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Evaluation of Methylene Chloride and Acetone in Genesee River Sediments Associated with the CSXT Derailment and Chemical Spill at Charlotte, New York

Prepared by:

Shaw Environmental and Infrastructure, Inc.
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Prepared for:

CSX Transportation Inc.
500 Water Street
Jacksonville, FL 32202

May 9, 2002

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Shaw The Shaw Group Inc.™

May 9, 2002

David Pratt, P.E.
NYSDEC- Region 8
6274 East Avon-Lima Road
Avon, NY 14414

RE: GENESEE RIVER SEDIMENT REPORT

Dear Mr Pratt:

Shaw Environmental & Infrastructure, Inc. (Shaw E &I- formerly IT Corporation, Inc.), on behalf of CSX Transportation, Inc. (CSXT), has prepared the enclosed Genesee River Sediment Report for your review. Based upon the findings presented in this report, additional vertical investigation, and further research into the remedial techniques, a River Sediment Removal Work Plan will be prepared and submitted for approval.

Sincerely,

Shaw Environmental and Infrastructure, Inc.

Michael Murray
Sediment Task Manager

MM:dlt

cc: D. Crumb
J. Mackey
J. Scagnelli
P. Kurzanski

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1.0 Introduction

IT Corporation, now Shaw Environmental and Infrastructure, Inc., was retained by CSX Transportation (CSXT) to provide technical support and evaluate possible impacts from the December 23, 2001 train derailment and spill of acetone and methylene chloride into the Genesee River. The River impact assessment has included water sampling and analysis performed immediately following the spill, and sediment sampling for benthic macroinvertebrate community analysis performed on January 10, 2002. Core sampling of River sediments for analysis for acetone and methylene chloride was conducted on March 19, 2002. The analytical results showed elevated methylene chloride concentrations in river sediments directly offshore of the spill area. As a result, Phase II sampling was performed on April 4, 2002. The Phase II sediment samples were collected in a grid pattern for the purpose of delineating the area of contamination. This Report presents the results of the sediment analysis and assesses potential environmental effects using NYSDEC and USEPA sediment guidance values.

2.0 Methods

Samples were collected in accordance with the Genesee River Sediment Sampling Plan and Genesee River Phase II Sediment Sampling Plan included as **Appendix A** of this document.

2.1 Sampling Locations

Phase I sampling included 13 locations (sampling stations) on the lower Genesee River, upstream from, adjacent to, and downstream from the spill site. Phase II sampling, which focused on the area of contamination indicated by the Phase I results, included re-sampling of stations, 3, 4, 5, 6 and 11, as well as new stations 14 through 31. These stations are indicated on **Figure 1.** Upstream stations 1 and 2 (located approximately 600 feet upstream of the site), and downstream Stations 8 and 9 (located approximately 2,300 feet downstream of the site) are not shown on the Figure. Sample coordinates were recorded in the field with a hand held GPS receiver.

2.2 Sample Collection

Samples were collected with a coring device, both a slide-hammer corer and a corer with extension handles were used. Cores were sectioned for separate analysis as appropriate based on field observations. If sufficient core length was obtained, the core was sectioned into three layers, 0-6 inches, 6-12 inches, and 12 -18 inches. If possible, three samples were collected from each core, one from the sediment water interface, the second from the 6-12 inch layer, and the third from the 12-18 inch layer.

2.3 Sample Handling in the Field

Sample were mixed thoroughly with a stainless steel spoon and placed into appropriate sample containers. All sample containers were labeled with the location, time of collection, date and sample type and method of analysis. The sample identification information was also recorded on the COCs and field notes.

2.4 Field Quality Assurance/Quality Control

IT Field Activity Daily Logs (FADLs) were used to record all essential information for each sampling station. Included were descriptions of the sampling locations, total number and types of samples collected, time, date, weather and other pertinent information. Chain of Custody forms were prepared in the field and sealed in coolers with the samples for shipment to the laboratory.

2.5 Sample Analysis

Analysis of the sediment samples was performed by Severn Trent laboratories (STL). The

purpose of the Phase II sampling and analyses was to delineate the area of contamination. The samples were analyzed beginning with samples from the area of known contamination, and continuing outward until the acetone and methylene chloride concentrations were below appropriate guidance values.

3.0 Results and Discussion

This section presents and discusses the sediment concentrations and area of contamination, and discusses the data in the context of potential environmental effects.

3.1 Acetone and Methylene Chloride Sediment Concentrations

The phase I and Phase II acetone and methylene chloride sediment concentrations are shown in **Table 1**. Data from both the March 19 and April 4 are shown, along with core length obtained, percent solids, and sampling location coordinates. The acetone and methylene chloride data for the area adjacent to the spill where elevated sediment concentrations were found are shown on **Figure 1**. All locations with elevated acetone concentrations also had elevated methylene chloride, and elevated methylene chloride was found at more locations. Therefore, methylene chloride is the better indicator for determining the area of contamination. The river substrate containing elevated sediment concentrations is limited to an area of approximately 1,500 square yards adjacent to the spill site, and concentrations decrease from high to very low levels in a short distance. Upstream Sampling Stations 1 and 2, and downstream Sampling Stations 8 and 9 are not shown on Figure 1.

3.2 Sediment Guidance Values for Acetone and Methylene Chloride

The New York State Department of Environmental Conservation (NYSDEC) provides equilibrium partitioning (EP) based sediment criteria for non-polar organic chemicals. They do not provide sediment criteria for polar organic chemicals such as acetone and methylene chloride. Rather, they recommend comparing sediment pore water concentrations to surface water quality criteria (NYSDEC 1993). The pore water is that percentage of a sediment sample that is water, i.e., water in the pores between the sediment particles. Using this method to screen for potential effects, it is very important to review the basis of the water criterion for applicability and appropriateness as a sediment criterion. The NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) has published surface water guidance values for both acetone and methylene chloride (NYSDEC, 1998). (NYSDEC defines guidance values as criteria/standards that have not yet been adopted into regulation.) The guidance value for acetone is for protection of human health in drinking water, and is therefore not appropriate for derivation of a sediment guidance value. The NYSDEC surface water guidance value for methylene chloride is based on the protection of human health with consumption of fish. Since fish are not exposed to sediment pore water, the NYSDEC surface water guidance value is also not appropriate for the derivation of a sediment guidance value. It should be noted that Genesee River surface water samples collected after the spill showed that concentrations of acetone and methylene chloride rapidly decreased to background levels, and exposure of fish to elevated

concentrations was likely to have been minimal.

The national criteria published by EPA were also reviewed for appropriate surface water values to be used in the derivation of sediment guidance values (USEPA, 1999). There are no National Ambient Water Quality Criteria for acetone or methylene chloride. However, Tier II benchmarks published in Suter and Tsao (1996) are appropriate for use in estimating the likelihood of toxicity to aquatic invertebrates. These values are appropriate for evaluating potential impacts because the organisms continually exposed to the elevated concentrations in sediments are sediment dwelling benthic invertebrates. The aquatic biota toxicological surface water screening benchmarks for acetone are 28,000 ppb (acute) and 1,500 ppb (chronic). The benchmarks for methylene chloride are 26,000 ppb and 2,200 ppb (acute and chronic respectively). These concentrations are based on laboratory toxicity tests with sensitive invertebrates.

In order to calculate conservative site specific sediment guidance values (SGVs) for acetone and methylene chloride, it is assumed that each chemical is 100 percent dissolved in pore water. The laboratory determined percent solids data may then be used in the following equation:

$$SGV = \frac{WQGV \times M}{S}$$

Where:

SGV = Site specific sediment guidance value
WQGV = Tier II water quality guidance value
M = moisture proportion of sediment
S = solids proportion of sediment

The 95% upper confidence level of the mean solids concentration is 66 percent. Using this value and the chronic Tier II surface water values of 1500 ppb for acetone and 2200 ppb for methylene chloride, the calculated site specific SGVs are:

- Acetone, 773 ppb
- Methylene chloride, 1133 ppb.

These concentrations may be viewed as conservative site specific guidance values for sediment that are protective of aquatic life.

3.3 Discussion

Analysis of Genesee River sediments in the vicinity of the CSXT train derailment and spill has shown that elevated concentrations of acetone and methylene chloride are present in sediments adjacent to the spill area. Grid sampling indicates that the affected area is approximately 1,500 square yards. Vertical penetration of the chemicals exceeds one foot. Although site concentrations of acetone and methylene chloride exceed the calculated site specific sediment guidance values, it should be noted that effects to the benthic community were not found in a survey conducted soon after the spill, and that no fish mortality has been observed. The Tier II chronic values (Suter and Tsao, 1996), though appropriate for evaluating potential chronic effects to aquatic biota, are based on toxicity tests on the most sensitive species, and are thus very conservative. An overview of other available toxicity information for acetone and methylene chloride indicates that they both exhibit lower toxicity to most aquatic species. The lowest chronic values for fish given in Suter and Tsao (1996) are 507,640 ppb for acetone and 108,000 ppb for methylene chloride. Verschueren (1996) provides acetone toxicity data (LC_{50}) ranging from 5,500,000 to 7,100,000 ppb for aquatic invertebrates, and 5,000,000 to 13,000,000 for fish. Verschueren reports methylene chloride LC_{50} concentrations of 910,000 ppb for *Daphnia magna* (water flea), and 229,000 ppb for bluegill sunfish. These data are from toxicity tests using water only, and are not directly comparable to sediment concentrations. However, because water soluble chemicals like acetone and methylene chloride are likely to be dissolved in sediment pore water, the effect concentraions may be similar if an exposure pathway exists. Although fish exposure to effects-range concentrations of acetone and methylene chloride in sediment is unlikely, exposure of benthic invertebrates is probable.

4.0 Conclusions

Sediment concentrations of acetone and methylene chloride exceed site specific sediment guidance values for the protection of benthic invertebrates in an area of approximately 1,500 square yards in the Genessee River adjacent to the spill site. Both acetone and methylene chloride are water soluble, and their presence in sediments at high concentrations is not likely to persist long term. Acetone and methylene chloride diffusing from sediment to the overlying water is expected to evaporate to the atmosphere in a short period of time (Howard, 1990). Thus, fish populations or humans are not likely to be affected. Although sediment concentrations were above site specific guidance values, a survey of benthic invertebrates conducted soon after the spill event did not find benthic communities to be negatively affected. Remediation options are presently being evaluated, and additional core sampling to determine the vertical extent of contamination is planned.

References

Howard, H.P., 1990. *Handbook of fate and Exposure Data for Environmental Chemicals*, Lewis Publishers Inc. Chelsea, MI.

NYSDEC, 1993. *Technical Guidance for Screening Contaminated Sediments* - reprinted 1999 with updates. NYS Department of Environmental Conservation, Albany, NY.

NYSDEC, 1998. *Ambient Water Quality Standards and Guidance Values*. Division of Water Technical and Operational Guidance Series (1.1.1). NYS Department of Environmental Conservation, Albany, NY.

Suter, G. W. II, and C. L. Tsao. 1996. *Toxicological Benchmarks for Screening of Potential Contaminants of Concern for Effects on Aquatic Biota on Oak Ridge Reservation*: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN. 104pp, ES/ER/TM-96/R2.

U.S. Environmental Protection Agency, 1999. *National Recommended Water Quality Criteria*, EPA/822/Z-99/001. Washington, DC: Office of Water.

Verschueren, K., 1996. *Handbook of Environmental Data on Organic Chemicals*, 3rd Edition, Van Nostrand Reinhold, NY.

Table 1
Genesee River Sediment Data

IT Sample ID	Lab Sample ID	Lab	Sample Date	Acetone (ppb)		Methylene Chloride (ppb)		Core Length (ft)	% Solids	Sample Latitude	Sample Longitude	Depth to Bottom (ft)
SS-1 Top	A2257801	STL	3/19/02	38	B	10	B	0.8	61	43 14.996	77 36.655	
SS-1 Bottom	A2257802	STL	3/19/02	28	B	9	B		67			
SS-2 Top	A2257803	STL	3/19/02	48	B	13	B	0.75	62	43 14.999	77 36.646	
SS-2 Bottom	A2257804	STL	3/19/02	20	BJ	8	B		72			
SS-3 Top	A2257805	STL	3/19/02	59	B	49	B	1.8		43 15.087	77 36.602	
SS-3 Bottom	A2257806	STL	3/19/02	37	B	8	B					
SS-4 Top	A2257807	STL	3/19/02	23	BJ	11	B	1.05		43 15.098	77 36.594	
SS-4 Bottom	A2257808	STL	3/19/02	17	BJ	15	B					
SS-4A Bottom	A2323347	STL	4/4/02	48		35	B	0.75	71	43 15.092	77 36.595	6
SS-5 Top	A2257809	STL	3/19/02	ND		**7,800**		1.15		43 15.106	77 36.585	
SS-5 Bottom DL	A2257810	STL	3/19/02	49	B	**30,000**						
SS-5A Top	A2323306	STL	4/4/02	**300,000**		**5,400,000**	B	1.67	53	43 15.105	77 36.586	6
SS-5A Middle	A2323307	STL	4/4/02	ND		**330,000**	B		60			
SS-5A BottomDL	A2323308DL	STL	4/4/02	**36,000**	U	**440,000**	BD		66			
SS-6 Top	A2257811	STL	3/19/02	35		22	B	0.92				
SS-6 Bottom	A2257812	STL	3/19/02	49		20	B					
SS-6A Bottom	A2323359	STL	4/4/02	60		240	B	0.75	59	43 15.113	77 36.577	10
SS-7 Top	A2257813	STL	3/19/02	35		22	B	0.95				
SS-7 Bottom	A2257814	STL	3/19/02	56		18	B					
SS-8 Top	A2257815	STL	3/19/02	19	J	11	B	0.8				
SS-8 Bottom	A2257816	STL	3/19/02	34		15	B					
SS-9 Top	A2257817	STL	3/19/02	15	J	82	B	0.55				
SS-9 Bottom	A2257818	STL	3/19/02	81	J	10	B					
SS-10 Top	A2257819	STL	3/19/02	22	J	18	B	0.75				
SS-10 Bottom	A2257820	STL	3/19/02	21	J	11	B					
SS-11 Top DL	A2257821	STL	3/19/02	0		**12,000,000**		0.57				
SS-11 Bottom	A2257822	STL	3/19/02	ND		**11,000,000**						
SS-11A Top	A2323333	STL	4/4/02	**26,000**		**800,000**	BE	1.08	56	43 15.103	77 36.581	22.5
SS-11A Bottom	A2323334	STL	4/4/02	**25,000**		**1,100,000**	BE		73			
SS-12 Top	A2257823	STL	3/19/02	ND		180	B	1.05				
SS-12 Bottom	A2257824	STL	3/19/02	35	B	31	B					
SS-12A Top	A2323340	STL	4/4/02	26		10	B	1.08	63	43 15.113	77 36.573	22
SS-12A Top	A2323340	STL	4/4/02	26		10	B	1.08	63	43 15.113	77 36.573	22
SS-12A Bottom	A2323341	STL	4/4/02	41		33	B		65			
SS-13 Top	A2257825	STL	3/19/02	ND		30	B	1.2				
SS-13 Bottom	A2257826	STL	3/19/02	150	B	52	B					
SS-14 Top (Dup from SS-3 Top)	A2257827	STL	3/19/02	ND		58	B					

Table 1

Genesee River Sediment Data

IT Sample ID	Lab Sample ID	Lab	Sample Date	Acetone (ppb)		Methylene Chloride (ppb)		Core Length (ft)	% Solids	Sample Latitude	Sample Longitude	Depth to Bottom (ft)
S-14 Bottom (Dup from SS-3 Bot.)	A2257828	STL	3/19/02	170	B	64	B					
SS-15 Bottom	A2323344	STL	4/4/02	ND		**750,000**	B	0.8	75	43 15.090	77 36.584	6
SS-16 Top	A2323350	STL	4/4/02	ND		**30,000**	B	1.5	50	43 15.104	77 36.582	6
SS-16 Middle	A2323351	STL	4/4/02	ND		**56,000**	BE		64			
SS-16 Bottom	A2323352	STL	4/4/02	ND		**2,400,000**	BE		76			
SS-17 Top	A2323312	STL	4/4/02	120		38	B	1.42	56	43 15.125	77 36.573	9
SS-17 Bottom	A2323314	STL	4/4/02	54	B	50	B		71			
SS-18 Top	A2323338	STL	4/4/02	57		49	B	1.12	66	43 15.094	77 36.589	22
SS-18 Bottom	A2323339	STL	4/4/02	39	B	32	B		66			
SS-19 Bottom	A2323335	STL	4/4/02	ND		**960,000**	B	0.71	76	43 15.100	77 36.583	20
SS-20 Top	A2323336	STL	4/4/02	25		14	B	1.25	61	43 15.123	77 36.565	21
SS-21 Top	A2323362	STL	4/4/02	67		35	B					
SS-22 Top	A2323366	STL	4/4/02	33		19		1.16	60	43 15.083	77 36.580	24
SS-23 Top	A2323317	STL	4/4/02	ND		**14,000,000**	B	1.04	66	43 15.095	77 36.575	23
SS-23 BottomDL	A2323318DL	STL	4/4/02	**370,000**	D	**7,000,000**	BD		65			
SS-24 Top	A2323331	STL	4/4/02	ND		**58,000**	B	1	60	43 15.101	77 36.567	24
SS-24 BottomRE	A2323332	STL	4/4/02	ND		**770,000**	BD		64			
SS-25 Top	A2323315	STL	4/4/02	60		23	B	1.08	59	43 15.109	77 36.559	
SS-25 Bottom	A2323316	STL	4/4/02	35		32	B		60			
SS-26 Top	A2323360DI	STL	4/4/02	**8,600**	U	**9,500**	BD	1	57	43 15.122	77 36.553	24
SS-26 Bottom	A2323361	STL	4/4/02	51	B	97	B		68			
SS-27 Top	A2323364	STL	4/4/02	50		64	B	1.25	68	43 15.089	77 36.550	26
SS-27 Bottom	A2323365	STL	4/4/02	30	B	70	B		65			
SS-28 Top	A2323348	STL	4/4/02	17	J	14	B	1.04	64	43 15.083	77 36.572	26
SS-29 Top	A2323353	STL	4/5/02	51		250	B	1.13	65	43 15.102	77 36.554	24
SS-29 Bottom	A2323354	STL	4/4/02	89	B	64	B		63			
SS-30 Top	A2323321	STL	4/5/02	45		22	B	1.16	70	43 15.106	77 36.553	24.5
SS-31 Bottom	A2323368	STL	4/5/02	55		82	B	0.75	66	43 15.108	77 36.550	24.2

Notes:
B=Analyte found in blank
D=Dilution
E= Analyte exceeded the calibration range
J= Estimated Result
Bolding indicates value greater than site specific guidance value

Genesee River Phase II Sediment Sampling Plan
CSXT Charlotte - Project Number 834540 01000000

Purpose:
Sampling of Genesee River sediments in the vicinity of the CSXT derailment and chemical spill indicated that sediments in the river directly adjacent to the spill site contains elevated levels of methylene chloride. This Sampling Plan describes additional sampling to be performed to delineate the area and vertical extent of sediment contamination.

Safety:
Coast Guard approved personal floatation devices (PFDs) must be worn at all times when on board the vessel. The vessel used for sampling must have on board all Coast Guard required safety equipment. Large commercial vessels may transit the sampling area at any time. At all times and especially when engaged in sampling operations, the operator and crew will maintain a lookout for other vessels. Sampling PPE includes a waterproof outer layer, chemical resistant gloves and protective eyewear.

Documentation:
All activities must be recorded on Field Activity Daily Log (FADL) sheets or waterproof notebooks. Chain of Custody (COC) forms must be filled out in the field and must accompany the samples to the laboratory.

Sample locations:
Phase II sampling will focus on the previously identified area of contamination. Samples will be collected at the previously sampled locations plus additional locations in order to delineate the area of contamination (See Sediment sampling Location Map). Samples will be collected at these nine previously sampled locations:

- SS-3, SS-4, SS-5, SS-6, SS-7, SS-10, SS-11, SS-12 and SS-13.

Twenty two (22) additional locations will be sampled to form a grid with approximately 50 ft spacing between sampling points. These locations are as follows:

- Three sampling points at 50 foot intervals, perpendicular to the shoreline, beginning 50 feet offshore (east) of SS-4;
- Five sampling points at 50 foot intervals, perpendicular to the shoreline, the first point to be approximately half way between SS-4 and SS-5;
- Four sampling points at 50 foot intervals, perpendicular to the shoreline, beginning 50 feet offshore (east) of SS-11;
- Four sampling points at 50 foot intervals, perpendicular to the shoreline, beginning 50 feet offshore (east) of SS-12: and
- Six sampling points at 50 foot intervals, perpendicular to the shoreline, beginning 50 feet downstream (north) of SS-6.

The 31 sampling locations described above form a sampling grid over the area of potential methylene chloride contamination. The shape of the grid is based on the likelihood that the chemical formed a plume that traveled away from the shoreline down the slope of the river channel, and also was directed to the north by the current. Because methylene chloride may have settled in depressions in the river bed, the sampling technicians will use the vessel's depth sounder and locate the deepest areas in the vicinity of the area of known contamination. Sampling locations described above may be adjusted in the field to ensure that sediment is collected from these deep areas.

Sample location coordinates should be recorded with a handheld GPS receiver. In the event that GPS coordinates cannot be recorded, detailed notes and drawings should be made of the sample locations referencing distance to shore landmarks.

Sediment Core Sampling:
Samples will be collected with a coring device, either a slide-hammer corer or a corer with extension handles that can be forced into the sediment. Because of the potential for dredging of contaminated sediments, obtaining sediment cores of sufficient length is very important. If possible, cores should be at least 18 inches in length. The core will be sectioned into separate samples as described below.

Slide-Hammer Corer Operation:
The corer will be operated in accordance with the manufacturer's specifications:

1. Sampler must be thoroughly decontaminated prior to sampling at each location.
2. The sampler is lowered to the riverbed and bronze messenger is repeatedly dropped until the sampler has been driven to the appropriate depth.
3. The sampler is retrieved at a slow but steady rate to minimize loss of fine particles.
4. The sampler is lifted onboard and the core barrel is capped at both ends to ensure that none of the sample is lost.
5. Once the core barrel has been capped the sample will be evaluated documenting recovery, strata and other features.

Hand Corer Operation:
1. Sampler must be thoroughly decontaminated prior to sampling at each location.
2. The water depth at the sampling location is determined with an on board depth sounder or sounding lead.
3. Sections of threaded handle with a total length several feet greater than the water depth are connected to the corer tube.
4. The corer assembly is lowered vertically to the bottom, and the corer is forced into the sediment. The sampling technician should estimate the depth of sediment penetration and should attempt to collect a core 18 inches or greater in length.
5. If necessary, a sledgehammer may be used to achieve the required depth of sediment penetration.

Sample Collection:
The sediment core will be sectioned and sample collection will be as follows:

1. Assuming sufficient core length is obtained, the core will be sectioned into three layers, 0-6 inches, 6-12 inches, and 12 –18 inches.
2. Three samples will be collected from each core, one will be taken at the sediment water interface, the second will be from the 6-12 inch layer, and the third from the 12-18 inch layer. The 12-18 inch layer will be archived and will be analyzed only if significant methylene chloride contamination is found in the 6-12 inch sample.
3. If significant stratification is encountered a sample may be collected for analysis at the strata layer.
4. The sample is mixed thoroughly with a stainless steel spoon and placed into appropriate sample containers. Care should be taken to clean the jar threads to prevent leakage during transport.
5. The field notes should include a physical description of each sample, including color, nature of coarse particles they may be present, presence or absence of a sheen or odor.

Quality Control Samples
In addition to the above samples, the following QA/QC samples should be collected each day of sampling. A field duplicate sample and an MS/MSD sample should be collected at a rate of one for every twenty samples. A field blank sample (de-ionized water poured over decontaminated dredge) must also be collected. A trip blank (VOA vial of DI water) must accompany the samplers and be submitted for volatiles analysis.

Sample Labeling:
The field crew must insure that all sample containers are clearly labeled with the location, time of collection, date and sample type and method of analysis. The sample identification information must also be recorded on the COCs and field notes. Labels should be covered with clear tape to prevent loss prior to analysis.

Sample Analysis:
Sediment samples will be submitted for analysis of VOCs including methylene chloride, and percent moisture.

Sample Packing and Transport:
The glass jars should be placed in bubble wrap and put into ziploc bags. The benthic samples should be placed into large ziploc bags and sealed. The samples are packed in clean coolers with sufficient ice and vermiculite to prevent movement of the jars during transport. Samples should be transported or shipped to the analytical laboratory as soon as possible after collection. If shipment to the analytical laboratory is made by commercial carrier, the COCs are placed in the coolers and the coolers are sealed with custody tape.