

APPENDIX R

EVALUATION OF MERCURY SPECIATION RESULTS





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## MEMORANDUM

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TO: Randy Moore REF. NO.: 3698/rcc/19

FROM: Wesley Dyck DATE: March 12, 2004  
Kate Lauzon

C.C.: Dan Clowater

RE: **Evaluation of Mercury Speciation Results  
Maybrook Lagoon Site  
Hamptonburgh, New York**

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### 1.0 INTRODUCTION

The Additional Soil Sampling Work Plan (Work Plan), (CRA, March 2003), specifies a process for identifying chemicals of concern (COCs) in former lagoon soils present at the Maybrook Lagoon Site in Hamptonburgh, New York (Site). The COC identification process is summarized in Figure 4.1 of the Work Plan. This memorandum presents the findings of the mercury speciation analyses, as well as a recommended conservative methylmercury percentage to use for purposes of the human health risk assessment (HHRA).

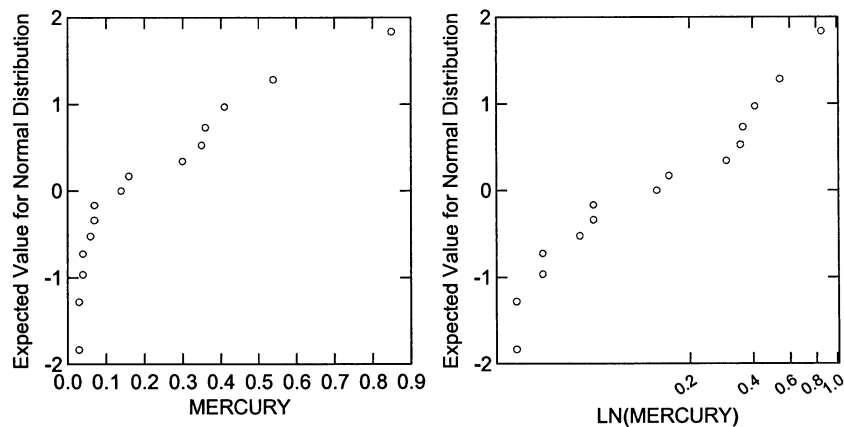
In accordance with the Work Plan, mercury speciation analyses (of total mercury and methylmercury) were performed for 15 soil samples selected from the 120 soil samples collected in May 2003. Initially, seven samples were selected for mercury speciation as they exceeded the most stringent residential health-based criterion for methylmercury of 8.34 mg/kg. These seven samples were collected from Lagoons 1, 2 and 5. There were no exceedences of the residential health-based criterion for samples collected from Lagoons 3, 4, and 6. The U.S. EPA requested that 8 additional samples be included for speciation analysis from lagoons 3, 4, and 6 to provide coverage across the Site. The additional eight samples exhibited total mercury concentrations generally less than 1 mg/kg. In total, fifteen samples were approved by the U.S. EPA and NYSDEC for mercury speciation analysis. The locations of these samples are shown on Figure 1. The number of samples submitted for speciation analysis from each lagoon is as follows:

<u>Sampling Area</u>	<u>Number of Samples</u>
Lagoon 1	2
Lagoon 2	4
Lagoon 3	2
Lagoon 4	2
Lagoon 5	4
<u>Lagoon 6</u>	<u>1</u>
<i>Sub-total:</i>	15

## 2.0 METHYLMERCURY ANALYSIS RESULTS

The total mercury results for all soil samples collected in May 2003 are provided in Table 1 of this memorandum. The samples and results for the approved mercury speciation samples are presented in Table 2 and Figure 1. The concentrations of methylmercury found in the fifteen samples submitted ranged from 0.00002 to 0.015 mg/kg. The percentages of methylmercury *vs.* total mercury ranged from 0.03 to 0.85 percent, with a mean of 0.23 percent methyl mercury. Prior to performing statistical calculations, characteristics of the data set were evaluated. Specifically, the data distribution and presence of statistical outliers were tested. A significance level of 0.05 (i.e., 95-percent confidence) was applied for all statistical procedures.

Data distribution was tested using probability plots and the Shapiro-Wilk W-test (U.S. EPA, 2000). From inspection of the probability plots (shown below for raw and log-transformed data), the data appear to be lognormally distributed, as evidenced by the straight line of the individual points on the log-transformed plot. The Shapiro-Wilk test results confirmed this finding that the data are lognormally distributed.



The presence of statistical outliers was tested using probability plots and Dixon's test for outliers (U.S. EPA, 2000). On the probability plot of the log-transformed data (above), the extreme observations (i.e., the highest and lowest percentages of methylmercury) appear to be consistent with the rest of the data (i.e., fit on the line in the plot). The only exception is the lowest point that does not seem to fit on the otherwise straight line. Further evaluation using Dixon's test did not indicate the presence of statistical outliers, and therefore all fifteen methylmercury concentration percentages were retained for subsequent analysis.

## 3.0 DERIVATION OF CONSERVATIVE MAXIMUM METHYLMERCURY PERCENTAGE

The mercury speciation results are used in the human health risk assessment as the basis for risk estimates for methylmercury exposure across the entire Site. The mercury speciation results will be extrapolated to the total mercury concentrations for the remaining investigative samples not subjected to the speciation analysis when calculating exposure terms. To provide a conservative estimate representing a maximum exposure concentration scenario, the mercury speciation data have been used to calculate an upper tolerance limit (UTL) on the methylmercury *vs.* total mercury ratio. This UTL represents the upper limit on

the 95<sup>th</sup> percentile of the mercury speciation data with 95-percent confidence. That is, if additional samples from lagoon soils were submitted for mercury speciation analysis, a maximum of one in twenty of these samples could have a percentage of methylmercury higher than the UTL.

Upper tolerance limits have been recommended by U.S. EPA (1989, 1992, 2001) and the Texas Natural Resource Conservation Commission (TNRCC) (1992) for use as tools to provide upper bounds on measured parameters, for example to establish an upper bound on background concentrations of a chemical. These UTLs provide estimates that are both conservative and representative of the maximum concentration. UTLs achieve higher than the specified coverage in most cases since they are based on observed values, and not on assumptions. UTL calculation details are provided in U.S EPA 1989.

A UTL for the mercury speciation data was calculated using the mean and standard deviation of the log-transformed data, and applying a statistical tolerance coefficient (k) from a standard table (Hahn and Meeker, 1991). The resulting UTL was 2.4 percent methylmercury. Table 2 presents the results of the statistical evaluation of the mercury speciation data.

#### 4.0 DISCUSSION AND CONCLUSIONS

The UTL for the speciated samples of 2.4 percent (methylmercury to total mercury) is less than 8.5 percent that represents ten times the maximum observed methylmercury concentration of 0.85 percent. It is noted that the use of "safety factors" of ten (or multiples thereof) is widespread in risk assessment; however, these safety factors are typically applied in situations where a parameter is unknown or poorly characterized. In contrast, the mercury speciation data collected for the Site represent a well-characterized data set. The fifteen samples that were used for speciation represent the entire range of detected total mercury concentrations for the 120 soil samples collected in May 2003. It is preferable to use all of the data in a statistical procedure (i.e., the UTL) rather than a single point multiplied by a safety factor of 10. For the purposes of estimating an exposure term for methylmercury, the UTL approach will provide a conservative, yet still representative, estimate of the Site-wide methylmercury concentration. This is further demonstrated by the fact that the calculated UTL of 2.4 percent is more than 10 times greater than the mean of the selected samples (0.23 percent) and approximately three times greater than the maximum observed methylmercury concentration (0.85 percent) for the speciated samples.

Based on the results of the mercury speciation analysis, CRA recommends that the UTL value of 2.4 percent methylmercury be used to represent a conservative methylmercury percentage for soil samples subjected to total mercury analysis for the purposes of calculating an exposure estimate for methylmercury in the HHRA.

#### 5.0 REFERENCES

CRA, March 2003. Additional Soil Sampling Workplan, Maybrook Lagoon Site, Hamptonburgh, New York. Conestoga-Rovers and Associates, Waterloo, ON.

Hahn, G.J. & W.Q. Meeker, 1991. Statistical intervals: a guide for practitioners. New York: John Wiley & Sons, Inc.

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- TNRCC, April 1998. Use of Statistics for Determining Soil/Groundwater Cleanup Levels under the Risk Reduction Rules. Texas Natural Resource Conservation Commission. Voluntary Cleanup Program (VCP) Guidance Documents. April 30, 1998
- U.S. EPA, June 2001. Guidance for Characterizing Background Chemicals in Soil at Superfund Sites. Office of Emergency and Remedial Response, United States Environmental Protection Agency, Washington D.C. EPA/540-R-01-003.
- U.S. EPA, July 2000. Guidance for Data Quality Assessment: Practical Methods for Data Analysis (EPA QA/G-9). Office of Environmental Information, United States Environmental Protection Agency, Washington D.C.
- U.S. EPA, July 1992. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance - Draft. Office of Solid Waste, United States Environmental Protection Agency (U.S. EPA), Washington D.C. July 1992.
- U.S. EPA, 1989. Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities: Interim Final Guidance. Office of Solid Waste, United States Environmental Protection Agency (U.S. EPA), Washington D.C. EPA/530 SW 89 026.

**MERCURY SPECIATION RESULTS (H2M)  
 ADDITIONAL SOIL SAMPLING PROGRAM - MAY 2003  
 MAYBROOK LAGOON SITE  
 HAMPTONBURGH, NEW YORK**

<i>Area</i>	<i>Sample Location</i>	<i>Sample Depth (ft bgs)</i>	<i>Sample ID</i>	<i>Sample Date</i>	<i>Total Mercury (mg/Kg)</i>
Background	S-2	(0-2)	S-050603-SW-010	05/06/2003	0.058 U
	S-2	(4-5)	S-050603-SW-011	05/06/2003	0.066 J
	S-3	(0-2)	S-050603-SW-005	05/06/2003	0.059 U
	S-3	(6-8)	S-050603-SW-006	05/06/2003	0.077 J
	S-4	(0-2)	S-050603-SW-003	05/06/2003	0.086 J
	S-4	(6-8)	S-050603-SW-004	05/06/2003	0.062 J
	S-5	(0-2)	S-050603-SW-001	05/06/2003	0.060 U
	S-5	(6-8)	S-050603-SW-002	05/06/2003	0.055 U
	S-6	(0-2)	S-050603-SW-014	05/06/2003	0.058 U
	S-6	(6-7)	S-050603-SW-015	05/06/2003	0.054 U
	S-7	(0-2)	S-050603-SW-016	05/06/2003	0.056 U
	S-7	(8-9)	S-050603-SW-017	05/06/2003	0.055 U
	S-8	(0-2)	S-050603-SW-018	05/06/2003	0.058 J
	S-8	(4-5)	S-050603-SW-019	05/06/2003	0.062 J
	S-9	(0-2)	S-050603-SW-020	05/06/2003	0.058 U
	S-9	(7-9)	S-050603-SW-021	05/07/2003	0.055 U
	S-10	(0-2)	S-050603-SW-022	05/06/2003	0.059 U
	S-10	(6-7)	S-050603-SW-023	05/06/2003	0.054 U
	S-11	(0-2)	S-050603-SW-024/025	05/06/2003	0.059 U / 0.059 U
	S-11	(7-9)	S-050603-SW-026	05/06/2003	0.056 U
	S-12	(0-2)	S-050603-SW-031	05/06/2003	0.057 U
	S-12	(4-6)	S-050603-SW-032	05/06/2003	0.060 U
	S-13	(0-2)	S-050603-SW-029	05/06/2003	0.057 U
	S-13	(8-9)	S-050603-SW-030	05/06/2003	0.056 U
	S-14	(0-2)	S-050603-SW-027	05/06/2003	0.059 U
	S-14	(8-9)	S-050603-SW-028	05/06/2003	0.061 U
	S-15	(0-2)	S-050603-SW-007	05/06/2003	0.057 U
	S-15	(5-7)	S-050603-SW-008	05/06/2003	0.053 U / 0.054 U
	S-18	(0-2)	S-050603-SW-012	05/06/2003	0.063 J
	S-18	(3-4)	S-050603-SW-013	05/06/2003	0.061 U
Lagoon 1	L1-1	(4-5)	S-050903-SW-123	05/09/2003	0.058 U

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	L1-1	(5-6)	S-050903-SW-124	05/09/2003	0.055 U
	L1-2	(4-5)	S-050903-SW-125	05/09/2003	0.056 U
	L1-2	(5-6)	S-050903-SW-126	05/09/2003	0.057 U
	L1-3	(0.5-2)	S-050903-SW-127	05/09/2003	0.31
	L1-3	(2-3)	S-050903-SW-128	05/09/2003	0.074 J
	L1-4	(2-3.5)	S-050903-SW-129	05/09/2003	0.055 U
	L1-4	(3.5-5)	S-050903-SW-130	05/09/2003	1.2
	L1-5	(4-6)	S-050903-SW-135/136	05/09/2003	10.7 / 10.5
	L1-5	(7-9)	S-050903-SW-137	05/09/2003	2.8
	L1-6	(7-9)	S-050903-SW-132/133	05/09/2003	0.10 J / 0.16
	L1-6	(9-11)	S-050903-SW-134	05/09/2003	0.49
	L1-7	(1-3)	S-050903-SW-138	05/09/2003	0.35
	L1-7	(5-7)	S-050903-SW-139	05/09/2003	0.058 U
	L1-8	(4-6)	S-050903-SW-140	05/09/2003	0.058 U
	L1-8	(9-10)	S-050903-SW-141	05/09/2003	0.17
Lagoon 2	L2-1	(4-5)	S-050903-SW-160	05/09/2003	0.72 J
	L2-1	(7-9)	S-050903-SW-161	05/09/2003	0.36 J
	L2-2	(2-4)	S-050903-SW-153	05/09/2003	0.054 U
	L2-2	(4-6)	S-050903-SW-154	05/09/2003	17.0
	L2-3	(2-4)	S-050903-SW-151	05/09/2003	0.055 U
	L2-3	(4-5)	S-050903-SW-152	05/09/2003	0.055 U
	L2-4	(2-3)	S-050903-SW-149	05/09/2003	0.058 U
	L2-4	(3-5)	S-050903-SW-150	05/09/2003	0.056 U
	L2-5	(2-4)	S-050903-SW-155	05/09/2003	0.055 U
	L2-5	(4-5)	S-050903-SW-156	05/09/2003	0.35
	L2-6	(2-4)	S-050903-SW-147	05/09/2003	0.056 U
	L2-6	(4-5)	S-050903-SW-148	05/09/2003	0.058 U
	L2-7	(2-4)	S-050903-SW-142	05/09/2003	0.055 U
	L2-7	(4-6)	S-050903-SW-143	05/09/2003	30.1
	L2-8	(4-6)	S-050903-SW-162	05/09/2003	14.1 J
	L2-8	(7-8)	S-050903-SW-163	05/09/2003	2.0 J
	L2-9	(5-7)	S-050903-SW-157	05/09/2003	0.057 UJ
	L2-9	(10-12)	S-050903-SW-158/159	05/09/2003	0.067 J / 0.079 J
	L2-10	(4-6)	S-050903-SW-164	05/09/2003	20.0 J
	L2-10	(10-12)	S-050903-SW-165/166	05/09/2003	0.082 J / 0.14 J
	L2-11	(4-6)	S-050903-SW-144	05/09/2003	0.073 J
	L2-11	(9-11)	S-050903-SW-145/146	05/09/2003	0.066 J / 0.12



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<i>Area</i>	<i>Sample Location</i>	<i>Sample Depth (ft bgs)</i>	<i>Sample ID</i>	<i>Sample Date</i>	<i>Total Mercury (mg/Kg)</i>
Lagoon 3	L3-1	(8-10)	S-050803-SW-117	05/08/2003	0.074 J
	L3-1	(12-14)	S-050803-SW-118	05/08/2003	0.058 U
	L3-2	(4-6)	S-050803-SW-114	05/08/2003	0.062 U
	L3-2	(13-15)	S-050803-SW-115/116	05/08/2003	0.058 U / 0.061 U
	L3-3	(5-7)	S-050803-SW-112	05/08/2003	0.18
	L3-3	(8-10)	S-050803-SW-113	05/08/2003	0.057 U
	L3-4	(5-7)	S-050803-SW-119	05/08/2003	0.064 U
	L3-4	(8-10)	S-050803-SW-120	05/08/2003	0.060 U
	L3-5	(8-10)	S-050803-SW-099	05/08/2003	0.062 U
	L3-5	(18-20)	S-050803-SW-100	05/08/2003	0.055 U
	L3-6	(8-10)	S-050803-SW-110	05/08/2003	0.058 U
	L3-6	(12-14)	S-050803-SW-111	05/08/2003	0.057 U
	L3-7	(6-8)	S-050803-SW-101	05/08/2003	0.11 J
	L3-7	(8-10)	S-050803-SW-102	05/08/2003	0.056 U
	L3-8	(13-15)	S-050803-SW-096	05/08/2003	0.059 U
	L3-8	(17-19)	S-050803-SW-097/098	05/08/2003	0.059 U / 0.053 U
	L3-9	(7-9)	S-050803-SW-108	05/08/2003	0.057 U
	L3-9	(12-14)	S-050803-SW-109	05/08/2003	0.062 U
	L3-10	(3-5)	S-050803-SW-105	05/08/2003	0.99
	L3-10	(7-8)	S-050803-SW-106/107	05/08/2003	0.057 U / 0.059 U
	L3-11	(4-6)	S-050803-SW-103	05/08/2003	0.11 J
	L3-11	(7-9)	S-050803-SW-104	05/08/2003	0.057 U
	L3-12	(1-3)	S-050803-SW-094	05/08/2003	0.061 U
	L3-12	(3-5)	S-050803-SW-095	05/08/2003	0.055 U
	L3-13	(3-5)	S-050803-SW-088	05/08/2003	0.059 U
	L3-13	(5-7)	S-050803-SW-089	05/08/2003	0.057 U
	L3-14	(4-5)	S-050803-SW-085	05/08/2003	0.059 U
	L3-14	(6-7)	S-050803-SW-086/087	05/08/2003	0.059 U / 0.058 U
	L3-15	(0.5-1.5)	S-050803-SW-092	05/08/2003	0.18
	L3-15	(1.5-3)	S-050803-SW-093	05/08/2003	0.054 U
	L3-16	(0.5-2)	S-050803-SW-090	05/08/2003	0.056 U
	L3-16	(2-4)	S-050803-SW-091	05/08/2003	0.055 U

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Lagoon 4	L4-1	(9-10)	S-050703-SW-059	05/07/2003	0.056 U
	L4-1	(16-18)	S-050703-SW-060	05/07/2003	0.056 U
	L4-2	(6-8)	S-050703-SW-057	05/07/2003	0.059 U
	L4-2	(17-19)	S-050703-SW-058	05/07/2003	0.45 J
	L4-3	(6-8)	S-050703-SW-061	05/07/2003	0.058 U
	L4-3	(13-15)	S-050703-SW-062/063	05/07/2003	0.058 U / 0.058 U
	L4-4	(7-9)	S-050703-SW-074	05/07/2003	0.058 U
	L4-4	(13-15)	S-050703-SW-075	05/07/2003	0.055 U
	L4-5	(4-5)	S-050703-SW-066	05/07/2003	0.055 U
	L4-5	(7-9)	S-050703-SW-067	05/07/2003	0.32 J
	L4-6	(5-7)	S-050703-SW-072	05/07/2003	0.61 J
	L4-6	(8-10)	S-050703-SW-073	05/07/2003	0.13 J
	L4-7	(7-8)	S-050703-SW-070	05/07/2003	0.058 U
	L4-7	(9-11)	S-050703-SW-071	05/07/2003	0.058 U
	L4-8	(7-9)	S-050703-SW-068	05/07/2003	0.058 U
	L4-8	(13-15)	S-050703-SW-069	05/07/2003	0.055 U
	L4-9	(7-9)	S-050703-SW-064	05/07/2003	0.14 J
	L4-9	(13-15)	S-050703-SW-065	05/07/2003	0.060 U
	Lagoon 5	L5-1	(5-6)	S-050703-SW-033	05/07/2003
L5-1		(6-7)	S-050703-SW-034	05/07/2003	0.31
L5-2		(4-6)	S-050703-SW-035	05/07/2003	14.2
L5-2		(8-9)	S-050703-SW-036	05/07/2003	0.060 U
L5-3		(4-6)	S-050703-SW-037	05/07/2003	0.063
L5-3		(6-8)	S-050703-SW-038	05/07/2003	0.40
L5-4		(4-5)	S-050703-SW-039	05/07/2003	0.061 U
L5-4		(7-8)	S-050703-SW-040	05/07/2003	0.86
L5-5		(4-6)	S-050703-SW-041	05/07/2003	1.5 J
L5-5		(7-9)	S-050703-SW-042/043	05/07/2003	1.1 J / 3.2 J
L5-6		(5-7)	S-050703-SW-044	05/07/2003	0.17 J
L5-6		(10-12)	S-050703-SW-045	05/07/2003	0.19 J
L5-7		(7-9)	S-050703-SW-046	05/07/2003	1.9 J
L5-7		(12-14)	S-050703-SW-047	05/07/2003	8.3 J
L5-8		(6-8)	S-050703-SW-048	05/07/2003	4.6 J
L5-8		(8-10)	S-050703-SW-049	05/07/2003	0.46 J
L5-9		(5-7)	S-050703-SW-050	05/07/2003	2.9 J
L5-9		(8-10)	S-050703-SW-051	05/07/2003	0.057 U
L5-10		(4-6)	S-050703-SW-052	05/07/2003	9.0 J
L5-10		(7-9.5)	S-050703-SW-053/054	05/07/2003	0.19 J / 0.057 U
L5-11	(5-7)	S-050703-SW-055	05/07/2003	2.2 J	
L5-11	(8-9)	S-050703-SW-056	05/07/2003	0.058 U	

**MERCURY SPECIATION RESULTS (H2M)  
 ADDITIONAL SOIL SAMPLING PROGRAM - MAY 2003  
 MAYBROOK LAGOON SITE  
 HAMPTONBURGH, NEW YORK**

<i>Area</i>	<i>Sample Location</i>	<i>Sample Depth (ft bgs)</i>	<i>Sample ID</i>	<i>Sample Date</i>	<i>Total Mercury (mg/Kg)</i>
Lagoon 6	L6-1	(2-3)	S-050803-SW-076	05/08/2003	0.055 U
	L6-2	(0.6-2)	S-050803-SW-077	05/08/2003	0.078 J
	L6-3	(1-3)	S-050803-SW-078	05/08/2003	0.16
	L6-3	(3-5)	S-050803-SW-079	05/08/2003	0.13 / 0.10 J
	L6-4	(0.5-2)	S-050803-SW-082	05/08/2003	0.29
	L6-5	(1-2)	S-050803-SW-081	05/08/2003	0.31
	L6-6	(4-7)	S-050803-SW-083	05/08/2003	0.055 U
	L6-6	(7-9)	S-050803-SW-084	05/08/2003	0.055 U
	L6-7	(2-3)	S-050803-SW-121	05/08/2003	0.054 U
	L6-7	(4-5)	S-050803-SW-122	05/08/2003	0.055 U

Notes:

J - Estimated

U - Non- detect at associated value.

UJ - The analyte was detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.







TABLE 2

MERCURY SPECIATION RESULTS  
 ADDITIONAL SOIL SAMPLING PROGRAM - MAY 2003  
 MAYBROOK LAGOON SITE  
 HAMPTONBURGH, NEW YORK

Area	Sample Location	Sample Depth (ft bgs)	Sample ID	Initial Analysis - H <sub>2</sub> m		Speciation Analysis - Brooks Rand		
				Total Mercury (mg/Kg)		Total Mercury (mg/Kg)	Methylmercury (mg/Kg)	Methylmercury (%)
Lagoon 1	L1-5	4-6	S-050903-SW-135	11		1.546	0.00050	0.03
	L1-5	7-9	S-050903-SW-137	2.8		0.652	0.00230	0.35
Lagoon 2	L2-2	4-6	S-050903-SW-154	17		1.179	0.00052	0.04
	L2-7	4-6	S-050903-SW-143	30		1.788	0.00077	0.04
	L2-8	4-6	S-050903-SW-162	14		11.548	0.00730	0.06
	L2-10	4-6	S-050903-SW-164	20		7.763	0.01220	0.16
Lagoon 3	L3-3	5-7	S-050803-SW-112	0.18		0.347	0.00142	0.41
	L3-10	3-5	S-050803-SW-105	0.99		0.491	0.00266	0.54
Lagoon 4	L4-2	17-19	S-050703-SW-058	0.45		0.579	0.00079	0.14
	L4-6	5-7	S-050703-SW-072	0.61		0.508	0.00183	0.36
Lagoon 5	L5-2	4-6	S-050703-SW-035	14		9.505	0.00671	0.07
	L5-5	4-6	S-050703-SW-041	1.5		5.490	0.00365	0.07
	L5-8	8-10	S-050703-SW-049	0.46		0.312	0.00095	0.30
	L5-10	4-6	S-050703-SW-052	9.0		1.761	0.01500	0.85
Lagoon 6	L6-5	1-2	S-050803-SW-081	0.31		0.074	0.00002	0.03
				Mean				0.23

TABLE 3

MERCURY SPECIATION ASSESSMENT  
 ADDITIONAL SOIL SAMPLING PROGRAM - MAY 2003  
 MAYBROOK LAGOON SITE  
 HAMPTONBURGH, NEW YORK

Area	Methylmercury (%)	Number of samples	Mean	Distribution		95/95 UTL-Lognormal (3)
				Normal?	Lognormal?	
Lagoon 1	0.03	15	0.230711744	No <sup>(1)</sup>	Yes <sup>(1)</sup>	2.413416704
Lagoon 2	0.35					
	0.04					
	0.04					
	0.06					
	0.16					
Lagoon 3	0.41					
	0.54					
Lagoon 4	0.14					
	0.36					
Lagoon 5	0.07					
	0.07					
	0.30					
	0.85					
Lagoon 6	0.03					

Notes:

- (1) Based on probability plots and Shapiro-Wilk W-test
- (2) Inappropriate test due to violation of the assumption of normality
- (3) Upper estimate with 95% confidence of the 95th percentile