

NESCAUM
Northeast States for
Coordinated Air Use
Management



Connecticut Bureau of Air Management, Carmine DiBattista
Maine Bureau of Air Quality Control, James Brooks
Massachusetts Division of Air Quality Control, Nancy Seidman
New Hampshire Air Resources Division, Kenneth Colburn
New Jersey Office of Air Quality Management, John Elston
New York Division of Air Resources, Robert Warland
Rhode Island Office of Air Resources, Stephen Majkut
Vermont Air Pollution Control Division, Richard Valentinetti

To: Jeff Emery, ME DEP
Bob Breen, US NPS
Tom McGrath, MA DEP
Nancy Seidman, MA DEP
John Cucco, RI DOH
Barbara Morin, RI DEM
Tim Scherbatskoy, Univ. of VT

From: Lee Alter

Date: May 18, 2000

RE: Year 1 REMAP Data and QA Report

Enclosed, for your general information, is a copy of the Year 1 REMAP Data and QA Report. The report has been submitted to EPA and will go through their peer review process. The data, however, are not expected to change since they have been fully quality-assured by the University of Michigan (UMI).

As you are aware, NESCAUM has been working cooperatively with you, the EPA, and the University of Michigan to measure mercury in precipitation at four sites in New England (Providence, Quabbin, Underhill, and Acadia) and to measure ambient gas- and particle-bound mercury at three of these sites (Providence, Quabbin, and Underhill). The enclosed report summarizes the overall study design and presents results from the first year of sampling (July 1, 1997 – June 30, 1998). A report for the second year of sampling (July 1, 1998 – June 30, 1999) is expected in the coming months. A simplified, more-interpretive report will also be prepared during this time.

The enclosed report shows modest inter-site variability in average precipitation mercury concentrations (6.8 to 9.7 ng/L) and deposition (10.9 to 14.5 ug/m²). Statistically speaking, Acadia's average concentration is significantly lower than Providence and Quabbin. Meanwhile, Underhill's deposition is significantly smaller than Providence and Quabbin.

Colocated samplers at Acadia show that the UMI measurement system may measure 30 percent more deposition than the NADP/MDN system. These systems are the most widely established and tested systems in North America. As elaborated within the report,

this could be due to (1) greater measurements of precipitation depth by the UMI sampler than by the MDN's Belfort rain gauge and (2) higher concentrations measured by the UMI system. The latter could be explained by an observed delay in the MDN's sampler opening mechanism. Since pollutants tend to be more concentrated in small events and in the early stages of larger events, a delay in sampler opening could decrease the average concentration (the MDN samples had an average concentration 16 percent less than UMI samples), and hence the deposition estimates.

Average vapor-phase mercury concentrations varied from 1.5 to 2.3 ng/m³ across the three sites where such measurements were made. Statistically speaking, the concentrations at all three sites were significantly different from one another.

Average particle-bound mercury concentrations varied from 10 to 19 pg/m³ across the three sites where such measurements were made. Statically speaking, the only significant differences were that Providence was greater than Quabbin and Underhill.

A full year of fine particle (PM_{2.5}) concentrations were measured at Quabbin and Providence. Annual average concentrations were 11 and 14 ug/m³, respectively.

If you have any questions, would like electronic copies of the data, etc., please give me a call at 617-367-8540. Thanks for all your help in collecting these data.

**Mercury Deposition and Atmospheric Concentrations in New England:
Year 1 Data and Quality Assurance Report**

Submitted to:

Ray Thompson
REMAP Coordinator
U.S. Environmental Protection Agency, New England Region

By:

Lee Alter
Project Manager
Northeast States for Coordinated Air Use Management

May 18, 2000

I. Introduction

This report summarizes the first year of results from the New England Regional Ecological Monitoring and Assessment Program (REMAP) mercury study, including ambient gaseous and particle-bound mercury concentrations, mercury in precipitation, statistical analyses of these data, quality control results, and an intercomparison of two widely-used methods colocated at Acadia National Park. The Year 2 REMAP Data and QA Report will contain precipitation data from the second year of field sampling, further analysis of colocated data at Acadia, and results from cloud water mercury monitoring.

Precipitation sampling began at five sites in New England on or before July 1, 1997 and continued until July 1999. Samples from four of these sites were collected and analyzed according to protocols developed by the University of Michigan Air Quality Laboratory (UMAQL). During the first year of sampling, over 300 precipitation samples were collected at these sites, sent to the UMAQL for mercury analysis, and archived for future analysis of trace metal concentrations. Samples at these sites were collected on a precipitation-event basis. This form of sampling facilitates source attribution analyses, understanding of deposition processes, and verification of atmospheric simulation models. Only three events were missed during the first year. Thirty nine samples, however, contained precipitation from more than one event. This was due to lack of operator availability during the weekends and to periods of highly inclement weather.

Precipitation samples from Bridgton, ME were collected and analyzed as part of the National Atmospheric Deposition Program's (NADP) Mercury Deposition Network (MDN). These data are quality assured and reported by the NADP and are not included in this report. Bridgton was chosen as an MDN site to maximize compatibility with other sites in Maine and eastern Canada and to facilitate long-term monitoring intended for that site. The primary difference between MDN and UMAQL mercury sampling is that MDN samplers collect an integrated, week-long precipitation sample. Although this curtails certain uses of the data, its lower cost (about 80 percent of event-based sampling) and more routine collection procedure make it an attractive alternative for long-term monitoring, especially at remote sites such as Bridgton.

Gaseous and particle-bound mercury sampling began on or before July 1, 1997, but only at three sites and for only one year. Three hundred and eighty (380) vapor phase and particulate samples were collected. Data capture rates were 97 to 100 percent across the three sites. These samples were collected and analyzed according to protocols developed by the UMAQL. All particulate samples have been archived for future analysis of trace metals. Gaseous and particulate samples were collected every sixth day over a 24-hour period from about 9 am to 9am.

II. Background

Contamination of fish and water bodies is widespread in New England across urban, rural, and remote areas. Man-made emissions from inter-regional and out-of-region sources and global sources contribute to this problem. Consequently, pollution reduction efforts need to be guided by an understanding of the sources (including source categories and source regions) contributing to regional-scale deposition. Currently, the only source of such information in New England is

the RELMAP model. It is reported in the Northeast States and Eastern Canadian Provinces Mercury Study (1998) that the RELMAP model estimated that sources outside the 8-state Northeast region contribute up to one-third of the total deposition in most of Maine, up to two-thirds of the total deposition in most of Vermont, and about half of the total deposition in many other New England areas. This type of information is critical given the dearth of atmospheric mercury data in New England and the potential for interstate transport. However, RELMAP results are limited by several factors: the lack of Canadian emissions data; uncertain emission speciation profiles; a one-year simulation period; and a lack of comparable field data to corroborate model results, especially near large point sources of mercury. Given these limitations, additional methods for assessing source sector and source region contributions to regional-scale deposition is needed to support effective environmental management of this hazardous pollutant.

In the spring of 1997, NESCAUM was awarded funds from the U.S. EPA's Office of Research and Development to implement a joint NESCAUM / EPA Region 1 initiative to monitor atmospheric mercury concentrations and deposition in New England. Specifically, the proposal sought to (1) characterize spatial and temporal patterns; (2) assess differences in urban, rural, and remote environments; (3) develop and test a method for measuring mercury in cloud water; (4) compare results from weekly-integrated and event-based sampling; (5) provide event-specific data for source attribution and for evaluating results of emission-based predictive models; and (6) establish a network of mercury deposition sites and know-how for long-term monitoring. This project is currently in progress and is expected to meet all of its objectives but for a portion of last.

REMAP has supported mercury monitoring activities at five sites across New England. The sites are East Providence, RI; Quabbin Reservoir, MA; Underhill, VT; Bridgton, ME; and Acadia National Park, ME. Two of these sites (Underhill and Acadia) were collecting Mercury deposition data before the advent of this initiative but required additional funds to meet REMAP objectives. East Providence, Quabbin Reservoir, and Bridgton are new mercury monitoring sites chosen to expand the existing wet deposition network in New England to areas with no data. Together, the existing and new sites form a network capable of measuring gradients along the prevailing wind directions of southwest and northwest. Additional site details are provided in Section III of this report.

A key advantage of the REMAP sampling strategy is its potential to identify emission source categories and emission source regions independently of emission-based models. This is achieved through event-based precipitation sampling and the collection of duplicate samples for trace element analysis. The initial REMAP proposal set these collection activities into motion, but recognized the need to identify future resources for trace element, meteorological, and statistical analyses for regional-scale source attribution.

In the fall of 1998, EPA granted additional REMAP funds to NESCAUM. The second REMAP grant contains provisions for the following:

- A source attribution analysis of regional mercury deposition in New England,

- A source-receptor study of sub-regional fate and transport of mercury emitted within New England, and
- Provisions for long-term monitoring in New England as envisioned in the original proposal.

To date, back trajectories have been calculated for all ambient sampling and precipitation events at each REMAP site, with the exception of Bridgton. Laboratory contracting and trace metals analysis is expected soon. The availability of matching funds from the state of Massachusetts for the Merrimack Valley portion of the second REMAP study should be known in January 2000.

III. Experimental Methods

Measurements of Hg in precipitation were made on an event basis for samples obtained at four sites located across New England during the period 1 July 1997 to 30 June 1998. **Figure 1** shows the location of these sites. Ambient measurements of vapor-phase Hg and fine particle-bound Hg were made routinely at 3 of these locations for the period 1 July 1997 to 30 June 1998. Sampling of fine particle-bound Hg at one of these sites (Underhill, VT) did not begin until 10 February 1998. However, total particulate-bound Hg was measured at this site during the entire study period.

Sampling Sites

The design of the REMAP network calls for sites in urban, rural and rural/remote areas. The five REMAP sites meet this design as follows. The East Providence urban site provides a mix of local and regional influences, but no known major point sources of Hg emissions. The Quabbin Reservoir and Bridgton sites operate in central New England away from most major emission sources, with exceptions for the Quabbin Reservoir Site being the Mount Tom and University of Massachusetts coal-fired generation facilities, and the Millbury incinerator. These sites are well-suited for determining regional influences. Underhill, located on the windward side of Mt. Mansfield at 400 m elevation, provides a remote location away from major Hg sources that is intended to help quantify the relative strength of regional and continental Hg sources. The Acadia site provides similar characteristics, with the potential to detect contributions from the Boston metropolitan area and a chlor-alkali plant 50 miles to the north.

The most northerly (44 31.7 Latitude) and westerly (72 52.3 Longitude) site is the Proctor Maple Research Center in Underhill Center, Vermont. Long-term monitoring of Atmospheric Hg has been conducted here since December 1992 as collaboration between The University of Michigan Air Quality Laboratory and Vermont Monitoring Cooperative. The site is also part of the National Atmospheric Deposition Program (NADP) network. The site is located on the western side of Mt Mansfield at approximately 400 m elevation, with no major urban or industrial area within about 200 km. Data from precipitation, gas vapor, and total particulate mass samples collected from 1 July, 1997 to 30 June, 1998 are presented in this report. Also presented are data from fine fraction mass samples collected starting 10 February, 1998.

The Quabbin Reservoir site, also an NADP site, is located in central Massachusetts (42 17.9 Latitude, 72 20.1 Longitude) at elevation of 306m. Precipitation, vapor and particulate Hg, and

fine fraction aerosol mass samples were collected. The same suite of samples were collected at the Providence, Rhode Island (41 50.4 Latitude, 71 21.7 Longitude), a State of Rhode Island/EPA air monitoring site located in an urban setting and at a low elevation (15m). Event precipitation only was collected at Acadia National Park. This site was also an NADP and Mercury Deposition Network (MDN) site which is located on the coast of Maine (44 22.4 Latitude, 68 15.7 Longitude). The weekly wet-only Hg samples from the MDN were obtained for comparison with our event precipitation results.

Collection Methods

Mercury in Precipitation

Event precipitation samples were collected using an automated MIC-B precipitation collector that was extensively modified at the University of Michigan. Details on the sampling and analysis methodology for both trace elements and Hg can be found in Landis and Keeler (1997). Samples collected with a total volume less than 20 mL (acid charge volume) were not considered valid.

It should be noted that the ideal was to collect discrete precipitation events on a daily basis. While this was generally the protocol followed at the sites, multiple precipitation events that occurred over the weekend were often collected in the same bottle due to staffing difficulties associated with changing the bottles on weekends. A small number of multi-event samples at the sites were also collected due to inclement weather and difficulties in site operations. Underhill, however, was able to collect all samples on a daily, event basis, even during weekends.

Some bottles overflowed due to large precipitation events and/or the inability to change bottles during multi-event periods. Deposition estimates for these samples were estimated using the precipitation depths measured by the Belfort rain gauges located on-site at Acadia, Underhill, and Quabbin. Precipitation depth data for those samples which overflowed at the Providence site were obtained from nearest National Climatic Data Center (NCDC) weather monitoring station, located 9 km southeast at Greenstate Airport.

Aerosol Particulate Mass

Fine particulate matter was collected using a 47 mm Teflon® filter (Pall-Gelman, Inc.) in an all-Teflon filter pack attached to a Teflon-coated cyclone inlet that removes particles greater than 2.5 microns. Air is pulled through the particulate sampling system using a vacuum pump at a nominal flow rate of 16.7 Lpm. The 47 mm Teflon filters are weighed (after proper equilibration) before and after sampling in a climate-controlled Class 100 Clean Laboratory. Total suspended particles (TSP) were collected using all-Teflon filter packs with a vacuum pump at a nominal flow rate of 30 Lpm. Volume measurements were performed using calibrated dry test meters on each sampling line.

Mercury in Ambient Air

The methods used for this study were developed by the UMAQL and are included in the U.S. EPA "*Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air: Sampling and Analysis for Atmospheric Mercury*" (U.S. EPA, 1998). A brief summary of the methods is given here.

The collection of mercury, from ambient air in the vapor and particulate phase, involves use of gold-coated bead traps and glass-fiber filters. The amalgamation process for vapor-phase mercury requires a flow rate low enough to allow adsorption of the mercury in the air to the gold surface. The significantly lower levels of particle-phase mercury on the other hand require a much higher flow rate in order to collect sufficient particle mass for mercury determination. Therefore, separate sampling systems are needed for the collection of mercury in the vapor and particle phases. Accurate flow determinations through both sampling systems are critical in providing accurate Hg concentrations in air.

Vapor-phase Hg is collected using gold-coated glass bead traps. A Teflon filter pack with a glass fiber filter is placed in front of the traps to remove particulate material from the air being sampled. Air is pulled through the vapor-phase sampling system using a mass-flow controlled vacuum pump at a nominal flow rate of 0.3 Lpm.

Particle-phase Hg is collected using a glass-fiber filter in an open-faced Teflon filter pack. Air is pulled through the particulate sampling system using a vacuum pump at a nominal flow rate of 30 Lpm.

Determination of vapor- and particle-phase mercury in ambient air is accomplished using cold-vapor atomic fluorescence spectrometry (CVAFS); more specifically, dual-amalgamation CVAFS. The amount of vapor-phase mercury collected on a gold-coated bead trap is determined directly by CVAFS. The sample trap is heated to release the collected mercury. The desorbed mercury is carried in an inert gas stream (He or Ar) to a second gold-coated bead trap, the analytical trap. The mercury collected on the analytical trap is then thermally desorbed and carried into the CVAFS analyzer. The resulting voltage peak is integrated to produce peak area for the sample.

Determination of Hg in the particle phase requires acid extraction of the glass-fiber filters prior to analysis. The sample filters are extracted in a nitric acid solution using microwave digestion to yield "acid-extractable" particulate mercury. The extract is oxidized with BrCl to convert all forms of Hg to Hg^{+2} and SnCl_2 are added to the extract to reduce the Hg^{+2} to volatile Hg^0 . The Hg^0 is liberated from the extract by purging with an inert gas (N_2) and collected on a gold-coated bead trap. The amount of mercury collected on the trap is then determined using dual-amalgamation CVAFS. The detection limits achieved using Method IO-5 are 30 pg/m^3 for particulate Hg and 45 pg/m^3 for vapor mercury.

Sample filter mass was adjusted by subtracting the mean of all field blanks (14pg) since site specific field blank values were not significantly different. Sample air volumes are adjusted to a standard temperature (25 °C) and 1 A barometric pressure.

Preliminary Statistical Analyses

Hypothesis testing among site means was carried out using analysis of variance models followed by Bonferroni simultaneous comparisons. The critical level of attained significance for rejection of the null hypothesis is 0.05. Comparisons of ambient air sample data had to be temporally similar, e.g. samples had to be taken on the exact same days. Precipitation samples had to be collected during the same period, e.g. week or month or season, etc.

IV. Results

Mercury in Precipitation

Table 1 summarizes the concentration of Hg in daily, event precipitation samples. The volume-weighted mean concentration at Acadia (6.8 ng/L) was significantly lower than Providence (9.7 ng/L) and Quabbin (9.7 ng/L).

Table 2 summarizes the deposition of Hg in precipitation. The mean deposition at Underhill (0.108 ug/m²) was significantly smaller than Providence (0.223 ug/m²) and Quabbin (0.195 ug/m²).

Due to the minimum volume of liquid required for analysis, only samples greater than 20 ml (approximately 1 mm precipitation depth) were considered valid and used for the comparisons above. At Acadia, 18 percent of total precipitation depth for the year was not collected. Seven percent of the volume missed was associated with one event with nearly seven inches of precipitation, as measured by the Belfort rain gauge. Fourteen of the 18 percent occurred within three samples (the single event mentioned above, a single event collected on 18 February 1998, and a multiple event sample collected on 2 March 1998).

Table 1. Volume-weighted mean precipitation Mercury concentration (ng/L).

Site	N	Mean	Std	Min	Max	Median	N Missed	N < 20ml	N > 1 event	N Overflow	% Total Volume Missed
Acadia, ME	60	6.8	5.9	1.9	47.2	8.1	1	2	18	8	18
Underhill, VT	112	8.9	6.6	1.2	53.9	8.7	1	0	5	2	< 1
Providence, RI	65	9.7	7.0	1.3	53.4	11.5	1	2	9	5	7
Quabbin, MA	64	9.7	7.0	2.1	43.4	11.2	0	7	7	1	2

Note: Only samples greater than 20 ml were included as valid.

The precipitation Hg concentration and deposition values for each site are plotted in **Figures 2 and 3**, respectively. Day-to-day variations in Hg concentrations are quite large at all sites. This variability is similar to the day-to-day variability observed in the Great Lakes Region and in Florida, where event precipitation studies have been performed using the same techniques.

Table 2. Mercury in Wet Deposition ($\mu\text{g}/\text{m}^2$) for Year 1 of the study.

Site	N	Mean	Std Dev	Min	Max	Median	Year 1 Annual Total
Acadia, ME	60	0.18	0.19	0.016	1.08	0.11	10.9
Underhill, VT	112	0.11	0.14	0.007	0.78	0.06	12.1
Providence, RI	65	0.22	0.19	0.014	1.09	0.19	14.5
Quabbin, MA	64	0.20	0.18	0.014	0.76	0.15	12.5

Particulate Mass Concentration

Table 3 and **Figure 4** show the fine fraction particulate mass ($\text{PM}_{2.5}$) concentrations measured at the three sites with particle samplers. The mean $\text{PM}_{2.5}$ concentration found at Providence ($14 \mu\text{g}/\text{m}^3$) was significantly larger than Quabbin ($11 \mu\text{g}/\text{m}^3$, $p < 0.05$). When considering only data obtained after 10 February 1998 – when Underhill began making $\text{PM}_{2.5}$ measurements – the Underhill mean ($7 \mu\text{g}/\text{m}^3$) was significantly smaller than the Providence mean ($14 \mu\text{g}/\text{m}^3$), but not significantly different from Quabbin ($11 \mu\text{g}/\text{m}^3$, $P = 0.075$). Note these latter values for the subset of the year-long database are identical to values for the entire year-long sampling period.

The minimum and maximum $\text{PM}_{2.5}$ concentrations are comparable to measurements made at Pellston, MI (northern lower peninsula) and at the Dexter, MI site located about 20 miles northwest of Ann Arbor, MI, in the southeast portion of the state. The Providence, RI site observed $\text{PM}_{2.5}$ concentrations more comparable to our rural Dexter site than the $\text{PM}_{2.5}$ concentrations observed in midwestern urban areas like Detroit which observe $\text{PM}_{2.5}$ concentrations above $50 \mu\text{g}/\text{m}^3$ frequently.

Table 3. Ambient particulate mass concentrations ($\mu\text{g}/\text{m}^3$) collected every 6th day for a 24-hour period. Samples were corrected to standard temp (25°C) and pressure (1 A).

Site	Size	N	Mean	Std	Min	Max	Median	% Complete
Providence, RI	Fine	60	14	8	2	47	11	98
Quabbin, MA	Fine	59	11	7	3	40	8	97
Underhill, VT	Fine	22	7	3	1	14	6	92
Underhill, VT	Total	60	12	7	1	34	11	98

Both total and fine ($\text{PM}_{2.5}$) fraction samples were obtained from the Underhill, VT site beginning on 10 February 1998. Four samples were lost due to technical difficulties encountered on-site resulting in 21 sample pairs for comparison. Samples taken at the Underhill site, shown in Figure 6, reveal that the fine fraction mass is on average $57\% \pm 20\%$ of the total particulate mass for samples obtained during the 5 month period. The proportion of the particulate mass (PM) measured in the fine fraction at Underhill is similar to the percentage observed at other rural sites

in the Great Lakes region where we have made measurements. For example, the fine fraction aerosol mass measured at our site at Pellston, MI was $67\% \pm 23\%$ for a one-year period.

Particulate Phase Mercury

The observed particulate phase Hg concentrations measured at Providence, Quabbin, and Underhill are shown in Figure 5. The PM_{2.5} associated particulate phase Hg was measured at the Providence and Quabbin sites for all of year 1 and from February, 1998 till the end of year 1 at Underhill. TSP Hg concentrations were obtained for the entire study period at the Vermont site to continue the historic record of TSP Hg concentrations which commenced in 1993. Summary statistics are given in Table 4 for the particulate phase Hg concentrations measured for this study.

Table 4. Observed particulate phase mercury concentrations (pg/m³). Values are corrected to standard temperature (25 °C) and pressure (1 A). Samples were of a 24-hr duration and were obtained every 6th day.

Site	SIZE	N	Mean	S.D.	Min	Max	Median	% Complete
Providence,RI	Fine	60	19	17	2	94	13	98
Quabbin, MA	Fine	59	13	18	1	120	8	97
Underhill, Vt	Fine	24	10	10	1	43	8	100
Underhill, Vt	Total	60	11	8	2	35	9	98

Particulate Hg measurements of both fine fraction and total particulate samples from the Underhill site were available for two additional dates where mass measurements were missing. This resulted in a sample size of 23. Figure 6 showed that fine fraction Hg concentrations were an average of $75\% \pm 27\%$ of the total particulate Hg concentrations. The mean total concentration during this period was identical to that obtained for the entire years sampling (11 ± 8 pg/m³). For samples corresponding to the dates when mass measurements were available (N=21), the fine fraction was $78\% \pm 26\%$ of the total, substantially higher than the $57\% \pm 20\%$ found for mass. Without the anomaly found on 29 April 1998, where the fine fraction concentration was 134% of the total (Note: The fine fraction mass was 41% of the TSP on this day), the mean was $75\% \pm 24\%$.

Vapor-Phase Mercury

Vapor-phase Hg concentrations for the one-year period are shown in Figure 7. The concentrations are blank and STP corrected. The Providence site clearly displays a higher baseline concentration than other two sites. Mean values for vapor phase mercury were significantly different among all three sites with Providence being largest (2.3 ng/m³) and Underhill being lowest (1.5 ng/m³, $p < 0.05$, Table 5).

Table 5. Statistical summary for vapor phase mercury concentrations (ng/m³) obtained from 24 hour samples taken every sixth day. Values STP corrected.

Site	N	Mean	S.D.	Min	Max	Median	% Completeness
Providence, RI	60*	2.3	0.8	1.4	7.0	2.2	98
Quabbin, MA	58*	1.7	0.3	0.9	2.6	1.7	97
Underhill, VT	59**	1.5	0.3	0.9	2.3	1.5	98

*One sample below criteria of detection (0.8 ng/m³).

** One apparent outlier (42.6 ng/m³) was also excluded from the statistics presented here.

Vapor-phase Hg concentrations have been measured in the Great Lakes using identical sampling and analysis protocols to those used in this study. The average yearly concentrations of vapor-phase Hg at Underhill and Quabbin appear to be lower, on average, than those seen at most of the sites in the Great Lakes Atmospheric Monitoring and Assessment Project (GLAMAP). The Providence site mean Hg levels are similar to those measured in urban Detroit which ranged from 2.0 – 2.5 ng/m³ (Keeler, unpublished data). Since the measurements in the Great Lakes were taken during 1995-1996, a direct comparison is not meaningful as changes in emissions and meteorology strongly impact the average values. A detailed assessment of the differences between the New England sites and other measurements will be completed in the Project Final Report. The final report will include an analysis of the year-to-year variability in the measured Hg concentrations as a function of meteorological transport history and source influences.

Table 6. Arithmetic Mean vapor-phase Hg concentrations (ng/m³) obtained from 24-hour samples taken every 6th during GLAMAP. Values STP corrected. Data from Burke, 1998, Ph.D. Dissertation, Univ. of Michigan.

GLAMAP SITE	1995	1996
Point Petre, Ontario	2.05	1.97
Sturgeon Point, N.Y.	1.95	1.89
Salt Fork Lake, OH	2.02	1.88
Dexter, MI	2.01	1.86
Bondville, IL	1.90	1.85
Burnt Island, Ontario	1.77	1.76
Sleeping Bear, MI	1.85	1.76
Eagle Harbor, MI	1.75	1.71
Wildcat Mt., WI	1.76	1.70
Cedar Creek, MN	1.60	1.65

Interpretation of the vapor phase Hg data collected at the New England sites is facilitated when the average concentrations are compared against the annual values reported for the Great Lakes for the two-year study. The exact same sampling and analysis protocols were utilized in the New England Study as were used in the Great Lakes during the regional Hg study, the first of it's kind

anywhere in the world. Concentration differences greater than 0.20 ng/m^3 are statistically significant when considering co-located sampling results performed by the UMAQL. The annual average Hg vapor concentration at the Providence site was 2.3 ng/m^3 , which is higher than any of the annual averages reported above. However, the concentrations at Providence are lower than those observed at the urban site in Chicago and similar to those measured in downtown Detroit.

UMAQL vs MDN Inter-Lab Variability: Acadia Precipitation Samples

Measurements made at Acadia provided an opportunity for an assessment of the comparability between the UMAQL event sampling approach and that of the MDN weekly sampling network. Results from weekly MDN samples were compared with corresponding data from UMAQL sample(s) from the period 7/1/97 to 6/30/98. If more than one UMAQL sample was collected during a weekly period, MDN sample concentrations were compared to volume-weighted means of the corresponding UMAQL samples. Data were thus stratified into "single-sample weeks" and "multi-sample weeks". This should be distinguished from single and multi-events since operator technical difficulties resulted in numerous multi-event samples (18 of 60 samples).

Of the 52 weeks for potential sample comparisons, valid comparisons could be made only on a portion of the data. Weekly comparisons could not be made for the following reasons:

- No precipitation event(s) occurred during the week ending in collection date 7/22/97.
- Ten weeks with insufficient volume. This was established as a volume less than the volume of the acid charge (20ml).
- Three weeks where either MDN missed event or UMAQL missed event. MDN missed events during weeks ending in collection dates 7/29/97 and 4/28/98 (they provide 249 ml sample on this date but the comment states it is a "system blank" and it has a very low concentration value). The UMAQL missed event during week ending in collection date 12/9/97.
- Six weeks where a UMAQL sample overlap with 2 MDN samples. A UMAQL sample contains precip from events both before and after the MDN weekly change-out. This occurred 3 times resulting in 6 weekly comparisons lost.
- Three strong outliers ($>10 \text{ ng/L}$ difference) in concentration differences. These were UMAQL single-samples with 2 of the 3 multi-event samples.
- Seven UMAQL samples overflowed. Concentrations for these samples could be compared to MDN samples but depositions based on sample volumes could not be calculated.
- One MDN sample had no corresponding Belfort reading for precipitation depth. The concentration value can be compared to UMAQL but no deposition based on Belfort reading is available.

Elimination of these data resulted in 21 weeks of comparison for Hg deposition. During this period total Hg deposition calculated from UMAQL samples (using Hg sample volume) was 5.6 ug/m² while MDN samples (calculated using Belfort derived volume) yielded 4.0 ug/m². On average, the UMAQL value was 77 ng/m² larger (paired-t $P=0.007$) with the associated mean percent difference of $33\% \pm 33\%$. It was felt that this difference warranted a closer examination of the deposition components: 1) the measured Hg concentration and 2) the associated precipitation depth or volume.

A paired t-test of the 29 valid concentration comparisons revealed that MDN concentrations were significantly lower than UMAQL concentrations by a mean difference of 1.2 ng/L ($P<0.001$). Data from multi-samples, samples for which more than one rain event was collected together, resulted in a larger difference (1.7 ng/L) and a greater variability among the differences ($P=0.020$) than did single-sample data (0.9 ng/L, $P<0.001$). In terms of percent difference ($100 \times (\text{UMAQL} - \text{MDN}) / \text{average of both}$), the overall mean difference was $16\% \pm 19\%$, the single-sample mean was $13\% \pm 14\%$, and the multi-sample mean was $22\% \pm 26\%$. The correlation between concentrations was relatively good, with $R^2 = 0.939$ (Figure 8). Any differences between concentrations were likely not due to any systematic contamination since the average UMAQL Acadia system blank (funnel rinse) is similar to MDN¹ (0.420 ng/L and 0.31 ng/L respectively, corrected for control). The acid preservative contribution was also negligible for both labs (UMAQL average - 0.006 ng/bottle, MDN¹ - 0.061 ng/bottle).

A more significant bias was observed between the precipitation depth calculated from sample volumes. Here only 22 comparisons can be made due to overflow of UMAQL sample bottles (all overflows occurred during single-sample weeks). The precipitation depth calculated from MDN samples assumes a funnel diameter of 128 mm (Vermette *et al.* 1995). All precipitation depths calculated from UMAQL samples were greater than those from MDN with an mean difference of 0.33 inches ($P<0.001$). Again, differences were larger for multiple event samples (0.41 in., $P<0.001$) than for single event samples (0.25 in., $P<0.001$). In terms of percent difference, the overall mean value is $35\% \pm 16\%$, single-samples were $29\% \pm 14\%$ and multi-samples were $40\% \pm 17\%$.

Combined with larger concentrations, precipitation depth discrepancies could compound the difference between the deposition estimates calculated by each laboratory. However, while UMAQL uses precipitation depth calculated from sample volume to estimate deposition, MDN relies on on-site Belfort gauge readings. When compared to the Belfort chart readings, the UMAQL precipitation depth calculations are closer ($12\%+18\%$ overall mean difference, Fig 9) but still significantly greater (0.10 in., $P=0.018$, $N=21$, there was no Belfort reading for 3/24/98). This is consistent with comparisons found at all other UMAQL sites where Belfort readings can also be obtained (Fig 10).

As a check of potential systematic error in the UMAQL sample volume derived precipitation depth calculations, we compared values against a third on-site measurement device, a National Weather Service (NWS) rain gauge located at the Lake Champlain collection site. Sixty-eight single-event samples were collected from 5/22/97 to 4/1/98. During this period the depth

¹ MDN transition data posted on web-site.

calculated from sample volumes was significantly greater than Belfort readings by an average of 17% ($P < 0.001$ paired t-test). Those depths however were not significantly different from NWS rain gauge readings, averaging a 4% greater reading (Fig 11). These results suggest that the Belfort rain gauges operated at these sites under-estimate precipitation depth.

One potential explanation for deposition differences could be a delay in the MDN collector opening mechanism. This seems particularly likely given precipitation depths calculated from MDN sample volumes were significantly smaller than Belfort readings (mean difference = -0.2 ± 0.24 in., $P < 0.001$) with a mean percent difference of $22\% \pm 15\%$. Such delays, combined with the potential of a initial washout of atmospheric Hg at the onset of events, would also explain the higher concentrations for UMAQL samples. Moreover, the differences would be larger for multi-samples, due to sample dilution, and would be a function of precipitation depth (Fig 12). As a result of this function, the volume-weighted means (shown in fig 8) are not as disparate. The reader should consult the manuscript entitled "*A Critical Evaluation of an Automatic Precipitation Collector for Mercury and Trace Element Determinations*" for a thorough discussion of the methodologies, tests, and implications of the collection methods. A carefully planned comparison study should be performed to definitively identify the reasons for the differences observed between the UMAQL and MDN Hg deposition data.

V. Mercury Quality Control Measurements Summary

Measurement Accuracy and Precision

Accuracy

Measurement accuracy for mercury analysis is presented as a statistical summary of check standards analyzed daily at specific intervals between sample analyses. Check standards were calculated as the absolute percent difference from the expected value. The table below summarizes all valid values obtained during an analysis day in which at least one study sample was analyzed. The results indicate that for all three types of Hg analysis the mean UMAQL accuracy is excellent with all types of Hg analysis agreeing with standards within 4%.

Sample Type	Number of Check Standards	% of Total Analyses Performed in this Study	Mean $\pm$ S.E. (%)
Precipitation	413	50	3.7 ± 0.2
Vapor Phase	309	43	2.7 ± 0.1
Particulate	63	16	3.7 ± 0.4

Precision

The analytical precision of mercury analysis is measured as the relative standard deviation (also known as the coefficient of variation or absolute percent difference) among duplicate or replicate analyses of the same sample. A statistical summary of these measurements, as well as the

proportion of the total number of samples analyzed in this manner, is presented below. The mean precision for all precipitation Hg samples that were replicated was 4%. The mean precision for all particulate Hg samples that were replicated was 3%.

Sample Type	Number of Samples with Replicate Analyses	% of Samples with Replicate Analyses	Mean $\pm$ S.D. (%)
Precipitation	91	30	4 $\pm$ 5
Particulate	63	27	3 $\pm$ 3

Other QA and Analytical Details

A section detailing the detection limits, routine analysis of all blanks, both field and laboratory, is provided in Appendix A: Quality Assurance Data and Analytical Details.

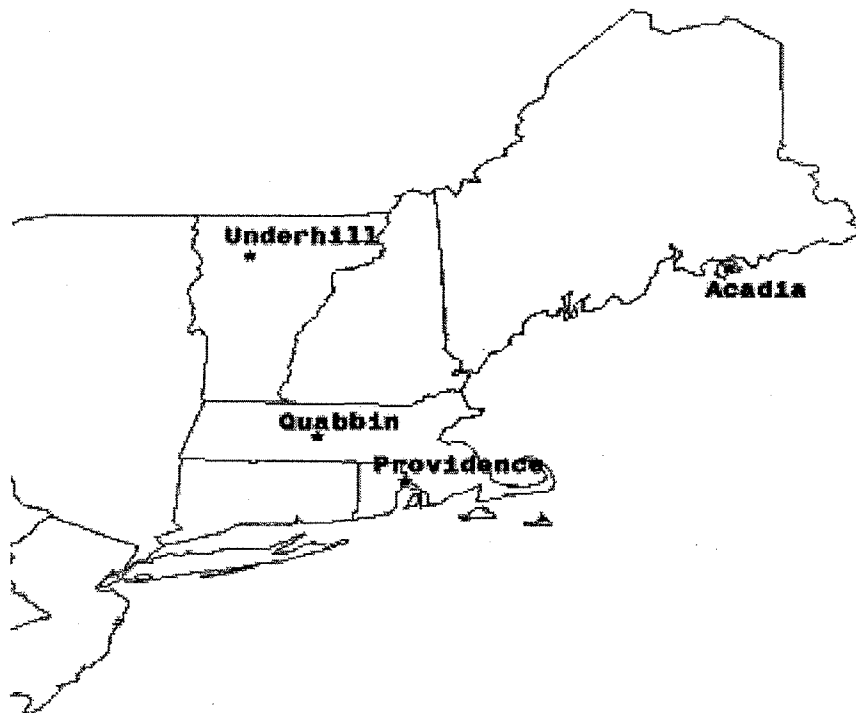


Figure 1. NESCAUM Mercury Study Sampling Sites.

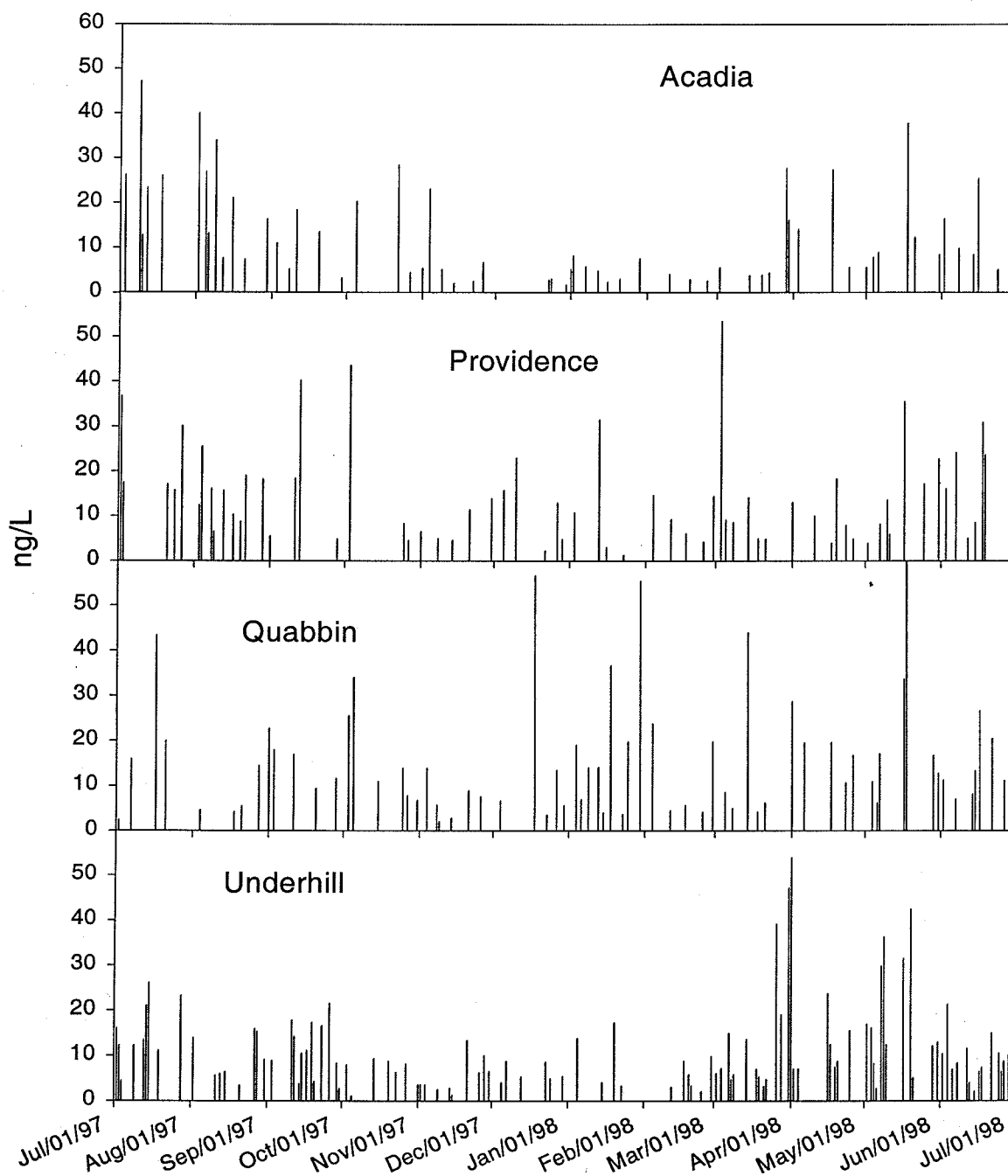


Figure 2. Concentrations of Hg in Event Precipitation Samples Collected 7/97-6/98

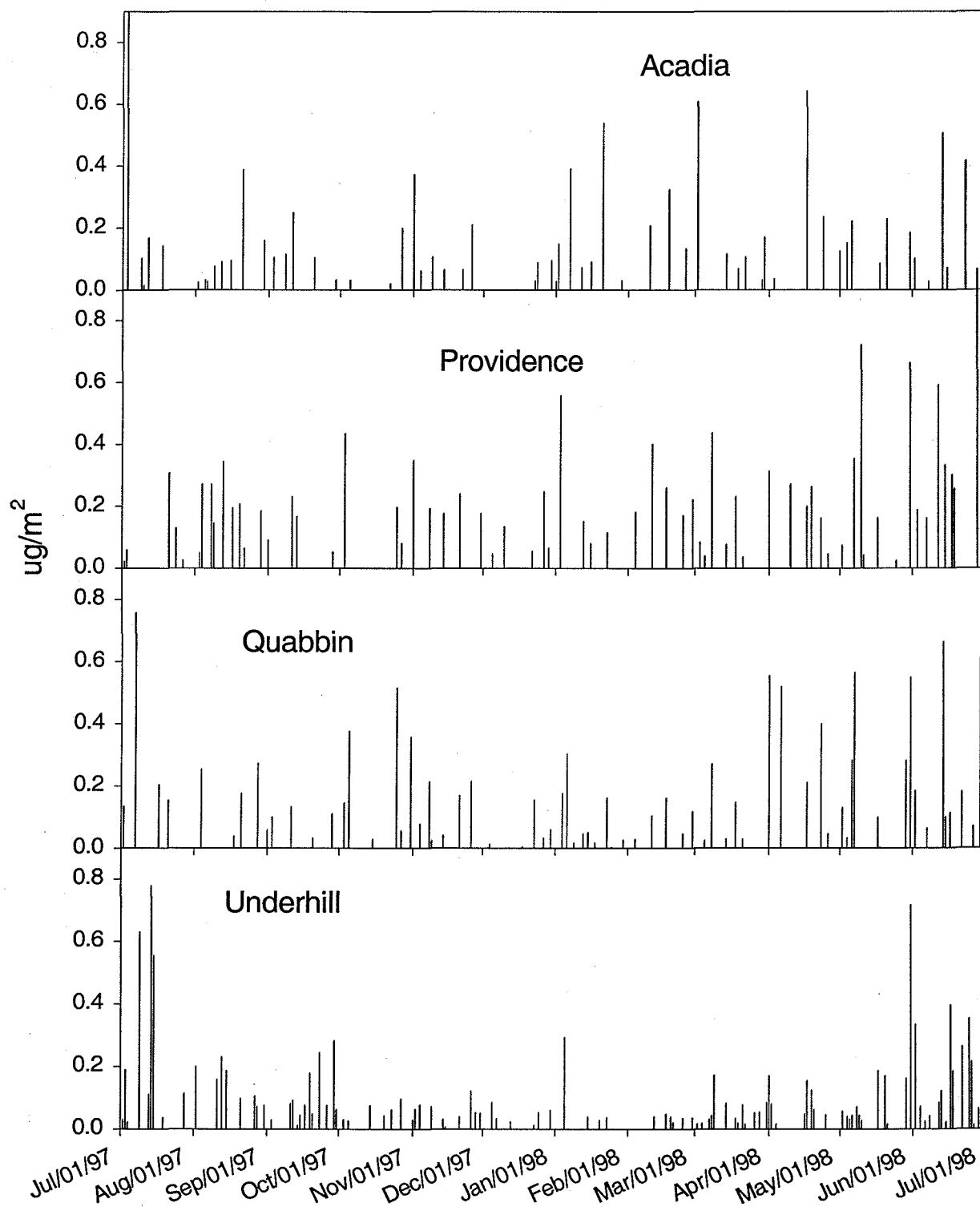


Figure 3. Hg Deposition measured in Event Wet-Only Precipitation Samples at 4 sites.

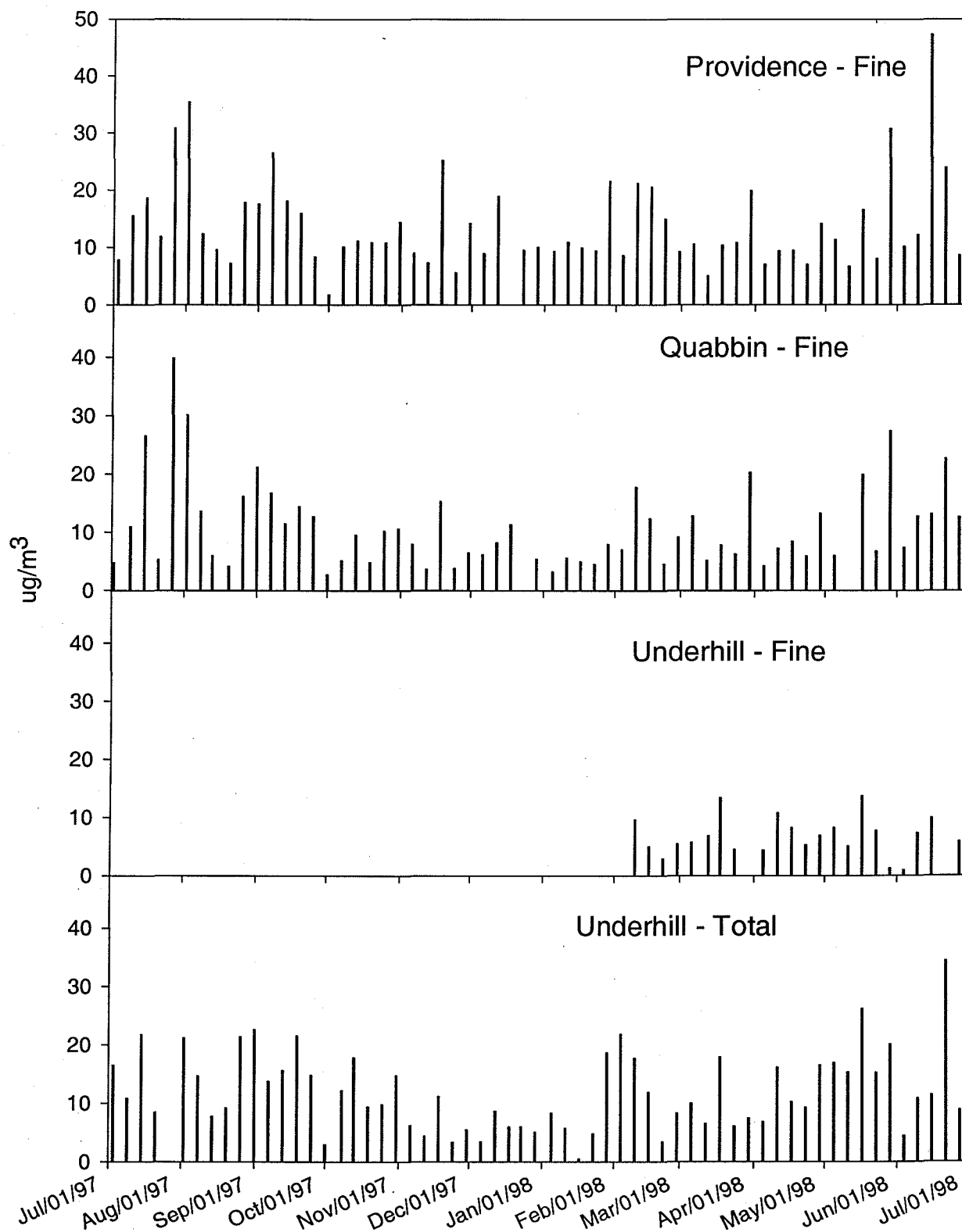


Figure 4. Fine (and Total at VT) Particulate Mass Concentrations at 3 Sites.

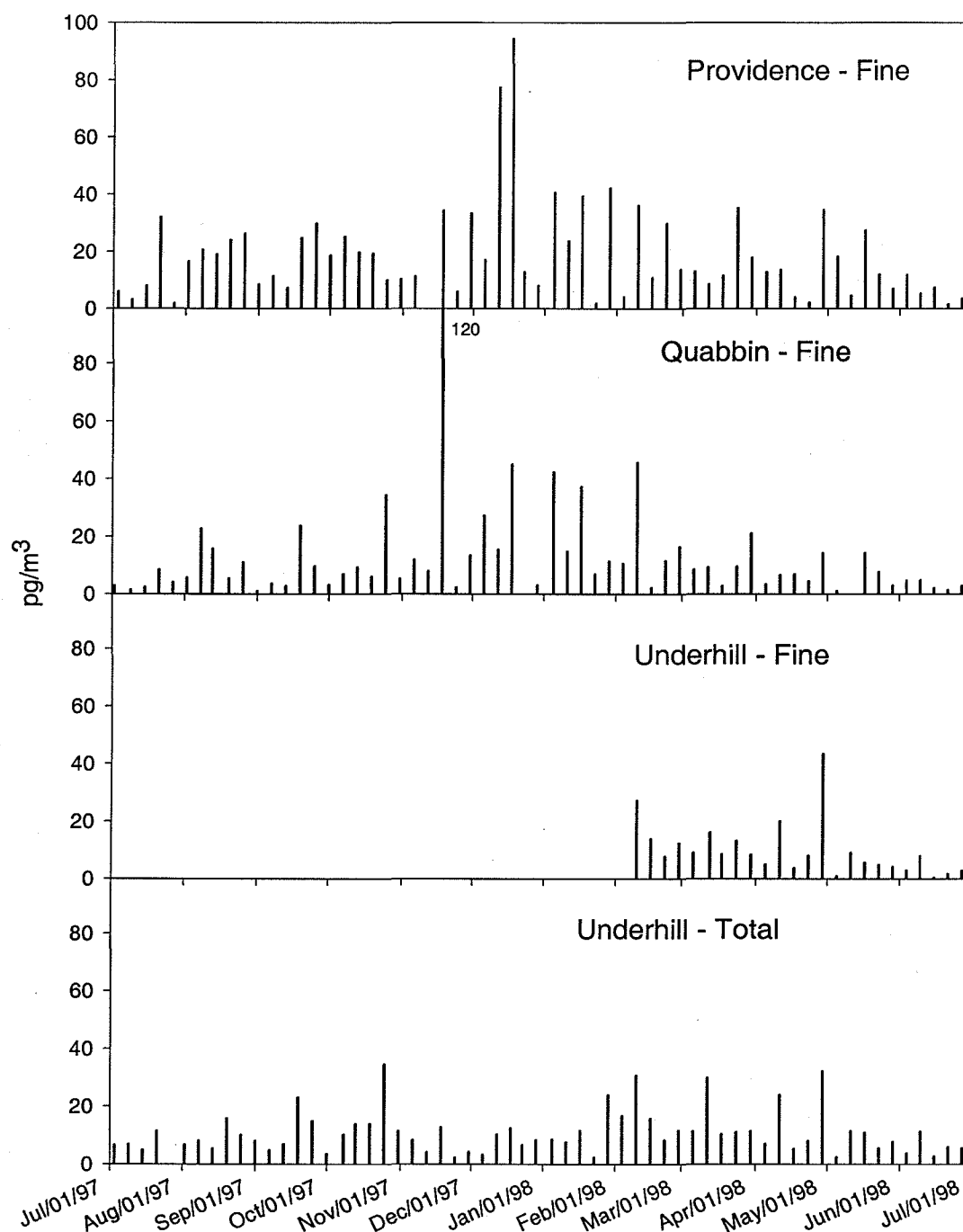


Figure 5. Particle-phase Hg concentrations at 3 NESCAUM sites during Year 1 of study. Fine fraction Hg samples were collected at Providence and Quabbin for the entire year. TSP Hg samples were collected at Underhill for the entire year with fine fraction Hg samples being added in February of 1998. (Samples are blank and STP corrected to 25 °C and 1 A).

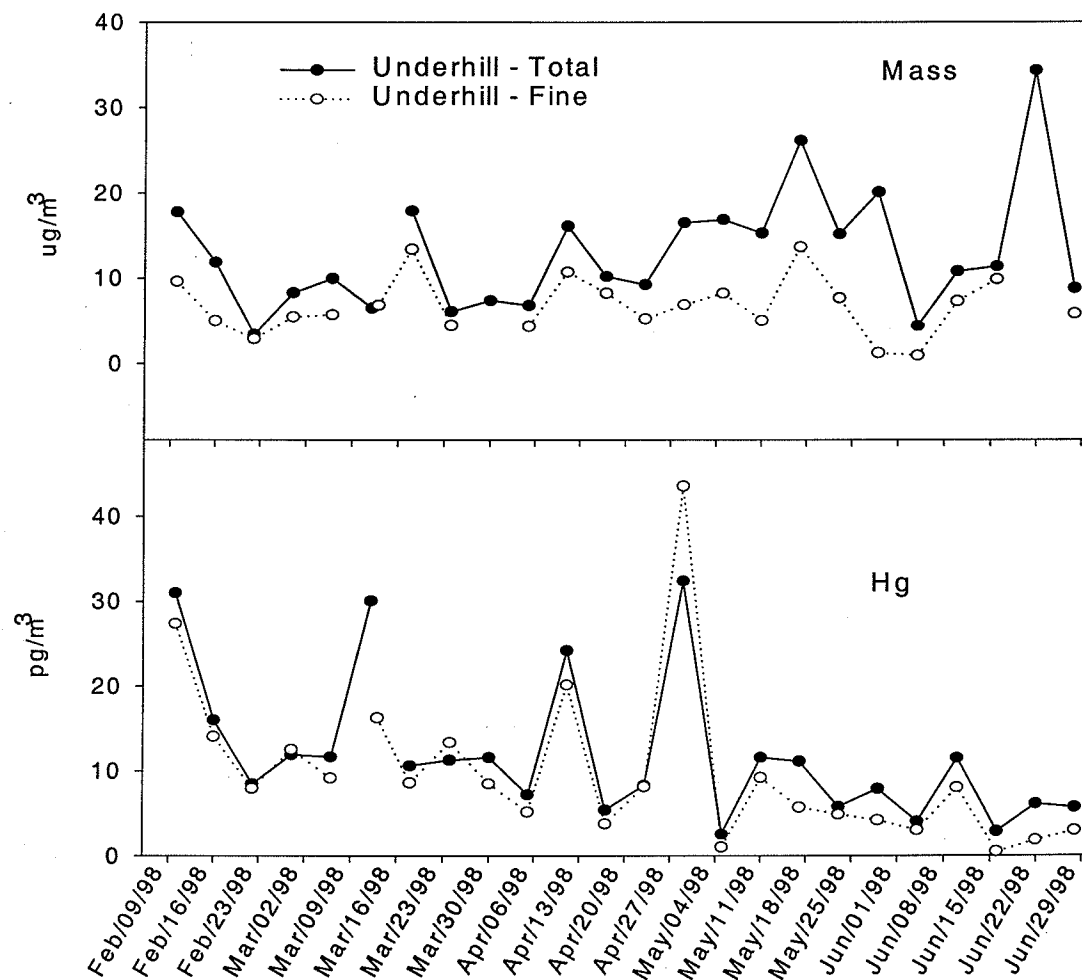


Figure 6. Total (TSP) and Fine fraction ($\text{PM}_{2.5}$) mass and particulate phase Hg concentrations measured at the Underhill, Vermont site. All data are STP corrected.

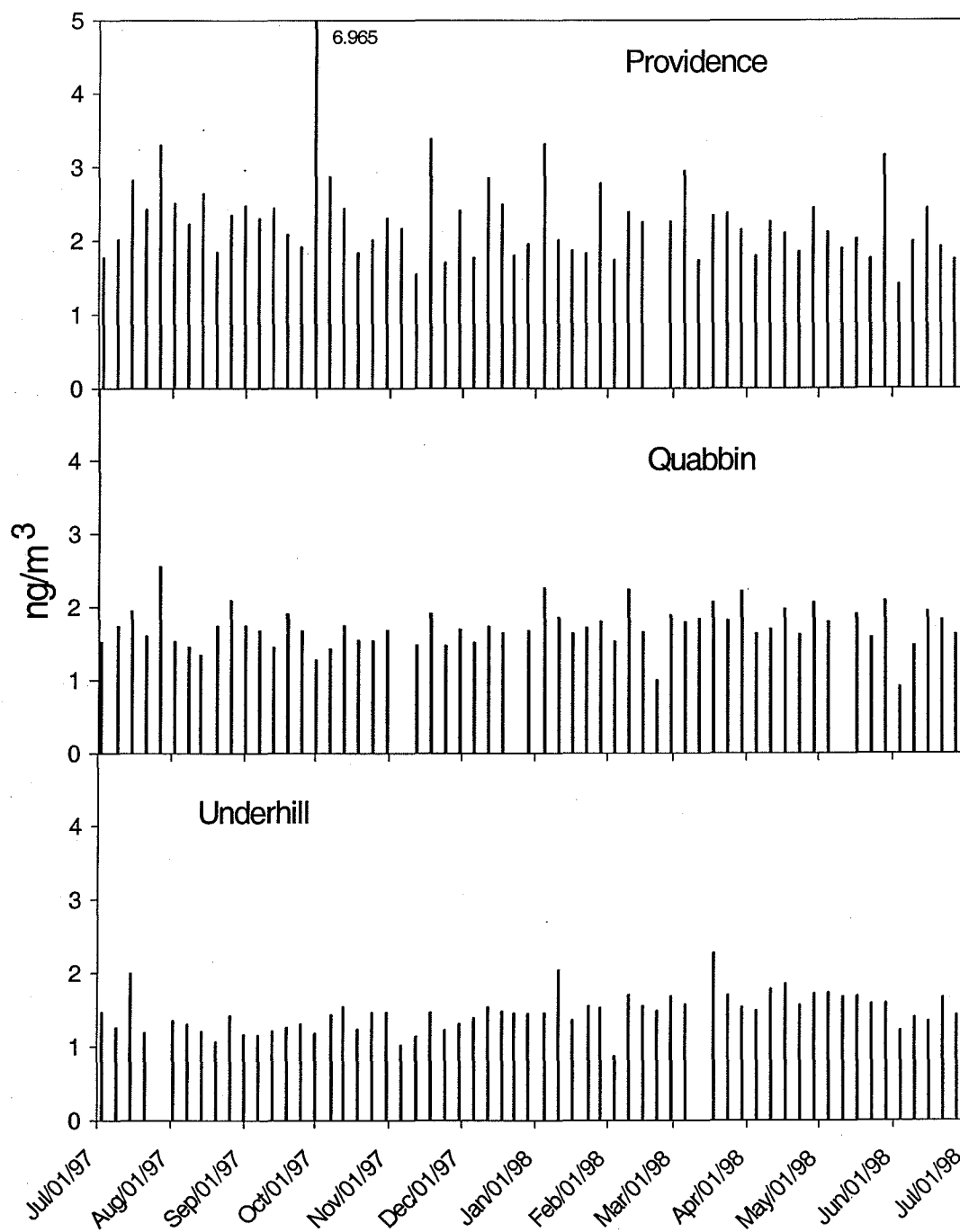


Figure 7. Vapor-phase Hg concentrations measured (All data are STP and blank corrected).

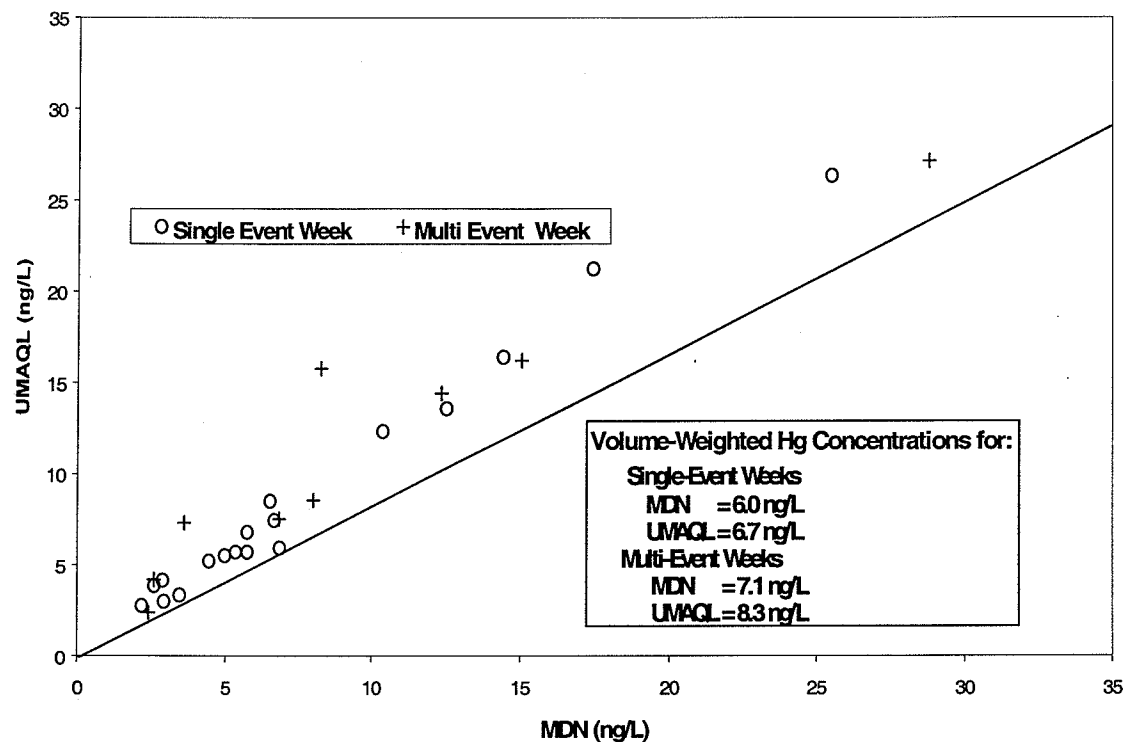


Figure 8. Comparison of UMAQL vs. MDN weekly precipitation Hg concentrations. Data plotted are shown separately for weeks with one event and those weeks with multiple events.

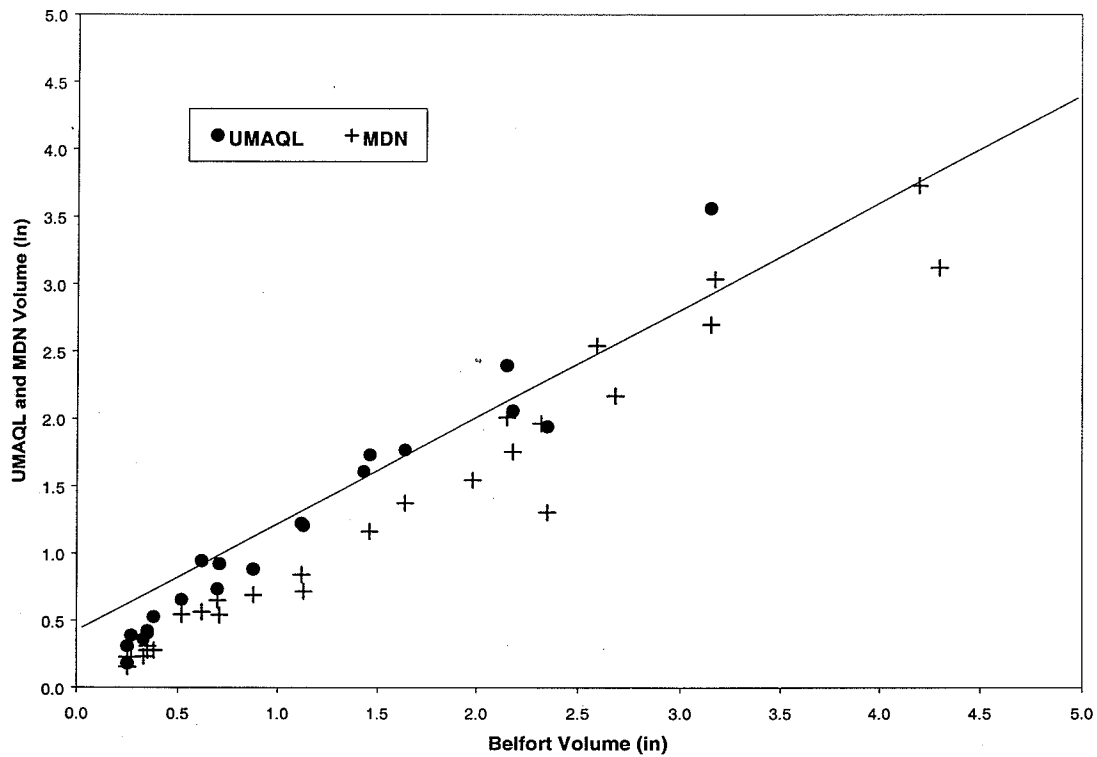


Figure 9. Comparison of UMAQL and MDN precipitation sample volumes vs. volumes measured using the on-site Belfort rain gauge volume.

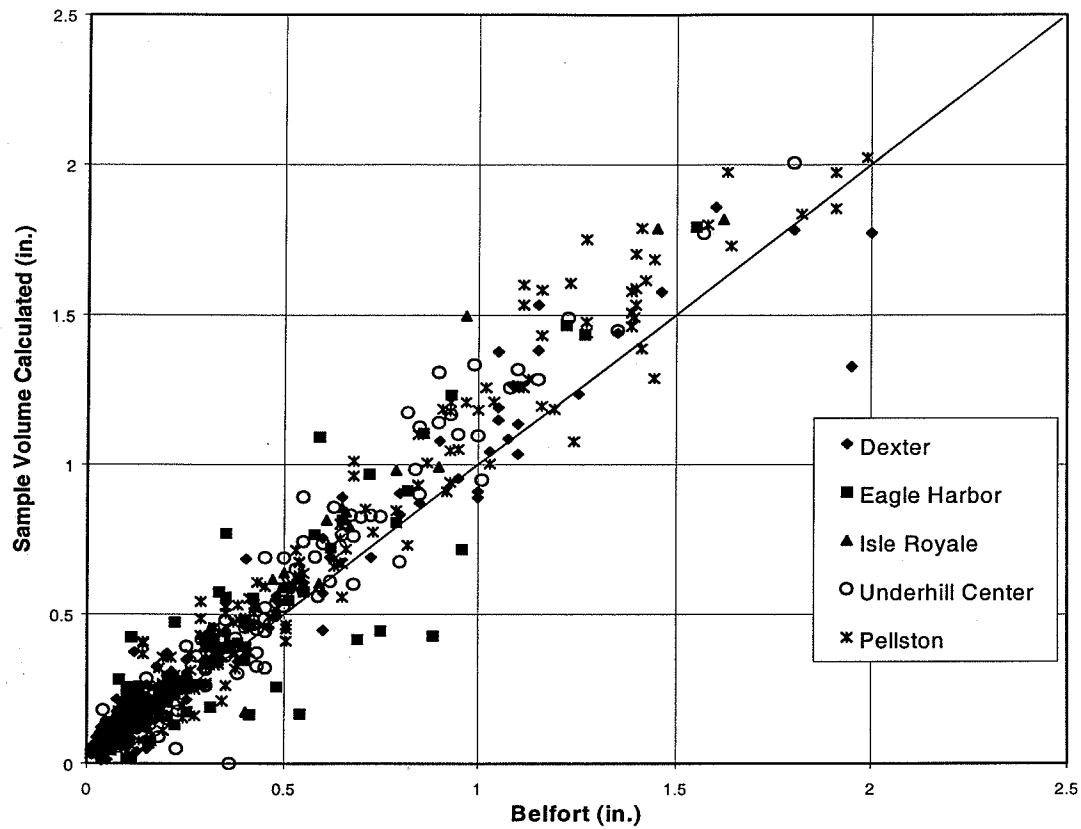


Figure 10. Precipitation depth comparison between sample volume calculated and Belfort rain gauge at several UMAQL monitoring sites.

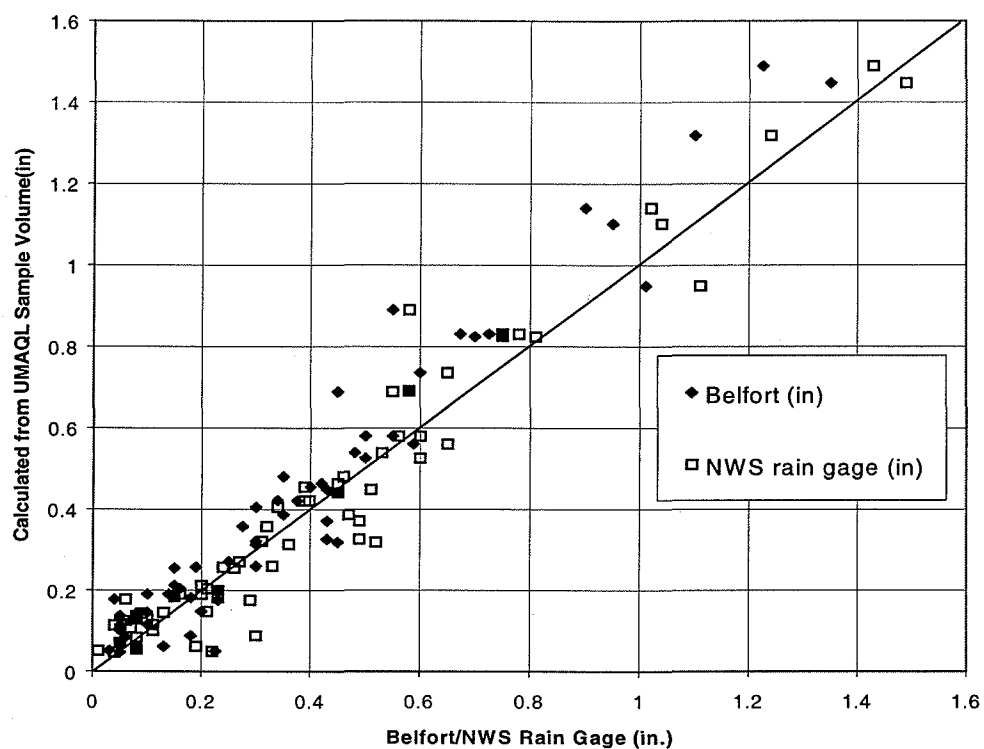


Figure 11. Underhill Center, Vt. site precipitation depth comparison between sample volume calculated and Belfort gauge and National Weather Service rain gauge.

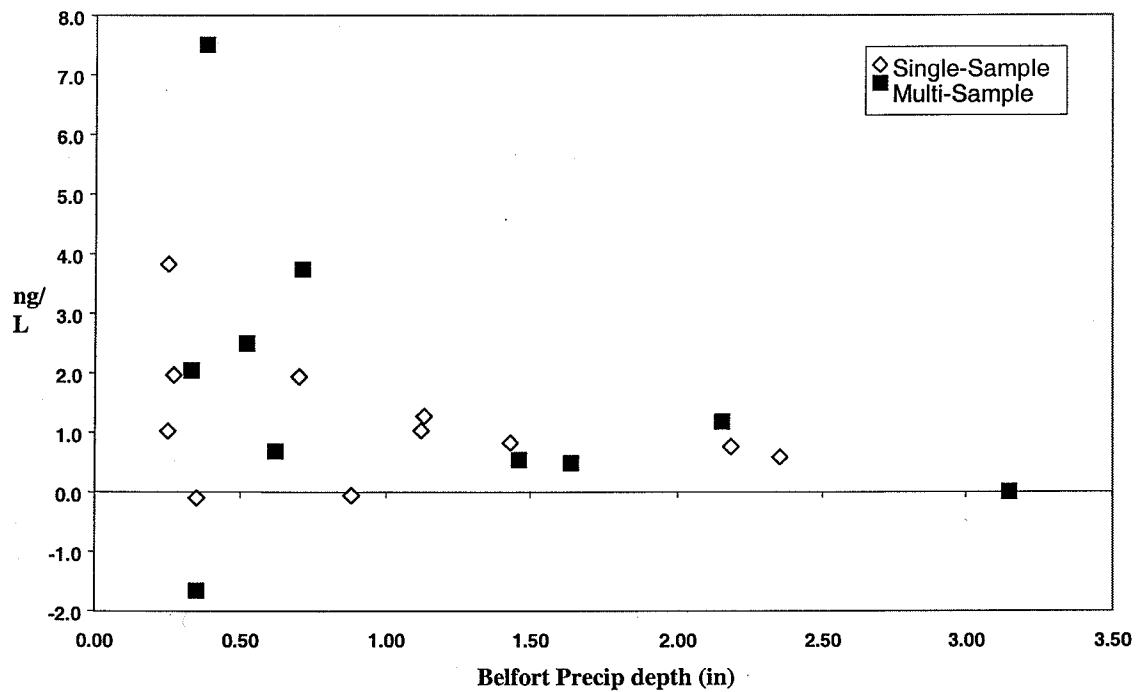
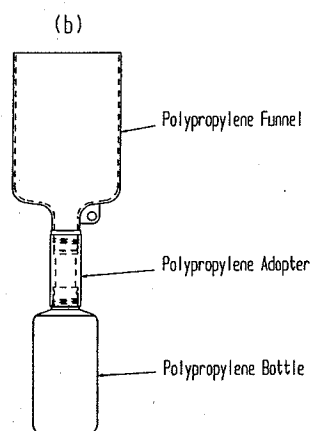
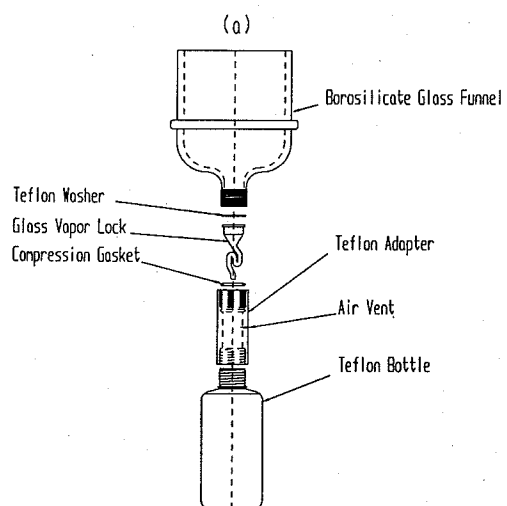
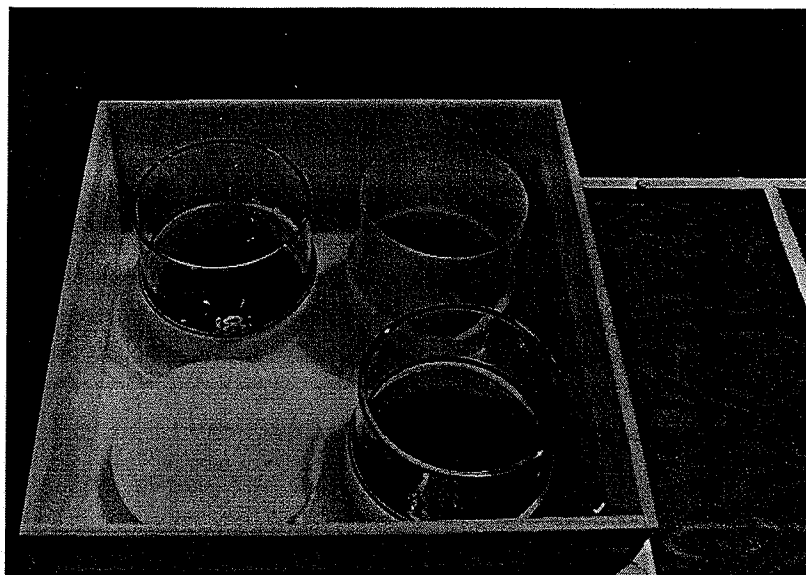


Figure 12. Concentration difference between precipitation samples collected by the UMAQL and MDN as a function of precipitation depth from Belfort chart.



APPENDIX A: Quality Assurance Data and Analytical Details

Analytical detection limits for mercury were assessed for both instrument and system.

Instrument Detection Limit

Instrument detection limits were determined daily from the calibration regression. It is calculated as the mass at the upper 95% confidence limit of the independent (integrator area) value at mass zero (Brownlee, 1965). A statistical summary of this value, for each medium, is presented below. Also presented is the number of sample analysis results which were greater than the maximum calibrated value + 10%.

Sample Type	Number of Calibration Curves	Mean $\pm$ S.D. (pg)	Maximum (pg)	Median (pg)	Number of Samples Below Daily Limit	Number of Samples Above Maximum Calibration Standard or Check + 10 %
Precipitation	98	19 $\pm$ 9	44	15	1 (1%)	1 (<1%)
Vapor Phase	57	26 $\pm$ 13	75	23	1 (<1%)	5 (2%)
Particulate	16	22 $\pm$ 13	49	29	12 (5%)	0

System Detection Limit

The system detection limit for precipitation samples is determined from a statistical summary of the system blank. System blanks are analyzed at least once daily. The system blank is subtracted from sample analyses, is dependent upon analytical volume, and hence is normalized to analytical volume. A value equal to the standard deviation of all system blanks times the 99th percentile of the students-t distribution (n-1 d.f.) is defined as the system detection limit. Only values associated with samples > 20ml are considered.

The system detection limit for particulate analysis is determined from a statistical summary of the filter blank minus the vessel check. If the standard curve was aqueous, then the vessel check value was used. If the vessel check value was greater than the filter blank, then the filter blank value is used. Since roughly 1/4 of the filter solution is analyzed, values are multiplied by 4 to convert to pg/filter units. A value equal to the standard deviation multiplied by the 99th percentile of the students-t distribution (n-1 d.f.) is the system detection limit.

Sample Type	Number of System Blanks	Mean $\pm$ S.D.	Max	Median	System Detection Limit	Number of Samples Below Limit
Precipitation (ng/L)	103	0.306 $\pm$ 0.168	1.0	0.250	0.397	0
Particulate (pg/filter)	16	25 $\pm$ 20	76	20	60	9

III. Method Detection Limits

Method detection limits for the ambient mediums (Vapor, Particulate and Dry Deposition) are determined from a statistical summary of the field blanks. Sample values are blank corrected by site specific field blank means for the vapor and particulate samples and by overall field blank mean for the dry deposition samples. The method detection limit is calculated as three times the standard deviation of all valid Field blanks. The following table is a summary of mercury found in field blanks and the corresponding method detection limit derived, along with the number of sample results that were below this limit.

Medium	Number of Field Blanks	Mean $\pm$ S.D.	Max	Median	Method Detection Limit	Number Samples Below Limit
Vapor Phase	41	20 $\pm$ 13 pg/trap	57	18	41	0
Particulate	22	11 $\pm$ 19 pg/filter	70	3	57	16 (7%)

IV. Funnel Rinses

Potential mercury contamination from the precipitation collection apparatus is assessed by funnel rinses. A summary of the results from all funnel rinses is provided below. Values are adjusted by a control of similar volume.

Sample type	Number of Funnel Rinses	Mean $\pm$ S.D. (ng)	Minimum (ng)	Maximum (ng)	Median (ng)
Precipitation	11	0.15 $\pm$ 0.21	0	0.68	0.08

To provide a relative comparison, the table below is a summary of precipitation sample Hg mass. Only samples greater than 20ml.

Sample type	Number of Samples	Mean $\pm$ S.D. (ng)	Minimum (ng)	Maximum (ng)	Median (ng)
Precipitation	295	2.90 $\pm$ 2.93	0.12	19.61	1.89

V. Bottle Checks

A randomly selected bottle from each "cleaning batch" which contained bottles used for precipitation, run-off, or sewage sampling was analyzed. Assuming that this bottle check

represents all bottles in the batch, a “value as % of mass in sample” can be calculated for each sample. It should be noted that this value is highly dependent upon sample volume. A summary of the results of bottle check analyses, along with the “value as % of mass in sample” is presented below. Only values associated with samples > 20ml are considered.

Bottle Check Total Hg Mass (ng)			
Number of Bottle Checks	Mean $\pm$ S.D.	Maximum	Median
60	0.027 $\pm$ 0.058	0.379	0.011

Value as % of Total Hg Mass in Sample
Only samples > 20 ml

Study	Number	Mean $\pm$ S.D.	Max	Median	Number > 10%	# Missing Bottle Check Analysis
Precipitation	279	3 $\pm$ 11	165	< 1	11 (4%)	16 (5%)
Funnel Rinse	10	13 $\pm$ 28	88	13	4 (40%)	1 (10%)

VI. Acid Blanks

Sample collection bottles were rigorously pre-cleaned and then “charged” with 20 ml of acid as a preservative. A 20 ml acid blank was analyzed for each day that samples were analyzed. A summary of these acid blank analyses is provided below.

20 ml Acid Blank Total Hg Mass (ng)				
Study	Number of Analyses	Mean $\pm$ S.D.	Maximum	Median
Precip	72	0.006 $\pm$ 0.005	0.021	0.004

VII. Criteria of Detection for Vapor Phase

The criteria of detection for vapor phase samples has been established at 0.8 ng/m³. Samples below this value are coded as missing.

Number of Samples Less than the Criteria of detection: 2 (1%)

VIII. Scheduled ambient samples missed due to technical problems.

Providence: Particulate Mass – 1 (12/18/97), Particulate Hg – 1 (11/12/97)

Quabbin: All ambient samples – 2 (12/23/97, 5/11/98)

Underhill: All ambient samples– 1 (7/27/97), Fine Particulate Mass – 2 (3/30/98, 6/22/98)

APPENDIX B:
Mercury Measurement Results
for All Precipitation and Ambient Samples

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from PhaseIII.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
7/3/97	ACA	1	3	745	26.3	ng/L	6	4.09	1.08	3.56	0.94	CLC	
7/9/97	ACA	3	1	40	47.2	ng/L	.	0.22	0.10	0.13	0.06	CLC	
7/10/97	ACA	4	1	23	12.9	ng/L	.	0.13	0.02	0.13	0.02	CLC	
7/12/97	ACA	5	2	132	23.5	ng/L	2	0.72	0.17	0.64	0.15	CLC	
7/18/97	ACA	6	1	101	26.2	ng/L	.	0.55	0.15	.	.	CLC	
8/2/97	ACA	7	1	12	40.1	ng/L	.	0.07	0.03	0.13	0.05	CLC	
8/5/97	ACA	8	1	23	27.0	ng/L	.	0.13	0.03	0.13	0.03	CLC	
8/6/97	ACA	9	1	42	13.2	ng/L	.	0.23	0.03	0.18	0.02	CLC	
8/9/97	ACA	10	1	42	34.0	ng/L	.	0.23	0.08	0.13	0.04	CLC	
8/12/97	ACA	11	2	220	7.7	ng/L	5	1.21	0.09	1.02	0.08	CLC	
8/16/97	ACA	12	1	83	21.2	ng/L	.	0.46	0.10	0.38	0.08	CLC	MULTEVNT
8/21/97	ACA	13	1	954	7.4	ng/L	.	5.23	0.39	5.54	0.41	CLC	MULTEVNT
8/30/97	ACA	14	1	180	16.4	ng/L	.	0.99	0.16	0.64	0.10	CLC	MULTEVNT
9/3/97	ACA	15	1	176	11.1	ng/L	.	0.97	0.11	0.64	0.07	CLC	
9/8/97	ACA	16	2	404	5.3	ng/L	0	2.22	0.12	1.50	0.08	CLC	MULTEVNT
9/11/97	ACA	17	1	247	18.5	ng/L	.	1.35	0.25	0.86	0.16	CLC	MULTEVNT
9/20/97	ACA	18	1	143	13.6	ng/L	.	0.78	0.11	0.64	0.09	CLC	
9/29/97	ACA	19	1	187	3.3	ng/L	.	1.03	0.03	0.89	0.03	CLC	
10/5/97	ACA	20	1	30	20.3	ng/L	.	0.16	0.03	0.13	0.03	CLC	
10/22/97	ACA	21	1	14	28.6	ng/L	.	0.08	0.02	0.08	0.02	CLC	
10/27/97	ACA	22	2	805	4.5	ng/L	2	4.41	0.20	4.09	0.19	CLC	
11/1/97	ACA		1	979	5.5	ng/L	.	.	0.37	6.81	0.37	CLC	MOVERFLOW
11/4/97	ACA	24	1	50	23.3	ng/L	.	0.27	0.06	0.13	0.03	CLC	
11/9/97	ACA	25	1	377	5.2	ng/L	.	2.07	0.11	1.80	0.09	CLC	
11/14/97	ACA	26	1	576	2.1	ng/L	.	3.16	0.07	2.36	0.05	CLC	MULTEVNT
11/22/97	ACA	27	2	474	2.6	ng/L	1	2.60	0.07	2.24	0.06	CLC	MULTEVNT
11/26/97	ACA	28	1	567	6.8	ng/L	.	3.11	0.21	2.79	0.19	CLC	MULTEVNT
12/23/97	ACA	29	1	191.3	2.9	ng/L	.	1.05	0.03	0.91	0.03	CLC	
12/24/97	ACA	30	1	519.4	3.1	ng/L	.	2.85	0.09	2.62	0.08	CLC	MULTEVNT
12/30/97	ACA	31	1	939.2	1.9	ng/L	.	5.15	0.10	4.47	0.08	CLC	
1/1/98	ACA	32	3	104.6	5.3	ng/L	4	0.57	0.03	0.48	0.03	CLC	
1/2/98	ACA	33	2	333	8.2	ng/L	5	1.83	0.15	1.17	0.10	CLC	MULTEVNT
1/7/98	ACA	34	2	1014	5.9	ng/L	1	.	0.39	6.63	0.39	CLC	MOVERFLOW
1/12/98	ACA	35	2	278	4.9	ng/L	3	1.52	0.08	1.52	0.08	CLC	
1/16/98	ACA	36	1	670	2.5	ng/L	.	3.67	0.09	2.77	0.07	CLC	MULTEVNT

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from PhaseIII.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value
 FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)
 CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank
 EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
1/21/98	ACA	37	1	998	3.1	ng/L	.	.	0.54	17.35	0.54	CLC	OVERFLOW
1/29/98	ACA	38	1	77	7.6	ng/L	.	0.42	0.03	0.33	0.03	CLC	
2/10/98	ACA	39	1	959	4.2	ng/L	.	.	0.21	5.03	0.21	CLC	OVERFLOW
2/18/98	ACA	40	2	984	3.0	ng/L	0	.	0.33	10.92	0.33	CLC	OVERFLOW
2/25/98	ACA	41	1	900	2.8	ng/L	.	4.94	0.14	5.97	0.16	CLC	MULTEVNT
3/2/98	ACA	42	1	980	5.7	ng/L	.	.	0.61	10.67	0.61	CLC	MOVERFLOW
3/14/98	ACA	43	1	559	3.9	ng/L	.	3.07	0.12	2.87	0.11	CLC	
3/19/98	ACA	44	1	330	3.9	ng/L	.	1.81	0.07	1.40	0.06	CLC	
3/22/98	ACA	45	1	453	4.4	ng/L	.	2.48	0.11	.	.	CLC	
3/29/98	ACA	46	1	22	27.9	ng/L	.	0.12	0.03	0.08	0.02	CLC	
3/30/98	ACA	47	2	195	16.2	ng/L	2	1.07	0.17	0.74	0.12	CLC	
4/3/98	ACA	48	1	49	14.2	ng/L	.	0.27	0.04	0.15	0.02	CLC	
4/17/98	ACA	49	2	228	27.5	ng/L	2	1.25	0.34	1.02	0.28	CLC	
4/17/98	ACA	50	2	882	13.3	ng/L	0	4.84	0.64	4.45	0.59	CLC	MULTEVNT
4/24/98	ACA	51	1	762	5.7	ng/L	.	4.18	0.24	3.56	0.20	CLC	MULTEVNT
5/1/98	ACA	52	1	408	5.7	ng/L	.	2.24	0.13	2.24	0.13	CLC	
5/4/98	ACA	53	3	351	8.0	ng/L	33	1.92	0.15	1.47	0.12	EST	
5/6/98	ACA	54	1	452	9.0	ng/L	.	2.48	0.22	2.24	0.20	CLC	
5/18/98	ACA	55	1	42	37.9	ng/L	.	0.23	0.09	0.20	0.08	CLC	
5/21/98	ACA	56	1	340	12.3	ng/L	.	1.86	0.23	1.78	0.22	CLC	
5/31/98	ACA	57	1	397	8.6	ng/L	.	2.18	0.19	2.16	0.18	CLC	MULTEVNT
6/2/98	ACA	58	1	115	16.5	ng/L	.	0.63	0.10	0.58	0.10	CLC	
6/8/98	ACA	59	1	52.4	9.9	ng/L	.	0.29	0.03	0.33	0.03	CLC	
6/14/98	ACA	60	1	967.7	8.5	ng/L	.	.	0.51	5.97	0.51	CLC	OVERFLOW
6/16/98	ACA	61	1	52.4	25.5	ng/L	.	0.29	0.07	0.25	0.06	CLC	
6/24/98	ACA	62	2	940.1	5.2	ng/L	3	.	0.42	8.05	0.42	CLC	OVERFLOW
6/29/98	ACA	63	1	145.7	8.5	ng/L	.	0.80	0.07	0.56	0.05	CLC	
7/2/97	LKC	511	1	34	16.1	ng/L	.	0.19	0.03	0.13	0.02	CLC	
7/3/97	LKC	512	1	280	12.3	ng/L	.	1.54	0.19	1.73	0.21	CLC	
7/4/97	LKC	513	1	93	4.5	ng/L	.	0.51	0.02	0.58	0.03	CLC	
7/9/97	LKC	514	2	934	12.3	ng/L	7	5.12	0.63	4.57	0.56	CLC	
7/13/97	LKC	515	1	149	13.6	ng/L	.	0.82	0.11	1.02	0.14	CLC	
7/14/97	LKC	516	1	674	21.1	ng/L	.	3.70	0.78	3.43	0.72	CLC	
7/15/97	LKC	517	1	387	26.2	ng/L	.	2.12	0.56	1.84	0.48	CLC	
7/19/97	LKC	518	1	60	11.2	ng/L	.	0.33	0.04	0.13	0.01	CLC	

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from PhaseIII.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value.,

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
7/28/97	LKC	519	1	89	23.3	ng/L	.	0.49	0.11	0.38	0.09	CLC	
8/2/97	LKC	520	1	261	14.0	ng/L	.	1.43	0.20	1.49	0.21	CLC	
8/11/97	LKC	521	2	511	5.7	ng/L	1	2.80	0.16	2.54	0.14	CLC	
8/13/97	LKC	522	2	694	6.1	ng/L	1	3.81	0.23	3.11	0.19	CLC	
8/15/97	LKC	523	1	531	6.5	ng/L	.	2.91	0.19	2.29	0.15	CLC	MULTEVNT
8/21/97	LKC	524	2	513	3.5	ng/L	3	2.81	0.10	2.41	0.08	CLC	
8/27/97	LKC	526	2	121	15.9	ng/L	7	0.66	0.11	0.76	0.12	CLC	
8/28/97	LKC	527	1	86	15.4	ng/L	.	0.47	0.07	0.38	0.06	CLC	
8/31/97	LKC	528	1	152	9.2	ng/L	.	0.83	0.08	1.09	0.10	CLC	
9/3/97	LKC	529	1	60	9.0	ng/L	.	0.33	0.03	0.20	0.02	CLC	
9/11/97	LKC	530	1	83	17.9	ng/L	.	0.46	0.08	0.10	0.02	CLC	
9/12/97	LKC	531	1	119	14.2	ng/L	.	0.65	0.09	0.38	0.05	CLC	
9/14/97	LKC	532	1	61	3.9	ng/L	.	0.33	0.01	0.20	0.01	CLC	
9/15/97	LKC	533	1	76	10.5	ng/L	.	0.42	0.04	0.51	0.05	CLC	
9/17/97	LKC	534	2	126	11.2	ng/L	1	0.69	0.08	0.64	0.07	CLC	
9/19/97	LKC	535	2	189	17.4	ng/L	1	1.04	0.18	0.76	0.13	CLC	
9/20/97	LKC	536	2	206	4.3	ng/L	3	1.13	0.05	1.14	0.05	CLC	
9/23/97	LKC	537	2	270	16.6	ng/L	1	1.48	0.25	1.40	0.23	CLC	
9/26/97	LKC	538	1	63	21.6	ng/L	.	0.35	0.08	0.25	0.05	CLC	
9/29/97	LKC	539	2	614	8.4	ng/L	5	3.37	0.28	2.79	0.24	CLC	
9/30/97	LKC	540	2	419	2.7	ng/L	7	2.30	0.06	2.16	0.06	CLC	
10/3/97	LKC	541	1	68	7.9	ng/L	.	0.37	0.03	0.25	0.02	CLC	
10/5/97	LKC	542	1	415	1.2	ng/L	.	2.28	0.03	1.40	0.02	CLC	
10/14/97	LKC	543	1	146	9.4	ng/L	.	0.80	0.08	0.76	0.07	CLC	MULTEVNT
10/20/97	LKC	544	1	89	8.8	ng/L	.	0.49	0.04	0.36	0.03	CLC	
10/23/97	LKC	545	1	180	6.3	ng/L	.	0.99	0.06	0.89	0.06	CLC	
10/27/97	LKC	546	1	216	8.2	ng/L	.	1.18	0.10	1.07	0.09	CLC	
11/1/97	LKC	547	2	150	3.6	ng/L	4	0.82	0.03	0.76	0.03	CLC	ESTVOL
11/2/97	LKC	548	2	322	3.6	ng/L	3	1.77	0.06	1.47	0.05	CLC	
11/4/97	LKC	549	2	385	3.7	ng/L	2	2.11	0.08	1.91	0.07	CLC	
11/9/97	LKC	550	1	524	2.5	ng/L	.	2.87	0.07	2.16	0.05	CLC	
11/14/97	LKC	551	1	209	2.8	ng/L	.	1.15	0.03	1.09	0.03	CLC	
11/15/97	LKC	552	1	85	1.4	ng/L	.	0.47	0.01	0.46	0.01	CLC	
11/21/97	LKC	553	1	54	13.4	ng/L	.	0.30	0.04	0.25	0.03	CLC	
11/26/97	LKC	554	2	356	6.3	ng/L	1	1.95	0.12	1.65	0.10	CLC	

Hg in Precipitation
New England REMAP Project (YR1)

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Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
11/28/97	LKC	555	1	95	10.1	ng/L	.	0.52	0.05	0.41	0.04	CLC	
11/30/97	LKC	556	1	140	6.6	ng/L	.	0.77	0.05	0.97	0.06	CLC	
12/5/97	LKC	557	2	384	4.2	ng/L	2	2.11	0.09	1.78	0.07	CLC	
12/7/97	LKC	558	1	69	8.8	ng/L	.	0.38	0.03	0.51	0.04	CLC	
12/13/97	LKC	559	1	82	5.3	ng/L	.	0.45	0.02	0.58	0.03	CLC	
12/23/97	LKC	560	1	25.6	8.7	ng/L	.	0.14	0.01	0.20	0.02	CLC	
12/25/97	LKC	561	2	196.5	5.0	ng/L	6	1.08	0.05	0.86	0.04	CLC	
12/30/97	LKC	562	2	251	4.4	ng/L	5	1.38	0.06	1.22	0.05	CLC	
12/30/97	LKC	563	1	41	5.5	ng/L	.	0.23	0.01	0.46	0.03	CLC	
1/5/98	LKC	564	2	270	9.3	ng/L	1	1.48	0.14	1.27	0.12	CLC	
1/5/98	LKC	565	1	387	13.9	ng/L	.	2.12	0.29	1.71	0.24	CLC	MULTEVNT
1/15/98	LKC	566	1	173	4.1	ng/L	.	0.95	0.04	1.09	0.04	CLC	
1/20/98	LKC	567	1	29	17.3	ng/L	.	0.16	0.03	0.33	0.06	CLC	MULTEVNT
1/23/98	LKC	568	1	204	3.3	ng/L	.	1.12	0.04	1.98	0.07	CLC	
2/12/98	LKC	569	2	183	2.5	ng/L	2	1.00	0.03	0.64	0.02	CLC	
2/12/98	LKC	570	1	245	3.0	ng/L	.	1.34	0.04	1.27	0.04	CLC	
2/17/98	LKC	571	1	99	8.9	ng/L	.	0.54	0.05	0.38	0.03	CLC	
2/19/98	LKC	572	2	120	5.9	ng/L	3	0.66	0.04	0.48	0.03	CLC	
2/20/98	LKC	573	1	113	3.4	ng/L	.	0.62	0.02	0.43	0.01	CLC	
2/24/98	LKC	574	1	314	2.1	ng/L	.	1.72	0.04	2.03	0.04	CLC	
2/28/98	LKC	575	1	67	9.9	ng/L	.	0.37	0.04	0.20	0.02	CLC	
3/2/98	LKC	576	1	50	6.1	ng/L	.	0.27	0.02	0.13	0.01	CLC	
3/4/98	LKC	577	1	47	7.2	ng/L	.	0.26	0.02	0.13	0.01	CLC	
3/7/98	LKC	578	1	39	14.9	ng/L	.	0.21	0.03	0.15	0.02	CLC	
3/8/98	LKC	579	1	167	4.7	ng/L	.	0.92	0.04	0.89	0.04	CLC	
3/9/98	LKC	580	1	544	5.8	ng/L	.	2.98	0.17	2.36	0.14	CLC	
3/14/98	LKC	581	1	111	13.7	ng/L	.	0.61	0.08	0.51	0.07	CLC	
3/18/98	LKC	582	1	89	7.0	ng/L	.	0.49	0.03	0.25	0.02	CLC	
3/19/98	LKC	583	1	64	5.3	ng/L	.	0.35	0.02	0.13	0.01	CLC	
3/21/98	LKC	584	1	442	3.2	ng/L	.	2.42	0.08	2.57	0.08	CLC	
3/22/98	LKC	585	1	63	4.7	ng/L	.	0.35	0.02	0.33	0.02	CLC	
3/26/98	LKC	586	1	24	39.2	ng/L	.	0.13	0.05	0.08	0.03	CLC	
3/28/98	LKC	587	2	53	19.1	ng/L	28	0.29	0.06	0.13	0.02	EST	
3/31/98	LKC	588	1	33	47.2	ng/L	.	0.18	0.09	0.13	0.06	CLC	
4/1/98	LKC	589	1	58	53.9	ng/L	.	0.32	0.17	0.18	0.10	GTL	

Hg in Precipitation
New England REMAP Project (YR1)

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Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value

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CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
4/1/98	LKC	590	1	290	6.5	ng/L	.	1.59	0.10	1.30	0.08	CLC	
4/2/98	LKC	591	1	209	7.0	ng/L	.	1.15	0.08	0.81	0.06	CLC	
4/4/98	LKC	592	2	40	7.1	ng/L	3	0.22	0.02	0.13	0.01	CLC	
4/16/98	LKC	593	1	37	23.8	ng/L	.	0.20	0.05	0.10	0.02	CLC	
4/17/98	LKC	594	2	226	12.5	ng/L	3	1.24	0.16	1.14	0.14	CLC	
4/19/98	LKC	595	1	303	7.5	ng/L	.	1.66	0.13	1.35	0.10	CLC	
4/20/98	LKC	596	2	131	8.8	ng/L	2	0.72	0.06	0.64	0.06	CLC	
4/25/98	LKC	597	1	54	15.6	ng/L	.	0.30	0.05	0.32	0.05	CLC	
5/2/98	LKC	598	1	61	17.0	ng/L	.	0.33	0.06	0.18	0.03	CLC	
5/4/98	LKC	599	1	46	16.1	ng/L	.	0.25	0.04	0.15	0.02	CLC	
5/5/98	LKC	600	1	70	8.3	ng/L	.	0.38	0.03	0.23	0.02	CLC	
5/6/98	LKC	601	1	284	2.7	ng/L	.	1.56	0.04	1.57	0.04	CLC	
5/8/98	LKC	602	1	43	29.9	ng/L	.	0.24	0.07	0.25	0.08	CLC	
5/9/98	LKC	603	1	22	36.4	ng/L	.	0.12	0.04	0.08	0.03	CLC	
5/10/98	LKC	604	1	39	12.5	ng/L	.	0.21	0.03	0.20	0.03	CLC	
5/17/98	LKC	605	1	107	31.6	ng/L	.	0.59	0.19	0.56	0.18	CLC	
5/20/98	LKC	606	2	73	42.6	ng/L	3	0.40	0.17	0.36	0.15	CLC	
5/21/98	LKC	607	1	55	5.1	ng/L	.	0.30	0.02	0.30	0.02	CLC	
5/29/98	LKC	608	2	243	12.2	ng/L	1	1.33	0.16	1.14	0.14	CLC	
5/31/98	LKC	609	1	941	13.1	ng/L	.	.	0.72	5.46	0.72	CLC	OVERFLOW
6/2/98	LKC	610	1	585	10.4	ng/L	.	3.21	0.33	2.74	0.29	CLC	
6/4/98	LKC	611	1	61	21.4	ng/L	.	0.33	0.07	0.20	0.04	CLC	
6/6/98	LKC	612	1	64.7	7.0	ng/L	.	0.36	0.03	0.38	0.03	CLC	
6/8/98	LKC	613	1	92.2	8.4	ng/L	.	0.51	0.04	0.36	0.03	CLC	
6/12/98	LKC	614	1	133.1	11.6	ng/L	.	0.73	0.09	0.38	0.04	CLC	
6/13/98	LKC	615	2	546.7	4.1	ng/L	2	3.00	0.12	2.08	0.08	CLC	MULTEVNT
6/15/98	LKC	616	1	193.6	2.1	ng/L	.	1.06	0.02	0.74	0.02	CLC	
6/17/98	LKC	617	2	924.4	6.5	ng/L	0	.	0.40	6.10	0.40	CLC	OVERFLOW
6/18/98	LKC	618	1	458.7	7.4	ng/L	.	2.52	0.19	2.13	0.16	CLC	
6/22/98	LKC	619	2	320.2	15.0	ng/L	7	1.76	0.26	1.27	0.19	CLC	
6/25/98	LKC	620	1	609.1	10.6	ng/L	.	3.34	0.35	2.29	0.24	CLC	
6/26/98	LKC	621	1	598.2	6.6	ng/L	.	3.28	0.22	2.92	0.19	CLC	
6/27/98	LKC	622	1	26.2	8.7	ng/L	.	0.14	0.01	0.08	0.01	CLC	
6/29/98	LKC	623	1	115.1	10.3	ng/L	.	0.63	0.07	0.56	0.06	CLC	
7/2/97	PRV	1	1	35	7.1	ng/L	.	0.19	0.01	0.10	0.01	CLC	

Hg in Precipitation
New England REMAP Project (YR1)

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FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value.,

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
7/2/97	PRV	2	1	11	36.8	ng/L	.	0.06	0.02	0.10	0.04	CLC	
7/3/97	PRV	3	1	63	17.5	ng/L	.	0.35	0.06	0.41	0.07	CLC	
7/21/97	PRV	5	1	329	17.1	ng/L	.	1.80	0.31	0.10	0.02	CLC	
7/24/97	PRV	6	1	150	15.8	ng/L	.	0.82	0.13	1.32	0.21	CLC	
7/27/97	PRV	7	1	16	30.1	ng/L	.	0.09	0.03	0.00	0.00	CLC	
8/3/97	PRV	8	1	73	12.4	ng/L	.	0.40	0.05	0.20	0.03	CLC	
8/4/97	PRV	9	2	195	25.5	ng/L	6	1.07	0.27	0.51	0.13	CLC	
8/8/97	PRV	10	2	306	16.2	ng/L	4	1.68	0.27	1.12	0.18	CLC	
8/9/97	PRV	11	1	406	6.6	ng/L	.	2.23	0.15	1.60	0.10	CLC	
8/13/97	PRV	12	1	399	15.8	ng/L	.	2.19	0.35	1.70	0.27	CLC	
8/17/97	PRV	13	1	342	10.4	ng/L	.	1.88	0.20	3.81	0.40	CLC	
8/20/97	PRV	14	1	432	8.8	ng/L	.	2.37	0.21	2.64	0.23	CLC	
8/22/97	PRV	15	1	61.5	19.1	ng/L	.	0.34	0.06	0.30	0.06	CLC	
8/29/97	PRV	16	1	185	18.2	ng/L	.	1.01	0.19	3.40	0.62	CLC	
9/1/97	PRV	17	2	302	5.6	ng/L	7	1.66	0.09	0.03	0.00	CLC	
9/11/97	PRV	18	1	229	18.5	ng/L	.	1.26	0.23	0.05	0.01	CLC	
9/13/97	PRV	19	1	76	40.3	ng/L	.	0.42	0.17	0.18	0.07	CLC	
9/28/97	PRV	20	1	191	5.0	ng/L	.	1.05	0.05	1.12	0.06	CLC	
10/3/97	PRV	21	1	182	43.6	ng/L	.	1.00	0.44	0.81	0.35	CLC	MULTEVNT
10/25/97	PRV	22	1	428	8.4	ng/L	.	2.35	0.20	2.11	0.18	CLC	
10/27/97	PRV	23	2	322	4.6	ng/L	2	1.77	0.08	1.73	0.08	CLC	
11/1/97	PRV	24	2	961	6.6	ng/L	1	.	0.35	5.31	0.35	CLC	OVERFLOW
11/8/97	PRV	25	1	700	5.1	ng/L	.	3.84	0.19	5.31	0.27	CLC	
11/14/97	PRV	26	2	698	4.6	ng/L	6	3.83	0.18	2.82	0.13	CLC	MULTEVNT
11/21/97	PRV	27	1	384	11.5	ng/L	.	2.11	0.24	1.73	0.20	CLC	MULTEVNT
11/30/97	PRV	28	1	233	14.0	ng/L	.	1.28	0.18	1.02	0.14	CLC	
12/5/97	PRV	29	1	54	15.9	ng/L	.	0.30	0.05	0.43	0.07	CLC	
12/10/97	PRV	30	1	107	22.9	ng/L	.	0.59	0.14	0.89	0.20	CLC	
12/22/97	PRV	31	2	438	2.3	ng/L	2	2.40	0.06	1.45	0.03	CLC	
12/27/97	PRV	32	1	347.5	13.1	ng/L	.	1.91	0.25	1.70	0.22	CLC	
12/29/97	PRV	33	1	242.6	4.9	ng/L	.	1.33	0.07	1.55	0.08	CLC	
1/3/98	PRV	34	2	946	10.8	ng/L	2	5.19	0.56	4.04	0.43	CLC	MULTEVNT
1/13/98	PRV	35	2	88	31.5	ng/L	0	0.48	0.15	0.61	0.19	CLC	
1/16/98	PRV	36	1	479	3.0	ng/L	.	2.63	0.08	2.26	0.07	CLC	
1/23/98	PRV	37	1	992	1.3	ng/L	.	.	0.12	8.69	0.11	CLC	MOVERFLOW

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from Phasell.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value
 FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)
 CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank
 EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
2/4/98	PRV	38	2	226	14.7	ng/L	8	1.24	0.18	1.55	0.23	CLC	
2/11/98	PRV	39	2	787	9.3	ng/L	1	4.32	0.40	2.90	0.27	CLC	
2/17/98	PRV	40	2	778	6.1	ng/L	1	4.27	0.26	5.11	0.31	CLC	
2/24/98	PRV	41	1	740	4.2	ng/L	.	4.06	0.17	5.51	0.23	CLC	
2/28/98	PRV	42	2	282	14.4	ng/L	4	1.55	0.22	1.60	0.23	CLC	
3/3/98	PRV	43	1	29	53.4	ng/L	.	0.16	0.09	0.03	0.01	CLC	
3/5/98	PRV	44	1	77	9.2	ng/L	.	0.42	0.04	0.10	0.01	CLC	
3/8/98	PRV	45	1	926	8.6	ng/L	.	5.08	0.44	8.59	0.74	CLC	MULTEVNT
3/14/98	PRV	46	1	101	14.2	ng/L	.	0.55	0.08	0.30	0.04	CLC	
3/18/98	PRV	47	2	840	5.0	ng/L	1	4.61	0.23	6.10	0.31	CLC	
3/21/98	PRV	48	1	138	4.9	ng/L	.	0.76	0.04	0.84	0.04	CLC	STCKOPEN
4/1/98	PRV	49	1	436	13.1	ng/L	.	2.39	0.31	2.79	0.37	CLC	
4/10/98	PRV	50	2	492	10.1	ng/L	0	2.70	0.27	2.36	0.24	CLC	
4/17/98	PRV	51	2	924	4.0	ng/L	5	5.07	0.20	3.91	0.15	CLC	
4/19/98	PRV	52	1	263	18.3	ng/L	.	1.44	0.26	1.02	0.19	CLC	
4/23/98	PRV	53	2	372	8.0	ng/L	1	2.04	0.16	1.80	0.14	CLC	
4/26/98	PRV	54	1	169	4.9	ng/L	.	0.93	0.05	0.94	0.05	CLC	
5/2/98	PRV	55	1	345	3.9	ng/L	.	1.89	0.07	2.01	0.08	CLC	
5/7/98	PRV	56	1	968	8.2	ng/L	.	.	0.36	4.32	0.35	CLC	OVERFLOW
5/10/98	PRV	57	1	970	13.6	ng/L	.	5.32	0.72	7.59	1.03	CLC	MULTEVNT
5/11/98	PRV	58	1	127	6.0	ng/L	.	0.70	0.04	0.79	0.05	CLC	
5/17/98	PRV	59	2	84	35.6	ng/L	1	0.46	0.16	0.20	0.07	CLC	
5/25/98	PRV	60	1	27	17.2	ng/L	.	0.15	0.03	0.41	0.07	CLC	
5/31/98	PRV	61	2	530	22.9	ng/L	6	2.91	0.67	2.79	0.64	CLC	MULTEVNT
6/3/98	PRV	62	1	213	16.2	ng/L	.	1.17	0.19	0.89	0.14	CLC	
6/7/98	PRV	63	1	121.6	24.3	ng/L	.	0.67	0.16	0.97	0.23	CLC	
6/12/98	PRV	64	1	951.2	5.1	ng/L	.	.	0.59	11.61	0.59	CLC	MOVERFLOW
6/15/98	PRV	65	1	705.2	8.6	ng/L	.	3.87	0.33	3.23	0.28	CLC	
6/18/98	PRV	66	1	177.4	31.0	ng/L	.	0.97	0.30	1.19	0.37	CLC	
6/19/98	PRV	67	3	198.9	23.7	ng/L	9	1.09	0.26	1.40	0.33	CLC	
6/29/98	PRV	69	1	972.9	14.7	ng/L	.	.	1.09	7.42	1.09	CLC	OVERFLOW
7/2/97	QBN	1	2	997	2.5	ng/L	5	5.47	0.14	.	.	CLC	
7/7/97	QBN	2	1	332	16.0	ng/L	.	1.82	0.29	.	.	CLC	
7/7/97	QBN	3	2	996	13.9	ng/L	5	5.46	0.76	4.45	0.62	CLC	
7/17/97	QBN	4	1	86	43.4	ng/L	.	0.47	0.21	1.14	0.50	CLC	

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from PhaseIII.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank

EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value.,

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
7/21/97	QBN	5	1	141	20.1	ng/L	.	0.77	0.16	0.25	0.05	CLC	
8/4/97	QBN	6	1	994	4.7	ng/L	.	5.45	0.26	4.45	0.21	CLC	
8/18/97	QBN	7	1	168	4.3	ng/L	.	0.92	0.04	0.64	0.03	CLC	
8/21/97	QBN	8	2	575	5.6	ng/L	10	3.15	0.18	3.24	0.18	CLC	
8/28/97	QBN	9	2	342	14.6	ng/L	3	1.88	0.27	1.12	0.16	CLC	
9/1/97	QBN	10	1	48	22.7	ng/L	.	0.26	0.06	0.00	0.00	CLC	
9/3/97	QBN	11	1	102	18.0	ng/L	.	0.56	0.10	0.36	0.06	CLC	
9/11/97	QBN	12	1	145	17.0	ng/L	.	0.80	0.14	0.18	0.03	CLC	
9/20/97	QBN	13	1	66	9.4	ng/L	.	0.36	0.03	0.74	0.07	CLC	
9/28/97	QBN	14	2	174	11.7	ng/L	1	0.95	0.11	1.27	0.15	CLC	
10/3/97	QBN	15	1	104	25.6	ng/L	.	0.57	0.15	0.84	0.21	CLC	
10/5/97	QBN	16	2	201	34.1	ng/L	5	1.10	0.38	0.51	0.17	CLC	
10/15/97	QBN	18	2	50	11.1	ng/L	0	0.27	0.03	0.10	0.01	CLC	
10/25/97	QBN	20	2	673	14.0	ng/L	1	3.69	0.52	1.37	0.19	CLC	
10/27/97	QBN	21	1	132	7.9	ng/L	.	0.72	0.06	2.62	0.21	CLC	
10/31/97	QBN	22	2	954	6.9	ng/L	1	5.23	0.36	4.95	0.34	CLC	MULTEVNT
11/4/97	QBN	23	1	103	14.1	ng/L	.	0.57	0.08	0.18	0.03	CLC	
11/8/97	QBN	24	2	674	5.8	ng/L	1	3.70	0.22	3.68	0.21	CLC	
11/9/97	QBN	25	1	232	2.1	ng/L	.	1.27	0.03	.	.	CLC	
11/14/97	QBN	26	2	266	2.8	ng/L	1	1.46	0.04	.	.	CLC	
11/21/97	QBN	27	1	349	8.9	ng/L	.	1.91	0.17	1.93	0.17	CLC	
11/26/97	QBN	28	2	512	7.7	ng/L	2	2.81	0.22	2.54	0.20	CLC	
12/4/97	QBN	29	1	37	6.8	ng/L	.	0.20	0.01	0.15	0.01	CLC	
12/18/97	QBN	30	1	2	56.7	ng/L	.	0.01	0.01	.	.	CLC	
12/23/97	QBN	31	2	791	3.6	ng/L	9	4.34	0.16	.	.	CLC	MULTEVNT
12/27/97	QBN	32	1	45.5	13.5	ng/L	.	0.25	0.03	.	.	CLC	
12/30/97	QBN	33	1	195	5.7	ng/L	.	1.07	0.06	.	.	CLC	
1/4/98	QBN	34	1	169	19.1	ng/L	.	0.93	0.18	.	.	CLC	
1/6/98	QBN	35	1	788	7.1	ng/L	.	4.32	0.31	.	.	CLC	
1/9/98	QBN	36	1	23	14.1	ng/L	.	0.13	0.02	.	.	CLC	
1/13/98	QBN	37	1	61	14.1	ng/L	.	0.33	0.05	.	.	CLC	
1/15/98	QBN	38	2	225	4.1	ng/L	3	1.23	0.05	1.78	0.07	CLC	
1/18/98	QBN	39	1	9	36.7	ng/L	.	0.05	0.02	.	.	CLC	
1/23/98	QBN	40	1	792	3.7	ng/L	.	4.34	0.16	3.25	0.12	CLC	
1/25/98	QBN	41	1	3	19.8	ng/L	.	0.02	0.00	.	.	BIL	

Hg in Precipitation
New England REMAP Project (YR1)

This file is output from PhaseIII.SAS program (output file = AMNETT.CSV)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit, GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value
FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt, FBK = Failed corresponding blank, LTC = less than the criteria of detection (0.5 ng/m3)
CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples, EST = %RSD > 10%, FFR = Failed field blank
EBK = estimated Bottle Check, EAB = estimated acid blank

EPA Analytical Flags: Same as above except BDL = Below system detection limit (3*SD of Blk-t), EST = %RSD > 20%, FPC = Control greater than 20% from expected value,.

FLC = Control greater than 20% from expected value and > largest Calibration Standard + 10%

Precip Date	Site	Sample #	Number of replicate analysis	Sample Volume (ml)	Precipitation Hg Concentration	Conc. Units	Precipitation Hg Conc. CV (%)	Precip Depth (cm) from Sample Volume	Deposition (ug/m2) from sample volume	Precip Depth (cm) from Belfort	Deposition (ug/m2) from Belfort	Analytical Flag	Field Remark Code
1/30/98	QBN	42	1	9	55.4	ng/L	.	0.05	0.03	.	.	CLC	
2/4/98	QBN	43	1	23	23.9	ng/L	.	0.13	0.03	.	.	CLC	
2/11/98	QBN	44	2	419	4.6	ng/L	2	2.30	0.11	2.29	0.10	CLC	
2/17/98	QBN	45	1	515	5.7	ng/L	.	2.82	0.16	2.74	0.16	CLC	MULTEVNT
2/24/98	QBN	46	2	206	4.2	ng/L	1	1.13	0.05	1.24	0.05	CLC	
2/28/98	QBN	47	1	109	19.9	ng/L	.	0.60	0.12	.	.	CLC	
3/5/98	QBN	48	1	55	8.7	ng/L	.	0.30	0.03	0.13	0.01	CLC	
3/8/98	QBN	49	1	984	5.0	ng/L	.	5.40	0.27	8.43	0.42	CLC	MULTEVNT
3/14/98	QBN	50	1	13	44.1	ng/L	.	0.07	0.03	0.53	0.24	CLC	
3/18/98	QBN	51	1	635	4.3	ng/L	.	3.48	0.15	3.43	0.15	CLC	
3/21/98	QBN	52	1	91	6.2	ng/L	.	0.50	0.03	1.73	0.11	CLC	
4/1/98	QBN	54	1	353	28.7	ng/L	.	1.94	0.56	1.78	0.51	CLC	
4/6/98	QBN	55	1	484	19.6	ng/L	.	2.65	0.52	2.21	0.43	CLC	
4/17/98	QBN	56	2	197	19.7	ng/L	1	1.08	0.21	0.89	0.17	CLC	
4/23/98	QBN	57	2	679	10.7	ng/L	4	3.72	0.40	4.01	0.43	CLC	
4/26/98	QBN	58	1	52	16.8	ng/L	.	0.29	0.05	0.13	0.02	CLC	
5/2/98	QBN	59	2	1	2384.8	ng/L	4	0.01	0.13	.	.	CLC	
5/4/98	QBN	60	1	56	11.0	ng/L	.	0.31	0.03	0.97	0.11	CLC	
5/6/98	QBN	61	2	821	6.3	ng/L	6	4.50	0.28	3.51	0.22	CLC	
5/7/98	QBN	62	2	599	17.2	ng/L	3	3.28	0.57	2.67	0.46	CLC	MULTEVNT
5/17/98	QBN	63	1	54	33.8	ng/L	.	0.30	0.10	0.28	0.09	CLC	
5/18/98	QBN	64	1	1	59.9	ng/L	.	0.01	0.00	.	.	CLC	
5/29/98	QBN	65	2	306	16.8	ng/L	4	1.68	0.28	1.02	0.17	CLC	
5/31/98	QBN	66	1	779	12.9	ng/L	.	4.27	0.55	3.94	0.51	CLC	
6/2/98	QBN	67	1	301	11.3	ng/L	.	1.65	0.19	1.02	0.11	CLC	
6/7/98	QBN	68	2	167.1	7.1	ng/L	2	0.92	0.07	0.66	0.05	CLC	
6/14/98	QBN	69	2	975.4	8.3	ng/L	3	.	0.66	8.00	0.66	CLC	MOVERFLOW
6/15/98	QBN	70	1	138.3	13.4	ng/L	.	0.76	0.10	0.76	0.10	CLC	
6/17/98	QBN	71	1	77.6	26.7	ng/L	.	0.43	0.11	0.64	0.17	CLC	
6/22/98	QBN	72	2	162.2	20.6	ng/L	4	0.89	0.18	2.41	0.50	CLC	
6/27/98	QBN	73	1	116.1	11.2	ng/L	.	0.64	0.07	1.27	0.14	CLC	MULTEVNT
6/30/98	QBN	74	1	959.7	11.6	ng/L	.	5.26	0.61	4.32	0.50	CLC	MULTEVNT

Particle-Phase Hg
New England REMAP Project (YR1)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed corresponding blank, LTC = less than the criteria of detection (1.0 ng/m3),

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples,

EST = %RSD > 10%.

EPA Analytic Remark Codes: CLC = normal calculated value,

BDL = Below method detection limit (3*SD of TAG1 field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (1.0 ng/m3), REJ = rejected value, FBK = Failed corresponding blank,

CAJ = value adjusted by error of adjacent control(s), EST = %RSD > 20%, FFR = Failed field blank.

Date on	Site	Sample #	TAG1	Air Volume (m ³)	Duration (min)	Particulate Hg Concentration STP corrected	Result Units	Analytic Remark Code	Field Remark Code
2/10/98	LKC	349	CYG	45.87	1450	27.4	pg/m3	CLC	HIFLOW
2/16/98	LKC	350	CYG	26.90	1437	14.1	pg/m3	CLC	
2/22/98	LKC	351	CYG	24.81	1392	8.0	pg/m3	CLC	
2/28/98	LKC	352	CYG	26.30	1454	12.5	pg/m3	CLC	
3/6/98	LKC	353	CYG	25.84	1433	9.2	pg/m3	CLC	
3/13/98	LKC	354	CYG	26.42	1407	16.3	pg/m3	CLC	
3/18/98	LKC	355	CYG	26.33	1440	8.6	pg/m3	CLC	
3/24/98	LKC	356	CYG	25.66	1443	13.4	pg/m3	CLC	
3/30/98	LKC	357	CYG	25.85	1430	8.5	pg/m3	CLC	
4/5/98	LKC	358	CYG	25.40	1430	5.2	pg/m3	CLC	
4/11/98	LKC	359	CYG	25.82	1436	20.2	pg/m3	CLC	
4/17/98	LKC	360	CYG	25.07	1443	3.8	pg/m3	CLC	
4/23/98	LKC	361	CYG	25.66	1428	8.2	pg/m3	CLC	
4/29/98	LKC	362	CYG	26.18	1436	43.6	pg/m3	CLC	
5/5/98	LKC	363	CYG	25.49	1452	1.0	pg/m3	BDL	
5/11/98	LKC	364	CYG	24.75	1404	9.2	pg/m3	CLC	
5/17/98	LKC	365	CYG	25.05	1437	5.7	pg/m3	CLC	
5/23/98	LKC	366	CYG	25.61	1455	4.9	pg/m3	CLC	
5/29/98	LKC	367	CYG	25.27	1441	4.2	pg/m3	CLC	
6/4/98	LKC	368	CYG	24.91	1433	3.0	pg/m3	CLC	
6/10/98	LKC	369	CYG	29.98	1678	8.1	pg/m3	CLC	
6/16/98	LKC	370	CYG	24.85	1413	0.5	pg/m3	BDL	
6/22/98	LKC	371	CYG	25.63	1442	1.8	pg/m3	BDL	
6/28/98	LKC	372	CYG	25.50	1428	3.0	pg/m3	CLC	
7/3/97	LKC	324	GLS	43.53	1420	6.7	pg/m3	CLC	
7/9/97	LKC	325	GLS	43.57	1400	7.0	pg/m3	CLC	
7/15/97	LKC	326	GLS	45.39	1440	5.1	pg/m3	CLC	
7/21/97	LKC	327	GLS	45.07	1440	11.7	pg/m3	CLC	
8/2/97	LKC	328	GLS	46.09	1445	7.0	pg/m3	CLC	
8/8/97	LKC	329	GLS	44.98	1435	8.3	pg/m3	CLC	
8/14/97	LKC	330	GLS	42.54	1350	5.6	pg/m3	CLC	
8/20/97	LKC	331	GLS	44.86	1530	16.0	pg/m3	CLC	
8/26/97	LKC	332	GLS	45.38	1430	10.4	pg/m3	CLC	
9/1/97	LKC	333	GLS	45.10	1425	8.2	pg/m3	CLC	
9/7/97	LKC	334	GLS	45.68	1460	5.0	pg/m3	CLC	
9/13/97	LKC	335	GLS	44.85	1425	7.1	pg/m3	CLC	
9/19/97	LKC	336	GLS	45.65	1440	23.3	pg/m3	CLC	
9/25/97	LKC	337	GLS	45.75	1450	15.2	pg/m3	CLC	
10/1/97	LKC	338	GLS	43.97	1440	3.7	pg/m3	CLC	
10/8/97	LKC	339	GLS	45.46	1450	10.4	pg/m3	CLC	
10/13/97	LKC	340	GLS	45.16	1425	14.0	pg/m3	CLC	
10/19/97	LKC	341	GLS	45.77	1445	14.1	pg/m3	CLC	

**Particle-Phase Hg
New England REMAP Project (YR1)**

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed corresponding blank,, LTC = less than the criteria of detection (1.0 ng/m3),

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples,

EST = %RSD > 10%.

EPA Analytic Remark Codes: CLC = normal calculated value,

BDL = Below method detection limit (3*SD of TAG1 field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (1.0 ng/m3), REJ = rejected value, FBK = Failed corresponding blank,

CAJ = value adjusted by error of adjacent control(s), EST = %RSD > 20%, FFR = Failed field blank.

Date on	Site	Sample #	TAG1	Air Volume (m ³)	Duration (min)	Particulate Hg Concentration STP corrected	Result Units	Analytic Remark Code	Field Remark Code
10/25/97	LKC	342	GLS	45.11	1405	34.8	pg/m3	CLC	
10/31/97	LKC	343	GLS	44.74	1440	11.7	pg/m3	CLC	
11/6/97	LKC	344	GLS	43.31	1380	8.5	pg/m3	CLC	
11/12/97	LKC	345	GLS	44.63	1435	4.3	pg/m3	CLC	
11/18/97	LKC	346	GLS	44.62	1440	13.0	pg/m3	CLC	
11/24/97	LKC	347	GLS	44.05	1440	2.4	pg/m3	CLC	
11/30/97	LKC	348	GLS	44.84	1430	4.5	pg/m3	CLC	
12/6/97	LKC	349	GLS	44.40	1440	3.6	pg/m3	CLC	
12/12/97	LKC	350	GLS	44.74	1435	10.5	pg/m3	CLC	
12/18/97	LKC	351	GLS	44.23	1410	12.6	pg/m3	CLC	
12/23/97	LKC	352	GLS	44.55	1440	6.8	pg/m3	CLC	
12/29/97	LKC	353	GLS	45.97	1445	8.6	pg/m3	CLC	
1/5/98	LKC	354	GLS	46.89	1440	8.9	pg/m3	CLC	
1/11/98	LKC	355	GLS	43.89	1440	7.9	pg/m3	CLC	
1/17/98	LKC	356	GLS	46.43	1440	11.8	pg/m3	CLC	
1/23/98	LKC	357	GLS	47.14	1440	2.5	pg/m3	CLC	
1/29/98	LKC	358	GLS	46.75	1441	24.2	pg/m3	CLC	
2/4/98	LKC	359	GLS	46.01	1437	16.9	pg/m3	CLC	
2/10/98	LKC	360	GLS	46.96	1445	31.0	pg/m3	CLC	
2/16/98	LKC	361	GLS	47.01	1438	16.0	pg/m3	CLC	
2/22/98	LKC	362	GLS	44.25	1401	8.5	pg/m3	CLC	
2/28/98	LKC	363	GLS	47.25	1454	11.9	pg/m3	CLC	
3/6/98	LKC	364	GLS	45.04	1433	11.7	pg/m3	CLC	
3/12/98	LKC	365	GLS	42.92	1392	30.0	pg/m3	CLC	
3/18/98	LKC	366	GLS	46.46	1439	10.6	pg/m3	CLC	
3/24/98	LKC	367	GLS	45.16	1444	11.3	pg/m3	CLC	
3/30/98	LKC	368	GLS	46.48	1433	11.6	pg/m3	CLC	
4/5/98	LKC	369	GLS	44.99	1432	7.2	pg/m3	CLC	
4/11/98	LKC	370	GLS	45.52	1436	24.2	pg/m3	CLC	
4/17/98	LKC	371	GLS	44.52	1445	5.4	pg/m3	CLC	
4/23/98	LKC	372	GLS	45.46	1428	8.3	pg/m3	CLC	
4/29/98	LKC	373	GLS	46.00	1439	32.4	pg/m3	CLC	
5/5/98	LKC	374	GLS	45.54	1454	2.6	pg/m3	CLC	
5/11/98	LKC	375	GLS	44.25	1408	11.6	pg/m3	CLC	
5/17/98	LKC	376	GLS	45.31	1440	11.1	pg/m3	CLC	
5/23/98	LKC	377	GLS	45.89	1458	5.8	pg/m3	CLC	
5/29/98	LKC	378	GLS	48.21	1443	7.9	pg/m3	CLC	NEX LATE
6/4/98	LKC	379	GLS	48.25	1436	4.1	pg/m3	CLC	
6/10/98	LKC	380	GLS	58.05	1683	11.5	pg/m3	CLC	
6/16/98	LKC	381	GLS	47.29	1413	2.9	pg/m3	CLC	DROPPED
6/22/98	LKC	382	GLS	50.19	1444	6.1	pg/m3	CLC	
6/28/98	LKC	383	GLS	50.82	1431	5.7	pg/m3	CLC	

Particle-Phase Hg
New England REMAP Project (YR1)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed corresponding blank,, LTC = less than the criteria of detection (1.0 ng/m3),

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples,

EST = %RSD > 10%.

EPA Analytic Remark Codes: CLC = normal calculated value,

BDL = Below method detection limit (3*SD of TAG1 field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (1.0 ng/m3), REJ = rejected value, FBK = Failed corresponding blank,

CAJ = value adjusted by error of adjacent control(s), EST = %RSD > 20%, FFR = Failed field blank.

Date on	Site	Sample #	TAG1	Air Volume (m ³)	Duration (min)	Particulate Hg Concentration STP corrected	Result Units	Analytic Remark Code	Field Remark Code
7/3/97	PRV	1	CYG	24.29	1485	6.1	pg/m3	CLC	
7/9/97	PRV	2	CYG	24.32	1488	3.4	pg/m3	CLC	
7/15/97	PRV	3	CYG	23.92	1454	8.1	pg/m3	CLC	
7/21/97	PRV	4	CYG	24.27	1485	32.1	pg/m3	CLC	CHECK TH
7/27/97	PRV	5	CYG	23.74	1452	2.0	pg/m3	BDL	
8/2/97	PRV	6	CYG	23.78	1452	16.6	pg/m3	CLC	
8/8/97	PRV	7	CYG	23.59	1449	20.7	pg/m3	CLC	
8/14/97	PRV	8	CYG	23.03	1440	19.1	pg/m3	CLC	
8/20/97	PRV	9	CYG	23.57	1444	24.1	pg/m3	CLC	
8/26/97	PRV	10	CYG	24.14	1447	26.5	pg/m3	CLC	
9/1/97	PRV	11	CYG	27.47	1675	8.7	pg/m3	CLC	
9/7/97	PRV	12	CYG	24.23	1443	11.7	pg/m3	CLC	
9/13/97	PRV	13	CYG	23.57	1437	7.4	pg/m3	CLC	
9/19/97	PRV	14	CYG	23.85	1438	24.9	pg/m3	CLC	
9/25/97	PRV	15	CYG	24.53	1469	30.0	pg/m3	CLC	
10/1/97	PRV	16	CYG	23.65	1457	18.8	pg/m3	CLC	
10/7/97	PRV	17	CYG	23.97	1477	25.3	pg/m3	CLC	
10/13/97	PRV	18	CYG	24.63	1440	19.8	pg/m3	CLC	
10/19/97	PRV	19	CYG	24.82	1460	19.5	pg/m3	CLC	
10/25/97	PRV	20	CYG	23.61	1380	10.1	pg/m3	CLC	
10/31/97	PRV	21	CYG	24.47	1438	10.4	pg/m3	CLC	
11/6/97	PRV	22	CYG	25.03	1474	11.5	pg/m3	CLC	
11/18/97	PRV	24	CYG	24.54	1450	34.5	pg/m3	CLC	
11/24/97	PRV	25	CYG	24.29	1463	6.0	pg/m3	CLC	
11/30/97	PRV	26	CYG	22.63	1464	33.5	pg/m3	CLC	
12/6/97	PRV	27	CYG	24.01	1444	17.3	pg/m3	CLC	
12/12/97	PRV	28	CYG	25.36	1463	77.4	pg/m3	CLC	
12/18/97	PRV	29	CYG	25.59	1526	94.5	pg/m3	CLC	
12/23/97	PRV	30	CYG	24.41	1459	13.0	pg/m3	CLC	
12/29/97	PRV	31	CYG	25.58	1478	8.3	pg/m3	CLC	
1/5/98	PRV	32	CYG	24.28	1439	40.7	pg/m3	CLC	
1/11/98	PRV	33	CYG	24.25	1441	23.9	pg/m3	CLC	
1/17/98	PRV	34	CYG	25.16	1484	39.5	pg/m3	CLC	
1/23/98	PRV	35	CYG	25.06	1457	2.0	pg/m3	BDL	
1/29/98	PRV	36	CYG	24.58	1472	42.3	pg/m3	CLC	
2/4/98	PRV	37	CYG	24.01	1430	4.3	pg/m3	CLC	
2/10/98	PRV	38	CYG	24.32	1431	36.3	pg/m3	CLC	SET UP B
2/16/98	PRV	39	CYG	24.61	1427	11.1	pg/m3	CLC	
2/22/98	PRV	40	CYG	24.32	1459	30.0	pg/m3	CLC	
2/28/98	PRV	41	CYG	23.97	1432	13.9	pg/m3	CLC	
3/6/98	PRV	42	CYG	23.96	1435	13.2	pg/m3	CLC	
3/12/98	PRV	43	CYG	24.91	1478	8.7	pg/m3	CLC	

**Particle-Phase Hg
New England REMAP Project (YR1)**

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed corresponding blank,, LTC = less than the criteria of detection (1.0 ng/m3),

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples,

EST = %RSD > 10%.

EPA Analytic Remark Codes: CLC = normal calculated value,

BDL = Below method detection limit (3*SD of TAG1 field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (1.0 ng/m3), REJ = rejected value, FBK = Failed corresponding blank,

CAJ = value adjusted by error of adjacent control(s), EST = %RSD > 20%, FFR = Failed field blank.

Date on	Site	Sample #	TAG1	Air Volume (m ³)	Duration (min)	Particulate Hg Concentration STP corrected	Result Units	Analytic Remark Code	Field Remark Code
3/18/98	PRV	44	CYG	25.27	1502	11.8	pg/m3	CLC	
3/24/98	PRV	45	CYG	24.88	1498	35.3	pg/m3	CLC	
3/30/98	PRV	46	CYG	23.81	1454	18.0	pg/m3	CLC	
4/5/98	PRV	47	CYG	23.43	1422	13.0	pg/m3	CLC	
4/11/98	PRV	48	CYG	23.69	1444	13.7	pg/m3	CLC	
4/17/98	PRV	49	CYG	23.55	1444	4.2	pg/m3	CLC	
4/23/98	PRV	50	CYG	24.80	1517	2.3	pg/m3	CLC	
4/29/98	PRV	51	CYG	25.19	1501	34.6	pg/m3	CLC	
5/5/98	PRV	52	CYG	24.91	1494	18.3	pg/m3	CLC	
5/11/98	PRV	53	CYG	24.08	1461	4.7	pg/m3	CLC	
5/17/98	PRV	54	CYG	25.22	1493	27.6	pg/m3	CLC	
5/23/98	PRV	55	CYG	24.20	1468	12.2	pg/m3	CLC	
5/29/98	PRV	56	CYG	23.40	1432	7.2	pg/m3	CLC	
6/4/98	PRV	57	CYG	24.16	1470	12.1	pg/m3	CLC	
6/10/98	PRV	58	CYG	24.86	1488	5.5	pg/m3	CLC	
6/16/98	PRV	59	CYG	24.35		7.6	pg/m3	CLC	
6/22/98	PRV	60	CYG	22.96	1393	1.7	pg/m3	BDL	
6/28/98	PRV	61	CYG	24.01	1440	3.8	pg/m3	CLC	
7/2/97	QBN	1	CYG	23.64	1440	3.0	pg/m3	CLC	
7/9/97	QBN	2	CYG	25.02	1440	1.6	pg/m3	BDL	
7/15/97	QBN	3	CYG	23.28	1440	2.5	pg/m3	CLC	
7/21/97	QBN	4	CYG	23.63	1440	8.5	pg/m3	CLC	
7/27/97	QBN	5	CYG	23.71	1445	4.2	pg/m3	CLC	
8/2/97	QBN	6	CYG	23.81	1440	5.8	pg/m3	CLC	
8/8/97	QBN	7	CYG	23.86	1440	22.8	pg/m3	CLC	
8/13/97	QBN	8	CYG	23.88	1440	15.9	pg/m3	CLC	
8/20/97	QBN	9	CYG	24.05	1457	5.5	pg/m3	CLC	
8/26/97	QBN	10	CYG	23.78	1440	11.2	pg/m3	CLC	
9/1/97	QBN	11	CYG	24.51	1454	1.2	pg/m3	BDL	
9/7/97	QBN	12	CYG	47.63	2910	3.7	pg/m3	CLC	
9/13/97	QBN	13	CYG	23.52	1439	2.9	pg/m3	CLC	
9/19/97	QBN	14	CYG	23.57	1440	23.8	pg/m3	CLC	
9/25/97	QBN	15	CYG	23.87	1435	9.7	pg/m3	CLC	
10/1/97	QBN	16	CYG	23.42	1430	3.3	pg/m3	CLC	
10/7/97	QBN	17	CYG	24.25	1442	7.0	pg/m3	CLC	
10/13/97	QBN	18	CYG	23.91	1440	9.3	pg/m3	CLC	
10/19/97	QBN	19	CYG	24.09	1443	6.1	pg/m3	CLC	
10/25/97	QBN	20	CYG	23.71	1440	34.5	pg/m3	CLC	
10/31/97	QBN	21	CYG	23.91	1440	5.3	pg/m3	CLC	
11/6/97	QBN	22	CYG	23.92	1440	12.0	pg/m3	CLC	
11/12/97	QBN	23	CYG	24.01	1440	8.1	pg/m3	CLC	
11/18/97	QBN	24	CYG	24.06	1441	120.1	pg/m3	CLC	

Particle-Phase Hg
New England REMAP Project (YR1)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed corresponding blank,, LTC = less than the criteria of detection (1.0 ng/m3),

CAJ = value adjusted by error of adjacent control(s), COM = combined temporally adjacent samples,

EST = %RSD > 10%.

EPA Analytic Remark Codes: CLC = normal calculated value,

BDL = Below method detection limit (3*SD of TAG1 field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (1.0 ng/m3), REJ = rejected value, FBK = Failed corresponding blank,

CAJ = value adjusted by error of adjacent control(s), EST = %RSD > 20%, FFR = Failed field blank.

Date on	Site	Sample #	TAG1	Air Volume (m ³)	Duration (min)	Particulate Hg Concentration STP corrected	Result Units	Analytic Remark Code	Field Remark Code
11/24/97	QBN	25	CYG	20.89	1440	2.4	pg/m3	BDL	
11/30/97	QBN	26	CYG	24.52	1473	13.4	pg/m3	CLC	
12/6/97	QBN	27	CYG	23.87	1440	27.3	pg/m3	CLC	
12/12/97	QBN	28	CYG	23.51	1440	15.5	pg/m3	CLC	
12/18/97	QBN	29	CYG	23.73	1440	45.1	pg/m3	CLC	
12/29/97	QBN	31	CYG	24.87	1457	3.2	pg/m3	CLC	
1/5/98	QBN	32	CYG	24.27	1443	42.5	pg/m3	CLC	
1/11/98	QBN	33	CYG	24.21	1469	14.9	pg/m3	CLC	
1/17/98	QBN	34	CYG	23.90	1440	37.4	pg/m3	CLC	
1/23/98	QBN	35	CYG	24.36	1440	7.0	pg/m3	CLC	
1/29/98	QBN	36	CYG	23.72	1440	11.5	pg/m3	CLC	
2/4/98	QBN	37	CYG	28.05	1665	10.7	pg/m3	CLC	
2/10/98	QBN	38	CYG	24.07	1440	45.8	pg/m3	CLC	
2/16/98	QBN	39	CYG	24.34	1437	2.4	pg/m3	CLC	
2/22/98	QBN	40	CYG	24.02	1443	11.6	pg/m3	CLC	
2/28/98	QBN	41	CYG	23.71	1440	16.5	pg/m3	CLC	
3/6/98	QBN	42	CYG	23.79	1440	8.6	pg/m3	CLC	
3/12/98	QBN	43	CYG	24.56	1445	9.4	pg/m3	CLC	
3/18/98	QBN	44	CYG	23.42	1440	2.9	pg/m3	CLC	
3/24/98	QBN	45	CYG	23.88	1440	9.6	pg/m3	CLC	
3/30/98	QBN	46	CYG	24.11	1440	21.2	pg/m3	CLC	
4/5/98	QBN	47	CYG	23.80	1438	3.5	pg/m3	CLC	
4/11/98	QBN	48	CYG	23.43	1440	6.7	pg/m3	CLC	
4/17/98	QBN	49	CYG	23.17	1440	7.0	pg/m3	CLC	
4/23/98	QBN	50	CYG	22.96	1440	4.5	pg/m3	CLC	
4/29/98	QBN	51	CYG	46.99	2850	14.3	pg/m3	CLC	
5/5/98	QBN	52	CYG	23.90	1455	1.2	pg/m3	BDL	
5/17/98	QBN	54	CYG	24.92	1501	14.4	pg/m3	CLC	
5/23/98	QBN	55	CYG	23.87	1440	7.7	pg/m3	CLC	
5/29/98	QBN	56	CYG	23.28	1440	3.2	pg/m3	CLC	
6/4/98	QBN	57	CYG	23.71	1448	4.8	pg/m3	CLC	
6/10/98	QBN	58	CYG	23.64	1440	4.9	pg/m3	CLC	
6/16/98	QBN	59	CYG	23.42	1442	2.2	pg/m3	BDL	
6/22/98	QBN	60	CYG	23.96	1450	1.5	pg/m3	BDL	
6/28/98	QBN	61	CYG	24.00	1441	2.9	pg/m3	CLC	

**Vapor Phase Hg
New England REMAP Project (YR1)**

Vapor Phase Mercury - All AMNE data, final (Phase III) processing. COMBINTT2.SAS output file = AMNETT.CSV.

Data are STP corrected to 1013.25mb and 25 degrees C

Concentrations are corrected by mean Field Blank Overall (from all sites combined)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than 1.1*calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed Field Blank, LTC = less than the criteria of detection (0.5 ng/m3).

EPA Analytic Remark Codes: CLC = normal calculated value, BDL = Below method detection limit (3*SD of study field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (0.5 ng/m3), REJ = rejected value.

Meteorology Note: NCDCAJ = Sample volumes corrected by Temp/Press data from nearest NCDC site,

adjusted by mean difference from old empirical observations. Suffix P is Pressure only, T is Temp only.

NODATA = Data not currently available

Date on	Time on	Duration (min)	Site	Sample #	STP corrected Sample Volume (m3)	Hg Concentration STP corrected	Units	Analytic Remark Code	Field Remark Code
1/1/00	9:55	1445	LKC	176	0.47	1.02	ng/m3	CLC	
6/21/97	9:50	1470	LKC	177	0.47	1.29	ng/m3	CLC	
6/27/97	10:00	1350	LKC	178	0.45	1.40	ng/m3	CLC	
7/3/97	10:20	1420	LKC	179	0.45	1.47	ng/m3	CLC	
7/9/97	10:40	1400	LKC	180	0.46	1.26	ng/m3	CLC	
7/15/97	9:15	1440	LKC	181	0.47	2.00	ng/m3	CLC	
7/21/97	9:30	1440	LKC	182	0.48	1.20	ng/m3	CLC	
8/2/97	9:45	1445	LKC	183	0.46	1.36	ng/m3	CLC	
8/8/97	9:55	1435	LKC	184	0.46	1.31	ng/m3	CLC	
8/14/97	11:00	1350	LKC	185	0.43	1.21	ng/m3	CLC	
8/20/97	9:30	1530	LKC	186	0.51	1.07	ng/m3	CLC	
8/26/97	9:30	1430	LKC	187	0.47	1.43	ng/m3	CLC	
9/1/97	10:15	1425	LKC	188	0.46	1.17	ng/m3	CLC	
9/7/97	9:30	1460	LKC	189	0.47	1.16	ng/m3	CLC	
9/13/97	9:55	1425	LKC	190	0.46	1.22	ng/m3	CLC	
9/19/97	10:00	1440	LKC	191	0.47	1.27	ng/m3	CLC	
9/25/97	9:30	1450	LKC	192	0.49	1.32	ng/m3	CLC	
10/1/97	10:15	1440	LKC	193	0.50	1.19	ng/m3	CLC	
10/8/97	9:45	1450	LKC	194	0.49	1.44	ng/m3	CLC	
10/13/97	9:25	1425	LKC	195	0.48	1.55	ng/m3	CLC	
10/19/97	9:40	1445	LKC	196	0.49	1.24	ng/m3	CLC	
10/25/97	10:30	1405	LKC	197	0.48	1.47	ng/m3	CLC	
10/31/97	10:00	1440	LKC	198	0.49	1.47	ng/m3	CLC	
11/6/97	10:40	1380	LKC	199	0.48	1.02	ng/m3	CLC	
11/12/97	10:15	1435	LKC	200	0.49	1.14	ng/m3	CLC	
11/18/97	11:00	1440	LKC	201	0.50	1.47	ng/m3	CLC	
11/24/97	10:10	1440	LKC	202	0.50	1.23	ng/m3	CLC	
11/30/97	10:20	1440	LKC	203	0.49	1.32	ng/m3	CLC	
12/6/97	10:10	1440	LKC	204	0.49	1.40	ng/m3	CLC	
12/12/97	10:10	1435	LKC	205	0.49	1.55	ng/m3	CLC	
12/18/97	10:00	1410	LKC	206	0.48	1.49	ng/m3	CLC	
12/23/97	10:30	1440	LKC	207	0.49	1.46	ng/m3	CLC	
12/29/97	10:15	1445	LKC	208	0.50	1.45	ng/m3	CLC	
1/5/98	10:20	1440	LKC	209	0.50	1.46	ng/m3	CLC	
1/11/98	10:50	1440	LKC	210	0.49	2.04	ng/m3	CLC	
1/17/98	11:00	1440	LKC	211	0.51	1.37	ng/m3	CLC	
1/24/98	13:54	1368	LKC	212	0.48	1.56	ng/m3	CLC	
1/29/98	10:52	1441	LKC	213	0.50	1.54	ng/m3	CLC	
2/4/98	10:14	1433	LKC	214	0.51	0.88	ng/m3	CLC	
2/10/98	12:23	1446	LKC	215	0.51	1.71	ng/m3	CLC	
2/16/98	10:25	1438	LKC	216	0.52	1.56	ng/m3	CLC	
2/22/98	10:49	1396	LKC	217	0.48	1.49	ng/m3	CLC	
2/28/98	10:50	1450	LKC	218	0.49	1.69	ng/m3	CLC	

**Vapor Phase Hg
New England REMAP Project (YR1)**

Vapor Phase Mercury - All AMNE data, final (Phase III) processing. COMBINTT2.SAS output file = AMNETT.CSV.

Data are STP corrected to 1013.25mb and 25 degrees C

Concentrations are corrected by mean Field Blank Overall (from all sites combined)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than 1.1*calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed Field Blank, LTC = less than the criteria of detection (0.5 ng/m3).

EPA Analytic Remark Codes: CLC = normal calculated value, BDL = Below method detection limit (3*SD of study field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (0.5 ng/m3), REJ = rejected value.

Meteorology Note: NCDCAJ = Sample volumes corrected by Temp/Press data from nearest NCDC site,

adjusted by mean difference from old empirical observations. Suffix P is Pressure only, T is Temp only.

NODATA = Data not currently available

Date on	Time on	Duration (min)	Site	Sample #	STP corrected Sample Volume (m3)	Hg Concentration STP corrected	Units	Analytic Remark Code	Field Remark Code
3/6/98	10:12	1432	LKC	219	0.49	1.58	ng/m3	CLC	
3/12/98	10:55	1390	LKC	220	0.49	42.64	ng/m3	GTL	
3/18/98	10:13	1437	LKC	221	0.49	2.28	ng/m3	CLC	
3/24/98	10:55	1440	LKC	222	0.50	1.71	ng/m3	CLC	
3/30/98	9:03	1450	LKC	223	0.48	1.54	ng/m3	CLC	
4/5/98	10:09	1431	LKC	224	0.49	1.49	ng/m3	CLC	
4/11/98	9:32	1433	LKC	225	0.48	1.79	ng/m3	CLC	
4/17/98	8:45	1442	LKC	226	0.46	1.86	ng/m3	CLC	
4/23/98	8:59	1428	LKC	227	0.48	1.57	ng/m3	CLC	
4/29/98	9:45	1438	LKC	228	0.48	1.72	ng/m3	CLC	
5/5/98	9:03	1451	LKC	229	0.47	1.74	ng/m3	CLC	
5/11/98	9:34	1406	LKC	230	0.46	1.68	ng/m3	CLC	
5/17/98	9:56	1442	LKC	231	0.46	1.69	ng/m3	CLC	
5/23/98	9:32	1457	LKC	232	0.48	1.59	ng/m3	CLC	
5/29/98	:43	1441	LKC	233	0.42	1.60	ng/m3	CLC	ADJUSTED
6/4/98	9:55	1436	LKC	234	0.43	1.23	ng/m3	CLC	
6/10/98	6:24	1681	LKC	235	0.49	1.40	ng/m3	CLC	PUT FRES
6/16/98	9:49	1416	LKC	236	0.42	1.35	ng/m3	CLC	
6/22/98	9:51	1444	LKC	237	0.42	1.67	ng/m3	CLC	
6/28/98	10:03	1432	LKC	238	0.43	1.43	ng/m3	CLC	
7/3/97	8:00	1470	PRV	1	0.44	1.77	ng/m3	CLC	
7/9/97	8:00	1482	PRV	2	0.43	2.02	ng/m3	CLC	
7/15/97	8:00	1454	PRV	3	0.42	2.83	ng/m3	CLC	
7/21/97	8:00	1475	PRV	4	0.44	2.43	ng/m3	CLC	
7/27/97	8:00	1444	PRV	5	0.43	3.31	ng/m3	CLC	
8/2/97	8:00	1455	PRV	6	0.43	2.51	ng/m3	CLC	
8/8/97	7:51	1464	PRV	7	0.44	2.23	ng/m3	CLC	
8/14/97	8:00	1441	PRV	8	0.43	2.65	ng/m3	CLC	
8/20/97	8:00	1446	PRV	9	0.44	1.85	ng/m3	CLC	
8/26/97	8:03	1448	PRV	10	0.44	2.35	ng/m3	CLC	
9/1/97	4:00	1675	PRV	11	0.51	2.48	ng/m3	CLC	
9/7/97	8:00	1442	PRV	12	0.44	2.31	ng/m3	CLC	
9/13/97	8:00	1438	PRV	13	0.44	2.45	ng/m3	CLC	
9/19/97	7:53	1440	PRV	14	0.44	2.09	ng/m3	CLC	
9/25/97	7:53	1470	PRV	15	0.46	1.92	ng/m3	CLC	
10/1/97	7:53	1457	PRV	16	0.44	6.97	ng/m3	GTL	
10/7/97	7:53	1477	PRV	17	0.45	2.87	ng/m3	CLC	
10/13/97	8:00	1440	PRV	18	0.45	2.45	ng/m3	CLC	
10/19/97	8:00	1460	PRV	19	0.46	1.84	ng/m3	CLC	
10/25/97	8:18	1380	PRV	20	0.44	2.01	ng/m3	CLC	
10/31/97	8:36	1440	PRV	21	0.46	2.31	ng/m3	CLC	
11/6/97	8:08	1476	PRV	22	0.48	2.17	ng/m3	CLC	
11/12/97	8:10	1445	PRV	23	0.47	1.54	ng/m3	CLC	

Vapor Phase Hg
New England REMAP Project (YR1)

Vapor Phase Mercury - All AMNE data, final (Phase III) processing. COMBINTT2.SAS output file = AMNETT.CSV.

Data are STP corrected to 1013.25mb and 25 degrees C

Concentrations are corrected by mean Field Blank Overall (from all sites combined)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than 1.1*calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed Field Blank, LTC = less than the criteria of detection (0.5 ng/m3).

EPA Analytic Remark Codes: CLC = normal calculated value, BDL = Below method detection limit (3*SD of study field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (0.5 ng/m3), REJ = rejected value.

Meteorology Note: NCDCAJ = Sample volumes corrected by Temp/Press data from nearest NCDC site,

adjusted by mean difference from old empirical observations. Suffix P is Pressure only, T is Temp only.

NODATA = Data not currently available

Date on	Time on	Duration (min)	Site	Sample #	STP corrected Sample Volume (m3)	Hg Concentration STP corrected	Units	Analytic Remark Code	Field Remark Code
11/18/97	8:00	1450	PRV	24	0.48	3.38	ng/m3	CLC	
11/24/97	8:06	1464	PRV	25	0.47	1.71	ng/m3	CLC	
11/30/97	8:07	1466	PRV	26	0.48	2.41	ng/m3	CLC	
12/6/97	8:06	1442	PRV	27	0.46	1.77	ng/m3	CLC	
12/12/97	8:07	1464	PRV	28	0.49	2.85	ng/m3	CLC	
12/18/97	8:07	1527	PRV	29	0.50	2.50	ng/m3	CLC	
12/23/97	8:07	1458	PRV	30	0.48	1.80	ng/m3	CLC	
12/29/97	8:07	1477	PRV	31	0.50	1.96	ng/m3	CLC	
1/5/98	8:23	1439	PRV	32	0.48	3.32	ng/m3	CLC	
1/11/98	8:15	1440	PRV	33	0.46	2.01	ng/m3	CLC	
1/17/98	7:22	1485	PRV	34	0.48	1.87	ng/m3	CLC	
1/23/98	7:55	1457	PRV	35	0.48	1.83	ng/m3	CLC	
1/29/98	7:59	1472	PRV	36	0.47	2.79	ng/m3	CLC	
2/4/98	8:55	1430	PRV	37	0.47	1.75	ng/m3	CLC	
2/10/98	8:39	1431	PRV	38	0.47	2.39	ng/m3	CLC	
2/16/98	8:32	1426	PRV	39	0.50	2.26	ng/m3	CLC	
2/22/98	7:45	1458	PRV	40	0.47		ng/m3	LTC	
2/28/98	8:29	1431	PRV	41	0.47	2.26	ng/m3	CLC	
3/6/98	8:07	1435	PRV	42	0.46	2.95	ng/m3	CLC	
3/12/98	8:06	1478	PRV	43	0.47	1.74	ng/m3	CLC	
3/18/98	8:06	1500	PRV	44	0.51	2.34	ng/m3	CLC	
3/24/98	8:07	1497	PRV	45	0.50	2.39	ng/m3	GTL	
3/30/98	8:44	1460	PRV	46	0.46	2.15	ng/m3	CLC	
4/5/98	9:11	1421	PRV	47	0.46	1.80	ng/m3	CLC	
4/11/98	8:25	1443	PRV	48	0.46	2.27	ng/m3	CLC	
4/17/98	8:24	1443	PRV	49	0.46	2.11	ng/m3	CLC	
4/23/98	8:27	1515	PRV	50	0.49	1.86	ng/m3	CLC	
4/29/98	8:27	1500	PRV	51	0.49	2.45	ng/m3	CLC	
5/5/98	8:31	1493	PRV	52	0.48	2.12	ng/m3	CLC	
5/11/98	8:48	1460	PRV	53	0.47	1.90	ng/m3	CLC	
5/17/98	8:27	1493	PRV	54	0.49	2.03	ng/m3	CLC	
5/23/98	8:20	1468	PRV	55	0.47	1.76	ng/m3	CLC	
5/29/98	8:10	1432	PRV	56	0.45	3.16	ng/m3	CLC	
6/4/98	8:31	1470	PRV	57	0.44	1.41	ng/m3	CLC	
6/10/98	8:27	1488	PRV	58	0.44	2.00	ng/m3	CLC	
6/16/98	8:28	1476	PRV	59	0.44	2.44	ng/m3	CLC	
6/22/98	9:06	1393	PRV	60	0.42	1.92	ng/m3	CLC	
6/28/98	8:29	1440	PRV	61	0.42	1.75	ng/m3	CLC	
7/2/97	10:00	1440	QBN	1	0.42	1.52	ng/m3	CLC	
7/9/97	8:30	1440	QBN	2	0.42	1.75	ng/m3	CLC	
7/15/97	8:30	1440	QBN	3	0.41	1.95	ng/m3	CLC	
7/21/97	8:30	1440	QBN	4	0.41	1.61	ng/m3	CLC	
7/27/97	8:30	1455	QBN	5	0.42	2.56	ng/m3	CLC	NOTRKFRM

Vapor Phase Hg
New England REMAP Project (YR1)

Vapor Phase Mercury - All AMNE data, final (Phase III) processing. COMBINTT2.SAS output file = AMNETT.CSV.

Data are STP corrected to 1013.25mb and 25 degrees C

Concentrations are corrected by mean Field Blank Overall (from all sites combined)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than 1.1*calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed Field Blank, LTC = less than the criteria of detection (0.5 ng/m3).

EPA Analytic Remark Codes: CLC = normal calculated value, BDL = Below method detection limit (3*SD of study field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (0.5 ng/m3), REJ = rejected value.

Meteorology Note: NCDCAJ = Sample volumes corrected by Temp/Press data from nearest NCDC site,

adjusted by mean difference from old empirical observations. Suffix P is Pressure only, T is Temp only.

NODATA = Data not currently available

Date on	Time on	Duration (min)	Site	Sample #	STP corrected Sample Volume (m3)	Hg Concentration STP corrected	Units	Analytic Remark Code	Field Remark Code
8/2/97	8:30	1440	QBN	6	0.42	1.54	ng/m3	CLC	
8/8/97	8:50	1440	QBN	7	0.42	1.46	ng/m3	CLC	
8/13/97	9:00	1440	QBN	8	0.42	1.35	ng/m3	CLC	
8/20/97	8:35	1457	QBN	9	0.43	1.75	ng/m3	CLC	
8/26/97	9:00	1440	QBN	10	0.42	2.09	ng/m3	CLC	
9/1/97	8:51	1454	QBN	11	0.42	1.75	ng/m3	CLC	
9/7/97	8:20	2910	QBN	12	0.86	1.68	ng/m3	CLC	
9/13/97	8:18	1440	QBN	13	0.43	1.45	ng/m3	CLC	NOROTDAT
9/19/97	8:50	1440	QBN	14	0.43	1.91	ng/m3	CLC	
9/25/97	9:10	1435	QBN	15	0.44	1.68	ng/m3	CLC	
10/1/97	8:40	1430	QBN	16	0.44	1.28	ng/m3	CLC	
10/7/97	9:08	1442	QBN	17	0.42	1.43	ng/m3	CLC	
10/13/97	8:50	1440	QBN	18	0.44	1.75	ng/m3	CLC	
10/19/97	8:57	1443	QBN	19	0.44	1.55	ng/m3	CLC	
10/25/97	8:28	1439	QBN	20	0.44	1.54	ng/m3	CLC	
10/31/97	8:50	1440	QBN	21	0.43	1.69	ng/m3	CLC	
11/6/97	9:05	1440	QBN	22	0.45	.	ng/m3	LTC	
11/12/97	8:40	1440	QBN	23	0.46	1.48	ng/m3	CLC	
11/18/97	9:34	1441	QBN	24	0.46	1.92	ng/m3	CLC	
11/24/97	8:45	1440	QBN	25	0.46	1.48	ng/m3	CLC	
11/30/97	8:47	1473	QBN	26	0.46	1.70	ng/m3	CLC	
12/6/97	8:28	1440	QBN	27	0.44	1.52	ng/m3	CLC	
12/12/97	10:10	1440	QBN	28	0.45	1.74	ng/m3	CLC	
12/18/97	8:30	1440	QBN	29	0.46	1.64	ng/m3	CLC	
12/29/97	8:55	1457	QBN	31	0.48	1.68	ng/m3	CLC	
1/5/98	8:42	1503	QBN	32	0.47	2.26	ng/m3	CLC	
1/11/98	8:32	1469	QBN	33	0.46	1.86	ng/m3	CLC	
1/17/98	9:14	1440	QBN	34	0.46	1.64	ng/m3	CLC	
1/23/98	10:00	1440	QBN	35	0.45	1.72	ng/m3	CLC	
1/29/98	8:40	1440	QBN	36	0.45	1.80	ng/m3	CLC	
2/4/98	9:25	1665	QBN	37	0.53	1.53	ng/m3	CLC	
2/10/98	9:00	1440	QBN	38	0.45	2.24	ng/m3	CLC	
2/16/98	8:48	1437	QBN	39	0.47	1.66	ng/m3	CLC	
2/22/98	8:47	1443	QBN	40	0.45	1.00	ng/m3	CLC	
2/28/98	8:30	1440	QBN	41	0.45	1.89	ng/m3	CLC	
3/6/98	9:25	1440	QBN	42	0.46	1.80	ng/m3	CLC	
3/12/98	8:45	1445	QBN	43	0.48	1.84	ng/m3	CLC	
3/18/98	8:40	1440	QBN	44	0.46	2.07	ng/m3	CLC	
3/24/98	8:40	1440	QBN	45	0.46	1.82	ng/m3	CLC	
3/30/98	8:45	1440	QBN	46	0.43	2.22	ng/m3	CLC	
4/5/98	9:12	1438	QBN	47	0.45	1.64	ng/m3	CLC	
4/11/98	9:08	1440	QBN	48	0.44	1.70	ng/m3	CLC	
4/17/98	9:00	1440	QBN	49	0.43	1.97	ng/m3	CLC	

**Vapor Phase Hg
New England REMAP Project (YR1)**

Vapor Phase Mercury - All AMNE data, final (Phase III) processing. COMBINTT2.SAS output file = AMNETT.CSV.

Data are STP corrected to 1013.25mb and 25 degrees C

Concentrations are corrected by mean Field Blank Overall (from all sites combined)

Analytical Flags: CLC = normal calculated value, BIL = Below machine detection limit,

GTL = greater than 1.1*calibrated limit (and no successful control above this value), REJ = rejected value,

FPC = Control greater than 10% from expected value, PCK = Value calculated from peak millivolt,

FBK = Failed Field Blank, LTC = less than the criteria of detection (0.5 ng/m3).

EPA Analytic Remark Codes: CLC = normal calculated value, BDL = Below method detection limit (3*SD of study-field blanks),

GTL = greater than 1.1*calibrated limit (and no successful control above this value),

FPC = Control greater than 20% from expected value, PCK = Value calculated from peak millivolt,

LTC = less than criteria of detection (0.5 ng/m3), REJ = rejected value.

Meteorology Note: NCDCAJ = Sample volumes corrected by Temp/Press data from nearest NCDC site,

adjusted by mean difference from old empirical observations. Suffix P is Pressure only, T is Temp only.

NODATA = Data not currently available

Date on	Time on	Duration (min)	Site	Sample #	STP corrected Sample Volume (m3)	Hg Concentration STP corrected	Units	Analytic Remark Code	Field Remark Code
4/23/98	8:45	1440	QBN	50	0.44	1.63	ng/m3	CLC	
4/29/98	9:10	2850	QBN	51	0.86	2.07	ng/m3	GTL	47.4 HRS
5/5/98	8:40	1455	QBN	52	0.44	1.80	ng/m3	CLC	
5/11/98			QBN	53			ng/m3	BDL	NOSAMPLE
5/17/98	8:34	1501	QBN	54	0.46	1.91	ng/m3	CLC	
5/23/98	8:31	1440	QBN	55	0.43	1.59	ng/m3	CLC	
5/29/98	9:15	1440	QBN	56	0.43	2.09	ng/m3	CLC	
6/4/98	8:40	1448	QBN	57	0.43	0.91	ng/m3	CLC	
6/10/98	8:42	1440	QBN	58	0.43	1.48	ng/m3	CLC	
6/16/98	8:50	1442	QBN	59	0.43	1.95	ng/m3	CLC	
6/22/98	9:00	1455	QBN	60	0.43	1.83	ng/m3	CLC	
6/28/98	8:58	1441	QBN	61	0.43	1.63	ng/m3	CLC	