂p<r<, "?o^ei

Collections made by (names): Gre^ Slyfcoc-sfc." > t>^r> V-UMcvc f H-.cW.eA Sk f l H r.

Preservation method: (I^ezingT) Other (specify)_____.

	Lab Uie onlv Lab Number	Sample or Tag number	Cn	Date Taken.	r .Location	. Method of ..Collection kv-..V--.,. ^	Length (mm)	Weight' (grams)	Remarks
			Ci>*»'viov\ Co,r-p»	6-V-O}	/•eft SUt		405		
			.		.1		"5&G		
		\	rur^pWy^ ^SceA		Ait ?Ufcs*-W«		<2^	1*7-	
*		•ps-i {					Sfc	20	
		]					^ft	IS	
							^	n	
*		TS-Z i					<**	1%	
		{					^0	/£	
		{					S6	/8	
#		PS-S {					/oo	2.o	
		]					/QO	1 Z	
		?v/					ICZ	8^	
\ 1 ' \ i		PS-5					lt>t-	S^	-
		?S-fe		v'	\ '	^	159	n	

BIOTA COLLECTION RECORD

Project name, location and waterbody: \jj ZL$*.at£L

Collections made by (names): G r c ^ S^yU.rsk.>'; ~D^»-> H & ^ f S c M;o'w.-cA l V c ^ , r v

Preservation method: t^ceezin*RD Other (specify)

Lab Use only Lab Number	Sample or Tag number	Species	Date. Taken:'	: Sampiihg ^ i_: .Loc'attbm;-:;;;	.:: Method of ^Collection, : >.	Length i;';(tnml) ;	Weight - (grams)	Remarks
		(j.-^zar J *S\A*.(K	6-4-63		"Govt H«»«Wt	VV6		
			1			<VO&		
		N' ^	i			41?-		
	Cc-H-RS	CCO-^TCN C(X*"^,				9co	4"^o	Lc)s"ovi o^ Eici^t. s>^e
	e^-S-^S	I				w i	lfbO	
		("if *U-aJck* ~>Jiod	1			</3o		
	v/s-^-^S	WWiLe. W v x f	1			*SH*±	3 S O	
	V^-5-^S	I				3 HO	7,72-	
		NsOWMft-^Qv-, \.rtl-"?»				370		
		w ^ « ^ * > - / -		' 1	1	318		\
						SS-S		
						3 3 1		
				/		T.'ML		
		*/	V	v	^	3M^		

Lljtjfc&j *L^isl* eBtasl b**=i kiu^i k^iiisJ a ,A.aJ

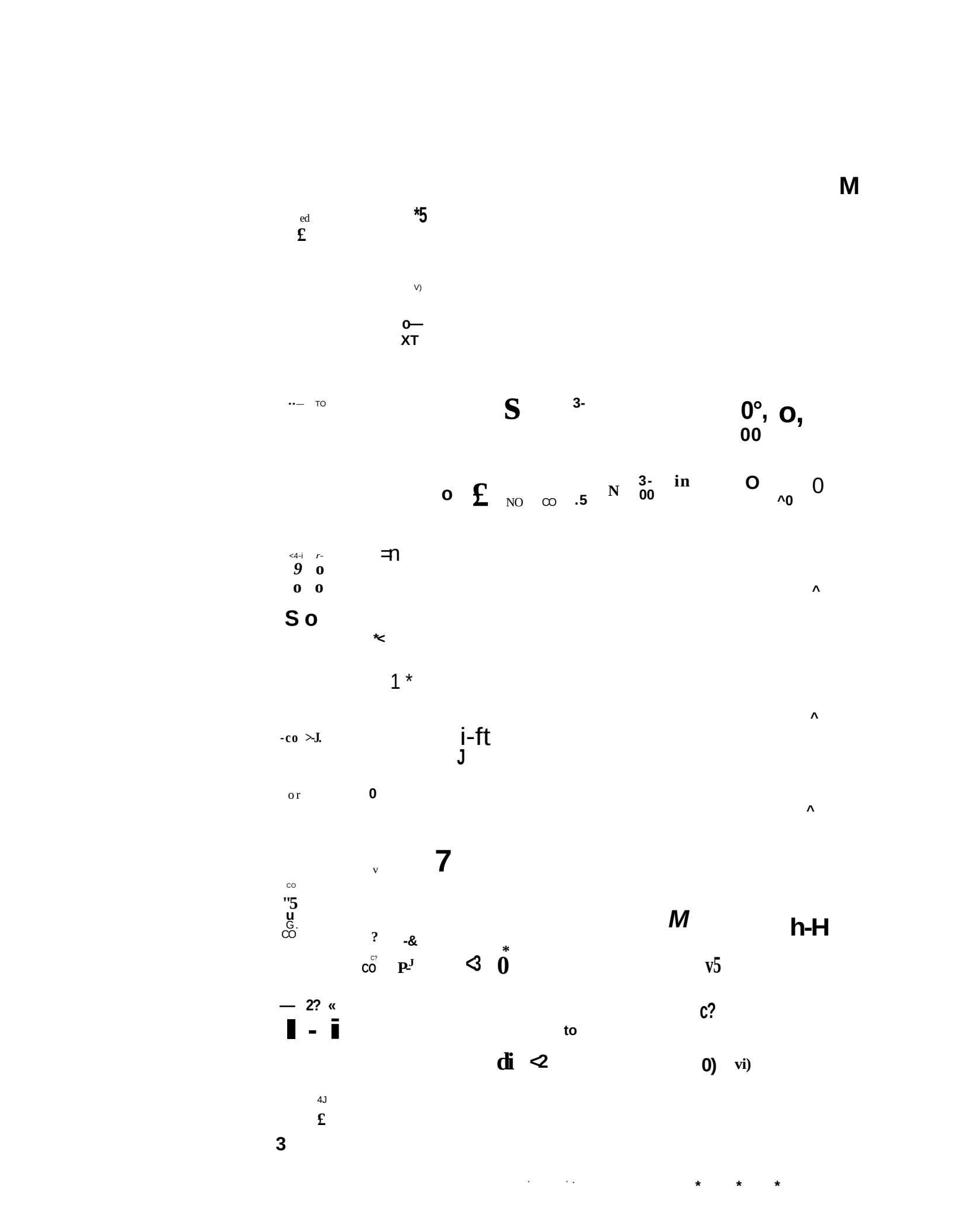
BIOTA COLLECTION RECORD

Project name, location and walerbody: Vi^Co<n Vwt,eW<^f' \\i t^opfg."'^ To>-g-/

Collections made by (names): c^re^ S l v W ^ k ' T><=n H«.H-cie , \].;.c-^l o^v% ^,

Preservation method: CTreezmgT^ Other (specify)_____.

Lab Use only Lab Number	Sample or Tag number	Species	Taken	^•SamRhng; :••;:: •„; .Location-.[1].::	"Collection	/.Length -; (mm)	Weight" (grams)	Remarks
		V/V^e. %^^<-	6^-0*			Z ^ o		
						^B"S		
		I				*so*-!*		
	U3-1- R.S	Larog Ho-dN-N'i^ss				3 5 5	£co	
	lft-Zr(k%	1				-^*Uh*	<^<V	
						"5wM		
						3-55:		^ -
						"SOS'		
						2£>5		
						-aft 5		
						3-5^		
						'5?>Z		
						32-1		
		\'	>t	'	' '	Z z 5		



BIOTA COLLECTION RECORD

Project name, location and waterbody: \1K=*<L ^an.

Collections made by (names): Cre^ Srly^r-fA^ , "D^TS vAoXVe/je. , W\C>-C^L\ SV^v-vx

Preservation method: (Freezing Other (specify)_____

Lab Use only Lab Number	Sample or Tag number	Species	Date Taken	Sarhplirig [:, .Lo'caftbrv' ;: •'.'c.':, 'M';>;-v.-:i	Method of Collection	Length (mm)	Weight - (grams).	Remarks
		Greers SurA^V	*G-l-05*			126		
						/ZO		
		"t	^	^	V	I3Z		

ATTACHMENT B

CHAIN OF CUSTODY FORM

i^^ fea^j u^toSd ^^4)j

itPleas^teaaLegibJIfia&i.

XlHEM INC.

[J 1241 Bellevue St.. Suite 9
Green Bay. WT 54302
920-469-2436
FAX 820-469-6827

CHAIN OF CUSTODY

Company Nama: "I't/'U tI^F'V>MynM U:"iJi=rit^J.-V

Branch or Location: i^m

Projecl Contact: H'. ^.'i^ /'IW^ /iJ.0.'1 T'rtf-U>V

Telephone: •''• -3 \ l)*i 0'-'

Project Number: '•O&o £

Project Name: '•/•i-*Co-> L':n' *k".7(r> f 1/ .([I*/&Pt i V^n."

Project State: K,) "

Sampled By (Print)•: 'V» :'V''^-v .b.'>'•' '^/JMVyI-N- fof>

Data Package Options • (please circle II requested)

Sample Results Only (no OC)
EPA Level II (Subject to Surcharge)
EPA Level III (Subject to Surcharge)
EPA Level IV (Subject to Surcharge)

Ragulilory frsgani: UST, RCRA, SDWA, NPOES, CERCLA

Milrli Csdax: W>WltH, SaSOIl, A»Alr, C=Chircoit, B^Bloli, Sf-S'udgs

Page 3 .0f_£

P.O. #

Quote »

Mail Report To: ""). 3,n- /ni/flf*

Company: j Ji •-..

Address:

Invoice To:

Company:

Address:

Mail Invoice To:

*Pr<»rvillon Codai
A*Nona B«HCL CH2S04 D»HK03 E<=EnCon F-Malhanol CNiOH
H - Sodium Bliullla Solullon I • ^gdhirri ThIniulfiH J-flIJiar

FILTERED? (YES/NO)

PRESERVATION (CODE)*

ANALYSES REQUESTED

TOTAL # OF BOTTLES SENT

LAB0MT0R fiy3& w/jfife	FIELD 10	COLLECTION DATE	TIME	MATRIX		CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
	« - ! - TV JLdi. rFfr	?-'.o'i	^£2	6	V v	M^oU -f"^	
			// ..IJ				
	i_i		'J02.		V		
	<^-		Y->,				
	^ T						
	lie		r>:*V				
			•Mo		-/		
	ft.- .1 -		£*£		-/		
	fy.-T S5.		V.^(>		>		
	»-^ • ';?		'D:oi'		v		
fSSMl^^S-	GSO -<V>		'r>-.6^				
	L I V V•°K'S		fr?	w	y ^	\i	

Rush Turnaround Time Requested (TAT) - Prelim
(Rush TAT subject to approval/surcharge)

Date Needed:

Transmit Prelim Rush Results by (circle):

Phone Fax E-Mail

Phone #:

Fax«:

E-Mail Address:.

Samples on HOLD are subject to special pricing and release of liability

Relinquished By: u	Date/Time:	Received By:	Date/Time:	En Chem Project No.
Relinquished By: IlM u 7/// i/fc	Date/Time: ffr^-tf j V-.Ph	Received By:	Date/Time	Sample Receipt Temp.
Relinquished By:	Date/Time:	Received By:	Date/Time	Sample Receipt pH (Wet/Metals)
Relinquished By:	Date/Time:	Received By:	Date/Time	Cooler Custody Seal
Relinquished By:	Date/Time:	Received By:	Date/Time.	Present / Not Present

ENCHEM INC.

1241 Bellevue St., Suite 9
Green Bay, WI 54302
920-469-2436
FAX 920-469-8827

CHAIN OF CUSTODY

Page 1 of 2

P.O. #______ Quote #______

Mail Report To: [illegible]

Company Name: [illegible]

Branch or Location: [illegible]

Project Contact: [illegible]

Telephone: [illegible]

Project Number: [illegible]

Project Name: [illegible]

Project State: [illegible]

Sampled By (Print): [illegible]

A=None B=HCl C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO)

PRESERVATION (CODE)*

Company: [illegible]

Address: [illegible]

Pgh PA 15205

Invoice To:

Company:

Address:

Mail Invoice To:

Data Package Options - (please circle if requested)	Regulatory Program	Matrix Codes
Sample Results Only (no QC) EPA Level II (Subject to Surcharge) EPA Level III (Subject to Surcharge) EPA Level IV (Subject to Surcharge)	UST RCRA SDWA NPDES CERCLA	W=Water S=Soil A=Air C=Charcoal B=Biota SI=Sludge

ANALYSES REQUESTED

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	PCBs + Lipids (EPA 608?)	TAL Metals (EPA 6010B/7471)	Total Solids (SM 2540G)					TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
	CC-1-LS	6-4-05	11:00	S	✓	✓	✓					1	Need to fillet w/ belly flap on	
	CC-2-LS	↓	11:00	↓	✓	X	✓					1	(Human Health Risk)	
	CC-3-LS		11:00		✓	✓	✓					1	↓	
	CC-4-RS		9:00		✓	✓	✓					1		
	CC-5-RS		9:00		✓	✓	✓					1		
	WS-1-LS		11:00		✓	✓	✓					1		
	WS-2-LS		11:00		✓	✓	✓					1		
	WS-3-LS		11:00		✓	✓	✓					1		
	WS-4-RS		9:00		✓	✓	✓					1		
	WS-5-RS		9:00		✓	✓	✓					1		
	LB-1-RS		8:30		✓	✓	✓					1		
	LB-2-RS	↓	8:45	↓	✓	✓	✓					1	↓	

Rush Turnaround Time Requested (TAT) - Prelim
(Rush TAT subject to approval/surcharge)
Date Needed: ______
Transmit Prelim Rush Results by (circle):
Phone Fax E-Mail
Phone #: ______
Fax #: ______
E-Mail Address: ______

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:	
[signature]	6-4-05 15:50			En Chem Project No.
				Sample Receipt Temp.
				Sample Receipt pH (Wet/Metals)
				Cooler Custody Seal: Present / Not Present
				Intact / Not Intact

ATTACHMENT C

EN CHEM INC.

ANALYTICAL LABORATORY DATA SHEETS

ENCHEM INC.

Corporate Office & Laboratory
1241 Bellevue Street. Suite 9 • Green Bay. WI 54302
920-469-2436 • FAX: 920-469-8827 • 800-7-ENCHEM
umiuf.enchem.com

July 18,2003

Jim Mudge
Civil & Environmental Consultants
333 Baldwin Road
Pittsburgh, PA 15205

Dear Mr. Mudge:

Enclosed are the data packages of results for the metals, PCB, and lipid analysis offish tissue samples for the Viacom Horseheads Koppers Pond, NY project. We received the samples in good condition on June 5, 2003. The samples were assigned to batch #835158 for laboratory tracking purposes although the samples were analyzed in two separate sets designated "A" and "B".

The fish samples on chain of custody (COC) form #101860 had fillets removed for analysis. These fillets and the whole fish on COC #101861 were chopped into small pieces and then homogenized by blending with liquid nitrogen prior to being analyzed. An aliquot was soxhlet extracted for 16 hour with dichloromethane. A portion of each fish extract was analyzed for lipid content. The extracts were cleaned using column chromatography with Florisil. The cleaned extracts were analyzed for PCBs using EPA method 8082. A separate aliquot was digested and analyzed for metals content using EPA methods 6010 and 7471. The percent solids were also measured on a portion of each homogenized sample.

If you have any questions regarding this data please call me at (608) 232-3300 ext. 302.

Sincerely,

Tod Noltemeyer
Project Manager

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : CC-1-LS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number: 835158-001

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	4.5	J	3.2	20	1	mg/Kg	A	06/18/03	SWB46 M3050	SW846 60108
Antimony	0.16	J	0.14	1.5		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	2.0		0.020	0.20		mg/Kg	*	06/18/03	SW846 M3050	SW846 60108
Beryllium	0.30	U	0.023	0.30		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.15	J	0.025	0.30		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	4200		2.8	9.9		mg/Kg	N	06/18/03	SW846 M3050	SW846601 OB
Chromium	0.29	J	0.065	0.30		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Cobalt	0.50	U	0.054	0.50		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	1.1		0.11	0.99		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	15	J	2.2	15		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.68	J	0.16	0.99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	260		0.47	5.0		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Manganese	2.0		0.028	0.20		mg/Kg	·	06/18/03	SW846 M3050	SW846 6010B
Mercury	0.035		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickef	0.99	U	0.22	0.99		mg/Kg		06/18/03	SW&46 M3050	SW846 6010B
Potassium	2900		5.9	250	5	mg/Kg	N	06/18/03	SW846 M3050	SW846 60108
Selenium	0.37	J	0.32	1.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.49	U	0.067	0.49		mg/Kg		06/14/03	SW846 M3050	SW846 60108
Sodium	730		12	99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.79	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.079	0.50		mg/Kg	A	06/18/03	SW846 M3050	SW&46 6010B
Zinc	. 15		0.34	2.0	1	mg/Kg		06/18/03	SW846 M3050	SW846 60108
Percent Lipids	3.14		—		1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22:4			—		%		06/18/03	SM 2540G M	SM 2540G **M**

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor1016	100	U	24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1221	100	U	24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1232	100	**U**	24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1242	100	U	24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1248	150		24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1254	530		24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1260	170		24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082
Total PCBs	850		24	100	2	ug/kg		06/27/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
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800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Namo : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : CC-2-LS

Matrix Type : BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-002

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	4.4	J	2.9	18		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3 .		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	2.1		0.018	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.27	u	0.021	0.27		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.093	J	0.022	0.27		• mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	4600		2.5	8.9		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.21	J	0.059	0.27		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.45	u	0.049	0.45		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.93		0.098	0.S9		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	7.9	J	2.0	13		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.90		0.14	0.89		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	290		0.42	4.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.40		0.025	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0087	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.89	u	•0.20	0.89		mg/Kg		06/18/03	SW846 M3050	SWS46 6010B
Potassium	2900		2.1	89		mg/Kg		06/18/03	SW846 M3050	SW846-6010B
Selenium	0.67	J	0.29	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.44	u	0.060	0.44	1	mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	710		11	89		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.8	u	0.71	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.45	u	0.071	0.45	1	mg/Kg	A	06/18/03-	SW846 M3050	SW846 6010B
Zinc	30		0.30	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	4.61		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	23.3		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	**Result**		**MDL**	EQL	Dilution	Units	Code	Analysis Date	**Prep Method**	**Analysis Method**
Aroclor 1016	200	U	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	200	U	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 6082
Aroclor 1232	200	U	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Arocfor 1242	200	U	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	200	U	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	1000		48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	160	J	48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	1200		48	200	4	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project **Number**: 230607
Field ID: CC-3-LS

Matrix Type: **BIOTA**
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-003

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.1	J	2.8	17		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	2.9		0.017	0.17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.26	U	0.020	0.26		mg/Kg	A	06/18/03	SW846 M3050	SW646 6010B
Cadmium	0.056	J	0.022	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	6800		2.4	8.7		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.24	J	0.057	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobait	0.43	U	0.048	0.43		mg/Kg		06/18/03	SW846 M3050	SWS46 6010B
Copper	1.1		0.096	0.87		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	7.7	J	1.9	13		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	1.6		0.14	0.87		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	310		0.41	4.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.52		0.024	0.17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0044	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.87	U	0.19	0.87		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	2700		2.1	87	2	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.56	J	0.28	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.43	u	0.059	0.43		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	770		10	87		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.7	u	0.70	1.7	i	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.43	u	0.070	0.43		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	23		0.30	1-7		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	5.97		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	25.5		—	—	1	%		06/18/03	SM 2540G M	SM 2540G **M**

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Arocior 1016	250	U	60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	250	U	60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Arocior 1232	250	U	60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	250	U	60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Arocior 1248	120	J	60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	1300		60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	230	J	60	250	5	ug/kg		06/28/03	SW846 3540C	SW646 8082
Total PCBs	1700		60	250	5	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : CC-5-RS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835156-005

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.1	J	2.8	18		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	1.9		0.018	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.26	U	0.020	0.26		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.033	J	0.022	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	4700		2.5	8.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.16	J	0.058	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.44	U	0.048	0.44		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.71	J	0.096	0.88		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	3.9	J	1.9	13		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.52	J	0.14	0.88		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Magnesium	310		0.41	4.4		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.47		0.025	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0044	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.88	U	0.19	0.88		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3100		2.1	88		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.34	J	0.28	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.45	U	0.061	0.45		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	750		11	88		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.8	U	0.70	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.44	U	0.070	0.44		mg/Kg	A	06/18/03	SW846 M3050	SWB46 6010B
Zinc	23		0.30	1.8	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	2.24		_	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.7		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 B082
Araclor 1221	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SWB46 6082
Aroclor 1242	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	570		24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	76	J	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	650		24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project **Name** : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: WS-1-LS

Matrix Type : BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-006

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	8.0	J	3.0	19	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.4	U	0.13	1.4	1	mg/Kg		06/18/03	SW846 M3050	SW846 601 OB
Arsenic	1.4	U	0.25	1.4		mg/Kg	A	06/18/03	SW846 M3050	SW846 601 OB
Barium	2.1		0.019	0.19		mg/Kg		06/18/03	SW846 M3050	SW846 601 OB
Beryllium	0.29	U	0.022	0.29	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.27	J	0.024	0.29		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	6800		2.7	9.5		mg/Kg		06/18/03	SW846 M3050	SW346 6010B
Chromium	0.56		0.063	0.29		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Cobalt	0.48	U	0.052	0.48		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	1.4		0.10	0.95		mg/Kg	A	06/18/03	SW846 M3050	SW846 601 OB
Iron	13	J	2.1	14		mg/Kg		06/18/03 •	SW846 M3050	SW846 601 OB
Lead	1.4		0.15	0.95	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	370		0.45	4.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.24		0.027	0.19		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0098	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.95	U	0.21	0.95		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3500		2.3	95		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.43	J	0.30	1.4		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.093	J	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 601 OB
Sodium	690		11	95		mg/Kg		06/18/03	SW846 M3050	SW846 601 OB
Thallium	1.9	U	0.76	1.9		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.48	U	0.076	0.48		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	15		0.32	1.9		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	2.87		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.0		_	—		%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	100	**U**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	100	**U**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW646 8082
Aroclor 1232	100	**U**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	100	**U**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	47	**J**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	590		24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	80	**J**	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	720		24	100	2	ug/kg	•	06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : WS-2-LS

Matrix Type: BIOTA
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number: 835158-007

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	**Analysis Method**
Aluminum	4.2	J	3.2	20	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.5	U	0.14	1.5	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.5.	U	0.26	1.5	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	1.1		0.020	0.20	i	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.30	U	0.025	0.30	J	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	4800		2.8	9.9		mg/Kg		06/18/03	SW846 M3050	SW346 6010B
Chromium	0.16	J	0.065	0.30		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.054	0.50		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.45	J	0.11	0.99		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	2.3	J	2.2	15		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.35	J	0.16	0.99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	310		0.47	5.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.40		0.028	0.20		mg/Kg		06/18/03	SWB46 M3050	SW846 6010B
Mercury	0.0086	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.99	U	0.22	0.99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3200		2.4	99	>	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.44	J	0.32	1.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.50	u	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	690		12	99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	2.0	u	0.79	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.50	u	0.079	0.50		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	9.6		0.34	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	1.85		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.9		—	—		%		06/18/03	SM 2540G M	SM 2540G M

PCS

Prep Date: 06/16/03

Analyte	**Result**		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysts Method
Aroclor1016	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor1221	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SWB46 8082
Arocior1254	310		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	34	J	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	340		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : WS-3-LS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-008

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysts Method
Aluminum	4.4	J	2.7	17	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.22	1.3	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	0.55		0.017	0.17	1	mg/Kg	A	06/18/03	. SW846 M3050	SW846 6010B
Beryllium	0.26	U	0.020	0.26	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.053	J	0.021	0.26	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	1300		2.4	8.5	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.17	J	0.056	0.26	I	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.43	U	0.047	0.43		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.67	J	0.094	0.85		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	4.7	J	1.9	13	1	mg/Kg		06/18/03	SW846 M3050	SW846 60108
Lead	0.56	J	0.14	0.85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	280		0.40	4.3		mg/Kg		06/18/03	. SW846 M3050	SW846 60108
Manganese	0.15	J	0.024	0.17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0041	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.85	U	0.19	0.85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3400		2.1	85	>	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.59	J	0.27	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.50	u	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium '	560		10	85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.7	u	0.68	1.7	1	mg/Kg		06/18/03	SWB46 M3050	SW846 6010B
Vanadium	0.43	u	0.068	0.43	1	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	8.4		0.29	1.7		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Percent Lipids	2.57		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	21.6		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysfs Method
Aroclor 1016	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	570		24	100	2	ug/kg	N	06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	74	J ,	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	640		24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : WS-5-RS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-010

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.4	J	2.9	18		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	0.45	J	0.13	1.4		mg/Kg	A	06/15703	SW846 M3050	SW846 6010B
Arsenic	1.4	U	0.24	1.4		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	1.5		0.018	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.28	U	0.021	0.28		mg/Kg	A	06/18/03	SW846 M3O50	SW846 6010B
Cadmium	0.030	J	0.023	0.28		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	7100		2.6	9.2		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.30		0.061	0.28		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.46	u	0.050	0.46		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	1.1		0.10	0.92		mg/Kg	A	06/18/03	SW846 M3050	SW646 6010B
Iron	8.8	J	2.0	14		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.55	J	0.15	0.92		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	360		0.43	4.6		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.24		0.026	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.0045	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.24	J	0.20	0.92		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3300		2,2	92	J	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.55	J	0.29	1.4		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.47	u	0.064	0.47		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	790		11	92		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.8	u	0.73	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.46	u	0.073	0.46		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	11		0.31	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	8.10		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	25.6		—	—		%		06/18/03	SM 2540G M	SM 2540G **M**

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	200	U	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	200	U	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	200	U	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	200	U	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	200	U	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	1300		48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	200	J	48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	1500		48	200	**4**	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : LB-1-RS

Matrix **Type:** BIOTA
Collection Date : 06/04/03
Report **Date:** 07/18/03
Lab Sample **Number** : 835158-011

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	18	U	2.9	18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Antimony	1.4	U	0.13	1.4		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.4	U	0.24	1-4		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	0.43		0.018	0.18		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.27	U	0.021	0.27		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.27	U	0.023	0.27		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	5800		2.5	9.1		mg/Kg		06/18/03	SW846 M3050	SW846 601 OB
Chromium	0.13	J	0.060	0.27		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.45	U	0.050	0.45		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.51	J	0.10	0.91		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	3.3	J	2.0	14		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.19	J	0.15	0.91		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	300		0.43	4.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.11	J	0.025	0.18		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.056		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.91	u	0.20	0.91		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	3100		2.2	91		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	0.47	J	0.29	1.4		mg/Kg •		06/18/03	SW846 M3050	SW846 6010B
Silver	0.49	u	0.067	0.49		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	790		11	91		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.8	u	0.73	1.8		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.45	u	0.073	0.45		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	9.6		0.31	1.8		mg/Kg		06/18/03	SW846 M3050	SWS46 6010B
Percent Lipids	1.03 •		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	20.1		—	—		%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep **Date:** 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	420		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	86		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	510		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project **Number**: 230607
Field ID: LB-2-RS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835156-012

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	**17**	U	2.7	17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.22	1.3		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	0.71		0.017	0.17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.26	U	0.020	0.26		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.26	U	0.021	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	7300		2.4	8.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.23	J	0.056	0.26		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0:43	U	0.047	0.43		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.67	J	0.094	0.85		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	3.0	J	1.9	13		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.17	J	0.14	0.85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	320		0.40	4.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.18		0.024.	0.17		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Mercury	0.091		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.85	U	0.19	0.85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	2900		2.1	85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	1.3	U	0.27	1.3		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.43	U	0.059	0.43		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	800		10	85		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	1.7	U	0.68	1.7		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.43	U	0.068	0.43		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	8.0		0.29	1.7		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Percent Lipids	1.00		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	19.7		_	—		%		06/18/03	SM 2540G **M**	SM 2540G **M**

PC3

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	**U**	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	50	**U**	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	50	**U**	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	50	**U**	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	**29**	**J**	12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	180		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1260	58		12	50		ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	270		12	50		ug/kg		-06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project **Name** : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : PS-1

Matrix Type: BIOTA
Collection **Date** : 06/04/03
Report Date: 07/18/03
Lab Sample **Number** : 835158-013

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysts Date	Prep Method	Analysis Method
Aluminum	15	J	3.2	20		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.27	J	0.14	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	2.3		0.020	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30		mg/Kg	A	06/23/03	SWB46 M3050	SW846 6010B
Cadmium	0.14	J	0.025	0.30		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	12000		2.8	10		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.58		0.066	0.30		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.065	J	0.055	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Copper	2.2		0.11	' 1.0		mg/Kg		06/23/03	SW846 M3050	5W846 6010B
Iron	21		2.2	15		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	1.1		0.16	1.0		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	390		0.47	5.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.1		0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury •	0.011		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.23	J	0.22	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2700		6.0	250	>	mg/Kg		06/23/03	SW846 M3050	SW&46 6010B
Selenium	0.64	J	0.32	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.50	U	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	940		12	100		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.80	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.080	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Zinc	27		0.34	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	2.13		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	23.7		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Arocfor 1221	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	63		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	420		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	77		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8C82
Total PCBs	560		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: PS-2

Matrix Type: BIOTA
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-014

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	18	J	3.2	20		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.28	J	0.14	1.5	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5		mg/Kg		06/23/03	SW846 M3050	SW&46 6010B
Barium	3.1		0.020	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30		mg/Kg	A	06/23/03	SW846 M3050	SW646 6010B
Cadmium	0.54		0.025	0.30	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	16000		2.8	10		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	1.0		0.066	0.30		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.055	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	1.5		0.11	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	29		2.2	15		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	2.1		0.16	1.0		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	470		0.47	5.0		mg/Kg		06/23/03	SW&46 M3050	SW846 6010B
Manganese	1.1		0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.0095	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.38	J	0.22	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2700		2.4	100	/	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.80	J	0.32	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.064	J	0.058	0.43		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1000		12	100		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.80	2.0	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.080	0.50	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
.-"inc	33		0.34	2.0		mg/Kg		06/23/03	SW846 M305O	SW846 6010B
Percent Lipids	1.91		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	24.4		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Arocior 1232	50	U	12	50		ug/kg		06/30/03	SW&46 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	86		12	50		ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1254	410		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	99		12	50		ug/kg		06/30/03	SW&46 3540C	SW846 8082
Total PCBs	600		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

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En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project **Name** : VIACOM HORSEHEADS NY/KOPPERS POND
Project **Number**: 230607
Field ID : PS-3

Matrix Typo: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-015

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	12	J	2.8	18	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.26	J	0.12	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	3.1		0.018	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.26	U	0.020	0.26		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.084	J	0.022	0.26	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	16000		2.5	8.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.60		0.058	0.26		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.44	U	0.048	0.44		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.76	J	0.096	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	26		1.9	13		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	1.1		0.14	0.88		mg/Kg	A	06/23/03	SW846 M3050	SW846 601OB
Magnesium	440		0.41	4.4		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.0		0.025	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.0087	J	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.88	U	0.19	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2500		2.1	88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.58	J	0.28	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.50	U	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1400		11	88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	1.8	U	0.70	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Vanadium	0.44	U	0.070	0.44		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	27		0.30	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.97		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	24.1		—	—		%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Arodor 1254	950		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	330		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	1300		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project **Number**: 230607
Field ID : PS-4

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-016

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	14	J	2.8	18		mg/Kg	A	06/23/03	SW846 M3050	SW846 60108
Antimony	0.17	J	0.12	1,3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	2.7		0.018.	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Beryllium	0.26	U	0.020	0.26		mg/Kg	A	06/23/03	SW846 M3050	SW846 60108
Cadmium	0.11	J	0.022	0.26		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	15000		2.5	8.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.69		0.058	0.26		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.44	u	0.048	0.44		mg/Kg		06/23/03	SW846 M3050	SW846601 OB
Copper	0.98		0.096	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	24		1.9	13		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Lead	1.2		0.14	0.88		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	440		0.41	4.4		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.6		0.025	0.18		mg/Kg		06/23/03	SW846 M3050	SWB46 6010B
Mercury	0.013		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.31	J	0.19	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2600		2.1	88	:1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.61	J	0.28	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6O10B
Silver	0.43	u	0.058	0.43		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1100		11	88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	1.8	u	0.70	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.44	u	0.070	0.44		mg/Kg		06/23/03	SW846 M3050	SW846601 OB
Zinc	27		0.30	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Percent Lipids	1.64		—	_		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	23.8		—	—		%		06/18/03	SM 2540G M	SM 2540G M

PCB

PrepOate: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	200	U	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1221	200	U	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	200	U	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	200	U	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	1100		48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Arodor1254	200	U	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	82	J	48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	1100		48	200	4	ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: PS-5

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-017

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	70		2.7	17	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.28	J	0.12	1.3	1	mg/Kg		06723/03	SW846 M3050	SW846 6010B
Arsenic	0.33	J	0.22	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Barium	3.8		0.017	0.17	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.25	U	0.019	0.25	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.42		0.021	0.25	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	16000		2.4	8.5	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.74		0.056	0.25		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.13	J	0.047	0.42	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	1.3		0.093	0.85		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	220		1.9	13	t	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Lead	1.6		0.14	0.85		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	450		0.40	4.2		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	5.8		0.024	0.17		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.016		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.35	J	0.19	0.85		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2300		2.0 .	85	?	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.84	J	0.27	1.3		mg/Kg		06/23/03	SWB46 M3050	SW846 6010B
Silver	0.097	J	0.068	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1400		10	85		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Thallium	1.7	U	0.68	1.7		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.18	J	0.068	0.42		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Zinc	28		0.29	1,7		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.95		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	21.7		—	—		%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		**MDL**	EQL	>ilution	Units	Code	Analysis Date	**Prep Method**	**Analysis Method**
Arocior1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroctor 1264	200		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	140		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	340		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Cliont: VIACOM INC
Project Nanw : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: PS-6

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-018

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	7.2	J	3.0	19	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.35	J	0.13	1.4	I	mg/Kg		06/23/03	SW846 M30S0	SW846 6010B
Arsenic	1.4	U	0.25	1.4	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	1.7		0.019	0.19	I	mg/Kg		06/23/03	SW646 M3050	SW846 6010B
Beryllium	0.29	U	0.022	0.29	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.090	J	0.024	0.29		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	18000		2.7	9.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.60		0.063	0.29		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.48	U	0.052	0.48		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.52	J	0.10	0.95	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	18		2.1	14	I	mg/Kg	A	06/23/03	SWB46 M3050	SW846 6010B
Lead	1.0		0.15	0.95		mg/Kg	A	06/23/03	SW&46 M3050	SW846 6010B
Magnesium	440		0.45	4.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	0.56		0.027	0.19		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.038		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.95	U	0.21	.0.95		mg/Kg		06/23/03	SW846 M3050	SW846601OB
Potassium	2400		2.3	95	>	mg/Kg		06/23/03	SW846 M3050	SW846 60108
Selenium	0.39	J	0.30	1.4		mg/Kg		06/23/03	SW846 M3050	SW&46 6010B
Silver	0.45	U	0.062	0.45		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1300		11	95		mg/Kg		06/23/03	SW846 M3050	SW846 5010B
Thallium	1.9	U	0.76	1.9		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.48	U	0.076	0.48		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	27		0.32	1.9		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.77		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	23.7		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCS

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor1016	100	U	24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	100	U	24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Arocfor 1232	100	U	24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	100	U	24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	100	U	24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	670		24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	200		24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	870		24	100	2	ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: BC-1-RS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: 07/18/03
Lab Sample Number: 635158-019

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.2	J	2.8	18	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.33	J	0.12	1.3	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	2.4		0.018	0.18	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.27	U	0.020	0.27	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.27	U	0.022	0.27		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Calcium	18000		2.5	8.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.35		0.058	0.27		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.44	U	0.049	0.44	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.48	J	0.097	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	7.8	J	1.9	13		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	0.63	J	0.14	0.88		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	490		0.42	4.4		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.9		0.025	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.047		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.24	J	0.19	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2500		2.1	88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.56	J	0.28	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.47	U	0.064	0.47		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1100		11	88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	1.8	U	0.71	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.44	U	0.071	0.44		mg/Kg		06/23/03	SW846 M3050	SWB46 6010B
Zinc	24		0.30	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.94		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	23.1		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	U	12	50	1	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor1221	50	U	12	50	1	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8062
Aroclor 1254	220		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	130		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	350		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : BC-2-RS

Matrix Type: BIOTA
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-020

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.3	J	2.7	17	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	1.2	U	0.12	1.2	t	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.2	. U	0.22	1.2	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	3.8		0.017	0.17	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.25	U	0.019	0.25	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.088	J	0.021	0.25	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	20000		2.3	8.3	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.46		0.055	0.25	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.42	U	0.046	0.42		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.46	J	0.092	0.83	•	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	9.5	J	1.8	12		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	0.64	J	0.13	0.83		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	510		0.39	4.2		mg/Kg •		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.8		0.023	0.17		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.022		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.83	U	0.18	0.83		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2300		2.0	83	J	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.80	J	0.27	1.2		mg/Kg		06/23/03	SW846 M30S0	SW846 60108
Silver	0.45	U	0.061	0.45		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	970		10	83		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	1.7	U	0.67	1.7		mg/Kg		06/23/03	SW846 M3050	SW&46 6010B
Vanadium	0.42	U	0.067	0.42		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	29		0.28	1.7	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.94		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.2		T-	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PC 8

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	**Prep Method**	**Analysis Method**
Arocicr1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SWB46 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	.50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254.	490		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	120		12	50		ug/kg		06/30/03	SW846 3540C	SW646 8082
Total PCBs	610		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : BC-3-RS

Matrix Type: BIOTA
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835153-021

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	17	U	2.7	17	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Antimony	1.2	U	0.12	1.2	t	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.2	U	0.22	1.2	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	3.3		0.017	0.17	J	rhg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.25	U	0.019	0.25		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.030	J	0.021	0.25	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	15000		2.3	8.3		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Chromium	0.35		0.055	0.25		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.42	U	0.046	0.42		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.56	J	0.092	0.83		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	9.2	J	1.8	12		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	0.34	J	0.13	0.83		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	450		0.39	4.2		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.6		0.023	0.17		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.012		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.83	U	0,18	0.83		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2500		2.0	83	J	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.62	J	0.27	1.2		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.46	U	0.063	0.46		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	940		10	83		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	1.7	U	0.67	1.7		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.42	U	0.067	0.42		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	28		0.28	1.7		mg/Kg		06/23/03	SWS46 M3050	SW846 6010B
Percent Lipids	0.82		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.9		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	**Result**		**MDL**	EQL	Dilution	Units	Code	Analysis **Date**	**Prep Method**	**Analysis Method**
Aroclor 1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Arocfor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	52		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	480 •		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	110		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	640		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM **INC**
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: GS-1-RS

Matrix Type: BIOTA
Collection Date : 06/04/03
Report Date: **07/18/03**
Lab Sample Number : 835158-022

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	20	U	3.2	20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Antimony	0.37	J	0.14	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	4.0		0.020	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.30	u	0.023	0.30		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.051	J	0.025	0.30		mg/Kg	A	06/23/03	SW846 M3050	SWS46 6010B
Calcium	18000		2.8	9.9		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.42		0.065	0.30		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.50	u	0.054	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.56	J	0.11	0.99		mg/Kg		06/23/03	SW&46 M3050	SW846 6010B
Iron	7.3	J	2.2	15		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	0.63	J	0.16	0.99		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	490		0.47	5.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.9		0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.015		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel •	0.99	u	0.22	0.99		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2400		2.4	99		mg/Kg		06/23/03	SW346 M3050	SW846 6010B
Selenium	0.52	J	0.32	1.5		mg/Kg		06/23/03	SW&46 M3050	SW846 6010B
Silver	0.44	u	0.060	0.44		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	990		12	99		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	2.0	u	0.79	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	u	0.079	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	32		0.34	2.0	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.70		—	-	1	%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.9		—	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 80B2
Aroclor 1221	50	**U**	12	50		ug/kg		06/30/03.	SW846 3540C	SW846 8082
Aroclor 1232	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8032
Aroclor 1242	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8032
Aroclor 1248	50	**U**	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8032
Aroclor 1254	360		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	94		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	450		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : GS-2-RS

Matrix Type : BIOTA
Collection Date : 06/04/03 .
Report Date : 07/18/03
Lab Sample **Number** : 835158-023

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	23		2.8	18		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	1.3	U	0.12	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	1.7		0.018	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 601 OB
Beryllium	0.27	U	0.020	0.27		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.30		0.022	0.27		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	12000		2.5	8.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.40		0.058	0.27		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.11	J	0.049	0.44		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.78	J	0.097	0.88		mg/Kg		06/23/03	SWB46 M3050	SW846 6010B
Iron	52		1.9	13		mg/Kg	A	06/23/03	SW&46 M3050	SW846 6010B
Lead	0.91		0.14	0.88		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	400		0.42	4.4		mg/Kg		06/23/03	SWS46 M3050	SW846 60108
Manganese	1.6		0.025	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.052		0.0020	0010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.20	J	0.19	0.88		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2500		2.1	88	>	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.58	J	0.28	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.42	U	0.057	0.42		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1100		11	88		mg/Kg		06/23/03	SW846 M3050	SW846 601 OB
Thallium	1.8	U	0.71	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.44	U	0.071	0.44	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	32		0.30	1.8	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	2.78		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	24.2		—	_		%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	480		12	50		ug/kg		06/30/03	SW846 3540C	. SW846 8082
Aroclor 1260	130		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	610		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : GS-3-RS

Matrix Type: BIOTA
Collection Date: 06/04/03
Report Date: 07/18/03
Lab Sample Number : 835158-024

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	14	J	2.9	18		mg/Kg	A	06/23/03	SW846 M305O	SW846 6010B
Antimony	1.3	U	0.12	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.3	U	0.23	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	2.0		0.018	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.27	U	0.021	0.27		mg/Kg	A	06/23/03	SWS46 M3050	SW846 6010B
Cadmium	0.12	J	0.022	0.27	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	13000		2.5	8.9	!	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.58		0.059	0.27	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.14	J	0.049	0.45		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	0.82	J	0.098	0.89		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	35		2.0	13		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	0.99		0.14	0.89		mg/Kg	A	06/23/03	SW846 M3050	SW846 601 OB
Magnesium	400		0.42	4.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.1		0.025	0.18		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.037		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SWB46 M7471
Nickel	0.30	J	0.20	0.89		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2400		2.1	89	;	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Selenium	0.96	J	0.29	1.3		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.43	U	0.059	0.43	1	mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	1200		11	89	1	mg/Kg		06/23/03	SW846 M3050	SW846 60108
Thallium	1.8	U	0.71	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.45	U	0.071	0.45		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	22		0.30	1.8		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.87		—	—		%		06/18/03	EnChem Lipid	EnChem Lipid
Percent Solids	22.1		_	—	1	%		06/18/03	SM 2540G M	SM 2540G M

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis **Method**
Aroclor 1016	50	U	12	50		ug/kg		06/30/03	SWB46 3540C	SW846 8082
Aroclor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	56		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	240		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	110		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	410		12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

EnChem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : DUP **A**

Matrix Type: BIOTA
Collection Date :
Report Date: 07/18/03
Lab Sample Number : 835158-025

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	3.5	J	3.2	20	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Antimony	0.21	J	0.14	1.5	I	rng/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Barium	1.7		0.020	0.20	I	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30	I	mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Cadmium	0.13	J	0.025	0.30	I	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	3600		2.8	9.9	I	mg/Kg		06/18/03	SW846 M3050	SWB46 6010B
Chromium	0.20	J	0.065	0.30	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.054	0.50		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper '	1.1		0.11	0.99		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Iron	14	J	2.2	15		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	0.71	J	0.16	0.99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	250		0.47	5.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	1.3		0.028	0.20		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Mercury	0.038		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.99	U	0.22	0.99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	2800		5.9	250	>	mg/Kg		06/18/03	SW846 M3050	SW846 601 OB
Selenium	0.39	J	0.32	1.5		mg/Kg		06/18/03	SW846 M3050	SW846 60108
Silver	0.49	U	0.067	0.49		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	720		12-	99		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.79.	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.079	0.50		mg/Kg	A	06/18/03	SW846 M3050	SW846 6010B
Zinc	15		0.34	2.0	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	2.88		_.	__		%		06/18/03	EnChem Lipid	EnChem Lipid

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	-Analysis Date	Prep Method	Analysis Method
Aroclor 1016	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1221	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1232	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1242	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1248	100	U	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Aroclor 1254	660		24	100	2	ug/kg		06/28/03	SW846 3540C	SW646 8082
Aroclor 1260	89	J	24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082
Total PCBs	750		24	100	2	ug/kg		06/28/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID : DUP B

Matrix Type: BIOTA
Collection Date:
Report Data: 07/18/03
Lab Sample Number: 835158-029

INORGANICS

Test	Result		MDL	EQL	)ilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	12	J	3.2	20	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Antimony	0.17	J	0.14	1.5	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5	I	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	2.7		0.020	0.20	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.18	J	0.025	0.30	t	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	15000		2.8	10		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.64		0.066	0.30	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.055	0.50		mg/Kg		06/23/03	SW846 M3050	SWS46 6010B
Copper	1.0		0.11	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	19		2.2	15		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	1.0		0.16	1.0		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Magnesium	430		0.47	5.0		mg/Kg		06/23/03	SW846 M3050	SWS46 60106
Manganese	1.2		0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.011		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW046 M7471
Nickel	0.28	J	0.22	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2700		6.0	250	5	mg/Kg		06/23/03	SW646 M3050	SW846 6010B
Selenium	0.80 •	J	0.32	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6O10B
Silver	0.091	J	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	950		12	100		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.80	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.080	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	26		0.34	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	1.18		—	_ .		%		06/18/03	EnChem Lipid	EnChem Lipid

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1232	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	930		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	330		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	1300		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

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Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: BLANK A

Matrix Type: BIOTA
Collection Date :
Report Date: 07/18/03
Lab Sample Number : 835158-027

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	5.2	J	3.2	20	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Antimony	0.37	J	0.14	1.5	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5	1	rng/Kg		06/18/03	SW846 M3050	SW846 6010B
Barium	0.039	J	0.020	0.20	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Beryllium	0.30	u	0.023	0.30	1	mg/Kg		06/18/03	SW846 M3050	SWB46 6010B
Cadmium	0.30	u	0.025	0.30	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Calcium	6.9	J	2.8	10	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Chromium	0.30	u	0.066	0.30	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Cobalt	0.50	u	0.055	0.50	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Copper	0.20	J	0.11	1.0	1	mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Iron	15	u	2.2	15		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Lead	1.0	u	0.16	1.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Magnesium	0.67	J	0.47	5.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Manganese	0.20	u	0.028	0.20		mg/Kg		06/18/03	SWS46 M3050	SW846 6010B
Mercury	0.010	u	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	1.0	u	0.22	1.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Potassium	4.9	J	1.2	50		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Selenium	1.5	u	0.32	1.5		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Silver	0.50	u	0.068	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	100	u	12	100		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Thallium	2.0	u	0.80	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Vanadium	0.50	u	0.080	0.50		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Zinc	2.0	u	0.34	2.0		mg/Kg		06/18/03	SW846 M3050	SW846 6010B
Percent Lipids	0.75		—	—	1	%		06/18/03	EnChem Lipid	EnChem Lipid

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor 1016	50	U	12	50	1	ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1221 *	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1232	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8062
Aroclor 1248	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1254	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082
Aroclor 1260	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082
Total PC8s	50	U	12	50		ug/kg		06/27/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevue Street
Green Bay, **WI** 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607
Field ID: DUP **B**

Matrix Type : BIOTA
Collection Date:
Report Date: 07/18/03
Lab Sample Number : 835158-029

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	12	J	3.2	20	I	mg/Kg	A	06/23/03	SW846 M3050	SW846 60108
Antimony	0.17	J	0.14	1.5	1	mg/Kg		06/23/03	SW846 M3050	SW846 60108
Arsenic	1.5	U	0.26	1.5	1	mg/Kg		06/23/03	SW846 M305O	SW846 6010B
Barium	2.7		0.020	0.20	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium	0.30	U	0.023	0.30	1	mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Cadmium	0.18	J	0.025	0.30		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Calcium	15000		2.8	10	1	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.64		0.066	0.30		trig/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.055	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	1.0		0.11	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	19		2.2	15		mg/Kg	A	06/23/03	SW846 M3050	SW846 6010B
Lead	1.0		0.16	1.0		mg/Kg	A	06/23/03	SW&46 M3050	SW846 6010B
Magnesium	430		0.47	5.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	1.2		0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.011		0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	0.28	J	0.22	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	2700		6.0	250	J	mg/Kg		06/23/03	SWB46 M3050	SW846 6010B
Selenium	0.80	J	0.32	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.091	J	0.067	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	950		12	100		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Thallium	2.0	U	0.80	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.080	0.50		mg/Kg		06/23/03	SW846 M3050	SWB46 6010B
Zinc	26		0.34	2.0		mg/Kg		06/23/03	SW846 M3050	SW 84 6 6010B
Percent Lipids	1.18		—	—		%		06/18/03	EnChem Lipid	EnChem Upid

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor1016	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1221	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1232	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1248	140	U	34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1254	930		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	330		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	1300		34	140	2	ug/kg		06/30/03	SW846 3540C	SW846 8082

En Chem Inc.

1241 Bellevua Street
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Rax: 920-469-8827

Analytical Report Number: 835158

Client: VIACOM INC
Project Name : VIACOM HORSEHEADS NY/KOPPERS POND
Project Number: 230607 .
Field ID : BLANK B

Matrix Typo: BIOTA
Collection Date :
Report Date :. 07/18/03
Lab Sample Number : 835158-031

INORGANICS

Test	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	14	J	3.2	20	i	mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Antimony	1.5	U	0.14	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Arsenic	1.5	U	0.26	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Barium	0.20	U	0.020	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Beryllium '	0.30	U	0.023	0.30		mg/Kg		06/23/03	SW846 M3Q50	SW846 6010B
Cadmium	0.038	4	0.025	0.30		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Calcium	15		2.8	10		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Chromium	0.30	U	0.066	0.30		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Cobalt	0.50	U	0.055	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Copper	1.0	U	0.11	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Iron	4.3	J	2.2	15		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Lead '	0.18	J	0.16	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Magnesium	12		0.47	5.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Manganese	0.20	U	0.028	0.20		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Mercury	0.010	U	0.0020	0.010		mg/Kg		06/18/03	SW846 M7471	SW846 M7471
Nickel	1.0	U	0.22	1.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Potassium	3.7	J	1.2	50		mg/Kg		06/23/03	SW846 M3050	SW846 60108
Selenium	1.5	U	0.32	1.5		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Silver	0.50	U	0.068	0.50		mg/Kg		06/14/03	SW846 M3050	SW846 6010B
Sodium	100	U	12	100		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Thallium	2.0	U	0.80	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Vanadium	0.50	U	0.080	0.50		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Zinc	2.0	U	0.34	2.0		mg/Kg		06/23/03	SW846 M3050	SW846 6010B
Percent Lipids	0.82		—	_		%		06/18/03	EnChem Lipid	EnChem Lipid

PCB

Prep Date: 06/16/03

Analyte	Result		MDL	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Aroclor1016	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Arodor 1221	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 6082
ArocJor 1232	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1242	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 6082
Aroclor 1248	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 B082
Aroclor 1254	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Aroclor 1260	50	U	12"	50		ug/kg		06/30/03	SW846 3540C	SW846 8082
Total PCBs	50	U	12	50		ug/kg		06/30/03	SW846 3540C	SW846 8082

END

OF

DOCUMENT