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EXPOSURE TO ASBESTOS FROM DRINKING WATER IN THE UNITED STATES

by

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FOREWORD

The U.S. Environmental Protection Agency was created in response to increasing public concern about the dangers of pollution to the health and welfare of the American people and their environment. The complexities of environmental problems originate in the deep interdependent relationships between the various physical and biological segments of man's natural and social world. Solutions to these environmental problems require an integrated program of research and development using input from a number of disciplines.

The Health Effects Research Laboratory was established to provide sound health effects data in support of the regulatory activities of the EPA. Evaluating man's exposure to environmental health hazards is a key segment in developing such a data bank. Studies of exposure require identification, characterization and quantification of physical, chemical, and biological agents found in the environment. In addition, exposure assessment involves the determination of conditions that cause agents to be released into the environment, the study of the routes and pathways to man, and research into the body's ability to prevent the entrance of environmental hazards.

This report presents an assessment of the exposure to the U.S. population from asbestos in drinking water. Data for this evaluation were collected from surveys of the scientific literature, in-house analyses, and the results of work provided by analysts throughout the United States. An understanding of the extent of asbestos in the drinking water of the country is important in determining the potential health risk of ingested asbestos.

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ABSTRACT

Over 1500 asbestos analyses of water supplies in 43 states, Puerto Rico and the District of Columbia were evaluated in order to assess the exposure of the United States population to asbestos in drinking water. It was concluded that the large majority of U.S. water consumers are not exposed to concentrations of asbestos fibers above one million fibers per liter. In a few areas people are exposed to concentrations up to one hundred million fibers per liter. The majority of persons receiving water from asbestos-cement pipe distribution systems are not exposed to significant number of fibers from the pipe. In areas of aggressive water, however, water consumers using asbestos-cement mains may be exposed to high concentrations of fibers.

This report presents data on the exposure to waterborne asbestos fibers. Other projects are currently assessing the health effects of ingested asbestos and will be described in later reports.

A listing of a computerized waterborne asbestos data base is included as an Appendix.

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ABBREVIATIONS

A.I.	-- agressiveness index
ASTM	-- American Society for Testing and Materials
CMC	-- City of Chicago Water Department - Microscopy Unit, Chicago, Illinois
DOW	-- Dow Chemical Company, Midland Michigan
EDS	-- Energy dispersive spectroscopy (x-ray analysis)
EPC	-- Environmental Protection Agency Research Center, Cincinnati, Ohio
EPD	-- Environmental Protection Agency Research Laboratory, Duluth, Minnesota
EPG	-- Environmental Protection Agency Research Laboratory, Athens, Georgia
JMR	-- Johns-Mansville Research and Engineering Center
MCC	-- McCrone Associates, Chicago, Illinois
MDH	-- Minnesota Department of Health, Minneapolis, Minnesota
MFL	-- Million Fibers per Liter
MSS	-- Mount Sinai Hospital, New York City, New York
NMI	-- New Mexico Institute of Mining, Socorro, New Mexico
SEM	-- Scanning electron microscopy
TEM	-- Transmission electron microscopy
UCB	-- University of California, School of Public Health, Berkeley, California
UIL	-- University of Illinois, School of Public Health, Chicago, Illinois
UMD	-- University of Minnesota, Duluth, Minnesota
UWA	-- University of Washington, Department of Environmental Health, Seattle, Washington
WIS	-- University of Wisconsin

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SECTION 1

INTRODUCTION

Since the detection of asbestos fibers in water supplies was reported in 1973,[1,2] a great number of water samples from all over the U.S. have been analyzed for asbestos. Many of these analytical results have been published in various journal articles and agency reports. At least two publications,[3,4] contain tables in which an attempt was made to gather a number of values from the literature to summarize the asbestos concentrations present in surface waters and public water supplies. In order to assess the exposure to the U.S. population to asbestos from drinking water, however, it became apparent that a complete data base was needed. It was important that the base listings contained data about the method of analysis so an evaluation of the reliability of the data could be made. It was also important that the listings included asbestos results which while reported to an individual water utility or a specific researcher were not described in the general literature. A computerized waterborne asbestos data base of transmission electron microscopy analyses which could be updated periodically was initiated by the Health Effects Research Laboratory, USEPA-Cincinnati in 1978. A listing of the current asbestos analysis data file arranged by state, city and date of sample can be found in Appendix B. Data are also given as to the analyzing laboratory and type of method used to prepare the samples for asbestos analysis.

A number of factors influence the reliability of the asbestos counts on a water sample. These factors are described in the following sections and their influence in assessing the asbestos exposure to the U.S. from drinking water is discussed.

The purpose of this paper is to provide a current assessment of exposure to asbestos in drinking water. It is not within the scope of this report to evaluate the health implications of ingested asbestos.

SECTION 2

CONCLUSIONS

Based on the evaluation of the results of all available asbestos analyses of water supplies it is concluded that the majority of U.S. water consumers are not exposed to concentrations of asbestos fibers above one million fibers per liter. In a few areas, the Bay Area of California and some systems in the Pacific Northwest, some people are exposed to concentrations of asbestos fibers between one and one hundred million fibers per liter.

The majority of persons receiving water from asbestos-cement pipe distribution systems are not exposed to significant numbers of fibers from the pipe. Many residents using asbestos-cement pipe may be exposed to intermittent amounts of asbestos fibers in their water if pipe tapping work is done improperly. In areas of very aggressive water (estimated to be 16 percent of the U.S. water utilities) consumers using asbestos-cement mains may be exposed to high concentrations of fibers, over ten million fibers per liter.

Persons using water from cisterns where asbestos-cement tile roofing material is used to collect the water are exposed to high concentrations of fibers. Those using cisterns where the typical asphalt-asbestos shingles are used are not exposed to asbestos in their water. The possible contribution of asbestos containing paints and coatings to cisterns has not been studied.

All of the major water utilities using Lake Superior for a source have now installed filtration plants and populations in the cities around the lake are no longer exposed to significant fiber concentrations.

Storm erosion of asbestos waste piles may cause temporary high concentrations of asbestos in the water supply. Other than in the Duluth situation no industrial discharges have been directly related to asbestos in the drinking water.

More waterborne asbestos data is needed to provide a complete quantitative assessment of exposure.

SECTION 3

RECOMMENDATIONS

In order to better assess the exposure to asbestos in water in the United States the following steps should be taken:

1. The adoption by all laboratories of a standardized technique for analyzing asbestos in water.

2. The development of standard asbestos samples and a system by which different laboratories could easily split samples and compare results.

3. The adoption of standardized reporting methods including the re-reporting of blank data.

4. The development of a fuller understanding of which water quality parameters are the most important in predicting whether asbestos fibers would come off asbestos-cement pipe or not.

5. Further analyses of water supplies which are near mining, production or waste piles of asbestos, especially over a period including storms and other hydrological changes.

SECTION 4

METHODS FOR MEASURING ASBESTOS IN WATER

A variety of methods and procedures have been developed for the analysis of asbestos in water. Athough some x-ray methods have been employed,[5] the bulk of the asbestos concentrations in water supplies have been determined using some form of microscopy.

OPTICAL MICROSCOPY

An early work[6] in 1974 presented data on asbestos concentrations determined in Vermont water supplies by optical microscopy. The preparation and analysis procedure used[7] was an adaptation of the standard OSHA phase-contract optical microscope technique for counting asbestos fibers in occupational air samples.[8] While this technique allowed fibers larger than 5 μm to be seen, identification of the fibers as asbestos was not possible. Further work on the Vermont samples using optical dispersion staining and transmission electron microscopy (TEM) showed that the fibers upon which the optical asbestos concentrations were based were not, in fact, asbestos but fibers of biological origin.[9] The optical asbestos data in the 1974 report[6] is therefore totally inaccurate.

In one report[10] presenting asbestos data determined by electron microscopy it was indicated that no fibers were visible by optical microscopy in the samples.

During 1975-76 a test was made of the optical microscope as a possible screening tool for asbestos in water. The two laboratories involved were the Connecticut State Department of Health with high proficiency and several years experience in using the OSHA optical asbestos techniques and the USEPA laboratory in Cincinnati which had been analyzing water samples using transmission electron microscopy (TEM). Several filters which had been determined by TEM to contain substantial concentrations of asbestos fibers from asbestos-cement pipe systems and filters with concentrations which were below detectable TEM limits were sent to Connecticut with coded labels. The optical analyst correctly differentiated between the filters which had fibers and those that did not. A series of 101 Connecticut water samples were then split and analyzed by the two laboratories. The Connecticut State Department of Health analyst examined the samples using a modified OSHA technique as described in reference 7 with a further modification that the samples were ashed in a low termperature asher to eliminate the majority of biological fibers. The optical analyst reported that no positively identified asbestos fibers were found in any of the 101 samples. Four (4) samples contained possible asbestos

fibers. The TEM analyst reported that 12 of the 101 samples had definite asbestos concentrations but the asbestos fiber concentrations were determined to be below detectable limits in 3 of the 4 samples in which the optical analyses showed possible fibers. When the test was originally devised it was anticipated that the Connecticut samples would provide a range of asbestos concentrations from high to low loading. It became apparent by the end of the test that all the Connecticut samples had low or no fiber concentrations. In the 12 samples determined to have fiber concentrations by TEM, the fibers found were all smaller than could be seen by the optical microscope. Therefore, the results of the test cannot be considered conclusive. It is significant only that the optical analyses did not show positive asbestos when the TEM found none.

It has been suggested that polarized light microscopy with dispersion staining would be useful in analyzing samples containing asbestos fibers larger than 0.3 x 1.0 μm but it is generally recognized that the asbestos fibers in water are smaller than the resolving power of the light microscope techniques.[11] No optical data has been included in the waterborne asbestos data base and none was used in assessing waterborne asbestos exposure to the U.S.

For the quantitative determination of asbestos in drinking water the optical microscope cannot provide accurate data.

SCANNING ELECTRON MICROSCOPY

Several reports[12,13,14] have described asbestos analysis procedures for environmental samples using the scanning electron microscope (SEM). Direct comparisons between the SEM and TEM methods with samples of standard chrysotile fibers suggested that the SEM overlooked 30%[14] to 50%[15] of the total number of chrysotile fibers counted by TEM. When actual water samples with suspended amphiboles were used, the SEM overlooked 90% of the fibers counted by the TEM.[16] One group of asbestos analysts[17] concluded that the SEM was not as good as the TEM for asbestos measurement in water for the following reasons:

1. The SEM lacks the selected area electron diffraction capability for identification of fiber mineral type.

2. The SEM has an inferior imaging capability than the TEM at 20,000X.

3. The SEM cannot image the central canal of chrysotile.

4. Searching sample areas at 20,000X is more fatiguing with the SEM than TEM.

Other researchers[18] feel that with the research now on-going in the area of asbestos analysis by SEM-energy dispersive x-ray analysis (EDS), a standard survey procedure using the SEM could be developed to provide data on the presence of asbestos fibers in some environmental samples with confirmation by TEM. Correlations between SEM and TEM analyses using standardized techniques would have to be done.

In addition to the data presented in Flickinger[16], only one paper presenting waterborne asbestos concentrations determined by SEM was found in the literature.[19] Although particles in this study were examined at 10,000X, the entire stud surface was searched at a magnification between 400 and 1000X. The smaller asbestos fibers would not have been observed at the low magnification. Therefore, although the data showed that no high concentrations of large fibers were found in some drinking waters and surface sources in Tennessee, the data were not considered to be comparable to the TEM data and were not included in the computerized data base.

For the quantitative determination of asbestos in drinking water the SEM has not yet been shown to provide accurate data.

TRANSMISSION ELECTRON MICROSCOPY

There are a number of different sample preparation methods which have been used by the various research laboratories. For discussion the preparation procedures have been separated into the following classes.

1. Centrifuge method (C)
2. Rubout technique (R)
3. Double Nuclepore filter (B)
4. Drop Drying (D)
5. Millipore Condensation Washer (M)
6. Millipore Jaffe Wick (L)
7. Nuclepore Jaffe Wick (N)
8. Millipore Collapsed filter (E)

The identifying letter which follows each classification is the letter used in the data base (Appendix II) to indicate the analysis method used for each sample.

Centrifuge Method[20,21]

In one variation of this technique[21] water is filtered through a membrane filter, ashed at low termperatures and resuspended. The suspension is centrifuged onto a glass cover disc. The disc is dried and carbon-coated. Small sections of the film holding the particles are floated in water and picked up on electron microscope grids for TEM examination. Samples of Ontario, Canada drinking water were analyzed by this technique and reported by Kay.[22] The often quoted Lake Superior asbestos concentrations of 1-30 million fibers per liter presented in the paper by Cook et al.[5] were also the results of analyses using this technique. Some comparison of the centrifugation technique and the Nuclepore Jaffe technique can be found in a report of interlaboratory tests of asbestos analyses.[17] The total fiber counts using the centrifuge preparation method were 1/3 to 1/30 of the total counts using the Nuclepore Jaffe technique. While a number of Canadian waters were analyzed using some form of the centrifuge technique, only a few samples from U.S. water supplies (Lake Superior) were characterized using this method. The centrifuge technique is not currently being used.

Rubout Technique[23,24]

In this preparation method, the sample is filtered through a membrane filter, ashed at low temperatures and dispersed by grinding or ultrasonic action. The residue is then enmeshed in an organic film. Sections of film are cut and transferred to electron microscope grids. Fibers are counted and converted to a mass value on the basis of fiber size and the density of the asbestos type found. Because the true particle size distribution is destroyed, only a mass concentration can be determined. The rubout technique is not currently used to characterize asbestos concentrations in water although it has been used recently to estimate the amount of asbestos in an environmental air sample.[25] At least one researcher cites high particle losses as a serious disadvantage.[26] Data on the asbestos content in water supplies determined using the rubout technique are given in Appendix A. Although the conversion of fiber counts to mass values is discussed in Section 7, the validity of using the conversion factors with data determined using the rubout method has not been determined.

Drop Drying[27,28]

In this technique a micropipette is used to place a sample drop of known volumn on a coated grid. The water is allowed to evaporate leaving the suspended particulates on the grid. Fibers are counted in a number of grid openings and fibers per liter are calculated by assuming that the drop covers all or a known portion of the grid's surface. A concentration step using centrifugation has been used.[28] One group of researchers have used a drop procedure in which a water sample is filtered through a membrane filter (S. Ring, Minn. Dept. Health, 1979, Private Communication). The filter is low temperature ashed and a drop of the resuspended ultrasonically mixed ash is put on a coated grid. The drop is dried under a heat lamp. A comparison between grids prepared by the micropipette technique using this ashing step and grids prepared using the Nuclepore Jaffe wick procedure has been presented in reference 17. Results of both preparation techniques were presented for one Duluth water sample. In this case, the results using both methods were essentially the same.

Another researcher has published data on asbestos in water systems using the drop technique directly from the sample without concentration.[27,29] Some of the fiber counts reported by this researcher are extremely high values, over 2 billion fibers per liter. Many of the fibers were very thin (0.006 μm in diameter) and could not be accurately identified. Samples from some of the same sites analyzed by the Nuclepore Jaffe technique did not show over a million fibers per liter. No direct comparison tests have been made between this non-concentrated drop technique and other techniques. Because the results have not been able to be reproduced, the data of reference 28 is considered of questionable value in assessing asbestos exposure to the U.S. from drinking water. However, they are included in the computerized data base for comparison.

Double Nuclepore Filter[30,31]

In this method, the sample is filtered through a sequence of 0.8 μm and 0.2 or 0.1 μm pore size, polycarbonate Nuclepore filters. The filters are coated with silicon monoxide and a small disc is transferred to an electron microscope grid. The filter is dissolved by chloroform by wick action. Fibers are counted and recorded on grids from both filters and fibers per liter determined. In reference 31, some analytical results obtained using the double nuclepore filter method are compared with results on the same samples obtained using the Millipore condensation washer technique. The results for all five samples agreed within a factor of two. The double nuclepore filter technique is not currently being used to determine asbestos concentrations in drinking water.

Millipore Condensation Washer[9,32,33,34,35]

In this preparation technique, the sample is filtered through a Millipore filter. A small disc is cut from the filter and placed on a carbon coated electron microscope grid. The filter is gently dissolved in a condensation washer apparatus charged with acetone. Fibers per grid opening are determined and fibers per liter calculated. An inter-laboratory comparison[17] between the Millipore condensation washer technique and the carbon-coated Nuclepore Jaffe technique concluded that there were variable (0 to 84% between laboratories) and significant (mean = 30%) losses associated with samples containing amphiboles. The results were lower (mean = 14%) and less variable when condensation washing was used to prepare samples containing chrysotile. Studies by individual laboratories differ, apparently showing that the condensation washer preparation technique is very operator dependent. The condensation washer requires the careful regulation of the level of acetone condensation near a point in the condenser at or just below the position of the grid so that only acetone vapor dissolves the filter.

An indepth study by one laboratory involving 72 samples showed significant losses when comparing the Millipore condensation washer with the Nuclepore Jaffe technique.[36] However, according to studies by another laboratory, losses involved with a well regulated condensation washer are low and good precision (low variation) can be obtained.[37] Results obtained by two laboratories at different locations within the Environmental Protection Agency using both the Millipore condensation washer and the Nuclepore Jaffe wick procedures on the same samples showed that for amphiboles one laboratory had close comparisons between the two preparation techniques while the other laboratory did not.[38] For chrysotile, both laboratories found the same concentration independent of the preparation method used.

Four laboratories which have provided a large amount of the data on asbestos in water supplies using the condensation washer technique have data which show low losses or good comparisons between the Millipore condensation washer and the Nuclepore Jaffe procedure. One laboratory has developed a method of loss correction.[35]

The comparisons between the Millipore condensation washing and Nuclepore Jaffe wick procedure presented in Tables 1 and 2, show the best correlation

TABLE 1. COMPARISON OF MILLIPORE CONDENSATION WASHING AND NUCLEPORE JAFFE WICK TECNHIQUES (LAB EPC)

Sample#	Asbestos Type	Millipore (MFL)	Nuclepore (MFL)
3	Amphibole	120	140
4	Amphibole	48	58
6	Chrysotile	50	60
A1	"	19	23
A2	"	4.5	8.0
A3	"	6.1	5.3
A4	"	2.1	2.6
A5	"	.3	.7
37617	"	.4	.35
37471	"	.2	N.15*
36535	"	BO.01**	BO.03
37512	"	0.4	NO.15
37585	"	BO.01	BO.03
36433	"	0.2	NO.15
37578	"	NO.16	BO.1
36501	"	BO.01	BO.03
36535	"	BO.01	BO.03
36580	"	0.16	NO.5
37592	"	0.09	NO.15
36570	"	0.08	NO.15
36571	"	0.1	NO.15
37503	"	NO.05	BO.03

* N - less than 5 fibers counted
** B - Below the detectable limits of 0.01
Variations in detectable limits and significant levels are due to differences in the amount filtered.

TABLE 2. COMPARISON OF MILLIPORE CONDENSATION WASHING AND NUCLEPORE JAFFE WICK TECHNIQUES (LAB UWA)

Sample#	Asbestos Type	Millipore (MFL)	Nuclepore (MFL)
174-MM-2200	Chrysotile	NO.03*	NO.07
174-CMM-2200	"	BO.01**	NO.07
174-CC-2100	"	NO.04	BO.03
174-CC-2130	"	BO.03	0.71
174-CC-2200	"	NO.01(1 fiber)	BO.07
174-R-2120	"	1.9	2.2
161-MM-1200	"	NO.01(1 fiber)	BO.14
161-MM-2100	"	BO.01	NO.03(1 fiber)
161-FE-1200	"	BO.01	NO.03(1 fiber)
161-CC-1200	"	BO.01	NO.03(1 fiber)
161-CC-2100	"	NO.01(1 fiber)	BO.03

* N - less than 5 fibers counted
** B - below the detectable limits of 0.01

when the concentrations are high. This is to be expected since the more fibers that are counted, the more statistically valid the value determined.

Because of the general acceptance of the Nuclepore Jaffe wick procedure, the Millipore condensation washer technique is now used to analyze water samples for asbestos in only a few laboratories.

Nuclepore Jaffe Wick Technique[24,32,39]

In this technique, water is filtered through a Nuclepore filter. A section of the filter is attached to a glass slide and a deposit of carbon is evaporated onto the particulates and filter. A small section is cut and placed on an electron microscope grid. The filter is dissolved using a modified Jaffe wick apparatus.[40] This technique is fairly straightforward and a number of different laboratories analyzing the same sample have agreed on fiber concentrations within a factor of two.[17,38] An interlaboratory reproducibility of 50% can be expected in relatively clean water samples unless the concentration is low.[17]

The Nuclepore Jaffe wick technique is generally gaining acceptance as the basis for a standard reference method for the analysis of asbestos in water by electron microscopy.[32,41]

Millipore Collapsed Filter[42,43]

In this technique a water sample is filtered through a Millipore filter. The filter is dried and a section is cut and placed on a glass slide. The filter is exposed for a short period of time to acetone vapors so that the rough surface of the membrane filter smooths out. The filter is then carbon-coated. A small section is cut and placed on a grid. The filter is dissolved away in a Jaffe wick apparatus. Although this technique is presently being used with the analysis of fibers in air by the National Institute of Occupational Safety and Health (NIOSH),[44] no data concerning asbestos in water determined using the Millipore collapsed filter technique could be found.

APPRAISAL OF ANALYTICAL TECHNIQUES

Currently the instrument of choice for quantitative analysis of asbestos in drinking water is the transmission electron microscope. Although optical microscopy may be useful in examining asbestos plant air samples, a drinking water sample might contain millions of small fibers which would go undetected under optical analysis. Sample analyses done with the scanning electron microscope have not been comparable to analyses done on the same samples using TEM. Because of the problems in SEM with routinely resolving the very thin fibers, the SEM counts are generally lower than those done with TEM.

Among the various sample preparation methods for TEM, the Nuclepore Jaffe wick technique is the most reproducible between laboratories. Asbestos concentrations determined by this method should be considered reliable within a factor of three. Asbestos concentration values determined using the Millipore condensation washer and Millipore Jaffe wick techniques should be considered reliable within a factor of five for chrysotile and a factor of 10 for amphi-

bole. Data determined using the centrifuge method should be considered to be low by a factor of from five to thirty times. It is difficult to assess the reliability of the data determined using the rubout technique since in this process fibers are broken up and many smaller fibers are created. Direct counts made from the rubout would not be reliable. The reliabilities of data generated using the drop drying or Millipore collapsed filter technique have not been fully assessed. The very high values reported by a researcher using the non-concentrated direct drop drying method are in question.

The influence on reliability of differing sample collection, preservation, and low temperature ashing procedures between laboratories has not been fully addressed.

SECTION 5

INTERLABORATORY COMPARISONS

Consideration of the results of split sample analyses performed by different laboratories is important in assessing the comparability and reliability of the asbestos data which has been generated. In an early split-sample study,[45] six laboratories showed considerable variation concerning the amphibole fiber concentration in water. Important causes of the variation were differences in sample preparation and the definition of amphibole fiber. Three laboratories in the study with similar preparation techniques and definitions of amphibole fiber had much less variation between them.

An (ASTM) American Society for Testing and Materials interlaboratory comparison[17] provided better data on reproducibility of asbestos analyses between laboratories since in some tests all laboratories used the same method. The ASTM group concluded that the mean fiber concentrations by different groups could agree within a factor of two when the Nuclepore Jaffe Wick technique was used. Several laboratories which have published or provided waterborne asbestos data that has been included in the computerized data base participated in the ASTM comparison. Therefore some data comparing the results of the following laboratories: EPA, Cincinnati (EPC), EPA, Duluth (EPD), EPA, Athens, Georgia (EPG), McCrone Associates (MCC), Dow Chemical (DOW), Mt. Sinai Hospital, New York (MSS), and the Minnesota Department of Health (MDH), are included in Table 3.

TABLE 3. COMPARISON OF ASBESTOS RESULTS FROM SEVERAL LABORATORIES[17] (NUCLEPORE JAFFE WICK)

Sample Type	Number of Labs Reporting	Mean Fiber Concentration MFL (millions of asbestos fibers/l)	Precision Relative Standard Deviation
Chrysotile	10	877	35%
"	9	119	43%
"	11	59	41%
"	9	31	65%
"	9	28	32%
"	3	25	35%
Amphibole	11	139	50%
"	4	95	52%
"	14	36	66%

A comparison of results obtained on the same samples by the three EPA laboratories using the Nuclepore technique is given in the following table.

TABLE 4. COMPARISON OF ASBESTOS RESULTS FROM LABS EPG, EPD, AND EPC[38] (VALUES IN MILLIONS OF FIBERS PER LITER)

Sample	Asbestos Type	Lab A	Lab B	Lab C
1	Amphibole	137	150	---
2	Amphibole	86	92	---
3	Amphibole	130	220	140
4	Amphibole	44	58	58
5	Chrysotile	29	14	---
6	Chrysotile	66	58	60

Some other split-sample analysis results are presented in Tables 5, and 6.

TABLE 5. COMPARISON OF ASBESTOS RESULTS FROM LABS EPC AND CMC. SAMPLES COLLECTED 3/3/75. MILLIPORE CONDENSATION WASHING TECHNIQUE USED. (VALUES IN MILLIONS OF FIBERS PER LITER).

Sample	Asbestos Type	EPC	CMC
Raw Water	Chrysotile	2.76	2.05
Finished Water	"	0.38	0.31
Distributed Water	"	0.12	0.32

TABLE 6. COMPARISON OF ASBESTOS RESULTS FROM LABS EPC AND UCB. SAMPLES COLLECTED 2/77. MILLIPORE CONDENSATION WASHING TECHNIQUE USED. (VALUES IN MILLIONS OF FIBERS PER LITER).

Sample	Asbestos Type	EPC	UCB
4815	Chrysotile	1.5	1.9
4816	"	0.5	0.4
4817	"	1.0	0.1

Laboratories EPC and UWA each analyzed half of a filter containing a standard dispersion of fibers using the Nuclepore Jaffe Wick techniques of preparation. Lab EPC found 510 million fibers per liter and Lab UWA found 870 million fibers per liter.

Plans for other split sample analyses are underway. Interested laboratories should contact the first author.

Split sample results of some type exist for twelve of the fifteen laboratories whose waterborne asbestos data has been considered. In general comparisons between laboratories are within a factor of 10, especially when the same method was used.

SECTION 6

OTHER CONSIDERATIONS IN EVALUATING ASBESTOS DATA

In addition to considering differences between methods and laboratories' the areas of contamination, counting statistics, and fiber identification must be considered when evaluating the various reports of asbestos concentrations in water supplies.

CONTAMINATION

Because asbestos is used in many everyday products, the problems of contamination of water samples must be considered. A sample may be contaminated during collection as was suggested in the case of a sample of distribution water collected at an asbestos-cement sheet plant in New Orleans on 12/5/75.[34] The fiber concentration of the sample was determined to be "too numerous to count" (many millions of fibers). However, four samples analyzed on previous days from the same site showed low or below detectable limits of fibers. It was concluded by the analyzing laboratory that the high fiber concentration in the 12/5/75 sample was most probably the result of contamination from the asbestos plant. Distribution samples from Erie, Pennsylvania and Marshville, North Carolina collected at asbestos plants showed wide variations in asbestos concentrations. It is suspected that some of the water samples were contaminated from the asbestos plant air, causing the variation. In view of these problems the distribution system asbestos concentrations determined for St. Louis, Missouri and Van Buren, Arkansas must be considered uncertain since the samples were also collected at asbestos plants.

Contamination from the air within a laboratory or cross-contamination between samples must also be considered. All laboratories surveyed followed procedures of rinsing all equipment, glassware, etc., with filtered distilled water and had data to show that the area in which the samples were prepared posed no significant contamination problems. Most laboratories ran blank samples with each group of analyses. In general, the contamination levels reported by researchers whose data is listed in the computerized data base were sporatic but low. These levels may cause some uncertainty in the fiber concentrations under one million fibers per liter unless blank analysis values were reported along with the sample analysis data. Later data (post-1975) should be considered less affected since the problems of contamination were more seriously considered. It is apparent that all fiber count data should be reported with blank values and steps are being undertaken to include this data in the computerized data base.

STATISTICAL SIGNIFICANCE

Even without the problems of possible contamination one cannot have a great deal of confidence in a fiber concentration determined on the basis of one fiber counted. Because electron microscope magnifications over 10,000X must be used to search for asbestos fibers in a water sample, only a relatively small portion of the sample is examined. In some cases one fiber found in TEM asbestos analyses may correspond to 50,000 fibers per liter. Several researchers have considered the problems of statistical significance in fiber counts.[36,46,47] The most reasonable approach would appear to be the determination of 95% confidence intervals as described in reference 36. The confidence intervals provide a range within which the actual fiber concentration has a high likelihood of being found. No waterborne asbestos data which included confidence intervals were found in the literature prior to 1979, however, several laboratories are currently incorporating the statistical procedure into their reporting of data.

The distribution of fibers on a filter can be described in terms of the Poisson distribution. Theoretical considerations of the characteristics of a Poisson distribution suggest that if 100 fibers are counted, the range between the upper and lower confidence limits will be small in relationship to the concentration value determined. Unfortunately, in many samples it is impossible to search long enough to find 100 fibers. When the total fiber count is less than 5 fibers, the statistics are particularly poor. The upper and lower confidence limits are about $\pm$ 100%. The lower limit therefore includes the zero (0) concentration. Because of the high statistical variation associated with fiber counts under 5 fibers, concentration values determined on the basis of less than 5 fibers counted are listed in the computerized data base preceded with an "N". These values, while evidence that asbestos was present in the sample, are considered not statistically significant. They were not given much weight in the assessment of exposure to the U.S. population from drinking water.

DEFINITION AND IDENTIFICATION

Entire symposia[48,49] have been devoted to discussions concerning the definitions of fiber and asbestos fiber. The general rule used by analysts providing data that has been included in the computerized data base defines a fiber as any particle that has parallel sides and a length/width ratio greater than or equal to 3:1. Other definitions, aspect ratios of 5:1 or 10:1 or 20:1, have been suggested but until a standard definition is agreed upon most researchers feel that data should be collected on all fibers. Size data has been collected with most fiber count analyses and if necessary the concentrations could be reevaluated in terms of a standard aspect ratio different from 3:1.

Identification of asbestos fibers as chrysotile or amphibole is made by reference to standard asbestos fibers on the basis of morphology, electron diffraction and in some cases, x-ray elemental analysis. The identification of chrysotile is fairly straightforward because the fibrils generally show a tubular structure with a hollow canal and often a distinctive diffraction pattern. The identification of fibers as amphibole is generally based on

morphology and visual recognition of the electron diffraction pattern in the electron microscope.[26,32] Visual identification of amphibole patterns on the microscope screen is subjective in nature and the possibility for misidentification exists.[50] Fortunately amphibole fibers have not been found in a large number of water supplies. In the three areas where amphiboles have been found more than once in sampling, Lake Superior, the Pacific Northwest, and some systems with asbestos-cement pipe, the presence of amphibole has been confirmed by energy dispersive x-ray analysis, careful measurements on photographs of electron diffraction patterns, and/or x-ray diffraction.

The problems of identification of asbestos fibers in water samples may cause the asbestos concentrations determined to be understatements of the actual asbestos fiber concentrations.

SECTION 7

FIBER COUNT TO MASS CONVERSION

No acceptable procedure exists for determining the mass of asbestos in a water sample directly. A mass value for a sample is computed using data on the fiber concentration, the lengths and widths of the fibers observed, and the density of the asbestos type involved. Examples of the equations used to calculate mass can be found in reference 32.

One report[22] suggests that a million chrysotile fibers in a natural water sample corresponds to between 0.0002 and 0.002 µg. A million chrysotile fibers from asbestos-cement cooling tower panel erosion has been estimated to weigh from 0.01 to 0.2 µg.[3] The differences between conversion factors in the two reports illustrates the fact that fibers from different types of sources have different average fiber length and diameter characteristics. Fibers from the natural erosion of serpentine rock tend to be shorter and of smaller diameter than those eroded from products containing commercial asbestos. Some average conversion factors are given in Table 7.

TABLE 7. RELATIONSHIP OF FIBER AND MASS CONCENTRATIONS OF CHRYSOTILE ASBESTOS IN WATER.

Fiber Source	Average Mass Concentration of 10^6 f/liter	
Natural erosion of serpentine rock (shorter fibrils)	0.002	µg/1
A/C pipe (longer fibers)	0.01	µg/1
Contributions from commerical dump site runoff and untreated discharge (more fiber bundles)	0.05	µg/1

Conversion factors for amphibole fiber in Lake Superior water average approximately 0.2 µg/1 for each 10^6 fibers per liter.

Using the average conversion factors given in Table 7, the mass concentrations of asbestos in the drinking water samples listed in Appendix B (excluding raw and effluent samples) range from below 10^{-4} µg/1 to above 5 µg/1.

Using the conversion factor of 0.005 µg/1 per 10^6 fibers per liter to convert from mass to fiber count, the estimated fiber concentrations for the

mass values in Appendix A range from 0.16 to 340 MFL. The sample with the highest concentration (Memphis, Tennessee, 1.69 µg/l) was collected from a point in a non-asbestos distribution line. This city has been resampled and analyzed using the Nuclepore Jaffe wick technique. Samples from the source and the non-asbestos cement pipe distribution line were below detectable limits (below 0.02 MFL). A sample collected after a length of asbestos-cement pipe showed a concentration of 0.4 MFL, 0.002 µg/l of asbestos fiber. The difference between the two results suggest either an elimination of the asbestos problem since the first sampling or possible contamination in the original analysis.

Although many chemical water parameters are reported in terms of mass per liter, asbestos does not lend itself to be accurately quantified on the basis of mass. For example, if two samples each containing one million small fibers per liter are analyzed, the sample in which a large fiber (20 µm long by 5.0 µm wide) is found may have several times the calculated mass value of the other. Since each fiber is thought to be capable of acting as an independent agent as is a molecule of a chemical contaminant, it would seem most reasonable to consider asbestos concentrations in terms of fibers per liter. If a water were reported to contain 0.03 µg/l, it might have a concentration of 1,000 active agents per liter (average fiber size 5 µm long by 1.7 µm wide) or 16,000,000 active agents per liter (average fiber size 1.0 µm long by 0.03 µm wide).

Most asbestos in water supply data is now being reported in terms of fiber count. If necessary, mass values could be computed from the count and fiber size data.

SECTION 8

ASSESSMENT OF EXPOSURE

Over 1500 individual sample results determined by fifteen different laboratories were evaluated in assessing the exposure to the U.S. population from asbestos in drinking water. Some city water supplies such as the supply at Duluth, Minnesota have had a number of water samples analyzed for asbestos. As of February 1, 1979, 365 different cities or water supplies were represented by at least one analysis. A summary of the data on these 365 cities is presented in Table 8.

TABLE 8. DISTRIBUTION OF REPORTED ASBESTOS CONCENTRATIONS IN DRINKING WATER FROM 365 CITIES IN 43 STATES, PUERTO RICO AND THE DISTRICT OF COLUMBIA.

Asbestos Concentration (10^6 fibers/l)	Number of Cities	Percentage of Samples
Below detectable limits	110	30.1
Not Statistically Significant	90	24.6
Less than 1	90	24.6
1-10	34	9.3
Greater than 10	41	11.2
Total	365	99.8

Of the 365 cities, 165 or 45.3% were reported to have significant concentrations of asbestos fibers in the drinking water. In an effort to provide the most complete listing of waterborne asbestos data, Appendix II was updated to contain all data received up to the time this manuscript was sent to the printers. Appendix II therefore contains data on more cities than the 365 summarized in Table 8.

Tables 9 and 10 present data on the cities in which asbestos concentrations of over one million fibers per liter were reported. An evaluation of the reliability of the data was made on the basis of the areas described in the previous sections.

LAKE SUPERIOR WATER SUPPLIES

Samples of drinking water prior to 1977 from Duluth, Minnesota have been found to contain amphibole fiber concentrations up to 644 million fibers per liter. Several analyses by different laboratories have shown fiber concentrations over 100 MFL. After the filtration plant began operation in 1977

TABLE 9. DRINKING WATERS REPORTED TO HAVE OVER 10 MILLION ASBESTOS FIBERS PER LITER.

City	Reported Concentration (MFL)	Probable Source	Notes
Duluth, MN	up to 644	Mining processing discharge	Drinking water levels now below 1 MFL
Beaver Bay, MN	up to 92	" "	" " " " " " "
Two Harbors, MN	up to 200	" "	
San Francisco, CA (and cities within the Bay Area)	up to 130	Natural erosion of serpentine rock	Studies to reduce turbidity underway
Seattle (Tolt), WA	up to 25	Natural erosion	Pilot filtration plant in operation
Everett, WA	up to 143	" "	" " " " "
St. Croix (Cistern), VI	up to 543	Asbestos-cement roof	Approx. 5 buildings on the island use this type of system
Socorro, NM	up to 2000	Unknown	Values questionable. Could not be reproduced
Algodones, NM	up to 710	"	
Pojoaque, NM	up to 194	"	
Santa Fe, NM	up to 100	"	
Bishopville, SC	up to 547	Asbestos-cement pipe	Aggressive water
Kentucky Dam Village, KY	up to 45	" "	" "
Pensacola, FL	up to 32	" "	Current levels below 2 MFL
Lakeland, FL	up to 16	" "	H_2S attack on pipe, corrective studies underway
Paint, PA	up to 19	" "	Aggressive water
Amherst, MA	up to 190	Asbestos-cement pipe tapping	Low concentrations in the system, but high in hydrants
Farmington, CT	up to 10.2	" "	Resampling showed much lower concentration
Danville, KY	up to 74	Erosion of waste pile	System being resampled
Atlanta, GA	Intermittent	Possible storm caused erosion	Samples analyzed by other labs showed no asbestos

City	Reported Concentration (MFL)	Probable Source	Notes
Philadelphia, PA	Intermittent	Possible storm caused erosion	Resampling showed low asbestos concentrations
Erie, PA	(160)	Contamination of sample	City distribution sample taken at asbestos plant
Marshville	(88)	" "	" " " " " "
Van Buren	(40)	" "	" " " " " "

TABLE 10. DRINKING WATERS REPORTED TO HAVE BETWEEN 1 AND 10 MILLION ASBESTOS FIBERS PER LITER

City	Reported Concentration (MFL)	Probable Source	Notes
Albuquerque, NM	3	Unknown	
Bay City, MI	1.2	Erosion	
Iron River, MI	4.0	"	
Cheyene, WY	1.2	Unknown	
Middlebury, CT	1.4	Reservoir	
Newtown, CT	1.4	"	
Sprague, CT	1.8	"	
Greenwood, SC	3.1	Asbestos-cement pipe	Aggressive water
Newport, RI	1.0	Unknown	
North Troy, VT	2.2	Erosion of natural serpentine	
San Francisco, CA (and cities within the Bay Area)	up to 9	Erosion of natural serpentine and some A/C pipe	
Levinworth, WA	4.1	Erosion	
Superior, WI	4.0	Mining processing discharge	
Harrodsburg, KY	6.0	Erosion	
St. Louis, MO	4.9	Unknown	Possible sample contamination, sample taken at asbestos plant
Weaverville, CA	4.5	Natural erosion	
Ashland, WI	1.0	Mining processing discharge	Lake Superior Source

fiber concentrations in the drinking water dropped considerably. Recent data suggests that the fiber concentrations in Duluth drinking water are now below 0.1 MFL and often below 0.01 MFL. The source of mineral fibers in Lake Superior, the water supply for Duluth and other cities is related to a mining processing discharge. The main discharge of fibrous amphiboles into Lake Superior began about 1956 but it may have taken years for the fibers to migrate south in the Lake currents to Duluth. Concentrations of fibers in the raw lake water are known to vary with weather conditions. Storms on the lake resuspend settled fibers from the lake sediments and result in high concentrations of amphibole in the water. It is estimated that Duluthian residents were exposed to concentrations of amphibole fibers from 30-300 MFL for a period of about 17 years, from about 1960 to 1977.

Several other water supplies around Lake Superior have been tested for amphibole fibers. In Minnesota, the cities of Beaver Bay and Two Harbors were shown to have significant fiber concentrations in their drinking water while Grand Marais and Silver Bay did not have high concentrations. Counts as high as 92 MFL were reported from Beaver Bay. It is estimated that Beaver Bay residents were exposed to concentrations of amphibole fibers as high or higher than Duluth residents since Beaver Bay is much closer to the discharge than Duluth. A filtration plant will begin operation in 1979.

Two Harbors is located on the western arm of Lake Superior midway between Beaver Bay and Duluth. Fiber counts as high as 200 MFL have been reported before the filtration plant started operation in 1978. It is estimated that the residents of Two Harbors were exposed to concentrations of amphibole fibers as high or higher than the residents of Duluth.

The water supplies of Ontonagon, Eagle Harbor, and Marquette, Michigan were not found to contain high concentrations of amphibole fibers.

In Wisconsin, amphibole fiber concentrations about 1 MFL have been reported for Ashland and Superior. Later data for Ashland shows amphibole fiber counts to be below detectable limits.

There are no data to indicate that any population around Lake Superior except Beaver Bay is currently ingesting significant concentrations of asbestos fibers.

BAY AREA, CALIFORNIA WATER SUPPLIES

One sample of finished water from the Lake Crystal Reservoir in San Francisco was reported to contain 130 MFL of chrysotile asbestos. Two other Bay Area reservoirs had raw concentrations over 100 MFL. Sixteen (16) finished water systems in the Bay Area had chrysotile concentrations over 10 MFL; 17 others had concentrations between 1 and 10 MFL. Although some asbestos-cement pipe may be involved, the primary source of asbestos in San Francisco water is apparently the erosion of serpentine rock formations. Water supplies for the Bay Area have been associated with serpentine mineral formations for many years. It is probable that some residents of the San Francisco area have been exposed to chrysotile asbestos fiber in their drinking water for over 40 years. The concentrations of fibers vary from water system to water system

and undoubtably fluctuate with hydrological conditions. Studies are ongoing in the San Francisco area to better assess past exposure to asbestos in water. Water treatment practices are being optimized to reduce fiber concentrations where they have been found.

PACIFIC NORTHWEST WATER SUPPLIES

Several samples of water from Everett, Washington were shown to contain over 100 MFL of chrysotile by two laboratories. Amphibole asbestos fibers were also found in the samples. The source of the fibers is probably natural erosion into the reservoir water supply. Residents of Everett have probably been exposed to varying concentrations of asbestos fibers in their drinking water over the last 50 years. Chrysotile fiber concentrations up to 25 MFL have been reported in the Tolt River water supply of Seattle. The fibers are apparently also a product of natural erosion. Some residents of Seattle have probably been exposed to asbestos fibers in their drinking water for the past 14 years. Studies are ongoing in the Seattle-Everett area to better assess past exposure to asbestos in drinking water. Pilot filtration plants for the Tolt River supply and for Everett are in operation.[51]

CISTERNS

Cisterns in St. Croix, Virgin Islands which collect drinking water from asbestos-tile type roofing material have been shown to contain up to 543 MFL of chrysotile asbestos. Only five buildings on the island are known to have such a system but other similar arrangements for water supply are known to exist on St. Thomas Island, Virgin Islands. These have not been sampled. Rainwater collected from a "life-time asbestos roof" on a house in Kentucky showed concentrations of 360 MFL chrysotile. Although some rainwater has been shown to contain one million asbestos fibers, per liter,[52] the concentrations from the asbestos-tile roofs are much higher.

Water samples from two cisterns which receive water from the more typical asphalt asbestos roofing shingles were also tested. One system in Kentucky had an old set of shingles (30 years) while the other in Ohio had fairly new shingles (2 years). No asbestos fibers were found in either sample. Apparently the asphalt binds the fibers well enough to prevent significant numbers from coming off into the water supply.

It is apparent that persons using cisterns which collect drinking water from asbestos-tile type roofing material may be exposed to high concentrations of waterborne asbestos. Persons using cisterns which receive water from the more typical asphalt asbestos roofing shingles are not exposed to significant concentrations of asbestos in their drinking water. The extent of the U.S. population using cisterns which have asbestos-tile type roofs has not been determined. The total population using cisterns is thought to be less than 1 percent of all U.S. water consumers. Concentrations of asbestos in cisterns where water is collected from roofs which have been painted or coated with an asbestos containing material have not been studied as yet.

NEW MEXICO WATER SUPPLIES

Samples of Socorro, New Mexico have been reported to contain up to 2190 MFL of chrysotile. Three other New Mexico water supplies, Algodones, Pojoaque, and Santa Fe have been reported to contain over 100 MFL by the same researchers. Two billion fibers per liter is by far the highest concentration of asbestos fibers in drinking water reported by any analyst. The source of the fibers is unclear. The report states that there are no known asbestos deposits in the area and suggests that the fibers in the well source are a result of long distance, random migration of asbestos fibers in the groundwater. Resampling was done and the water analyzed using another more accepted preparation technique (See Section 4) by another laboratory. The greatest concentration found among 4 sites sampled was 0.6 MFL. Two wells in use when the first samples had been taken had been discontinued by the time of the second sampling. Regardless of whether the first high concentrations were related to the two discontinued wells or were the result of method inaccuracies or contamination, it is apparent that the population of Socorro is not now exposed to high concentrations of asbestos in their drinking water.

ASBESTOS-CEMENT PIPE SYSTEMS

One sample of water collected in an asbestos cement (A/C) pipe distribution system in Bishopville, South Carolina contained over 500 MFL of chrysotile. Drinking water in other asbestos-cement pipe systems, Pensacola, Florida, Kentucky Dam Village, Kentucky, Lakeland, Florida, Paint, Pennsylvania, and Greenwood, South Carolina have been shown to contain significant concentrations of chrysotile asbestos. Some amphibole asbestos fibers have also been found in A/C pipe systems. While it is estimated that some 200,000 miles of A/C pipe are in use in the United States,[53] it is also apparent that not all A/C pipe sheds fibers into the water. The quality of the water transported by the pipe is known to be a critical parameter in the release of fibers from the pipe.

The corrosive effects of certain water on A/C pipe have been studied by the Asbestos Cement Pipe Industry and an equation which gives an indication of whether a water is aggressive or not has been derived from the Langlier Saturation Index.[54] The Aggressiveness Index (A.I.) is given in the American Water Works Association (AWWA) Standard C402-77 for A/C transmission and pressure pipe.[55]

The aggressiveness of water transported through a pipe, within the temperature range of 40-80°F, is determined by the formula:

$$A.I. = pH + \log_{10} (A \times H) \qquad (1)$$

where pH = index of acidity or alkalinity of the water in standard pH units

A = total alkalinity in mg/l as $CaCO_3$
H = calcium hardness in mg/l as $CaCO_3$

Higher values of this aggressiveness index are less corrosive than lower values. Water with an A.I. less than 10 is considered very aggressive to all

types of pipe while A.I.'s greater than 12 are considered essentially non-aggressive. The recommendations of AWWA Standard C402-77 are:

(a) where A.I. > 12.0, use either Type I (not autoclaved) or Type II (autoclaved) pipe.

(b) where A.I. > 10, use Type II

(c) where A.I. < 10, consult the manufacturer.

The relationship between water aggressiveness and possible fiber release has been studied by the Environmental Protection Agency on asbestos-cement pipe distribution systems in the field. In one study[56] water was sampled and analyzed over a year period from five asbestos-cement pipe systems. Significant numbers of fibers were present in the water from the two systems which had source A.I.'s under 10.0, but few, if any, fibers could be found in water samples from 3 systems with source A.I.'s > 12.0.

Sampling of representative utilities throughout the United States has indicated that over half of the supplies had water which was at least moderately aggressive range (10 < A.I. < 12) and sixteen percent had very aggressive water (Table 11).[57]

TABLE 11. REPRESENTATIVE AVERAGE U.S. UTILITY AGGRESSIVENESS INDICES

Highly aggressive (A.I. < 10) = 16.5 percent
Moderately aggressive (10 < A.I. < 12) = 52 percent
Nonaggressive (A.I. > 12) = 31.5 percent

This data would suggest that as many as 68.5 percent of U.S. water systems carry water which is potentially capable of eroding asbestos-cement Type I pipe. The water supplies with very aggressive waters (i.e. 16.5 percent of U.S. water systems) may have significant corrosion problems with any type of pipe used including cast iron, galvanized, etc. If A/C pipe is used, there exists the potential for consumers to be exposed to significant concentrations of asbestos in their drinking water.

Additional studies of asbestos-cement pipe systems have shown that there are other factors in addition to those taken into account by the aggressiveness index which influence fiber removal from A/C pipe. For instance, the source waters in 45 Connecticut asbestos-cement pipe systems were thought to be very aggressive because the A.I.'s were under 10. However, none of the systems showed high concentrations of asbestos in the distributed water after A/C pipe. None of the pipe that had been dug up over the years had been reported to be significantly deteriorated. All samples from the Connecticut A/C pipe systems except one were below 1 MFL.

One site in Connecticut which showed 10 MFL was resampled twice and was found to be below 1 MFL on each occasion. The high count is felt to be the result of pipe tapping. Tapping asbestos-cement pipe, that is, adding a service connection to the distribution pipe, requires that a hole be cut in the A/C pipe. Some tapping devices allow the debris from cutting to fall into the pipe. This results in high asbestos fiber concentrations which may remain in the water for weeks depending on water flow. There are tapping devices now available which force the debris from cutting to be flushed from the pipe and thus prevent the contamination of drinking water with fibers. Samples taken from dead end areas or from fire hydrants that have not been completely flushed may show high asbestos fiber concentrations not caused from pipe deterioration but from an accumulation of sediment from previous pipe tappings. This was the case in Amherst, Massachusetts where a sample taken at a dead end of a system showed 190 MFL, but the distribution water showed essentially no fibers. A sample of pipe dug up showed no signs of deterioration.

In another situation, in Florida, the A/C pipe system had a well source water which was non-aggressive but fibers were found in the distribution water. High H_2S levels in the well sources were apparently attacking the pipe. The aggressiveness index does not take into account the corrosive effect of water quality parameters other than pH, calcium, and alkalinity. The Florida town is currently studying the H_2S problem and is planning to implement treatment to eliminate it from the water before it flows through A/C pipe.

Based on 1) the available results of fiber analyses from asbestos-cement pipe distribution systems, 2) the estimate that only 16 percent of the U.S. water supplies have highly aggressive water, 3) the knowledge that zinc, iron, and perhaps manganese and organic materials can have a protective effect on A/C pipe, and 4) the report that the majority of A/C pipe sold in the U.S. in the last thirty-five years has been Type II (autoclaved and therefore more resistant to corrosion), it is concluded that the majority of water consumers in the U.S. who receive drinking water from asbestos-cement pipes are not exposed to significant long term concentrations of waterborne asbestos fibers.

However, in areas of aggressive water the consumer may be exposed to asbestos fiber concentrations of from less than 1 million to over 100 million per liter depending on length of pipe and flow rate. Since some water supplies in the United States have used A/C pipe to distribute water for over 40 years, it is possible that some residents in areas of highly aggressive water have been exposed over a long period.

Because the advent of a tapping device which flushes the debris from cutting out rather than into the pipe is fairly recent, it is possible that many residents on A/C distribution lines have been exposed to intermittent concentrations of asbestos fibers perhaps as high as 500 million fibers per liter.

The Environmental Protection Agency is currently evaluating steps which can be taken to prevent fibers from coming off asbestos-cement pipe. For places where fibers have been found in asbestos-cement pipe distribution

systems there are several promising water treatments or processes which can be used to stop the fibers from getting into the drinking water.

EROSION OF ASBESTOS WASTE PILES

Samples of three city water supplies Atlanta, Philadelphia, and Danville, that use rivers as the source of their water showed asbestos concentrations above 10 million fibers per liter which were thought to be caused by the erosion of asbestos waste piles into the river. Other samples taken at Atlanta, Georgia and Philadelphia, Pennsylvania did not show high concentrations. Additional sampling is planned for Danville, Kentucky. It has been suggested that storm conditions cause infrequent but substantial amounts of asbestos fibers to be present in the raw water. In most cases a filtration plant is effective in dealing with the fiber concentration, but the possibility exists that some fibers may get through to the drinking water. The extent of asbestos dump sites in the U.S. and the possibility of fibers eroded from these dump sites reaching public water supplies has not been determined.

The fiber concentration from one industrial discharge in Missouri was found to be 2,000 MFL. An industrial discharge in Ohio after treatment by settling pond was found to be under a million fibers per liter. A large number of effluent discharges from asbestos related industries have been analyzed for fibers and reported in reference 34. The fiber counts range from $< 10^6$ to 10^{12} fibers per liter. There are currently no data to show with certainty that these discharged fibers make their way into public water supplies.

LARGEST U.S. CITIES

There are not sufficient data to clearly assess exposure in all cities. Of the twenty largest cities in the United States, thirteen have been checked for asbestos in their drinking water. In only one, San Francisco, is there clear evidence of significant fiber concentrations. Some significant numbers of asbestos fibers were found in the water systems of Philadelphia and Boston by one researcher but these counts could not be reproduced by other researchers at later times. For most cities there are only the results of a few samples available to cover the entire city which may be served by several water utilities. The estimate of waterborne asbestos exposure is based therefore on available data and not on representative samples (Table 12). No data are readily available as to the amount of asbestos-cement pipe in each city. Early chemical data reported in 1962 for the public water supplies of the 100 largest cities in the U.S. suggested that as many as 50 had at least moderately aggressive water.[57]

Based on the very limited data, it is concluded that the majority of water consumers in the largest U.S. cities are not exposed to concentrations of asbestos over 1.0 MFL.

OVERALL ASSESSMENT

Based on the data presented in the Appendices and the evaluation of that data as described in the preceding sections; it is concluded the majority

(at least 90 percent) of water consumers in the U.S. are not exposed to asbestos concentrations over a million fibers per liter. In a few areas people are exposed to concentrations between 1 and 10 million fibers per liter with intermittent exposures over 100 MFL. Persons using asbestos-cement pipe especially in areas where the water is non-aggressive or is treated to prevent corrosion are generally not additionally exposed except for the possibility of short, intermittent exposures due to improper pipe tapping procedures. In areas of aggressive water, however, residents using water from asbestos-cement mains may be exposed to high concentrations of fibers depending on factors such as length of pipe, flow rate. A few people may be exposed to asbestos in their drinking water from cisterns using asbestos tile roofs.

TABLE 12. AVAILABLE DATA ON ASBESTOS IN THE DRINKING WATER OF THE 20 LARGEST U.S. CITIES

City	Population 1975 est.* (Millions)	Number of Asbestos Analyses	Estimate of Waterborne Asbestos Exposure
New York, NY	7.48	12	Below Detectable
Chicago, IL	3.10	over 50	Less than 1 MFL
Los Angeles, CA	2.72	1	Less than 1 MFL
Philadelphia, PA	1.81	over 50	Possible intermittent
Houston, TX	1.40	10	Less than 1 MFL
Detroit, MI	1.34	0	-
Baltimore, MD	.85	6	Less than 1 MFL
Dallas, TX	.82	2	Below Detectable
San Diego, CA	.77	0	-
San Antonio, TX	.77	2	Less than 1 MFL
Indianapolis, IN	.73	1	Less than 1 MFL
Washington, D.C.	.71	3	Less than 1 MFL
Honolulu, HA	.71	0	-
Milwaukee, WI	.67	0	-
Phoenix, AZ	.66	0	-
San Francisco, CA	.66	over 50	0-100 MFL
Memphis, TN	.66	3	Less than 1 MFL
Cleveland, OH	.64	0	-
Boston, MA	.64	17	Possible intermittent
Jacksonville, FL	.56	0	-

*Source: U.S. Bureau of Census[59]

SECTION 9

EXPOSURE TO NON-ASBESTOS FIBERS IN WATER

Very little data has been reported concerning fibers other than asbestos found in water supplies. In the several hundred water samples from all over the U.S. analyzed by the EPA in Cincinnati, none were found to have significant amounts of fiberglass. No reports of fiberglass in drinking water were found in the literature. Significant numbers (over 1 MFL) of attapulgite (palygorskite clay) have been found in well waters on islands off the coast of Georgia and in two Florida water systems. These silicate fibers are similar in appearance to chrysotile but are not asbestos. Halloysite clay fibers have been reported in some California waters. Unidentified fibers containing combinations of aluminum, silica, iron and/or titanium are occasionally found but no substantial concentrations have been reported.

Some "fibers" of biological origin, pieces of diatoma, algae scales and other fiber like fragments of organisms have been found in water samples, sometimes in high concentrations.

From the analyses done by the EPA in Cincinnati, it is concluded that the majority of U.S. water consumers are not exposed to concentrations of non-asbestos mineral fibers above 100,000 fibers per liter. Some areas using unfiltered water from reservoirs may be exposed to high concentrations of biological "fibers."

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APPENDIX A

ASBESTOS IN WATER: MASS DATA

Some waterborne asbestos data for U.S. drinking water sources and distribution points have been determined using the rubout technique followed by TEM analysis. This method of sample preparation destroys the fiber size distribution of the sample and therefore only provides data about the mass of asbestos present. Fiber counts determined using this method are not considered reliable.

TABLE A-1. MASS OF ASBESTOS FIBER BY RUBOUT IN CITY WATER[10]

State	City	Type*	Miles A-C pipe	Date	Fibers µg/gal	Fibers µg/l	Lab
AZ	Globe	S			0.26	0.07	JMR
AZ	Globe	D			0.43	0.11	"
CA	San Diego	S			0.27	0.07	"
CA	San Diego	D			3.16	0.83	"
CA	Long Beach	S			2.51	0.66	"
CA	Long Beach	D			2.34	0.62	"
RI	Providence	S			0.95	0.25	"
RI	Providence	D			1.45	0.38	"
RI	Providence	D			2.19	0.58	"
RI	Providence	S			0.76	0.20	"
RI	Providence	D			1.01	0.27	"
KS	Wichita	D			1.58	0.42	"
KS	Wichita	S			1.18	0.31	"
KS	Wichita	D			6.03	1.59	"
TN	Memphis	D	0.0		6.42	1.69	"
MI	Saginaw	S			0.012	0.003	"
MI	Saginaw	D			0.0048	0.001	"
PA	Malvern	S	0.0	12/19/69	0.183	0.05	"
PA	Malvern	D	0.53	12/19/69	0.985	0.26	"
PA	Malvern	S	0.0	12/19/70	0.472	0.12	"
PA	Malvern	D	0.53	12/19/70	0.258	0.07	"
PA	Malvern(ave 26 samples)	S	0.0	69-70	0.166	0.04	"
PA	Malvern(ave 24 samples)	D	0.53	69-70	0.450	0.12	"
AZ	Glendale	S	0.0	9/10/69	0.088	0.02	"
AZ	Glendale	D	2.51	9/10/69	0.214	0.06	"
AZ	Glendale	S	0.0	12/06/70	0.003	0.0008	"

TABLE A-1 (continued)

State	City	Type*	Miles A-C pipe	Date	Fibers µg/gal	Fibers µg/1	Lab
AZ	Glendale	D	2.51	12/06/70	0.005	0.001	"
AZ	Glendale(ave 35 samples)	S	0.0	69-70	0.023	0.006	"
AZ	Glendale(ave 35 samples)	D	0.0	69-70	0.038	0.01	"

*Type of sample; S = source, D = distribution point.

TABLE A-2. MASS OF AMPHIBOLE FIBER IN CITY WATER BY RUBOUT[24]

State	City	Fibers µg/liter	Fibers x10^6/liter	Lab
MN	Duluth, Lower Res.	27	74	MSS
"	Duluth, Middle Res.	2.7	25	"
"	Duluth, Upper Res.	11	24	"
"	Duluth, Syst. Intake	20	60	"
"	Grand Marais	None detected		"
NY	New York City	None detected		"
WI	Superior	1.4	4	"

TABLE A-3. RANGE OF MASS OF CHRYSOTILE IN UNTREATED RIVER WATER[10]

State	River	Location	(Values in µg/1)*
PA	Juniata	Breezewood	0.0 - 9.2
"	"	Newtown-Hamilton	0.0 - 8.7
"	"	Lewistown	0.0 - 15.0
"	"	Amity Hall	0.0 - 14.8
VT	Connecticut	Canaan	0.0 - 13.8
NH	"	Lebanon	0.0 - 3.1
MA	"	Greenfield	0.0 - 23.5
CN	"	Middletown	0.0 - 14.5

*Eleven samples at each site over a year.

APPENDIX B

ASBESTOS IN WATER: FIBER COUNT DATA

The following computer listing contains waterborne asbestos fiber concentration data determined by transmission electron microscopy on samples prepared by various procedures. The listing is arranged in order by state, city, and date of sample. Information is also given as to the analyzing laboratory and type of method used to prepare the samples for asbestos analysis. A source code which references the original source of the data is also given.

The waterborne asbestos file has been computerized and will be updated periodically. Researchers having additional data on asbestos concentrations present in drinking water are encouraged to contact the first author. Although the listing has been reviewed carefully, errors may exist and if found should be directed to the attention of the author.

INFORMATION GIVEN IN THE LISTING

State

Standard two letter state designations are given.

City

The name of the city (or occasionally the county) where the samples was taken is given. Additional data concerning street names, water utilities, or description of site are given.

ID

If the sample was reported with an identification number, it is listed under the third heading.

Type

The type of water that was analyzed is classified as F-Finished, after treatment but before the distribution system; D-Distribution, in the piping system at some point such as a consumer's tap; R-Raw, before treatment; or E-effluent from an industrial or other waste water discharger.

Source

The source of the water that was analyzed is classified as S-Surface, river or reservoir, W-wells, groundwater, C-cistern, catch basin of water collected from a roof, or B-Combined.

Miles A-C Pipe

If a water is known to have flowed through asbestos-cement pipe before being sampled, that distance in miles is listed. If unknown, no value is placed under this heading.

Date Collected

If the actual day was not reported, zeros appear between the month and year. In the case of composite samples the first day in the composite is listed. Some samples of old water (1963) were cans of water stored in shelters.

Amphibole MFL

The results reported for amphibole fibers in terms of millions of fibers per liter are given under this heading.

Chrysotile MFL

The results reported for chrysotile fibers in terms of millions of fibers per liter are given under this heading. In some instances results for one or the other of the two asbestos classes were not reported.

Blank MFL

The results reported for blank analyses in total asbestos fibers are given uder this heading. Blank analyses include filtering of clean prefiltered water through a filter and preparing the blank filter using the same steps as those used in preparing the water sample. Although many laboratories analyze blanks, few report them. Much of the data under this heading is currently being added.

The letters B and N before the concentration values indicate values that are below detectable limits and not statistically significant respectively. The detectable limit is considered the concentration that would be determined if one fiber was counted and the appropriate calculations were made. B0.020 is read below the detectable limit of 0.02 times 10^6 fibers per liter. See Section 6 for a discussion of statistical significance. A N is used before a value in the listing if it is known that the value is based on less than 5 fibers counted. Values preceded by an N should be considered less accurate than others.

In some cases when no data was reported on the number of actual fibers counted, the preceding N could not be used to indicate less significant data.

Met

The method sample preparation was classified as C-centrifuge method, R-rubout technique, B-double Nuclepore filter, D-drop drying, M-Millipore condensation washer, L-Millipore Jaffe wick, N-Nuclepore Jaffe wick, or E-Millipore collapsed filter. See Section 4 for details on the preparation methods.

Lab

Three letter initials of the laboratories analyzing the sample are given under this heading. The laboratory designations are described in the List of Abbreviations in the begining of the report.

Ref

A source code for the analysis is given under this heading.

The source code designations are as follows:

AA McFarren, E.F., J.R. Millette, R.J. Lishka. 1975 Asbestos Analysis by Electron Microscope. Proceedings of AWWA Water Quality Technology Conf. Amer. Water Works Assoc. XIV-1 - XIV-12, and Preliminary Assessment of Suspected Carcinogens in Drinking Water, Report to Congress, 1975, EPA-OTS, Appendix E, p. 135.

AB In-house files of the Health Effects Research Laboratory, Exposure Evaluation Branch and files of the Municipal Environmental Research Laboratory, Drinking Water Research Division.

AC I. Stewart, Asbestos in the Water Supplies of the Ten Regional Cities, Final Report-Part I EPA Report 560/6-76-017 1976, available from the National Technical Information Service, 58 p.

AD I. Stewart, Asbestos Fibers in Natural Runoff and Discharges from Sources Manufacturing Asbestos Products, Final Report-Part II EPA Report 560/676-018, 1976 available from the National Technical Information Service 166 p.

AE Beaman, D.R. and D.M. File, Quantitative Determination of Asbestos Fiber Concentrations, Analytical Chemistry 48(1):101-110, 1976.

AF Flickinger, J. and J. Standridge, Identification of Fibrous Material in Two Public Water Supplies. Envir. Sci. Tech., 10(10):1028-1032, 1976.

AH Oliver, T. and L.E. Murr, An Electron Microscope Study of Asbestiform Fiber Concentrations in Rio Grande Valley Water Supplies, J. AWWA, 9: 428-431, 1976.

AI Murr, L.E. and K. Kloska, The Detection and Analysis of Particulates in Municipal Water Supplies by TEM. Water Research 10:469-477, 1976.

AJ Hallenbeck, W.H., E.H. Chen, C.S. Hesse, K. Patel-Mandlik, and A.H. Wolff. Is Chrysotile Asbestos Released from Asbestos-Cement Pipe into Drinking Water. J. AWWA 70(2):97-102, 1977.

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AN Cook, P.M., I.B. Rubin, C.J. Maggiore, and W.J. Nicholson, X-ray Diffraction and Electron Beam Analysis of Asbestiform Minerals in Lake Superior Waters. Proc. Intern. Conf. on Environ. Sensing and Assessment, Pub. by IEEE, Piscataway, N.J. 34(2):1-9. 1977.

AO McMillan, L.M., R.G. Stout, and B.F. Willey. Asbestos in Raw and Treated Water: An Electron Microscopy Study. Environ. Sci. and Tech. 11(4):390-394, 1977.

AP Personal Communication: G.S. Logsdon, DWRD, MERL-EPA-Cincinnati, OH.

AQ Personal Communication: S.J. Greenwood, Minn. Dept. of Health.

AR Personal Communication: C.H. Anderson, and J.M. Long, SERL, EPA-Athens, GA.

AS Personal Communication: P.M. Cook, ERL-EPA-Duluth, MN.

AT Personal Communication: L. McMillan, City of Chicago Water Department Microscopy Unit, Chicago, IL.

AU Personal Communication: W.H. Hallenbeck, School of Public Health, Univ. of Ill., Chicago, IL.

AV Flickinger, J. Analysis of Asbestos Fibers in Water, Masters' Thesis, Univ. of Wisconsin 1977, Madison, WI.

AW Kanarek, M. Asbestos in Drinking Water and Cancer Incidence; Ph.D. Dissertation, University of California, Berkeley 1978, Berkeley, CA.

AX Fairless, B. 1974. Asbestos Fiber Concentrations in the Drinking Water of Communities Using the Western Arm of Lake Superior as a Potable Water Source. Report of Surveillance and Analysis Division, Central Regional Laboratory, USEPA, Reg. V, Chicago, IL. p. 12.

AY Black and Veatch, Consulting Engineers. 1975. Director Filtration of Lake Superior Water for Asbestiform Fiber Removal. Envir. Prot. Techn. Series. EPA-670/2-75-050e. Appendix G p. 39-42.

AZ Lewis, B.G. Asbestos in Cooling-Tower Waters. Report for the U.S. Nuclear Regulatory Commission #ANL/ES-63.

STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK B/N	BLANK MFL	MET	LAB	REF
AK	ANCHORAGE	12715	F		0.00	07/00/74		0.700	N	0.070			M	EPC	AA
AK	FAIRBANKS	13074	F		0.00	11/01/74	B	0.020	B	0.020			M	EPC	AA
AL	ABBEVILLE	35433	D	W	0.20	03/05/76	B	0.010	N	0.050	B	0.010	M	EPC	AB
AL	ABBEVILLE	35432	F	W	0.00	03/05/76	B	0.010	B	0.010	B	0.010	M	EPC	AB
AL	BIRMINGHAM	24854	F		0.00	11/25/74	B	0.040	B	0.040			M	EPC	AA
AL	MONTGOMERY	21612	F		0.00	12/27/74	B	0.010		0.100			M	EPC	AA
AL	MONTGOMERY	21612	F		0.00	12/27/74	B	0.070	B	0.070			M	EPC	AA
AL	TUSCALOOSA	21609	F		0.00	11/25/74	N	0.070		0.450			M	EPC	AA
AL	TUSCALOOSA	37908	F	S	0.00	03/28/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
AR	JONESBORO	18037				09/19/74	B	0.020	N	0.070			M	EPC	AA
AR	LITTLE ROCK	18038				10/09/74	N	0.070		0.300			M	EPC	AA
AR	VAN BUREN, AT A/C PIPE CO.		D			02/06/75				40.000			M	MCC	AD
AZ	YUMA	16926				11/26/74	B	0.020		0.100			M	EPC	AA
CA	ALAMEDA	4851	D			06/21/77	B	0.100		0.600			M	UCB	AW
CA	ALAMEDA CO.		F		0.00	07/00/74			B	0.040			B	UCB	AL
CA	ALAMEDA CO.		F		0.00	07/00/74			B	0.040			B	UCB	AL
CA	ALAMEDA CO., ACWD CHEM LAB	4836	D		0.50	04/27/77	B	0.050		0.300			M	UCB	AW
CA	ALAMEDA CO., VISTA SCHOOL	4839	D		1.90	04/27/78	B	0.025		0.200			M	UCB	AW
CA	ALBANY	4769				03/00/63	B	0.020	B	0.020			M	UCB	AW
CA	ALBANY	4812	D		0.40	01/27/77	B	0.100		0.400			M	UCB	AW
CA	ALBANY	4811	D		0.40	01/27/77	B	0.100		0.200			M	UCB	AW
CA	ANTIOCH, CONTRA COSTA CO.	4311	D		0.35	08/12/76	B	0.050		0.200			M	UCB	AW
CA	ANTIOCH, CONTRA COSTA CO.	4310	F		0.00	08/12/76	B	0.020		0.260			M	UCB	AW
CA	ANTIOCH, CONTRA COSTA CO.	4825	F		0.00	04/18/77	B	0.025		0.130			M	UCB	AW
CA	ATASCADERO	37457	F	W	0.00	02/16/77	B	0.030		0.300	N	0.060	M	EPC	AB
CA	ATHERTON	4729	D		0.20	07/28/77	B	0.050		0.050			M	UCB	AW
CA	ATHERTON	4728	D			07/28/77	B	0.025	B	0.025			M	UCB	AW
CA	ATHERTON	4727	R		0.00	07/28/77							M	UCB	AW
CA	ATWATER	37409	F	W	0.00	02/04/77	B	0.010	N	0.050	N	0.010	M	EPC	AB
CA	BELMONT	4724	D		0.80	07/27/77	B	0.025		0.050			M	UCB	AW
CA	BELMONT	4723	D			07/27/77	B	0.200		0.400			M	UCB	AW
CA	BELMONT	4722				07/27/77		0.025	B	0.025			M	UCB	AW
CA	BELMONT	4721	D			07/27/77	B	0.050	B	0.050			M	UCB	AW
CA	BELMONT	4899	D			07/27/77	B	0.025		0.050			M	UCB	AW
CA	BERKELEY	4364	D			12/13/76		2.200		1.200			M	UCB	AW
CA	BERKELEY	4361	D			12/13/76		0.200		0.100			M	UCB	AW
CA	BERKELEY	4808	D			01/27/77	B	0.130		0.270			M	UCB	AW
CA	BERKELEY	4807	D			01/27/77	B	0.100		0.800			M	UCB	AW
CA	BERKELEY	4805	D			01/27/77		1.000	B	0.100			M	UCB	AW

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
CA	BERKELEY	4398	D			01/27/77	B	0.100		0.600		M	UCB	AW
CA	BERKELEY	4804	D			01/27/77	B	0.100		0.400		M	UCB	AW
CA	BERKELEY	4803	D			01/27/77		1.000		0.200		M	UCB	AW
CA	BERKELEY	4801	D			01/27/77	B	0.100		0.200		M	UCB	AW
CA	BERKELEY	4800	D			01/27/77	B	0.100		0.600		M	UCB	AW
CA	BERKELEY	4817	D			02/22/77	B	0.100		0.100		M	UCB	AW
CA	BERKELEY UCB	4317A				<00/00/64	B	0.050	B	0.050		M	UCB	AW
CA	BERNADO, ALAMEDA CO.	4835				04/27/78	B	0.025	B	0.025		M	UCB	AW
CA	BOLLMAN		F		0.00	12/10/74	B	0.005	B	0.005		M	UCB	AW
CA	BOLLMAN		F		0.00	10/15/75	B	0.005		0.130		M	UCB	AW
CA	BOLLMAN	4312	F		0.00	08/13/76		0.010		0.160		M	UCB	AW
CA	BOLLMAN	4832	F		0.00	04/18/77	B	0.025		0.025		M	UCB	AW
CA	BOLLMAN	4830	F		0.00	04/18/77	B	0.025	B	0.025		M	UCB	AW
CA	BOLLMAN	4440	F		0.00	05/11/77	B	0.025		0.180		M	UCB	AW
CA	BOLLMAN	4741	F		0.00	08/05/77	B	0.050		0.700		M	UCB	AW
CA	BOLLMAN	4781	F		0.00	01/09/78	B	0.025	B	0.025		M	UCB	AW
CA	BOLLMAN	4608	F		0.00	04/04/78		0.025		0.150		M	UCB	AW
CA	BROADMORE	4713	D			07/07/77	B	0.025		0.125		M	UCB	AW
CA	BURLINGAME	4462	D			05/26/77	B	0.200		14.000		M	UCB	AW
CA	BURLINGAME	4461	D			05/26/77	B	0.200		15.000		M	UCB	AW
CA	BURLINGAME	4465	D			05/26/77	B	0.200		9.200		M	UCB	AW
CA	BURLINGAME	4464	D			05/26/77	B	0.200		14.000		M	UCB	AW
CA	BURLINGAME CITY		D		?	07/00/74			B	0.020		B	UCB	AL
CA	CASTRO VALLEY	4853	D		0.20	06/21/77	B	0.100		0.800		M	UCB	AW
CA	CHABOT	4854	F		0.00	06/21/77	B	0.025		0.300		M	UCB	AW
CA	CLAY, RESERVOIR NEAR		R	S		06/00/77	B	0.063	B	0.063		M	MCC	AZ
CA	CLAYTON		D			12/10/74	B	0.007	B	0.007		M	UCB	AW
CA	CLAYTON	4827	D		2.10	04/18/77	B	0.025	B	0.025		M	UCB	AW
CA	CONCORD	4771				<00/00/69	B	0.025	B	0.025		M	UCB	AW
CA	CONCORD		R		0.00	12/10/74	B	0.030		0.030		M	UCB	AW
CA	CONCORD	4343	D		3.60	08/12/76		0.040		0.540		M	UCB	AW
CA	CONCORD	4833	D		3.60	04/18/77	B	0.025		0.150		M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4316	R		0.00	08/13/76	N		B			M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4315	R		0.00	08/13/76	N		B			M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4314	R		0.00	08/13/76		0.800		8.000		M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4829A	R		0.00	04/18/77	B	0.200		0.600		M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4829	R		0.00	04/18/77	B	2.500		10.000		M	UCB	AW
CA	CONTRA COSTA CO, CANAL PLANT	4439	R		0.00	05/11/77	B	5.000		15.000		M	UCB	AW
CA	CONTRA COSTA COUNTY		F		0.00	07/00/74			B	0.040		B	UCB	AL
CA	CRYSTAL SPRING	4894	F		0.00	07/14/77	B	0.500		52.000		M	UCB	AW
CA	CRYSTAL SPRING	4893	F		0.00	07/14/77	B	0.025		0.025		M	UCB	AW
CA	CRYSTAL SPRING	4787	F		0.00	01/11/78	B	0.500		60.000		M	UCB	AW
CA	CRYSTAL SPRING	4790	F		0.00	01/12/78		0.200		8.500		M	UCB	AW
CA	DALY CITY	4710	D			07/07/77	B	0.025		0.200		M	UCB	AW
CA	DALY CITY	4709	D			07/07/77	B	0.025		0.125		M	UCB	AW
CA	DALY CITY	4714	F			07/07/77	B	0.100		7.000		M	UCB	AW
CA	DALY CITY	4777				12/06/77	B	0.050		0.150		M	UCB	AW

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SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
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CA	DALY CITY	4778	F		0.00	12/06/77		0.600		15.000			M	UCB	AW
CA	DANVILLE	4842	D		0.10	06/20/77	B	0.050		0.050			M	UCB	AW
CA	E. PALO ALTOS	4732	D			07/25/77		0.025	B	0.025			M	UCB	AW
CA	E. PALO ALTOS	4731	D		0.40	07/28/77		0.050		1.450			M	UCB	AW
CA	E. PALO ALTOS	4730	D		0.66	07/28/77		0.200		20.000			M	UCB	AW
CA	EL SOBRANTE	4845	D		0.00	06/20/77	B	0.025	B	0.025			M	UCB	AW
CA	EL SOBRANTE	4848	D		0.35	06/20/77	B	0.100	B	0.100			M	UCB	AW
CA	EMERYVILLE	4763	D			08/12/77	B	0.025		0.075			M	UCB	AW
CA	FOLSOM S. CANAL, SACRAMENTO		R	S		06/00/77	B	0.063	B	0.063			M	MCC	AZ
CA	FOSTER CITY	4378	D		0.55	12/17/76		0.130		0.067			M	UCB	AW
CA	FOSTER CITY	4376	D		0.64	12/17/76				1.100			M	UCB	AW
CA	FOSTER CITY	4726	D		0.55	07/27/77		0.330		43.000			M	UCB	AW
CA	FOSTER CITY	4725	D		0.66	07/27/77		0.200		6.000			M	UCB	AW
CA	FREMONT, ALAMADA CO.	4840				04/27/77	B	0.250	B	0.250			M	UCB	AW
CA	FREEMONT, ALAMADA CO.	4707	D			07/07/77	B	0.025	B	0.025			M	UCB	AW
CA	FREEMONT, ALAMADA CO.	4708	D			07/07/77	B	0.050		0.250			M	UCB	AW
CA	FREEMONT, ALAMADA CO.	4837	D			04/27/78	B	0.025		0.150			M	UCB	AW
CA	HALLARD		R		0.00	10/13/75		0.200		0.600			M	UCB	AW
CA	HALLARD	4782	R		0.00	01/09/78	B	0.500		4.000			M	UCB	AW
CA	HALLARD	4609	R		0.00	04/04/78		3.300		17.000			M	UCB	AW
CA	HAYWARD, AZALEA CRT	4735	D		1.45	08/01/77		0.300		6.200			M	UCB	AW
CA	HAYWARD, D. STREET	4736	D		1.10	08/01/77	B	0.250		34.000			M	UCB	AW
CA	HAYWARD, DESOTO BOOSTER ST	4734				08/01/77	B	1.000	B	1.000			M	UCB	AW
CA	HAYWARD, HAYWARD BLVD.	4737	D		3.00	08/01/77		0.067		2.500			M	UCB	AW
CA	HAYWARD, PARTICK AVE.	4738	D		1.20	08/01/77	B	1.000	B	1.000			M	UCB	AW
CA	HAYWARD, REDUCING STA	4733				08/01/77	B	0.050		0.050			M	UCB	AW
CA	HAYWARD, SAN LORENZO	4855	D			06/21/77	B	0.050		0.650			M	UCB	AW
CA	HILLSBOROUGH	4867	D			07/05/77		1.500		44.000			M	UCB	AW
CA	HILLSBOROUGH	4874	D			07/11/77	B	0.200		20.000			M	UCB	AW
CA	LAFAYETTE	4337	F		0.00	10/07/76		0.140	B	0.020			M	UCB	AW
CA	LAFAYETTE	4844	F		0.00	06/20/77	B	0.050		0.050			M	UCB	AW
CA	LIVERMORE, ALAMEDA CO.	4600				02/28/78		0.050		0.025			M	UCB	AW
CA	LOS ANGELES	30956				04/00/75	B	0.100	N	0.500			M	EPC	AB
CA	MARIN, ALPINE LAKE		R		0.00	02/00/73			N				M	UCB	AW
CA	MARIN, BON TEMPE		R		0.00	02/00/73			B	0.000			M	UCB	AW
CA	MARIN, BON TEMPE	4362A	F		0.00	12/13/76	B	0.050		0.200			M	UCB	AW
CA	MARIN, BON TEMPE	4743	F		0.00	08/10/77	B	0.100	B	0.100			M	UCB	AW
CA	MARIN, BON TEMPE	4791	F		0.00	01/14/78	B	0.100	B	0.100			M	UCB	AW
CA	MARIN, CORTE MADERA	4346	D			11/10/76	B	0.020		0.040			M	UCB	AW
CA	MARIN, CORTE MADERA	4350	D		0.65	11/12/76	B	0.020		0.040			M	UCB	AW
CA	MARIN, KENT ALPINE MIX	4041	R		0.00	07/11/73				0.500			M	UCB	AW
CA	MARIN, KENT LAKE		R		0.00	02/00/73				200.000			M	UCB	AW
CA	MARIN, KENT PUMPS	4040	R		0.00	07/11/73				0.270			M	UCB	AW
CA	MARIN, KENT PUMPS	4302	R		0.00	02/25/76				0.300			M	UCB	AW
CA	MARIN, KENTWOODLAND	4353	D			11/12/76	B	0.020		0.020			M	UCB	AW
CA	MARIN, KENTWOODLAND	4744	D			08/10/77	B	0.050	B	0.050			M	UCB	AW
CA	MARIN, MILL VALLEY	4348	D			11/10/76		0.040	B	0.020			M	UCB	AW

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CA	MARIN, MILL VALLEY	4347	D			11/10/76	B	0,020		0,040			M	UCB	AW
CA	MARIN, MILL VALLEY	4359	D			12/13/76	B	0,020	B	0,020			M	UCB	AW
CA	MARIN, MILL VALLEY	4745	D			08/10/77		0,025		0,100			M	UCB	AW
CA	MARIN, MMWD OFFICE	4357				12/13/76		0,020		0,160			M	UCB	AW
CA	MARIN, NICASIO	4301	R		0,00	02/25/76				0,250			M	UCB	AW
CA	MARIN, SAN ANSELMO	4351B	D			11/12/76	B	0,050	B	0,050			M	UCB	AW
CA	MARIN, SAN GERONOMO		R		0,00	12/03/74				2,000			M	UCB	AW
CA	MARIN, SAN GERONOMO		R		0,00	03/06/75				11,000			M	UCB	AW
CA	MARIN, SAN GERONOMO		F		0,00	03/07/75				2,000			M	UCB	AW
CA	MARIN, SAN GERONOMO	4300	F		0,00	02/25/76				0,140			M	UCB	AW
CA	MARIN, SAN GERONOMO	4352	F		0,00	11/12/76		0,040		0,040			M	UCB	AW
CA	MARIN, SAN GERONOMO	4356	F		0,00	12/13/76	B	0,020	B	0,020			M	UCB	AW
CA	MARIN, SAN GERONOMO	4768	F		0,00	08/17/77		0,100		0,700			M	UCB	AW
CA	MARIN, SAN GERONOMO	4786	F		0,00	01/10/78	B	0,500		12,000			M	UCB	AW
CA	MARIN, SAN RAFAEL	4358				05/21/71	B	0,020	B	0,020			M	UCB	AW
CA	MARIN, SAN RAFAEL		D			03/11/75				0,900			M	UCB	AW
CA	MARIN, SAN RAFAEL	4355B	D			11/12/76		0,200		1,350			M	UCB	AW
CA	MARIN, SAN RAFAEL	4354	D			11/12/76		0,180		0,820			M	UCB	AW
CA	MARIN, SAUSALITO	4349	D			11/10/76	B	0,020		0,020			M	UCB	AW
CA	MARIN, WOODACRE	4742				08/10/77		0,200		0,700			M	UCB	AW
CA	MARIN, WOODACRE	4785				01/10/78	B	0,100		11,000			M	UCB	AW
CA	MARTINEZ	4822	D		3,00	04/18/77	B	0,025		0,200			M	UCB	AW
CA	MARTINEZ	4826	F		0,00	04/18/77	B	0,020		0,025			M	UCB	AW
CA	MARTINEZ	4823	F		0,00	04/18/77	B	0,025	B	0,025			M	UCB	AW
CA	MARTINEZ	4773				09/22/77		0,025	B	0,025			M	UCB	AW
CA	MAUSELEUM	4770				09/22/77	B	0,020	B	0,020			M	UCB	AW
CA	MENLO PARK	4375	D		0,14	12/17/76		0,050		0,800			M	UCB	AW
CA	MENLO PARK	4374	D			12/17/76	B	0,050		0,600			M	UCB	AW
CA	MENLO PARK	4896	D			07/14/77	B	0,025		0,075			M	UCB	AW
CA	MENLO PARK	4887	D		0,13	07/14/77	B	0,050		0,150			M	UCB	AW
CA	MERCED, STORAGE #2	37403	F	W	0,00	02/03/77	B	0,010	N	0,050	B	0,010	M	EPC	AB
CA	MERCED, STORAGE #7	37402	F	W	0,00	02/03/77	B	0,010	N	0,050	B	0,010	M	EPC	AB
CA	MILLBRAE	4456	D			05/26/77	B	0,250		32,000			M	UCB	AW
CA	MILLBRAE	4453	D			05/26/77		0,200		11,000			M	UCB	AW
CA	MILLBRAE C/H	4372	D			12/14/76		0,160		0,240			M	UCB	AW
CA	MILLBRAE CITY		D		?	07/00/74			B	0,020			B	UCB	AL
CA	MILLBRAE REC.	4369A	D			12/14/76		0,300		1,700			M	UCB	AW
CA	MILLBRAE SFWD	4368A				12/14/76		0,150		0,200			M	UCB	AW
CA	MILLBRAE SFWD	4747				08/11/77		0,500		23,000			M	UCB	AW
CA	MILLBRAE SFWD	4789				01/11/78	B	0,500		43,000			M	UCB	AW
CA	NEWARK, ALAMEDA CO.	4838	D			04/27/77	B	0,025		0,450			M	UCB	AW
CA	NORTH MARIN, NOVALTO	4607				03/15/78		1,600	B	0,400			M	UCB	AW
CA	NORTH MARIN, NOVALTO	4604	D			03/15/78	B	0,200		1,600			M	UCB	AW
CA	NORTH MARIN, STAFFORD	4606	R		0,00	03/15/78	B	5,000		5,000			M	UCB	AW
CA	NORTH MARIN, STAFFORD	4605	F		0,00	03/15/78	B	0,025	B	0,025			M	UCB	AW
CA	OAKLAND	4319	D		1,80	04/11/63	B	0,050		0,150			M	UCB	AW
CA	OAKLAND		D		0,33	07/29/74	B	0,020	B	0,020			M	UCB	AW

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL		BLANK MFL	MET	LAB	REF
CA	OAKLAND		D		0.00	07/29/74	B 0.025	B	0.025			M	UCB	AW
CA	OAKLAND	4332B	D		0.00	09/23/76	0.250		0.200			M	UCB	AW
CA	OAKLAND	4331B	D		1.80	09/23/76	0.550		0.200			M	UCB	AW
CA	OAKLAND	4333B	D		0.33	09/25/76	0.150		0.150			M	UCB	AW
CA	OAKLAND	4859	D		0.00	06/21/77	0.500		0.100			M	UCB	AW
CA	OAKLAND	4858	D		0.35	06/21/77	0.400		0.300			M	UCB	AW
CA	OAKLAND	4852	D			06/21/77	0.300		0.500			M	UCB	AW
CA	OAKLAND	4850	D			06/21/77	B 0.100		0.600			M	UCB	AW
CA	OAKLAND	4861	D			06/22/77	B 0.100		0.200			M	UCB	AW
CA	OAKLAND	4871	D			06/22/77	0.400	B	0.200			M	UCB	AW
CA	OAKLAND	4869	D			06/22/77	0.200		0.900			M	UCB	AW
CA	OAKLAND	4865	D			06/22/77	0.400		1.000			M	UCB	AW
CA	OAKLAND	4898	D		0.01	07/19/77	B 0.050	B	0.050			M	UCB	AW
CA	OAKLAND	4764	D			08/12/77	0.025		0.180			M	UCB	AW
CA	OLD RIVER	4323B	R		0.00	08/14/76	3.000		49.000			M	UCB	AW
CA	OLD RIVER	4324B	R		0.00	09/14/76	2.000		18.000			M	UCB	AW
CA	ORINDA	4330B	F		0.00	09/23/76	0.300		0.250			M	UCB	AW
CA	ORINDA	4814	F		0.00	01/27/77	0.700		0.300			M	UCB	AW
CA	ORINDA	4813	F		0.00	01/27/77	0.600		0.500			M	UCB	AW
CA	ORINDA	4809	D			01/27/77	B 0.100		0.100			M	UCB	AW
CA	ORINDA	4806	D		0.05	01/27/77	B 0.100	B	0.100			M	UCB	AW
CA	ORINDA	4841	F		0.00	06/20/77	B 0.050		0.050			M	UCB	AW
CA	ORINDA	4611	F		0.00	04/04/78	0.067	B	0.067			M	UCB	AW
CA	ORINDA	4610	R		0.00	04/04/78	B 0.800	B	0.800			M	UCB	AW
CA	PACIFICA	4866	D			07/05/77	B 0.050		0.750			M	UCB	AW
CA	PACIFICA	4873	D			07/05/77	0.025		0.380			M	UCB	AW
CA	PACIFICA	4872	D			07/05/77	B 0.025		0.350			M	UCB	AW
CA	PATTERSON, ALAMEDA CO.	4783	F		0.00	01/09/78	0.050		2.100			M	UCB	AW
CA	PIEDMONT	4870	D		0.20	06/22/77	0.400		0.800			M	UCB	AW
CA	PINOLE	4327	D		0.55	09/23/76	B 0.016		0.032			M	UCB	AW
CA	PITTSBURG	16922	F		0.00	08/28/74	B 0.010	N	0.070			M	EPC	AA
CA	PITTSBURG	4309	D		4.00	08/13/76	0.100		0.400			M	UCB	AW
CA	PITTSBURG	4308	D		2.00	08/13/76	0.050		0.200			M	UCB	AW
CA	PITTSBURG	4307	F		0.00	08/13/76	0.040		0.760			M	UCB	AW
CA	PITTSBURG	4824	F		0.00	04/18/77	B 0.025		0.050			M	UCB	AW
CA	PITTSBURG, ASBESTOS PAPER PLNT		D		?	03/04/75	B 0.900	B	0.900			M	MCC	AD
CA	PLEASANT HILL	4831	D		2.80	04/18/77	0.025		1.900			M	UCB	AW
CA	PLEASANT HILL	4438	D		2.80	05/11/77	B 0.012		0.038			M	UCB	AW
CA	PLEASONTON, ALAMEDA CO.	4602					0.050		0.100			M	UCB	AW
CA	PLEASONTON, ALAMEDA CO.	4601				02/28/78	0.200		1.400			M	UCB	AW
CA	PLEASONTON, ALAMEDA CO.	4784				02/28/78	0.150		1.600			M	UCB	AW
CA	PLEASONTON, ALAMEDA CO.	4603				02/28/78	B 0.025	B	0.025			M	UCB	AW
CA	REDDING		R			03/02/75	B 1.260	B	1.260			M	MCC	AD
CA	REDDING		F			03/02/75	B 0.500	B	0.500			M	MCC	AD
CA	REDDING		R			09/03/75	B 0.630	B	0.630			M	MCC	AD
CA	REDDING		R			09/03/75	B 0.550	B	0.550			M	MCC	AD
CA	REDDING		F			09/03/75	0.840					M	MCC	AD

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(METHOD:) M=MILLIPORE COND. WASH,, N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
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SINAI HOSP,, NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE	AMPHIBOLE MFL	CHRYSOTILE	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
CA	REDDING		R			09/03/75		8,600				M	MCC	AD
CA	REDWOOD	4373	D		0,45	12/17/76		0,400		0,550		M	UCB	AW
CA	REDWOOD CITY		D		?	07/00/74			B	0,020		B	UCB	AL
CA	REDWOOD CITY	4380	D			12/17/76		0,300		0,400		M	UCB	AW
CA	REDWOOD CITY	4379	D		0,07	12/17/76		0,280		0,400		M	UCB	AW
CA	REDWOOD CITY	4890				07/14/77	B	0,100		0,200		M	UCB	AW
CA	REDWOOD CITY	4885	D		0,45	07/14/77	B	0,025		0,025		M	UCB	AW
CA	REDWOOD CITY	4888	D			07/14/77		0,025		0,025		M	UCB	AW
CA	REDWOOD CITY	4886	D		0,07	07/14/77		0,074		1,600		M	UCB	AW
CA	REDWOOD CWD					07/01/74	B	0,033	B	0,033		M	UCB	AW
CA	REDWOOD SCHOOL	4317	D			12/17/76	B	0,050	B	0,050		M	UCB	AW
CA	RICHMOND	4864	D		0,50	06/22/77	B	0,050		0,100		M	UCB	AW
CA	S. FRAN, E. BAY, WEAPONS BASE	4772				09/22/77	B	0,025	B	0,025		M	UCB	AW
CA	S. SAN FRANCISCO	4711	D			07/07/77		0,075		0,300		M	UCB	AW
CA	S. SAN FRANCISCO	4715	D		1,20	07/07/77	B	0,100		0,400		M	UCB	AW
CA	S. SAN FRANCISCO	4712				07/07/77	B	0,025		1,500		M	UCB	AW
CA	S. SAN FRANCISCO	4718	D		2,70	07/07/77		0,150		0,200		M	UCB	AW
CA	S. SAN FRANCISCO	4717	D		3,90	07/07/77	B	0,025		0,150		M	UCB	AW
CA	S. SAN FRANCISCO	4716				07/07/77		0,050		4,000		M	UCB	AW
CA	SACRAMENTO, ARCADE CO.	24672				04/01/75	B	0,040	N	0,200		M	EPC	AA
CA	SAN ANDREAS	4815	F		0,00	02/17/76	B	0,250		1,900		M	UCB	AW
CA	SAN ANDREAS	4454	F		0,00	05/26/77	B	0,025		0,400		M	UCB	AW
CA	SAN ANDREAS	4466	F		0,00	05/26/77	B	0,025		0,320		M	UCB	AW
CA	SAN ANDREAS	4460	F		0,00	05/26/77		0,050		0,800		M	UCB	AW
CA	SAN ANDREAS	4766	F		0,00	08/17/77		0,050		0,930		M	UCB	AW
CA	SAN ANDREAS	4788	F		0,00	01/11/78	B	0,025		0,700		M	UCB	AW
CA	SAN BRUNO	4457	D			05/26/77	B	0,025	B	0,025		M	UCB	AW
CA	SAN BRUNO	4459	D			05/26/77	B	0,025		0,075		M	UCB	AW
CA	SAN BRUNO	4458	D			05/26/77	B	0,025		0,600		M	UCB	AW
CA	SAN BRUNO	4463	D			05/26/77	B	0,025	B	0,025		M	UCB	AW
CA	SAN BRUNO SCHOOL	4371	D			12/14/76		0,120		2,200		M	UCB	AW
CA	SAN BRUNO SCHOOL	4370	D			12/14/76		0,040		0,680		M	UCB	AW
CA	SAN CARLOS	4467	D			05/26/77	B	0,200		16,000		M	UCB	AW
CA	SAN CARLOS	4891	D		3,30	07/14/77		0,084		6,400		M	UCB	AW
CA	SAN CARLOS	4889	D		3,00	07/14/77	B	0,100		6,000		M	UCB	AW
CA	SAN CARLOS	4779	D		3,00	12/06/77	B	0,200		12,000		M	UCB	AW
CA	SAN CARLOS	4780	D		3,30	12/06/77	B	0,200		19,000		M	UCB	AW
CA	SAN FRANCISCO		D		?	01/09/75	B	0,020		1,500		M	EPC	AA
CA	SAN FRANCISCO		D		?	09/10/75	B	0,300	B	0,300		M	MCC	AC
CA	SAN FRANCISCO, ALAMEDA E. PORT		F		0,00	03/05/75	B	0,220	B	0,220		M	UCB	AW
CA	SAN FRANCISCO, ALAMEDA E. PORT		R		0,00	05/00/75	B			0,490		M	EPC	AW
CA	SAN FRANCISCO, ALAMEDA E.PORT	4385	F		0,00	12/20/76	B	0,050		0,050		M	UCB	AW
CA	SAN FRANCISCO, ALAMEDA E.PORT	4767	F		0,00	08/15/77		0,050		0,200		M	UCB	AW
CA	SAN FRANCISCO, ALAMENDA EAST		F		0,00	03/05/75	B	0,200	B	0,200		M	MCC	AC
CA	SAN FRANCISCO, ALAMENDA EAST		F		0,00	09/10/75	B	0,400	B	0,400		M	MCC	AC
CA	SAN FRANCISCO, B-10 1384 31ST	4883	D			07/12/77	B	0,250		26,000		M	UCB	AW
CA	SAN FRANCISCO, B-11 2600 MORO	4880	D			07/12/77		2,500		44,000		M	UCB	AW

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED		AMPHIBOLE MFL		CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
CA	SAN FRANCISCO, BARNAL HGTS	4816	D			02/17/77	B	0.050		0.500		M	UCB	AW
CA	SAN FRANCISCO, BL-1 2908 KIR	4876	D			07/12/77		0.200		14.000		M	UCB	AW
CA	SAN FRANCISCO, BL-2 1207 33D	4877	D			07/12/77	B	0.330		24.000		M	UCB	AW
CA	SAN FRANCISCO, BL-3 2945 LIN	4881	D			07/12/77	B	0.500		55.000		M	UCB	AW
CA	SAN FRANCISCO, BL-4&6 3015 J	4884	D			07/12/77	B	0.200		20.000		M	UCB	AW
CA	SAN FRANCISCO, BL-5 28TH	4878	D			07/12/77		0.600		15.000		M	UCB	AW
CA	SAN FRANCISCO, BL-72629 JUD	4879	D			07/12/77		0.200		14.000		M	UCB	AW
CA	SAN FRANCISCO, BL-8 2822 MOR	4875	D			07/12/77		0.600		58.000		M	UCB	AW
CA	SAN FRANCISCO, BL-9 3128 IRV	4882	D			07/12/77	B	0.200		13.000		M	UCB	AW
CA	SAN FRANCISCO, CALAVERAS RES		R		0.00	03/05/75	N	45.000		240.000		M	UCB	AW
CA	SAN FRANCISCO, CALAVERAS RES		R		0.00	05/00/75	B			61.700		M	EPC	AW
CA	SAN FRANCISCO, CALAVERAS RES	4397	R		0.00	12/20/76	B	0.400		30.000		M	UCB	AW
CA	SAN FRANCISCO, CISTERN BUCH/CA	43438	F		0.00	<00/00/08		0.050		0.800		M	UCB	AW
CA	SAN FRANCISCO, CIVIC CENTER	4344	F		0.00	<00/00/60		0.020		0.140		M	UCB	AW
CA	SAN FRANCISCO, COL HILL SYS1	4760				08/11/77		0.300		10.000		M	UCB	AW
CA	SAN FRANCISCO, COL HILL 1 HOS	4394	D			12/20/76		0.100		0.980		M	UCB	AW
CA	SAN FRANCISCO, CRYSTAL SP. RES		F		0.00	01/22/75	B	0.067		4.700		M	UCB	AW
CA	SAN FRANCISCO, CRYSTAL SPRING	23219	D		?	06/05/75	N	0.070		0.400		M	EPC	AB
CA	SAN FRANCISCO, CRYSTAL SPRINGS		F		0.00	09/10/75	B	0.500	B	0.500		M	MCC	AC
CA	SAN FRANCISCO, HETCH.HETCHY		D		0.00	07/00/73				1.000		B	UCB	AL
CA	SAN FRANCISCO, HETCH.HETCHY		D		0.00	07/00/74				0.200		B	UCB	AL
CA	SAN FRANCISCO, HETCH.HETCHY	23221	D		?	06/05/75	N	0.070		0.500		M	EPC	AB
CA	SAN FRANCISCO, KIERNEY/MERCHNT	4342C	F		0.00	<00/00/53	B	0.050	B	0.050		M	UCB	AW
CA	SAN FRANCISCO, L. CRYSTAL RES		R		0.00	03/05/75		4.100		71.000		M	UCB	AW
CA	SAN FRANCISCO, L. CRYSTAL RES		R		0.00	03/05/75		4.300		180.000		M	UCB	AW
CA	SAN FRANCISCO, L. CRYSTAL RES		R		0.00	05/00/75	B			1.480		M	EPC	AW
CA	SAN FRANCISCO, L. CRYSTAL RES		F		0.00	05/24/76	B	1.000		130.000		M	UCB	AW
CA	SAN FRANCISCO, L. CRYSTAL RES		R		0.00	05/24/76	B	0.400		60.000		M	UCB	AW
CA	SAN FRANCISCO, LIVERMORE LAB											M	UCB	AW
CA	SAN FRANCISCO, LOM-BROD. RES		F		0.00	05/00/75	B			3.780		M	EPC	AW
CA	SAN FRANCISCO, LOMBARD SYS	4389	D			12/20/76		0.050		0.250		M	UCB	AW
CA	SAN FRANCISCO, LOMBARD SYS	4761	D			08/11/77		0.200		21.000		M	UCB	AW
CA	SAN FRANCISCO, MER MANOR SYS	4388	D			12/20/76		0.150		1.800		M	UCB	AW
CA	SAN FRANCISCO, MERCED SYS 2	4749				08/11/77	B	0.330		38.000		M	UCB	AW
CA	SAN FRANCISCO, PICARCITOS RES		R		0.00	03/05/75	B	2.500	B	2.500		M	UCB	AW
CA	SAN FRANCISCO, PORTRERO HGTS	4755	D			08/11/77		0.800		15.000		M	UCB	AW
CA	SAN FRANCISCO, POTRERO HGTS20	4381	D			12/20/76		0.150		1.800		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS		F		0.00	03/05/75	B	0.050	B	0.050		M	MCC	AC
CA	SAN FRANCISCO, SAN ANDREAS	23214	F		0.00	06/04/75	B	0.010		1.400		M	EPC	AB
CA	SAN FRANCISCO, SAN ANDREAS		F		0.00	09/10/75	B	0.500	B	0.500		M	MCC	AC
CA	SAN FRANCISCO, SAN ANDREAS FP	4366	F		0.00	12/14/76		0.320		1.400		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS FP	4365	R		0.00	12/14/76	B	0.080		3.700		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS FP	4367	F		0.00	12/14/76		0.080		3.400		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS RES		F		0.00	07/01/74	B	0.100	B	0.100		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS RES		F		0.00	03/05/75	B	0.050	B	0.050		M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS RES		R		0.00	03/05/75		4.100	B			M	UCB	AW
CA	SAN FRANCISCO, SAN ANDREAS RES		F		0.00	05/00/75	B			1.420		M	EPC	AW

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
CA	SAN FRANCISCO, SAN ANDREAS RES		R		0,00	05/00/75	B			3,490		M	EPC	AW
CA	SAN FRANCISCO, SAN ANTONIO RES		R		0,00	03/05/75	N	0,560	N	0,560		M	UCB	AW
CA	SAN FRANCISCO, SAN ANTONIO RES		R		0,00	05/00/75	B			0,360		M	EPC	AW
CA	SAN FRANCISCO, SF MED SCHOOL	4437	D			05/17/77		0,400		22,000		M	UCB	AW
CA	SAN FRANCISCO, STANFORD HGTS	4399				12/20/76	B	0,250		0,500		M	UCB	AW
CA	SAN FRANCISCO, STANFORD HGTS	4753				08/11/77		1,300		23,000		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 1	4387				12/20/76		0,100		0,200		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 1	4750				08/11/77		1,000		38,000		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 3	4384	D			12/20/76		0,100		2,300		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 3	4762				08/11/77	B	0,170		16,000		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 4	4391	D			12/20/76		0,100		1,400		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 4	4751				08/11/77		3,200		38,000		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 7	4754				08/11/77		0,050		24,000		M	UCB	AW
CA	SAN FRANCISCO, SUNSET SYS 8	4396	D			12/20/76		0,075		0,780		M	UCB	AW
CA	SAN FRANCISCO, SUTRO #1	4390				12/20/76	B	0,050		0,500		M	UCB	AW
CA	SAN FRANCISCO, SUTRO #1	4752				08/11/77		0,500		27,000		M	UCB	AW
CA	SAN FRANCISCO, SUTRO #4	4395				12/20/76	B	0,100		0,100		M	UCB	AW
CA	SAN FRANCISCO, SUTRO #4	4756				08/11/77		0,330		70,000		M	UCB	AW
CA	SAN FRANCISCO, UCSF MED SCH	4318A	D			<00/00/64		0,400		1,800		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND RES1	4392	F		0,00	12/20/76	B	0,050	B	0,550		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND RES1	4759	F		0,00	08/11/77		0,250		23,000		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND RES2	4393	F		0,00	12/20/76		0,100		0,250		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND RES2	4758	F		0,00	08/11/77		0,250		30,000		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND SYS1	4746				08/11/77		1,700		30,000		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND SYS4	4757				08/11/77	B	0,330		32,000		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND SYS6	4748				08/11/77	B	0,330		31,000		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND 1	4386				12/20/76		0,050		0,500		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND 5	4383	D			12/20/76		0,050		0,650		M	UCB	AW
CA	SAN FRANCISCO, UNIV MND 6	4382	D			12/20/76	B	0,050		0,500		M	UCB	AW
CA	SAN FRANCISCO, UNIV MOUND RES		F		0,00	05/00/75	B			0,360		M	EPC	AW
CA	SAN FRANCISCO, UNIV. MOUND	23220	D		?	06/05/75	B	0,010		3,800		M	EPC	AB
CA	SAN FRANCISCO, 100 CAL. ST.		D			06/00/73	B	0,060		1,000		M	UCB	AW
CA	SAN FRANCISCO, 100 CAL. ST.		D			07/24/74	B	0,067		0,200		M	UCB	AW
CA	SAN FRANCISCO, 100 CAL. ST.		D			12/00/74	B	0,067		1,540		M	UCB	AW
CA	SAN JOAQUIN	4820	R		0,00	03/09/77	B	0,200	B	0,200		M	UCB	AW
CA	SAN JOAQUIN	4820A	R		0,00	03/09/77	B	1,000	B	1,000		M	UCB	AW
CA	SAN JOAQUIN	4821	R		0,00	03/10/77		0,400		0,400		M	UCB	AW
CA	SAN JOAQUIN	4821A	R		0,00	03/10/77	B	2,500		2,500		M	UCB	AW
CA	SAN JOSE		D			07/00/74			B	0,010		B	UIC	AL
CA	SAN JOSE, ALAMEDA CO.	4834	F		0,00	04/27/78	B	0,025		0,025		M	UCB	AW
CA	SAN LEANDRO		D		0,00	07/29/74	B	0,010	B	0,010		M	UCB	AW
CA	SAN LEANDRO		D		0,40	07/29/74	B	0,020	B	0,020		M	UCB	AW
CA	SAN LEANDRO	4340	D		0,00	10/07/76	B	0,020	B	0,020		M	UCB	AW
CA	SAN LEANDRO	4339	D		0,40	10/07/76	B	0,016		0,140		M	UCB	AW
CA	SAN LEANDRO	4338	F		0,00	10/07/76		0,016	B	0,016		M	UCB	AW
CA	SAN LEANDRO	4860	D		0,45	06/21/77		0,200		2,000		M	UCB	AW
CA	SAN LEANDRO	4857	D		0,00	06/21/77	B	0,050		0,100		M	UCB	AW

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE	MFL	CHRYSOTILE	MFL	BLANK	MFL	MET	LAB	REF
CA	SAN LEANDRO	4856	F		0.00	06/21/77	B	0.050	B	0.050			M	UCB	AW
CA	SAN LOUIS OBISPO	37324	F	S	0.00	02/10/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CA	SAN MATEO	4868	D			07/05/77	B	0.050	B	0.050			M	UCB	AW
CA	SAN MATEO	4892	D			07/14/77		1.000		31.000			M	UCB	AW
CA	SAN MATEO	4895	D			07/14/77		0.500		50.000			M	UCB	AW
CA	SAN MATEO	4774	D			11/17/77	B	0.025		0.050			M	UCB	AW
CA	SAN MATEO CO., BURLINGAME		D			07/01/74	B	0.033	B	0.033			M	UCB	AW
CA	SAN MATEO CO., LIVERMORE LAB					05/29/74	B	0.067	B	0.067			M	UCB	AW
CA	SAN MATEO CO., LIVERMORE LAB	4345A	D		0.90	11/09/76	B	0.050		0.200			M	UCB	AW
CA	SAN MATEO SFWD CHEM LAB	4455	D			05/26/77	B	0.200		22.000			M	UCB	AW
CA	SAN PABLO	4325	F		0.00	09/23/76	B	0.016		0.064			M	UCB	AW
CA	SAN PABLO	4810	F		0.00	01/27/77	B	0.020	B	0.020			M	UCB	AW
CA	SAN PABLO	4862	F		0.00	06/22/77	B	0.025		0.150			M	UCB	AW
CA	SAN RAMON	4843	D		3.50	06/20/77		0.050		0.350			M	UCB	AW
CA	SAN RAMON	4849	D		1.10	06/20/77		0.200		0.500			M	UCB	AW
CA	SOBRANTE		D		0.00	07/29/74	B	0.010	B	0.010			M	UCB	AW
CA	SOBRANTE		D		0.35	07/29/74	B	0.020	B	0.020			M	UCB	AW
CA	SOBRANTE	4329B	D		0.00	09/23/76	B	0.020		0.006			M	UCB	AW
CA	SOBRANTE	4328B	D		0.35	09/23/76		0.040	B	0.020			M	UCB	AW
CA	SOBRANTE	4326B	F		0.00	09/26/76	B	0.008		0.016			M	UCB	AW
CA	SOBRANTE	4846	F		0.00	06/20/77	B	0.025	B	0.025			M	UCB	AW
CA	SOBRANTE	4613	F		0.00	04/06/78	B	1.000		2.000			M	UCB	AW
CA	SOBRANTE	4612	R			04/06/78	B	0.500		0.500			M	UCB	AW
CA	SOUTHERN CALIF., CRA		F		0.00	07/00/74			B	0.020			B	UCB	AL
CA	SOUTHERN CALIF., CRA		F		0.00	07/00/74			B	0.020			B	UCB	AL
CA	SOUTHERN CALIF., SWP		F		0.00	07/00/74			B	0.020			B	UCB	AL
CA	STANISLAUS RIV., CALAVERAS CO.		R	S		06/00/77	B	0.063	B	0.063			M	MCC	AZ
CA	TRINITY RIVER, DOUGLAS		R	S		06/00/77	B	0.063	B	0.063			M	MCC	AZ
CA	WALNUT CREEK		D			12/10/74	B	0.025	B	0.025			M	UCB	AW
CA	WALNUT CREEK	4334B	R		0.00	10/07/76		0.600		0.400			M	UCB	AW
CA	WALNUT CREEK	4336	D		0.15	10/07/76	B	0.020	B	0.020			M	UCB	AW
CA	WALNUT CREEK	4335	F		0.00	10/07/76		0.040	B	0.020			M	UCB	AW
CA	WALNUT CREEK	4802	D		0.30	01/27/77		0.300		0.100			M	UCB	AW
CA	WALNUT CREEK	4828	D		0.90	04/18/77	B	0.025		0.050			M	UCB	AW
CA	WALNUT CREEK	4847	F		0.00	06/20/77	B	0.050		0.050			M	UCB	AW
CA	WEAVERVILLE		R			03/02/75	B	4.800	B	4.800			M	MCC	AD
CA	WEAVERVILLE		F			03/02/75				4.500			M	MCC	AD
CA	WEAVERVILLE		R			09/02/75		2.850	B	4.800			M	MCC	AD
CA	WEAVERVILLE		F			09/02/75		0.410					M	MCC	AD
CO	BOULDER	12630				08/28/74	B	0.020	B	0.020			M	EPC	AA
CO	DENVER, MARSTON		R			09/15/75			N	1.500			M	MCC	AC
CO	DENVER, MARSTON					09/15/75	B	0.500	B	0.500			M	MCC	AC
CO	DENVER, MARSTON CONDUIT					02/26/75	B	0.200	B	0.200			M	MCC	AC
CO	DENVER, MARSTON CONDUIT					02/26/75	N	0.060	B	0.010			M	UCB	AC
CO	DENVER, MARSTON CONDUIT 20		R			02/26/75	B	0.250	B	0.250			M	MCC	AC

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CO	DENVER, MARSTON CONDUIT 20		R			02/26/75	N	0.220					M	MCC	AC
CO	DENVER, MOFFAT					02/26/75	B	0.200	B	0.200			M	MCC	AC
CO	DENVER, MOFFAT					02/26/75	B	0.050	B	0.050			M	MCC	AC
CO	DENVER, MOFFAT		R			02/26/75	B	0.100	B	0.100			M	MCC	AC
CO	DENVER, MOFFAT		R			02/26/75	B	0.250	B	0.250			M	MCC	AC
CO	DENVER, MOFFAT	31320	F			03/18/75	B	0.070	N	0.400			M	EPC	AB
CO	DENVER, MOFFAT					09/15/75	B	0.500	B	0.500			M	MCC	AC
CO	DENVER, MOFFAT		R			09/15/75	B	0.500	B	0.500			M	MCC	AC
CO	DENVER, MOFFAT					09/15/75	B	0.500	B	0.500			M	MCC	AC
CT	ANSONIA	37501	D		0.30	03/23/77	B	0.040	N	0.100	N	0.040	M	EPC	AB
CT	ANSONIA	36600	F	W	0.00	03/23/77	B	0.040	B	0.040			M	EPC	AB
CT	AVON, AVON W.C. WELL 2	37532	F	W	0.00	04/12/77	B	0.010	B	0.010	N	0.020	M	EPC	AB
CT	AVON, AVON W.C. WELL 4	37533	F	W	0.00	04/12/77	B	0.010	B	0.010	N	0.020	M	EPC	AB
CT	AVON, AVON W.C. WELL 4	37534	D		0.80	04/12/77	N	0.050		0.100	N	0.020	M	EPC	AB
CT	AVON, AVON W.C. WELL2	37531	D		0.90	04/12/77	B	0.010		0.090	N	0.020	M	EPC	AB
CT	AVON, CONN. W.C.	36574	D		0.10	03/09/77	B	0.010	B	0.010			M	EPC	AB
CT	AVON, FARMINGTON WOODS	36580	D		1.00	03/16/77	B	0.020		0.200	B	0.020	M	EPC	AB
CT	AVON, FARMINGTON WOODS	36581	F	W	0.00	03/16/77	B	0.010		0.050	B	0.010	M	EPC	AB
CT	AVON, FARMINGTON WOODS	36580	D		1.00	03/16/77	B	0.100	N	0.500			N	EPC	AB
CT	BEACON FALLS	36566	D		0.20	03/09/77	B	0.010	B	0.010			M	EPC	AB
CT	BERLIN, KENSINGTON	36506	D		0.60	02/15/77	B	0.010	N	0.050			M	EPC	AB
CT	BERLIN, KENSINGTON	36507	F		0.00	02/15/77	B	0.010	N	0.050			M	EPC	AB
CT	BERLIN, WORTHINGTON	36488	F		0.00	02/02/77	B	0.030	N	0.200	B	0.030	M	EPC	AB
CT	BERLIN, WORTHINGTON	36489	D		0.10	02/02/77	B	0.030	N	0.050	B	0.030	M	EPC	AB
CT	BLOOMFIELD, BURR	26190	D	W	0.20	07/31/75	B	0.010		0.200			M	EPC	AB
CT	BLOOMFIELD, BURR	32974	D	W	0.20	10/07/75	B	0.010	B	0.010			M	EPC	AB
CT	BLOOMFIELD, BURR	40603	D	W	0.20	12/09/75	B	0.010	B	0.010			M	EPC	AB
CT	BLOOMFIELD, GRANT HILL	26192	D	W	0.10	07/31/75	B	0.010	N	0.010			M	EPC	AB
CT	BLOOMFIELD, GRANT HILL	32973	D	W	0.10	10/07/75	B	0.010	B	0.010			M	EPC	AB
CT	BLOOMFIELD, GRANT HILL	40601	D	W	0.10	12/09/78	B	0.010	B	0.101			M	EPC	AB
CT	BLOOMFIELD, WELL HOUSE	26191	F	W	0.00	07/31/75	B	0.010	B	0.010			M	EPC	AB
CT	BLOOMFIELD, WELL HOUSE	32972	F	W	0.00	10/07/75	B	0.010	N	0.040			M	EPC	AB
CT	BLOOMFIELD, WELL HOUSE	40602	F	W	0.00	12/09/75	B	0.010	B	0.010			M	EPC	AB
CT	BRANFORD, (L. GAILLARD)	36549	F	S	0.00	02/28/77	B	0.020	B	0.020			M	EPC	AB
CT	BRIDGEPORT, EASTON	37589	F	S	0.00	05/24/77	B	0.200	B	0.200	B	0.200	M	EPC	AB
CT	BRIDGEPORT, HEMLOCK	37577	F	S	0.00	05/17/77	B	0.050		0.400	B	0.050	M	EPC	AB
CT	BRIDGEPORT, HEMLOCK	37578	D		0.30	05/17/77	B	0.100	B	0.100	B	0.100	N	EPC	AB
CT	BRIDGEPORT, HEMLOCK	37578	D		0.30	05/17/77	B	0.030	N	0.200	B	0.030	M	EPC	AB
CT	BRIDGEPORT, HEMLOCK	37580	D		0.20	05/17/77	B	0.040	N	0.200	B	0.040	M	EPC	AB
CT	BRIDGEPORT, HEMLOCK	37579	D		0.50	05/17/77	B	0.100	B	0.100	B	0.100	N	EPC	AB
CT	BRIDGEPORT, TRAP FALLS	37590	F		0.00	05/24/77	B	0.060	B	0.060	B	0.060	M	EPC	AB
CT	BRISTOL	37556	F	S	0.00	05/10/77	B	0.010	N	0.050			N	EPC	AB
CT	BROOKFIELD, BROOKACRES	36554	D		0.30	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, BROOKACRES	36553	F	W	0.00	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, BUTTERNUT RIDGE	36544	F	W	0.00	02/24/77	B	0.010	B	0.010			M	EPC	AB

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							B/N	MFL	B/N	MFL	B/N	MFL			
CT	BROOKFIELD, BUTTERNUT RIDGE	36599	D		0.50	03/22/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	BROOKFIELD, CANDLEWOOD	36474	F	W	0.00	01/24/77	B	0.010		0.200	N	0.010	M	EPC	AB
CT	BROOKFIELD, CANDLEWOOD	36473	D		0.20	01/24/77	B	0.010	N	0.050	N	0.010	M	EPC	AB
CT	BROOKFIELD, DANCON	36556	D		0.50	03/02/77	B	0.010	N	0.050			M	EPC	AB
CT	BROOKFIELD, DANCON	36555	F	W	0.00	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, GREENRIDGE	37517	F	W	0.00	04/01/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	BROOKFIELD, INDIAN FIELDS #1	36564	F	W	0.00	03/03/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, INDIAN FIELDS #1	36565	D		0.15	03/03/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, INDIAN FIELDS #2	36563	F	W	0.00	03/03/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, RURAL W.C.	36562	D		0.50	03/02/77	B	0.010		0.100			M	EPC	AB
CT	BROOKFIELD, RURAL W.C.	36561	F	W	0.00	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, RURAL W.C.	36560	F	W	0.00	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELD, RURAL W.C.	36559	D		1.00	03/02/77	B	0.010	N	0.050			M	EPC	AB
CT	BROOKFIELD, WATER SOFTNER	37518	D		0.50	04/01/77	B	0.010		0.100	B	0.010	M	EPC	AB
CT	BROOKFIELDS, CEDAR HTS	36558	D		0.50	02/03/76	B	0.010	B	0.010			M	EPC	AB
CT	BROOKFIELDS, CEDAR HTS	36557	F	W	0.00	03/02/77	B	0.010	B	0.010			M	EPC	AB
CT	BROOKLYN, CRYSTAL	36422	F		0.00	12/14/76	B	0.010	B	0.010			M	EPC	AB
CT	BROOKLYN, CRYSTAL	36423	D		0.30	12/14/76	B	0.010	N	0.050			N	EPC	AB
CT	BURLINGTON	36573	F		0.00	01/24/77	B	0.010	N	0.050			M	EPC	AB
CT	BURLINGTON	36572	D		0.10	03/09/77	B	0.010	B	0.010			N	EPC	AB
CT	CANTON	36573	F		0.00	01/24/77	B	0.010	N	0.050			M	EPC	AB
CT	CANTON	36575	D		0.70	03/09/77	B	0.010	N	0.060			M	EPC	AB
CT	CHESHIRE	37525	F	W	0.00	04/06/77	B	0.030	N	0.200	N	0.030	N	EPC	AB
CT	CLINTON, CHESTER	36498	D		?	02/04/77	B	0.020	N	0.050	B	0.020	M	EPC	AB
CT	CLINTON, KELSEY	36494	D		0.06	02/04/77	B	0.020	B	0.020	B	0.020	M	EPC	AB
CT	CLINTON, KELSEY	36497	D		0.10	02/04/77	B	0.040	N	0.200	B	0.040	M	EPC	AB
CT	CLINTON, KELSEY	36496	D		0.10	02/04/77	B	0.030	B	0.030	B	0.020	M	EPC	AB
CT	CLINTON, KELSEY	36495	F	S	0.00	02/04/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COLCHESTER, CWD #3	36467	D		0.00	01/20/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	COLCHESTER, CWD #3	36469	F	W	0.00	01/20/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	COLCHESTER, CWD #4	36468	F	W	0.00	01/20/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	COLUMBIA	37541	D		0.70	04/18/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COLUMBIA	37540	F	W	0.00	04/18/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COVENTRY, COV. HILLS	36585	F		0.00	03/17/77	B	0.500	B	0.500	B	0.500	M	EPC	AB
CT	COVENTRY, COV. HILLS	36584	D		0.50	03/17/77	B	0.100	B	0.100	B	0.100	M	EPC	AB
CT	COVENTRY, EASTVIEW	37551	D		0.20	05/05/77	B	0.500	B	0.500	B	0.500	N	EPC	AB
CT	COVENTRY, EASTVIEW	37550	F	W	0.00	05/05/77	B	0.500	B	0.500	B	0.500	N	EPC	AB
CT	COVENTRY, LAKEWOOD HTS.	37553	D		0.20	05/05/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COVENTRY, LAKEWOOD HTS.	37552	F	W	0.00	05/05/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COVENTRY, NORTHFIELD-VIL	37555	D	B	0.50	05/09/77	B	0.010	N	0.050	0		M	EPC	AB
CT	COVENTRY, NORTHFIELD-VIL	37554	F	W	0.00	05/09/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	COVENTRY, PILGRIM HILLS	36583	D		0.10	03/17/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	COVENTRY, PILGRIM HILLS	36582	F	W	0.00	03/17/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	CROMWELL, F. D.	36404	F	W	0.00	12/09/76	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	CROMWELL, F. D.	36403	D	W	1.50	12/09/76	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	CROMWELL, F. D.	37611	D		1.50	07/11/77	B	0.010	B	0.010			M	EPC	AB
CT	CROMWELL, F. D.	37610	F	W	0.00	07/11/77	B	0.010	B	0.010			M	EPC	AB

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(METHOD:) M=MILLIPORE COND. WASH., N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=DOW CHEMICAL, MIDLAND, MI., UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH., SEATTLE, MSS= MT. SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT UMD=UNIV. OF MINN., DULUTH

STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL		BLANK MFL		MET	LAB	REF
CT	DANBURY, M. RIVER	36536	F	W	0.00	02/24/77	B 0.030	B	0.030				M	EPC	AB
CT	DANBURY, PEARCE	36529	F	W	0.00	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, PEARCE	36530	D		0.50	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, RIDGEBURY	36459	D		0.50	01/12/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, RIDGEBURY	36460	F	W	0.00	01/12/77	B 0.010	N	0.050	B	0.010		M	EPC	AB
CT	DANBURY, SHERWOOD	36533	F	W	0.00	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, SHERWOOD	36534	D		0.30	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, W. D.	36551	F	S	0.00	03/01/77	B 0.010	B	0.010	N	0.010		M	EPC	AB
CT	DANBURY, W. D.	36552	D		1.70	03/01/77	B 0.010	B	0.010	N	0.010		M	EPC	AB
CT	DANBURY, WILLOW RUN	36531	F	W	0.00	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DANBURY, WILLOW RUN	36532	D		0.30	02/24/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	DARIEN	36519	D		2.00	02/22/77	B 0.200	N	0.800	B	0.200		M	EPC	AB
CT	DARIEN	36520	F		0.00	02/22/77	B 0.010		0.050	B	0.010		M	EPC	AB
CT	DEEP RIVER, GUIL-CHESTER	36498	F		0.00	01/20/77	B 0.010	N	0.050				N	EPC	AB
CT	DERBY	37607	F	S	0.00	06/13/77	B 0.050	N	0.200	B	0.050		N	EPC	AB
CT	EAST HADDAM	37544	F		0.00	04/02/77	B 0.010	N	0.050				N	EPC	AB
CT	EAST HARTFORD, MDC	36579	F		0.00	03/15/77	B 0.010	B	0.010				N	EPC	AB
CT	EAST HAVEN, L. SALTESTALL	36548	F		0.00	02/28/77	B 0.010	B	0.010				N	EPC	AB
CT	EAST LYME	37512	D		4.00	03/31/77	B 0.010		0.400	B	0.010		M	EPC	AB
CT	EAST LYME	37512	D		4.00	03/31/77	B 0.030	N	0.200	B	0.030		N	EPC	AB
CT	EAST LYME	37511	F	W	0.00	03/31/77	B 0.020	N	0.100	B	0.020		M	EPC	AB
CT	EAST LYME, DODGETOWN	37513	F	W	0.00	03/31/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	EAST LYME, DODGETOWN	37514	D		0.20	03/31/77	B 0.020	N	0.080	B	0.020		M	EPC	AB
CT	EAST WINDSOR, ROCKVILLE	37562	F	S	0.00	05/13/77	B 0.010	B	0.100				M	EPC	AB
CT	EAST WINDSOR, ROCKVILLE	37565	D		3.70	05/13/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	EASTON, SEE BRIDGEPORT	37577													
CT	ELLINGTON, ACRES	37574	D		0.50	05/16/77	B 0.010		0.100	B	0.010		M	EPC	AB
CT	ELLINGTON, ACRES	37573	F	W	0.00	05/16/77	B 0.010	B	0.010	B	0.010		M	EPC	AB
CT	ELLINGTON, CWC	37593	D		0.10	05/25/77	B 0.020	B	0.020	B	0.020		M	EPC	AB
CT	ELLINGTON, ROCKVILLE	37562	F		0.00	05/13/77	B 0.100	B	0.100	B	0.100		M	EPC	AB
CT	ELLINGTON, ROCKVILLE	37563	D		0.80	05/13/77	B 0.100	B	0.100				M	EPC	AB
CT	ENFIELD, CWC	37566	D		0.90	05/13/77	B 0.030	N	0.200	B	0.030		M	EPC	AB
CT	ENFIELD, CWC	37567	F		0.00	05/13/77	B 0.030	B	0.030	B	0.030		M	EPC	AB
CT	ENFIELD, HAZARDVILLE	37575	D		1.00	05/16/77	B 0.010	N	0.050	B	0.010		M	EPC	AB
CT	ENFIELD, HAZARDVILLE	37576	F	W	0.00	05/16/77	B 0.010	N	0.050	B	0.010		M	EPC	AB
CT	FARMINGTON, UNIONVILLE	37619	D		1.00	00/00/77	B 0.030		0.350	B	0.030		N	EPC	AB
CT	FARMINGTON, UNIONVILLE	37618	F	W	0.00	00/00/77	B 0.030	B	0.030	B	0.030		M	EPC	AB
CT	FARMINGTON, UNIONVILLE	37616	F	S	0.00	07/13/77	B 0.030	B	0.030	B	0.030		M	EPC	AB
CT	FARMINGTON, UNIONVILLE	37617	D		1.00	07/13/77	B 0.030		10.200	B	0.030		M	EPC	AB
CT	FARMINGTON, UNIONVILLE	37655	D		1.00	12/27/77	B 0.030		0.400				M	EPC	AB
CT	FARMINGTON, UNIONVILLE	37656	D		1.00	12/27/77	B 0.030		0.860				M	EPC	AB
CT	FARMINGTON, W. C.	37618	F	W	0.00	07/13/77	B 0.010	B	0.010				M	EPC	AB
CT	FARMINGTON, W. C.	37619	D		0.50	07/13/77	B 0.010	N	0.050				M	EPC	AB
CT	GLASTONBURY	36415	D		0.20	12/11/76	B 0.010	B	0.010				M	EPC	AB
CT	GLASTONBURY	36416	F	W	0.00	12/11/76	B 0.010	N	0.060				M	EPC	AB
CT	GRANBY	36430	F	W	0.00	12/17/76	B 0.010	N	0.060				M	EPC	AB
CT	GRANBY	36431	D		0.70	12/17/76	B 0.010	B	0.010				M	EPC	AB

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C	MILES PIPE	DATE COLLECTED	AMPHIBOLE		CHRYSOTILE		BLANK		MET	LAB	REF
								MFL		MFL		MFL				
CT	GREENWICH, HILLCREST	36516	D			0.50	02/22/77	B 0.200	B	0.200	B	0.200	M	EPC	AB	
CT	GREENWICH, MIANUS	36515	F	S		0.00	02/22/77	B 0.060	B	0.060	B	0.060	M	EPC	AB	
CT	GREENWICH, PUTNAM	36514	F	S		0.00	02/22/77	B 0.100	B	0.100	B	0.020	M	EPC	AB	
CT	GRISWOLD	36434	D			0.00	12/20/76	B 0.020	N	0.100	B	0.020	M	EPC	AB	
CT	GRISWOLD	36433	D			3.00	12/20/76	B 0.020		0.200	B	0.020	M	EPC	AB	
CT	GRISWOLD	36433	D			3.00	12/20/76	B 0.030	N	0.200	B	0.030	N	EPC	AB	
CT	GROTON, S.C.W.A.	36442	F	W		0.00	12/28/76	B 0.020	B	0.020	B	0.020	M	EPC	AB	
CT	GROTON, S.C.W.A.	36443	D			0.30	12/28/76	N 0.100		0.400	B	0.020	M	EPC	AB	
CT	GROTON, UTILITY	36490	F	S		0.00	02/03/77	B 0.200	N	1.200	B	0.200	M	EPC	AB	
CT	GROTON, UTILITY	36492	D			5.00	02/03/77	B 0.100	B	0.100	B	0.100	M	EPC	AB	
CT	GROTON, UTILITY	36491	D			3.30	02/03/77	B 0.200	B	0.200	B	0.100	M	EPC	AB	
CT	GROTON, UTILITY	36493	D			5.00	02/03/77	B 0.030	N	0.200	B	0.200	M	EPC	AB	
CT	GUILFORD	37608	F	W		0.00	07/06/77	B 0.010	N	0.050	B	0.200	M	EPC	AB	
CT	GUILFORD	37609	D			0.50	07/06/77	B 0.010	N	0.050	N	0.010	M	EPC	AB	
CT	HAMDEN, L. GREEN	37529	F	S		0.00	04/06/77	B 0.020	N	1.000	N	0.010	N	EPC	AB	
CT	HAMDEN, M. CARMEL	37528	F	W		0.00	04/06/77	B 0.030	B	0.030	N	0.020	N	EPC	AB	
CT	HAMDEN, S. GIANT #2	37526	F	W		0.00	04/06/77	B 0.010	B	0.010	N	0.030	N	EPC	AB	
CT	HAMDEN, S. GIANT #3	37527	F	W		0.00	04/06/77	B 0.010	B	0.010	N	0.010	N	EPC	AB	
CT	HARTFORD, MDC SEE E HARTFORD	36579														
CT	KENT	37649	F	S		0.00	07/29/77	B 0.100	B	0.100	B	0.100	N	EPC	AB	
CT	KILLINGLY, CRYSTAL #1	36420	F	W		0.00	12/14/76	B 0.030	B	0.030	N	0.060	M	EPC	AB	
CT	KILLINGLY, CRYSTAL #1	36421	D			0.30	12/14/76	B 0.030	B	0.030	N	0.060	M	EPC	AB	
CT	KILLINGLY, CRYSTAL #2	36422	F	W		0.00	12/14/76	B 0.010	B	0.010	N	0.020	M	EPC	AB	
CT	KILLINGLY, CRYSTAL #2	36423	D			0.30	12/14/76	B 0.010	B	0.010	N	0.020	M	EPC	AB	
CT	KILLINGLY, WILLIAMSVILLE	36418	F	W		0.00	12/14/76	B 0.010	B	0.010	N	0.020	M	EPC	AB	
CT	KILLINGLY, WILLIAMSVILLE	36419	D			0.30	12/14/76	B 0.010	B	0.010	N	0.020	M	EPC	AB	
CT	LEDYARD, SCWA #1 & #2	36438	F	W		0.00	12/28/76	B 0.060	N	0.300	B	0.060	M	EPC	AB	
CT	LEDYARD, SCWA #1 & #2	36439	D			0.20	12/28/76	B 0.010	B	0.010	B	0.010	M	EPC	AB	
CT	LEDYARD, SCWA #3	36437	F	W		0.00	12/18/76	B 0.010	N	0.060	B	0.010	M	EPC	AB	
CT	LEDYARD, SCWA-BAR	36448	F	W		0.00	01/03/77	B 0.020		0.300	N	0.040	N	EPC	AB	
CT	LEDYARD, SCWA-BAR	36448	F	W		0.00	01/03/77	B 0.020		0.300	N	0.040	M	EPC	AB	
CT	LEDYARD, SCWA-BAR	36449	D			0.20	01/03/77	N 0.070		0.090	N	0.030	M	EPC	AB	
CT	LEDYARD, SCWA-FVH	36440	F	W		0.00	12/28/76	B 0.030	B	0.030	B	0.030	M	EPC	AB	
CT	LEDYARD, SCWA-FVH	36441	D			0.30	12/28/76	B 0.050	N	0.200	B	0.050	M	EPC	AB	
CT	LEDYARD, SCWA-GRAY FARM	36450	F	W		0.00	01/03/77	B 0.030	B	0.030	N	0.060	M	EPC	AB	
CT	LEDYARD, SCWA-GRAY FARM	36451	D			0.70	01/03/77	B 0.010	N	0.060	N	0.020	M	EPC	AB	
CT	LITCHFIELD	37630	F	W		0.00	07/20/77	B 0.010	B	0.010	B	0.010	M	EPC	AB	
CT	LITCHFIELD	37631	D			1.00	07/20/77	B 0.010	N	0.050	B	0.010	M	EPC	AB	
CT	MANCHESTER, SURFACE	36411	F	S		0.00	12/10/76	B 0.100	B	0.100	B	0.010	M	EPC	AB	
CT	MANCHESTER, SURFACE	37542	D			0.20	04/02/77	B 0.100	B	0.100	B	0.010	M	EPC	AB	
CT	MANCHESTER, WELL	36413	D			0.02	12/10/76	B 0.010	B	0.010	B	0.010	M	EPC	AB	
CT	MANCHESTER, WELL	36414	F	W		0.00	12/10/76	B 0.010	B	0.010	B	0.010	M	EPC	AB	
CT	MANSFIELD, HARDWOOD	36481	F	W		0.00	01/27/77	B 0.010	N	0.050			N	EPC	AB	
CT	MANSFIELD, HARDWOOD	36482	D			0.20	01/27/77	B 0.010	N	0.050			N	EPC	AB	
CT	MANSFIELD, U. OF CONN.	36479	D			3.00	01/27/77	B 0.010	N	0.050			M	EPC	AB	
CT	MANSFIELD, U. OF CONN.	36480	F	W		0.00	01/27/77	B 0.010	N	0.050			M	EPC	AB	
CT	MARLBOROUGH	36409	F	W		0.00	12/09/76	B 0.100	B	0.100	B	0.100	N	EPC	AB	

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CT	MARLBOROUGH	36410	D		0.10	12/09/76	B	0.100	B	0.100	B	0.100	N	EPC	AB
CT	MERIDAN	37544	F	W	0.00	05/02/77	B	0.010	N	0.050	N	0.020	M	EPC	AB
CT	MERIDAN	37543	F	S	0.00	05/05/77	B	0.010	B	0.010	N	0.020	N	EPC	AB
CT	MIDDLEBURY, WESTOVER	37635	F	S	0.00	07/22/77	B	0.100		1.400	B	0.100	M	EPC	AB
CT	MIDDLETOWN	36406	D		0.25	12/09/76	B	0.050	B	0.050	B	0.050	N	EPC	AB
CT	MIDDLETOWN	36405	F	W	0.00	12/09/76	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	MILFORD, SEE BRANFORD	36549													
CT	MONROE	37581	F	W	0.00	05/17/77	B	0.010	N	0.050	N	0.010	M	EPC	AB
CT	MONROE	37582	D		0.50	05/17/77	B	0.010		0.050	N	0.010	M	EPC	AB
CT	MONTVILLE, DEER RUN	36470	F	S	?	01/20/77	B	0.020	B	0.020	N	0.010	M	EPC	AB
CT	MONTVILLE, G.J.W.C.	36471	D		1.00	01/20/77	B	0.030	N	0.200	N	0.010	N	EPC	AB
CT	MONTVILLE, G.J.W.C.	36471	D		1.00	01/20/77	N	0.050		0.200	N	0.010	M	EPC	AB
CT	MONTVILLE, G.J.W.C.	36472	F	W	0.00	01/20/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	MONTVILLE, OAKDALE HTS	36461	F	W	0.00	01/19/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	MONTVILLE, OAKDALE HTS	36463	D		0.30	01/19/77	B	0.010	N	0.050	N	0.010	M	EPC	AB
CT	MONTVILLE, OAKDALE HTS	36462	F	W	0.00	01/19/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	MONTVILLE, SCWA	36453	D		0.70	01/03/77	B	0.010	N	0.070	B	0.010	M	EPC	AB
CT	MONTVILLE, SCWA	36452	F	W	0.00	01/03/77	B	0.010	N	0.070	B	0.010	M	EPC	AB
CT	MORRIS, WATERBURY W.C.	37633	F	S	0.00	07/22/77	B	0.200	B	0.200	B	0.200	M	EPC	AB
CT	NAUGATUCK, CONN. W. C.	36566	D		0.80	03/09/77	B	0.010	B	0.010			M	EPC	AB
CT	NAUGATUCK, CONN. W. C.	36568	D		0.80	03/09/77	B	0.020	B	0.020			M	EPC	AB
CT	NAUGATUCK, CONN. W. C.	36567	D		0.50	03/09/77	B	0.010	B	0.010			M	EPC	AB
CT	NAUGATUCK, INDIAN HILL	36455	D		0.20	01/04/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NAUGATUCK, INDIAN HILL	36454	F	W	0.00	01/04/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NEW BRITIAN	37519	F	S	0.00	04/05/77	B	0.010		0.200	N	0.010	M	EPC	AB
CT	NEW BRITIAN	37654	F	S	0.00	09/08/77	B	0.100		0.500	B	0.010	M	EPC	AB
CT	NEW CANAAN	37508	D		0.02	03/30/77	B	0.100	N	0.500	N	0.200	M	EPC	AB
CT	NEW CANAAN	37507	F	S	0.00	03/30/77	B	0.100	N	0.500	N	0.200	M	EPC	AB
CT	NEW FAIRFIELD, BALL POND	36456	F	W	0.00	01/06/77	B	0.100	B	0.100			M	EPC	AB
CT	NEW FAIRFIELD, FIELDSTONE R	36537	F	W	0.00	02/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW FAIRFIELD, FIELDSTONE R	36538	D		0.20	02/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW FAIRFIELD, OAKWOOD	36539	F	W	0.00	02/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW FAIRFIELD, OAKWOOD	36540	D		0.20	02/24/77	B	0.010	N	0.050			M	EPC	AB
CT	NEW FAIRFIELD, POSSUM R.	36541	F	W	0.00	02/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW FAIRFIELD, POSSUM R.	36542	D		0.50	02/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW HARTFORD	37557	D		0.10	05/11/77	B	0.050	B	0.050			M	EPC	AB
CT	NEW HARTFORD	37558	F	S	0.00	05/11/77	B	0.100	B	0.100			M	EPC	AB
CT	NEW HARTFORD	37557	D		0.10	05/11/77	B	0.050	N	0.300			M	EPC	AB
CT	NEW HAVEN	24096				09/19/74	B	0.070	N	0.400			M	EPC	AA
CT	NEW HAVEN, L. GALIARD	36549	F	S	0.00	02/28/77	B	0.020	B	0.020	N	0.020	N	EPC	AB
CT	NEW HAVEN, L. HAMONESSET	37530	F	S	0.00	04/11/77	B	0.020	N	0.100			N	EPC	AB
CT	NEW HAVEN, L. SALTESTALL	36548	F	S	0.00	02/28/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	NEW HAVEN, L. WHITNEY	36547	F	S	0.00	02/28/77	B	0.200	B	0.200	N	0.200	N	EPC	AB
CT	NEW HAVEN, SPILLWAY	36550	F	S	0.00	02/28/77	B	0.050	B	0.050	N	0.050	N	EPC	AB
CT	NEW LONDON, NLWD	37516	D		0.20	03/31/77	B	0.010	N	0.060	B	0.010	M	EPC	AB
CT	NEW LONDON, NLWD	37515	F	S	0.00	03/31/77	B	0.100	N	0.500	B	0.010	M	EPC	AB
CT	NEW MILFORD, BIRCH	37639	F	W	0.00	07/26/77	B	0.020	B	0.020	N	0.040	N	EPC	AB

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C	MILES PIPE	DATE COLLECTED	AMPHIBOLE		CHRYSOTILE		BLANK		MET	LAB	REF
									MFL		MFL		MFL			
CT	NEW MILFORD, CAMELOT	37624	F	W	0.00		07/18/77	B	0.010	B	0.010	N	0.030	M	EPC	AB
CT	NEW MILFORD, CAMELOT	37625	D		0.50		07/18/77	N	0.100		0.900	N	0.030	M	EPC	AB
CT	NEW MILFORD, CANDLEWOOD	36475	F	W	0.00		01/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW MILFORD, CANDLEWOOD	36476	D		0.40		01/24/77	B	0.010		0.090			M	EPC	AB
CT	NEW MILFORD, DEAN HTS	37548	F	W	0.00		05/04/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NEW MILFORD, DEAN HTS	37549	D		0.10		05/04/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NEW MILFORD, LONE OAK	36477	D		0.10		01/24/77	B	0.010	B	0.010			M	EPC	AB
CT	NEW MILFORD, LONE OAK	36478	F	W	0.00		01/24/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	NEW MILFORD, SUNNY VALLEY	37622	F	W	0.00		07/18/77	B	0.010	B	0.010	N	0.030	M	EPC	AB
CT	NEW MILFORD, SUNNY VALLEY	37623	D		0.50		07/18/77	B	0.010	B	0.010	N	0.030	M	EPC	AB
CT	NEWINGTON, MDC	36579	F		0.00		03/15/77	B	0.010	B	0.010			M	EPC	AB
CT	NEWTOWN, CHESTNUT HILL #1	37545	F	W	0.00		05/04/77	B	0.010		1.400	N	0.020	M	EPC	AB
CT	NEWTOWN, CHESTNUT HILL #3	37546	F	W	0.00		05/04/77	B	0.010	N	0.050	N	0.020	M	EPC	AB
CT	NEWTOWN, CHESTNUT HILL #3	37547	D		0.50		05/04/77	B	0.010	N	0.050	N	0.020	M	EPC	AB
CT	NEWTOWN, NWC	37509	F	S	0.00		03/30/77	B	0.300	B	0.300	B	0.300	M	EPC	AB
CT	NEWTOWN, NWC	37510	D		1.00		03/30/77	B	0.200	N	1.200	B	0.200	N	EPC	AB
CT	NORFOLK	37643	D		0.10		07/27/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
CT	NORFOLK	37644	F	S	0.00		07/27/77	B	0.050		0.400	B	0.050	M	EPC	AB
CT	NORTH BRANFORD	37614	D		0.20		07/12/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NORTH BRANFORD	37615	F	W	0.00		07/12/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NORTH CANAAN	37641	F	S	0.00		07/27/77	B	0.090	B	0.090	B	0.090	M	EPC	AB
CT	NORTH CANAAN	37642	D		0.40		07/27/77	N	0.200		0.900	B	0.090	M	EPC	AB
CT	NORTH CANAAN	37652	D		0.50		08/09/77	B	0.030	N	0.100	B	0.030	M	EPC	AB
CT	NORTH HAVEN, S. GIANT #2	37526	F		0.00		04/06/77	B	0.010	B	0.010			M	EPC	AB
CT	NORTH HAVEN, S. GIANT #3	37527	F		0.00		04/06/77	B	0.010	B	0.010			M	EPC	AB
CT	NORTH STONINGTON	36447	D		1.70		12/28/76	B	0.010	N	0.060	N	0.010	M	EPC	AB
CT	NORTH STONINGTON	36446	F	W	0.00		12/28/76	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	NORWALK, 1ST DIST.	36522	F	W	0.00		02/23/77	B	0.060	B	0.060	B	0.060	M	EPC	AB
CT	NORWALK, 1ST DIST.	36521	F	S	0.00		02/23/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	NORWALK, 1ST DIST.	36523	D		0.20		02/23/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	NORWALK, 2ND DIST.	36524	F	S	0.00		02/23/77	B	0.100	N	0.500	B	0.100	N	EPC	AB
CT	NORWICH, HOSP.	36511	D		0.30		02/16/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	NORWICH, HOSP.	36510	F	W	0.00		02/16/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NORWICH, NWD	36509	D		1.75		02/16/77	N	0.050		0.200	B	0.010	M	EPC	AB
CT	NORWICH, NWD	36508	F	S	0.00		02/16/77	B	0.100	N	0.500	B	0.100	M	EPC	AB
CT	NORWICH, OAKLAND HTS	36513	D		0.30		02/16/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	NORWICH, OAKLAND HTS	36512	F	W	0.00		02/16/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	NORWICH, TRASK	36546	D				02/28/77	B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	OLD LYME, CHADWICH	36504	F	W	0.00		02/23/77	B	0.020	B	0.020	B	0.020	M	EPC	AB
CT	OLD LYME, CHADWICH	36505	D		0.60		02/23/77	B	0.060	N	0.300	B	0.060	M	EPC	AB
CT	OLD SAYBROOK	36497	D		0.10		02/08/77	B	0.040	N	0.200			M	EPC	AB
CT	ORANGE, WINTERGREEN	37529	F		0.00		04/06/77	B	0.060	B	0.060			N	EPC	AB
CT	PLAINFIELD, ALDRICH HTS	36417	F	W	0.00		12/14/76	B	0.010	B	0.010	N	0.020	M	EPC	AB
CT	PLAINFIELD, HILLDALE	36578	F	W	0.00		03/10/77	B	0.030	B	0.030	B	0.030	N	EPC	AB
CT	PLAINFIELD, HILLDALE	36577	D		12.00		03/10/77	B	0.010	N	0.050	B	0.010	N	EPC	AB
CT	PLAINFIELD, PWC	36425	F	W	0.00		12/14/76	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	PLAINFIELD, PWC	36424	D		0.03		12/14/76	B	0.010	N	0.050	B	0.010	M	EPC	AB

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE	AMPHIBOLE MFL	CHRYSOTILE	CHRYSOTILE MFL	BLANK	BLANK MFL	MET	LAB	REF
CT	PLAINFIELD, TRASK	36545	F	W	0.00		B	0.010	B	0.010	N	0.010	M	EPC	AB
CT	PLAINVILLE, PWC	37621	D		1.00	07/13/77	B	0.020	B	0.020	B	0.020	M	EPC	AB
CT	PLAINVILLE, PWC	37620	F	W	0.00	07/31/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
CT	PLYMOUTH, CWC	36570	F	W	0.00	03/09/77	B	0.010		0.080			M	EPC	AB
CT	PLYMOUTH, CWC	36571	D		0.30	03/09/77	B	0.010		0.100			M	EPC	AB
CT	PORTLAND, PWW	36407	F	S	0.00	12/09/76	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	PORTLAND, PWW	36408	D		3.00	12/09/76	B	0.040	N	0.200	B	0.040	N	EPC	AB
CT	PROSPECT, P. LAKE	37524	F	S	0.00	04/06/77	B	0.030		0.300	N	0.030	M	EPC	AB
CT	PUTNAM	36576	F		0.00	03/10/77	B	0.020	B	0.020	B	0.020	M	EPC	AB
CT	RIDGEFIELD, R. KNOLLS	37505	F	W	0.00	03/29/77	B	0.010	N	0.050	N	0.020	M	EPC	AB
CT	RIDGEFIELD, R. KNOLLS	37506	D		0.40	03/29/77	B	0.010	N	0.050	N	0.020	M	EPC	AB
CT	RIDGEFIELD, R.W.S.C.	36527	D		0.50	02/23/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
CT	RIDGEFIELD, R.W.S.C.	36528	F	S	0.00	02/23/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	RIDGEFIELD, SCODON-HEMLOCK	36457	F	W	0.00	01/12/77	N	0.100	B	0.020	B	0.020	M	EPC	AB
CT	RIDGEFIELD, SCODON-HEMLOCK	36458	D		0.20	01/12/77	B	0.020		0.100	B	0.020	M	EPC	AB
CT	ROCKY HILL, MDC SEE E HARTFD	36579													
CT	SALISBURY, LAKEVILLE	37646	D		0.80	07/27/77	B	0.100	B	0.100	B	0.100	M	EPC	AB
CT	SALISBURY, LAKEVILLE	37645	F	S	0.00	07/27/77	B	0.200	B	0.200	B	0.200	M	EPC	AB
CT	SEYMOUR, SWC	37606	D		0.05	06/13/77	B	0.050	N	0.200	B	0.050	M	EPC	AB
CT	SEYMOUR, SWC	37605	F	S	0.00	06/13/77	B	0.100	B	0.100	B	0.100	M	EPC	AB
CT	SHARON	37648	D		0.60	07/29/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
CT	SHARON, SSWA	37647	F	S	0.00	07/29/77	B	0.500	B	0.500	B	0.500	N	EPC	AB
CT	SHELTON, SEE BIRDGEPORT														
CT	SIMSBURY, TARRIFFVILLE	37535	D		0.50	04/12/77	B	0.010		0.100	B	0.010	N	EPC	AB
CT	SIMSBURY, TARRIFFVILLE	37536	F	W	0.00	04/12/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	SIMSBURY, VILLAGE W.C.	37539	D		1.80	04/12/77	B	0.010	N	0.050	B	0.010	N	EPC	AB
CT	SIMSBURY, VILLAGE W.C. #1	37538	F	W	0.00	04/12/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	SIMSBURY, VILLAGE W.C. #3	37537	F	W	0.00	04/12/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	SOMERS, CWC	37572	F	W	0.00	05/13/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	SOMERS, CWC	37571	D		0.70	05/13/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	SOMERS, LABUTIS	37599	D		0.50	06/02/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	SOMERS, LABUTIS	37598	F	W	0.00	06/02/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	SOUTH WINDSOR, AVERY HTS	37595	D		0.30	05/26/77	B	0.030	B	0.030	B	0.030	M	EPC	AB
CT	SOUTH WINDSOR, AVERY HTS	37594	F	W	0.00	05/26/77	B	0.030	B	0.030	B	0.030	M	EPC	AB
CT	SOUTH WINDSOR, BURHAM AC	37597	D		0.10	05/26/77	B	0.030	B	0.030	B	0.030	N	EPC	AB
CT	SOUTH WINDSOR, BURHAM AC	37596	F	W	0.00	05/26/77	B	0.030	B	0.030	B	0.030	N	EPC	AB
CT	SOUTH WINDSOR, ROCKVILLE	37564	D		0.40	05/13/77	B	0.030	B	0.030	B	0.030	N	EPC	AB
CT	SOUTHBURY, HERITAGE VILL.	36502	D		2.00	02/08/77	B	0.010	B	0.010			N	EPC	AB
CT	SOUTHBURY, HERITAGE VILL.	36503	F	W	0.00	02/08/77	B	0.010	B	0.010			N	EPC	AB
CT	SOUTHBURY, S. TRAINING SC.	36500	F	W	0.00	02/08/77	B	0.020	B	0.020			M	EPC	AB
CT	SOUTHBURY, S. TRAINING SC.	36501	D		1.20	02/08/77	B	0.010	B	0.010			M	EPC	AB
CT	SOUTHINGTON, SWD #2	37626	F	W	0.00	07/20/77	B	0.020	B	0.020	B	0.020	N	EPC	AB
CT	SOUTHINGTON, SWD #2	37627	D		0.02	07/20/77	B	0.500	B	0.500	B	0.500	N	EPC	AB
CT	SOUTHINGTON, SWD #4	37628	F	W	0.00	07/20/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	SOUTHINGTON, SWD #4	37629	D		0.30	07/20/77	B	0.500	B	0.500	B	0.500	N	EPC	AB
CT	SPRAGUE, BALTIC RES.	36432	F	S	0.00	12/20/76	B	0.100		1.800	B	0.100	M	EPC	AB
CT	STAFFORD, CWC #2	37561	D		3.10	05/13/77	B	0.200	B	0.200	N	0.200	N	EPC	AB

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CT	STAFFORD, CWC #2	37560	D		2.80	05/13/77	B	0.500	B	0.500	N	0.500	N	EPC	AB
CT	STAFFORD, CWC #2	37559	F	S	0.00	05/13/77	B	0.200	N	0.800	N	0.200	N	EPC	AB
CT	STAMFORD, SWC (REC)	36517	F	S	0.00	02/22/77	B	0.050	B	0.050	B	0.050	N	EPC	AB
CT	STAMFORD, SWC (REC)	36518	D		0.10	02/22/77	B	0.050	B	0.050	B	0.050	N	EPC	AB
CT	STONINGTON, MYSTIC VALLEY	36464	F	S	0.00	01/19/77	B	0.200	N	1.000	N	0.200	M	EPC	AB
CT	STONINGTON, MYSTIC VALLEY	36466	D		0.10	01/19/77	B	0.200	N	0.050	N	0.200	M	EPC	AB
CT	STONINGTON, MYSTIC VALLEY	36465	D		0.10	01/19/77	B	0.050	N	0.200	N	0.200	M	EPC	AB
CT	STONINGTON, SECWA	36445	D		0.20	12/28/76	B	0.020	N	0.100	B	0.020	M	EPC	AB
CT	STONINGTON, SECWA	36444	F	W	0.00	12/28/76	B	0.050	B	0.050	B	0.050	N	EPC	AB
CT	STRATFORD, ASBESTOS TEXTILE CO		D			08/06/75	B	0.300	B	0.300			M	MCC	AD
CT	STRATFORD, ASBESTOS TEXTILE CO		D			08/06/75	B	0.300	B	0.300			M	MCC	AD
CT	STRATFORD, ASBESTOS TEXTILE CO		D			08/07/75		0.400					M	MCC	AD
CT	STRATFORD, ASBESTOS TEXTILE CO		D			08/08/75				5.700			M	MCC	AD
CT	STRATFORD, ASBESTOS TEXTILE CO		D			10/20/75	B	0.400	B	0.200			M	MCC	AD
CT	STRATFORD, ASBESTOS TEXTILE CO		D			10/21/75	B	0.200	B	0.400			M	MCC	AD
CT	STRATFORD, BRIDGEPORT HYD.	37502	F	S	0.00	03/29/77	B	0.020	B	0.020	N	0.020	M	EPC	AB
CT	SUFFIELD, CWC-ND	37568	D		2.60	05/13/77	B	0.030	B	0.030	B	0.030	N	EPC	AB
CT	THOMASTON	36569	F		0.00	03/09/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	THOMASTON	37634	F	S	0.00	07/22/77	B	0.100	B	0.100	B	0.010	N	EPC	AB
CT	THOMPSON, TWC #1	36429	D		0.50	12/14/76	B	0.010	N	0.060	B	0.010	M	EPC	AB
CT	THOMPSON, TWC #1	36428	F	W	0.00	12/14/76	B	0.010	N	0.060	B	0.010	M	EPC	AB
CT	THOMPSON, TWC #3	36426	F	W	0.00	12/14/76	B	0.200	B	0.200	B	0.010	M	EPC	AB
CT	TOLLAND, BAXTER FARMS	36597	F	W	0.00	03/21/77	B	0.010	B	0.010	B	0.200	M	EPC	AB
CT	TOLLAND, BAXTER FARMS	36598	D		0.10	03/21/77	B	0.010	B	0.010	N	0.030	M	EPC	AB
CT	TOLLAND, COUNTRY HILLS	36586	F	W	0.00	03/17/77	B	0.020	B	0.020	N	0.030	M	EPC	AB
CT	TOLLAND, COUNTRY HILLS	36588	D		0.50	03/17/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
CT	TOLLAND, COUNTRY HILLS	36587	F	W	0.00	03/17/77	B	0.020	B	0.020	B	0.010	M	EPC	AB
CT	TOLLAND, HERITAGE WOOD	36594	D		0.50	03/21/77	B	0.300	B	0.300	B	0.300	N	EPC	AB
CT	TOLLAND, HERITAGE WOOD	36593	F	W	0.00	03/21/77	B	0.100	B	0.100	B	0.100	N	EPC	AB
CT	TOLLAND, SUGAR HILL	36590	D		0.20	03/21/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	TOLLAND, SUGAR HILL	36589	F	W	0.00	03/21/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	TOLLAND, SUMMIT	36592	D		0.50	03/21/77	B	0.010		0.100	B	0.010	N	EPC	AB
CT	TOLLAND, SUMMIT	36591	F	W	0.00	03/21/77	B	0.100	B	0.100	B	0.010	N	EPC	AB
CT	TOLLAND, WOODLAND	36596	D		0.40	03/21/77	B	0.040	B	0.040	N	0.100	M	EPC	AB
CT	TOLLAND, WOODLAND	36595	F	W	0.00	03/21/77	B	0.040	B	0.040	B	0.040	M	EPC	AB
CT	TORRINGTON, TWC	36487	D		2.50	01/31/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
CT	TORRINGTON, TWC	36486	F	S	0.00	01/31/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
CT	TRUMBULL, SEE BRIDGEPORT													EPC	AB
CT	VERNON, ROCKVILLE	37565	D		3.70	05/13/77	B	0.010	N	0.080	B	0.010	M	EPC	AB
CT	VERNON, ROCKVILLE	37592	D		0.50	05/25/77	B	0.010		0.090	B	0.010	M	EPC	AB
CT	VERNON, ROCKVILLE	37592	D		0.50	05/25/77	B	0.030	N	0.200	B	0.030	N	EPC	AB
CT	VERNON, TOLLCOTTVILLE	37601	D		0.30	06/06/77	B	0.020	B	0.020	B	0.020	M	EPC	AB
CT	VERNON, W.C.	37602	F	W	0.00	06/07/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	VERNON, W.C.	37603	D		0.80	06/07/77	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	W. HARTFORD	36401	F	S	0.00	12/08/76	B	0.010	B	0.010	B	0.010	N	EPC	AB
CT	W. HARTFORD	36402	D		0.25	12/08/76	B	0.040	N	0.200	B	0.010	N	EPC	AB
CT	WALLINGFORD	36483	F	W	0.00	01/28/77	B	0.010	N	0.050			M	EPC	AB

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(METHOD:) M=MILLIPORE COND, WASH,, N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=
DOW CHEMICAL, MIDLAND, MI., UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U, WASH,, SEATTLE, MSS= MT.
SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE		MFL	CHRYSOTILE		MFL	BLANK		MFL	MET	LAB	REF
CT	WALLINGFORD	36484	D		1.30	01/28/77	B	0.010	N	0.050						M	EPC	AB
CT	WASHINGTON, BRYAN MEM	37585	D		1.00	05/19/77	B	0.010	B	0.010	B	0.010				M	EPC	AB
CT	WASHINGTON, BRYAN MEM	37586	F	S	0.00	05/19/77	B	0.020	B	0.020	B	0.020				M	EPC	AB
CT	WASHINGTON, BRYAN MEM	37585	D		1.00	05/19/77	B	0.030	B	0.030	B	0.030				N	EPC	AB
CT	WASHINGTON, JUDEA	37584	F		0.00	05/19/77	B	0.020	B	0.020	N	0.020				N	EPC	AB
CT	WASHINGTON, JUDEA	37583	D		0.06	05/19/77	B	0.020	B	0.020	N	0.020				N	EPC	AB
CT	WATERBURY, MORRIS RES.	37633	F	S	0.00	07/20/77	B	0.200	B	0.200						M	EPC	AB
CT	WATERBURY, WIGWAM RES.	37634	F		0.00	07/20/77	B	0.100	B	0.100						M	EPC	AB
CT	WATERFORD	37604	F	W	0.00	06/09/77	B	0.030	B	0.030	B	0.030				N	EPC	AB
CT	WATERTOWN	37632	F	W	0.00	07/20/77	B	0.100	N	0.500	B	0.100				N	EPC	AB
CT	WEST HAVEN, MALTLY	37604	F		0.00	04/06/77	B	0.040	N	0.200						M	EPC	AB
CT	WESTBROOK	36496	D		0.30	01/28/77	B	0.040	N	0.200						N	EPC	AB
CT	WESTPORT, BRIDGEPORT HYD.	37588	D		0.40	05/24/77	B	0.010	B	0.010	B	0.010				N	EPC	AB
CT	WESTPORT, BRIDGEPORT HYD.	37587	F	W	0.00	05/24/77	B	0.010	B	0.010	B	0.010				N	EPC	AB
CT	WETHERSFIELD, SEE E HARTFORD																EPC	AB
CT	WILMINGTON	37600	D		?	06/02/77	B	0.020	N	0.100	B	0.020				M	EPC	AB
CT	WINCHESTER	36485	F	S	0.00	01/31/77	B	0.050	B	0.050	B	0.050				M	EPC	AB
CT	WINDHAM, WILLIAMANTIC	36435	F	S	0.00	12/22/76	B	0.050	B	0.050						N	EPC	AB
CT	WINDHAM, WILLIAMANTIC	36436	D		0.30	12/22/76	B	0.050	B	0.050						N	EPC	AB
CT	WINSOR LOCKS, CWC-ND	37569	F		0.50	05/13/77	B	0.010	B	0.010	B	0.010				M	EPC	AB
CT	WINSOR LOCKS, CWC-ND	37570	D		0.50	05/13/77	B	0.010	N	0.500	B	0.010				M	EPC	AB
CT	WOODBRIDGE, L. GLENN	37521	F	S	0.00	04/06/77	B	0.030	B	0.030	N	0.030				M	EPC	AB
CT	WOODBRIDGE, WALTROS	37522	F	S	0.00	04/06/77	B	0.010	N	0.050	N	0.010				M	EPC	AB
CT	WOODBURY, WWC #1	37636	D		0.50	07/26/77	B	0.020	N	0.100	N	0.040				N	EPC	AB
CT	WOODBURY, WWC #1	37638	F	W	0.00	07/26/77	B	0.020	N	0.060	N	0.040				N	EPC	AB
CT	WOODBURY, WWC #1	37637	D		0.50	07/26/77	B	0.020	B	0.020	N	0.040				M	EPC	AB
DC	DALE-CARLIA TRT. PLANT 12 HR	26376	F		0.00	09/22/76	B	0.020		0.300						M	EPC	AB
DC	DALE-CARLIA TRT. PLANT 12 HR	26376	F		0.00	09/22/76	B	0.030		0.200						N	EPC	AB
DC	WASHINGTON	17097	D			02/00/75	B	0.040	N	0.200						M	EPC	AA
DE	WILMINGTON	22904				10/36/74	B	0.050		0.300						M	EPC	AA
FL	BONITA SPRINGS	37904	F	W	0.00	03/23/77	B	0.010	B	0.010	N	0.010				M	EPC	AB
FL	CAPE CORAL	37496	F	W	0.00	02/23/77	B	0.010	B	0.010	N	0.010				M	EPC	AB
FL	FORT LAUDERDALE	13947	F		0.00	10/03/74	B	0.020	N	0.070						M	EPC	AA
FL	FORT MEYERS, FLA. CITIES CO.	37902	F	W	0.00	03/22/77	B	0.030	B	0.030	N	0.060				M	EPC	AB
FL	FORT MEYERS, FT. MEYERS W.D.	37488	F	B	0.00	03/16/77	B	0.010		0.200	B	0.010				M	EPC	AB
FL	FORT MEYERS, LEE CO.	37490	F	S	0.00	03/16/77	B	0.010	B	0.010	B	0.010				M	EPC	AB
FL	FORT MEYERS, PINE ISL.	37494	F	W	0.00	03/21/77	B	0.010		0.050	N	0.010				M	EPC	AB
FL	LAKELAND, COMBEE	39752	D	W		03/09/78	N	0.200	N	0.200						N	EPC	AB
FL	LAKELAND, L. MIRIAM DR.	39751	D	W		03/09/78	N	0.030		4.900						N	EPC	AB
FL	LAKELAND, L. MIRIAM DR.	39764	D	W		05/09/78	N	0.100		7.400						N	EPC	AB
FL	LAKELAND, L. MIRIAM DR.	39767	D	W		05/09/78	N	0.300		2.500						N	EPC	AB

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FL	LAKELAND, LAKELAND HTS	39763	D	W			05/09/78	N	0.100		5.000			N	EPC	AB
FL	LAKELAND, LUCE	39766	D	W			05/09/78	N	0.300		16.700			N	EPC	AB
FL	LAKELAND, PARLE	39747	D	W			03/09/78	B	0.030	N	0.200			N	EPC	AB
FL	LAKELAND, PHILLIPS	39768	D	W			05/09/78	N	0.600		5.600			N	EPC	AB
FL	LAKELAND, PIPHIN	39748	D	W			03/09/78	B	0.030	N	0.200			N	EPC	AB
FL	LAKELAND, SP540	39750	D	W			03/09/78	N	0.100		0.200			N	EPC	AB
FL	LAKELAND, SP540	39765	D	W			05/09/78	B	0.020		0.200			N	EPC	AB
FL	LAKELAND, WELL 37	39749	F	W	0.00		03/09/78	B	0.500	B	0.500			N	EPC	AB
FL	LEHIGH ACRES	37906	F	W	0.00		03/23/77	B	0.050	N	0.250	N	0.010	M	EPC	AB
FL	MELBOURNE	21621	F		0.00		12/23/74	B	0.020	N	0.070			M	EPC	AA
FL	MIAMI	31157	F		0.00		01/20/75	B	0.040	B	0.040			M	EPC	AA
FL	PENSACOLA	39754	D	W			01/29/79	N	0.050		0.700	N	0.020	N	EPC	AB
FL	PENSACOLA, BLOUNT	39716	D	W			12/07/77	B	0.030	N	0.200			N	EPC	AB
FL	PENSACOLA, CHANTILLY, NC		D	W	0.30		01/17/75		0.070		1.700			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC	26109	D	W	0.30		02/21/75	N	0.300		32.700			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC		D	W	0.30		03/26/75	N			1.740			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC		D	W	0.30		05/09/75	B			1.230			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC	32908	D	W	0.30		07/07/75	N	0.060		0.700			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC		D	W	0.30		09/05/75	N			0.200			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC		D	W	0.30		12/04/75	B			0.420			M	EPC	AB
FL	PENSACOLA, CHANTILLY, NC	39723	D	W			12/08/77	B	0.050	N	0.200			N	EPC	AB
FL	PENSACOLA, CHANTILLY, NC	39753	D	W	0.30		01/29/79		0.120		0.740	N	0.020	N	EPC	AB
FL	PENSACOLA, COULTER	39727	D	W			12/08/77	B	0.030	N	0.200			N	EPC	AB
FL	PENSACOLA, DORSAY	39721	D	W			12/07/77	B	0.050	N	0.200			N	EPC	AB
FL	PENSACOLA, E. LAKEVIEW	39717	D	W			12/07/77	B	0.050	N	0.200			N	EPC	AB
FL	PENSACOLA, E. OLIVE	39726	D	W			12/08/77	B	0.030		0.200			N	EPC	AB
FL	PENSACOLA, E. SHORE		D	W	2.20		01/17/75		0.200		1.200			M	EPC	AB
FL	PENSACOLA, E. SHORE	26111	D	W	2.20		02/21/75	B	0.020		0.400			M	EPC	AB
FL	PENSACOLA, E. SHORE		D	W	2.20		03/26/75	B			0.300			M	EPC	AB
FL	PENSACOLA, E. SHORE		D	W	2.20		05/09/75	B			0.700			M	EPC	AB
FL	PENSACOLA, E. SHORE	32910	D	W	2.20		07/07/75	B	0.010		0.100			M	EPC	AB
FL	PENSACOLA, E. SHORE		D	W	2.20		09/05/75	B		B				M	EPC	AB
FL	PENSACOLA, E. SHORE		D	W	2.20		12/04/75	B		B				M	EPC	AB
FL	PENSACOLA, E. SHORE	39724	D	W			12/08/77	N	0.200	N	0.200			N	EPC	AB
FL	PENSACOLA, LAKEWOOD	39730	D	W			12/08/77	N	0.200	N	0.200			N	EPC	AB
FL	PENSACOLA, LILLIAN HY	35454	D	W			08/10/76	N	0.100		0.400			M	EPC	AB
FL	PENSACOLA, LONGLEAF	40615	D	W			04/14/76	N	0.100		3.200			M	EPC	AB
FL	PENSACOLA, LONGLEAF	35457	D	W			08/10/76		1.000		10.700			M	EPC	AB
FL	PENSACOLA, MONTCLAIR		F	W	0.00		01/17/75	B			0.200			M	EPC	AB
FL	PENSACOLA, MONTCLAIR	26110	F	W	0.00		02/21/75	B	0.010	N	0.060			M	EPC	AB
FL	PENSACOLA, MONTCLAIR		F	W	0.00		03/26/75	B		N				M	EPC	AB
FL	PENSACOLA, MONTCLAIR		F	W	0.00		05/09/75	B		N				M	EPC	AB
FL	PENSACOLA, MONTCLAIR	32909	F	W	0.00		07/07/75	B	0.010	N	0.060			M	EPC	AB
FL	PENSACOLA, MONTCLAIR		F	W	0.00		09/05/75	B		N				M	EPC	AB
FL	PENSACOLA, MONTCLAIR		F	W	0.00		12/04/75	B		B				M	EPC	AB
FL	PENSACOLA, N. PICKENS	39718	D	W			12/07/77	B	0.050	B	0.050			N	EPC	AB
FL	PENSACOLA, N.W. SUNSET	39729	D	W			12/08/77	B	0.020	N	0.100			N	EPC	AB

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FL	PENSACOLA, OLIVE RD.	40616	D	W		04/14/76	B	0.010	N	0.050			M	EPC	AB
FL	PENSACOLA, OLIVE RD.	35455	D	W		08/10/76	B	0.020		0.100			M	EPC	AB
FL	PENSACOLA, PEN. BLVD.	40617	D	W		04/14/76	N	0.100		0.700			M	EPC	AB
FL	PENSACOLA, PEN. BLVD.	35456	D	W		08/10/76		0.500		4.700			M	EPC	AB
FL	PENSACOLA, POINCIANA	39728	D	W		12/08/77	B	0.020	N	0.100			N	EPC	AB
FL	PENSACOLA, S. MADISON	39722	D	W		12/07/77	B	0.050	N	0.200			N	EPC	AB
FL	PENSACOLA, S.K.	39719	D	W		12/07/77	B	0.050	B	0.050			N	EPC	AB
FL	PENSACOLA, W. GONZALEZ	39720	D	W		12/07/77	B	0.050	B	0.050			N	EPC	AB
FL	PENSACOLA, WOODLAND	39725	D	W		12/08/77	N	0.200	N	0.200			N	EPC	AB
FL	SANIBEL ISLAND	37492	F	W	0.00	03/26/77	B	0.050	B	0.050	N	0.050	M	EPC	AB
GA	ATLANTA					04/03/75				12.000			M	MCC	AC
GA	ATLANTA					04/03/75				11.000			M	MCC	AC
GA	ATLANTA		R			04/03/75				8.400			M	MCC	AC
GA	ATLANTA					11/28/75	B	0.100	B	0.100			M	MCC	AC
GA	ATLANTA		R			11/28/75	B	0.500	B	0.500			M	MCC	AC
GA	ATLANTA		R			03/00/76				36.000			M	MCC	AC
GA	ATLANTA					03/00/76	B	0.100	B	0.100			M	MCC	AC
GA	ATLANTA					08/00/76	B	0.200	N	0.200			N	EPD	AS
GA	ATLANTA, 12 HR	21658				10/13/76	B	0.010	B	0.010			M	EPC	AB
GA	AUGUSTA, CITY	37480	F	S	0.00	03/09/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
GA	AUGUSTA, RICHMOND CO.	37486	F	W	0.00	11/07/77	B	0.020		0.300	B	0.020	M	EPC	AB
GA	SAVANNAH	21627				04/29/75	B	0.060	B	0.060			M	EPC	AB
GA	SAVANNAH	16145	D		?	11/15/76	B	0.020	B	0.020			M	EPC	AB
GA	SAVANNAH, WELL 13	16144	R			11/15/76	B	0.020	B	0.020			M	EPC	AB
GA	SKIDAWAY ISLAND								B	0.030			M	EPC	AA
GA	SKIDAWAY ISLAND								B	0.740			M	EPC	AA
GA	SKIDAWAY ISLAND	16143	F		0.00	11/15/76	B	0.100	B	0.100			M	EPC	AB
IA	CORRALVILLE	37366	F	W	0.00	12/07/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
IA	IOWA CITY	37364	F	S	0.00	12/07/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
ID	CALDWELL 5 WELLS	37877	F	W	0.00	01/24/77	B	0.100	N	0.500	B	0.100	M	EPC	AB
ID	CALDWELL, WELL 7	37878	F	W	0.00	01/24/77	B	0.030	B	0.030			M	EPC	AB
ID	NAMPA WELL #4	37872	F	W	0.00	01/21/77	B	0.050	M	0.100	B	0.050	M	EPC	AB
ID	NAMPA, WELLS 1,2	37871	F	W	0.00	01/22/77	B	0.010	N	0.050	B	0.010	M	EPC	AB
IL	CAIRO	12776				07/00/74	B	0.020	N	0.070			M	EPC	AA
IL	CHAMPAIGN, EAST	37349	F	W	0.00	11/17/76	B	0.020	N	0.100			M	EPC	AB
IL	CHAMPAIGN, WEST	37350	F	W	0.00	11/17/76	B	0.020	N	0.100			M	EPC	AB
IL	CHICAGO		R			03/27/75	B	0.250	B	0.250			M	MCC	AC
IL	CHICAGO		F		0.00	03/27/75	B	0.200	B	0.200			M	MCC	AC
IL	CHICAGO, BANNOCKBURN		F	S	0.00	02/17/75			N	0.200			M	UIL	AJ

(TYPE) F=FINISHED AT SOURCE D=DISTRIBUTION R=RAW E=PLANT DISCHARGE EFFLUENT
(SOURCE) S=SURFACE, W=WELL, C=CISTERN, 8=COMBINED
(B/N) B=BELOW DETECTION LIMIT N=NOT STATISTICALLY SIGNIFICANT
(METHOD:) M=MILLIPORE COND, WASH,, N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=
DOW CHEMICAL, MIDLAND, MI,, UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH., SEATTLE, MSS= MT.
SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
UMD=UNIV. OF MINN., DULUTH

STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
IL	CHICAGO, BANNOCKBURN		D	S	0.20	02/17/75			0.200		M	UIL	AJ
IL	CHICAGO, BLUF ISLAND		F	S	0.00	01/28/75			0.800		M	UIL	AJ
IL	CHICAGO, BLUE ISLAND		D	S	0.60	01/28/75			0.700		M	UIL	AJ
IL	CHICAGO, BRADLEY RD.		F	S	0.00	02/17/75		N	0.200		M	UIL	AJ
IL	CHICAGO, BRADLEY RD.		D	S	0.20	02/17/75			0.400		M	UIL	AJ
IL	CHICAGO, BROOKFIELD		F	S	0.00	04/10/75			0.500		M	UIL	AJ
IL	CHICAGO, BROOKFIELD		D	S	7.60	04/10/75		N	0.500		M	UIL	AJ
IL	CHICAGO, BROOKFIELD		F	S	0.00	06/16/75		N	0.200		M	UIL	AU
IL	CHICAGO, CITY		F		0.00	07/00/74			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	08/00/74			0.080		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	09/00/74			0.020		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	10/00/74			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	11/00/74			0.300		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	12/00/74			0.600		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	01/00/75			0.400		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	02/00/75			0.400		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	03/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F			03/03/75	0.200		0.400		M	EPC	AB
IL	CHICAGO, CITY		F			03/03/75			0.300		M	CMC	AB
IL	CHICAGO, CITY		D		?	03/03/75			0.300		M	CMC	AB
IL	CHICAGO, CITY		D		?	03/03/75	N 0.070		0.100		M	EPC	AB
IL	CHICAGO, CITY		F		0.00	04/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	05/00/75			0.300		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	06/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	07/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	08/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	09/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	10/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	11/00/75			0.200		M	CMC	AO
IL	CHICAGO, CITY		F		0.00	12/00/75			0.300		M	CMC	AO
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	01/00/76			1.300		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	01/00/76			0.300		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	02/00/76			0.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	02/00/76			2.300		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	03/00/76			1.700		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	03/00/76			0.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	04/00/76			0.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	04/00/76			1.700		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	05/00/76			0.100		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	05/00/76			1.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	06/00/76			0.500		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	06/00/76			0.070		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	07/00/76			0.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	07/00/76			2.000		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	08/00/76			1.500		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	08/00/76			0.080		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	09/00/76			1.100		M	CMC	AT

(TYPE) F=FINISHED AT SOURCE D=DISTRIBUTION R=RAW E=PLANT DISCHARGE EFFLUENT
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(B/N) B=BELOW DETECTION LIMIT N=NOT STATISTICALLY SIGNIFICANT
(METHOD:) M=MILLIPORE COND. WASH., N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI FPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=DOW CHEMICAL, MIDLAND, MI., UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH., SEATTLE, MSS= MT. SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT UMD=UNIV. OF MINN., DULUTH

STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL	CHRYSOTILE MFL	BLANK MET	LAB	REF
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	09/00/76		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	10/00/76		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	10/00/76		2.900	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	11/00/76		1.800	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	11/00/76		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	12/00/76		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	12/00/76		1.700	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	01/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	01/00/77		1.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	02/00/77		2.300	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	02/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	03/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	03/00/77		1.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	04/00/77		1.300	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	04/00/77		0.090	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	05/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	05/00/77		1.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	06/00/77		0.900	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	06/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	07/00/77		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	07/00/77		0.700	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	08/00/77		0.800	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	08/00/77		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	09/00/77		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	09/00/77		0.700	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	10/00/77		1.000	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	10/00/77		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	11/00/77		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	11/00/77		2.900	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	12/00/77		1.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	12/00/77		0.300	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	01/00/78		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	01/00/78		1.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	02/00/78		1.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	02/00/78		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	03/00/78		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	03/00/78		1.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	04/00/78		0.900	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	04/00/78		0.200	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	05/00/78		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	05/00/78		1.000	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	06/00/78		0.700	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	06/00/78		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	07/00/78		0.100	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	07/00/78		0.900	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00	08/00/78		0.800	M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00	08/00/78		0.090	M	CMC	AT

(TYPE) F=FINISHED AT SOURCE D=DISTRIBUTION R=RAW E=PLANT DISCHARGE EFFLUENT
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(METHOD:) M=MILLIPORE COND. WASH.,, N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=DOW CHEMICAL, MIDLAND, MI.,, UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH.,, SEATTLE, MSS= MT. SINAI HOSP.,, NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C	PIPE	DATE COLLECTED	AMPHIBOLE MFL	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00		09/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00		09/00/78		0.800		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00		10/00/78		1.400		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00		10/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00		11/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00		11/00/78		1.300		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		R	S	0.00		12/00/78		2.300		M	CMC	AT
IL	CHICAGO, CITY, JARDINE PLT		F	S	0.00		12/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		01/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		01/00/76		2.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		02/00/76		1.600		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		02/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		03/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		03/00/76		1.300		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		04/00/76		1.600		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		04/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		05/00/76		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		05/00/76		1.300		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		06/00/76		0.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		06/00/76		0.070		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		07/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		07/00/76		1.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		08/00/76		0.900		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		08/00/76		0.090		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		09/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		09/00/76		1.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		10/00/76		1.600		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		10/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		11/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		11/00/76		3.300		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		12/00/76		2.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		12/00/76		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		01/00/77		1.400		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		01/00/77		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		02/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		02/00/77		1.500		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		03/00/77		1.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		03/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		04/00/77		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		04/00/77		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		05/00/77		1.800		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		05/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		06/00/77		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		06/00/77		0.900		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00		07/00/77		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		07/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00		08/00/77		0.100		M	CMC	AT

(TYPE) F=FINISHED AT SOURCE D=DISTRIBUTION R=RAW E=PLANT DISCHARGE EFFLUENT
(SOURCE) S=SURFACE, W=WELL, C=CISTERN, B=COMBINED
(B/N) B=BELOW DETECTION LIMIT N=NOT STATISTICALLY SIGNIFICANT
(METHOD:) M=MILLIPORE COND. WASH,, N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	08/00/77		1.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	09/00/77		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	09/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	10/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	10/00/77		0.900		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	11/00/77		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	11/00/77		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	12/00/77		0.300		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	12/00/77		1.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	01/00/78		1.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	02/00/78		1.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	02/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	03/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	03/00/78		1.400		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	04/00/78		1.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	04/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	05/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	05/00/78		1.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	06/00/78		0.800		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	06/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	07/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	07/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	07/00/78		0.900		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	08/00/78		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	08/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	09/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	09/00/78		1.900		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	10/00/78		0.800		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	10/00/78		0.100		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	11/00/78		0.200		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	11/00/78		1.700		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		R	S	0.00	12/00/78		1.000		M	CMC	AT
IL	CHICAGO, CITY, SOUTH PLT		F	S	0.00	12/00/78		0.200		M	CMC	AT
IL	CHICAGO, GLENVIEW		F	S	0.00	02/17/75	N	0.200		M	UIL	AJ
IL	CHICAGO, GLENVIEW		D	S	0.30	02/17/75		0.200		M	UIL	AJ
IL	CHICAGO, HIGHLAND PARK		F	S	0.00	02/17/75	N	0.200		M	UIL	AJ
IL	CHICAGO, HIGHLAND PARK		D	S	0.05	02/17/75	N	0.200		M	UIL	AJ
IL	CHICAGO, HIGHLAND PARK		F	S	0.00	06/00/75	B	0.040		M	UIL	AU
IL	CHICAGO, HOFFMAN ESTATES		F	W	0.00	04/09/75		0.200		M	UIL	AJ
IL	CHICAGO, HOFFMAN ESTATES		D	W	0.70	04/09/75	B	0.030		M	UIL	AJ
IL	CHICAGO, HOFFMAN ESTATES		F	W	0.00	06/12/75	B	0.040		M	UIL	AU
IL	CHICAGO, LISLE		F	W	0.00	02/04/75	N	0.500		M	UIL	AJ
IL	CHICAGO, LISLE		D	W	0.60	02/04/75	N	0.500		M	UIL	AJ
IL	CHICAGO, LISLE		F	W	0.00	06/16/75	N	0.200		M	UIL	AU
IL	CHICAGO, MIDLOTHIAN		F	S	0.00	01/28/75		0.300		M	UIL	AJ
IL	CHICAGO, MIDLOTHIAN		D	S	0.30	01/28/75		0.300		M	UIL	AJ
IL	CHICAGO, MIDLOTHIAN		F	S	0.00	06/12/75	B	0.040		M	UIL	AU

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK B/N	BLANK MFL	MET	LAB	REF
IL	CHICAGO, ROLLING MEADOWS		D	W	0.80	04/09/75			B	0.030			M	UIL	AJ
IL	CHICAGO, ROLLING MEADOWS		F	W	0.00	04/09/75				0.300			M	UIL	AJ
IL	CHICAGO, ROLLING MEADOWS		F	W	0.00	06/12/75			N	0.200			M	UIL	AU
IL	CHICAGO, WAUKEGAN		D	S	0.00	05/01/75			N	0.200			M	UIL	AJ
IL	CHICAGO, WAUKEGAN		D	S	0.10	05/01/75			N	0.200			M	UIL	AJ
IL	CHICAGO, WAUKEGAN		F	S	0.00	06/00/75				0.300			M	UIL	AU
IL	CHICAGO, WESTMONT		F	W	0.00	01/24/75			N	0.200			M	UIL	AJ
IL	CHICAGO, WESTMONT		D	W	0.04	01/24/75			N	0.200			M	UIL	AJ
IL	CHICAGO, WESTMONT		F	W	0.00	06/16/75				0.400			M	UIL	AU
IL	CHICAGO, YORK CENTER		D	W	0.20	04/28/75				0.200			M	UIL	AJ
IL	CHICAGO, YORK CENTER		F	W	0.00	04/28/75			N	0.200			M	UIL	AJ
IL	CHICAGO, YORK CENTER		F	W	0.00	06/16/76			N	0.200			M	UIL	AU
IL	CHICAGO, ZION		F	S	0.00	05/12/75			N	0.500			M	UIL	AU
IL	CHICAGO, ZION		D	S	0.20	05/12/75			N	0.500			M	UIL	AU
IL	CHICAGO, ZION		F	S	0.00	06/00/75			N	0.200			M	UIL	AU
IL	CHICAGO, ZION-BENTON		F	S	0.00	05/13/75			N	0.500			M	UIL	AJ
IL	CHICAGO, ZION-BENTON		D	S	1.90	05/13/75			N	0.500			M	UIL	AJ
IL	KANKAKEE, ASBESTOS TILE CO.		D		0.00	07/01/75	B	0.300	B	0.300			M	MCC	AD
IL	RANTOUL	37335	F	W	0.00	11/17/76	B	0.020	B	0.020			M	EPC	AB
IN	ELKHART	37313	F	W	0.00	11/10/77	B	0.010	B	0.010			M	EPC	AB
IN	FT. WAYNE	32321	F	S	0.00	01/23/79	B	0.020	B	0.020	B	0.020	N	EPC	AB
IN	GOSHEN	37342	F	W	0.00	11/10/77	B	0.010	B	0.010			M	EPC	AB
IN	INDIANAPOLIS	24187	F		0.00	09/19/74	B	0.040		0.200			M	EPC	AA
IN	LAKE MICHIGAN, NORTH-WEST IN.		R	S		08/00/76	B	0.630	B	0.630			M	MCC	AZ
KS	HUTCHINSON, WELL #1	37368	F	W	0.00	12/09/76	B	0.020	B	0.020	B	0.020	M	EPC	AB
KS	HUTCHINSON, WELL #2	37367	F	W	0.00	12/09/76	B	0.020	B	0.020	B	0.020	M	EPC	AB
KS	JOHNSON COUNTY					09/17/75	B	0.500	B	0.500			M	MCC	AC
KS	JOHNSON COUNTY		R			09/17/75	B	2.100	B	2.100			M	MCC	AC
KS	KANSAS CITY	30898	F		0.00	03/28/75	B	0.020	N	0.100			M	EPC	AB
KS	KANSAS CITY		R			09/17/75	B	2.100	B	2.100			M	MCC	AC
KS	KANSAS CITY					09/17/75	B	0.600	B	0.600			M	MCC	AC
KS	SOUTH HUTCHINSON	37375	F	W	0.00	12/09/76	B	0.010	N	0.060	B	0.010	M	EPC	AB
KS	TOPEKA	11106				11/14/74	B	0.020	N	0.070			M	EPC	AA
KY	ASHLAND	12923				08/28/74	B	0.020	B	0.020			M	EPC	AA
KY	COVINGTON, LICKING PLANT	38149	F	S	0.00	08/16/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
KY	COVINGTON, OHIO PLANT	38148	F	S	0.00	08/16/77	B	0.050	B	0.050	B	0.050	M	EPC	AB
KY	DANVILLE	1618	F		0.00	12/00/77				74.000			N	EPG	AR
KY	DANVILLE	5422	D			12/00/77				15.000			N	EPG	AR
KY	DANVILLE	5421	F		0.00	12/00/77				12.000			N	EPG	AR
KY	DANVILLE	5420	R	S	0.00	12/00/77				106.000			N	EPG	AR
KY	DANVILLE ST. HOSPITAL	5423	R	S	0.00	12/00/77				7.000			N	EPG	AR

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								MFL		MFL				
KY	DANVILLE ST. HOSPITAL	5424	F		0.00	12/00/77				18,000		N	EPG	AR
KY	FRANKFORT	5429	R	S	0.00	12/00/77				97,000		N	EPG	AR
KY	FRANKFORT	39780	D			06/29/78	B	0.050	B	0.050		N	EPC	AB
KY	FRANKFORT	39780F	D			06/29/78	B	0.050	B	0.050		N	EPC	AB
KY	HARRODSBURG	5426	F		0.00	12/00/77				6,000		N	EPG	AR
KY	HARRODSBURG	5425	R	S	0.00	12/00/77				18,000		N	EPG	AR
KY	HERRINGTON LAKE	5418	R	S	0.00	12/00/77				18,000		N	EPG	AR
KY	IRVING	39782	D			06/27/78	B	0.050	N	0.200		N	EPC	AB
KY	KY DAM VILLAGE, A/C	KDV	D			07/07/78		3,700		44,800		N	EPC	AB
KY	LEXINGTON	39781	D			06/29/78	B	0.050	B	0.050		N	EPC	AB
KY	LOUISVILLE	39779	D			06/29/78	B	0.050	N	0.200		N	EPC	AB
KY	LUDLOW, CISTERN	16138	D	C	0.00	10/07/76	B	0.050	N	0.150	N 0.100	N	EPC	AB
KY	MURRAY	M2	D			07/07/78	B	0.500	N	1.200		N	EPC	AB
KY	MURRAY	MI	F			07/07/78	B	0.500	B	0.500		N	EPC	AB
KY	NICHOLASVILLE	5427	R	S	0.00	12/00/77				3,000		N	EPG	AR
KY	NORTH MARSHALL	NMI				07/07/78	B	0.100	N	0.500		N	EPC	AB
KY	OHIO RIVER, WESTERN KY.		R	S		00/00/76	B	0.120	B	0.120		M	MCC	AZ
KY	TAYLORSVILLE	5428	R	S	0.00	12/00/77				15,000		N	EPG	AR
LA	NEW ORLEANS	22392	F		0.00	04/01/75	B	0.070	N	0.400		M	EPC	AB
LA	NEW ORLEANS, A/C SHEET PLANT		D			03/25/75	B	1.100	B	1.100		M	MCC	AD
LA	NEW ORLEANS, A/C SHEET PLANT		D			03/26/75				0.880		M	MCC	AD
LA	NEW ORLEANS, A/C SHEET PLANT		D			03/27/75	B	1.300	B	1.300		M	MCC	AD
LA	NEW ORLEANS, A/C SHEET PLANT		D			12/04/75	B	0.500	B	0.500		M	MCC	AD
LA	NEW ORLEANS, A/C SHEET PLANT		D			12/05/75				>9999.999		M	MCC	AD
MA	AMHERST, ATKINS	25022	R	S	0.00	06/27/75	B	0.020	N	0.100		M	EPC	AB
MA	AMHERST, ATKINS	25082	R	S	0.00	09/12/75	B	0.050	N	0.200		M	EPC	AB
MA	AMHERST, ATKINS	35452	F	S	0.00	06/25/76	B	0.030	B	0.030		M	EPC	AB
MA	AMHERST, DEAD END, A/C	35458	D		1.50	07/28/76		9,600		190,000		M	EPC	AB
MA	AMHERST, GOLF COURSE, A/C	35459	D		0.90	07/28/76	N	0.100	N	0.100		M	EPC	AB
MA	AMHERST, N. E. ST., A/C	25021	D		2.20	06/27/75	B	0.020		0.120		M	EPC	AB
MA	AMHERST, N. E. ST., A/C	25083	D	S	2.20	09/12/75	B	0.020		0.200		M	EPC	AB
MA	AMHERST, N. E. ST., A/C	35453	D		2.20	06/25/76	B	0.020		0.100		M	EPC	AB
MA	BILLERICA, A/C SHEET PLANT		D			07/24/75	B	0.200	B	0.200		M	MCC	AC
MA	BOSTON	25094				06/06/76	B	0.050	B	0.050		M	EPC	AB
MA	BOSTON	25094				06/06/76	B	0.050	B	0.050		M	EPC	AB
MA	BOSTON	25094				06/16/76	B	0.010	B	0.010		M	EPC	AB
MA	BOSTON, NEWTON					03/00/76	B	0.100	B	0.100		M	MCC	AC
MA	BOSTON, NORUMBEGA					08/05/76	B	0.600	N	0.600		N	EPD	
MA	BOSTON, NORUMBEGO RES.	25090	F		0.00	08/05/76	B	0.030	B	0.030		M	EPC	AB
MA	BOSTON, NORUMBEGO STA.					07/25/75				4,400		M	MCC	AC
MA	BOSTON, NORUMBEGO STA.					07/25/75		1,400				M	MCC	AC
MA	BOSTON, NORUMBEGO STA.		R			07/25/75	B	0.300	B	0.300		M	MCC	AC
MA	BOSTON, NORUMBEGO STA.		R			07/25/75				6,700		M	MCC	AC

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK B/N	BLANK MFL	MET	LAB	REF
MA	BOSTON, NORUMBEGO STA.		R			10/17/75				7,500			M	MCC	AC
MA	BOSTON, NORUMBEGO STA.					10/17/75				8,100			M	MCC	AC
MA	BOSTON, NORUMBEGO STA.					10/17/75	B	0,100	B	0,100			M	MCC	AC
MA	BOSTON, NORUMBEGO STA.					10/17/75				10,000			M	MCC	AC
MA	BOSTON, NORUMBEGO STA.		R			03/00/76	B	0,100	B	0,100			M	MCC	AC
MA	BOSTON, QUABBIN RES.		R			03/00/76	B	0,100	B	0,100			M	MCC	AC
MA	BOSTON, WACHUSETT RES.		R			03/00/76	B	0,100	B	0,100			M	MCC	AC
MA	CHICOPEE, WESTOVER AFB	35898	D		0,40	07/28/77	B	0,010		503,000			M	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36705	F		0,00	06/07/78	N	0,500	B	0,100			N	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36706	D			06/07/78	N	0,500		7,400			M	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36708	D			06/07/78		1,750		2,400			N	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36707	D			06/07/78	N			0,800			N	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36705	D			06/07/78	N		B				N	EPC	AB
MA	CHICOPEE, WESTOVER AFB	36748	D		0,40	08/08/78	N	2,500		2,500			N	EPC	AB
MA	SPRINGFIELD	16532				01/00/75	N	0,060		0,300			M	EPC	AB
MD	BALTIMORE ASHBURTON	26324	F		0,00	04/05/76	B	0,010		0,500			M	EPC	AB
MD	BALTIMORE, ASHBURTON	45586	F		0,00	11/07/75	B	0,030	N	0,100			M	EPC	AB
MD	BALTIMORE, ASHBURTON	45587	R			11/07/75	B	0,030		0,100			M	EPC	AB
MD	BALTIMORE, FREEDOM DIST.	26326	F		0,00	04/05/76	B	0,020	N	0,800			M	EPC	AB
MD	BALTIMORE, LIBERTY RES.	45588	R			11/07/75	B	0,030	N	0,100			M	EPC	AB
MD	BALTIMORE, PATAPSCO R.	45589	R			11/07/75	B	0,070	N	0,400			M	EPC	AB
MD	POTOMAC, 12 HR.	26400	F		0,00	09/22/76	B	0,020	B	0,020			M	EPC	AB
MD	POTOMAC, 12 HR.	26400	F		0,00	09/22/76	B	0,030	B	0,200			N	EPC	AB
MD	ROCKVILLE, 12 HR.	26374	F		0,00	09/22/76	B	0,020	N	0,100			M	EPC	AB
MD	ROCKVILLE, 12 HR.	26374	F		0,00	09/22/76	B	0,020	N	0,200			N	EPC	AB
MD	SWANSON'S CREEK		R	S			B	1,880	B	1,880			M	MCC	AZ
ME	PORTLAND	32333	D	S	1,23	02/09/79	B	0,050	N	0,050	B	0,020	N	EPC	AB
ME	PORTLAND	32332	F	S	0,00	02/09/79	B	0,050	N	0,150	B	0,020	N	EPC	AB
ME	PORTLAND	32331	F	S	0,00	02/09/79	B	0,200	B	0,200	B	0,020	N	EPC	AB
MI	BAY CITY		D		?					1,200			L	DOW	AE
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	08/22/73	B						C	ORF	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	09/14/73		0,170					C	ORF	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	09/16/73		0,420					M	MCC	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	09/19/73		0,180					C	ORF	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	10/03/73		0,080					M	MCC	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	10/10/73	B						C	ORF	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	10/17/73	B						M	MCC	AX
MI	EAGLE HARBOR, L. SUPERIOR		R	S	0,00	10/24/73		0,160					M	MCC	AX
MI	IRON RIVER		D			04/08/77	B	0,500		4,000			N	EPD	
MI	MARQUETTE, L. SUPERIOR		R	S	0,00	08/22/73		0,190					C	ORF	AX
MI	MARQUETTE, L. SUPERIOR		R	S	0,00	10/03/73	B						M	MCC	AX

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL		BLANK MFL	MET	LAB	REF
MI	MARQUETTE, L. SUPERIOR		R	S	0.00	10/10/73	0.270					C	ORF	AX
MI	MARQUETTE, L. SUPERIOR		R	S	0.00	10/17/73	0.170					M	MCC	AX
MI	MIDLAND		D		?				0.600			L	DOW	AE
MI	ONTONAGON, L. SUPERIOR		R	S	0.00	08/22/73	0.700					C	ORF	AX
MI	ONTONAGON, L. SUPERIOR		R	S	0.00	09/19/73		B				C	ORF	AX
MI	ONTONAGON, L. SUPERIOR		R	S	0.00	10/03/73	0.480					M	MCC	AX
MI	ONTONAGON, L. SUPERIOR		R	S	0.00	10/10/73		B				C	ORF	AX
MI	ONTONAGON, L. SUPERIOR		R	S	0.00	10/17/73		B				M	MCC	AX
MN	BEAVER BAY		F		0.00	07/00/73	5.300					M	MCC	AL
MN	BEAVER BAY		F			07/00/73	3.000					B	UCB	AL
MN	BEAVER BAY		D		?	08/28/73	61.000					N	MSS	AN
MN	BEAVER BAY		D		?	08/28/73	31.000					N	MSS	AN
MN	BEAVER BAY		D		?	08/28/73	92.000					N	MSS	AN
MN	BEAVER BAY		D		?	08/28/73	77.000					N	MSS	AN
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	08/22/73	8.500					M	MCC	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	08/29/73	5.100					C	ORF	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	09/14/73	0.170					C	ORF	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	10/03/73	1.200					M	MCC	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	10/10/73	2.400					M	MCC	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	10/17/73	6.600					M	MCC	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	10/24/73	0.650					M	MCC	AX
MN	BEAVER BAY, L. SUPERIOR		R	S	0.00	11/14/73	59.000					M	MCC	AX
MN	CLOQUET		R			03/21/74	2.000	N	N			N	WIS	AF
MN	DULUTH			S			4.800		0.400			M	EPC	AA
MN	DULUTH		D	S			35.000					L	DOW	AE
MN	DULUTH			S			1.100		B			M	EPC	AA
MN	DULUTH		D	S			10.000					L	DOW	AE
MN	DULUTH		R	S	0.00	08/22/73	4.600					M	MCC	AX
MN	DULUTH		D	S	?	08/28/73	14.000					N	MSS	AN
MN	DULUTH		D	S	?	08/28/73	15.000					N	MSS	AN
MN	DULUTH		R	S	0.00	09/26/73	2.200					M	MCC	AX
MN	DULUTH		R	S	0.00	10/03/73	1.100					M	MCC	AX
MN	DULUTH		R	S	0.00	10/24/73	1.900					M	MCC	AX
MN	DULUTH		R	S	0.00	11/14/73	0.100					M	MCC	AX
MN	DULUTH		F	S		04/00/74	8.000					B	UCB	AL
MN	DULUTH		D	S		06/05/74	16.000					M	DOW	
MN	DULUTH		D	S		06/07/74	46.000					M	DOW	
MN	DULUTH		R	S	0.00	06/13/74	33.250					N	UMD	AY
MN	DULUTH		R	S	0.00	06/17/74	10.640					N	UMD	AY
MN	DULUTH		R	S	0.00	06/24/74	6.030					N	UMD	AY
MN	DULUTH		R	S	0.00	06/28/74	5.540					N	UMD	AY
MN	DULUTH		F	S		07/00/74	10.000					B	UCB	AL
MN	DULUTH		R	S	0.00	07/03/74	2.990					N	UMD	AY
MN	DULUTH		R	S	0.00	07/19/74	266.000					N	UMD	AY
MN	DULUTH		R	S	0.00	07/23/74	26.000					N	UMD	AY

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MN	DULUTH		R	S	0.00		07/30/74	26,600					N	UMD	AY
MN	DULUTH		R	S	0.00		07/35/74	60,500					N	UMD	AY
MN	DULUTH		R	S	0.00		08/01/74	30,000					N	UMD	AY
MN	DULUTH		R	S	0.00		08/06/74	10,200					N	UMD	AY
MN	DULUTH		R	S	0.00		08/08/74	15,100					N	UMD	AY
MN	DULUTH		R	S	0.00		08/13/74	20,000					N	UMD	AY
MN	DULUTH		R	S	0.00		08/15/74	8,980					N	UMD	AY
MN	DULUTH		R	S	0.00		08/20/74	25,300					N	UMD	AY
MN	DULUTH		R	S	0.00		08/22/74	13,600					N	UMD	AY
MN	DULUTH		R	S	0.00		08/23/74	17,000					N	UMD	AY
MN	DULUTH		R	S	0.00		08/28/74	10,400					N	UMD	AY
MN	DULUTH		R	S	0.00		08/30/74	17,800					N	UMD	AY
MN	DULUTH		R	S	0.00		09/04/74	30,300					N	UMD	AY
MN	DULUTH		R	S	0.00		09/06/74	13,600					N	UMD	AY
MN	DULUTH		R	S	0.00		09/09/74	15,400					N	UMD	AY
MN	DULUTH		R	S	0.00		09/11/74	13,000					N	UMD	AY
MN	DULUTH		R	S	0.00		09/13/74	30,000					N	UMD	AY
MN	DULUTH		R	S	0.00		09/16/74	20,300					N	UMD	AY
MN	DULUTH		R	S	0.00		09/17/74	12,800					N	UMD	AY
MN	DULUTH		R	S	0.00		09/19/74	13,800					N	UMD	AY
MN	DULUTH		R	S	0.00		09/20/74	19,100					N	UMD	AY
MN	DULUTH		D	S		?	01/11/75	220,000					N	EPD	AN
MN	DULUTH		D	S		?	01/25/75	502,000					N	EPD	AN
MN	DULUTH		D	S		?	02/14/75	45,000					N	MSS	AN
MN	DULUTH		D	S		?	02/14/75	125,000					N	EPD	AN
MN	DULUTH		D	S		?	03/25/75	644,000					N	EPD	AN
MN	DULUTH		D	S		?	03/25/75	300,000					N	MSS	AN
MN	DULUTH		D	S		?	04/29/75	110,000					N	EPD	AN
MN	DULUTH		D	S		?	07/14/75	82,000					N	EPD	AN
MN	DULUTH			S			05/03/76	140,000	B				N	EPC	AB
MN	DULUTH			S			05/03/76	120,000	B				M	EPC	AB
MN	DULUTH		D	S			05/26/76	222,000	B	2,000			N	EPD	AS
MN	DULUTH		D	S			05/26/76	216,000	N	5,000			N	EPD	AS
MN	DULUTH		D	S			05/26/76	230,000	B	2,000			N	EPD	AS
MN	DULUTH		D	S			05/26/76	216,000	N	2,000			N	EPD	AS
MN	DULUTH		D	S			05/26/76	233,000	N	2,000			N	EPD	AS
MN	DULUTH, DIST. SYS. 1		D	S			07/00/73	5,000					B	UCB	AL
MN	DULUTH, DIST. SYS. 1		D	S			07/00/73	2,800					M	MCC	AL
MN	DULUTH, DIST. SYS. 2		D	S			07/00/73	2,000					B	UCB	AL
MN	DULUTH, DIST. SYS. 3		D	S			07/00/73	1,000					B	UCB	AL
MN	DULUTH, DIST. SYS. 4		D	S			07/00/73						B	UCB	AL
MN	DULUTH, FILTER PLANT	16	F	S	0.00		01/01/77	0.400					N	UMD	AP
MN	DULUTH, FILTER PLANT	2	F	S	0.00		01/11/77	0.300					N	UMD	AP
MN	DULUTH, FILTER PLANT	3	F	S	0.00		01/13/77	0.600					N	UMD	AP
MN	DULUTH, FILTER PLANT	4	F	S	0.00		01/18/77	0.200	B				N	UMD	AP
MN	DULUTH, FILTER PLANT	5	F	S	0.00		01/18/77	0.200	B				N	UMD	AP
MN	DULUTH, FILTER PLANT	6	F	S	0.00		01/20/77	0.600					N	UMD	AP

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MN	DULUTH, FILTER PLANT	8	F	S	0.00	01/21/77		0.300			N	UMD	AP
MN	DULUTH, FILTER PLANT	9	F	S	0.00	01/22/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	10	F	S	0.00	01/23/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	11	F	S	0.00	01/24/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	12	F	S	0.00	01/25/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	13	F	S	0.00	01/26/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	14	F	S	0.00	01/27/77		0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	19	F	S	0.00	01/28/77		0.100			N	UMD	AP
MN	DULUTH, FILTER PLANT	20	F	S	0.00	01/29/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	21	F	S	0.00	01/30/77	B	0.200			N	UMD	AP
MN	DULUTH, FILTER PLANT	23	F	S	0.00	02/01/77		0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	30	F	S	0.00	02/03/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	34	F	S	0.00	02/05/77		0.100			N	UMD	AP
MN	DULUTH, FILTER PLANT	45	F	S	0.00	02/12/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	53	F	S	0.00	02/17/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	56	F	S	0.00	02/19/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	65	F	S	0.00	03/02/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	68	F	S	0.00	03/09/77		0.100			N	UMD	AP
MN	DULUTH, FILTER PLANT	101	F	S	0.00	03/21/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	110	F	S	0.00	04/04/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	112	F	S	0.00	04/11/77	B	0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	115	F	S	0.00	04/18/77		0.090			N	UMD	AP
MN	DULUTH, FILTER PLANT	117	F	S	0.00	04/25/77		0.040			N	UMD	AP
MN	DULUTH, FILTER PLANT	119	F	S	0.00	05/02/77		0.030			N	UMD	AP
MN	DULUTH, FILTER PLANT	122	F	S	0.00	05/10/77		0.050			N	UMD	AP
MN	DULUTH, FILTER PLANT	123	F	S	0.00	05/16/77		0.070			N	UMD	AP
MN	DULUTH, FILTER PLANT	128A	F	S	0.00	06/02/77		0.060			N	UMD	AP
MN	DULUTH, FILTER PLANT	130A	F	S	0.00	06/14/77		0.060			N	UMD	AP
MN	DULUTH, FILTER PLANT	138	F	S	0.00	07/01/77		0.300			N	UMD	AP
MN	DULUTH, FILTER PLANT	144	F	S	0.00	07/08/77	B	0.060			N	UMD	AP
MN	DULUTH, FILTER PLANT	152	F	S	0.00	07/18/77		0.060			N	UMD	AP
MN	DULUTH, FILTER PLANT	163	F	S	0.00	07/25/77		0.080			N	UMD	AP
MN	DULUTH, FILTER PLANT	169	F	S	0.00	08/01/77		0.040			N	UMD	AP
MN	DULUTH, FILTER PLANT	181	F	S	0.00	08/08/77		0.020			N	UMD	AP
MN	DULUTH, FILTER PLANT	184	F	S	0.00	08/15/77		0.080			N	UMD	AP
MN	DULUTH, FILTER PLANT	190	F	S	0.00	08/24/77		0.090			N	UMD	AP
MN	DULUTH, FILTER PLANT	192	F	S	0.00	08/30/77		0.060			N	UMD	AP
MN	DULUTH, FILTER PLANT	198	F	S	0.00	09/06/77		0.040			N	UMD	AP
MN	DULUTH, FILTER PLANT	201	F	S	0.00	09/14/77		0.020			N	UMD	AP
MN	DULUTH, FILTER PLANT	202	F	S	0.00	09/19/77		0.050			N	UMD	AP
MN	DULUTH, FILTER PLANT	205	F	S	0.00	09/28/77	B	0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	208	F	S	0.00	10/04/77		0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	212-2	F	S	0.00	10/08/77		0.030			N	UMD	AP
MN	DULUTH, FILTER PLANT	219	F	S	0.00	10/19/77		0.020			N	UMD	AP
MN	DULUTH, FILTER PLANT	216	F	S	0.00	10/19/77		0.050			N	UMD	AP
MN	DULUTH, FILTER PLANT	226	F	S	0.00	10/25/77		0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	228	F	S	0.00	10/31/77		0.010			N	UMD	AP

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MN	DULUTH, FILTER PLANT	230	F	S	0.00	11/07/77		0.050			N	UMD	AP
MN	DULUTH, FILTER PLANT	243	F	S	0.00	11/16/77		0.090			N	UMD	AP
MN	DULUTH, FILTER PLANT	247	F	S	0.00	11/22/77		0.020			N	UMD	AP
MN	DULUTH, FILTER PLANT	251	F	S	0.00	12/02/77		0.040			N	UMD	AP
MN	DULUTH, FILTER PLANT	257	F	S	0.00	12/07/77		0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	259	F	S	0.00	12/14/77		0.020			N	UMD	AP
MN	DULUTH, FILTER PLANT	262	F	S	0.00	12/20/77		0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	264	F	S	0.00	12/28/77	B	0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	266	F	S	0.00	01/04/78		0.030			N	UMD	AP
MN	DULUTH, FILTER PLANT	273	F	S	0.00	01/10/78		0.010			N	UMD	AP
MN	DULUTH, FILTER PLANT	280	F	S	0.00	01/18/78		0.010			N	UMD	AP
MN	DULUTH, LOWER RESERVOIR		F	S	0.00	<12/00/74		31.000			N	MSS	AG
MN	DULUTH, LOWER RESERVOIR		F	S	0.00	<12/00/74		74.000			R	MSS	AG
MN	DULUTH, MIDDLE RESERVOIR		F	S	0.00	<12/00/74		25.000			R	MSS	AG
MN	DULUTH, MIDDLE RESERVOIR		F	S	0.00	<12/00/74		17.000			N	MSS	AG
MN	DULUTH, SYSTEM INTAKE		F	S	0.00	<12/00/74		60.000			R	MSS	AG
MN	DULUTH, SYSTEM INTAKE		F	S	0.00	<12/00/74		46.000			N	MSS	AG
MN	DULUTH, UPPER RESERVOIR		F	S	0.00	<12/00/74		24.000			R	MSS	AG
MN	GRAND MARAIS		F	S	0.00	<12/00/74	B				R	MSS	AG
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	08/22/73	B				M	MCC	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	08/29/73	B				C	ORF	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	09/26/73		0.260			C	ORF	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	10/03/73	B				M	MCC	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	10/10/73	B				M	MCC	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	10/17/73		0.030			C	ORF	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	10/24/73		0.120			M	MCC	AX
MN	GRAND MARAIS, L. SUPERIOR		R	S	0.00	11/14/73		0.800			M	MCC	AX
MN	SILVER BAY		F		0.00	07/00/73		4.400			M	MCC	AL
MN	SILVER BAY		F			07/00/73		2.000			B	UCB	AL
MN	SILVER BAY	15287	D			07/27/78		0.400			N	MDH	AQ
MN	SILVER BAY	15286	F		0.00	07/27/78	B				N	MDH	AQ
MN	SILVER BAY, FILTERED	13868	D			06/22/78		0.200			N	MDH	AQ
MN	SILVER BAY, FILTERED	13867	F		0.00	06/22/78		0.200			N	MDH	AQ
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	08/29/73		0.180			C	ORF	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	09/14/73	B				C	ORF	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	09/19/73		0.170			C	ORF	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	09/26/73		0.140			M	MCC	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	10/03/73	B				M	MCC	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	10/10/73		0.460			M	MCC	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	10/17/73		0.460			M	MCC	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	10/24/73		0.080			M	MCC	AX
MN	SILVER BAY, L. SUPERIOR		R	S	0.00	11/14/73		0.800			M	MCC	AX
MN	SILVER BAY, PAW	13866	R			06/22/78		25.300			N	MDH	AQ
MN	TWO HARBORS		F			07/00/73		2.500			B	UCB	AL
MN	TWO HARBORS		F			07/00/73		2.500			M	MCC	AL
MN	TWO HARBORS		R	S	0.00	08/22/73		5.000			M	MCC	AX
MN	TWO HARBORS		R	S	0.00	08/29/73		4.400			M	MCC	AX

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(METHOD:) M=MILLIPORE COND. WASH., N=NUCLEPORE JAFFE, D=DPOP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL		BLANK MFL	MET	LAB	REF
MN	TWO HARBORS		F			01/16/78	35,000		1,000			N	EPD	AS
MN	TWO HARBORS		D			01/27/78	57,000		0,600			N	EPD	AS
MN	TWO HARBORS		D			01/31/78	52,000		1,000			N	EPD	AS
MN	TWO HARBORS		D			02/21/78	90,000		3,000			N	EPD	AS
MN	TWO HARBORS		D			03/14/78	12,000		2,000			N	EPD	AS
MN	TWO HARBORS		D			03/21/78	30,000		0,500			N	EPD	AS
MN	TWO HARBORS		D			04/04/78	8,000	B	0,100			N	EPD	AS
MN	TWO HARBORS		D			04/07/78	7,000	B	0,200			N	EPD	AS
MN	TWO HARBORS		D			04/18/78	4,000		0,300			N	EPD	AS
MN	TWO HARBORS		R			04/28/78	141,000		1,700			N	EPD	AS
MN	TWO HARBORS		D			04/28/78	4,000		0,130			N	EPD	AS
MN	TWO HARBORS		R			05/02/78	171,000	B	1,000			N	EPD	AS
MN	TWO HARBORS		D			05/30/78	2,000		0,700			N	EPD	AS
MN	TWO HARBORS		D			06/27/78	1,000		7,000			N	EPD	AS
MN	TWO HARBORS		R			06/27/78	200,000		6,000			N	EPD	AS
MN	TWO HARBORS		R			07/03/78	177,000	B	1,000			N	EPD	AS
MN	TWO HARBORS		D			07/03/78	2,000		4,000			N	EPD	AS
MN	TWO HARBORS		R			07/18/78	84,000		4,000			N	EPD	AS
MN	TWO HARBORS	15280	F		0,00	07/27/78	0,600					N	MDH	AQ
MN	TWO HARBORS	15282	D			07/27/78	0,500					N	MDH	AQ
MN	TWO HARBORS		R			08/01/78	53,000		4,000			N	EPD	AS
MN	TWO HARBORS		D			08/01/78	7,000		37,000			N	EPD	AS
MN	TWO HARBORS, FILTERED	12432	F		0,00	05/00/78	2,100		0,200			N	MDH	AQ
MN	TWO HARBORS, FILTERED	13870	F		0,00	06/22/78	0,800					N	MDH	AQ
MN	TWO HARBORS, FILTERED		D			06/22/78	0,500					N	MDH	AQ
MN	TWO HARBORS, L. SUPERIOR		R	S	0,00	09/19/73	1,100					C	ORF	AX
MN	TWO HARBORS, L. SUPERIOR		R	S	0,00	10/17/73	1,600					M	MCC	AX
MN	TWO HARBORS, L. SUPERIOR		R	S	0,00	10/24/73	3,000					M	MCC	AX
MN	TWO HARBORS, RAW	12421	R		0,00	05/00/78	44,000	B				N	MDH	AQ
MO	INDEPENDENCE	30807	F		0,00	12/27/74	B 0,070		0,360			M	EPC	AA
MO	INDEPENDENCE	30807	F		0,00	12/27/74	B 0,070		0,580			M	EPC	AA
MO	KANSAS CITY	11105	F		0,00	09/19/74	B 0,020		0,070			M	EPC	AA
MO	KANSAS CITY		R			09/17/75	B 5,700	B	5,700			M	MCC	AC
MO	KANSAS CITY		F		0,00	09/17/75	B 0,400	B	0,040			M	MCC	AC
MO	SPRINGFIELD		F		0,00				0,300			M	EPC	AA
MO	ST. LOUIS		F		0,00			N				M	EPC	AA
MO	ST. LOUIS, A/C PIPE CO.		D		?	02/10/75	B 1,000	B	1,000			M	MCC	AD
MO	ST. LOUIS, A/C PIPE CO.		D		?	02/11/75	B 0,400	B	0,400			M	MCC	AD
MO	ST. LOUIS, A/C PIPE CO.		D		?	02/12/75	B 0,900	B	0,900			M	MCC	AD
MO	ST. LOUIS, A/C PIPE CO.		D		?	01/15/76			4,900			M	MCC	AD
MO	ST. LOUIS, A/C SHEET CO.		D		?	02/10/75	1,500	N	0,080			M	MCC	AD
MO	ST. LOUIS, A/C SHEET CO.		D		?	02/10/75	B 0,100	B	0,100			M	MCC	AD
MO	ST. LOUIS, A/C SHEET CO.		D		?	02/11/75	B 0,100	B	0,010			M	MCC	AD
MO	ST. LOUIS, A/C SHEET CO.		D		?	02/11/75	4,700	N	0,160			M	MCC	AD
MO	ST. LOUIS, A/C SHEET CO.		D		?	02/12/75	B 0,400	B	0,400			M	MCC	AD

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MO	ST. LOUIS, A/C SHEET CO.		D		?	01/15/76 B	0.200	B 0.200		M	MCC	AD
MO	ST. LOUIS, INDUSTRY DISCHG.	46725	E			10/12/78 N	7.000	2111.200		N	EPC	AB
MS	JACKSON	12719	F		0.00	08/09/74 B	0.020	0.300		M	EPC	AA
MS	JACKSON	12719	F		0.00	08/09/74 B	0.020	0.500		M	EPC	AA
MS	JACKSON	12719	F		0.00	08/09/74 B	0.020	0.300		M	EPC	AA
MT	BILLINGS	37890	F	S	0.00	01/27/77 B	0.030	B 0.030	N 0.090	M	EPC	AB
MT	LAUREL	37892	F	S	0.00	01/28/77 B	0.050	B 0.050	B 0.050	M	EPC	AB
NC	DURHAM	35401	D	S	0.00	04/14/76 B	0.010	B 0.010		M	EPC	AB
NC	DURHAM	40714	D	S	1.30	04/14/76 B	0.050	1.200		M	EPC	AB
NC	DURHAM	40713	F	S	0.00	04/14/76 B	0.010	B 0.010		M	EPC	AB
NC	DURHAM	40712	D	S	0.40	04/14/76 B	0.010	N 0.010		M	EPC	AB
NC	DURHAM	40711	D	S	1.50	04/14/76 B	0.010	N 0.020		M	EPC	AB
NC	FAYETTEVILLE, GLENVILLE	37460	F	S	0.00	03/01/77 B	0.010	N 0.050		M	EPC	AB
NC	FAYETTEVILLE, HOFFER	37458	F	S	0.00	03/01/77 B	0.030	B 0.030	N 0.060	M	EPC	AB
NC	MARSHVILLE, ASBES. TEXTILE CO.					04/14/75 B	0.100	B 0.100		M	MCC	AD
NC	MARSHVILLE, ASBES. TEXTILE CO.					04/15/75		88.000		M	MCC	AD
NH	MERRIMAC RIVER, HUDSON	35465	R			11/02/76 B	0.100	1.700		M	EPC	AB
NH	MERRIMAC RIVER, NASHUA	35466	R			11/02/76 B	0.100	1.400		M	EPC	AB
NJ	ROUNDBROOK, BRIDGE 206	20301	R			06/20/75 N	0.500	N 0.500		M	EPC	AB
NJ	ROUNDBROOK, CANAL	20299	R	S		06/20/75 N	0.100	1.400		M	EPC	AB
NJ	ROUNDBROOK, MANVIL BRIDGE	20300	R	S		06/20/75 B	0.100	3.700		M	EPC	AB
NJ	ELIZABETH	12962				08/09/74 B	0.020	B 0.020		M	EPC	AA
NJ	ELIZABETH	20298	F		0.00	06/20/75 B	0.010	B 0.010		M	EPC	AB
NJ	JERSEY CITY	24928				09/19/74 B	0.070	0.200		M	EPC	AA
NJ	MANVILLE, AT ASBESTOS CO.					05/05/75 B	0.500	B 0.500		M	MCC	AD
NJ	MANVILLE, AT ASBESTOS CO.					05/06/75 B	0.200	B 0.200		M	MCC	AD
NJ	MANVILLE, AT ASBESTOS CO.					05/07/75 B	0.300	B 0.300		M	MCC	AD
NJ	MANVILLE, AT ASBESTOS CO.					05/08/75 B	0.500	B 0.500		M	MCC	AD
NJ	MANVILLE, AT ASBESTOS CO.					10/22/75 B	0.300	B 0.300		M	MCC	AD
NJ	MANVILLE, AT ASBESTOS CO.					10/23/75 B	0.300	B 0.300		M	MCC	AD
NM	ALBUQUERQUE, LEAVITT		F			<09/00/76		3.000		D	NMI	AH
NM	ALBUQUERQUE, PUMPA		D			<09/00/76		B 1.000		D	NMI	AH
NM	ALBUQUERQUE, PUMPA		F			<09/00/76		B 1.000		D	NMI	AH
NM	ALBUQUERQUE, PUMPA		D			<09/00/76		B		D	NMI	AH
NM	ALGODONES		F			<09/00/76		710.000		D	NMI	AH

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NM	BELEN, WELL 2		F	W		<09/00/76		B		D	NMI	AH
NM	BELEN, WELL 4		D	W		<09/00/76		B		D	NMI	AH
NM	BELEN, WELL 4		F	W		<09/00/76		B		D	NMI	AH
NM	BELEN, WELL 4		D	W		<09/00/76		B		D	NMI	AH
NM	BELEN, WELL 4		D	W		<09/00/76		B		D	NMI	AH
NM	KELLY RANCH		F			<09/00/76		438,000		D	NMI	AH
NM	LAS CRUCES		D			<09/00/76		B		D	NMI	AH
NM	LAS CRUCES		D			<09/00/76		B		D	NMI	AH
NM	LAS CRUCES		F			<09/00/76		B		D	NMI	AH
NM	LAS CRUCES		F			<09/00/76		B		D	NMI	AH
NM	POJOAQUE		F			<09/00/76		194,000		D	NMI	AH
NM	RIO, WELL 1		F	W		<09/00/76		B		D	NMI	AH
NM	RIO, WELL 2		D	W		<09/00/76		B		D	NMI	AH
NM	RIO, WELL 2		F	W		<09/00/76		B		D	NMI	AH
NM	SANTA FE		D			<09/00/76		100,000		D	NMI	AH
NM	SANTA FE DOWNS		F			<09/00/76		1400,000		D	NMI	AH
NM	SOCORRO, E. NORTH SPRING	41891	F		0,00	11/07/78	N 0,040	N 0,080	N 0,020	N	EPC	AB
NM	SOCORRO, E. SOUTH SPRING	41892	F		0,00	11/07/78	N 0,040	N 0,120	N 0,020	N	EPC	AB
NM	SOCORRO, EAGLE PICTURE WELL	41896	F	W		11/07/78	B 0,040	0,620	N 0,020	N	EPC	AB
NM	SOCORRO, EVERGREEN SPRING		F			<09/00/76		153,000		D	NMI	AH
NM	SOCORRO, EVERGREEN SPRING		F			<09/00/76		109,000		D	NMI	AH
NM	SOCORRO, MCCUTCHEON ST.	41893	D	W		11/07/78	B 0,040	N 0,080	N 0,020	N	EPC	AB
NM	SOCORRO, MCCUTCHEON STREET		D			<09/00/76		2100,000		D	NMI	AH
NM	SOCORRO, N.M. TECH, SCHOOL		D			<09/00/76		1260,000		D	NMI	AH
NM	SOCORRO, N.M. TECH, SCHOOL	41894	D	W		11/07/78	N 0,040	N 0,080	N 0,020	N	EPC	AB
NM	SOCORRO, SEDILLO PARK		F			<09/00/76		289,000		D	NMI	AH
NM	SOCORRO, W. OF US 60		F			<09/00/76		2190,000		D	NMI	AH
NM	SOCORRO, ZIMMERLY SCH.	41895	D	W		11/07/78	B 0,040	B 0,040	N 0,020	N	EPC	AB
NM	SOCORRO, ZIMMERLY SCHOOL		F			<09/00/76		1220,000		D	NMI	AH
NM	TRUTH OR CONSEQUENCES		F			<09/00/76		B		D	NMI	AH
NM	TRUTH OR CONSEQUENCES		F			<09/00/76		B		D	NMI	AH
NM	TRUTH OR CONSEQUENCES		D			<09/00/76		B		D	NMI	AH
NY	BUFFALO	19900	R			11/00/74	N 0,400	N 0,400		M	EPC	AB
NY	BUFFALO	19901	F		0,00	11/05/74	B 0,020	0,130		M	EPC	AA
NY	ELMIRA	19876	F		0,00	10/11/74	B 0,070	N 0,400		M	EPC	AA
NY	GLEN FALLS	23337	F		0,00	08/28/74	B 0,070	B 0,070		M	EPC	AA
NY	LITTLE FALLS	30563	F			12/13/77	B 0,100	B 0,100		M	EPC	AB
NY	LITTLE FALLS, INTAKE	30564	R			12/13/77	B 0,300	0,800		M	EPC	AB
NY	LONG ISLAND, RAW WELL		R	W		05/00/76	B 0,120	0,500		M	MCC	AZ
NY	MT. KISCO	30225	D		?	08/27/76	B 0,020	N 0,100		M	EPC	AB
NY	NEW YORK CITY		F	S	0,00	<12/00/74	B			R	MSS	AG
NY	NEW YORK, CENTRAL PARK RES.		R	S		08/11/75	B 0,200	B 0,200		M	MCC	AC
NY	NEW YORK, CENTRAL PARK RES.		F	S	0,00	08/11/75	B 0,100	B 0,100		M	MCC	AC
NY	NEW YORK, CENTRAL PARK RES.		F	S	0,00	10/22/75	B 0,200	B 0,200		M	MCC	AC
NY	NEW YORK, CENTRAL PARK RES.		R	S		10/22/75	B 0,250	B 0,250		M	MCC	AC

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NY	NEW YORK, HILLVIEW RES.		F	S	0.00	08/11/75	B	0.200	B	0.200			M MCC	AC
NY	NEW YORK, HILLVIEW RES.		R	S		08/11/75	B	0.360	B	0.360			M MCC	AC
NY	NEW YORK, HILLVIEW RES.		R	S		10/22/75	B	0.250	B	0.250			M MCC	AC
NY	NEW YORK, HILLVIEW RES.		F	S	0.00	10/22/75	B	0.200	B	0.200			M MCC	AC
NY	NEW YORK, HILLVIEW RES.		R	S		10/22/75	B	0.250	B	0.250			M MCC	AC
NY	NEW YORK, JEROME PARK RES.		R	S		08/11/75	B	0.200	B	0.200			M MCC	AC
NY	NEW YORK, JEROME PARK RES.		R	S		10/22/75	B	0.250	B	0.250			M MCC	AC
NY	NEW YORK, JEROME PARK RES.		F	S	0.00	10/22/75	B	0.200	B	0.200			M MCC	AC
NY	NIAGARA FALLS	19902	R	S		11/00/74	N	0.100		0.200			M EPC	AB
NY	NIAGARA FALLS	19903	F	S	0.00	11/08/74	B	0.070	N	0.400			M EPC	AA
NY	OSWEGO CITY	30293	F	S	0.00	11/30/76	B	0.010	N	0.050			M EPC	AB
NY	OSWEGO, METRO, WATER BOARD	30291	F	S	0.00	11/30/76	B	0.010	N	0.050			M EPC	AB
NY	ROCHESTER	19882	F	S	0.00	10/25/74	B	0.020	B	0.020			M EPC	AB
NY	ROCHESTER	19894	R	S		11/00/74	B	0.020	N	0.100			M EPC	AB
OH	BARBERTON, NEAR	E9501	R	S	0.00	08/16/75	B	0.300	N	1.500			N EPC	AB
OH	BARBERTON, NEAR	E9502	E		0.00	08/16/78	B	0.090		4.700			N EPC	AB
OH	BARBERTON, NEAR	E9507	R	S	0.00	08/16/78	B	0.300	N	1.500			N EPC	AB
OH	CINCINNATI		D	S		07/31/74	B	0.020	N	0.070			M EPC	AA
OH	CINCINNATI		D	S		04/25/77	B	0.050	B	0.050			M EPC	AB
OH	CLYDE	37308	F	S	0.00	11/02/76	B	0.010	B	0.010			M EPC	AB
OH	DAYTON	22798	F		0.00	01/00/75	B	0.010	N	0.050			M EPC	AA
OH	FAIRBORN	37305	F	W	0.00	10/27/76	B	0.070	B	0.070			M EPC	AB
OH	FREEMONT	37309	F	S	0.00	11/02/76	N	0.050	B	0.010			M EPC	AB
OH	KENT	320	F		0.00	02/05/75	B	0.200	B	0.200			M EPC	AB
OH	LAKE ERIE, TOLEDO		R	S		08/00/76	B	0.100	B	0.100			M MCC	AZ
OH	MARIETTA	26542				04/01/75	B	0.020	N	0.070			M EPC	AB
OH	MILFORD, CISTERN	39795	D	C	0.00	07/30/78	B	0.100	N	0.300	N	0.100	N EPC	AB
OH	NORTHRIDGE	26181	F	W	0.00	06/04/75	B	0.050	N	0.200			M EPC	AB
OH	NORTHRIDGE	32907	F	W	0.00	07/08/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE	35436	F	W	0.00	04/13/76	B	0.050	B	0.050			M EPC	AB
OH	NORTHRIDGE, A/C	26180	D	W	2.00	06/04/75	B	0.050	B	0.050			M PEC	AB
OH	NORTHRIDGE, A/C	26179	D	W	2.50	06/04/75	B	0.050	B	0.050			M PEC	AB
OH	NORTHRIDGE, A/C	26194	D	W	2.00	07/08/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE, A/C	26193	D	W	1.00	07/08/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE, A/C	32924	D	W	2.50	09/26/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE, A/C	32925	D	W	2.00	09/26/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE, A/C	32999	D	W	2.50	11/24/75	B	0.070	B	0.070			M EPC	AB
OH	NORTHRIDGE, A/C	33000	D	W	2.00	11/24/75	B	0.070	N	0.400			M EPC	AB
OH	NORTHRIDGE, A/C	40702	D	W	2.50	02/09/76	B	0.050	B	0.050	N	0.100	M EPC	AB
OH	NORTHRIDGE, A/C	40703	D	W	2.00	02/09/76	B	0.050	B	0.050	N	0.100	M EPC	AB
OH	NORTHRIDGE, A/C	35435	D	W	2.00	04/13/76	N	0.200	N	0.200			M EPC	AB
OH	NORTHRIDGE, A/C	35434	D	W	2.20	04/13/76	B	0.050	N	0.200			M EPC	AB
OH	NORTHRIDGE, WTP	32923	F	W	0.00	09/26/75	B	0.100	B	0.100			M EPC	AB
OH	NORTHRIDGE, WTP	32998	F	W	0.00	11/24/75	B	0.070	B	0.070			M EPC	AB
OH	NORTHRIDGE, WTP	40701	F	W	0.00	02/09/76	B	0.100	B	0.100	N	0.200	M EPC	AB

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(SOURCE) S=SURFACE, W=WELL, C=CISTERN, B=COMBINED
(B/N) B=BELOW DETECTION LIMIT N=NOT STATISTICALLY SIGNIFICANT
(METHOD1) M=MILLIPORE COND. WASH., N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=
DOW CHEMICAL, MIDLAND, MI., UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH., SEATTLE, MSS= MT.
SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
UMD=UNIV. OF MINN., DULUTH

STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE	MFL	CHRYSOTILE	MFL	BLANK MFL	MET	LAB	REF
OH	S. CENTRAL SOFTENED WELL		R	W		02/00/76		0,140	B	0,047		M	MCC	AZ
OH	SCIOTO RIV., SOUTH-CEN. OH.		R	S		00/00/76	B	0,470	B	0,470		M	MCC	AZ
OH	SIDNEY	36641	F			06/07/77	B	0,060	B	0,060		M	EPC	AB
OH	SIDNEY	36640	F			06/07/77	B	0,060	B	0,060		M	EPC	AB
OH	SIDNEY	41802	F			12/16/77	B	0,060	B	0,060		M	EPC	AB
OH	SIDNEY	41801	F			12/16/77	B	0,060	B	0,060		M	EPC	AB
OH	XENIA	37302	F	W	0,00	10/25/76	B	0,010	B	0,010		M	EPC	AB
OK	MUSKOGEE	18039				10/08/74	B	0,020	B	0,020		M	EPC	AA
OK	TULSA	18040				10/10/74	B	0,020	B	0,020		M	EPC	AA
OK	VERDIGRIS RIVER, INOLA		R	S		08/00/77	B	0,314	B	0,314		M	MCC	AZ
OR	NEWPORT	40612	F	S	0,00	12/17/75	B	0,070		0,500		M	EPC	AB
OR	NEWPORT, CITY HALL	40613	D	S	?	12/17/75	B	0,100	N	0,700		M	EPC	AB
OR	NEWPORT, MUN. SWIM	40611	D	S	?	12/17/75	B	0,200	N	0,800		M	EPC	AB
PA	BETHLEHEM	22903	F		0,00	10/08/74	B	0,050	N	0,200		M	EPC	AA
PA	CONEMAUGH RIV., CENTRAL PA.		R	S		05/00/77	B	0,063	B	0,063		M	MCC	AZ
PA	CROOKED CREEK, SHELOCTA		R	S		05/00/77	B	0,084	B	0,084		M	MCC	AZ
PA	DELAWARE RIVER, EATON		R	S		08/00/77	B	0,230	B	0,230		M	MCC	AZ
PA	ERIE	17717	F		0,00	09/19/74	B	0,020		0,070		M	EPC	AA
PA	ERIE, AT ASBESTOS PAPER CO.		D			07/08/75	B	0,100	N	2,500		M	MCC	AD
PA	ERIE, AT ASBESTOS PAPER CO.		D			07/08/75	B	0,100	B	0,100		M	MCC	AD
PA	ERIE, AT ASBESTOS PAPER CO.		D			07/09/75				9,900		M	MCC	AD
PA	ERIE, AT ASBESTOS PAPER CO.		D			11/06/75				160,000		M	MCC	AD
PA	NEW CHESTER	16139	D		0,00	11/06/76	B	0,300	B	0,300		M	EPC	AB
PA	OHIO RIVER, CENTRAL PA.		R	S		05/00/77	B	0,157	B	0,157		M	MCC	AZ
PA	PAINT TWP., CORNER W/S	46707	D			10/12/78	B			4,200		N	EPC	AB
PA	PAINT TWP., CORNER W/S	46706	D			10/12/78	N			5,700		N	EPC	AB
PA	PAINT TWP, CLARION CO.	46706	D			10/12/78	N	0,250		5,700		N	EPC	AB
PA	PAINT TWP, CLARION CO.	46707	D			10/12/78	B	0,050		4,200		N	EPC	AB
PA	PAINT, CLARION CO.	40752	F		0,00	09/15/76	B	0,010	B	0,010		M	EPC	AB
PA	PAINT, CLARION CO.	16135	D		1,00	09/15/76		0,700		19,000		M	EPC	AB
PA	PHILADELPHIA, BELMONT		R			05/14/75				24,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		R			05/14/75				84,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		R			05/14/75		6,700				M	MCC	AC
PA	PHILADELPHIA, BELMONT		F		0,00	05/14/75				0,750		M	MCC	AC
PA	PHILADELPHIA, BELMONT		F		0,00	10/27/75				26,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		R			10/27/75				230,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		F		0,00	10/27/75				130,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		R			04/01/76				7,700		M	MCC	AC
PA	PHILADELPHIA, BELMONT		F		0,00	04/01/76				1,100		M	MCC	AC
PA	PHILADELPHIA, BELMONT		R			04/02/76				50,000		M	MCC	AC
PA	PHILADELPHIA, BELMONT		F		0,00	04/02/76				4,300		M	MCC	AC

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL		CHRYSOTILE MFL		BLANK MET MFL	LAB	REF
PA	PHILADELPHIA, BELMONT					08/02/76	B 0.200	B	0.200		N	EPD	AS
PA	PHILADELPHIA, BELMONT	3-10-F	F		0.00	10/00/77	B 0.010	N	0.030		M	UWA	AP
PA	PHILADELPHIA, BELMONT	3-81-R	F		0.00	12/14/77	B 0.010	B	7.590		M	UWA	AP
PA	PHILADELPHIA, BELMONT	3-2-F	F		0.00	02/00/78	B 0.030	N	0.020		M	UWA	AP
PA	PHILADELPHIA, BELMONT	3-82-R	F		0.00	12/21/78	B 0.070	N	14.570		M	UWA	AP
PA	PHILADELPHIA, BELMONT 12 HR	45594	F		0.00	09/16/76	B 0.020	N	0.100		M	EPC	AB
PA	PHILADELPHIA, BELMONT 12 HR	22996	F		0.00	11/03/76	B 0.030	B	0.030		M	EPC	AB
PA	PHILADELPHIA, QUEEN LANE 12 HR	45595	F		0.00	09/16/76	B 0.020		0.130		M	EPC	AB
PA	PHILADELPHIA, QUEEN LANE 12 HR	22997	F		0.00	11/03/76	B 0.030	N	0.200		M	EPC	AB
PA	PHILADELPHIA, QUEENLANE		R			04/01/75	B 0.100		24.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		R			04/02/75	B 0.100		120.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		R			05/14/75			70.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		F		0.00	05/14/75	B 0.100	B	0.100		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		F		0.00	05/14/75			11.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		R			05/14/75	B 1.000	B	1.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		R			10/27/75	B 0.100		100.000		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		F		0.00	10/27/75	B	B			M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		R			10/27/75	B 0.100	B	0.100		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		F		0.00	04/01/76	B 0.100	B	0.100		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE		F		0.00	04/02/76	B 0.100	B	0.100		M	MCC	AC
PA	PHILADELPHIA, QUEENLANE					08/02/76	B 0.200		0.900		N	EPD	AS
PA	PHILADELPHIA, QUEENLANE	2-11-F	F		0.00	11/00/77	B 0.030		0.200		M	UWA	AP
PA	PHILADELPHIA, QUEENLANE	2-12-F	F		0.00	12/00/77	B 0.100	N	0.100		M	UWA	AP
PA	PHILADELPHIA, QUEENLANE	2-2-F	F		0.00	02/00/78	B 0.010	B	0.010		M	UWA	AP
PA	PHILADELPHIA, TORRESDALE		F		0.00	05/14/75			4.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		F		0.00	05/14/75			17.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		R			10/27/75			160.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		F		0.00	10/27/75			16.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		F		0.00	10/27/75			60.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		F		0.00	04/01/76	B 0.100	B	0.100		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		R			04/01/76	B 0.250	B	0.250		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		F		0.00	04/02/76			1.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		R			04/02/76		N	0.740		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		R			05/14/76	B 2.500	B	2.500		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE		R			05/14/76			200.000		M	MCC	AC
PA	PHILADELPHIA, TORRESDALE					08/02/76	B 0.200	N	0.200		N	EPD	AS
PA	PHILADELPHIA, TORRESDALE	1-12-F	F		0.00	12/00/77	B 0.020	N	0.020		M	UWA	AP
PA	PHILADELPHIA, TORRESDALE	1-82-R	R		0.00	12/21/77	B 0.030		6.140		M	UWA	AP
PA	PHILADELPHIA, TORRESDALE	1-2-F	F		0.00	02/00/78	B 0.010	N	0.030		M	UWA	AP
PA	PHILADELPHIA, TORRESDALE 12 HR	45593	F		0.00	09/16/76	B 0.020	N	0.100		M	EPC	AB
PA	PHILADELPHIA, TORRESDALE 12 HR	22998	F		0.00	11/03/76	B 0.030	B	0.030		M	EPC	AB
PA	SOUTH PITTSBURGH	26209	F		0.00	12/00/74	B 0.070		0.200		M	EPC	AA
PA	SUSQUEHANNA RIV., HARRISBURH		R	S		09/00/77	B 0.630	B	0.630		M	MCC	AZ
PA	SUSQUEHANNA RIV., W. BRANCH		R	S		08/00/77	B 0.029	B	0.029		M	MCC	AZ
PA	TWO-LICK CREEK, HOMER CITY		P	S		05/00/77	B 0.063	B	0.063		M	MCC	AZ

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK B/N	BLANK MFL	MET	LAB	REF
PR	SAN JUAN	31113				01/30/75	B	0.040	N	0.200			M	EPC	AA
RI	NEWPORT	12965	F		0.00	09/05/74	B	0.020		0.400			M	EPC	AA
RI	NEWPORT	12965	F		0.00	09/05/74	B	0.020		1.000			M	EPC	AA
RI	NEWPORT, 12 HR COMP.	32129	F		0.00	08/17/76	B	0.030		0.200			M	EPC	AB
SC	ANDERSON		R			04/10/75	B	1.800	B	1.800			M	MCC	AD
SC	ANDERSON		F			04/10/75	B	0.130	B	0.130			M	MCC	AD
SC	ANDERSON		F			11/26/75	B	0.130	B	0.130			M	MCC	AD
SC	ANDERSON		R			11/26/75	B	0.400	B	0.400			M	MCC	AD
SC	ANDERSON	21666	D		0.00	11/08/76	B	0.050	B	0.050			M	EPC	AB
SC	BISHOPVILLE	46729	D			11/00/78	N	0.200		118.600			N	EPC	AB
SC	BISHOPVILLE, C.C. INDUSTRY	46729	R			10/25/78	N			96.000			N	EPC	AB
SC	BISHOPVILLE, C.C. INDUSTRY	46730	D			10/25/78	B			0.560			N	EPC	AB
SC	BISHOPVILLE, GIN ST.	41838	D			06/20/78	B	0.200		547.000			N	EPC	AB
SC	BISHOPVILLE, INDUST. TRT.	46730	F			11/00/78	B	0.050		0.400			N	EPC	AB
SC	BISHOPVILLE, REL ACAD.	41866	D			06/20/78	N	1.000		380.000			N	EPC	AB
SC	BISHOPVILLE, WELL	41837	F	W	0.00	06/20/78	N	0.250		0.800			N	EPC	AB
SC	CAMDEN	46724	D			10/24/78	B			22.300			N	EPC	AB
SC	COLUMBIA	12608				07/00/74	N	0.070		0.100			M	EPC	AA
SC	DOUGLAS-DUE WEST, BENTON HONEA	46723	D			11/20/78	N			168.000			N	EPC	AB
SC	GREENVILLE	24508				11/06/74		0.010	N	0.010			M	EPC	AA
SC	GREENVILLE		R			04/10/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENVILLE		R			11/26/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENVILLE, (1)		F			04/10/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENVILLE, (1)		F			11/26/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENVILLE, (2)		F			04/10/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENVILLE, (2)		F			11/26/75	B	0.130	B	0.130			M	MCC	AD
SC	GREENWOOD, AT WTR. PLT.	35429	F	S	0.00	03/02/76	B	0.010	B	0.010	B		M	EPC	AB
SC	GREENWOOD, CANTERBURY	35483	D			04/28/78	B	0.020	B	0.020			N	EPC	AB
SC	GREENWOOD, CANTERBURY	40619	D			06/02/78	N			3.100			N	EPC	AB
SC	GREENWOOD, CANTERBURY	35499	D			08/01/78	N		N				N	EPC	AB
SC	GREENWOOD, CANTERBURY	35497	D			09/22/78	N			1.200			N	EPC	AB
SC	GREENWOOD, CANTERBURY	41850	D			11/17/78	N		N				N	EPC	AB
SC	GREENWOOD, EFFIE	35428	D		2.50	03/02/76	N	0.050		0.200	B	0.010	M	EPC	AB
SC	GREENWOOD, EFFIE	35447	D		2.50	04/21/76		0.300		3.100			M	EPC	AB
SC	GREENWOOD, EFFIE	40620	D		2.50	04/28/78	N	0.100	N	0.100			N	EPC	AB
SC	GREENWOOD, EFFIE	40618	D		2.50	06/02/78	N			2.500			N	EPC	AB
SC	GREENWOOD, EFFIE	35498	D		2.50	08/01/78	N			4.000			N	EPC	AB
SC	GREENWOOD, EFFIE	35496	D		2.50	09/22/78	N			1.000			N	EPC	AB
SC	GREENWOOD, EFFIE	41852	D		2.50	11/17/78	B			0.730			N	EPC	AB
SC	N. CHARLESTON, ASBES. TXTL. CO					04/08/75	B	0.100	B	0.100			M	MCC	AD
SC	N. CHARLESTON, ASBES. TXTL. CO					04/09/75	B	0.100	B	0.100			M	MCC	AD
SC	N. CHARLESTON, ASBES. TXTL. CO					11/24/75	B	0.100	B	0.100			M	MCC	AD
SC	N. CHARLESTON, ASBES. TXTL. CO					11/25/75	B	0.100	B	0.100			M	MCC	AD

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SD	LEAD, HOMESTAKE MINE		R			06/17/75	B	0.530	B	0.530			M	MCC	AD
SD	LEAD, HOMESTAKE MINE		F			06/17/75	B	0.800	B	0.800			M	MCC	AD
SD	LEAD, HOMESTAKE MINE		R			08/20/75	B	0.250	B	0.250			M	MCC	AD
TN	CHATTANOOGA	12400	F		0.00	07/00/74	B	0.020		0.100			M	EPC	AA
TN	CHATTANOOGA		F			04/03/75				4.700			M	MCC	AD
TN	CHATTANOOGA		R			04/03/75	B	2.500	B	2.500			M	MCC	AD
TN	CHATTANOOGA		R			11/28/75				0.750			M	MCC	AD
TN	CHATTANOOGA		F			11/28/75	B	0.130	B	0.130			M	MCC	AD
TN	CLARKSVILLE	13950	F		0.00	10/09/74	N	0.070		0.090			M	EPC	AA
TN	NASHVILLE	21616	F		0.00	12/27/74	N	0.070		0.800			M	EPC	AA
TN	NASHVILLE	21616	F		0.00	12/27/74	B	0.070		0.400			M	EPC	AA
TX	ABILENE	12602	F		0.00	08/09/74	B	0.020	B	0.020			M	EPC	AA
TX	AMARILLO	12966	F		0.00	08/09/74		0.090	N	0.070			M	EPC	AA
TX	AUSTIN, DAVIES	37848	F	S	0.00	01/11/77	B	0.030	N	0.100	B	0.010	M	EPC	AB
TX	AUSTIN, GREEN	37847	F	S	0.00	01/11/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
TX	AUSTIN, ULLRICH	37849	F	W	0.08	01/11/77	B	0.010	N	0.060	B	0.010	M	EPC	AB
TX	CLEBURNE	35440	D		0.00	04/19/76	B	0.010	B	0.010			M	EPC	AB
TX	CLEBURNE	35441	D		5.00	04/19/76	B	0.030	N	0.200			M	EPC	AB
TX	CLEBURNE, AC LINE	26186	D		3.00	06/26/75	N	0.100		0.300			M	EPC	AB
TX	CLEBURNE, AC LINE	32918	D		5.00	09/04/75	N	0.200	N	0.200			M	EPC	AB
TX	CLEBURNE, AC LINE	32991	D	S	5.00	11/18/75	B	0.020	B	0.020			M	EPC	AB
TX	CLEBURNE, AC LINE	40706	D	S	5.00	02/18/76	B	0.020	N	0.080	B	0.020	M	EPC	AB
TX	CLEBURNE, ASHED	35442	F		0.00	04/19/76	B	0.010	B	0.010			M	EPC	AB
TX	CLEBURNE, ASHED	35441	D		5.00	04/19/76	B	0.020		0.100			M	EPC	AB
TX	CLEBURNE, CI LINE	26185	D		0.00	06/26/75	B	0.040	N	0.200			M	EPC	AB
TX	CLEBURNE, CI LINE	32917	D		0.00	09/04/75	B	0.040	B	0.040			M	EPC	AB
TX	CLEBURNE, CI LINE	32990	D	S	0.00	11/18/75	B	0.020	B	0.020			M	EPC	AB
TX	CLEBURNE, CI LINE	40704	D	S	0.00	02/18/76	B	0.020	B	0.020	B	0.020	M	EPC	AB
TX	CLEBURNE, L.P. CLEBURNE	26184	D			06/26/75	B	0.020		0.500			M	EPC	AB
TX	CLEBURNE, WTP	32916	F		0.00	09/04/75	B	0.040	B	0.040			M	EPC	AB
TX	CLEBURNE, WTP	32989	F	S	0.00	11/18/75	B	0.010	B	0.010	B	0.010	M	EPC	AB
TX	CLEBURNE, WTP	40705	F	S	0.00	02/18/76	N	0.050	B	0.010	B	0.020	M	EPC	AB
TX	DALLAS	10842				03/00/75	B	0.200	B	0.200			M	MCC	AC
TX	DALLAS	10841	R			03/00/75	B	0.250	B	0.250			M	MCC	AC
TX	HOUSTON		F			07/00/73	B						M	MCC	AL
TX	HOUSTON	A2	F			03/01/78	N	0.500	N	0.500			N	EPC	AB
TX	HOUSTON	A1	D			03/01/78	B	0.100	N	0.500			N	EPC	AB
TX	HOUSTON	2-3178	E			03/01/78	N		N				N	EPC	AB
TX	HOUSTON	1-3178	D			03/01/78	B		N				N	EPC	AB
TX	HOUSTON, SYST. A		F			07/00/73	B	0.040					B	UCB	AL
TX	HOUSTON, SYST. B		F			07/00/73	B	0.040					B	UCB	AL
TX	HOUSTON, SYST. C		F			07/00/73	B	0.040					B	UCB	AL
TX	HOUSTON, SYST. D		F			07/00/73	B	0.040					B	UCB	AL

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TX	HOUSTON, SYST. E		F			07/00/73 R	0.040						B	UCB	AL
TX	LOCKHART	35438	D		5.00	04/22/76 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART	35439	F		0.00	04/22/76 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART	35437	D		0.00	04/22/76 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART, AC LINE	26189	D		3.00	06/17/75 B	0.010	N	0.050				M	EPC	AB
TX	LOCKHART, AC LINE	32913	D		3.00	09/03/75 B	0.010		0.130				M	EPC	AB
TX	LOCKHART, AC LINE	32992	D		3.00	11/11/75 B	0.020	B	0.020				M	EPC	AB
TX	LOCKHART, AC LINE	40709	D	W	3.00	02/18/76 B	0.010	N	0.050	N	0.020		M	EPC	AB
TX	LOCKHART, CI LINE	26188	D		0.00	06/17/75 B	0.010	N	0.050				M	EPC	AB
TX	LOCKHART, CI LINE	32914	D		0.00	09/03/75 B	0.010	N	0.050				M	EPC	AB
TX	LOCKHART, CI LINE	32993	D		0.00	11/11/75 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART, CI LINE	40708	D	W	0.00	02/18/76 B	0.010	B	0.010	N	0.020		M	EPC	AB
TX	LOCKHART, WTP	26187	F		0.00	06/17/75 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART, WTP	32915	F		0.00	09/03/75 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART, WTP	32994	F		0.00	11/11/75 B	0.010	B	0.010				M	EPC	AB
TX	LOCKHART, WTP	40707	F	W	0.00	02/18/76 B	0.010	N	0.020	N	0.020		M	EPC	AB
TX	SAN ANTONIO, CEDAR RUN,A.C.	41899	D		1.70	11/01/78 B	0.010	N	0.040	B	0.010	N		EPC	AB
TX	SAN ANTONIO, WELL	41900	F	W	0.00	11/01/78 B	0.010	B	0.010	B	0.010	N		EPC	AB
TX	WICHITA FALLS	37398	F	S	0.00	01/12/77 B	0.020	B	0.020	N	0.060		M	EPC	AB
VA	CHARLOTTTSVILLE	17721				10/09/74 B	0.020	N	0.070				M	EPC	AA
VA	CHESAPEAKE, GREAT BRIDGE	32318	F			01/04/79 N			0.230				N	EPC	AB
VA	CHESAPEAKE, GREAT BRIDGE	32313	F	W	0.00	02/13/79 N	0.300	B	0.050	N	0.070		N	EPC	AB
VA	CHESAPEAKE, GREAT BRIDGE,HYDR.	32317	D			01/04/79 B			0.830				N	EPC	AB
VA	CHESAPEAKE, NORFOLK	32306	F			01/04/79 B		N					N	EPC	AB
VA	CHESAPEAKE, NORFOLK	32309	D	S		02/13/79 B	0.060	B	0.060	N	0.050		N	EPC	AB
VA	CHESAPEAKE, NORFOLK	32308	D	S		02/13/79 N	0.400	B	0.080	N	0.050		N	EPC	AB
VA	CHESAPEAKE, NORFOLK	32307	D	S		02/13/79 B	0.050	B	0.050	N	0.050		N	EPC	AB
VA	CHESAPEAKE, NORFOLK, HYDR.	32316	D			01/04/79 B			160.000				N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH	32314	F			01/04/79 N	0.400		13.100				N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH	32315	F			01/04/79	4.600		138.000				N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH	32312	D	S		02/13/79 B	0.050	B	0.050	N	0.070		N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH	29902	D	S		02/13/79 B	0.050	N	0.300	N	0.070		N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH	32311	D	S		02/31/79 N	0.500	N	0.500	N	0.070		N	EPC	AB
VA	CHESAPEAKE, PORTSMOUTH,HYDR.	32314	D			01/04/79	1.800		23.000				N	EPC	AB
VA	RESTON	16141	D		?	11/08/76 B	0.010	B	0.010				M	EPC	AB
VI	ST. CROIX, CISTERN	39773	D	C	0.00	06/21/78 B			543.000				N	EPC	AB
VI	ST. CROIX, CISTERN	39774	D	C	0.00	06/21/78 N			15.000				N	EPC	AB
VI	ST. CROIX, CISTERN	39786	D	C	0.00	08/31/78 B	2.000		237.000				N	EPC	AB
VI	ST. CROIX, CISTERN	39787	D	C	0.00	08/31/78 B	4.000		427.000				N	EPC	AB
VT	BATTLEBORO					03/12/74 B	0.020		0.100				M	EPC	AA
VT	CRYSTAL SPRINGS					03/12/74 B	0.020		0.100				M	EPC	AA

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VT	E. NOSBURG					03/12/74	B	0.020	N	0.070			M	EPC	AA
VT	EDEN, SPRING						B	0.020		0.080			M	EPC	AA
VT	JERICHO-UNDERHILL					03/14/74	B	0.020	N	0.070			M	EPC	AA
VT	NORTH TROY					03/12/74	B	0.070		2.200			M	EPC	AA
VT	NORTH TROY					03/12/74	B	0.070		0.980			M	EPC	AA
VT	QUARRY HILL					03/12/74	B	0.020	N	0.070			M	EPC	AA
VT	RICHMOND-HARRINGTON					03/14/74	B	0.020	N	0.070			M	EPC	AA
WA	ABERDEEN						B		N						
WA	ANACORTES	26021	F		0.00	05/27/75	B	0.020	B	0.020			M	EPC	AB
WA	BREMERTON						B		B						
WA	EVERETT		F		0.00			2.120		35.900			M	UWA	AM
WA	EVERETT		F		0.00			4.680		143.000			M	UWA	AM
WA	EVERETT		F		0.00			1.700		71.600			M	UWA	AM
WA	EVERETT	26060	D		?	03/00/76		20.700		110.000			M	EPC	AB
WA	EVERETT	26061	D		?	03/00/76		20.000		140.000			M	EPC	AB
WA	EVERETT, L. CHAPLIN	26062	R			03/00/76		25.900		167.600			M	EPC	AB
WA	EVERETT, SPADA LAKE	26063	R			03/00/76		25.200		218.900			M	EPC	AB
WA	HOQUIAM						B								
WA	LEVINWORTH							1.330		1.510					
WA	LYNDEN	26020	F			05/19/75		0.160		4.100			M	EPC	AB
WA	LYNDEN		F		0.00	05/19/75		0.060					M	UCB	
WA	OLYMPIA	37378	F	W	0.00	01/13/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
WA	SEATTLE, CEDAR	31294					B	0.020	N	0.010			M	EPC	AA
WA	SEATTLE, CEDAR	26048	F	S	0.00	10/28/75	B	0.100	N	0.700			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26025	D	S	6.08	05/27/75	N	0.400		1.600			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26024	D	S	1.15	05/27/75	N	0.200	N	0.100			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26038	D	S	6.08	08/26/75	B	0.100		0.900			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26037	D	S	1.15	08/26/75	B	0.100	B	0.100			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26041	D	S	6.08	09/30/75	B	0.100	N	0.600			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26040	D	S	1.15	09/30/75	B	0.100	N	0.400			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26053	D	S	6.08	11/18/75		0.140		0.300			M	EPC	AB
WA	SEATTLE, CEDAR, A/C	26052	D	S	1.15	11/18/75	N	0.100		0.200			M	EPC	AB
WA	SEATTLE, CEDAR, CONTROL WKS	26023	F	S	0.00	05/27/75	N	0.100	N	0.200			M	EPC	AB
WA	SEATTLE, CEDAR, CONTROL WKS	26036	F	S	0.00	08/26/75	N	0.100	N	0.100			M	EPC	AB
WA	SEATTLE, CEDAR, CONTROL WKS	26039	F	S	0.00	09/30/75	B	0.100	B	0.100			M	EPC	AB
WA	SEATTLE, CEDAR, CONTROL WKS	26051	F	S	0.00	11/18/75	N	0.100	N	0.100			M	EPC	AB
WA	SEATTLE, TOLT	13091				01/31/75		1.800		2.500			M	EPC	AA
WA	SEATTLE, TOLT	13092	D			01/31/75		1.200		3.600			M	EPC	AB
WA	SEATTLE, TOLT	13092	D			01/31/75		2.100		2.000			M	EPC	AB
WA	SEATTLE, TOLT		F			09/08/75		1.900		1.500			M	UCB	AC
WA	SEATTLE, TOLT		F			09/08/75	B	0.200	B	0.200			M	MCC	AC
WA	SEATTLE, TOLT		F			09/08/75	B	0.200	B	0.200			M	MCC	AC
WA	SEATTLE, TOLT	3-R	F		0.00	01/24/77		5.700		8.900			M	UWA	AP
WA	SEATTLE, TOLT	4C-R	F		0.00	02/02/77		3.300		5.100			M	UWA	AP
WA	SEATTLE, TOLT	5C-R	F		0.00	02/08/77		3.100		16.400			M	UWA	AP

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WA	SEATTLE, TOLT	6-R	F		0.00	02/17/77	3.500		13.000				M	UWA	AP
WA	SEATTLE, TOLT	11-R	F		0.00	02/23/77	4.300		13.300				M	UWA	AP
WA	SEATTLE, TOLT	12D-R	F		0.00	02/28/77	1.800		13.100				M	UWA	AP
WA	SEATTLE, TOLT	21-R	F		0.00	03/24/77	2.200		25.800				M	UWA	AP
WA	SEATTLE, TOLT	24-R	F		0.00	04/11/77	2.400		9.400				M	UWA	AP
WA	SEATTLE, TOLT	29-R	F		0.00	04/20/77	0.900		4.300				M	UWA	AP
WA	SEATTLE, TOLT	33-R	F		0.00	05/05/77	0.600		3.800				M	UWA	AP
WA	SEATTLE, TOLT	44-R	F		0.00	05/17/77	0.900		2.800				M	UWA	AP
WA	SEATTLE, TOLT	51-R	F		0.00	06/01/77	B		8.400				M	UWA	AP
WA	SEATTLE, TOLT	53-R	F		0.00	06/08/77	0.700		3.600				M	UWA	AP
WA	SEATTLE, TOLT	62-R	F		0.00	06/28/77	B		2.500				M	UWA	AP
WA	SEATTLE, TOLT	70-R	F		0.00	07/12/77	B		2.800				M	UWA	AP
WA	SEATTLE, TOLT	89-R	F		0.00	09/03/77	B		1.200				M	UWA	AP
WA	SEATTLE, TOLT	93-R	F		0.00	10/05/77	B		3.600				M	UWA	AP
WA	SEATTLE, TOLT	108-R	F		0.00	11/07/77	B		3.600				M	UWA	AP
WA	SEATTLE, TOLT	111-R	F		0.00	11/16/77	B		4.600				M	UWA	AP
WA	SEATTLE, TOLT	120-R	F		0.00	01/11/78	0.200		5.400				M	UWA	AP
WA	SEATTLE, TOLT	135-R	F		0.00	02/14/78	B		3.900				M	UWA	AP
WA	SEATTLE, TOLT	161-R	F		0.00	06/08/78	B		2.000				M	UWA	AP
WA	SEATTLE, TOLT EAST END		R			02/27/75	1.200		1.200				M	EPC	AB
WA	SEATTLE, TOLT WEST END		R			02/06/75	1.120		1.700				M	EPC	AB
WA	TACOMA, WELL	26017	F		0.00	05/15/75	B	0.020	B	0.020			M	UCB	AB
WA	TACOMA, WELL	26017	F		0.00	05/15/75	B	0.020	B	0.020			M	EPC	AB
WA	TUMWATER	37380	F	W	0.00	01/13/77	B	0.010	N	0.060	B	0.010	M	EPC	AB
WA	YAKIMA, CITY	37308	F	S	0.00	01/13/77	B	0.050	N	0.200			M	EPC	AB
WA	YAKIMA, NOBHILL WELL	37803	F	W	0.00	01/17/77	B	0.010	N	0.050	N	0.010	M	EPC	AB
WI	APPLETON		F	S		09/19/75	B			0.340			B	WIS	AV
WI	APPLETON	37358	F	S	0.00	11/22/77	B	0.400	B	0.400	B	0.400	M	EPC	AB
WI	ASHLAND		F		0.00	07/00/73	B	0.040					B	UCB	AL
WI	ASHLAND		F	S		09/19/75	B			0.380			B	WIS	AV
WI	ASHLAND		R	S		09/19/75	B			0.380			B	WIS	AV
WI	ASHLAND, L. SUPERIOR		R	S	0.00	08/22/73	B						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	09/06/73	B						C	ORF	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	09/14/73	0.190						C	ORF	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	09/26/73	0.250						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	10/03/73	0.620						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	10/10/73	1.630						C	ORF	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	10/17/73	B						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	10/24/73	B						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		R	S	0.00	11/14/73	0.060						M	MCC	AX
WI	ASHLAND, L. SUPERIOR		F		0.00	03/24/74	1.900						N	WIS	AF
WI	ASHLAND, L. SUPERIOR		R			03/24/75	0.700						N	WIS	AF
WI	CLOQUET, L. SUPERIOR		R	S	0.00	08/22/73	1.800						M	MCC	AX
WI	CLOQUET, L. SUPERIOR		R	S	0.00	08/29/73	0.800						M	MCC	AX
WI	CLOQUET, L. SUPERIOR		R	S	0.00	09/26/73	0.800						M	MCC	AX

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(METHOD:) M=MILLIPORE COND, WASH., N=NUCLEPORE JAFFE, D=DROP, L=MILLIPORE JAFFE-WICK, B=DOUBLE NUCLEPORE FILTER
(LAB) EPC=EPA, CINCINNATI EPD=EPA, DULUTH EPG=EPA, ATHENS, GA MCC=MCCRONE ASSOCIATES, UIL=UNIVERSITY OF ILLINOIS, DOW=DOW CHEMICAL, MIDLAND, MI., UCB=U. OF CALIF., BERKELEY, WIS=WISC. DEPT. OF NATURAL RESOURCES, UWA=U. WASH., SEATTLE, MSS=MT. SINAI HOSP., NEW YORK, NMI=NEW MEXICO INST. OF MINING, CMC=CITY OF CHICAGO WATER PURIFICATION LABORATORY, MDH=MINN. DEPT. OF HEALT
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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE B/N	AMPHIBOLE MFL	CHRYSOTILE B/N	CHRYSOTILE MFL	BLANK B/N	BLANK MFL	MET	LAB	REF
WI	CLOQUET, L. SUPERIOR		R	S	0.00	10/10/73	B						M	MCC	AX
WI	CLOQUET, L. SUPERIOR		R	S	0.00	10/17/73		0.900					M	MCC	AX
WI	CLOQUET, L. SUPERIOR		R	S	0.00	10/24/73		1.100					M	MCC	AX
WI	CLOQUET, L. SUPERIOR		R	S	0.00	10/03/78		1.800					M	MCC	AX
WI	DE PERE		F	W		09/22/75	B			0.230			B	WIS	AV
WI	EAU CLAIRE	37822	F	W	0.00	12/08/77	B	0.010	B	0.010	B	0.010	M	EPC	AB
WI	FOND DU LAC		F	W		09/18/75	B			0.890			B	WIS	AV
WI	FOND DU LAC, RESERVOIR	37361	F	W	0.00	11/22/77	B	0.020	B	0.020			M	EPC	AB
WI	FOND DU LAC, WELL	37362	F	W	0.00	11/22/77	B	0.020	N	0.100			M	EPC	AB
WI	KAUKAUNA	37357	F	W	0.00	11/22/77	B	0.010	N	0.050			M	EPC	AB
WI	LA CROSSE	37817	F	W	0.00	12/06/77	B	0.010	B	0.010			M	EPC	AB
WI	LITTLE CHUTE	37353	F	W	0.00	11/19/77	B	0.050	B	0.050	B	0.010	M	EPC	AB
WI	MANITOWOC		F	S		09/08/75	B			0.110			B	WIS	AV
WI	MARINETTE		F	S		09/17/75	B			0.580			B	WIS	AV
WI	MENASHA		F	S		09/19/75	N	0.006		0.140			B	WIS	AV
WI	NEENAH		F	S		09/19/75	B			0.170			B	WIS	AV
WI	NEOPIT		F	S		09/23/75	B			0.130			B	WIS	AV
WI	NEW LONDON	37352	F	W	0.00	11/19/77	B	0.010	B	0.010			M	EPC	AB
WI	NO. FOND DU LAC WELL 3	37360	F	W	0.00	11/22/77	B	0.050	B	0.050			M	EPC	AB
WI	NO. FOND DU LAC, WELL 2	37359	F	W	0.00	11/22/77	B	0.020		0.400			M	EPC	AB
WI	PLATTEVILLE		F	W		08/24/75	N	0.030		0.250			B	WIS	AV
WI	PORT EDWARDS		F	S		09/18/75	B			0.900			B	WIS	AV
WI	SHEBOYGAN		F	S		09/17/75	B			0.380			B	WIS	AV
WI	STURGEON BAY		F	W		09/22/75	N	0.010		0.240			B	WIS	AV
WI	SUPERIOR		F	S	0.00	<12/00/74		4.000					F	MSS	AG
WI	SUPERIOR		F	S		09/03/75	B			1.400			B	WIS	AV
WI	SUPERIOR		F	S		10/02/75	N	0.006		0.630			B	WIS	AV
WI	SUPERIOR		F	S		11/11/75	N	0.010		0.420			B	WIS	AV
WI	SUPERIOR		F	S		12/01/75	N	0.030		0.960			B	WIS	AV
WI	SUPERIOR		F	S		01/05/76	N	0.010		0.590			B	WIS	AV
WI	SUPERIOR		F	S		02/03/76	N	0.020		0.390			B	WIS	AV
WI	SUPERIOR, DEEP WELLS		F	W	0.00	08/22/73	B						M	MCC	AX
WI	SUPERIOR, DEEP WELLS		F	W	0.00	08/29/73	B						M	MCC	AX
WI	SUPERIOR, DEEP WELLS		F	W	0.00	09/26/73		0.100					M	MCC	AX
WI	SUPERIOR, DEEP WELLS		F	W	0.00	10/03/73	B						M	MCC	AX
WI	SUPERIOR, DEEP WELLS		F	W	0.00	10/24/73		0.080					M	MCC	AX
WI	SUPERIOR, DEEP WELLS		F	W	0.00	11/14/73	B						M	MCC	AX
WI	SUPERIOR, L. SUPERIOR		F		0.00	03/20/74	N	0.200					N	WIS	AF
WI	SUPERIOR, L. SUPERIOR		F		0.00	04/01/74		2.800					N	WIS	AF
WI	SUPERIOR, L. SUPERIOR		F		0.00	04/08/74		4.000					N	WIS	AF
WI	SUPERIOR, L. SUPERIOR		F		0.00	04/15/74		2.400					N	WIS	AF
WI	TWO RIVERS		F	S		09/08/75	B			0.260			B	WIS	AV
WI	UNION CENTER		F	W	0.10	09/19/75	B			0.410			B	WIS	AV
WV	HUNTINGTON	1630	F			08/05/77	B	0.060		0.400			M	EPC	AB
WV	WHEELING	37301	F		0.00	10/21/76	B	0.020	N	0.100			M	EPC	AB

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STATE	CITY	ID	TYPE	SOURCE	MILES A-C PIPE	DATE COLLECTED	AMPHIBOLE MFL	CHRYSOTILE MFL	BLANK MFL	MET	LAB	REF
WY	CHEYENE	12519	F		0.00	07/00/74 N	0.070	0.100		M	EPC	AA
WY	CHEYENE	12519	F		0.00	07/00/74 N	0.070	1.200		M	EPC	AA

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4. TITLE AND SUBTITLE	5. REPORT DATE
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	6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
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15. SUPPLEMENTARY NOTES

16. ABSTRACT

Over 1500 asbestos analyses of water supplies in 43 states, Puerto Rico and the District of Columbia were evaluated in order to assess the exposure of the United States population to asbestos in drinking water. It was concluded that the large majority of U.S. water consumers are not exposed to concentrations of asbestos fibers above one million fibers per liter. In a few areas people are exposed to concentrations up to one hundred million fibers per liter. The majority of persons receiving water from asbestos-cement pipe distribution systems are not exposed to significant number of fibers from the pipe. In areas of aggressive water, however, water consumers using asbestos-cement mains may be exposed to high concentrations of fibers.

This report presents data on the exposure to waterborne asbestos fibers. Other projects are currently assessing the health effects of ingested asbestos and will be described in later reports.

A listing of a computerized waterborne asbestos data base is included as an Appendix.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Asbestos, Serpentine, Potable water	Health Effects	06F

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