107294

RECORD OF DECISION
DUBLIN TCE SITE

DECLARATION

SITE NAME AND LOCATION

Dublin TCE Site, Alternate Water Supply Operable Unit
Dublin Borough, Bucks County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Operable Unit 1 (OU 1) of the Dublin TCE Site, in Dublin, Pennsylvania, which was chosen in accordance with Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document explains the factual and legal basis for selecting the remedy for Operable Unit 1 of this Site.

The Commonwealth of Pennsylvania concurs with the selected remedy. This unofficial concurrence is documented in a letter from PADER to EPA, dated September 12, 1991. The information supporting this remedial action decision is contained in the Administrative Record for this Site.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This Operable Unit is the first operable unit of at least two operable units planned for the Site. This Operable Unit will provide a permanent clean drinking water supply for the residences and businesses whose ground water has been or may become contaminated by the Site. This early action remedy will be incorporated into the final action taken at the Site to remediate the groundwater, soil, and surface water at the Site. Operable Unit Two (OU 2) will address the investigation and remediation of the groundwater, surface water, and soil at the Site.

The major components of the selected remedy include:

1. Development, construction, and operation of a new water supply well within the plume of contamination or operation of an existing well within the plume of contamination. Preference will be given to use of an existing well so that this remedy can be implemented as quickly as possible, however, the decision on use of a groundwater well will be made based on a review of all relevant factors.

2. Construction and operation of an air stripping and vapor phase carbon adsorption system (or similar treatment technology which is acceptable to EPA after consultation with PADER) for treatment of the water extracted from the well described above. Treated water, which does not exceed the Maximum Contaminant Levels (MCLs) for the contaminants of concern, shall be supplied to the public water supply.

3. Expansion of the existing Dublin Borough public water distribution system with use of the well and treatment system described above to provide clean water, according to the requirements of the Federal Safe Drinking Water Regulations and the State Community Environmental Control Regulations, through the public water supply, to the affected and potentially affected residences and businesses.

4. Monitoring of residential and commercial wells at homes not addressed by the public water supply but which have the potential for contamination until a final groundwater remedy is implemented at the Site.

5. Operation and maintenance of the selected remedy.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. Although this interim action is not intended to fully address the statutory mandate for permanence and treatment to the maximum extent practicable, this action utilizes treatment and thus is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element, although partially addressed in this remedy, will be more fully addressed by the final response action. Subsequent actions are planned to address fully the threats posed by the conditions at this Site.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Edwin B. Erickson
Regional Administrator
Region III

DEC 30 [illegible]
Date

DUBLIN TCE SITE
RECORD OF DECISION

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I. Site Name, Location, and Description

The Dublin TCE Site is located at 120 Mill Street in Dublin Borough, Bucks County, Pennsylvania (Figure 1) approximately 400 feet west of State Route 313. The Site is located on approximately 4 1/2 acres in size and is surrounded by residences and businesses to the east, west and south. A fruit orchard borders the Site to the north and west. The Site consists of one one-story brick building surrounded by a parking lot. A fire tower is located at the northern boundary of the property (Figure 2).

The regional water supply primarily consists of private and public wells. The aquifer is classified as Class IIA, a current source of drinking water. Based on available information, the ground water flows from southeast to northwest beneath the Site and is controlled predominantly by fractures. Ground water beneath the Site flows towards residential and commercial wells in Dublin Borough.

Site surface water drainage is expected to flow in a northwestward direction via street drainage because the majority of the property is currently paved with asphalt. Drainage not absorbed by the fruit orchard located directly northwest of the Site, is collected by a drainage ditch situated on the northern corner of the property near the fire tower. The ditch is believed to discharge into the headwaters of an unnamed perennial tributary of Morris Run, located approximately 1/2 mile northwest of the Site.

Specific information concerning groundwater and surface water flow will be confirmed during the Remedial Investigation/ Feasibility Study (RI/FS) which is currently being performed by one potentially responsible party.

II. Site History and Enforcement Activity

The Site operated as a hosiery mill from the 1930s until 1956. Dublin Hosiery Mills operated the Site from 1945 to 1956. Home Window Company of Pennsylvania, Incorporated manufactured aluminum doors and windows at the property from 1956 to 1959.

Kollsman Motor Corporation (KMC) owned and operated the Site from 1959 to 1971 and used it to manufacture miniature precision motors, gear trains, clutches, brakes and related electro-mechanical components which were used in manned aircraft and missiles. Trichloroethylene (TCE) was used as a degreasing solvent in this operation. Between 1959 and 1971, KMC used TCE at the rate of approximately 15 gallons per week. Spent TCE was disposed of at the Site in "chip" drums (i.e. drums used to store waste metal parts from the manufacturing process) located behind

the building. These drums had drainage holes on the bottom so that the TCE drained out of the drums and onto the ground. TCE was also poured on the ground behind the building. KMC sold the property to Kollsman Instrument Corporation (KIC) in 1971.

Athlone Industries, Incorporated (Athlone) purchased the property from KIC in 1973 and operated the Site from 1973 to 1986. Athlone used the property to clean, stamp, package and store baseballs and softballs. Safety Solvent No. 2, a solvent containing approximately 10% trichloroethylene was used in 1982 by Athlone as a degreasing solvent for the assembly of three stamping machines. A partially full 30-gallon drum of this solvent was left on the premises after Athlone sold the property in 1986.

John H. Thompson purchased the property in 1986 and is the current owner and operator of the Site. Mr. Thompson uses a portion of the Site to restore antique race cars and leases a portion of the Site to Laboratory Testing, Incorporated. LTI uses the property for metallurgical testing.

During a routine drinking water survey in the summer of 1986, the Bucks County Health Department (BCHD) discovered levels of TCE up to 1000 parts per billion (ppb) in 23 tap water samples. Approximately 170 homes, apartments and businesses in Dublin Borough were affected. BCHD issued advisories to the public on the best approach to curtail water usage and prevent further exposure to TCE. For residences with TCE levels greater than 5 ppb, BCHD recommended the installation of carbon filters. For TCE levels above 500 ppb, the County cautioned residents not to use their tap water for bathing.

The EPA Region III Emergency Response Section received a request from the BCHD to evaluate the Site on September 3, 1986. A preliminary assessment, conducted by EPA, determined the current water usage status of all residential and commercial wells which were found to be contaminated with TCE.

On June 29, 1987, EPA entered into a CERCLA Section 106 Consent Agreement and Order with John H. Thompson. Mr. Thompson agreed to: (1) take action to assure that all residents and commercial employees exposed to TCE levels greater than 5 ppb would have an adequate treatment system in place or would be supplied with bottled water (as specified in the Work Plan attached to the Consent Agreement and Order), (2) conduct periodic monitoring of all carbon filters and air strippers being used by the residences and businesses to assure that the units were functioning properly, and (3) conduct periodic groundwater monitoring of wells for all residences and businesses at risk in accordance with the Work Plan.

This Consent Order and Agreement was amended in April 1991

to provide point-of-entry carbon filtration systems i.e., treatment systems installed on the water source entering the household, to all residential dwellings with groundwater contamination greater than 5 ppb TCE. At businesses, either bottled water or point-of-use carbon filtration systems are provided. This amendment addressed the risk posed by inhalation of TCE vapors released from the groundwater. Residences that were previously supplied with only point-of-use treatment systems (i.e. treatment systems located at the kitchen tap) are now being supplied with the point-of-entry systems. Residential well testing conducted under this order indicated that groundwater is contaminated with several volatile organic compounds (VOCs), including trichloroethylene (TCE), tetrachloroethylene (PCE) and vinyl chloride.

On June 4, 1990, the Commonwealth of Pennsylvania, Department of Environmental Resources (PADER) and Sequa Corporation (successor in ownership to Kollsman Motor Corporation and Kollsman Instrument Corporation) entered into a Consent Order and Agreement under the Commonwealths' Clean Streams Act. Sequa Corporation agreed to investigate and abate the groundwater contamination problems at or near the Site in accordance with the Work Plan attached to the Consent Order and Agreement. Under the Consent Order and Agreement executed by Sequa and PADER, Sequa also agreed to submit a Recommended Remedial Action Plan which will address the contaminated groundwater and provide for a water distribution system.

John H. Thompson, at the request of PADER, installed two monitoring wells at the Site in 1988. Eight additional monitoring wells were installed off of the 120 Mill Street property under a separate study by Geraghty & Miller. The monitoring wells installed both on-site as well as off-site show contamination by volatile organic compounds, including TCE and vinyl chloride. Three municipal supply wells located in the Borough were tested for VOCs in 1991 by Dublin Borough for VOCs. No contamination was detected in these wells.

Soil and soil gas at the 120 Mill Street property were sampled during studies performed by John H. Thompson in 1988 and Sequa Corporation in 1990 on behalf of PADER. Results indicated that the soil and soil gas on the property are contaminated with volatile organic compounds, including TCE and vinyl chloride.

The Site scored a 28.9 under EPA's hazard ranking system. It was proposed for inclusion on the CERCLA National Priorities List (NPL) on October 26, 1989. The Site was finalized on the NPL on August 30, 1990.

In 1991, EPA conducted a Focused Feasibility Study (FFS) for Operable Unit 1 at the Site to evaluate remedial alternatives for providing an alternate clean drinking water supply to the

affected and potentially affected residences and businesses (referred to collectively as "affected parties") . The FFS included the supply of an alternate water source to 69 homes and businesses whose well water exceeded or had the potential, due to groundwater flow, to exceed the Maximum Contaminant Levels (MCL) set by EPA, or pose an excess cancer risk level of $1x10^{-06}$ or greater for volatile organic compounds, including TCE, PCE and vinyl chloride. The MCL is an enforceable drinking water standard established within the Safe Drinking Water Act. If a chemical did not have an MCL, EPA developed a $1x10^{-06}$ level which may result in one excess cancer among one million people exposed to the contaminant. Table 1 identifies the residences and businesses where remedial action levels, i.e. , MCLs or $1x10^{-06}$ cancer risk levels, were exceeded or have the potential to be exceeded. The FFS also identified residences and businesses whose well may be contaminated by VOCs from the Site if a groundwater remedial action is not implemented by 1995.

EPA issued a proposed plan on August 8, 1991 which described the remedy EPA preferred to implement for OU 1, as well as 6 other alternatives. The remedy EPA preferred to implement was a connection to the existing Dublin Borough water system, expansion of the system to include a water supply well within the plume of contamination, and treatment of this water with air stripping and vapor phase carbon adsorption prior to distribution to the affected parties. A request for an extension of an additional 30 days to the public comment period was made on August 13, 1991. The public comment period was extended to October 9, 1991. After the 60-day public comment period closed, EPA reevaluated the 7 alternatives within the proposed plan based upon comments received. This record of decision (ROD) selects the remedial alternative for Operable Unit One which was preferred in the proposed plan.

EPA entered into a Consent Order and Agreement with Sequa Corporation on August 15, 1991. This Consent Order and Agreement requires Sequa Corporation to conduct a Remedial Investigation (RI) and Comprehensive Feasibility Study (FS) at the Site. The RI/FS is expected to be completed in 1993. This RI/FS will address the groundwater, surface water and soils at the Site.

EPA conducted potentially responsible party searches in 1987 and in 1990 and identified the following PRPs: Sequa Corporation (successor in ownership of KMC and KIC), Athlone Industries, Incorporated, and John H. Thompson. Sequa Corporation and John H. Thompson were sent "special notice" letters on August 22, 1991. The letters indicated that EPA would not begin the remedial investigation or feasibility study for the Site until 90 days from the date of the special notice letter provided that the potentially responsible parties agreed to implement the RI/FS. A general notice letter was sent to Athlone Industries, Incorporated on November 21, 1990 requesting participation in the

on-going negotiations between Sequa Corporation, John H. Thompson and EPA for implementation of a RI/FS.

At least two federal lawsuits have been filed at the Site. These include Whistlewood Commons Associates v. Sun Chemical Corporation, Athlone Industries, Incorporated, and John H. Thompson, United States District Court for the Eastern District of Pennsylvania, Civil Action No. 87-6407, and Susan Coburn, etal. v. Sun Chemical Corporation, Athlone Industries, Incorporated, and John H. Thompson, United States District Court for the Eastern District of Pennsylvania, Civil Action No. 88-0120.

III. Highlights of Community Participation

In accordance with CERCLA Section 117, the Proposed Plan and the FFS for OU 1 were released to the public on August 8, 1991. These two documents were made available to the public in the Administrative Record for this Site and the information repository maintained at the Dublin Borough Hall located at 119 Maple Avenue in Dublin, PA and the EPA Docket Room in Region III, Philadelphia, PA. The notice of availability of these documents was published in The Daily Intelligencer, The News Herald, The Morning Call, and The Philadelphia Inquirer on August 8, 1991. In addition, a copy of the Proposed Plan was mailed to approximately 100 people who requested information concerning the Site.

Due to a request for an extension to the comment period, the 30-day public comment period was expanded to 60 days. The comment period began on August 8, 1991 and was concluded on October 9, 1991. The public was given additional opportunity to comment on the Proposed Plan and Focused Feasibility Study at a public meeting held at the Dublin Fire Hall on August 26, 1991. At this meeting, representatives from EPA and PADER answered questions and received comments about the Site, the remedial alternatives under consideration and the proposed remedy. A stenographic report of the public meeting was prepared by EPA. A response to the comments received during the 60-day comment period is included as part of this ROD in the Responsiveness Summary (APPENDIX A).

The index for the Administrative Record, upon which this decision document is based, is contained within APPENDIX B. This decision document is also based upon comments contained within the stenographic report of the public meeting on August 26, 1991 and other comments received by EPA, which are also included in the Site file.

IV. Scope and Role of OU 1

This record of decision addresses the first operable unit at

the Site. The ROD for this operable unit addresses drinking water. This remedial action provides an alternate water supply for approximately seventy (70) residences and businesses affected or potentially affected by the Dublin TCE Site contamination. Table 1 lists the residences and businesses who will be supplied by an alternate water source. The provision of an alternate water supply will prevent the ingestion of and dermal contact with contaminated groundwater and the inhalation of vapors from contaminated groundwater. This remedial action also provides for monitoring for VOCs of approximately (50) residential and commercial wells which may be potentially impacted by the groundwater contamination if a final groundwater remedy is not implemented by 1995. Table 2 lists the residences and businesses whose wells will be monitored.

The primary objective of this response is to supply clean water to residences and businesses whose wells are currently or potentially affected by the Dublin TCE Site groundwater contamination. The aquifer being used by the residences and businesses at or near the Dublin TCE Site is classified as Class IIA, a current source of drinking water, in accordance with the EPA document "Guidelines for Groundwater Classification"(Final Draft, December 1986). The primary risk to human health and the environment is from ingestion of, and contact with, groundwater from wells that contain contaminants above the MCLs established under the Safe Drinking Water Act, 42 U.S.C. Sections 300f to 300j-26. The water supply must meet all federal and state applicable or relevant and appropriate standards. The response will address distribution of clean water to residences and businesses whose water supply is affected or potentially affected by contamination from the Site.

The remedy described in this ROD is only part of the total remedy for the Site. The remainder of the Site is being investigated as part of a remedial investigation and feasibility study, the results of which will be presented at a later date and used to select a remedy for the entire Site. The remedial alternative selected in this ROD will be consistent with the remedy selected for the entire Site.

V. Summary of Site Characteristics

All characteristics of the Dublin TCE Site will be fully described and discussed after the Remedial Investigation and Feasibility Study have been completed and a report of the investigation and study are approved by EPA.

During former operations at the Dublin TCE Site, chemical solvents were used to degrease machined metal parts and equipment. The amount of solvent used between 1959 and 1971 amounted to approximately 15 gallons per week. A 30-gallon drum of a solvent containing TCE was purchased for use during 1982 and

the partially full drum was left at the 120 Mill Street property at the time of the sale of the property to John H. Thompson.

The amount of solvent spilled or otherwise released into the environment at the Dublin TCE Site is unknown. However, some of the chemical solvent has migrated through the soil column and has entered the ground water system beneath the facility. Chemical sampling of ground water from wells on the Dublin TCE Site and from wells near the Dublin TCE Site indicate that volatile organic chemicals, including TCE, PCE and vinyl chloride, exist in the ground water at levels of up to 10,000 ppb, 13 ppb and 28 ppb, respectively. TCE and PCE are probable human carcinogens and vinyl chloride is a confirmed human carcinogen. These VOCs are mobile and soluble in groundwater.

The bedrock beneath the Site is fractured. Ground water moves predominantly through the fracture system. Therefore, residential or other wells penetrating the same fractures or fracture systems containing contaminated ground water from the Site may become contaminated. Some residential and commercial wells are now contaminated by volatile organic compounds similar to those found at the Dublin TCE Site, including TCE. John Thompson has, under a Consent Order with EPA, installed activated carbon units or supplied bottled water to homes and businesses with TCE levels above 5 ppb to reduce these levels to safe levels. EPA has decided to develop and screen remedial alternatives to provide a permanent supply of clean water to residences and businesses near the Site and to select a remedial alternative for an alternate water supply of drinking water in this Record of Decision.

Between 1987 and 1990, a series of field investigations and residential well monitoring at the Site confirmed the presence of TCE in the soil and groundwater at and surrounding the Site. These investigations were conducted by John H. Thompson, Sequa Corporation and Roy F. Weston for PADER, EPA and the Whistlewood Apartment Complex.

VI. Summary of Site Risks

Well sampling conducted under the Consent Order between Mr. Thompson and EPA indicates that the untreated groundwater at certain residences and businesses is contaminated with VOCs including TCE, PCE and vinyl chloride at levels which exceed the Maximum Contaminant Levels (MCLs) for these chemicals. Residential and commercial well sampling has indicated TCE levels up to 10,000 ppb, PCE levels up to 13 ppb and vinyl chloride levels up to 28 ppb in the untreated groundwater. Degradation products of TCE and PCE in addition to vinyl chloride have been identified in the residential and commercial wells. These chemicals include cis- and trans- 1,2- dichloroethylene, 1,1-dichloroethylene, and 1,1- dichlorethane. 1,1,1 trichloroethane

has also been identified.

The MCL is an enforceable drinking water standard established within the Safe Drinking Water Act. EPA will initiate a remedial action if groundwater contains a particular chemical above the standard, or MCL, for that chemical. If a MCL has not been developed for a chemical, EPA will use other criteria when considering the need for remedial action. For this remedial action, EPA has used the established MCLs or the "excess cancer risk level of $1x10^{-06}$", i.e. one excess cancer among one million people, to determine if remedial action is necessary. The criteria, i.e. remedial action level, used by EPA which would trigger the need for remedial action for this operable unit and the maximum levels identified at the Site are described in Table 3. The MCL has been exceeded for vinyl chloride, trichoroethyene, tetrachloroethylene, and 1,1-dichloroethylene at the affected residences and businesses near the Site. Therefore, a remedial action is justified.

A summary of the most recent analytical data from residential wells is contained within APPENDIX C. Average TCE concentrations in the residential wells from 1986 to March 1991 are indicated in Figure 3.

VIII. Alternatives

This section of the ROD describes the process of screening and developing remedial alternatives and discusses in detail each of the seven alternatives evaluated in the proposed plan.

The FFS studied and evaluated several options to determine if they could be applicable for use in providing an alternate water supply. The NCP requires that the "No Action" alternative be evaluated. The technologies determined to be most applicable to this action were developed into remedial alternatives. These alternatives, presented and discussed below, are:

- **Alternative 1: No Action**
- **Alternative 2: Connection to the Existing Dublin Borough Municipal Water Supply**
- **Alternative 3: Installation of a New Well or Use of an Existing Well Outside of the Plume of Contamination**
- **Alternative 4: Treatment of Water from Residential and Business Wells with Carbon Adsorption Systems**
- **Alternative 5: Treatment of Water from a New Well or Existing Well within the Plume with a Carbon Adsorption System**
- **Alternative 6: Treatment of Water from a New Well or Existing Well within the Plume with Air Stripping and Vapor-Phase Carbon Adsorption**

- Alternative 7: Treatment of Water from a New Well or Existing Well within the Plume with UV Oxidation

Applicable or relevant and appropriate requirements (ARARs) which are identified for this remedial action are listed in Table 4. Major ARARs pertaining to each alternative are identified in the alternative description sections below.

Alternative 1: NO ACTION

The NCP requires that the "No Action" alternative be evaluated at every site to establish a baseline for comparison with the other alternatives. Under this alternative, EPA would discontinue the monitoring program and discontinue the supply of bottled water or carbon adsorption units to the affected parties. As a result, residences and businesses would use water contaminated with volatile organic compounds. Because VOCs exist at levels above the MCL and/or the cancer risk level of $1x10^{-06}$, public health would not be protected under the "No Action " alternative. Alternative 1 does not satisfy the primary objective of this ROD.

Alternative 2: CONNECTION TO THE EXISTING DUBLIN BOROUGH MUNICIPAL WATER SUPPLY

The general components of this alternative are:

A. Connecting affected parties into an extension of the Dublin Borough municipal water system.

B. Removing existing carbon units or discontinuing bottled water service for the affected residences and businesses and disposing of the carbon units in accordance with all Federal and State regulations.

C. Abandoning affected and potentially affected wells within the plume of contamination and/or implementing institutional controls on the development and use of private wells within the plume of contamination.

D. Conducting periodic sampling and monitoring at certain residences and businesses not connected into the Dublin system to ensure that these homes do not become affected by contamination from the Site.

E. Conducting periodic monitoring of the Dublin Borough supply wells for volatile organic compounds to ensure that these wells do not become affected by contamination from the Site.

The Borough of Dublin operates a municipal water supply and public water distribution system. This alternative involves expanding the existing public water distribution system and supplying the affected parties with uncontaminated water from the existing water supply. The affected parties currently obtain water from private wells. The existing municipal water supply is supplied by three wells, Well #1, Well #2, and Well #3 (Figure 3). The capacity of the existing water supply system would need to be increased by approximately 50 gallons per minute (gpm) to supply the affected parties. The existing water supply is permitted by the Pennsylvania Department of Environmental Resources (PADER) and the Delaware River Basin Commission (DRBC) for this additional capacity.

The water would be distributed to the affected parties through water mains constructed along North Main Street, Mill Street and a portion of Elephant Road (see Figure 3). A connection could be made to the Dublin water distribution system at the intersection of Elephant Road and Deep Run Road. Water mains would be extended from this point south along Elephant Road to Main Street, and then north along North Main Street to Rickerts Road. A main would also be installed along Mill Street from North Main Street to Cherry Lane to supply residences along Mill Street and on the northside of Maple Avenue to Cherry Lane. Each affected party would be connected to the water main and the water use would be metered.

Dublin Borough Ordinance No. 164, requires that private wells be abandoned, as a general rule, when a borough water line exists to service a home or business. The Borough Ordinance does, however, exclude those residents and business owners and operators, who have utilized private wells prior to the construction of the borough water line.

Under this alternative, the existing residential wells would be abandoned and the existing in-house carbon filters would be removed unless an agreement is reached between the property owner and the Borough for continued use of the private well. If the property owner reached such an agreement, the property owner would maintain the in-house treatment system. These carbon filters would be disposed of in accordance with the Federal Resource Conservation Recovery Act (RCRA) and Pennsylvania's Solid Waste regulations with preference given to recycling or regenerating this filters, if possible. These regulations are considered applicable. The spent carbon filters would be considered a RCRA characteristic waste if the toxic characteristic leaching procedure (TCLP) analysis performed on this waste resulted in a VOC concentration greater that 0.5 parts per million. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Under this alternative, the water mains and associated

equipment would be transferred to the Dublin Borough Water Department for its use. The affected parties would be billed for water usage by the Borough at the standard rate, which would provide sufficient revenue to finance the O&M for the water line extension.

This alternative does not include provisions for additional system capacity to serve new development in the area not affected or potentially affected by the Site. This option does not provide for additional fire protection, i.e., more protection than residences currently have.

Under the Federal Safe Drinking Water Act (SDWA) and Pennsylvania's Safe Drinking Water Regulations (PASDWR), which are applicable requirements, the Borough would be required to sample the wells which supply the water distribution system periodically to ensure that all criteria identified within these regulations are met.

In addition, because these wells are outside the plume of contamination and the plume has not been fully defined, monitoring for VOCs on a quarterly basis would be necessary to ensure that the contamination from the Site does not spread to these wells. This monitoring will be required at least until a final ground water remedy is implemented at the Site.

Because Well #3 is downgradient of the Site and is a well open to many bedrock fractures, there is a possibility that this well may become affected by the contamination from the Site. Also, even though the other wells (Wells #1 and #2) are located upgradient of the Site, increased pumping from these wells may spread the contamination by redirecting the natural groundwater flow. If contamination did spread to Well #1, Well #2, or Well #3, a treatment system would be required so that water discharged from these wells meets all of the requirements of SDWA and PASDWR.

This alternative would provide the residences and businesses with a permanent, regulated water supply. This would ensure that the residences and businesses are supplied with a safe, clean drinking water source that meets all Federal and State drinking water regulations.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences and businesses listed in Table 1 would be connected to the water main and that the wells at the residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. The estimated time for implementation

of this alternative is 6 to 12 months.

- Capital Costs: $2,200,000
- Annual O & M Costs: $138,000
- Present Worth: $2,600,000

Alternative 3: INSTALLATION OF A NEW WELL OR USE OF AN EXISTING WELL OUTSIDE OF THE PLUME OF CONTAMINATION

The general components of this alternative are:

A. Constructing a new water supply well or using an existing water supply well outside of the plume of contamination and incorporating this well into the existing Dublin Borough municipal water distribution system.

B. Connecting the affected parties into an extension of the Dublin Borough municipal water system and supplementing the current capacity of the existing Borough supply system with enough water from the well described in A to supply the these residences and businesses.

C. Removing existing carbon units or discontinuing bottled water service for the affected residences and businesses and disposing of the carbon in accordance with all Federal and State regulations.

D. Abandoning affected and potentially affected wells within the plume of contamination and/or implementing institutional controls on the development and use of private wells within the plume of contamination.

D. Conducting periodic sampling and monitoring at certain residences and businesses not connected into the Dublin system to ensure that these homes do not become affected by contamination from the Site.

E. Conducting periodic sampling and monitoring of the new water supply well to ensure that this well does not become affected by contamination from the Site.

This option involves construction of a new water supply well or use of an existing private well outside the plume of contamination. Water from this well would be pumped into an expanded Dublin Borough water distribution system. A submersible pump capable of delivering approximately 50 gallons per minute (gpm) at the required system pressure would be installed in the

well. This well pump would be operated at a rate necessary to supply only the affected parties and would supplement the existing system with the required additional water. A water line would be installed from the well to the borough's storage tank facility located on South Main Street or another storage facility specifically constructed for the water discharged from this well. The well water would supplement the water currently being supplied to the borough's storage tank facility by the three existing municipal wells (Figure 3).

The water would be distributed to the affected parties through water mains constructed along North Main Street, Mill Street and a portion of Elephant Road. A connection could be made to the Dublin water distribution system at the intersection of Elephant Road and Deep Run Road. Water mains would be extended from this point south along Elephant Road to Main Street, and then north along North Main Street to Rickerts Road. A main would also be installed along Mill Street from North Main Street to Cherry Lane to supply residences along Mill Street and the northside of Maple Avenue to Cherry Lane. Each affected party would be connected to the water main and the water use would be metered.

Dublin Borough Ordinance No. 164, requires that private wells be abandoned, as a general rule, when a borough water line exists to service a home or business. The Borough Ordinance does, however, exclude those residents and business owners and operators, who have utilized private wells prior to the construction of the borough water line.

Under this alternative, the existing residential wells would be abandoned and the existing in-house carbon filters would be removed unless an agreement is reached between the property owner and the Borough for continued use of the private well. If the property owner reached such an agreement, the property owner would maintain the in-house treatment system. These carbon filters would be disposed of in accordance with the Federal Resource Conservation Recovery Act and Pennsylvania's Solid Waste regulations with preference given to recycling or regenerating this filters, if possible. These regulations are considered applicable because the spent carbon filters would be considered a RCRA characteristic waste if the toxic characteristic leaching procedure (TCLP) analysis performed on this waste resulted in a VOC concentration greater that 0.5 parts per million. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Under this alternative, the well, water mains and associated equipment would be transferred to the Dublin Borough Water Department for its use. The affected parties would be billed for

water usage by the Borough at the standard rate, which would provide sufficient revenues to finance the O&M for the supply well and the water line extension.

This alternative does not include provisions for additional system capacity to serve new development in the area not affected or potentially affected by the Site. This option does not provide for additional fire protection, i.e., more protection than residents currently have.

Under the Federal Safe Drinking Water Act and Pennsylvania's Safe Drinking Water Regulations, which are applicable requirements, the Borough would be required to sample the wells which supply their system, including the new well, to ensure that all criteria identified within these regulations are met.

The location of a new well or use of an existing well would be determined during the remedial design phase of remedy implementation. Because this new well would be outside the plume of contamination, a potential exists for the contamination from the Site to spread to this well. This potential will be reduced by properly locating and designing the well during the remedial design phase. Monitoring of this well for VOCs on a quarterly basis would be necessary to ensure that the contamination from the Site does not spread to this well. This monitoring will be required at least until a final ground water remedy is implemented at the Site.

This alternative would provide the residences and businesses with a permanent, regulated water supply. This would ensure that the residences and businesses are supplied with a safe, clean drinking water source that meets all Federal and State drinking water regulations.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences and businesses listed in Table 1 would be connected to the water main and supplied with water from the new well and that the wells at the residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. The project would be technically feasible and implementable. The estimated time for implementation of this alternative is 9 to 12 months.

- **Capital Costs: $2,600,000**
- **Annual O & M Costs: $169,000**
- **Present Worth: $3,300,000**

Alternative 4: TREATMENT OF WATER FROM RESIDENTIAL AND COMMERCIAL WELLS WITH CARBON ADSORPTION SYSTEMS

The general components of this alternative are:

A. Providing the affected and potentially affected residences with point-of-entry individual granular activated carbon (GAC) treatment units and providing affected and potentially affected businesses with either point-of-use carbon treatment systems or bottled water.

B. Maintaining the treatment systems by periodically monitoring the influent and effluent from the systems and replacing the spent carbon, as necessary.

C. Removing or installing a bypass system around the existing GAC units or discontinuing bottled water service for the affected parties and disposing of the carbon in accordance with all Federal and State regulations once the groundwater is completely remediated.

D. Conducting periodic sampling and monitoring at selected residences and businesses not connected into the Dublin system until a final groundwater remedy is implemented to ensure that these residences do not become affected by contamination from the Site.

In this alternative, continued individual GAC unit or bottled water service would be provided to the residential and commercial wells currently monitored under the Order between John H. Thompson and EPA in addition to the additional homes and businesses identified as potentially affected by the contamination (see Table 1). The treatment system for private residences with 5 ppb or greater of TCE would include a point-of-entry system. The untreated and treated water would be sampled periodically. Businesses would be supplied with either bottled water or a point-of-use carbon treatment system and would be monitored periodically. Treated water would meet all Federal and State drinking water quality standards for the VOCs identified at the Site.

The GAC adsorption system would include two beds of carbon operating in series. The GAC adsorption process involves contacting the contaminated groundwater with activated carbon. The organic molecules contacting the activated carbon particle surface would be held there by physical or chemical forces. Once the carbon is saturated with organics, the spent carbon must be

either removed and replaced with virgin or off-site-regenerated carbon or the spent carbon must be regenerated on-site. It was assumed that the spent carbon would be removed and replaced with either virgin or off-site-regenerated carbon. Spent carbon would be disposed of or treated in accordance with Federal Resource Conservation Recovery Act and Pennsylvania's Solid Waste regulations. These regulations are considered applicable because the spent carbon filters may be considered a RCRA characteristic waste if the TCLP analysis performed on this waste resulted in a VOC concentration greater than 0.5 parts per million. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Operation and maintenance of the in-house carbon systems would be required until the final ground water remediation is complete. At that time, the units could be removed or bypassed. These carbon filters would be disposed of in accordance with all Federal and State regulations. The operation and maintenance (O&M) of the system must be the responsibility of some agreed-upon authority. This authority must be able to gain access to the homes to complete O&M and sampling. This authority would be responsible for routinely sampling the water effluent from the treatment systems at the individual residences and businesses to ensure that all criteria related to the contamination at the Site are met. Because this alternative would require treatment of water prior to discharge to the individual residence or business, periodic monitoring of the effluent from the treatment system would be necessary to ensure that the treatment equipment is functioning properly.

Because this is not a public distribution system, monitoring and treatment would be provided only for contaminants related to the Site.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences and businesses listed in Table 1 would be supplied with a individual GAC treatment systems or bottled water, as appropriate, and residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. This remedy would be technically feasible and implementable. The estimated time for implementation of this alternative is 1 to 2 months.

- **Capital Costs: $100,000**
- **Annual O & M Costs: $390,000**
- **Present Worth: $2,800,000**

Alternative 5: TREATMENT AND SUPPLY OF WATER FROM A NEW WELL OR AN EXISTING WELL WITHIN THE PLUME WITH A CARBON ADSORPTION SYSTEM

The general components of this alternative are:

A. Developing, constructing, and operating a new water supply well within the plume of contamination or operation of an existing well within the plume of contamination and incorporating this well into the existing Dublin Borough municipal water distribution system.

B. Constructing and operating of liquid-phase GAC carbon adsorption system for treatment of the water extracted from the well described above.

C. Connecting the affected parties into an extension of the Dublin Borough municipal water system and supplementing the current capacity of the existing Borough supply system with enough treated water from the well described in A to supply the these residences and businesses.

D. Removing existing carbon units or discontinuing bottled water service for the affected residences and businesses and disposing of the carbon in accordance with all Federal and State regulations.

E. Abandoning affected and potentially affected wells within the plume of contamination and/or implementing institutional controls on the development and use of the wells within the plume of contamination.

F. Monitoring of residential and commercial wells at homes not addressed by the public water supply but which have the potential for contamination.

This option involves construction of a new water supply well or use of an existing private well inside the plume of contamination, treating the groundwater by removing the volatile organic compounds.

A submersible pump capable of delivering approximately 50 gallons per minute (gpm) at the required system pressure would be installed in the well. The well water would be pumped to an granular activated carbon (GAC) adsorption system located at the ground surface. This well pump would be operated at a rate necessary to supply the affected parties and would supplement the existing system with the required additional water. A water line

would be installed from the discharge of the GAC adsorption system to the borough's storage tank facility located on South Main Street or another storage facility specifically constructed for the water discharged from this well.

The GAC adsorption system would include two beds of carbon operating in series. The GAC adsorption process involves contacting the contaminated groundwater with activated carbon. The organic molecules contacting the activated carbon particle surface would be held there by physical or chemical forces. Once the carbon is saturated with organics, the spent carbon must be either removed and replaced with virgin or off-site-regenerated carbon or the spent carbon must be regenerated on-site. It was assumed, for costing purposes, that the spent carbon would be removed and replaced with either virgin or off-site-regenerated carbon. A final design cost may provide information indicating that on-site regeneration of carbon is more economical. The carbon filtration system would treat the water to comply with Federal and State drinking water quality standards. Spent carbon would be disposed of or treated in accordance with all Federal and State regulations.

One limitation in using GAC treatment involves the adsorption of vinyl chloride. Vinyl chloride is a degradation product of TCE and has been identified in the groundwater at the Site. Large quantities of GAC are necessary for the adsorption of vinyl chloride. Therefore, as the concentration of vinyl chloride in the groundwater increases with increased degradation of TCE, an increase in the quantity of GAC necessary for treatment of the contaminants would be required.

The treated water, initially pumped to the Borough's storage facility or similar facility, would be distributed to the affected parties through water mains constructed along North Main Street, Mill Street and a portion of Elephant Road. A connection could be made to the Dublin water distribution system at the intersection of Elephant Road and Deep Run Road. Water mains would be extended from this point south along Elephant Road to Main Street, and then north along North Main Street to Rickerts Road. A main would also be installed along Mill Street from North Main Street to Cherry Lane to supply residences along Mill Street and properties on the northside of Maple Avenue to Cherry Lane. Each affected party would be connected to the water main and the water use would be metered.

The location of a new well or use of an existing well would be determined during the remedial design phase of remedy implementation.

Dublin Borough Ordinance No. 164, requires that private

wells be abandoned, as a general rule, when a borough water line exists to service a home or business. The Borough Ordinance does, however, exclude those residents and business owners and operators, who have utilized private wells prior to the construction of the borough water line.

Under this alternative, the existing residential wells would be abandoned and the existing in-house carbon filters would be removed unless an agreement is reached between the property owner and the Borough for continued use of the private well. If the property owner reached such an agreement, the property owner would maintain the in-house treatment system. These carbon filters would be disposed of in accordance with the Federal Resource Conservation Recovery Act and Pennsylvania's Solid Waste regulations with preference given to recycling or regenerating this filters, if possible. These regulations are considered applicable because the spent carbon filters may be considered a RCRA characteristic waste if the TCLP analysis performed on this waste resulted in a VOC concentration greater than 0.5 parts per million. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Under this alternative, the water mains and associated equipment would be transferred to the Dublin Borough Water Department for its use. The party implementing the remedy (either the PRPs or the Commonwealth of Pennsylvania under a State Superfund Contract) will assure that the remedy is properly operated and maintained. Operation and maintenance of the well and carbon system would be required until the final groundwater remediation is complete. Once remediation is complete, the carbon filtration system could be bypassed or removed and the well could continue to be used to supply the residents. Agreements would be necessary between Dublin Borough, the party implementing the remedy and the well or property owner for access to the well. The affected parties would be billed for water usage by the Borough at the standard rate, which would provide sufficient revenues to finance the O&M for the supply well and the water line extension.

This alternative does not include provisions for additional system capacity to serve new development in the area not affected or potentially affected by the Site. This option does not provide for additional fire protection, i.e., more protection than residents currently have.

Under the Federal Safe Drinking Water Act and Pennsylvania's Safe Drinking Water Regulations, which are applicable requirements, the Borough would be required to sample the wells which supply their system, including the new well, to ensure that all criteria identified within these regulations are met.

Because this alternative would require treatment of water prior to discharge to the water storage facilities, periodic monitoring of the effluent from the treatment system would be necessary to ensure that treatment equipment is functioning properly.

This alternative would provide the residences and businesses with a permanent, regulated water supply. This would ensure that the residences and businesses are supplied with a safe, clean drinking water source that meets all Federal and State drinking water regulations.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences and businesses listed in Table 1 would be connected to the water main and that the wells at the residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. This alternative is technically feasible and implementable. The estimated time for implementation of this alternative is 12 to 15 months.

- Capital Costs: $3,000,000
- Annual Operation and Maintenance (O & M) Costs: $250,000
- Present Worth: $4,500,000

Alternative 6: TREATMENT OF WATER FROM A NEW WELL OR AN EXISTING WELL WITHIN THE PLUME WITH AIR STRIPPING AND VAPOR-PHASE CARBON ADSORPTION

The general components of this alternative are:

A. Developing, constructing, and operating of a new water supply well within the plume of contamination or operation of an existing well within the plume of contamination and incorporating this well into the existing Dublin Borough municipal water supply system.

B. Constructing and operating an air stripping and vapor-phase carbon adsorption system for treatment of the water extracted from the well described above.

C. Connecting the affected parties into an extension of the Dublin Borough municipal water system and supplementing the current capacity of the existing

Borough supply system with enough water from the well described in paragraph A, above, to supply the residences and businesses.

D. Removing existing carbon units or discontinuing bottled water service for the affected residences and businesses and disposing of the carbon in accordance with all Federal and State regulations.

E. Abandoning affected and potentially affected wells within the plume of contamination and/or implementing institutional controls on the development and use of the wells within the plume of contamination.

F. Monitoring of residential and commercial wells at homes not addressed by the public water supply but which have the potential for contamination until a final groundwater remedy is implemented.

This option involves construction of a new water supply well or use of an existing private well inside the plume of contamination.

A submersible pump capable of delivering approximately 50 gallons per minute (gpm) at the required system pressure would be installed in the well. The well water would be pumped to an air stripper located at the ground surface. This well pump would be operated at a rate necessary to supply the affected parties and would supplement the existing system with the required additional water. A water line would be installed from the discharge of the air stripper to the borough's storage tank facility located on South Main Street or another storage facility specifically constructed for the water discharged from this well.

A packed tower air stripper with countercurrent flow would be used to treat the contaminated groundwater. The contaminated groundwater would be pumped to the top of the tower and fed down by gravity through the loosely packed fill material in the tower. As the water moves through the packing, air would be forced through the packing from the base of the tower, and VOCs would be transferred from the water to the air. The air stripping system would treat the water to comply with Federal and State drinking water quality standards. This alternative assumes that liquid-phase GAC adsorption would not be necessary to further treat the effluent from the air stripper.

The contaminated air stream discharged from the air stripper would be treated in a vapor-phase GAC adsorption system prior to discharge to the atmosphere. The discharged air would meet the applicable requirements under the RCRA and Pennsylvania's Air

Quality Control Regulations. The GAC adsorption system would include two beds of carbon operating in series. The vapor-phase GAC adsorption process is identical to the process described for liquid-phase GAC described in Alternative 5 except a gas (air) is passed through the carbon beds instead of a liquid (water). It was assumed, for costing purposes, the spent carbon would be removed and replaced with either virgin or off-site regenerated carbon. A final design cost may provide information indicating that on-site regeneration of carbon is more economical. Spent carbon would be disposed of or treated in accordance with the applicable Federal RCRA and State Solid Waste Management regulations.

The water, once pumped to the Borough's storage facility or similar storage facility, would be distributed to the affected parties through water mains constructed along North Main Street, Mill Street and a portion of Elephant Road. A connection could be made to the Dublin water distribution system at the intersection of Elephant Road and Deep Run Road. Water mains would be extended from this point south along Elephant Road to Main Street, and then north along North Main Street to Rickerts Road. A main would also be installed along Mill Street from North Main Street to Cherry Lane to supply residences along Mill Street and properties on the northside of Maple Avenue to Cherry Lane. Each affected party would be connected to the water main and the water use would be metered.

The location of a new well or use of an existing well would be determined during the remedial design phase of remedy implementation.

Dublin Borough Ordinance No. 164, requires that private wells be abandoned, as a general rule, when a borough water line exists to service a home or business. The Borough Ordinance does, however, exclude those residents and business owners and operators, who have utilized private wells prior to the construction of the borough water line.

Under this alternative, the existing residential wells would be abandoned and the existing in-house carbon filters would be removed unless an agreement is reached between the property owner and the Borough for continued use of the private well. If the property owner reached such an agreement, the property owner would maintain the in-house treatment system. These carbon filters would be disposed of in accordance with the Federal Resource Conservation Recovery Act and Pennsylvania's Solid Waste regulations with preference given to recycling or regenerating this filters, if possible. These regulations are considered applicable because the spent carbon filters may be considered a RCRA characteristic waste if the TCLP analysis performed on this

waste results in a VOC concentration greater than 0.5 ppm. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Under this alternative, the water mains and associated equipment would be transferred to the Dublin Borough Water Department for its use. The party implementing the remedy (either the PRPs or the Commonwealth of Pennsylvania under a State Superfund Contract) will assure that the remedy is properly operated and maintained. Operation and maintenance of the well, air stripper and vapor-phase GAC adsorption system would be required until the final groundwater remediation is complete. Once remediation is complete, the air stripper and GAC adsorption system could be bypassed or removed and the well could continue to be used to supply the residents. An agreement would be necessary between Dublin Borough, the party implementing the remedy and the well or property owner for access to the well. The affected parties would be billed for water usage by the Borough at the standard rate, which would provide sufficient revenues to finance the O&M for the supply well and the water line extension.

This alternative does not include provisions for additional system capacity to serve new development in the area not affected or potentially affected by the Site. This option does not provide for additional fire protection, i.e., more protection that residents currently have.

Under the Federal Safe Drinking Water Act and Pennsylvania's Safe Drinking Water Regulations, which are applicable requirements, the Borough would be required to sample the wells which supply their system, including the treated water from the new well, to ensure that all criteria identified within these regulations are met.

Because this alternative would require treatment of water prior to discharge to the water storage facilities, periodic monitoring of the effluent from the treatment system would be necessary to ensure that treatment equipment is functioning property.

This alternative would provide the residences and businesses with a permanent, regulated water supply. This would ensure that the residences and businesses are supplied with a safe, clean drinking water source that meets all Federal and State drinking water regulations.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences

and businesses affected or potentially listed in Table 1 would be connected to the water main and that the wells at the residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. This alternative is technically feasible and implementable. The estimated time for implementation of this alternative is 12 to 15 months.

- Capital Costs: $3,100,000
- Annual Operation and Maintenance (O & M) Costs: $300,000
- Present Worth: $5,000,000

Alternative 7: TREATMENT OF WATER FROM A NEW WELL OR AN EXISTING WELL WITHIN THE PLUME WITH ULTRAVIOLET (UV) OXIDATION

The general components of this alternative are:

A. Developing, constructing, and operating of a new water supply well within the plume of contamination or operation of an existing well within the plume of contamination and incorporating this well into the existing Dublin Borough municipal water distribution system.

B. Demonstration of UV oxidation technology during a treatability study to be conducted at the Site.

C. Constructing and operating an UV oxidation system, based on information obtained during the treatability study, for treatment of the water extracted from the well described above.

D. Connecting the affected parties into an extension of the Dublin Borough municipal water system and supplementing the current capacity of the existing Borough supply system with enough treated water from the well described in paragraph A, above, to supply the these residences and businesses.

E. Removing existing carbon units or discontinuing bottled water service for the affected residences and businesses and disposing of the carbon in accordance with all Federal and State regulations.

F. Abandoning affected and potentially affected wells within the plume of contamination and/or implementing institutional controls on the development and use of

private wells within the plume of contamination.

G. Monitoring of residential and commercial wells at homes not addressed by the public water supply but which have the potential for contamination until a final groundwater remedy is implemented.

This option involves construction of a new water supply well or use of an existing private well inside the plume of contamination and treating the groundwater by destroying the volatile organic compounds. A submersible pump capable of delivering approximately 50 gallons per minute (gpm) at the required system pressure would be installed in the well. The well water would be pumped to an ultraviolet oxidation system located at the ground surface. This well pump would be operated at a rate necessary to supply the affected parties and would supplement the existing system with the required additional water. A water line would be installed from the discharge of the UV oxidation system to the borough's storage tank facility located on South Main Street or another storage facility specifically constructed for the water discharged from this well.

UV oxidation would destroy the VOCs present in the contaminated groundwater. This technology uses UV radiation alone or in tandem with ozone and/or hydrogen peroxide to oxidize organics. The contaminated groundwater is fed from the well into the reactor, which contains the UV lamps. In the reactor, hydrogen peroxide and ozone may be injected, if required. The ozone is generated through the ozone generator using air or liquid oxygen as the source. Under the influence of ultraviolet light, the ozone and hydrogen peroxide are converted into hydroxyl radicals (OH^-). The hydroxyl radicals generated or the ozone, hydrogen peroxide, or UV radiation would oxidize the organics to carbon dioxide, water and salts. Ozone which is not transferred to the reaction would be destroyed in an ozone decomposition unit. This alternative assumes that additional treatment such as liquid-phase GAC adsorption would not be necessary to further treat the effluent from the UV oxidation unit.

The discharged air from the decomposition unit would meet the applicable Federal Clean Air Act, RCRA and the Pennsylvania Air Quality Control Regulations.

Because UV oxidation technology is a relatively new technology and it has not been demonstrated at the Site, a treatability study would be required prior to full-scale implementation. This treatability study would provide information on design criteria and costs necessary for full-scale implementation. It is estimated that the treatability study

would take six months to complete.

The water, once pumped to either the Borough's storage facility or similar facility, would be distributed to the affected parties through water mains constructed along North Main Street, Mill Street and a portion of Elephant Road. A connection could be made to the Dublin water distribution system at the intersection of Elephant Road and Deep Run Road. Water mains would be extended from this point south along Elephant Road to Main Street, and then north along North Main Street to Rickerts Road. A main would also be installed along Mill Street from North Main Street to Cherry Lane to supply residences along Mill Street and properties on the northside of Maple Avenue to Cherry Lane. Each affected party would be connected to the water main and the water use would be metered.

The location of a new well or use of an existing well would be determined during the remedial design phase of remedy implementation.

Dublin Borough Ordinance No. 164, requires that private wells be abandoned, as a general rule, when a borough water line exists to service a home or business. The Borough Ordinance does, however, exclude those residents and business owners and operators, who have utilized private wells prior to the construction of the borough water line.

Under this alternative, the existing residential wells would be abandoned and the existing in-house carbon filters would be removed unless an agreement is reached between the property owner and the Borough for continued use of the private well. If the property owner reached such an agreement, the property owner would maintain the in-house treatment system. These carbon filters would be disposed of in accordance with the Federal Resource Conservation Recovery Act and Pennsylvania's Solid Waste regulations with preference given to recycling or regenerating this filters, if possible. These regulations are considered applicable because the spent carbon filters may be considered a RCRA characteristic waste if the TCLP analysis performed on this waste resulted in VOC concentrations greater than 0.5 ppm. Otherwise, the waste would be disposed of in accordance with RCRA Subtitle D regulations.

Under this alternative, the water mains and associated equipment would be transferred to the Dublin Borough Water Department for its use. The party implementing the remedy (either the PRPs or the Commonwealth of Pennsylvania under a State Superfund Contract) will assure that the remedy is properly operated and maintained. Operation and maintenance of the well and the UV oxidation system would be required until the

final groundwater remediation is complete. Once remediation is complete, the UV oxidation system could be bypassed or removed and the well could continue to be used to supply the residents. An agreement would be necessary between Dublin Borough, the party implementing the remedy, and the well or property owner for access to the well. The affected parties would be billed for water usage by the Borough at the standard rate, which would provide sufficient revenues to finance the O&M for the supply well and the water line extension.

This alternative does not include provisions for additional system capacity to serve new development in the area not affected or potentially affected by the Site. This option does not provide for additional fire protection, i.e., more protection than residents currently have.

Under the Federal Safe Drinking Water Act and Pennsylvania's Safe Drinking Water Regulations, which are applicable requirements, the Borough would be required to sample the wells which supply their system to ensure that all criteria identified within these regulations are met.

Because this alternative would require treatment of water prior to discharge to the water storage facilities, periodic monitoring of the effluent from the treatment system would be necessary to ensure that treatment equipment is functioning property.

This alternative would provide the residences and businesses with a permanent, regulated water supply. This would ensure that the residences and businesses are supplied with a safe, clean drinking water source that meets all Federal and State drinking water regulations.

The estimated costs for this alternative are presented below. Detailed cost information is provided in the Focused Feasibility Study. The costs assume that each of the residences and businesses listed in Table 1 would be connected to the water main and that the wells at the residences and businesses listed in Table 2 would be monitored on a quarterly basis for volatile organic compounds until a final groundwater remedy is implemented at the Site. The present worth costs are based on a 30 year life and a 10% discount rate. This alternative is technically feasible and implementable. The estimated time for implementation of this alternative is 18 to 21 months. This includes 6 months for a treatability study.

- Capital Costs: $3,100,000
- Annual Operation and Maintenance (O & M) Costs: $260,000
- Present Worth: $4,600,000

IX. Summary of the Comparative Analysis of Alternatives

Each of the remedial alternatives for this operable unit are compared and evaluated against nine criteria to determine which remedial alternative and combination of technologies and management or process options will best meet the primary objective of this ROD. These nine criteria are:

Threshold Criteria

-Overall protection of human health and the environment
-Compliance with applicable or relevant and appropriate requirements

Primary Balancing Criteria

-Reduction of toxicity, mobility, or volume
-Implementability
-Short-term effectiveness
-Long-term effectiveness
-Cost

Modifying Criteria

-Community Acceptance
-State Acceptance

A. Overall Protection of Human Health and the Environment:

A primary requirement of CERCLA is that the selected remedial action be protective of human health and the environment. A remedy is protective if it eliminates, reduces, or controls current and potential risks posed through each exposure pathway to acceptable levels through treatment, engineering controls, or institutional controls.

When properly designed and sufficiently tested, alternatives 2 through 7 would protect human health by providing a clean drinking water source to the affected parties and by monitoring additional residences which may be potentially affected by the VOC contamination. The water which would ultimately be distributed to the affected parties would meet or exceed all federal and state drinking water standards. Drinking water standards are established within the Federal Safe Drinking Water Act and Pennsylvania's Safe Drinking Water Regulations. Periodic water sampling would be employed as part of these alternatives to ensure the protection of human health.

Alternatives 4, 5, 6 and 7 would be the most protective of

human health and the environment by not only supplying a clean drinking water source to the affected parties but by also reducing and controlling the risk through treatment of the groundwater and preventing of the spread of contamination.

Alternatives 2 and 3 would not reduce the risk posed by the spread of the plume of contamination.

Alternative 1 would not be protective of human health and the environment because the affected parties would be exposed to VOCs via ingestion or dermal contact of groundwater, or inhalation of VOC vapors from the groundwater.

B. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Section 121(d) of CERCLA requires that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and State standards, requirements, criteria, and limitations which are collectively referred to as "ARARs", unless such ARARs are waived under CERCLA Section 121(d)(4). Applicable requirements are those substantive environmental protection requirements, criteria, or limitations promulgated under federal or State law that specifically address hazardous substances found at the Site, the remedial action to be implemented at the Site, the location of the Site, or other circumstances present at the Site. Relevant and appropriate requirements are those substantive environmental protection requirements, criteria, or limitations promulgated under federal or State law which, while not applicable to the hazardous materials found at the Site, the remedial action itself, the Site location or other circumstances at the Site, nevertheless address problems or situations sufficiently similar to those encountered at the Site that their use is well suited to the Site. ARARs may relate to the substances addressed by the remedial action (chemical-specific), to the location (location-specific), or the manner in which the remedial action is implemented (action-specific).

Table 4 identifies Applicable and Relevant or Appropriate Requirements for the alternatives developed in this ROD.

Alternatives 2 through 7 would meet the respective ARARs for the Federal and State environmental laws for this action.

Once the remedy is implemented, the water supply provided in Alternatives 2 and 3 would need to be periodically checked to ensure that the water supply does not become degraded should volatile organic compounds from the Site migrate into the wells used in these alternatives.

Once the remedy is implemented, the water supply provided in Alternatives 4, 5, 6, and 7 would need to be periodically

monitored to ensure that the treatment processes used are performing effectively. In addition, the air stream effluent from the treatment processes used in Alternatives 6 and 7 would need to be monitored periodically to ensure compliance with the Federal Clean Air Act, RCRA and Pennsylvania's Air Resource Regulations. The carbon used in Alternatives 4, 5, and 6 would need to comply with guidelines for treatment and disposal contained within the Resource Conservation and Recovery Act.

Alternative 1 would not meet the respective ARARs for the Federal and State environmental laws for this action.

C. Long-Term Effectiveness and Permanence:

Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time. This criteria evaluation includes consideration of residual risk and the adequacy and reliability of controls.

Alternatives 2, 3, 5, 6, and 7 provide a permanent clean drinking water supply which would be regulated under the SDWA and Pennsylvania'a Safe Drinking Water regulations. The water supply would not only be monitored routinely for VOCs but for other contaminants as set forth in the Federal and State regulations. Operation and maintenance of the water supply system would be turned over to the Dublin Borough Water Department.

Alternatives 2 through 7 all require long-term maintenance and monitoring. Monitoring of the wells used in Alternative 2 and 3 would be required to determine if the plume of contamination has spread to these wells. Monitoring and maintenance of the treatment systems used in Alternatives 4 through 7 would be critical because the breakdown of the treatment systems would result in the distribution of contaminated water to residents. Operation of two GAC adsorption units in series in Alternative 4, 5, and 6 will reduce the risk of exposure to volatile organic compounds through the groundwater or air caused by saturation of the carbon bed. Treatment or disposal of the spent carbon generated during the operation of Alternatives 4, 5 and 6 would be required until the groundwater is remediated to an acceptable level. On-site and off-site equipment for the regeneration of spent GAC is readily available.

The treatment technologies employed in Alternatives 4, 5, and 6 are well established, reliable technologies which have been proven effective at the Site and at similar Superfund sites. These treatment technologies are capable of reducing the concentration of volatile organic compounds in the groundwater, and the air discharge in Alternative 6, to acceptable levels. The treatment technology employed in Alternative 7 has been proven effective in destroying volatile organic compounds from

groundwater at sites similar to the Dublin TCE Site, but a treatability study would have to be performed prior to full-scale operation at the Site to confirm the technology's effectiveness.

Alternatives 5, 6, and 7 are the most consistent with the long-term remediation of the Dublin TCE Site. The treatment options which are part of these alternatives would help reduce the amount of volatile organic chemicals in the environment. Sampling and monitoring required in Alternatives 5, 6 and 7 could be integrated into the final groundwater remedy employed for the entire Site.

Alternative 4 is not considered a permanent remedy. Monitoring would be required at approximately 70 residences and businesses until the groundwater is remediated to an acceptable level. Because this is not considered a public water supply, routine monitoring would only be required for identification of hazardous substances found at the Site. An authority would need to be established to perform the operation and maintenance of this alternative.

Alternative 1 is not considered a permanent remedy because an unacceptable level of risk would be associated with using the contaminated groundwater as a drinking water supply.

Because all alternatives would result in hazardous substances remaining at the Site above levels for unlimited use and unrestricted exposure, a five year review will be conducted.

D. Reduction of toxicity, mobility, or volume of the contaminants through treatment:

This evaluation criteria addresses the degree to which a technology or remedial alternative reduces toxicity, mobility, or volume of hazardous substances.

Alternatives 4, 5, 6 and 7 are the only alternatives which would result in a reduction of volatile organic chemicals in the aquifer. Alternative 7 completely destroys the contaminants in the immediate environment and, therefore, no residual waste is generated. Alternatives 4, 5 and 6 would remove contaminants from the immediate environment, although treatment or disposal of the residual (spent carbon) in a safe and effective manner would be required.

Alternatives 4, 5, 6, and 7 are the only alternatives which would help to inhibit further migration of the contaminants in the aquifer. Mobility and volume of the contaminants would be reduced. In addition, these four alternatives would reduce the toxicity of the contaminants in the aquifer via carbon treatment, air stripping or UV oxidation.

Alternatives 1, 2, and 3 would not act to reduce the volume, toxicity, or mobility of contaminants in the aquifer.

E. Short Term Effectiveness:

Short-term effectiveness addresses the period of time needed to achieve protection of human health and the environment and any adverse impacts that may be posed during the construction and operation period until remediation goals are achieved.

Alternative 4 would take the shortest amount of time to implement requiring approximately 1 to 2 months to implement. Alternative 4 would be the alternative least likely to impact the environment during construction and implementation.

Alternatives 2 and 3 would take approximately 4 to 11 months longer to implement than Alternative 4 because installation of water lines, and, possibly, installation of a well, would be necessary.

Alternative 5 and 6 could take approximately 9 to 14 months longer to implement than Alternative 4 because installation of water lines, possibly a well, and a treatment system would be necessary. Alternative 7 would take the longest time to implement because a treatability study would be required prior to remedy implementation.

Installation of a well within the plume of contamination and the treatment system, as described in Alternatives 5, 6, and 7, would pose the greatest risk to workers during implementation of the remedy. Possible exposure to volatile organic compounds during these installation processes could occur.

Installation of the wells, water lines, and treatment systems as described in Alternatives 2 through 7 would not pose a significant risk to workers or the community as long as safety procedures are properly followed.

Alternatives 2 and 3 potentially may cause the contamination to spread. Since one of the Dublin Borough municipal supply wells (Well #3) is downgradient of the plume of contamination and because a final groundwater remediation system and contaminant containment system is not in place at the Site, an increase in pumping from this well may decrease the time which it takes for the TCE and other contaminants to reach this well. Although Public Supply Wells #1 and #2 are located upgradient of the Site, testing would be necessary during the design phase of remedy implementation to determine if increased pumping from these wells would spread the contamination. This testing would also be required for the wells used in Alternative 3. As long as use of the well in Alternative 3 would not spread the contamination, this alternative would not pose an environmental risk.

F. Implementability

Implementability refers to the technical and administrative feasibility of a remedy, from design through construction, operation, and maintenance. It also includes coordination of federal, State, and local governments to cleanup the Site.

Alternatives 4, 5, 6, and 7 would require initial operational treatment system testing and periodic sampling to ensure efficient operation of the treatment system. The treatment technologies used in Alternatives 4, 5, and 6 are well established and have been proven reliable at the Site as well as at other sites. Maintenance and monitoring of Alternatives 5, 6, and 7 would be performed much more easily than the maintenance of Alternative 4 because only one treatment system would be required instead of approximately 70 individual treatment systems.

Because vinyl chloride is a degradation product of TCE, its presence in the aquifer may increase with time. Significantly more GAC is necessary to treat vinyl chloride as compared to TCE. Therefore, Alternatives 4 and 5, which use GAC treatment, may require significantly more carbon to meet the Drinking Water Standards for vinyl chloride than originally estimated. This increase in carbon usage will impact the operation and maintenance of these alternatives because more frequent replacement of the spent carbon will be necessary.

Alternatives 3, 5, 6, and 7 would require the identification and, possibly, the installation of a well prior to implementation. This would involve additional investigations, although data generated to date at the Site under PADER and others should help to identify a well quickly.

Alternative 7 incorporates a relatively new technology which does not have the established reputation as a treatment technology for VOC-contaminated groundwater as compared to Alternatives 4, 5, and 6. A treatability study would be necessary for this alternative.

Alternative 4 accommodates new homes to the system more easily than any other alternative. Accommodation of new homes to the systems described by Alternatives 5, 6, and 7 may require additional treatment equipment and additional wells or the expansion of the existing wells. Alternative 2 and 3 also may require additional wells or the expansion of the existing wells if new homes require an alternate water supply. In addition, Alternatives 2 and 3 may require treatment equipment if the wells used in these alternatives become contaminated.

Services and materials are readily available for all alternatives.

G. Cost:

This criteria examines the estimated costs for each remedial alternative. For comparison, capital, annual O&M, and present worth costs are shown in Table 5.

The costs assume that 69 connections into a new water line would be made and that 56 residences and businesses would be monitored for four years until a final groundwater remedy is implemented. The lowest cost alternative is Alternative 2 at $2,600,000. The most expensive alternative is alternative 6 with a present worth cost of $5,000,000.

H. State Acceptance:

The Commonwealth of Pennsylvania has reviewed the Record of Decision and has concurred with the selected remedy. This unofficial concurrence is documented in a letter from PADER to EPA, dated September 12, 1991.

I.Community Acceptance:

Comments received from the Borough of Dublin and community members indicated general support for EPA's proposed alternative, Alternative 6. The Borough of Dublin believed that Alternative 2 would be the most easily implemented alternative but stated that they would be willing to work with EPA and the PRPs in implementing Alternative 6. The Borough of Dublin expressed concern over the costs and implementation time associated with Alternative 6.

One potentially responsible party indicated that this Early Action should be implemented in stages. Theses stages would include immediate connection of the affected parties to the existing public distribution system (as described in Alternative 2) and, then, once the RI/FS is complete, installing groundwater wells within the plume of contamination for both treatment and supply of groundwater. Use of the existing public distribution system would be modified to include the installation of an air stripper in case the existing supply wells became contaminated. One potentially responsible party indicated that other treatment technologies should be considered for vapor-phase treatment of the air discharged from the air stripper described in Alternative 6.

X. Selected Remedy and Performance Standards

The Selected Remedy is Alternative 6. This operable unit addresses the provision of clean water to affected parties near the Dublin TCE Site. After the RI/FS is completed, a remedy for the entire Site will be developed. To the extent practicable, the remedy selected for future operable units will be consistent

with Operable Unit One. The selected remedy consists of the following components:

- Installation and operation of a new or existing water supply well.

- Construction and operation of a system for the treatment of the water extracted from the well described above.

- Expansion of the existing Dublin Borough public distribution system with use of the well and treatment system described above to provide clean water to the affected parties.

- Monitoring of the residential and commercial wells at homes not serviced by the public distribution system.

- Operation and maintenance of the selected remedy.

Each component of the remedy and its design and performance standard(s) will be described in turn.

1. Installation and operation of a well

A. Description of the Component of the Remedy

This component will include development, construction, and operation of a new water supply well within the plume of contamination or operation of an existing well within the plume of contamination. The plume of contamination is defined as the portion of the drinking water aquifer at or near the Dublin TCE Site which contains levels of the contaminants of concern above the detection level of EPA Analytical Method 524.2, as described at 40 CFR Part 141. The chemicals of concern include but are not limited to: tetrachloroethene, trichloroethene, vinyl chloride, cis-1,2-dichloroethylene,trans-1,2-dichloroethylene, 1,1-dichloroethylene, and 1,1,1-trichloroethane. The list of the chemical of concern may be expanded by EPA based on information gathered during the Remedial Investigation/ Feasibility Study (RI/FS).

The location and construction details of the new or existing water supply well will be finalized and approved by EPA during the design stage of the selected remedial alternative. Use of an existing well will be investigated first so that this early action can be implemented as quickly as possible , however, the decision on use of a groundwater well will be made by EPA based on a review of all relevant factors.

This well shall be capable of supplying water to the affected parties identified in Table 1, and to any parties that become affected or may become affected by the contamination in the future, as determined by EPA.

B. Performance Standards

Implementation of the component of the remedy described in 1.A., above, is a performance standard.

The performance standard for disposal of the well development wastes (i.e. soil boring cuttings, pump-test water, etc.), shall be the requirements of the Resource Conservation and Recovery Act (RCRA) Regulations and the Pennsylvania Solid Waste Regulations including: 40 CFR Part 261 Subpart A Section 261.3, Subpart C Section 261.24, and Subpart D Section 261.31 (regarding the listing and identification of characteristic hazardous waste); 40 CFR Part 262 Subparts A-E (regarding standards applicable to generators) and the substantive requirements for the treatment, storage, and disposal of hazardous wastes set forth in 40 CFR Part 263 (regarding transporters of hazardous wastes) and 40 CFR Part 264 Subparts B-H (regarding general requirements for Treatment, Storage and Disposal facilities); 40 CFR 268 Subparts C Section 268.30 and Subpart E (regarding restriction of hazardous waste land disposal and storage of hazardous waste); 25 PA Code Sections 75.259 through 75.270.42 which establish State requirements for the generation, transportation, storage and treatment of hazardous wastes (specifically, 25 PA Code 75.262 requirements for generators of hazardous wastes, 25 AP Code Section 75.263 requirements for the transportation of hazardous wastes, and 25 PA Code Section 75.264 requirements for the treatment, storage and disposal of hazardous wastes; 25 PA Code 261.24 and 273.421 (regarding the handling of residual and other waste and the determination of hazardous waste by the Toxic Characteristic Leaching Procedure).

2. <u>Construction and operation of a groundwater treatment system</u>

A. Description of the Component of the Remedy

Construction and operation of an air stripping and vapor-phase carbon adsorption (or thermal destruction unit) for treatment of the water extracted from the well described in paragraph 1, above.

If necessary, based upon results of chemical sampling, a liquid-phase carbon adsorption unit(s) will be designed and installed on the water discharge of the

air stripper to ensure that the water delivered to the residences and businesses meets the MCLs described below.

B. Performance Standards

Implementation of the component of the remedy described in 2.A., above, is a performance standard.

The performance standard for each contaminant of concern in the effluent water from the air stripper, which is supplied to public water system that will serve the affected parties, shall be the MCL for that contaminant as promulgated under the Safe Drinking Water Act, 42 U.S.C. § 300f to 300j-26, and set forth at 40 CFR § 141.61(a). The MCLs for the chemicals of concern are:

Substance	MCL(ug/l)
Tetrachloroethene	5
Trichloroethene	5
Vinyl Chloride	2
cis-1,2-dichloroethylene	70
trans-1,2-dichloroethylene	100
1,1-dichloroethylene	7
1,1,1-trichloroethane	200

The performance standard for the air emissions from the stripping unit shall be the requirements of the RCRA regulations set forth at 40 CFR 264 Subpart AA- Air Emission Standards for Process Vents. The total organic emissions from all affected process vents at the facility are required to be below 1.4 kg/hr and 2.8 mg/yr under this regulation. Because the Site lies within an ozone non-attainment area, the air emissions from the treatment unit shall comply with the National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (40 CFR Part 50.1-3, 50.9, Appendix D, Appendix H) for the release of volatile organic emissions. The vinyl chloride air emissions will also comply with Section 112 of the Clean Air Act, 42 U.S.C § 7412 National Emission Standard for Hazardous Air Pollutants (NESHAPs). The relevant and appropriate NESHAP for vinyl chloride is set forth at 40 CFR Part 61, Subpart F. The air emissions will also comply with the State regulations set forth in 25 PA Code §127.12(a)(5). This regulation requires that emissions be reduced to the minimum obtainable levels through the use of best available technology, as defined in 25 PA Code §121.1.

The performance standard for disposal of spent carbon

filters from the liquid- and vapor-phase carbon treatment systems and any other hazardous waste generated during treatment system installation shall be the requirements of the Resource Conservation and Recovery Act (RCRA) Regulations and the Pennsylvania Solid Waste Regulations including: 40 CFR Part 261 Subpart A Section 261.3, Subpart C Section 261.24, and Subpart D Section 261.31 (regarding the listing and identification of characteristic hazardous waste); 40 CFR Part 262 Subparts A-E (regarding standards applicable to generators) and the substantive requirements for the treatment, storage, and disposal of hazardous wastes set forth in 40 CFR Part 263 (regarding transporters of hazardous wastes) and 40 CFR Part 264 Subparts B-H (regarding general requirements for Treatment, Storage and Disposal facilities); 40 CFR 268 Subparts C Section 268.30 and Subpart E (regarding restriction of hazardous waste land disposal and storage of hazardous waste); 25 PA Code Sections 75.259 through 75.270.42 which establish State requirements for the generation, transportation, storage and treatment of hazardous wastes (specifically, 25 PA Code 75.262 requirements for generators of hazardous wastes, 25 AP Code Section 75.263 requirements for the transportation of hazardous wastes, and 25 PA Code Section 75.264 requirements for the treatment, storage and disposal of hazardous wastes; 25 PA Code 261.24 and 273.421 (regarding the handling of residual and other waste and the determination of hazardous waste by the Toxic Characteristic Leaching Procedure).

3. Expansion of the Dublin Public Water Distribution System

A. Description of the Component of the Remedy

The water extracted from the well described in paragraph 1, above, and treated with the treatment system described in paragraph 2, above, shall be delivered to the existing Dublin Borough water supply system either through the currently existing storage facility or through a storage facility constructed specifically for the new well.

The existing Dublin Borough public water distribution system shall be expanded by the installation of water mains along North Main Street, Mill Street and a portion of Elephant Road.

Connections shall be made from these newly constructed water mains to the affected or potentially affected parties with the installation of water meters at each

residence and business.

All areas impacted by the construction activities during remedy implementation and operation and maintenance shall be graded, restored and revegetated, as necessary.

The existing residential wells shall be abandoned, if appropriate, and the existing in-house carbon filters shall be removed and disposed of.

B. Performance Standards

Implementation of the component of the remedy described in 3.A., above, is a performance standard.

The performance standard for disposal of the in-house carbon filters shall be the requirements of the Resource Conservation and Recovery Act (RCRA) Regulations and the Pennsylvania Solid Waste Regulations including: 40 CFR Part 261 Subpart A Section 261.3, Subpart C Section 261.24, and Subpart D Section 261.31 (regarding the listing and identification of characteristic hazardous waste); 40 CFR Part 262 Subparts A-E (regarding standards applicable to generators) and the substantive requirements for the treatment, storage, and disposal of hazardous wastes set forth in 40 CFR Part 263 (regarding transporters of hazardous wastes) and 40 CFR Part 264 Subparts B-H (regarding general requirements for Treatment, Storage and Disposal facilities); 40 CFR 268 Subparts C Section 268.30 and Subpart E (regarding restriction of hazardous waste land disposal and storage of hazardous waste); 25 PA Code Sections 75.259 through 75.270.42 which establish State requirements for the generation, transportation, storage and treatment of hazardous wastes (specifically, 25 PA Code 75.262 requirements for generators of hazardous wastes, 25 AP Code Section 75.263 requirements for the transportation of hazardous wastes, and 25 PA Code Section 75.264 requirements for the treatment, storage and disposal of hazardous wastes; 25 PA Code 261.24 and 273.421 (regarding the handling of residual and other waste and the determination of hazardous waste by the Toxic Characteristic Leaching Procedure).

4. Monitoring of Residential and Commercial Wells

A. Description of the Component of the Remedy

Residential and commercial wells at certain residences and businesses not addressed by the public water supply

but which have the potential for contamination shall be monitored on a quarterly basis for the chemicals of concern using EPA Analytical Method 524.2 until EPA deems that it is no longer necessary. The initial list of these residences and businesses is given in Table 2. This list may be expanded by EPA based on the results of design of this remedy and information gathered during the RI/FS.

B. Performance Standards

Implementation of the component of the remedy described in 4.A., above, is a performance standard.

5. Operation and Maintenance of the Selected Remedy

A. Description of Remedy

Operation and maintenance of the newly installed well, and treatment system shall continue until the concentrations of contaminants of concern in the water extracted from the new production well, located within the plume of contamination, have been reduced to the MCLs indicated in paragraph 2, above. The well will be sampled on a quarterly basis for at least 30 years. If sampling confirms that the MCLs have been attained at the well (prior to treatment) and remain at the required levels for twelve consecutive quarters, operation of the treatment system can be suspended. The groundwater pumped from the well shall bypass the treatment system and be distributed to the affected residences. If, subsequent to the treatment system shutdown, quarterly monitoring shows the groundwater concentration of any contaminant of concern to be above the MCLs, the treatment system shall be restarted and continued until the MCLs have once more attained for twelve consecutive quarters.

B. Performance Standards

Implementation of the component of the remedy described in 5.A., above, is a performance standard.

XI. Statutory Determinations

A. Protection of Human Health and the Environment

The selected alternative is protective of human health. This remedy will reduce the risk posed by ingestion of, dermal contact with and inhalation of vapors from TCE in the groundwater used as a water supply for the affected parties through treatment. The drinking water supplied to the residences and

businesses will meet the MCLs listed in Table 3. The air discharged from the air stripper will meet all Federal and State air quality regulations. The selected remedy will also help to contain the plume of contamination.

No unacceptable short-term or cross-media risks will be caused by implementation of this remedy. The remedial technologies employed in the selected remedy are proven to reduce the concentrations of volatile organic chemicals to acceptable levels.

B. Compliance with ARARs

The Selected Remedy will comply with all applicable or relevant and appropriate chemical-, location -, and action-specific ARARs. Those ARARs are:

1. Chemical-Specific ARARs

a. Applicable Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. § 300f to 300j-26, and set forth at 40 CFR § 141.61 (a) are:

Substance	MCL(ug/l)
Tetrachloroethene	5
Trichloroethene	5
Vinyl Chloride	2
cis-1,2-dichloroethylene	70
trans-1,2-dichloroethylene	100
1,1-dichloroethylene	7
1,1,1-trichloroethane	200

b. PA 25 Code Sections 109.202(1), and 109.201(2), 109.203 and 109.503 which set forth drinking water quality standards at least as stringent as federal standards (MCLs) and additional State requirements (secondary maximum contaminant levels) for public water systems including permit design and construction, source quality and siting requirements, are applicable.

c. EPA Directive 9355.0-28, which sets forth risk associated with emissions from Superfund air strippers at Superfund groundwater sites, is to be considered.

d. The air discharge from the treatment system will be implemented consistent with the requirements of the Resource Conservation and Recovery Act (RCRA) regulations 40 CFR 264 Subpart AA- Air

Emission Standards for Process Vents. These regulations are applicable. The total organic emissions from all affected process vents at the facility are required to be below 1.4 kg/hr (3 lb/hr) and 2.8 mg/yr (3.1 tons/yr) under this regulation.

e. The vinyl chloride emissions from the treatment system will comply with Section 112 of the Clean Air Act, 42 U.S.C. § 7412 National Emission Standard for Hazardous Air Pollutants (NESHAPs). The relevant and appropriate NESHAP for vinyl chloride is set forth at 40 CFR Part 61, Subpart F.

f. The air emissions from the treatment system shall comply with the National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (40 CFR Part 50 Sections 50.1-3,50.9, Appendix D, Appendix H) for the release of volatile organic emissions from the air strippers (the Site lies within an ozone non-attainment area).

2. Location-Specific ARARs

a. The substantive requirements of the Delaware River Basin Commission (18 CFR Part 430) regulations are applicable. These regulations establish requirements for the extraction of groundwater within the Delaware River Basin.

3. Action-Specific ARARs

a. 25 PA Code §123.31 is applicable to the remedial alternative and prohibits malodors detectable beyond the property line.

b. 25 PA Code §127.12(a)(5) will apply to the new point source air emission, if it is not exempt under 25 PA Code §127.14, that result from the implementation of the remedial alternative, requiring that emissions be reduced to the minimum obtainable levels through the use of best available technology (BAT).

c. The groundwater treatment will be implemented consistently with the requirements of the Resource Conservation and Recovery Act (RCRA) Regulations, including: 40 CFR Part 261 Subpart A Section 261.3, Subpart C Section 261.24, and Subpart D Section 261.31 (regarding the listing and identification of characteristic hazardous waste);

40 CFR Part 262 Subparts A-E (regarding standards applicable to generators) and the substantive requirements for the treatment, storage, and disposal of hazardous wastes set forth in 40 CFR Part 263 (regarding transporters of hazardous wastes) and 40 CFR Part 264 Subparts B-H (regarding general requirements for Treatment, Storage and Disposal facilities); 40 CFR 268 Subparts C Section 268.30 and Subpart E (regarding restriction of hazardous waste land disposal and storage of hazardous waste). These regulations are applicable.

d. 25 PA Code §§ 75.259 through 75.270.42 which establish State requirements for the generation, transportation, storage and treatment of hazardous wastes (specifically, 25 PA Code § 75.262 requirements for generators of hazardous wastes, 25 PA Code § 75.263 requirements for the transportation of hazardous wastes, and 25 PA Code § 75.264 requirements for the treatment, storage and disposal of hazardous wastes) are applicable requirements.

e. The Occupational Safety and Health Act (OSHA) regulations (29 CFR 1910) are applicable for all activities conducted during this remedial action.

f. 25 PA Code §§261.24 and 273.421 are applicable regulations for the handling of residual and other waste and for the determination of hazardous waste by the Toxic Characteristic Leaching Procedure.

C. Cost-Effectiveness

The selected remedy is cost-effective in providing overall protection in proportion to cost, and meets all other requirements of CERCLA. The NCP, 40 CFR Section 300.340(f)(ii)(D), requires EPA to evaluate cost-effectiveness by comparing all the alternatives which meet the threshold criteria - protection of human health and the environment and compliance with ARARs - against three additional balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; and short-term effectiveness. The selected remedy meets these criteria and provides for overall effectiveness in proportion to its cost. The estimated present worth cost for the selected remedy is $5,000,000.

D. Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

Because of the limited scope of this operable unit, a permanent remediation of the ground water was not considered. However, a permanent source of clean drinking water to residences and businesses affected or potentially affected by the Site will be developed. Secondary objectives of this operable unit are to reduce the migration of contaminants and to prevent current or future exposure to the contaminated ground water in the aquifer, through treatment and containment. Extraction and treatment of contaminants in the aquifer will achieve some reduction in the contamination at the Site, and will enhance the attainment of a permanent remedy at the Site. Subsequent actions will address fully the principal threats posed by the conditions at the Site. The remedy(ies) selected in future operable units will employ permanent solutions to the maximum extent practicable.

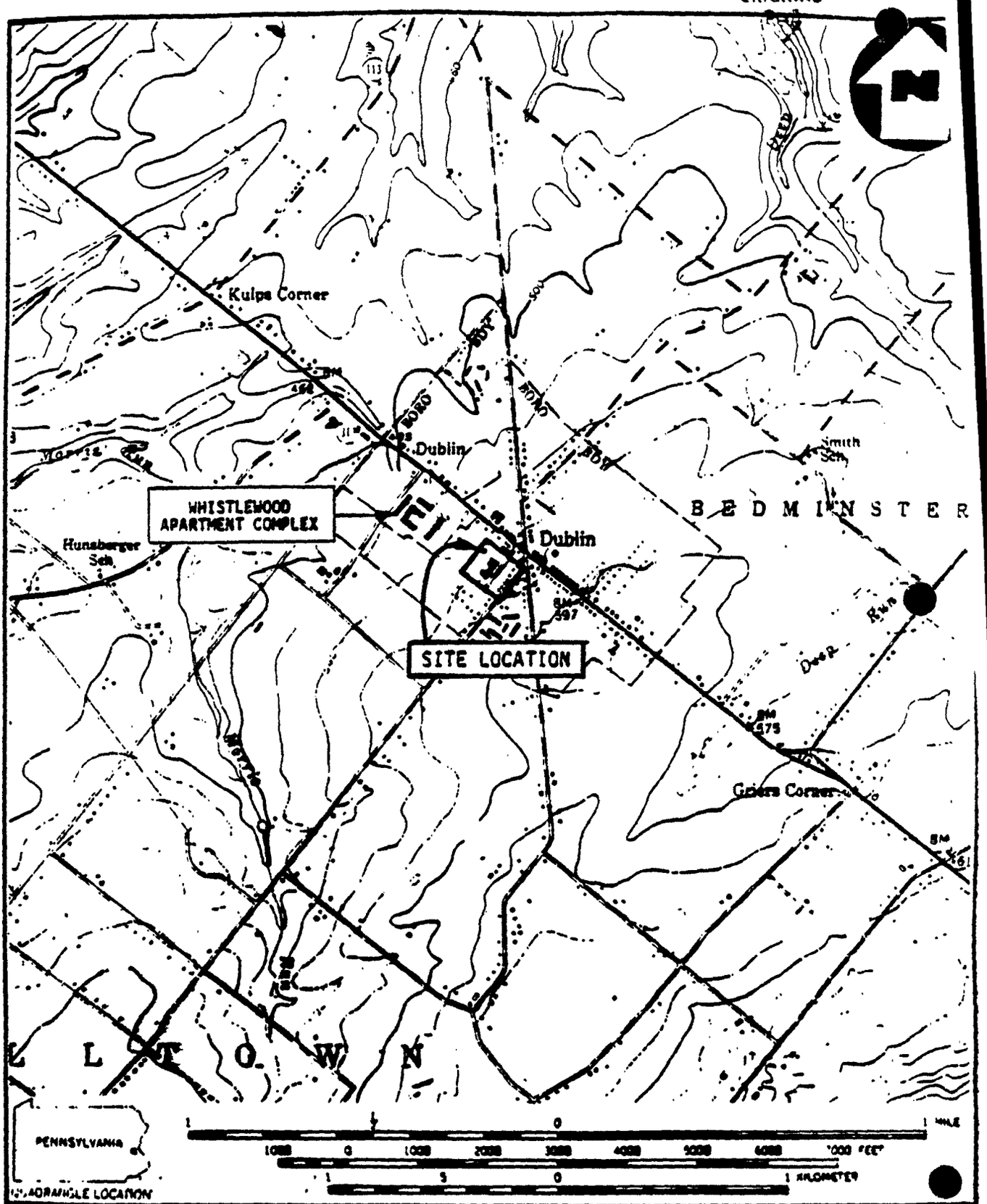
E. Preference for Treatment as a Principle Element

The selected remedy employs a treatment process which has been demonstrated to effectively reduce VOC contamination at other Superfund sites. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

FIGURES 1 THROUGH 3

DUBLIN TCE EARLY ACTION ROD

ORIGINAL



SOURCE: (7.5 MINUTE SERIES) U.S.G.S. BEDMINSTER & DOYLESTOWN, PA., QUAD.

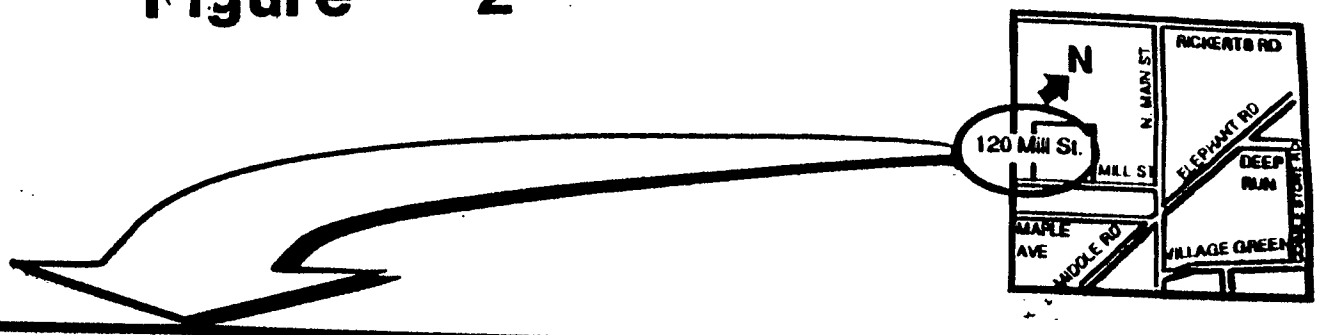
AR301606

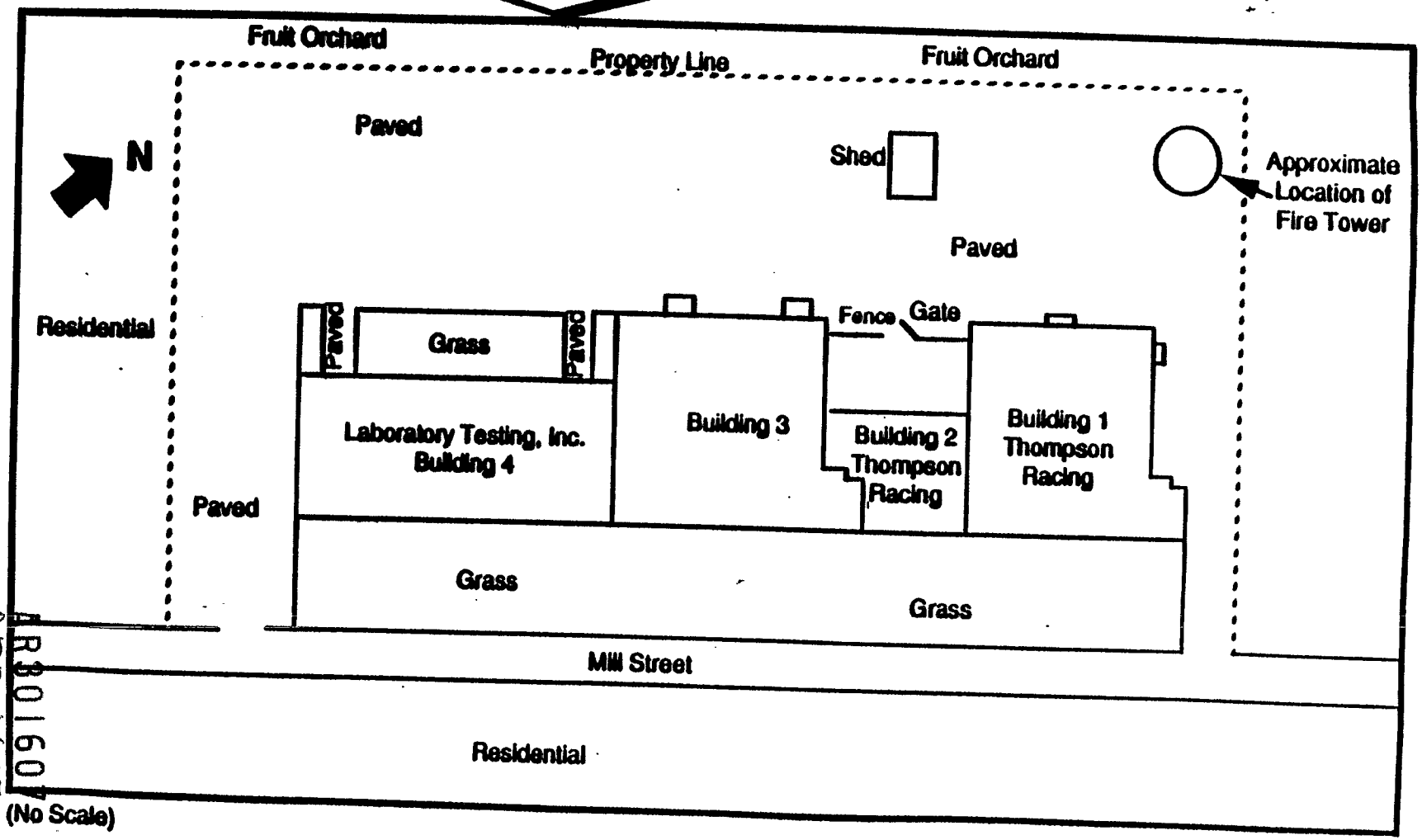
SITE LOCATION MAP
DUBLIN WATER SUPPLY
SCALE 1: 24000

Figure 1

NUS CORPORATION

Figure 2





AR301607

120 Mill Street

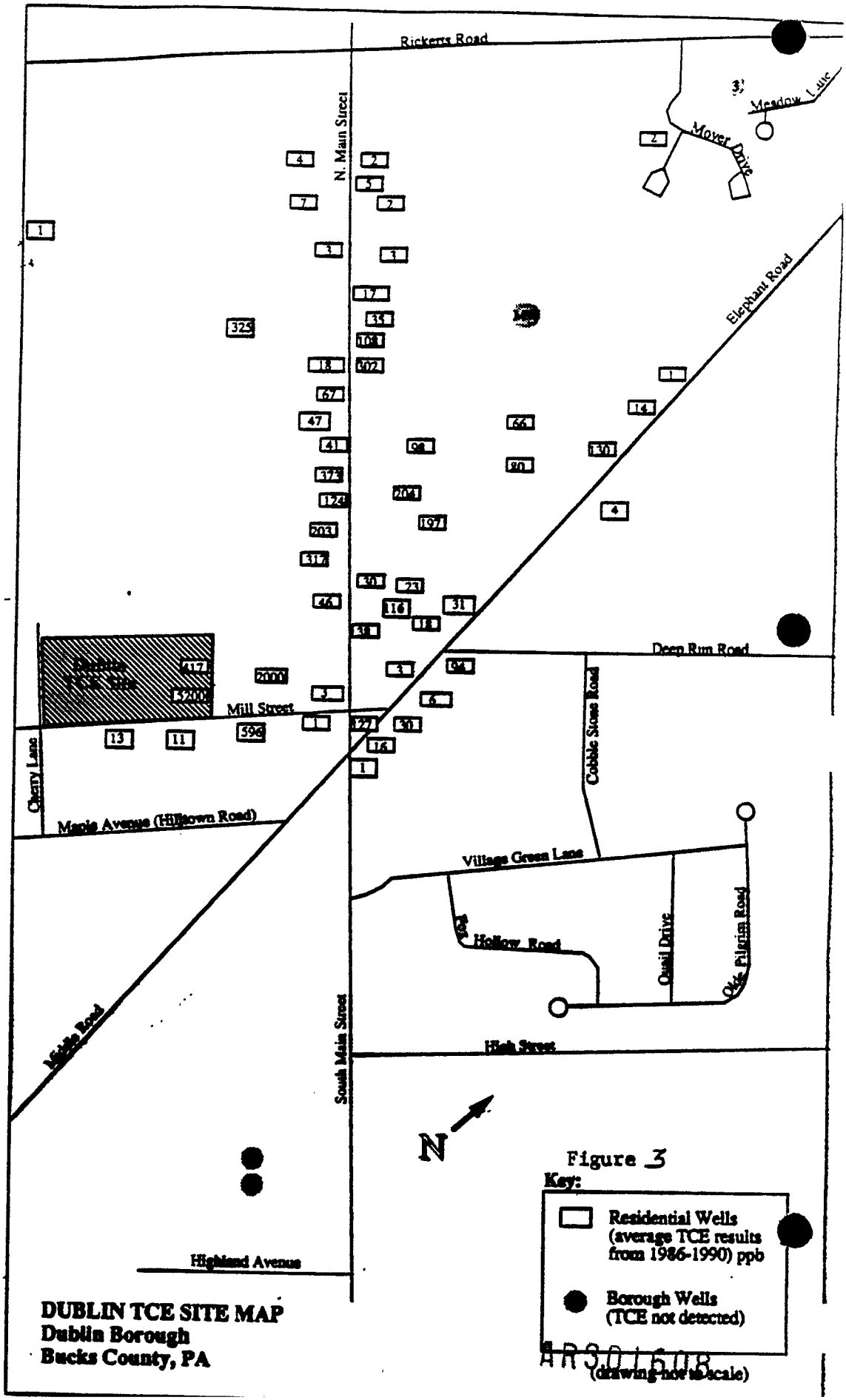


Figure 3

DUBLIN TCE SITE MAP
Dublin Borough
Bucks County, PA

AR301608

APPENDIX A

DUBLIN TCE SUPERFUND SITE

RESPONSIVENESS SUMMARY
FOR THE
PROPOSED PLAN FOR EARLY ACTION

TABLE OF CONTENTS

RESPONSIVENESS SUMMARY
DUBLIN TCE SUPERFUND SITE

This community relations responsiveness summary is divided into the following sections:

Overview: This section discusses EPA's preferred alternative for early response action.

Background: This section provides a brief history of community interest levels and concerns raised during early action planning at the Dublin TCE Superfund Site.

Summary: This section provides a summary of technical and non-technical issues and concerns raised by the local community on the proposed plan for early action and EPA's responses to those issues. "Local community" may include local homeowners, business people, municipal officials, and potentially

responsible parties (PRPs).

I. OVERVIEW

In August 1991, EPA completed a Focused Feasibility Study (FFS) of the drinking water for the community surrounding the Site. EPA chose to address the drinking water contamination separately from the overall ground water contamination because the levels of trichloroethylene (TCE) and other hazardous substances in the drinking water supply were then and continue to be sufficiently high to require an expedited response.

On August 8, 1991, EPA prepared a Proposed Plan for early action and requested public comment on its preferred response action alternative. EPA accepted oral comments on the Proposed Plan at a meeting held in Dublin on August 26, 1991 and written comments postmarked before October 9, 1991.

EPA's preferred early action alternative for the alternate water supply is Alternative Number 6. This Alternative was referred to as Alternative 5 in the FFS. EPA's preferred alternative includes installation of a well within the plume and treatment of the contaminated water by air stripping prior to discharge to the Dublin Borough Public Distribution System. Water mains would be installed along North Main Street, Mill Street, and a portion of Elephant Road, and approximately 70 residences and businesses would be connected to the expanded public distribution system. The contaminated air released from the air stripper would be treated in a carbon adsorption system (or similar treatment technology) to remove the contaminants prior to discharge to the atmosphere. This remedy would also include monitoring of approximately 50 residential and commercial wells until a final ground water remedy is implemented.

II. BACKGROUND

Community interest and concern about the Dublin TCE Superfund Site has been relatively high. A removal action, which provides affected residences and businesses with either bottled water or individual carbon treatment systems, went into effect in 1987. The residents became particularly interested in the Site in 1988, when a class action suit led by an attorney against the PRP stirred health-related concerns. In response to the removal action and lawsuit, EPA held an informational meeting in Dublin in May 1988.

After the placement of the Site on the National Priorities List in August 1990, the Site received considerable attention from local and metropolitan newspapers. To inform the community of the Site status and explain the Superfund process in layman's terms, EPA issued its first fact sheet on the Dublin TCE Superfund Site in May 1991. Based on comments received from Dublin citizens during

interviews, EPA also prepared a draft community relations plan. Dublin Borough officials commented on the draft community relations plan at a meeting held by EPA in May 1991. EPA considered these comments in preparing the final community relations plan in June 1991.

EPA held an informal public meeting in July 1991 to discuss the alternatives being evaluated in the Focused Feasibility Study (FFS) for the Alternate Water Supply.

III. SUMMARY OF COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD

This section provides a summary of technical and non-technical issues and concerns raised by the local community and the potentially responsible parties on the proposed plan for early action at the Dublin TCE Superfund Site and EPA's responses to those issues. These issues and concerns received at the August 26, 1991 meeting and during the public comment period can be grouped into the following seven categories:

A. Remedial Alternative Preferences
B. Questions/Concerns on EPA's Proposed Alternative
C. General Cost/Funding Issues
D. Potentially Responsible Parties
E. Risk of Contaminants and Other Health Concerns
F. Technical Questions/Concerns on Remedial Alternatives
G. Questions/Concerns on FFS and Proposed Plan
    1. Structure/Format of Reports
    2. Background and Assumption Information
H.. Coordination with State and Local Agencies
I.. Superfund Enforcement Process

Section A addresses comments from the public on preferred remedial alternatives. Section B addresses comments specific to EPA's preferred alternative including questions on why this alternative is preferred over the other alternatives and how this alternative will be implemented. Section C addresses how the remedy will be funded and questions on the cost estimates made by EPA. Section D addresses general comments on potentially responsible parties (PRPs). Section E addresses concerns on the risk associated with the site-specific contaminants, risk assessment values and questions regarding bacteria formation. Section F addresses specific questions on how the remedial alternatives evaluated would perform. Section G addresses specific information provided in the EPA documents and the structure of these documents. Section H addresses how State and Local agencies will be involved in the remedy implementation. Section I addresses general questions and comments on EPA's enforcement authority.

A summary of the comments and EPA's responses to them is provided below.

A. Remedial Alternative Preferences

- A PRP proposed the implementation of a modified Remedial Alternative 6 instead of EPA's Preferred Alternative 6 described in the Proposed Plan. The PRP recommended that this modified alternative be implemented in phases expanding the public distribution system, as described in Alternative 2 of the Proposed Plan, while continuing the operation and maintenance of the individual carbon units. This expansion will be completed within 6 to 12 months, provided that all citizens immediately grant access. The next phase would include the completion of the first portion of the RI/FS within an estimated 12 to 18 months after all access agreements are finalized with citizens owning property necessary for investigation.

  The PRP also recommended the installation of an air stripper on Dublin Borough Well No. 3 as a precautionary measure. This air stripper would be designed to treat the water supplied by Well No. 3 in addition to any water extracted from wells within the plume necessary for overall groundwater remediation for the Site. The PRP proposed that all of the water which may be extracted as part of the overall groundwater remediation be discharged into the public distribution system.

  The PRP stated that the vapor discharged from the air stripper would not require treatment because Dublin is not in an ozone non-attainment area and that the ARARs identified don't require air treatment. The PRP stated that this modified alternative would be performed in same time frame as EPA's proposed Alternative 6.

  The PRPs believe that performing alternative 6 without completing the first portion of the RI could lead to misplacement of the well and would be "inconsistent with the NCP".

  EPA Response: **EPA intended to continue the provision of the existing treatment and monitoring program for the affected residences and businesses until this Early Action remedy was implemented. One PRP is required, under the existing Removal Order with EPA, to continue the provision of these treatment systems until a final water supply remedial action is implemented at the Site.**

  EPA is concerned that increasing the capacity of Well No.3 to supply the affected parties may expand the plume of contamination. Therefore, EPA does not agree with this portion of the PRP's proposed modification.

  EPA's proposal of properly installing a new well inside the

plume or using an existing well within the plume for use as a public supply well was not intended to be used primarily for overall remediation of the groundwater. This proposed remedy, however, should not lead to a further spread of the contamination, and, therefore, is not inconsistent with the NCP. The purpose of installing a new well or using an existing well for this Early Action is to provide a permanent, clean drinking water source to the affected parties.

Misplacement of the well would not result from implementation of Alternative 6 because this well's primary purpose is not for treatment and containment of the plume but for supply of drinking water. If determined to be necessary upon completion of all or part of RI/FS, wells or a series of wells will be installed for the primary purpose of treatment, containment of the plume of contamination.

Dublin Borough, located within Bucks County, is within the ozone non-attainment area per both Federal and State regulations; and, therefore, the air stripper effluent will be regulated by not only State regulations but by Federal regulations. Federal regulations are sited in 40 CFR 81.339. The Commonwealth of Pennsylvania considers the entire state to be an ozone non-attainment area.

- Dublin Borough commented that implementation of Alternative 2, as described in the Proposed Plan, is the simplest, most effective means of providing clean, regulated drinking water source. Dublin Borough stated that the water supply for this alternative is available, the engineering to design the system is straightforward, the Borough would not need to maintain a TCE water treatment operation and the job could be implemented prior to the Route 313 renovation work to be performed by the Pennsylvania Department of Transportation.

EPA RESPONSE: Although implementation of Alternative 2 would be an easier and faster way to provide clean drinking water than implementation of Alternative 6, it could impact the long-term goals of the overall groundwater clean-up by potentially expanding the plume of contamination. This could lead to a more difficult groundwater remedy and also the potential need for addition of a treatment system for the Borough Supply Wells if they become contaminated.

- Dublin Borough supports EPA's recommended alternative if the monitoring well which was installed as part of the permit for Dublin Borough Well No. 3 is modified for production and used as the supply well in the implementation of Alternative 6 and if this remedy will not involve any capital costs to the Dublin Borough residents or any abnormal O&M costs to the Borough.

Dublin Borough recommends the use of the monitoring well as a supply well because: (1) this location appears to be in the plume and (2) the monitoring well is a proven source for a production well. Dublin Borough also requested participation in the selection of the site for a new well, and design and construction of the well.

Dublin Borough stated that Alternative 6 uses proven technology. The Borough stated that, although EPA could have chosen to obtain water from a water supply well in another water shed so that contaminants would not be pulled into the water supply, the Borough believes that choosing to install or use a water supply well within the plume of contamination benefits both the Borough in trying to expeditiously provide an alternate water supply and benefits the PRPs as part of the remedial action. Also, Dublin Borough wants a commitment from EPA to remediate the groundwater contamination.

EPA RESPONSE: The location of the well will be determined during the remedial design phase of remedy implementation. Based on the information provided by the Borough to EPA, the monitoring well is not contaminated with TCE and, therefore, currently is not within the plume of contamination. It appears that if this well were used, there may be a potential of spreading the plume of contamination. Nevertheless, this well location will be considered during the remedial design phase of remedy implementation.

The affected parties would not be required to pay any connection fees, but would be required to pay a monthly or quarterly fee for water charged by the Borough, which would provide sufficient revenues to finance the O&M for the supply well and the water line extension. The Borough will be responsible for the O&M of the supply well and the extension to the water line which will be dedicated to the Borough for its use. The details of any agreements between the Borough and any party implementing the remedy relating to the funding of the remedy or any component thereof will be addressed during the RD/RA stage. CERCLA requires that any PRP implementing the remedy finance, at a minimum, the O&M for water treatment system. If the remedy is implemented by the Commonwealth of Pennsylvania, under a State Superfund Contract, EPA will request that the Commonwealth provide its assurance that the remedy will be implemented. EPA and the Commonwealth of Pennsylvania would not be required, nor would they require any PRP implementing the remedy, to pay any part of the tap-in fee that covers legal fees or other costs not necessarily related to the connection to the water line.

EPA believes the Borough should be involved in the decision on the placement of the well if the Borough intends using the constructed system as part of its existing distribution

system.

EPA agrees that implementation of Alternative 6 uses a proven treatment technology and is the best way to not only help contain the plume of contamination but also to provide clean water to the affected parties in the most economical and efficient manner.

By placement of the Site on the National Priorities List (NPL), EPA has committed to investigate and determine the risk associated with the Site and remediate the Site so that risks are reduced to an acceptable level. This needs to be completed before the Site is removed from the NPL.

B. Questions/Concerns on EPA's Proposed Alternative

- A meeting attendee wanted to know EPA's rationale for proposing an air stripping system with carbon adsorption, rather than the carbon system alone.

  EPA Response. TCE degrades into vinyl chloride, which does not adsorb onto carbon as readily as TCE. Therefore, vinyl chloride requires a larger quantity of carbon than TCE for adequate treatment. Given that there is TCE and some vinyl chloride in the local ground water, there may be some degradation of vinyl chloride in the ground water. Over time, these levels of vinyl chloride could increase the cost of using carbon adsorption. Also, studies show that bacteria could build up over time in the carbon. Thus, EPA ruled out this particular technology as a feasible alternative.

- One commenter suggested that a water main be provided on Rickerts Road to supply water to residences which are potentially affected in Hilltown Township. This commenter was concerned that there is no data on these wells and that the plume is migrating towards these homes.

  EPA RESPONSE: EPA cannot recommend expansion of the water main to Rickerts Road because, based on EPA's estimate of contamination migration, these properties are not currently affected nor are they expected to become contaminated prior to implementation of a final groundwater remedy at the Site. Wells on properties located on Rickerts Road will be monitored until a final groundwater remedy is in place that will contain the plume to prevent further contaminant migration. If any of these wells do show contamination above the remedial action goals for this Early Action, the residences or businesses will be provided with an adequate treatment system or supply of public water.

- One citizen commented that some residences on Elephant Road have a water main going past their homes and, although they

are not hooked up to that main, they have been paying water rent because of a the local ordinance. The commenter asked how long it would take to be connected, because a water main does not need to be constructed.

EPA Response. One of the reasons EPA recommends the alternative of a well within the plume is to help prevent further spread of existing contamination. The wells that currently supply the existing systems are outside the plume of contamination. If those wells that already have a line in front were hooked up, EPA would be increasing the capacity of the wells that supply the distribution system. EPA will consider the situation of these residents who already have a line running in front of their houses when implementing the early action.

- Several meeting attendees asked EPA to specify on the Site map where the water line and new well would be placed for the Proposed Alternative.

EPA Response. Although EPA has not made a final decision about where to place the water line, the FFS recommended placing a water main up Main Street to Rickerts Road, putting another main along Mill Street after Cherry Lane, and putting a main from South Main Street up to run along Elephant Road.

EPA has determined only a general area for well placement. In the FFS, EPA identified certain sources. One such source is the Whistlewood Apartment Complex. The other production wells in that area are potential places where EPA could install a larger capacity well, but EPA has not at the present time actually identified the source.

- A PRP indicated that EPA did not evaluate alternatives to vapor-phase carbon adsorption treatment such as catalytic oxidation, fume incineration, or thermal oxidation. The PRP also indicates that both vapor- and liquid- phase carbon adsorption of vinyl chloride are not as effective as trichloroethylene adsorption and that EPA did not recognize this lack of effectiveness in the vapor-phase carbon adsorption in the FFS report.

EPA RESPONSE: EPA acknowledges that other treatment technologies are available for the treatment of contaminated vapor from the air stripper. The technologies identified by the PRP are recognized by PADER as "Best Available Treatment Technologies" for the treatment of air stripper discharge and, therefore, would meet the Pennsylvania ARAR for air stripper vapor discharge. EPA has agreed to evaluate these alternatives during the design phase of remedy implementation, if requested by the party implementing the remedy; although, if treatability studies are required, the party implementing

the remedy will install temporary vapor-phase carbon units on the air discharge until these studies are complete. EPA does not want this action delayed due to additional studies.

EPA also acknowledges that both vapor- and liquid- phase carbon are poor adsorbents for vinyl chloride. Adsorption onto liquid-phase carbon was considered to be more critical because of the low MCL established for vinyl chloride (2 ppb). No air discharge criteria specific for vinyl chloride has been established for the Dublin TCE Site by EPA or PADER.

- A meeting attendee asked why EPA did not recommend UV oxidation as its preferred alternative.

  EPA Response. The purpose of conducting an early action at the Dublin Site is to implement an effective and protective remedy as quickly as possible. The technology associated with the UV method has not been proven at the Site and would require a treatability study, which EPA estimates would take at least six months to perform. EPA does not want to delay implementation of the remedy for another six months while the treatability study is conducted.

  In addition, one of the main advantages of using UV oxidation is its ability to handle organics with molecular weights greater than 200 molecular mass much better than other techniques, such as biodegradation. Because the Dublin TCE Site does not present a risk from high molecular weight organics, and because the early action is an interim measure, EPA did not recommend UV oxidation as its preferred alternative.

  EPA's main goal in providing this proposed plan for early action is to eliminate immediate risks presented by the poor quality of the drinking water supply. EPA will examine other alternatives, such as UV oxidation, during the selection process for a final remedial action, which will focus on cleaning up the ground water at the Site.

- A citizen asked if a connection to the main water line would be provided for residents who do not now have contaminated wells, but whose wells are discovered in the future via monitoring to be contaminated. Related to that this issue, another commenter asked EPA to estimate the number of potentially affected residents (or homes) five years from now. This commenter indicated that previous EPA literature stated that approximately 170 homes are currently affected by this situation but that only approximately 70 affected and potentially affected residences and businesses are addressed in the Proposed Plan.

  EPA Response. In the FFS, EPA considered approximately 70

"connections" for supply of water from the public distribution system. The connections included not only individual homes but also apartment complexes and businesses. This accounts for the difference in previously reported value of 170 and value of 70 used in the FFS (the majority of the residences affected are within an apartment complex of 144 units). EPA also considered monitoring approximately 55 wells until a final groundwater remedy is in place.

The 70 connections include residences and businesses who are already affected, or who could potentially be affected before a final ground water remedy is in place. EPA estimates the time frame for completion of the ground water remedial action to be five years from implementation.

Based on an estimate of how quickly the ground water contamination is migrating, EPA determined a cutoff point for selecting which residents would receive the alternative water supply and which residents would receive only monitoring of their private well. EPA will routinely monitor the wells of residents beyond the cutoff point, as described in the Record of Decision.

If the final ground water remedy can fully contain the plume, the wells of residents beyond the cutoff point may never become contaminated by TCE. If EPA's estimates on how fast the groundwater is moving are incorrect or if a final remedy can not fully contain the plume of contamination, any person whose well becomes contaminated above the remedial action levels after the water line is installed will either receive a private treatment system or will be connected to the public distribution system.

Without a completed RI/FS, EPA cannot determine the additional residences which may be impacted by the contamination.

- One commenter requested an explanation on the difference between locating the supply well within the center of the plume or at the edges of the plume.

EPA RESPONSE: Locating the well inside the plume will help in removing high concentrations of the TCE from the groundwater and also will also contribute to containment of the plume. Locating the well on the edge of the plume will remove some of the contamination although not as much as if the well were placed in the center of the plume. Locating the well at the edge will help in preventing uncontaminated areas from becoming contaminated. Also, locating the well on the edge of the plume will result in lower treatment costs than if the well were located in the center of the plume.

- A meeting attendee asked whether EPA is considering the Preferred Alternative as part of a long-term remedy.

  EPA Response. EPA considers this alternative as a method to provide sufficient quantities of potable drinking water to the affected parties . EPA could choose to incorporate this alternative into the remedial action although the well will not be designed specifically for the most efficient groundwater remediation. In fact, EPA will first try to locate an existing production well within the plume of contamination before a new source location is investigated.

  Remediation of fractured aquifers that are contaminated with chlorinated solvents such as TCE (as in the case of the Dublin TCE Site) is difficult, at best. TCE, if present in certain concentrations, will sink in the aquifer and may also get trapped in the bedrock fractures. During the RI/FS, EPA may identify fractures that are highly contaminated with TCE. In the long-term remediation, these fractures could be isolated. The pure product could then be removed from these isolated fractures without extracting an excess of clean groundwater.

  When deciding to use a well within the plume of contamination, EPA eliminated the possibility of installing the well in a fracture that is currently uncontaminated but is hydrogeologically connected to the fractures which contain the contamination. Installing this well may not be the best method of completely remediating the aquifer, but it is less likely to reduce the spread of contamination.

- The Dublin Borough engineer stated that the pipe used in the expanded public distribution system has to be of adequate size to conform with Ordinance No. 200 (i.e. water lines less than 12 inches on Main Street are not recommended or allowed).

  EPA RESPONSE: EPA is required only to supply a line size which will meet the needs of the affected parties. If the Ordinance requires larger line sizes for future development or other purposes, then the incremental difference in the cost of the additional size will have to be paid for by the Borough.

- The Dublin Borough engineer commented that Alternative 6 is inadequate because it does not include a line from the new well to the Borough water tank and conversely a line to supply water from the Borough tank to the affected area. The engineer states that this is necessary because it will allow for uninterrupted service should a repair be necessary, i.e. if a problem with the new well or the water mains from that well occurs, then water from the water tank could be supplied to the affected parties.

EPA RESPONSE: EPA assumed in the FFS that the new well would be connected to the Borough tank and that the tank would be used for storage purposes, if necessary. Determination of additional lines will be made during the design phase of remedy implementation. EPA will work with the Borough and the party implementing the remedy to design the best system to provide a reliable clean drinking water to the affected parties.

C. General Costs/Funding Issues

- Dublin Borough and the PRPs believe that the use of a 10% discount rate is not accurate.

  EPA RESPONSE: The preamble to the NCP (p.8722-8723, March 10, 1990 of the Federal Register) states that EPA will follow OMB Circular A-94 which indicates the use of the 10% discount rate and that OMB is currently reviewing the provisions of this circular. If the circular is revised, EPA will address this matter accordingly. EPA will continue to use the 10% figure in its cost estimates.

- Dublin Borough expressed concern that the tapping-fee requirement by the Borough for connection to the existing public distribution system was not included in the cost estimates provided in the FFS or Proposed Plan. This fee, according to the commenter, is the fee associated with the development of the Dublin Borough public distribution system over time. Alternative 6 is not a stand alone system; it makes use of the system already in place and therefore, the Borough should be compensated for use of the existing system.

  EPA RESPONSE: The costs provided in the FFS were order-of-magnitude estimates. These cost estimates will be refined during the remedial design phase of remedy implementation. The portion of tapping fee associated with capital costs incurred by the Borough for construction of the existing distribution system will be paid by either a PRP or the Superfund as well as costs related to the connection of those affected parties to the water line. Costs associated with past legal fees cannot by the Superfund nor can EPA require a PRP to pay these legal fees.

- Dublin Borough and Sequa Corporation are in litigation for damages and costs, including attorney's fees. Dublin Borough, in the acceptance of a remedial alternative, does not want to incur an unfunded liability for attorney fees. Also, Dublin Borough stated that any agreement between a "private authorized entity" (i.e., if a PRP were to become a utility for supply of water) and Dublin Borough would have to be court-approved.

EPA RESPONSE: The attorney's fees are part of the private litigation commenced by the Borough and a class of affected individuals and is unrelated to the remedy for this early action. The party implementing the remedy must supply a clean drinking water source and will not be required to pay attorney fees associated with any previous or on-going litigation. EPA cannot comment on the requirements of the court concerning the aforementioned litigation.

- Dublin Borough expressed concern that, due to financial constraints of Federal or State agencies or unwillingness of the PRPs, the Borough may not be provided with funding to finance the O&M, and, therefore, Dublin Borough could possibly be in a position where they would have to incur costs for this Early Action. Dublin Borough recommended setting up a guaranteed or prepaid source of total O & M through a trust fund. The Borough stated that 53 P.S. 46202(32) allows for the establishment of a trust fund.

  EPA RESPONSE: If Alternative 6 is implemented to become part of the existing Dublin Borough public distribution system, the O&M payment requirements, for the treatment of the drinking water in this early action, will be part of the agreement between the party implementing the remedy (either the PRPs or the Commonwealth of Pennsylvania under a State Superfund Contract) and Dublin Borough. EPA believes that a trust fund may be appropriate in this situation and will consider this during remedy implementation.

- Several meeting attendees asked whether persons residing along the route of the anticipated water line would have to incur any costs associated with its placement.

  EPA Response. EPA will attempt to compel the PRPs to finance and implement the action. If the implementation of the Alternative is funded from the Superfund, EPA would pay for residents to be connected to the line. EPA would not pay for regular (i.e., monthly or quarterly) water bills; users would have to pay their water bills.

- Based upon an earlier discussion about extending the water main on South Main and up to High Street, a meeting attendee wanted to know whether people who have not had TCE detected in their wells would have to pay connection fees.

  EPA Response. EPA's early action is aimed at supplying residents who currently have contaminated drinking water or who have the potential for contaminated drinking water with potable water. Unaffected residences and businesses would be required to pay the connection fees if they chose to be connected to the public distribution system.

- One citizen asked who would finance the annual operation and maintenance (O&M) costs.

  EPA Response. EPA intends that the O&M for the supply well and the water line extension will be financed by the Borough with revenues it receives through its monthly or quarterly water bills from the affected parties. As stated on page 6 and 7 of the responsiveness summary and in the description of Alternative 6 in the ROD, EPA intends to have the PRPs pay for O&M for the water treatment portion of the remedy as part of its remedial enforcement agreement. If EPA does not reach such an agreement with the PRPs for this particular early action Alternative, EPA would request that the Commonwealth of Pennsylvania enter into a State Superfund Contract with EPA, in which the Commonwealth would provide assurances for the O&M of the remedy.

- A PRP stated that all cost estimates provided in the FFS were questionable. The PRP stated that EPA overestimated the capital costs in the FFS for all alternatives except Alternative 4 which capital costs were underestimated. The PRP believes that the No Action Alternative costs should have included costs for removing the existing carbon canisters. The PRP commented that EPA was inconsistent in its use of 5200 feet of water main for Alternatives 5, 6, and 7 and its use of 5600 feet of piping for Alternative 3. The PRP calculated costs for all alternatives recommending use of a water main by using 5600 feet of piping. The PRP stated that EPA did not include costs of purchasing property, abandonment of the existing private wells and removal and disposal of existing carbon treatment units.

  EPA RESPONSE: The Cost of Remedial Action (CORA) model, developed under contract with CH2M Hill for use by EPA, was used for all cost estimates prepared for the FFS except for the costs for Alternative 6 of the FFS, which used costs obtained from other sites. The CORA model is intended to provide order-of-magnitude cost estimates for remedial actions at Superfund Sites. Refined costs estimates will be provided during the remedial design of this Action.

  Although the CORA model is not designed specifically to be as accurate as an FS-level cost estimate, EPA believes that for this action, given the unknown variables which could impact the costs such as location of a new well, concentration of the contaminants in the groundwater to be treated, depth of the new well necessary, possible purchase or compensation for land use, use of this model was appropriate.

  Although the PRP's capital cost estimates are lower than the estimates provided in the FFS, the PRPs did not provide similar estimates for the operation and maintenance and

present worth costs. A cost comparison of alternatives can not be performed on the basis of capital costs alone. For example, the O&M costs associated with Alternative 3 of the FFS were high enough to provide this alternative with a present worth cost comparable to Alternatives 1, 2, 4, 5 and 6 of the FFS.

EPA did not include the cost of removing the existing carbon units in the No Action alternative because that would then involve an "action". Different water main lengths were used for the various alternatives because the location of the proposed well would be in different locations.

D. Potentially Responsible Parties

- A PRP commented that the statement in the FFS indicating that Athlone Industries, Incorporated purchased the property from Kollsman Instrument Corporation (KIC) in 1973 is incorrect. The commenter indicated that the property did not pass directly between KIC and Athlone but that KIC granted the property to the Bucks County Industrial Development Authority (BCIDA).

  EPA Response: Athlone Industries, Incorporated purchased the Site from the BCIDA pursuant to an Installment Sales Agreement. EPA does not believe that this fact will impact its Early Action decision.

- One commenter stated that the term "Potentially Responsible Party" does not necessarily mean "polluter".

  EPA RESPONSE: A potentially responsible party, is defined by Section 107 of CERCLA, 42 U.S.C.§9607, as a current owner or operator, an owner or operator at the time of disposal at the Site, a person who arranged for treatment or disposal or transportation for treatment or disposal at the Site or a transporter of a hazardous substance to the Site who selected the Site for disposal.

- Dublin Borough expressed concern that EPA's proposal as outlined in the Proposed Plan for Early Action is similar to a previous proposal which was rejected by Sequa Corporation, a Potentially Responsible Party, during negotiations between Dublin Borough and Sequa Corporation.

  EPA RESPONSE: EPA does not have a copy of the offer Dublin Borough made to Sequa Corporation as part of the settlement in August 1990 and, therefore, can not comment on it. One of the goals under CERCLA is to provide the opportunity for the Potentially Responsible Parties (PRPs) to implement the remedy prior to using Superfund monies. EPA can do this by negotiating a consent decree with the PRPs, by issuing the

PRPs a unilateral order demanding the PRPs to implement the remedy, or petitioning a Federal Court. If these options are not implemented, the Superfund will pay for the remedy.

E. Risk of Contaminants and Other Health Concerns

- One meeting attendee wanted to know the health effects of human exposure to TCE and the other site contaminants.

  EPA Response. Direct contact with to TCE can cause irritation of the eyes, nose, throat, and skin. TCE can cause headaches, nausea, vomiting, lightheadedness, fatigue, and several other general symptoms. TCE can cause symptoms similar to those associated with intoxication. Finally, TCE can cause liver damage.

  Additionally, TCE has been shown to cause cancer in certain laboratory animals, that is, liver cancer that spreads to the lungs. Because of these research findings based on laboratory animals, EPA regulates TCE as a probable human carcinogen. So far, there is no evidence that TCE causes cancer in humans, but EPA regulates TCE because of its potential to cause cancer in humans.

  TCE naturally degrades to vinyl chloride, which is much more toxic to humans than TCE. Human exposure to vinyl chloride has been documented as causing cancer in occupational settings. Thus, EPA's primary goal with regard to addressing TCE in ground water is to prevent it from degrading into vinyl chloride.

- A citizen was concerned that if carbon treatment were used, a bacteria problem might be created or persist in large wells. The citizen thought that, in contrast, the UV technology would destroy bacteria.

  EPA Response. EPA acknowledges that the citizen is correct that bacteria could present a problem if carbon treatment were used. During the design phase, it may be necessary for EPA to include a UV oxidation system on a smaller scale strictly to treat bacteria.

- A PRP stated that the nature of the short-term risks to workers and the environment which are mentioned in the Sections of the FFS relating to Alternatives 4, 5, and 6 are not fully described.

  EPA RESPONSE: The short term risks referred to in these Sections indicate not only chemical risks but safety risks. The risks associated with these alternatives include not only the risk of exposure to chemicals during well installation but also the mechanical risks associated with the operation of

heavy equipment such as drill rigs for well construction and backhoes for water line installation.

- A PRP stated that Section 1.4 of the FFS titled "baseline risk assessment" does not adequately address baseline risks at the site and therefore, the PRP does not understand how the EPA was able to evaluate the reduction of risks, the magnitude of future risks for each alternative. The PRP also indicates that, because no baseline risk assessment was performed, that the discussion of risk in the FFS is theoretical. The PRP alleges states that the FFS report is inconsistent with the NCP and RI/FS guidance.

  EPA RESPONSE: The preamble of the NCP (8704 March 8, 1990) states that "A completed baseline risk assessment generally will not be available or necessary to justify an interim action." EPA believes that use of MCLs and MCLGs for the contaminants of concern at the Dublin TCE Site are appropriate in evaluating the risks associated with the drinking water at the site. The preamble also states that "EPA must balance the desire to definitively characterize site risks and analyze alterative remedial approaches for addressing those threats in great detail with the desire to implement protective measures quickly" and in doing so "EPA intends to perform this balancing with a bias for initiating response actions ...as early as possible".

- A PRP indicated that the FFS states that this alternative presents a potential health concern regarding the pretense of bacteria in the treated water. The PRP indicated that the supply under this alternative would constitute a community system as defined in the Safe Drinking Water Act and that the operator would be required to meet the regulations in 40 CFR 141.72 and the Pennsylvania Code, Title 25, 109.202(3).

  EPA RESPONSE: EPA agrees that this alternative would be regulated under the Safe Drinking Water Act and Pennsylvania regulations. EPA would like to note that if bacteria were formed due to activated carbon treatment, the operator may be required to install a system for bacteria destruction which may increase the cost of treatment.

F. Technical Questions/Concerns Regarding Remedial Alternatives

- A PRP commented that none of the remedial alternatives considered by the USEPA can prevent the spread of contamination or result in complete remediation of the aquifer and that even with a ground-water system designed specifically for remediation purposes, it will not be possible to restore the groundwater within the bedrock aquifer to meet maximum contaminant levels. The PRP stated that a groundwater remediation at this Site can only contain and control the

plume to the maximum extent possible.

EPA RESPONSE: EPA's primary reason for this Early Action is to provide a permanent clean drinking water source to the affected parties. The primary purpose of this phase is not to prevent the spread of contamination or completely remediate the aquifer. Remediation and containment of the aquifer will be addressed during or after the completion of the RI/FS. A determination can not be made at this time, prior to any studies relating to the RI/FS, as to whether a ground water system designed specifically for remediation purposes, will be able to meet MCLs

- A PRP stated that EPA was incorrect in stating that Alternatives 4, 5, 6, and 7 of the Proposed Plan would reduce the VOCs in the aquifer because the objective of this Early Action will not address the source of the plume and aquifer restoration is not the objective. The PRP questioned the statements made by EPA in the Proposed Plan that Alternatives 4, 5, 6, and 7 prevent the spread of contamination and that these alternatives will reduce the toxicity of the contaminants via carbon treatment, air stripping or UV oxidation. The PRP indicated that the toxicity of the chemicals could be reduced only by the UV Oxidation technology through the breaking of chemical bonds.

The PRP stated that EPA confused mobility with migration by stating that Alternative 4, 5, 6 and 7 would help to inhibit further migration. The PRP states that inhibiting further migration has nothing to do with reduction of toxicity, mobility or volume.

EPA RESPONSE: The statement that Alternatives 4, 5, 6, and 7 would reduce the VOCs in the aquifer is correct regardless of the objective of the operable unit.

EPA recognizes that these alternatives will not completely prevent the spread of contamination but that, when compared to alternatives 1, 2 and 3, these alternatives will help in the prevention of the spread of contamination.

By inhibiting the migration of the VOCs in the aquifer through extraction of contaminated groundwater, Alternatives 4, 5, 6, and 7 are, in fact, reducing the toxicity, volume and mobility of the VOCs in the aquifer. The toxicity and volume of contaminants in the aquifer are being reduced because there are less VOCs in the aquifer. The mobility of the VOCs in the aquifer is reduced because these alternatives are helping to contain the plume of contamination; i.e., contaminants that were free to move with the groundwater flow will be pumped up from the aquifer and treated.

UV oxidation is the only treatment technology evaluated in the FFS which can reduce the toxicity of the contaminants; the other treatment technologies will not reduce the toxicity of the contaminants but they will reduce the toxicity of the groundwater.

- A PRP indicates that the FFS incorrectly states that the activated carbon system described in Alternative 4 and the air stripping unit described in Alternative 5 may not be capable of accommodating additional homes that may be added in the future. The PRP indicates that the design would incorporate additional capacity as a matter of engineering practice.

  EPA RESPONSE: EPA will not know how many additional homes will be affected until the RI/FS is complete, the extent of contamination has been defined and a containment system is in place. Therefore, even though additional capacity will be incorporated, EPA does not know what additional capacity will be required.

- A PRP commented that EPA did not consider the ability of the Dublin Borough storage tank, located on South Main Street, to meet the proposed increased demands; but the PRP agrees that the tank will, in fact, be of adequate size.

  EPA RESPONSE: EPA agrees that the tank is of adequate size but recognizes that this will be confirmed during the remedial design.

- A PRP stated that EPA dismissed Alternative 2 of the Proposed Plan because increased pumping of Well No. 3 could result in the contamination of this well even though EPA stated in the FFS that tests would be performed prior to implementation of this alternative to determine if pumping from this well would spread the contamination.

  EPA RESPONSE: EPA dismissed the use of Alternative 2 because of the increased pumping of Dublin Borough Wells No.1, No. 2, or No. 3 could result in the spread of contamination and because Well No. 3 is downgradient of the plume of contamination. Previous hydrogeological studies have not confirmed that Well No. 3 is not hydrogeologically connected to the plume of contamination and it is difficult to determine conclusively the absence of hydrogeological connections between uncontaminated wells and plumes of contamination.

- A PRP commented that obtaining water from outside the Dublin Borough community (i.e. from the neighboring communities) should have been considered in greater detail in the FFS report.

  EPA RESPONSE: EPA's primary reason for performing this action

is to provide a permanent clean drinking water source as early as possible. EPA did consider the option of obtaining water from outside of the Borough (Section 2.3 and 3.3 of the FFS), but EPA believes that obtaining water from within the Borough and expanding Dublin Borough's existing public distribution system is the most economical and effective alternative. Alternative 6 is also the consistent with the long-term objectives of overall remediation of the Site.

- A PRP stated agreement with the continued use of the Whistlewood Apartment Complex well and air stripper in evaluating this alternative.

  EPA RESPONSE: Even though the apartment complex would retain its air stripper in this alternative, it was assumed that the Whistlewood Apartment Complex would be put on the public distribution system and that their well would be abandoned in Alternatives 2, 3, 5, 6, and 7 of the Proposed Plan. If, however, Whistlewood elects not to be put on the public distribution system, Whistlewood may elect to continue to operate the air stripper at its own expense.

- A PRP commented that operation treatment system testing would not be necessary for this alternative because it is already functional at the site.

  EPA RESPONSE: Operational treatment system testing will be required under this alternative for residences identified in the FFS which are not currently on the monitoring program but have the potential to become affected by the contamination.

- A PRP indicates that the cost estimate for operation of Remedial Alternative 5 of the FFS may be subject to error because EPA did not evaluate the effect of possible increased vinyl chloride concentration with time due to degradation of TCE in the groundwater. The PRP states that vinyl chloride requires large quantities of activated carbon in both the liquid and vapor phase treatment.

  EPA RESPONSE: The costs provided in the Proposed Plan and FFS are only estimates. The costs will be refined during the remedial design phase of remedy implementation. The CORA model for vapor-phase carbon adsorption treatment assumes that all contaminants are of a molecular weight of 100 and, therefore, this model cannot compare the carbon loading efficiencies of different types of contaminants.

- A meeting attendee asked what happens to the contaminated carbon in the carbon adsorption alternative. This citizen expressed concern about the costs associated with transporting and disposing of the toxic material.

EPA RESPONSE: Under the carbon adsorption alternative, the carbon material would not necessarily have to be disposed of. The material could be regenerated either on-site or off-site. EPA will consider cost in deciding whether to recommend on-site or off-site regeneration. In the FFS, EPA examined the off-site regeneration method.

- A PRP disagrees with the comment made by EPA that larger quantities of vinyl chloride in the future may have an impact on the effectiveness and cost of activated carbon treatment. The PRP states this statement may have predisposed the decision against remedial alternatives employing activated carbon adsorption.

EPA RESPONSE: EPA believes that increased quantities of vinyl chloride will not have an effect on carbon adsorption effectiveness and cost. Although it is true that increased concentration of a single contaminant does increase the utilization rate (i.e. as the concentration of a contaminant increases, the actual amount of contaminant adsorbed will increase), this phenomenon does not necessarily occur when other contaminants are present. Competitive adsorption by even traces of another contaminant can greatly reduce the adsorption rate or capacity. At the Dublin TCE Site, trichloroethylene, vinyl chloride and other chlorinated hydrocarbons are present in the groundwater. Therefore, the effectiveness of the carbon adsorption on TCE may, in fact, be decreased with increasing vinyl chloride concentration.

When considered as a single contaminant, the adsorption properties of vinyl chloride are not as great as the adsorption properties of trichloroethylene. If trichloroethylene is degraded into vinyl chloride in the groundwater, the vinyl chloride concentration will increase while the trichlorethylene concentration will decrease. If all of the TCE disappeared and only vinyl chloride was left in the groundwater, more carbon may be necessary for vinyl chloride treatment than for TCE treatment.

Moreover, EPA decided not to use carbon adsorption as the proposed remedial alternative not only due to the vinyl chloride considerations, but also due to possible bacteria formation and fouling of the carbon bed which would require additional operation and maintenance.

- A PRP stated that the comment made in the FFS indicating that the carbon system used in this alternative would include two carbon units in series and, therefore, would be similar to the existing in-house systems was misleading because the actual carbon unit used in this alternative would be larger and would possibly involve more equipment.

EPA RESPONSE: EPA does not believe this statement is misleading because EPA indicates that the unit would be similar to the in-house units because it would consist of two units in series. No mention of size or piping was made.

- A PRP states EPA did not consider off-site regeneration of the spent activated carbon used for the treatment of extracted groundwater (i.e., liquid-phase carbon treatment).

EPA RESPONSE: EPA agrees with the PRP that off-site regenerated carbon is often more cost-effective than on-site regenerated carbon or disposal of spent carbon in a landfill. Section 2.4.3.1 of the FFS was not clear in its description of the disposal and regeneration of activated carbon. Review of the Cost of Remedial Action module for liquid-phase carbon adsorption indicates that off-site regenerated carbon, was, in fact, used to determine the costs for this alternative. The discussion of disposal and regeneration of activated carbon in the FFS actually refers to vapor-phase carbon. In the calculations of vapor-phase carbon costs for EPA's preferred alternative, disposable carbon was used because it was calculated to be the least expensive of the two "disposal/regeneration" alternatives. Although it was not explicitly stated in the CORA manual, it was assumed that the disposed carbon was taken off-site for regeneration rather than disposed of in a landfill. The RCRA land-ban requirements regulate and restrict disposal of this type of waste in a landfill.

- A PRP commented that the data necessary for design of the activated carbon system described in Remedial Alternative 4 of the FFS should be described. For instance, the PRP states that the FFS did not indicate that influent flow rate is one of the dependent variables in calculating the volume of carbon required.

EPA RESPONSE: EPA refers the commenter to Section 2.4.3.2 of the FFS where carbon adsorption treatment is described. The data required for design would include, but not be limited to, contaminant concentration and type, water flow rate, temperature, bacteria concentration, and particulate concentration. This comment does not affect the decision EPA made in this Early Action. The same flow value was used in the cost calculations for each alternative; and, therefore, the costs are comparable to each other.

- A PRP indicated that the FFS states that the effluent of the carbon treatment system described in the FFS should be monitored to ensure that the effluent is "free of contaminants." The PRP indicates that this statement is inconsistent with the remedial goals established for the Site (i.e. MCLs).

EPA RESPONSE: EPA agrees that the statement should read "free from contaminants in excess of the remedial goals."

- A PRP indicated that the statement made in the FFS that air stripping costs are low compared to other physical and chemical treatment options is not necessarily true because air stripping may require off-gas treatment.

EPA RESPONSE: EPA believes that the statement made in the FFS is accurate. EPA indicated only that air stripping alone would be less expensive than other treatment technologies. Vapor-phase treatment was discussed further down in Section 2.4.3.2 of the FFS. EPA does recognize that air stripping with vapor-phase carbon adsorption treatment may be more expensive than other technologies. This is indicated in the cost comparisons of the air stripping with vapor-phase carbon adsorption treatment alternative and the liquid-phase carbon adsorption treatment alternative.

- A PRP states that the FFS does not provide detail regarding whether the air stripper gas would be preheated to reduce its relative humidity making it difficult to verify the capital and operating costs.

EPA RESPONSE: The CORA cost modules description indicates that the vapor stream is at 100% relative humidity and 50 F. Both the regenerable and non-regenerable systems compared in this module use a pre-heater on the vapor stream to reduce the relative humidity prior to discharge into the carbon units.

- A PRP stated that the FFS did not indicate that large amounts of electrical energy would be required for Alternative 6 in the FFS and that this would increase the operational costs significantly.

EPA RESPONSE: The costs listed for UV oxidation are based on use of this technology at other sites. The costs do incorporate electrical energy. The costs for UV oxidation are not significantly higher than any other comparable alternative evaluated. The costs estimated by the PRP are actually lower than EPA's estimated costs.

- A PRP stated that in the FFS EPA mislead the reader by stating that this alternative "would completely destroy the contamination within the groundwater". The PRP states that UV Oxidation would only destroy the contamination in the extracted groundwater.

EPA RESPONSE: EPA agrees that UV Oxidation will only destroy the contamination in the extracted groundwater. EPA believes that the technology was fully described in Section 2.4.3.3 indicating that only the extracted water would be treated and

not the entire plume of contamination. EPA also states in Section 1.1 that the primary purpose is to supply a clean drinking water source, not to address the final remedial actions at the Site including the final groundwater remediation.

- A PRP questions the evaluation of UV technology when the FFS does not identify whether this technology can meet the remedial goals (i.e., MCLs).

  EPA RESPONSE: The NCP (p.8849, March 8, 1990) states that innovative technologies shall be developed for further consideration if those technologies offer the potential for comparable or superior performance or implementability. EPA believes, based on the UV oxidation treatability studies conducted at other sites, that this technology has the potential for performance comparable to the other technologies evaluated.

- A PRP indicated that EPA incorrectly identified local noise regulation as a potential ARAR and that EPA's failure to evaluate local noise regulation as "to be considered" information is inconsistent with the NCP and the RI/FS guidances.

  EPA Response: The penultimate sentence in Section 3.6.5 of the FFS will be amended to read: "Local noise regulation is to be considered as an ARAR in this evaluation".

- A PRP indicates that EPA made an assumption that groundwater cleanup levels for the Site require MCLs in the evaluation of alternatives in the FFS and that this is not an assumption because MCLs were previously identified as ARARs.

  EPA RESPONSE: The PRP is correct that MCLs are ARARs.

- A PRP commented that the FFS report did not state whether Alternative 3 would comply with action-specific ARARs regarding off-gas treatment for air strippers.

  EPA RESPONSE: Alternative 3 would not need to meet any ARARs with regard to off-gas treatment because this alternative involves the use of liquid-phase carbon adsorption systems which do not emit any off-gas.

- A PRP indicated that the disposal of treated well development waters resulting from the installation of a new well as described in Section 3.5.3 is not discussed in Section 3.5.5, Regulatory and Institutional Analysis. Also, the PRPs indicate that the National Pollutant Discharge Elimination System (NPDES) might be an ARAR for this waste.

EPA RESPONSE: Section 3.5.5 should indicate that these wastes will meet all ARARs. NPDES is evaluated in the ROD.

- A PRP stated that EPA did not perform the evaluations required in the CERCLA Compliance with Other Laws Manual when identifying the ARARS in Appendix A of the FFS. The PRP stated that if EPA had performed this evaluation that EPA would have concluded that OSWER directive 9.355.0-28 does not require the use of air pollution controls because Dublin is not in an ozone non-attainment area.

EPA RESPONSE: EPA disagrees with this comment. Dublin Borough is in an ozone non-attainment area and therefore, OSWER Directive 9355.0-28 is to be considered an ARAR for the Record of Decision. Because a location for the well proposed in Alternative 6 of the Proposed Plan has not yet been determined, it is impossible to establish whether an air treatment system would be required under the Federal requirements. State regulations (25 PA Code 127.14) do require emission controls on any new source which is not exempt under the code. The emission controls must use best available technology as determined by PADER. Vapor phase treatment under State regulations may be exempt if the source is considered minor. Since EPA does not know what the emission levels will be at this point, a conservative approach was taken and it was assumed that this regulation is an ARAR. The information listed on Administrative Record page AR300770 was not used for purposes of the FFS and ARAR evaluation because it is out-dated. USEPA did not determine the risk levels associated with air pollution because it has not yet been determined what the concentration levels or the location of the emission point will be.

G. Questions/Concerns on FFS and Proposed Plan

1. . Structure/Format of Reports

- A PRP commented that the FFS report does not follow the format and structural requirements specified in the RI/FS guidance and that the evaluation criteria that were utilized in the FFS are not consistent with the requirements of the NCP and the RI/FS guidance. The PRP states that EPA did not correctly apply the nine criteria in the Proposed Plan.

EPA RESPONSE: The FFS report did not follow the structural guidelines in the RI/FS guidance document. This was to streamline the approach to developing the specific action of providing an alternate water supply to the residents of Dublin. EPA disagrees that the evaluation criteria were not consistent with the requirements of the NCP. Although the FFS had a different format, the evaluation criteria are consistent with the evaluation criteria described in the NCP. The

"Engineering" criteria described in the FFS evaluates the "implementability", "short-term effectiveness", "reduction in toxicity, mobility, and volume criteria" as described in the NCP. The "Cost" criteria evaluated in the FFS is identical to the cost criteria described in the NCP. The "environmental" criteria described in the FFS evaluates the "overall protection of human health and the environment", the "long- and short-term effectiveness" and the "reduction in toxicity, mobility, and volume" criteria as described in the NCP. The "public health" criteria uses the "overall protection of human health and the environment" and the "short-term effectiveness" criteria as described in the NCP.

As stated in the NCP, the "State Acceptance" criteria may not be completed until comments on the RI/FS are received but may be discussed in the Proposed Plan (as they were). Community Acceptance criteria may not be completed until the comments on the Proposed Plan are received.

- A PRP stated that the alternative involving blending uncontaminated water with contaminated water discussed in the FFS is randomly included in the body of the report without prior introduction or further consideration.

  EPA RESPONSE: This alternative should have been introduced in Section 2.0 of the FFS. EPA states the reasons why this alternative was not considered further in Section 2.5.

- A PRP stated that because EPA did not evaluate whether additional residences could be incorporated into Remedial Alternative 1 (EPA is assuming that the PRP is referring to the No Action alternative as Alternative 1 although it is not clearly stated in its comments) and did evaluate this in Alternatives 2 through 6, EPA was inconsistent in its evaluation.

  EPA RESPONSE: EPA evaluated the No Action alternative in the "Identification and Preliminary Screening" Section of the FFS and determined that this alternative would not be carried into the detailed analysis section. EPA stated that it would address the ease of adding additional homes to the system only for those alternatives carried into the detailed analysis section.

- A PRP stated that the evaluation of the no-action alternative in the FFS was brief and resulted in the elimination of this alternative prior to the detailed analysis of alternatives and that detailed analysis of the No Action alternative is a procedural requirement of the NCP. Therefore, the PRP suggests that the FFS issued by EPA is inconsistent with the NCP.

EPA RESPONSE: Detailed analysis is required of only a limited number of alternatives that represent the most viable approaches to remedial action after evaluation in the screening stage. Because the No Action alternative would not meet the basic risk level and ARARs determined in this early action, it was eliminated from the evaluation. In the FFS, development and screening of alternatives was incorporated into one section, Section 2.0.

- A PRP commented that the No Action alternative was not clearly evaluated in the FFS with respect to effectiveness, implementability and cost criteria. In particular, the PRP believes that the data supporting the effectiveness of this remedial action, as provided in the Removal Action currently being performed at the Site, should be incorporated in the FFS report.

EPA RESPONSE: The data supporting the effectiveness of the carbon adsorption systems, as of June 1991, was incorporated into Appendix B of the FFS report. The cost information is provided in Table 3-3 of the FFS report. Effectiveness of carbon adsorption is described in detail in section 2.4.3.1. The implementability of this alternative is discussed in Section 3.4.

- A PRP believes that the discussions in the FFS of access agreements for this alternative should be located in Section 3.4.5 as opposed to Section 3.4.1. The PRPs also indicate that EPA was inconsistent with the NCP and RI/FS guidance because EPA did not consider the ability to obtain access agreements; EPA only identified the need to obtain access agreements.

EPA RESPONSE: EPA believes that the discussion of access agreements under Section 3.4.1 is appropriate. EPA further believes that it was not necessary to discuss the ability to obtain access because of the progress made by the PRP to obtain access as a requirement of the Consent Order executed by Sequa Corporation and PADER. The Engineering Analysis section not only deals with the technical implementability but administrative implementability as well. Discussions in Section 3.4.5 are limited only to Federal, State, and local regulations which may be appropriate to a particular alternative. The NCP does indicate that the administrative feasibility be taken into consideration when evaluating alternatives. The alternative discussed in Section 3.4 of the FFS would be much more difficult to implement from an administrative viewpoint than the other alternatives discussed in the FFS because many more access agreements would be necessary.

2. Background and Assumption Information

- A PRP commented that the Proposed Plan was incorrect in stating that the Bucks County Health Department discovered concentrations of TCE up to 1,000 ppb in 23 and that approximately 170 residences were affected. The PRP indicates that the correct numbers are 24 and 174, respectively and that a total of 38 samples were taken.

  EPA RESPONSE: EPA does not find a significant difference in the statements made by the PRP and by EPA in the Proposed Plan to warrant concern. EPA agrees that of the approximately 170 residences that were affected, the majority of these were from the Whistlewood apartment complex.

- A PRP stated that the value of 104 feet/year for groundwater velocity that was used in the FFS is an estimate and should be used with caution.

  EPA RESPONSE: EPA agrees that this value is an estimate. The Proposed Plan is not a substitute for the FFS or any documentation in the Administrative Record. Review of the Weston document does indicate that this value is an assumption. Because EPA recognizes this value as an estimate, EPA conservatively incorporated monitoring of residences outside the area determined to be potentially affected so that even if this value is significantly overestimated, the public will be adequately protected.

- A PRP stated that EPA incorrectly estimated the water demand in the FFS by using the lowest per capita consumption figure referenced and an incorrect residence occupancy figure and that this incorrect estimate could affect the long-term effectiveness of any remedial alternative which utilizes point source water supplies, and could result in a water supply system with inadequate capacity and in an underestimation in costs. The PRP indicated that EPA did not consider the inherent phenomenon of increased water use when residences switch from individual wells to a public water system.

  EPA RESPONSE: EPA believes that the water usage value used in the FFS is conservative, but also recognizes that this value is only an estimate and that a more accurate value will be developed during the design phase of remedy implementation.

  Only 20% by volume of the total water usage estimate is based on calculated water consumption. This portion of the total estimate is based on calculations for 46 residences and 4 businesses for which actual data was unavailable. The remaining eighty percent by volume of the total water usage estimate is based on actual data supplied by the Borough of Dublin and the residents of Dublin. EPA believes that Dublin Borough uses significantly less water than the averages presented in the guidance documents based on a review of the

actual data provided by the Borough.

In addition, the total water usage value calculated for water capacity is 45,338 gallons/day but EPA conservatively rounded this figure off to 50,000 gallons/day. Therefore, even if the residences and businesses do increase their consumption by 10% after switching from private to public water supply, the estimate would still be reliable.

EPA believes that the consumer would probably use less water when hooked to a public system because public systems typically charge consumers for water usage. In fact, in Dublin Borough because of necessary water conservation measures, residences supplied with public water have to pay increased rates for any amount of water used over the 60 gallon/day/person limit.

Although the PRP indicates here that EPA may have underestimated the costs of a public distribution system in this statement, in additional comments to EPA, the PRP does an extensive evaluation of EPA's cost and comes to the conclusion that EPA has, in fact, overestimated the costs.

- A PRP made several statements regarding the hydrogeological and soil information presented in the FFS. The PRP indicated that there are not any bedrock outcrops even though reports referenced in the FFS state that geological information was determined based on outcrop locations outside the Borough. The PRP indicated that USEPA did not consider recently available published literature which reclassifies the bedrock units. Also, the PRP disagrees with the statement in the FFS indicating the soil types located at the Site. The PRP also disagrees with the manner by which the soil gas and soil contaminants were reported in the FFS.

  EPA RESPONSE: EPA reiterates that the purpose of the FFS was not to fully define the characteristics of the Site, including geology, soils and extent of contamination. EPA does not believe that the information provided by the PRP affects its decision in this Early Action, although EPA recognizes that this information may be useful in the performance of the RI/FS.

  EPA does not find any contradiction in the statements made by the PRP and the FFS in terms of outcrop locations. The FFS refers to outcrops outside of the Borough while the PRP refers to an absence of outcrops within the Borough.

- A PRP stated that the FFS report was inconsistent in that it stated that "0.06 ppb of PCE was measured during pump tests on the well [Borough Well No. 3] in 1989" whereas a report by Mercuri and Associates (1988) indicates that 0.9 ppb of PCE

was detected in a sample collected in August 1988.

EPA RESPONSE: The values stated in the FFS are incorrect. The statement should read: "Although the most recent sampling of the Borough Well #3 showed no volatile organic contamination, 0.9 ppb of PCE was measured during pump tests conducted on the well in 1988 (Hydrogeological Study, Mercuri & Assoc.)". EPA does not believe that this correction has an impact on its decision in this Early Action.

H. Coordination with State and Local Agencies

- One commenter, who was supportive of the proposed alternative, wanted to know if EPA was working with Hilltown Township Officials at least on a preliminary basis during this early stage and also wanted to know if EPA would recommend any special testing of the wells located on Quarry Road at the present time.

  EPA RESPONSE: EPA has notified Hilltown Township officials of the Early Action and the upcoming RI/FS. Hilltown Township as well as Bedminster Township officials have been put on the EPA mailing list for the Dublin TCE Site and will receive copies of the Record of Decision for this action as well as any future fact sheets or EPA information on this Site. Although EPA would not recommend sampling of wells on Quarry Road at the present time due to the Dublin TCE Site, this sampling will be considered during the implementation of the RI/FS.

- Representatives from the Commonwealth of Pennsylvania stated that PADER already has an agreement with a PRP to complete an investigation and remediation of the groundwater and provide a public water supply which PADER intends to enforce.

  EPA RESPONSE: EPA is currently working with PADER in implementing the RI/FS and this Early Action while keeping the Commonwealth order on track. As PADER stated, the PADER and EPA have a good working relationship at this Site and will continue to work together throughout the investigation and remedy implementation phases of the project.

- Dublin Borough expressed concern that Section 1402 of the Borough Code may not allow a PRP or an EPA contractor to lawfully build a water system and then turn the system over to Dublin Borough because Section 1402 requires competitive bidding in public works. Dublin Borough is concerned that if the Borough allowed a PRP to construct the system, then it may constitute preferential treatment.

  Dublin Borough stated that the Borough itself has the authority and expertise to design, bid, construct and operate

Alternative 6 and is in a much better position to build such a system than a private corporation.

EPA RESPONSE: If the work is performed under Superfund, EPA would be required to use a competitive bidding process for subcontracted work. Therefore, the construction of the water system and its dedication to the Borough would not violate Section 1402 of the Borough Code. If the Borough wants to conduct the work as a subcontractor, it can submit a bid to the PRPs for their consideration.

- Dublin Borough expressed concern that implementation of the Preferred Alternative would involve the creation of a new water authority or agreement reached between Dublin Borough and the party implementing the remedy. If an agreement was negotiated, Dublin Borough would require a settlement on costs and complications associated with implementation, compliance with Ordinance No. 200, the Tapping Fee Ordinance, the Plumbing Code, and several other concerns including operation and maintenance (O& M).

  EPA RESPONSE: The original intent of Alternative 6 was for the party implementing the remedy to come to an agreement with Dublin Borough over the payment of the costs for the O&M of the treatment system so that Dublin Borough could perform O&M of the well, treatment system, water mains, etc. as part of its O&M duties on the existing public distribution system.

  If an agreement cannot be reached, then a separate water authority would be established. If a separate water authority were established, the remedy would need to be re-designed so that it would operate a distribution system separate from the existing Dublin Borough public distribution system.

  EPA prefers that the PRPs implement remedy. The Ordinances will be complied with to the best of EPA's ability, however, these ordinances do not constitute ARARs since they do not relate to cleanup standards.

- One commenter explained that the Pennsylvania Department of Transportation (DOT) is proposing to reconstruct Highway 313, which extends the entire length of the Borough, and asked what could be done to avoid tearing up the new road.

  EPA RESPONSE. EPA hopes to be able to work with DOT and the Borough to come up with the best engineering solution. EPA does not want to tear up a newly laid road. One possibility is to design the water main and install it prior to putting in the treatment system and the well.

- Dublin Borough's understanding is that this Early Action addresses only the supply of water to the affected properties

and the aquifer clean-up will be addressed in the next several phases. Dublin Borough is concerned that Alternative 6 could put the Borough into the long-term business of site clean-up. Dublin Borough does not want to be held liable for the clean-up and expressed concern that this action could bankrupt the Borough. Dublin Borough does not want this Early Action to be the overall site cleanup and does not want EPA, PADER or the PRPs to claim at a future date that this preferred alternative is a part of the operable unit of overall site clean-up.

EPA RESPONSE: Although this preferred alternative, when implemented, will extract and clean the contaminated groundwater prior to discharge to the expanded public distribution system, it will not be designed as a complete groundwater remediation and containment system. It is possible, although not probable, that this one well could act as the complete groundwater remediation system. The answer will be determined at the conclusion of the Remedial Investigation/ Feasibility Study (RI/FS). Dublin Borough, not having been identified as a PRP, will not be responsible for the costs of O&M for this Early Action or for the costs or implementation of any future actions. The primary purpose of Alternative 6 is to provide a clean permanent source of drinking water to the affected parties at or near the Dublin TCE Site and the well, treatment system, water mains, etc. will be designed with this purpose in mind.

- Dublin Borough expressed concern that EPA defines "clean-up" in the FFS as 30 years and that PADER defines "clean-up" as the time until the contamination reaches a background level.

EPA RESPONSE: The primary purpose of this remedy is to provide the residents with clean drinking water as defined by the SDWA. The use of 30 years is an estimate of the time it will take for the ground water extracted from the new well to reach a level that is acceptable according to the SDWA so that the treatment system can be removed. This is only an estimate for costing purposes. The treatment system called for in this ROD will remain on the well as long as it is required to attain the SWDA level. PADERs "background" level addresses the overall groundwater remediation and not the supply of a drinking water source. Therefore, if it takes 30 years to clean the TCE to 5 ppb, then operation of the treatment system on the new well would cease under this action. The overall groundwater remedy action may require that the treatment on the water from this well continue until the background levels are reached. If this is necessary, it would be covered under a separate action for groundwater remediation, not this action which relates to the establishment of an alternative water supply. EPA/PADER or the PRPs would pay for this under the overall remedy for the site.

I. Superfund Enforcement Process

- A citizen wanted to know how long it would take to implement the proposed plan for early action and how long EPA estimates it will take to compel the PRPs to pay for the action.

  EPA RESPONSE: EPA has the authority to order a PRP to perform the remedy or EPA can implement the remedy itself.

  Enforcement efforts will begin when EPA sends the PRPs "special notice letters," in which EPA requests that the PRPs participate in the implementation of the remedy. EPA allows the PRPs 60 days from the date of receipt of the special notice letters to submit to the Agency a "good faith offer," stating their willingness to perform the work. The good faith offer also shows EPA that the PRPs are financially capable of implementing the remedy.

  Once EPA receives the good faith offer, the parties have another 60 days in which to negotiate an agreement to implement the remedy. At the end of that time, if the PRPs have not agreed to implement the remedy, or if the PRPs are not financially capable of doing so, EPA has several alternatives. One alternative is to proceed to implement the remedy, financed by the Superfund. Another alternative is to issue a "unilateral administrative order," in which EPA demands that the PRPs implement the remedy. Or, EPA may implement the remedial design and then order PRPs to implement the remedial action.

  In the proposed plan for early action, EPA noted that Alternative Six would take from 12 to 15 months to implement. Implementation will begin after EPA has come to an agreement with the PRPs, or after EPA has decided that there will be no agreement.

- Several commenters stated that EPA can either sign an order with the PRPs, use the Superfund or issue a Section 106 Order for the PRPs to implement the remedy. If the PRPs do not comply with the Section 106 order then they are subject to treble damages and a $25,000 per day civil penalty for every day of violation. One commenter wanted to know why EPA does not use this authority to get the job done faster rather than waiting the 120 days to receive a good faith offer and negotiate an agreement. This commenter wants to know why EPA does not use "Prosecutorial Discretion". This commenter believed this was important not only for the public but also because of the work being planned by PENNDOT for resurfacing Route 313.

  EPA Response: The statute directs the Agency, through the President, to offer PRPs an opportunity to negotiate a

settlement if it would "expedite remedial action." Once such special notice is issued, the Agency "may not commence any action" for the 120 day negotiation moratorium. The ultimate decision on how to finance this remedy, however, is at EPA's discretion; and, EPA will not make any such determinations at this time.

APPENDICES A, B AND C

DUBLIN TCE EARLY ACTION ROD

AR301643

APPENDIX B

DRAFT

DUBLIN TCE
ADMINISTRATIVE RECORD FILE *
INDEX OF DOCUMENTS

I. SITE IDENTIFICATION

1. Report: A Water Resources Study of the Dublin Area, Dublin, Pennsylvania, prepared by International Exploration, Inc., 5/7/84. P. 100001-100066.

2. Report: Analysis of Hydrologic Data gathered in 1984 for the Dublin Study Area, prepared by International Exploration, Inc., 2/12/85. P. 100067-100142.

3. Quarterly Review of Dublin Hydrologic Data, April 1985 - June 1985, 7/5/85. P. 100143-100173.

4. Quarterly Review of Hydrologic Data, July 1985 - September 1985, 10/8/85. P. 100174-100203.

5. Quarterly Review of Hydrologic Data, October 1985 - December 1985, 1/86. P. 100204-100228.

6. Quarterly Review of Hydrologic Data Collected in Dublin Borough, January 1986 - March 1986, 4/15/86. P. 100229-100284.

7. Quarterly Review of Hydrologic Data, Dublin Borough, April 1986 - June 1986, 7/28/86. P. 100285-100308.

8. Letter to Ms. Lori Acker, U.S. EPA, from Mr. Everett C. Hogg, County of Bucks, Department of Health, re: Tabulation of TCE analysis results for samples collected from wells in Dublin Borough, 8/29/86. P. 100309-100369. The following are attached:

   a) four handwritten TCE sample result forms;
   b) a map of Dublin;
   c) a handwritten memorandum dated September 2, 1986 regarding the data;
   d) a handwritten memorandum regarding Dublin Borough's wells;
   e) two ground water contour maps;
   f) a hydrologic monitoring locations map;
   g) a map illustrating the largest consumers of ground water;

* Administrative Record File available 8/5/91.

h) a map illustrating the monitor well locations surrounding the Rosenelli Test well;
i) a monitor well data sheet;
j) special analyses report, sample numbers 111108-13, 0111116-17, 0111119-24, 0161129-36, 0161149-52, 0161171-82, and 1161202;
k) Quality Control Laboratory, Inc., report numbers 86024522, 86023626, 86024875, 86024422;
l) two water quality analysis reports;
m) a well water sample report.

9. Report: Preliminary Assessment of Dublin Water Supply Site, prepared by NUS Corporation, 12/23/88. P. 100370-100778.

10. Report: Site Inspection Using Available Information of Dublin Water Supply, prepared by NUS Corporation, 8/9/89. P. 100779-101224.

11. National Oil and Hazardous Substance Contingency Plan, The National Priorities List Revisions: Amendment, Proposed Rule Public Docket Index - Update #10, 10/26/89. P. 101225-101226.

12. Letter to Mr. Larry Reed, U.S. EPA, from Mr. John P. Judge, Cohen, Shapiro, Polisher, Shiermen and Cohen, re: Supplemental public comment of Sequa Corporation to proposed listing of Dublin, Pennsylvania TCE Site on the National Priorities List, 6/15/90. P. 101227-101448.

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III. REMEDIAL RESPONSE PLANNING

1. Report: Report of Hydrogeologic Analysis of the Borough of Dublin, Groundwater Supply Wells, prepared by Mercuri and Associates, Inc., 4/87. P. 300001-300080.

2. Report: Results of Soil Sampling Program, prepared by BCM Engineers, Inc., 3/88. P. 300081-300147. A transmittal letter is attached.

* 3. Exhibit List-H: Cost Study-Dublin Borough Water System, 8/8/88. P. 300148-300155.

* 4. Exhibit List-B: Geaghty & Miller Map, 8/11/88. P. 300156-300258.

5. Report: Results of Groundwater Investigation, prepared by BCM Engineers, Inc., 10/88. P. 300259-300311. A transmittal letter is attached.

6. Delaware River Basin Commission, Application for Approval of a Proposed Groundwater Withdrawal, 11/28/88. P. 300312-300509. A hydrogeological analysis of the Rosenelli well report is attached.

* 7. Exhibit List II-O: Recent information, test, etc., 4/89. P. 300510-300523.

8. Letter to Mr. George C. Elias, Delaware River Basin Commision, from Mr. John F. Fabian, PADER, re: Approval of Water Supply Application No. 0989504, 6/1/89. P. 300524-300524.

9. Letter to Mr. Robert E. Day-Lewis, Pennsylvania Department of Environmental Resources (PADER), from Mr. John Philip Diefender, Stuckert and Yates, re: Exhibits to proceedings, 7/26/89. P. 300525-300525.

10. Letter to Mr. Robert Day-Lewis, PADER, from Ms. Barbara J. Rudnick, Mercuri and Associates, Inc., re: Confirmation of discussion on ground water, 9/18/89. P. 300526-300526A.

* Only relevant portions of this document have been reproduced. The complete document can be found at U.S. EPA Region III, Philadelphia, PA.

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11. Letter to Mr. John P. Diefenderfer, Stucker and Yates, from Mr. Anderson Lee Hartzell, PADER, re: Proposed permitting of the Rosenelli well in Dublin, 9/19/89. P. 300527-300529.

12. Letter to Mr. Luther L. Wonsidler, Dublin Borough, from Mr. Lewis Luchie, PADER, re: Water Supply Permit No. 0989504, 9/21/89. P. 300530-300536. The following are attached:

    a) Public Water Supply Permit No. 0989504;
    b) notification regarding quarterly analysis for trichloroethylene;
    c) Agreement between PADER and the Borough of Dublin in the issuance of the permit;
    d) letter regarding site visit;
    e) a Dublin Borough well data printout.

13. Letter to Dr. Bruno Mercuri, Mercuri and Associates, Inc., from Mr. Robert E. Day-Lewis, PADER, re: Agreement on location of monitoring well, 9/27/89. P. 300537-300537.

14. Agreement between the Borough of Dublin and PADER, 10/2/89. P. 300538-300539.

15. Letter to Mr. Robert Day-Lewis, PADER, from Ms. Barbara A. Dolce and Mr. Robert A. Saar, Geraghty and Miller, Inc., re: Additional information concerning ground water recovery and treatment on or near the 120 Mill Street property, 10/19/89. P. 300540-300545. Table 1 - Water and Trichloroethene (TCE) Volumes in Contaminated Areas, Dublin Borough, Pennsylvania and Table 2 - Pumping Rates for Remediation of High Concentration Area near 120 Mill Street Property, Dublin Borough, Pennsylvania are attached.

16. Letter to Mr. Robert E. Day-Lewis, PADER, from Mr. John A. Garges, BCM Engineers, Inc., re: Confirmation of a telephone conversation concerning the Thompson water tower leak, 1/10/90. P. 300546-300546.

17. Report: Hydrogeologic Analysis of Dublin Borough Wells no. 1 and no. 2, Consultant's Report for the Year 1989, prepared by Mercuri and Associates, Inc., 3/90. P. 300547-300759.

18. Letter to Mr. John H. Thompson, Thompson Organization, from Mr. William H. Jolly, PADER, re: Confirmation of results for investigation regarding release of TCE contaminated water, 3/27/90. P. 300760-300767. The following are attached:

    a) letter regarding the investigation of the Thompson water tank;
    b) a Statement of Conditions Building Permit #90-873-BZP;
    c) hand drawn map of a contaminant chamber;
    d) Application for Permit for Erection of New Building or Alternation of Addition to an Existing Building;
    e) memorandum regarding a daily report of activity at the Thompson tank;
    f) hand drawn map of Thompson tank;

19. Letter to Dr. Robert A. Saar, Geraghty and Miller, Inc., from Mr. Robert E. Day-Lewis, PADER, re: Comments regarding the Conceptual Remedial Alternatives Work Plan, 3/28/90. P. 300768-300769.

20. Letter to Mr. Mark J. Vasoli, Dublin Borough, from Mr. William D. Kee, Cowan Associates, re: Estimate of operation and maintenance costs for the proposed water treatment plant, 4/18/90. P. 300770-300777. The cost estimates and a water distribution system map are attached.

21. Letter to Mr. John Diefenderfer, Stuckert and Yates, from Mr. William D. Kee, Cowan Associates, Inc., re: Comments to a site investigation, 4/18/90. P. 300778-300780.

22. Report: Results of Source Investigation, 120 Mill Street Site, Dublin Borough, Pennsylvania, prepared by Geraghty and Miller, Inc., 6/90. P. 300781-300937. A transmittal letter is attached.

* 23. Report: Cost of Remedial Action, prepared by CH2M Hill, 7/12/90. P. 300938-300998. A transmittal letter is attached.

* Only relevant portions of this document have been reproduced. The complete document can be found at U.S. EPA Region III, Philadelphia, PA.

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24. Letter to Mr. Larry Reed, U.S. EPA, from Mr. Leon T. Gonshur, PADER, re: Consent Order and Agreement between PADER and Sequa Corporation, 7/26/90. P. 300999-301011. The Consent Order and Agreement is attached.

25. Letter to Mr. Mark Vasoli, Borough of Dublin, Mr. John P. Diefenderfer, Stuckert and Yates, and Mr. William Kee, Cowan and Associates, re: Comprehensive report on drilling and construction of a TCE monitoring well, 8/15/90. P. 3011012-301014. The TCE monitoring well report is attached.

26. Letter to Ms. Diane Walker, U.S. EPA, from Mr. John P. Judge, Cohen, Shapiro, Polisher, Shiekman, and Cohen, re: Response of Sequa Corporation to letter dated August 22, 1990, 10/26/90. P. 301015-301076. A response letter dated October 24, 1990 and exhibit A: Source Investigation Work Plan 120 Mill Street Site and Conceptual Remedial Alternatives for the Bedrock Aquifer Underlying Dublin Borough, Pennsylvania are attached.

27. Letter to Mr. Edwin B. Erickson, U.S. EPA, from Mr. John Philip Diefenderfer, Stuckert and Yates, re: Recovery cleanup at the Dublin Site, 12/11/90. P. 301077-301117. The following are attached:

    a) letter by EPA in response to the December 11, 1990 correspondence;
    b) letter regarding the estimate of operation and maintenance (O and M) cost for the proposed Water Treatment Plant (WTP);
    c) Operating and Maintenance Manual;
    d) two Thompson/Sequa TCE Removal System maps.

28. Letter to Mr. Philip Rotstien, U.S. EPA, from Mr. J. Vasoli, Borough of Dublin, re: Monitoring well TCE test results, 2/9/91. P. 301118-301120. A letter regarding a laboratory report and a laboratory sample results form are attached.

29. Memorandum to file from Mr. Mark J. Vasoli, Borough of Dublin, re: Organic volatile test results, 2/21/91. P. 301121-301126. Two Certificates of Analysis, two Chemical or Radiological Analysis Input forms, and a Chain of Custody are attached.

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30. Memorandum to Ms. Diane Walker, U.S. EPA, from Mr. David M. Kargbo, U.S. EPA, re: Review of March 1990 Hydrogeologic Analysis of Wells 1 and 2, 3/19/91. P. 301127-301129.

31. Phone Conversation Record of Mr. Mark Vasoli, Borough of Dublin, with Ms. Diane Walker, U.S. EPA, re: Public distribution system, 5/22/91. P. 301130-301131.

32. Phone Conversation Record of Ms. Susan Coburn, Whistlewood Apartment Complex, with Ms. Diane Walker, U.S. EPA, re: Structure and capacity of the water production well, 5/23/91. P. 301132-301132.

33. Phone Conversation Record of Mr. David Shapowal, Thompson Toyota, with Ms. Diane Walker, U.S. EPA, re: Wells located at 120 Mill Street, 5/23/91. P. 301133-301133.

34. Letter to Ms. Diane J. Walker, U.S. EPA, from Mr. Mark J. Vasoli, Borough of Dublin, re: Map with borough properties currently tied into the public water system, 5/29/91. P. 301134-301135. The map is attached.

35. Letter to Ms. Diane Walker, U.S. EPA, from Mr. Thomas R. Hartnett, PADER, re: Preliminary list of Applicable or Relevant and Appropriate Requirements (ARARs), 6/3/91. P. 301136-301138.

36. Phone Conversation Record of Mr. Mark Vasoli, Borough of Dublin, with Ms. Diane Walker, U.S. EPA, re: Water line construction estimates, 6/10/91. P. 301139-301139.

37. Letter to Mr. Mark Vasoil, Borough of Dublin, from Ms. Diane Walker, U.S. EPA, re: Water line construction estimates, 6/12/91. P. 301140-301144. The cost estimates are attached.

38. Phone Conversation Record of Mr. Bruno Mercuri, Mercuri and Associates, Inc., with Ms. Diane Walker, U.S. EPA, re: Information about the public distribution system, 6/13/91. P. 301145-301147.

39. Phone Conversation Record of Mr. Mark Vasoli, Borough of Dublin, with Ms. Diane Walker, U.S. EPA, re: Water usage in the borough, 6/21/91. P. 301148-301149.

40. Letter to Ms. Diane J. Walker, U.S. EPA, from Mr. John Philip Diefenderfer, Stuckert and Yates, re: Dublin Borough Ordinance No. 205, 6/26/91. P. 301150-301156. The ordinance is attached.

41. Memorandum to file from Ms. Diane Walker, U.S. EPA, re: A January 18, 1991 meeting to discuss water usage, (undated). P. 301157-301157.

42. Memorandum to Ms. Diane Walker, U.S. EPA, from Mr. Anderson Lee Hartzell, PADER, re: Consent Order and agreement between PADER and Sequa Corporation, (undated). P. 301158-301169. The Consent Order is attached.

43. Map of Dublin, (undated). P. 301170-301171. A partial list of wells in Dublin from a report entitled Pennsylvania Department of Internal Affairs, Groundwater Resources of Bucks County, PA is attached.

IV. REMOVAL RESPONSE PROJECTS

1. Memorandum to Mr. Gerry Heston, U.S. EPA, from Mr. Mark Tucker, Roy F. Weston, Inc., re: Carbon efficiency, 8/19/86. P. 400001-400010.

2. U.S. EPA Incoming Spill Report, Dublin Water Supply, 8/27/86. P. 400011-400011.

3. Trichloroethylene (TCE) Factual Information Sheet, prepared by Chemical Information Systems, Inc., 8/29/86. P. 400012-400018.

4. Letter to Ms. Lori Acker, U.S. EPA, from Mr. Everett C. Hogg, County of Bucks, re: Transmittal of TCE analysis results, 8/29/86. P. 400019-400023. The results are attached.

5. Pollution Report #1, Dublin Water Supply, 9/9/86. P. 400024-400025.

6. Pollution Report #2, Dublin Water Supply, 9/9/86. P. 400026-400027.

7. Hazardous Waste Site Investigation and Emergency Response Safety Plan, prepared by Roy F. Weston, Inc., 9/10/86. P. 400028-400034.

8. Memorandum to Mr. Jay Rodstein, U.S. EPA, from Mr. Greg Janice and Mr. Peter Harnett, Roy F. Weston, Inc., re: Background information on Dublin TCE Site, 9/15/86. P. 400035-400089.

9. Pollution Report #3, Dublin Water Supply, 9/15/86. P. 400090-400091.

10. Memorandum to Mr. Jay Rodstein, U.S. EPA, from Mr. Greg Janice and Mr. Peter Harnett, Roy F. Weston, Inc., re: Transmittal of Scope of Work, 9/18/86. P. 400092-400095. The Scope of Work is attached.

11. Pollution Report #4, Dublin Water Supply, 10/6/86. P. 400096-400097.

12. Pollution Report #5, Dublin Water Supply, 10/6/86. P. 400098-400099.

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13. Pollution Report #6, Dublin Water Supply, 10/9/86. P. 400100-400101.

14. Pollution Report #7, Dublin Water Supply, 10/19/86. P. 400102-400103.

15. Pollution Report #8, Dublin Water Supply, 10/22/86. P. 400104-400105.

16. Memorandum to Mr. Charles J. Walters, U.S. EPA, from the Acting Director, Department of Health & Human Services, re: Health consultation for Dublin Water Supply, 10/23/86. P. 400106-400117.

17. Pollution Report #9, Dublin Water Supply, 11/7/86. P. 400118-400119.

18. Letter to Mr. John N. Thompson from Mr. Walter E. Stanley, Jr., PADER, re: Results of sampling tests, 11/12/86. P. 400120-400121.

19. Pollution Report #10, Dublin Water Supply, 11/18/86. P. 400122-400124.

20. Pollution Report #11, Dublin Water Supply, 11/21/86. P. 400125-400126.

21. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Robert C. Brod, BCM Engineers, Inc., re: Residential well sampling plans, 11/25/86. P. 400127-400328.

22. Tap Water Summary, Dublin TCE Site, 12/2/86. P. 400329-400342.

23. Letter to Ms. Deane Bartlett, U.S. EPA, from Mr. Brian J. McCullough, Connolly, Chandor & McAndrews, re: Comments on BCM's proposal, 12/30/86. P. 400343-400357. The Proposal for Groundwater Contamination Investigation and Remediation Plan is attached.

24. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Michael Galvin, Versar, Inc., re: Split sampling results, 1/12/87. P. 400358-400361. A data summary sheet and a chain of custody form are attached.

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25. Memorandum to Mr. Michael Mason, U.S. EPA, and Mr. Robert Young, PADER, from Mr. Peter G. Noll, County of Bucks, re: Comments on ground water monitoring proposal, 2/5/87. P. 400362-400362.

26. Letter to Ms. Deane H. Bartlett, U.S. EPA, from Mr. Brian J. McCullough, Connolly, Chandor & McAndrews, re: Ground water sampling, 3/11/87. P. 400363-400368.

27. Letter to Ms. Deane H. Bartlett, U.S. EPA, from Mr. Robert C. Brod, BCM Engineers, Inc., re: Transmittal of draft Work Plan, 3/27/87. P. 400369-400377.

28. Letter to Ms. Deane H. Bartlett, U.S. EPA, from Mr. Steven F. Kemp, BCM Engineers, Inc., re: Transmittal of Work Plan, 5/21/87. P. 400378-400386.

29. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Steven F. Kemp, BCM Engineers, Inc., re: Transmittal of Work Plan, 5/21/87. P. 400387-400389.

30. Consent Agreement and Order, In the Matter Of: Dublin TCE Site, John H. Thompson, Respondent, Docket No. III-87-22-DC, 6/29/87. P. 400390-400398.

31. Report: Revised Hydrogeologic Investigation Plan for Thompson Property, prepared by BCM Engineers, Inc., 7/87. P. 400399-400415.

32. Letter to Mr. Steven F. Kemp, BCM Engineers, Inc., from Mr. Robert O. Young, PADER, re: Revised hydrogeologic investigation plan, 8/31/87. P. 400416-400418.

33. Letter to Mr. Robert Wallace, Funk Water Quality Company, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Installation of water treatment systems, 9/2/87. P. 400419-400423.

34. Letter to Mr. Robert O. Young, PADER, from Mr. Steven F. Kemp, BCM Engineers, Inc., re: Soil vapor survey results, 11/18/87. P. 400424-400431.

35. Tap Water Summary, Dublin TCE Site, 12/1/87. P. 400432-400439.

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36. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Results of tap water sampling, 1/15/88. P. 400440-400444.

37. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Steven F. Kemp, BCM Engineers, Inc., re: Work Plan implementation, 1/19/88. P. 400445-400457.

38. Report: Assessment of Source Contamination in Whistlewood Apartment Complex Water Supply Well, prepared by Roy F. Weston, Inc., 2/15/88. P. 400458-400495.

39. Tap Water Sampling Results, Dublin TCE Site, 2/2/88. P. 400496-400676.

40. Memorandum to Ms. Henrietta Woodward, U.S. EPA, from Mr. Cornelius F. Carr, U.S. EPA, re: File accessibility, 3/88. P. 400677-400680.

41. Memorandum to Mr. Michael Mason, U.S. EPA, from Mr. Daniel K. Donnelly, U.S. EPA, re: Transmittal of analytical reports, 3/30/88. P. 400681-400684.

42. Letter to Mr. John Galligan, Jr., John Galligan and Sons, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Filter renewal in Dublin, 4/7/88. P. 400685-400686.

43. Letter to Mr. Steven F. Kemp, BCM Engineers, Inc., from Mr. Robert E. Day-Lewis, PADER, re: Soil sampling program, 4/8/88. P. 400687-400687.

44. Letter to Mr. Bob Day-Lewis, PADER, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Monitoring well location modification, 4/21/88. P. 400688-400689.

45. Letter to Mr. Michael Mason, U.S. EPA, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Sampling results, 4/22/88. P. 400690-400796.

46. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. Scott Slagley, Versar, Inc., re: Transmittal of analytical results of the volatile organics analysis samples, 7/25/88. P. 400797-400814.

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47. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Summary of tap water sampling results, 8/18/88. P. 400815-400830. The results are attached.

48. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. Scott A. Slagley, Versar, Inc., re: Results of volatile organics water samples analysis, 8/24/88. P. 400831-400834.

49. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. Scott A. Slagley, Versar, Inc., re: September monthly report, 10/4/88. P. 400835-400845. The report is attached.

50. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. Robert J. Wyatt, BCM Engineers, Inc., re: Results of tap water sampling, 11/8/88. P. 400846-400949. The results are attached.

51. Tap Water Residential Sampling Data, 12/6/88. P. 400950-400958.

52. Memorandum to Mr. Eric Johnson, U.S. EPA, from Mr. Daniel K. Donnelly, U.S. EPA, re: Results of volatile organics analysis, 1/4/89. P. 400959-400966. The results are attached.

53. Memorandum to Mr. Eric Johnson, U.S. EPA, from Ms. Theresa A. Simpson, U.S. EPA, re: Review of organic data, 2/8/89. P. 400967-400998. The review is attached.

54. Memorandum to Mr. Eric Johnson, U.S. EPA, from Mr. Daniel K. Donnelly, U.S. EPA, re: Volatile organics analysis report, 5/2/89. P. 400999-401007. The report is attached.

55. Letter to Ms. Mary Letzkus, U.S. EPA, from Mr. John A. Garges and Mr. John V. Interrante, BCM Engineers, Inc., re: Transmittal of analytical results for tap water sampling, 5/12/89. P. 401008-401215. The results are attached.

56. Letter to Mr. Peter Kho, U.S. EPA, from Ms. Virginia H. Pohlman, Versar, Inc., re: Detection differences for TCE, 5/18/89. P. 401216-401217.

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57. Residential water sampling results, 7/21/89. P. 401218-401228.

58. Memorandum to Mr. Peter Kho, U.S. EPA, from Ms. Theresa A. Simpson, U.S. EPA, re: Organic data review, 8/16/89. P. 401229-401290. The review is attached.

59. Letter to Mr. Rich Dolcey, U.S. EPA, from Mr. John A. Garges and Mr. Steffan R. Helbig, BCM Engineers, Inc., re: Transmittal of analytical results for tap water sampling, 8/28/89. P. 401291-401422. The results are attached.

60. Letter to Mr. Peter Kho, U.S. EPA, from Mr. Mark diFeliciantonio, CDM Federal Programs Corporation, re: Data base for work assignment, 8/30/89. P. 401423-401435. The tap water sampling summary is attached.

61. Memorandum to Mr. Eric Johnson, U.S. EPA, from Ms. Theresa A. Simpson, U.S. EPA, re: Organic data review, 9/7/89. P. 401436-401491. The review is attached.

62. Letter to Ms. Jean Cooper, U.S. EPA, from Mr. Paul Wooldridge, Versar, Inc., re: Transmittal of sample shipping log and chain of command records, 9/11/89. P. 401492-401495. A shipping log and two records are attached.

63. Memorandum to Mr. Peter Kho, U.S. EPA, from Mr. Daniel K. Donnelly, U.S. EPA, re: Volatile organics report, 10/16/89. P. 401496-401522. The report is attached.

64. Letter to Mr. Edwin Erickson, U.S. EPA, from Mr. John Philip Diefenderfer, Stuckert and Yates, re: Comments on the Consent Order, 6/25/90. P. 401523-401530.

65. Letter to Mr. John P. Diefenderfer, Stuckert and Yates, from Mr. Dennis P. Carney, U.S. EPA, re: Response to letter of June 25th and comments on the Consent Order, 9/5/90. P. 401531-401532.

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66. Letter to Mr. Kenneth Kryszczun, U.S. EPA, from Mr. Charles Walters, Agency for Toxic Substances and Disease Registry, re: Transmittal of Draft Preliminary Health Assessment, 10/23/90. P. 401533-401557. The report and a letter are attached.

67. Dublin TCE Site, Work Plan, (undated.) P. 401558-401565.

68. Modification to the Consent Agreement and Order of June 29, 1987 Between United States of America and John H. Thompson, Docket No. III-87-22-DC, 4/91. P. 401566-401567.

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V. COMMUNITY INVOLVEMENT/CONGRESSIONAL CORRESPONDENCE IMAGERY

1. Letter to the Honorable Peter H. Rostmayer, U.S. House of Representatives, from Mr. Edwin B. Erickson, U.S. EPA, re: Progress of activity by EPA at the Dublin TCE Site, 10/18/90. P. 500001-500007. A copy of the letter with concurrences and a transmittal letter regarding the site is attached.

2. Letter to the Honorable Peter H. Rostmayer, U.S. House of Representatives, from Mr. Edwin B. Erickson, U.S. EPA, re: Alternative options for the water supply for residents whose wells may be affected by contamination from the site, 5/15/91. P. 500008-500011. A copy of the letter with concurrences, a letter concerning a focus feasibility study and payments of costs related to cleanup, and a transmittal letter regarding the site are attached.

3. Letter to Ms. Elaine Spiewak, U.S. EPA, from Mr. Mark diFeliciantonio, CDM Federal Programs Corporation, re: Fact Sheet for Dublin TCE Site, 5/17/91. P. 500012-500020. The fact sheet is attached.

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SITE SPECIFIC GUIDANCE DOCUMENTS INCLUDED

1. "Ultraviolet Light, Researchers Use UV Light for VOC Destruction," Hazmat World, 5/90.

2. Bucks County Water Supply Inventory, prepared by Bucks County Planning Commission, 12/88.

3. The Hazards of Using Point-of-Use Water Treatment Devices Employing Activated Carbon, prepared by Health and Welfare Canada, 12/80.

4. "Bacteria Associated with Granular Activated Carbon Particles in Drinking Water," Applied and Environmental Microbiology, 9/86.

5. "Growth and Persistence of Pathogens on Granular Activated Carbon Filter," Applied and Environmental Microbiology, 12/85.

6. Air Stripper Design Manual, prepared by Research Triangle Institute, 5/90.

7. Technology Evaluation Report: SITE Program Demonstration of the Ultrox International Ultraviolet Radiation/Oxidation Technology, 1/90.

8. Ultrox International Ultraviolet Radiation/Oxidation Technology, Applications Analysis Report, 9/90. EPA/540/A5-89/012

9. Point-of-Entry Drinking Water Treatment Systems for Superfund Applications, prepared by PEI Associates, Inc., 6/89. EPA/600/2-89/027

10. Environmental Pollution Control Alternatives Drinking Water Treatment for Small Communities, 5/90. EPA/625/5-90/025.

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BIBLIOGRAPHY OF SITE SPECIFIC GUIDANCE DOCUMENTS

1. A Guide to Selecting Superfund Remedial Actions, 4/1/90.
   OSWER #9355.0-27FS

2. Control of Air Emissions from Superfund Air Strippers at Superfund Groundwater Sites.
   OSWER #9533-0-2B

3. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, prepared by OSWER/OERR, October 1, 1988.
   OSWER #9355.3-01

4. A Compendium of Technologies Used in the Treatment of Hazardous Wastes, prepared by ORD/CERI, September 1, 1987.
   EPA-625/8-87/014

5. Carbon Absorption Isotherms for Toxic Organics, prepared by R.A. Dobbs, MERL, and J.M. Cohen, MERL, April 1, 1980.
   EPA-600/8-80-023

6. Handbook Remedial Action at Waste Disposal Sites (Revised), prepared by ORD/HWERL and OSWER/OERR, October 1, 1985.
   EPA-625/6-85/006

7. Guidance Document for Providing Alternate Water Supplies, prepared by OERR, February 1, 1988.
   OSWER #9355.3-03

8. Remedial Action Costing Procedures Manual, prepared by JRB Associates/CH2M Hill, ORD/MERL, and OSWER/OERR, October 1, 1987.
   EPA-600/8-87/049

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TABLES 1 THROUGH 5

DUBLIN TCE EARLY ACTION ROD

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Table 1
Affected or Potentially Affected Residences and Businesses
Known to-date

North Main Street	Property Owner	Occupancy	Water Usage (gpd)
105	DellaBadia	Business	500**
106	Dairy Queen	Business	100-314+
112	Rhine Station	Business	37-60+
113	Hinsdale	Residence	160**
115	Boyle	Residence	160**
116	Occhi	Residence	160**
117	Buchanan	Residence	160**
119	Hirst	Residence	160**
122	Rufe	Residence	160**
123	Emico	Business	B-931-1200, A-100-160+
124	Meyers	Residence	160**
126	Meyers	Residence/Business	300**
128	Fluck	Residence	160**
131	Evans	Post Office	160**
130	Moyer	Residence/Business	A-200-300+ B-54-199+
133	McVaugh	Business	900-1500+
133W.	Jacobs	Residence	160**
138	Moyer	Business	160**
139	Bishop	Business	37-52+
142	First Federal	Business	21-47+
145	Bucks Bank	Business	95-241+
146	Whistlewood	Residences	16000-17000+
149	Grady	Residence	160**
150	Daniel	Residence	160**
153	Myrick	Residence	160**
161	Shopping Cnt	Businesses	6000+
164	Haring	Residence	160**
169	Southland	Business	179-251+
170	Tenley	Residence	900-1900+
173	Myers	Residence	160**
174	James	Residence/Business	170-215+
179	Crouthamel	Residence/Business	500**
183	Moyer	Business	2235-2670+
194	Dublin Fire	Business	1000+
Mill Street			
104	Farm Bureau	Business	500**
120	Thompson/LTI	Business	1- 300**@ 2- 73-106+ 3-127-311+ 4-972-1200+

TABLE 1 (continued)

Maple Street			
100	Shultz	Residence	160**
104	Buchanan	Business/Residence	500**
108	Williams	Residence	160**
110	Bishop	Residence	160**
112	Klemco	Business	160**
114	Klembeth	Residence	160**
116	Rice	Residence	160**
118	HilltownInvest	Business	160**
120	Detweiler	Residence	160**
122	Vasconez	Residence	160**
126-132	Shaddinger	Residence	223-288+
134	Schilling	Residence	160**
136	Kohl	Residence	160**
Elephant Road			
111	Stauffer	Residence	160**
113		Residence	160**
114	Slaymaker	Residence	160**
115	Grace	Residence	160**
116	Black	Residence	160**
118	Black	Residence	160**
119	Hess	Residence	160**
139	Meyers	Residence	160**
141	Gahman	Residence	160**
146	Moyer	Residence	160**
147	Detweiler	Residence	160**
149	Fair	Residence	160**
150	Detweiler	Residence	160**
151	Sulpizio	Residence	160**
152	Rush	Residence	160**
153	Hager	Residence	160**
154	Fretz	Residence	160**
155	Worthington	Residence	160**
156	Blichasz	Residence	160**
South Main Street			
101	Dublin Inn	Business	302-364+

KEY
*Bourough Hydrogeologist's Estimate
** EPA Estimate based on similar use and Guidance Documents
+ Dublin Bourough Actual Measurements
A and B refer to two wells on site
1,2,3 and 4 refer to point measurments of water usage
@ - water supply no longer in use

Table 2

Residents and Businesses for Monitoring Program
Known to-date

South Main Street

103
105
106

Maple Street

111
113
119
121
123
127
131
Woodedge Apts.

Cherry Lane

105
107
111
115
119
121

Elephant Road

162
164
166
168
172
174
178

Deep Run Road

101
103
105
108
109
110
112
111
114

TABLE 2 (continued)

Middle Road

104
105
111
112
115
116
117

Rickerts Road

Hilltown Township

Home at corner of Rickerts and North Main Street
3304
3234
3232
3224
3212
3206
3132
3126
3020
3000
2930

Dublin Borough

Dublin Acres
State Police

Frontier Road

215
217

Table 3

Contaminant	Remedial Action Level (ppb)	Maximum On-Site Level (ppb)
1,1,1-Trichloroethane+	200[a]	53.8
Trichloroethylene	5[a]	10,000
Tetrachloroethylene	5[a]	13
1,1-Dichloroethylene	7[a]	9.8
cis-1,2-Dichloroethylene*	70[a]	14.7
trans-1,2-Dichloroethylene*	100[a]	7.4
Vinyl Chloride	2[a]	28

Notes:

a- Maximum Contaminant Level
*- Compounds have not exceeded the MCLs in the groundwater at the Site but are degradation products of Trichlorethylene and Tetrachlorethylene and, thus, may increase in concentration over time
+- Compound has not exceeded MCL

TABLE 4
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

Law, Regulations or Standard	Source of Regulation	Description	Alternative Affected
FEDERAL			
Safe Drinking Water Act	Safe Drinking Water Act, 40 CFR 141 through 143	This Act establishes maximum contaminant levels (MCL) and MCL goals (MCLG) at levels that would result in no known or potential adverse health affects. MCLs are enforceable health goals. In addition, this Act establishes guidelines for secondary drinking water standards.	This Act affects all alternatives.
Standards of Performance for New Stationary Source	Clean Air Act, 40 CFR 60	These regulations establish the general provisions and performance standards for stationary sources of air emissions.	These regulations affect the alternative 6 and 7.
National Ambient Air Quality Standards(NAAQS)	Clean Air Act, 40 CFR 50	These standards define levels of air quality which are necessary to protect public health. Standards have been established for sulfur oxides, particulate matter, carbon monoxide, ozone, nitrogen dioxide, and lead.	These standards affect the alternative 7.
National Emission Standard for Hazardous Air Pollutants (NESHAPs)	Clean Air Act, 40 CFR 61, Subpart F	This regulation establishes emission levels for vinyl chloride.	This regulation affects alternatives 6 and 7.

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TABLE 4
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)
(continued)

Law, Regulations or Standard	Source of Regulation	Description	Alternative Affected
FEDERAL			
Hazardous Waste Management System: General	**40 CFR 260, et.sq.**	RCRA regulates the generation, transport, storage, treatment, and disposal of hazardous wastes. CERCLA § 104(c)(3)(B) specifically requires that hazardous substances generated from remedial action be disposed of at facilities in compliance with Subtitle C of RCRA.	RCRA Subtitle C affects alternatives 4, 5, and and 6.
Resource Conservation and Recovery Act (RCRA)	**RCRA Subtitle C § 3002 40 CFR 262, Part 264 Subpart B-H, Part 268**	Section 262 establishes standards for generators of hazardous wastes. This section requires that generators comply with the requirements for identification, accumulation, recordkeeping, and reporting. Section 264 establishes standards for the operation of hazardous waste treatment, storage and disposal facilities. Section 268 establishes restrictions on the land disposal of hazardous waste.	These regulations affect alternatives 4, 5, and 6.

AR301669

AR301670

TABLE 4
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)
(continued)

Law, Regulations or Standard	Source of Regulation	Description	Alternative Affected
STATE			
Community Environmental Control Regulations	PA 25 Code Section 109.202(1), 109.201(2), 109.203, 109.503	This Chapter sets forth drinking water quality standards at least as stringent as federal standards: maximum contaminant levels (MCLs), and additional state requirements: secondary maximum contaminant levels and health advisories for those compounds lacking MCLs for public water systems including permit design and construction, source quality and siting requirements.	This regulation affects all all alternatives.
Air Quality Control Regulations	PA 25 Code Section 127.12(a)(5), 127.14, 123.31	This Chapter on "Construction, Modification, Reactivation and Operation of Source" requires the use of Best Available Technology (BAT) for control of new sources, plan approval and operating permit requirements, and special requirements for sources in nonattainment areas.	This regulation affects alternative 6 and 7.
Waste Management Regulations	PA 25 Code Section 261.24, 273.421, 75	These chapters set forth the requirements for the handling of residual and other waste and for the determination of hazardous waste by the Toxic Characteristic Leaching Procedure Pennsylvania has been delegated to implement most but not all of federal RCRA regulations.	This regulation affects alternatives 4,5 and 6.

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TABLE 4
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)
(continued)

Law, Regulations or Standard	Source of Regulation	Description	Alternative Affected
FEDERAL			
RCRA and DOT standards applicable to transporters of of hazardous waste.	RCRA Subtitle C § 3003, 40 CFR 263 and 49 CFR 171 through 180	These regulations establish the responsibilities of generators and transporters of hazardous waste in the handling, transportation and management of such wastes. These regulations concern manifesting, labeling, using proper containers, recordkeeping, and reporting discharges.	These regulations affect alternatives 4, 5, and 6.
RCRA Air Emission Standards for Process Vents	RCRA 40 CFR 264 Subpart AA	The regulations set forth establish requirements for the reduction of of organic emissions from process vents used at a facility.	Affects Alternative 6.
Occupational Safety and Health Act (OSHA)	29 CFR 1910	This Act establishes guidelines, requirements, and regulations to provide for the health and safety of of workers conducting remedial action activities.	This Act affects all alternatives.
Delaware River Basin Commission	18 CFR 430	This regulation establishes requirements for the extraction of groundwater within the Delaware River Basin. As a general rule, this regulation requires that permits be obtained for wells which extract more than 10,000 gpd from a point source in groundwater protection areas.	This regulation will affect alternatives 2, 3, 5, 6, and 7.

TABLE 4
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)
(continued)

Law, Regulations or Standard	Source of Regulation	Description	Alternative Affected
To Be Considered			
EPA Office of Solid Waste and Emergency Response Directive	Directive 9355.0-28	Procedures for determining the risk associated emissions from Superfund Air Strippers at Superfund Groundwater Sites	This procedure will apply to alternative 6.

AR301672

TABLE 5

COST SUMMARY

ALTERNATIVE	CAPITAL ($)	O&M ($)	PRESENT WORTH* ($)
1	0	0	0
2	2,200,000	138,000	2,600,000
3	2,600,000	169,000	3,300,000
4	100,000	390,000	2,800,000
5	3,000,000	250,000	4,500,000
6	3,100,000	300,000	5,000,000
7	3,100,000	260,000	4,600,000

* Present Worth Costs are estimated over a 30 year period at a 10% discount rate

APPENDIX C

through 6/91

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE(5ug/L II=5to260ug/L III=TCE)260ug/L	BCM(PRP) PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR(EPA oversight) BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)
1 DUBLIN HARDWARE, 105 N. MAIN	NONE		N	III	Trichloroethene	08-05-86		27.0	-		-	-						
					Tetrachloroethene	08-05-86		2.0	-		-	-						
	TOTAL	Y			Trichloroethene	12-01-86		31.2	-		(1.0	-						
					Trichloroethene	12-01-87	729309,11	9.6	14.9	729302.0	9.6	-						
					Trichloroethene	03-02-88		14.3	-		9.5	-	-	-	-	3-105905	16.0	-
					Trichloroethene	06-06-88		(1.0	-		(1.0	-						
					Trichloroethene	09-06-88		43.9	-		(1.0	-						
					Trichloroethene	12-05-88		97.9	-		2.6	-						
					Trichloroethene	03-07-89		190.0	-		34.0	-						
					Trichloroethene	06-01-89		348.0	-		14.8	-						
					Trichloroethene	09-06-89		201.0	-		(1.0	-						
					Trichloroethene	12-04-89		216.0	-		(1.0	-	5120-C-05	(1.0	-	-	-	-
					Methylene Chloride	12-04-89		-	-		-	-	5120-C-05	4.68	-	-	-	-
					Chloroform	03-05-90		-	-		-	-	900307-04	2.58	-	-	-	-
					1,1-Dichloropropene	03-05-90		-	-		-	-	900307-04	0.88	-	-	-	-
					Trichloroethene	03-05-90		186.0	-		(1.0	-	900307-04	165	-	-	-	-
					Tetrachloroethene	03-05-90		-	-		-	-	900307-04	1.68	-	-	-	-
					Trichloroethene	06-04-90		184.0	-		2.7	-						
					Trichloroethene	09-04-90		149.0	-		4.2	-						
					Trichloroethene	12-03-90		129.0	-		11.3	-	5927C-03	242.0L	-	5927C-02	14.2	-
					Trichloroethene	03-04-91		191.0	-		21.2	-						
					Trichloroethene	06-07-91		112.0	-		13.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
3 BRISTLEWOOD APTS, 107 N. MAIN	HOUS		N	III	Trichloroethene	06-11-86		420.0	-		-	-						
					1,1,1-Trichloroethane	06-11-86		3.0	-		-	-						
					Trichloroethene	06-17-86		500.0	-		-	-						
					Trichloroethene	11-26-86		11.9	-		ND	-						
	TOTAL	N			Bromodichloromethane	12-22-87	A31413	<1.0	-	A31413	3.0	-						
					Bromoform	12-22-87	A31412	<1.0	-	A31413	10.5	-						
					cis-1,3-Dichloropropene	12-22-87	A31412	<1.0	-	A31413	8.6	-						
					Trichloroethene	12-22-87	A31412	306.0	-	A31413	1.6	-						
					Vinyl Chloride	12-22-87	A31412	1.8	-	A31413	<1.0	-						
					Trichloroethene	02-29-88		379.0	-		<1.0	-						
					Trichloroethene	06-07-88		342.0	-		<1.0	-	-	-	-	3-105911	9.3	-
					Trichloroethene	09-06-88		76.6	-		<1.0	-						
					Trichloroethene	12-05-88		266.0	-		<1.0	-						
					Trichloroethene	03-07-89		262.0	-		<1.0	-						
					Trichloroethene	06-01-89		212.0	-		<1.0	-						
					Trichloroethene	09-06-89		198.0	-		<1.0	-						
					Trichloroethene	12-05-89		506.0	-		<1.0	-						
					Chloroform	03-06-90		-	-		-	-	900307-15	2.2B	-	-	-	-
					Trichloroethene	03-06-90		249.0	-		<1.0	-	900307-15	12.9B	-	-	-	-
					Tetrachloroethene	03-06-90		<5.0	-		<1.0	-	900307-15	<1.0	-	-	-	-
					Vinyl Chloride	03-06-90		<5.0	-		<1.0	-	900307-15	<1.0	-	-	-	-
					Trichloroethene	06-04-90		592.0	-		<1.0	-	5429-C-11	410.0L	-	5429-C-09	<1.0	-
					Bromoform	06-04-90		592.0	-		-	-	5429-C-11	<1.0	-	5429-C-09	8.4L	-
					Bromodichloromethane	06-04-90		-	-		-	-	5429-C-11	<1.0	-	5429-C-09	1.3L	-
					Dibromochloromethane	06-04-90		-	-		-	-	5429-C-11	<1.0	-	5429-C-09	4.7L	-
					1,2-Dichloroethene	06-04-90		-	-		-	-	5429-C-11	14.9L	-	5429-C-09	<1.0	-
					1,1,1-Trichloroethane	06-04-90		-	-		-	-	5429-C-11	2.7L	-	5429-C-09	<1.0	-
					Trichloroethene	09-04-90		313.0	-		<1.0	-	900905-09	378.0	-	-	-	-
					1,1-Dichloroethene	09-04-90		-	-		-	-	900905-09	0.2J	-	-	-	-
					1,1-Dichloroethane	09-04-90		-	-		-	-	900905-09	0.2J	-	-	-	-
					cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-09	14.7	-	-	-	-
					1,1,1-Trichloroethane	09-04-90		-	-		-	-	900905-09	2.4	-	-	-	-
					Tetrachloroethene	09-04-90		-	-		-	-	900905-09	0.2J	-	-	-	-
					Trichloroethene	12-03-90		612.0	-		<1.0	-	5927C-09	612.0L				
					1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-09	0.3	-	-	-	-
					Trichloroethene	03-04-91		487.0	-		<1.0	-						
					Trichloroethene	06-07-91		133.0	-		0.7	-						

AR301675

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=PCE<5ug/L II=5to260ug/L III=PCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
3 BARNES GULF, 112 N. MAIN	NONE		N	I/II	Trichloroethene	07-02-86		4.5	-		-	-						
		Y			Trichloroethene	11-26-87		11.9	-		-	-						
	POU				Trichloroethene	12-01-87	729313	2.2	-	729314.0	2.5	-						
					Trichloroethene	02-29-88		2.6	-		<1.0	-						
					Trichloroethene	06-07-88		<1.0	-		<1.0	-						
					Trichloroethene	09-06-88		<1.0	-		<1.0	-	-	-	-	4084C-14	<1.0	-
					Trichloroethene	12-05-88		3.1	-		<1.0	-						
					Chloroform	03-06-89		-	-		-	-	-	-	-	890308-19	1.2	-
					Trichloroethene	03-06-89		1.5	-		<1.0	-	-	-	-	890308-19	11.1	-
					Trichloroethene	06-01-89		1.6	-		<1.0	-	-	-	-	4678C-6	<1.0	-
					Trichloroethene	09-05-89		<1.0	-		<1.0	-						
					Trichloroethene	12-04-89		<1.0	-		NA	-	5120-C-04	<1.0	-	-	-	-
					Methylene Chloride	12-04-89		-	-		-	-	5120-C-04	3.8B	-	-	-	-
					Trichloroethene	03-05-90		1.4	-		NA	-						
	NONE				Trichloroethene	06-04-90		1.3	-		-	-						
					Trichloroethene	12-03-90		1.8	-		-	-						
					Trichloroethene	06-06-91		1.5	-		-	-						
4 BINSDALE, 113 N. MAIN	NONE	N	N	II	Trichloroethene	07-15-86		9.4	-		-	-						
					Trichloroethene	12-01-86		17.3	-		-	-						
					Methylene Chloride	12-01-87	729342	1.5	-		-	-						
					trans-1,2-Dichloroethene	12-01-87	729342	2.7	-		-	-						
					Trichloroethene	12-01-87	729342	34.5	-		-	-						
	DU				Trichloroethene	03-22-88		15.6	-		-	-						
					Trichloroethene	06-06-88		11.0	-		-	-						
					Trichloroethene	09-06-88		74.0	-		-	-	4084C-8	<1.0	-	-	-	-
					Chloroform	09-06-88		-	-		-	-	4084C-8	2.2	-	-	-	-
					Trichloroethene	12-06-88		67.2	-		-	-						
					Trichloroethene	03-07-89		78.3	-		-	-						
					Trichloroethene	06-01-89		19.3	-		-	-	4678C-9	28	19	-	-	-
					Trichloroethene	09-06-89		36.6	-		-	-						
					Trichloroethene	12-06-89		65.0	-		-	-						
	TOTAL				Trichloroethene	03-05-90		36.7	-		<1.0	-						
					Trichloroethene	06-04-90		31.6	-		<1.0	-						
					Trichloroethene	12-03-90		30.2	-		<1.0	-						
					Trichloroethene	06-06-91		25.0	-		<1.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POW = Point-of-use)	COLLIGIN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L III=5to200ug/L IV=TCE>200ug/L	DCH PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
5 BOYLE, 115 N. MAIN	HOME		N	II	Trichloroethene	08-05-86		40.0	-		-	-						
	TOTAL	Y			Methylene Chloride	12-01-87	729343	4.8	-	729344	(1.0	-						
					trans-1,2-Dichloroethene	12-01-87	729343	4.1	-	729344	(1.0	-						
					Trichloroethene	12-01-87	729343	43.3	-	729344	(1.0	-						
					Trichloroethene	03-02-88		82.2	-		(1.0	-						
					Trichloroethene	07-07-88		82.1	-		(1.0	-						
					Trichloroethene	09-07-88		82.1	-		(1.0	-	4084C-13	(1.0	-	-	-	-
					Chloroform	09-07-88		-	-		NA	-	4084C-13	31.0	-	-	-	-
					Trichloroethene	12-06-88		96.8	-		(1.0	-						
					Trichloroethene	03-07-89		157.0	-		(1.0	-						
					Trichloroethene	06-01-89		NA	-		(1.0	-						
					Trichloroethene	09-06-89		98.1	-		(1.0	-						
					Trichloroethene	01-16-90		232.0	-		(1.0	-						
					Chloroform	03-05-90		-	-		-	-	900307-12	2.8B	-	-	-	-
					Trichloroethene	03-05-90		237	-		(1.0	-	900307-12	200	-	-	-	-
					Tetrachloroethene	03-05-90		(5.0	-		(1.0	-	900307-12	(1.0	-	-	-	-
					Vinyl Chloride	03-05-90		(5.0	-		(1.0	-	900307-12	(1.0	-	-	-	-
					cis-1,2-Dichloroethene	03-05-90		-	-		-	-	900307-12	10.3	-	-	-	-
					Trichloroethene	06-04-90		127.0	-		(1.0	-	5429-C-13	130.0L	-	5429-C-14	(1.0	-
					1,2-Dichloroethene	06-04-90		-	-		-	-	5429-C-13	3.3L	-	5429-C-14	2.1L	-
					Trichloroethene	12-03-90		112.0	-		(1.0	-						
					Trichloroethene	06-06-91		104.0	-		(1.0	-						
6 HANSEL, 116 N. MAIN	HOME	N	N	III	Trichloroethene	07-02-86		3.3	-		-	-						
					Trichloroethene	11-26-86		4.1	-		-	-						
					Trichloroethene	11-30-87	729188	(1.0	-		-	-						
					Trichloroethene	06-06-88		1.4	-		-	-						
					Methylene chloride	12-06-88		-	-		-	-	13-105929/30	0.2 J	-	-	-	-
					cis-1,2-Dichloroethene	12-06-88		-	-		-	-	13-105929/30	1.5	-	-	-	-
					Trichloroethene	12-06-88		2.7	-		-	-	13-105929/30	1.7	-	-	-	-
					Trichloroethene	06-01-89		288.0	-		-	-	4678C-3	370.0	-	-	-	-
					cis-1,2-Dichloroethene	06-01-89		-	-		-	-	4678C-3	6.5	-	-	-	-
					Trichloroethene	09-06-89		10	(1.0		-	-						
	TOTAL				Trichloroethene	12-04-89		48.6	-		(1.0	-						
					Trichloroethene	03-05-90		(1.0	-		(1.0	-						
					Trichloroethene	06-04-90		(1.0	-		(1.0	-						
					Trichloroethene	09-04-90		(1.0	-		(1.0	-						
					Trichloroethene	12-03-90		(1.0	-		(1.0	-						
					Trichloroethene	03-04-91		10.4	-		(1.0	-						
					Trichloroethene	06-06-91		(1.0	-		(1.0	-						

AR301677

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
7 BUCHANAN, 117 N. MAIN	NONE		N	II	Trichloroethene	07-15-86		15.0	-		-	-						
					Trichloroethene	11-26-86		10.2	-		-	-						
	POU				Methylene Chloride	12-01-87	729336	9.5	-	729337	10.7	-						
					trans-1,2-Dichloroethene	12-01-87	729336	1.4	-	729337	<1.0	-						
					Trichloroethene	12-01-87	729336	7.8	-	729337	<1.0	-						
					Trichloroethene	03-02-88		5.1	-		<1.0	-						
					Tetrachloroethene	03-02-88		<1.0	-		2.6	-						
					Trichloroethene	06-07-88		4.8	-		<1.0	-	-	-	-	3-105906	0.7	-
					Trichloroethene	09-07-88		19.7	-		13.4	-						
					Trichloroethene	12-06-88		27.0	-		42.3	-						
					Trichloroethene	03-07-89		53.1	-		<1.0	-						
					Trichloroethene	06-01-89		3.6	-		<1.0	-	-	-	-	4678C-5	<1.0	-
					Trichloroethene	09-06-89		111	-		<1.0	-						
					Trichloroethene	12-04-89		14.3	-		<1.0	-	-	-	-	5120-C-06	<1.0	<1.0
					Methylene Chloride	12-04-89		-	-		-	-	-	-	-	5120-C-06	2.7B	1.1B
					Trichloroethene	06-04-90		7.9	-		<1.0	-						
					Trichloroethene	12-03-90		11.4	-		<1.0	-						
					Trichloroethene	06-11-91		9.1	-		0.7	-						
8 HIRST, 119 N. MAIN	NONE		N	II	Trichloroethene	07-02-86		19.3	-		-	-						
					Tetrachloroethene	07-02-86		1.0	-		-	-						
					Trichloroethene	11-26-86		34.1	33.8		-	-						
	TOTAL	Y			Methylene Chloride	12-01-87	729338	6.5	-	729339	7.4	-						
					trans-1,2-Dichloroethene	12-01-87	729338	4.8	-	729339	3.0	-						
					Trichloroethene	12-01-87	729338	5.6	-	729339	5.6	-						
					Trichloroethene	03-02-88		19.3	-		14.2	-	-	-	-	3-105831	14.6	-
					Trichloroethene	06-06-88		20.0	-		<1.0	-						
					Trichloroethene	09-07-88		40.6	43.0		<1.0	-						
					Trichloroethene	12-05-88		45.0			<1.0	-						
					Trichloroethene	03-07-89		52.1	-		<1.0	-						
					Trichloroethene	06-01-89		10.0	-		<1.0	-						
					Trichloroethene	09-06-89		16.5	-		<1.0	-						
					Trichloroethene	12-04-89		28.2	MA		<1.0	<1.0	5120-C-09	<1.0	<1.0	-	-	-
					Methylene Chloride	12-04-89		-	-		-	-	5120-C-09	1.2B	1.1B	-	-	-
					Trichloroethene	03-05-90		45	-		<1.0	-						
					Trichloroethene	06-04-90		25.9	-		<1.0	-						
					Trichloroethene	12-03-90		33.3	-		<1.0	-						
					Trichloroethene	06-06-91		9.1	-		<1.0	-						

AR301678

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to200ug/L III=TCE>200ug/L	DCH PARAMETER	DATE	BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
9 ROPE, 122 N. MAIN	NONE			III	Trichloroethene	07-02-86		250.0	-		-	-						
					Trichloroethene	12-02-86		283.0	-		-	-						
	TOTAL	Y	N		1,1,1-Trichloroethane	11-30-87	729171	1.2	-	729172	<1.0	-						
					trans-1,2-Dichloroethene	11-30-87	729171	7.2	-	729172	<1.0	-						
					Trichloroethene	11-30-87	729171	179	-	729172	2.2	-						
					Trichloroethene	01-27-88		195.0	-		<1.0	-						
					Trichloroethene	02-23-88		287.0	-		<1.0	-						
					Tetrachloroethene	02-23-88		5.1	-		<1.0	-						
					Trichloroethene	03-02-88		233.0	248.0		<1.0	-						
					Trichloroethene	04-22-88		170.0	-		<1.0	-						
					Trichloroethene	05-16-88		257.0	-		<1.0	-						
					Trichloroethene	06-07-88		215.0	-		<1.0	-						
					Trichloroethene	07-07-88		267.0	-		<1.0	-						
					Trichloroethene	08-17-88		202.0	-		<1.0	-						
					Trichloroethene	09-06-88		227.0	-		<1.0	-						
					Trichloroethene	10-18-88		223.0	-		<1.0	-						
					cis-1,2-Dichloroethene	12-05-88		-	-		-	-	13-105914/17	0.5 J	-	-	-	-
					Chloroform	12-05-88		-	-		-	-	13-105914/17	1.5	-	-	-	-
					1,1,1-Trichloroethane	12-05-88		-	-		-	-	13-105914/17	0.3 J	-	-	-	-
					Trichloroethene	12-05-88		218.0	-		<1.0	-	13-105914/17	42.8	-	-	-	-
					Trichloroethene	01-26-89		447.0	-		<1.0	-						
					Trichloroethene	02-23-89		333.0	-		5.9	-						
					Vinyl Chloride	02-23-89		25.4	-		<1.0	-						
					Trichloroethene	03-07-89		479.0	-		<1.0	-						
					Trichloroethene	04-25-89		488.0	-		<1.0	-						
					Trichloroethene	05-16-89		546.0	-		<1.0	-						
					Vinyl Chloride	05-16-89		<1.0	-		2.0	-						
					Trichloroethene	06-01-89		516.0	-		<1.0	-						
					Trichloroethene	07-21-89		163.0	-		<1.0	-						
					Trichloroethene	08-10-89		263.0	-		<1.0	-						
					Trichloroethene	09-06-89		342.0	-		<1.0	-						
					Trichloroethene	11-01-89		294.0	-		<1.0	-						
					Trichloroethene	12-04-89		386.0	-		<1.0	-	5120-C-08	4400	-	-	-	-
					Methylene Chloride	12-04-89		-	-		-	-	5120-C-08	30.7B	-	-	-	-
					Chloroform	12-04-89		-	-		-	-	5120-C-08	1.7	-	-	-	-
					Trichloroethene	01-16-90		487.0	-		<1.0	-						
					Trichloroethene	03-06-90		375.0	-		<1.0	-						
					Tetrachloroethene	03-06-90		<5.0	-		<1.0	-						
					Vinyl Chloride	03-06-90		<5.0	-		<1.0	-						
					Trichloroethene	06-04-90		447.0	-		<1.0	-						
					Trichloroethene	09-04-90		368.0	-		<1.0	-	900905-05	467.0	-	900905-06	<1.0	-
					1,1-Dichloroethene	09-04-90		-	-		-	-	900905-05	0.2J	-	900905-06	<1.0	-
					cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-05	2.8	-	900905-06	<1.0	-
					Tetrachloroethene	09-04-90		-	-		-	-	900905-05	0.1J	-	900905-06	<1.0	-
					Trichloroethene	12-03-90		366.0	-		<1.0	-						
					Trichloroethene	03-04-91		332.0	-		<1.0	-						
					Trichloroethene	06-06-91		88	-		5.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
10 EMICO, INC. 123 N. MAIN; FI	NONE			III	Tetrachloroethene	06-23-86		1.0	-		-	-						
					Trichloroethene	06-23-86		360.0	-		-	-						
					1,1,1-Trichloroethane	06-23-86		3.8	-		-	-						
					Trichloroethene	11-26-86		231.0	-		-	-						
					1,1,1-Trichloroethane	11-26-86		1.9	-		-	-						
	EH		N		cis-1,3-Dichloropropene	12-01-87	729307,05	<1.0	2.8		-	-						
					trans-1,2-Dichloroethene	12-01-87	729307,05	3.5	3.9		-	-						
					Trichloroethene	12-01-87	729307,05	126.0	157.0		-	-						
					Trichloroethene	02-29-88		204.0	-		-	-						
					Trichloroethene	06-07-88		147.0	149.0		-	-						
					Trichloroethene	09-06-88		150.0	196.0		-	-						
					Trichloroethene	12-05-88		137.0	-		-	-						
					Trichloroethene	03-07-89		121.0	-		-	-						
					Trichloroethene	06-01-89		284.0	-		-	-						
					Trichloroethene	09-05-89		146	-		-	-	890907-13,14	123.0	129	-	-	-
					1,1-Dichloroethene	09-05-89		-	-		-	-	890907-13,14	9.2	9.8	-	-	-
					1,1-Dichloroethane	09-05-89		-	-		-	-	890907-13,14	2.2J	2.1J	-	-	-
					cis-1,2-Dichloroethene	09-05-89		-	-		-	-	890907-13,14	3.5J	3.1J	-	-	-
					1,1,1-Trichloroethane	09-05-89		-	-		-	-	890907-13,14	53.8	34.8	-	-	-
					1,2-Dichloropropane	09-05-89		-	-		-	-	890907-13,14	27.7	29.4	-	-	-
					Methylene Chloride	09-05-89		-	-		-	-	890907-13,14	<1.0	31.2	-	-	-
					Trichloroethene	12-04-89		156.0	-		-	-						
					Trichloroethene	03-06-90		233.0	-		-	-						
					Trichloroethene	06-04-90		258.0	-		-	-						
					Vinyl Chloride	06-04-90		26.8	-		-	-						
					Trichloroethene	09-04-90		223.0	-		-	-	900905-07	314.0	-	-	-	-
					1,1-Dichloroethene	09-04-90		-	-		-	-	900905-07	0.3J	-	-	-	-
					1,1-Dichloroethane	09-04-90		-	-		-	-	900905-07	0.2J	-	-	-	-
					cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-07	2.2	-	-	-	-
					1,1,1-Trichloroethane	09-04-90		-	-		-	-	900905-07	8.8	-	-	-	-
					Trichloroethene	12-03-90		206.0	-		-	-						
					Trichloroethene	03-04-91		221.0	238.0		-	-						
					Trichloroethene	06-06-91		212.0	-		-	-						

AR301680

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
11 ERICO, INC. 123 N. MAIN; #2	BOOS			III	1,1,1-Trichloroethane	06-23-86		5.9	-		-	-						
					Trichloroethene	06-23-86		500.0	-		-	-						
					1,1,1-Trichloroethane	11-26-86		3.5	-		-	-						
					Trichloroethene	11-26-86		156.0	-		-	-						
	BD		N		1,1,1-Trichloroethane	12-01-87	729306	15.0	-		-	-						
					1,2-Dichloropropane	12-01-87	729306	21.0	-		-	-						
					Methylene Chloride	12-01-87	729306	76.2	-		-	-						
					trans-1,2-Dichloroethene	12-01-87	729306	2.3	-		-	-						
					Trichloroethene	12-01-87	729306	131.0	-		-	-						
					Trichloroethene	02-29-88		282.0	-		-	-						
					Trichloroethene	06-07-88		132.0	133.0		-	-	3-105919	145.0	-	-	-	-
					Methylene Chloride	06-07-88		--	-		-	-	3-105919	7.9	-	-	-	-
					Trichloroethene	09-06-88		167.0	188.0		-	-						
					Trichloroethene	12-05-88		194.0	-		-	-						
					Trichloroethene	03-07-89		230.0	234.0		-	-						
					Trichloroethene	06-01-89		159.0	-		-	-						
					Trichloroethene	09-05-89		197.0	-		-	-						
					Trichloroethene	12-04-89		182.0	-		-	-						
					Chloroform	03-05-90		-	-		-	-	900307-03	2.3B	-	-	-	-
					1,1-Dichloroethene	03-05-90		-	-		-	-	900307-03	3.1	-	-	-	-
					1,1-Dichloropropene	03-05-90		-	-		-	-	900307-03	21.2	-	-	-	-
					Trichloroethene	03-05-90		220.0	-		-	-	900307-03	175	-	-	-	-
					1,2-Dichloropropane	03-05-90		-	-		-	-	900307-03	22.3	-	-	-	-
					Trichloroethene	06-04-90		238.0	-		-	-						
					Trichloroethene	12-03-90		169.0	-		-	-	5927C-06	288.0L	-	-	-	-
					1,1-Dichloroethene	12-03-90		-	-		-	-	5927C-06	1.4	-	-	-	-
					1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-06	15.0	-	-	-	-
					1,2-Dichloropropane	12-03-90		-	-		-	-	5927C-06	4.5	-	-	-	-
					1,1-Dichloroethane	12-03-90		-	-		-	-	5927C-06	0.5	-	-	-	-
					Trichloroethene	06-06-91		135.0	-		-	-						

AR301681

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
12 MYERS TENANT, 124 N. MAIN	NONE			III	1,1,1-Trichloroethane	11-26-86		1.4	-		-	-						
					Trichloroethene	11-26-86		179.0	-		-	-						
	TOTAL	Y	N		trans-1,2-Dichloroethene	11-30-87	729206	1.4	-	729203	<1.0	-						
					Trichloroethene	11-30-87	729206	140.0	-	729203	<1.0	-	30391	160.0	-	30392	<0.5	-
					Trichloroethene	03-02-88		170.0	-		<1.0	-						
					Trichloroethene	06-06-88		162.0	-		<1.0	-						
					Trichloroethene	09-06-88		274.0	-		<1.0	-						
					Trichloroethene	12-06-88		130.0	155.0		<1.0	-						
					Trichloroethene	01-26-89		151.0	-		<1.0	-						
					Trichloroethene	02-23-89		267.0	-		8.1	-						
					Vinyl Chloride	02-23-89		12.3	-		<1.0	-						
					Trichloroethene	03-07-89		172.0	-		<1.0	-						
					Trichloroethene	04-25-89		258.0	-		<1.0	-						
					Trichloroethene	05-16-89		<1.0	-		<1.0	-						
					Trichloroethene	06-01-89		397.0	-		<1.0	-						
					Trichloroethene	07-21-89		124			<1.0							
					Trichloroethene	08-10-89		277	-		<1.0	-						
					Trichloroethene	09-06-89		<1.0	-		<1.0	-						
					Trichloroethene	10-26-89		56.4	-		<1.0	-						
					Trichloroethene	11-09-89		180.0	-		<1.0	-						
					Trichloroethene	01-16-90		209.0	220.0		<1.0	2.6						
					Tetrachloroethene	01-16-90		<1.0	<1.0		<1.0	1.7						
					Chloroform	03-05-90		-	-		-	-	900307-09	2.7B	-	-	-	-
					1,1-Dichloropropene	03-05-90		-	-		-	-	900307-09	2.6B	-	-	-	-
					Trichloroethene	03-05-90		172.0	-		8.8	-	900307-09	147	-	-	-	-
					Tetrachloroethene	03-05-90		<5.0	-		<1.0	-	900307-09	<1.0	-	-	-	-
					Vinyl Chloride	03-05-90		<5.0	-		<1.0	-	900307-09	<1.0	-	-	-	-
					Trichloroethene	06-04-90		255.0	-		<1.0	-						
					Trichloroethene	09-04-90		193.0	-		<1.0	-						
					Trichloroethene	12-03-90		174.0	-		<1.0	-						
					Trichloroethene	03-04-91		166.0	-		<1.0	-						
					Trichloroethene	06-07-91		161.0	-		<1.0	-						

AR301682

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CHLORINATION SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=PCE<5ug/L II=5to260ug/L III=PCE>260ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VRASAR BEFORE TREATMENT SAMPLE NO.	VRASAR BEFORE TREATMENT CONC (UG/L)	VRASAR BEFORE TREATMENT DUP (UG/L)	VRASAR AFTER TREATMENT SAMPLE NO.	VRASAR AFTER TREATMENT CONC (UG/L)	VRASAR AFTER TREATMENT DUP (UG/L)
13 MYERS, 136 N. MAIN	HOME			II	1,1,1-Trichloroethane	12-02-86		12.7	-		-	-						
					Trichloroethene	12-02-86		160.0	-		-	-						
	TOTAL	Y	N		1,1,1-Trichloroethane	11-30-87	729178	9.8	-	729191	<1.0	-						
					Trichloroethene	11-30-87	729178	151.0	-	729191	<1.0	-	30389	190.0	-	30390	<0.5	-
					Trichloroethene	03-02-88		109.0	-		<1.0	-						
					Trichloroethene	06-06-88		109.0	-		<1.0	-						
					Trichloroethene	09-06-88		192.0	-		<1.0	-						
					Trichloroethene	12-06-88		140.0	-		<1.0	-						
					Trichloroethene	03-07-89		<1.0	-		5.1	-						
					Tetrachloroethene	03-07-89		<1.0	-		2.5	-						
					Trichloroethene	06-01-89		61.2	-		<1.0	-						
					Trichloroethene	09-05-89		165	-		<1.0	-						
					Trichloroethene	12-04-89		<1.0	-		<1.0	-	-	-	-	5128-C-10	<1.0	-
					Methylene Chloride	12-04-89		-	-		-	-	-	-	-	5128-C-10	1.28	-
					Trichloroethene	03-05-90		63.9	-		<1.0	-						
					Trichloroethene	06-04-90		48.8	-		<1.0	-						
					Trichloroethene	12-03-90		179.0	-		<1.0	-	5927C-07	290.06	-	-	-	-
					Chloroform	12-03-90		-	-		-	-	5927C-07	7.0	-	-	-	-
					1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-07	13.0	-	-	-	-
					Trichloroethene	06-06-91		99.0	102.0		<1.0	-						

AR301683

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=PCE<5ug/L II=5to260ug/L III=PCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
14 BISHOP, 128 N. MAIN (FLUCE)	NONE			III	Trichloroethene	07-15-86		217.0	-		-	-						
					Trichloroethene	12-02-86		1.6	-		-	-						
	TOTAL	Y	N		1,1,1-Trichloroethane	12-01-87	729334	2.7	-	729335	<1.0	-						
					Chloroethane	12-01-87	729334	<1.0	-	729335	4.0	-						
					Methylene Chloride	12-01-87	729334	13.6	-	729335	<1.0	-						
					trans-1,2-Dichloroethene	12-01-87	729334	10.6	-	729335	<1.0	-						
					Trichloroethene	12-01-87	729334	217.0	-	729335	<1.0	-						
					Trichloroethene	03-02-88		486.0	-		<1.0	-						
					Trichloroethene	06-06-88		390.0	-		<1.0	-	-	-	-	3-105907	9.5	-
					Trichloroethene	07-07-88		293.0	331.0		<1.0	-						
					Vinyl Chloride	07-07-88		16.2	-		14.1	-						
					Trichloroethene	08-17-88		244.0	-		<1.0	-						
					Trichloroethene	09-07-88		308.0	-		<1.0	-	-	-	-	4984C-7	<1.0	-
					Trichloroethene	10-18-88		240.0	-		<1.0	-						
					Trichloroethene	12-06-88		373.0	-		<1.0	-						
					Trichloroethene	01-26-89		329.0	-		<1.0	-						
					Trichloroethene	02-23-89		367.0	-		7.8	-						
					Trichloroethene	03-07-89		352.0	-		<1.0	-						
					Tetrachloroethene	03-07-89		3.1	-		<1.0	-						
					Trichloroethene	04-25-89		420.0	-		<1.0	-						
					Trichloroethene	05-16-89		466.0	-		<1.0	-						
					Trichloroethene	06-01-89		219.0	-		<1.0	-						
					Trichloroethene	07-21-89		<1.0	-		<1.0	-						
					Trichloroethene	08-10-89		252	-		<1.0	-						
					Trichloroethene	09-05-89		356.0	-		<1.0	-						
					Trichloroethene	10-26-89		222.0	-		6.8	-						
					Trichloroethene	11-20-89		202.0	-		<1.0	-						
					Trichloroethene	12-06-89		651.0	-		<1.0	-						
					Trichloroethene	01-16-90		534.0	-		<1.0	-						
					Trichloroethene	03-05-90		821.0	-		<1.0	-						
					Tetrachloroethene	03-05-90		<10.0	-		<1.0	-						
					Vinyl Chloride	03-05-90		<10.0	-		<1.0	-						
					Trichloroethene	06-06-90		508.0	-		<1.0	-						
					Trichloroethene	09-04-90		492.0	-		<1.0	-						
					Trichloroethene	12-03-90		478.0	-		<1.0	-						
					Trichloroethene	03-04-91		706.0	-		<1.0	-						
					Trichloroethene	06-07-91		389.0	-		<1.0	-						

AR301684

NAME, ADDRESS	TYPE OF SYSTEM (POE = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to200ug/L III=TCE>200ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
15 MOTER AUTO BODY, 130 N. MAIN	NONE			II	Trichloroethene	06-23-86		<1.0	-		-	-						
					Trichloroethene	11-26-86		55.1	-		-	-						
	POU	Y	N		1,1,1-Trichloroethane	11-30-87	729182	<1.0	-	729175	1.9	-						
					trans-1,2-Dichloroethene	11-30-87	729182	5.1	-	729175	<1.0	-						
					Trichloroethene	11-30-87	729182	47.6	-	729175	<1.0	-						
					Trichloroethene	03-02-88		<1.0	-		<1.0	-						
					Trichloroethene	06-06-88		41.3	-		<1.0	-						
					Trichloroethene	09-07-88		60.3	-		<1.0	-						
					cis-1,2-Dichloroethene	12-05-88		-	-		-		13-105913/14	.53	-	-	-	-
					Trichloroethene	12-05-88		45.3	-		<1.0	-	13-105913/14	53.3	-	-	-	-
					Trichloroethene	03-07-89		47.5	-		3.8	-						
					Tetrachloroethene	03-07-89		<1.0	-		2.6	-						
					Trichloroethene	06-01-89		44.5	-		<1.0	-						
					Trichloroethene	09-05-89		50	-		<1.0	-	890907-21	42.3	-	890907-20	<1.0	-
					cis-1,2-Dichloroethene	09-05-89		-	-		-	-	890907-21	3.6J	-	890907-20	<1.0	-
					1,1,1-Trichloroethane	09-05-89		-	-		-	-	890907-21	0.9J	-	890907-20	<1.0	-
					Toluene	09-05-89		-	-		-	-	890907-21	3.0J	-	890907-20	<1.0	-
					Trichloroethene	12-04-89		46.9	-		<1.0	-						
					Trichloroethene	03-05-90		37.5	-		<1.0	-						
					Trichloroethene	06-04-90		40.8	-		NA	-						
					Trichloroethene	12-03-90		46.2	-		NA	-	5927C-11	94.0L	-	-	-	-
					1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-11	2.9	-	-	-	-
					Trichloroethene	06-06-91		31.0	-		NA	-						
16 MOTER HOME, 130 N. MAIN	POU	Y	N	II	trans-1,2-Dichloroethene	12-01-87	729182	5.1	-	729315	<1.0	-						
					trans-1,3-Dichloropropene	12-01-87	729182	<1.0	-	729315	5.7	-						
					Trichloroethene	12-01-87	729182	47.6	-	729315	<1.0	-						
					Trichloroethene	03-01-88		28.4	-		<1.0	-						
					Trichloroethene	06-06-88		41.3	-		<1.0	-						
					Trichloroethene	09-07-88		114.0	-		<1.0	-						
					Trichloroethene	12-05-88		43.8	-		<1.0	-						
					Trichloroethene	06-01-89		35.3	-		<1.0	-						
					Trichloroethene	09-05-89		NA	-		<1.0	-	-	-	-	890907-22	<1.0	-
					2-Hexanone	09-05-89		-	-		-	-	-	-	-	890907-22	2.0J	-
					Trichloroethene	01-16-90		40.8	-		<1.0	-						
					Trichloroethene	03-05-90		37.9	-		<1.0	-						
					Trichloroethene	06-06-91		28.0	-		NA	-						

AR301685

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
17 HOYER FLOWER SHOP, 138 N. MAIN	HOME			II	Trichloroethene	11-26-86		85.2	-		-	-						
	TOTAL	Y	N		trans-1,2-Dichloroethene	11-30-87	729180	5.0	-	729199	<1.0	-						
					Trichloroethene	11-30-87	729180	258.0	-	729199	<1.0	-	30397	70.0	-	30398	<0.5	-
					Trichloroethene	02-29-88		28.4	-		<1.0	-	3-105-899,901	49.0	26.0	-	-	-
					Trichloroethene	06-06-88		54.6	52.7		<1.0	-						
					Trichloroethene	09-07-88		41.1	-		<1.0	-						
					Trichloroethene	12-06-88		48.4	-		<1.0	-						
					Trichloroethene	03-07-89		<1.0	-		<1.0	-						
					Trichloroethene	06-01-89		<1.0	-		<1.0	-						
					Trichloroethene	09-06-89		29.3	-		<1.0	-						
					Trichloroethene	12-05-89		58.9	-		<1.0	-						
					Trichloroethene	03-05-90		59.2	-		<1.0	-						
					Trichloroethene	06-04-90		61.2	-		<1.0	-	5429-C-12	56.0L	-	-	-	-
					1,2-Dichloroethene	06-04-90		-	-		-	-	5429-C-12	1.9L	-	-	-	-
					Trichloroethene	12-03-90		42.9	-		<1.0	-						
					Trichloroethene	06-06-91		48.0	-		<1.0	-						
18 DUBLIN GARAGE, 139 N. MAIN	HOME			II	Trichloroethene	08-04-86		17.0	-		-	-						
					Trichloroethene	11-26-86		8.3	-		-	-						
	POU	Y	N		cis-1,3-Dichloropropene	12-21-87	A31384	<1.0	-	A31385	1.9	-						
					Trichloroethene	12-21-87	A31384	4.1	<1.0	A31385	<1.0	-						
					Trichloroethene	02-29-88		5.1	-		<1.0	-						
					Trichloroethene	06-06-88		3.0	-		<1.0	-						
					Trichloroethene	09-06-88		18.7	-		2.2	-						
					cis-1,2-Dichloroethene	12-05-88		-	-		-	-	3-105931/32	1.3	-	-	-	-
					Trichloroethene	12-05-88		10.8	-		<1.0	-	3-105931/32	7.0	-	-	-	-
					Trichloroethene	03-07-89		5.0	-		<1.0	-						
	HOME				Trichloroethene	06-01-89		2.0	-		-	-						
					Trichloroethene	09-06-89		2	-		-	-	890907-15	1.4J	-	-	-	-
	POU				Trichloroethene	12-05-89		2.9	-		<1.0	-						
					Chloroform	03-05-90		-	-		-	-	900307-10	2.3B	-	-	-	-
					Trichloroethene	03-05-90		<5.0	-		<1.0	-	900307-10	6.9B	-	-	-	-
					Tetrachloroethene	03-05-90		<5.0	-		<1.0	-	900307-10	<1.0	-	-	-	-
					Vinyl Chloride	03-05-90		<5.0	-		<1.0	-	900307-10	<1.0	-	-	-	-
					Trichloroethene	06-04-90		2.1	-		NA	-						
					Trichloroethene	12-03-90		<1.0	-		NA	-	5927C-08	<1.0	-	-	-	-
					Trichloroethene	06-06-91		1.7	-		NA	-						

AR301686

NAME, ADDRESS	TYPE OF SYSTEM (POW = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL (I=TCE<5ug/L (II=5to<60ug/L (III=TCE>60ug/L	DCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
19 FIRST FEDERAL BANK, 142 N MAIN	HOME POU	Y	M	II	Trichloroethene	07-02-86		1.0	-		-	-						
					Trichloroethene	12-02-86		64.5	-		4.3	-						
					1,1,1-Trichloroethane	11-30-87	729196	2.0	-	729205	<1.0	-						
					1,2-Dichloropropane	11-30-87	729196	<1.0	-	729205	2.2	-						
					Trichloroethene	02-29-88		<1.0	-		<1.0	-	3-105-898	2.1	-	-	-	-
					Trichloroethene	06-06-88		2.3	-		<1.0	-						
					Trichloroethene	09-06-88		<1.0	-		<1.0	-						
					Trichloroethene	12-05-88		<1.0	-		<1.0	-						
					cis-1,2-Dichloroethene	03-06-89		-	-		-	-	-	-	-	890308-17	1.1	-
					Tetrachloroethene	03-06-89		1.6	-		<1.0	-	-	-	-	890308-17	<1.0	-
					Trichloroethene	03-06-89		5.3	-		<1.0	-	-	-	-	890308-17	3.6	-
					Trichloroethene	06-01-89		<1.0	-		<1.0	-						
					Trichloroethene	09-05-89		<1.0	-		<1.0	-	890907-19	<1.0		890907-18	<1.0	-
					1,1,1-Trichloroethane	09-05-89		-	-		-	-	890907-19	0.8J		890907-18	<1.0	-
					1,2,3-Trichloropropane	09-05-89		-	-		-	-	890907-19	0.8J		890907-18	<1.0	-
					Trichloroethene	12-05-89		<1.0	-		<1.0	-						
					Chloroform	03-05-90		-	-		-	-	-	-	-	900307-11	2.2B	-
					Trichloroethene	03-05-90		<1.0	-		<1.0	-	-	-	-	900307-11	<1.0	-
					Trichloroethene	06-04-90		<1.0	-		NA	-						
					Trichloroethene	12-03-90		<1.0	-		NA	-						
					Trichloroethene	06-06-91		5.9	-		NA	-						

AR301687

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	DCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
20 BUCKS COUNTY BANK, 145 N. MAIN	HOME			III	Trichloroethene	06-26-86		242.0	-		-	-						
					Trichloroethene	11-26-86		222.0	-		-	-						
					1,1,1-Trichloroethane	11-26-86		2.6	-		-	-						
	POU	Y	N		1,1,1-Trichloroethane	12-01-87	729316	3.3	-	729317	<1.0	-						
					trans-1,2-Dichloroethene	12-01-87	729316	7.4	-	729317	<1.0	-						
					trans-1,3-Dichloropropene	12-01-87	729316	<1.0	-	729317	9.1	-						
					Trichloroethene	12-01-87	729316	398.0	-	729317	<1.0	-						
					Trichloroethene	02-29-88		406.0	-		<1.0	-	3-105865	>50	-	3-105865	<1.0	-
					Trichloroethene	06-06-88		416.0	-		<1.0	-						
					Trichloroethene	09-06-88		225.0	-		<1.0	-						
					Trichloroethene	12-05-88		278.0	-		<1.0	-						
					cis-1,2-Dichloroethene	03-06-89		-	-		-	-	890308-15,16	3.0	2.8	-	-	-
					Chloroform	03-06-89		-	-		-	-	890308-15,16	1.8	<1.0	-	-	-
					1,1,1-Trichloroethane	03-06-89		-	-		-	-	890308-15,16	3.2	2.8	-	-	-
					Trichloroethene	03-06-89		271.0	-		<1.0	-	890308-15,16	102.0	94.1	-	-	-
					Trichloroethene	06-01-89		288.0	-		<1.0	-						
					Trichloroethene	09-05-89		289	-		<1.0	-	890907-17	386.0	-	890907-16	<1.0	-
					1,1-Dichloroethane	09-05-89		-	-		-	-	890907-17	1.3J	-	890907-16	<1.0	-
					cis-1,2-Dichloroethene	09-05-89		-	-		-	-	890907-17	10.5	-	890907-16	<1.0	-
					1,1,1-Trichloroethane	09-05-89		-	-		-	-	890907-17	4.8J	-	890907-16	<1.0	-
					Trichloroethene	12-05-89		358.0	-		<1.0	-						
					Chloroform	03-05-90		-	-		-	-	900307-07	2.3B	2.5B	-	-	-
					1,1-Dichloroethane	03-05-90		-	-		-	-	900307-07	<1.0	0.7J	-	-	-
					1,1-Dichloroethene	03-05-90		-	-		-	-	900307-07	1.0	1.3	-	-	-
					1,3-Dichloropropene	03-05-90		-	-		-	-	900307-07	2.0B	2.4B	-	-	-
					Trichloroethene	03-05-90		236.0	259.0		<1.0	<1.0	900307-07	199	237	-	-	-
					Tetrachloroethene	03-05-90		<5.0	<5.0		<1.0	<1.0	900307-07	<1.0	<1.0	-	-	-
					Vinyl Chloride	03-05-90		<5.0	<5.0		<1.0	<1.0	900307-07	<1.0	<1.0	-	-	-
					Trichloroethene	06-04-90		311.0	343.0		NA	NA						
					Trichloroethene	09-04-90		336.0	-		NA	-	900905-02,03	974.0	420.0	-	-	-
					1,1-Dichloroethene	09-04-90		-	-		-	-	900905-02,03	0.3J	0.3J	-	-	-
					1,1-Dichloroethane	09-04-90		-	-		-	-	900905-02,03	0.6J	0.3J	-	-	-
					cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-02,03	2.2	2.1	-	-	-
					1,1,1-Trichloroethane	09-04-90		-	-		-	-	900905-02,03	2.6	2.4	-	-	-
					Trichloroethene	12-04-90		251.0	-		<1.0	-						
					Trichloroethene	03-04-91		285.0	-		NA	-						
					Trichloroethene	06-06-91		240.0	-		NA	-						

AR301688

NAME, ADDRESS	TYPE OF SYSTEM (POE = Point-of-use)	COLLIGLM SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE(5ug/L II=5to260ug/L III=TCE)260ug/L	DCE PARAMETER	DATE	BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
21 SCHNELL, 149 N. MAIN (GILBY)	NONE			II	Trichloroethene	07-15-86		105.0	-		-	-						
					Trichloroethene	12-02-86		<1.0	-		-	-						
	TOTAL	Y	N		1,1,1-Trichloroethane	12-01-87	729340	1.5	-	729341	1.1	-						
					1,1-Dichloroethane	12-01-87	729340	1.7	-	729341	<1.0	-						
					1,1-Dichloroethene	12-01-87	729340	<1.0	-	729341	1.2	-						
					trans-1,2-Dichloroethene	12-01-87	729340	5.2	-	729341	3.7	-						
					Trichloroethene	12-01-87	729340	83.8	-	729341	48.6	-						
					Trichloroethene	03-02-88		127.0	-		31.7	-	-	-	-	3-105980	47.1	-
					Trichloroethene	06-07-88		131.0	-		3.9	-						
					Trichloroethene	09-06-88		129.0	-		<1.0	-						
					Trichloroethene	12-06-88		66.7	-		116.0	-						
					cis-1,2-Dichloroethene	03-06-89		-	-		-	-	890308-13	1.9	-	890308-14	<1.0	<1.0
					Chloroform	03-06-89		-	-		-	-	890308-13	1.6	-	890308-14	1.2	2.0
					Trichloroethene	03-06-89		96.0	-		27.2	-	890308-13	49.0	-	890308-14	3.1	8.0
					Trichloroethene	03-08-90		104.0	-		<1.0	-						
					Trichloroethene	06-04-90		131.0	-		<1.0	-	-	-	-	5429-C-10	<1.0	-
					Trichloroethene	06-07-91		89.0	-		<1.0	-						
23 HERICK, 153 N. MAIN	POE	Y	N	II	Trichloroethene	12-02-86		62.4	-		<1.0	-						
					trans-1,2-Dichloroethene	11-30-87	729194	1.9	-	729197	<1.0	-						
					Trichloroethene	11-30-87	729194	19.6	-	729197	<1.0	-						
					Trichloroethene	03-02-88		48.4	-		<1.0	-						
					Trichloroethene	06-06-88		35.4	-		<1.0	-						
					Trichloroethene	09-07-88		44.6	-		1.7	-						
					Trichloroethene	12-06-88		2.8	-		<1.0	-						
					Chloroform	03-06-89		-	-		-	-	-	-	-	890308-12	16.0	-
					Trichloroethene	03-06-89		36.7	-		<1.0	1.5	-	-	-	890308-12	<1.0	-
					Trichloroethene	06-01-89		14.3	-		<1.0	-						
					Vinyl Chloride	06-01-89		7.3	-		<1.0	-						
					Trichloroethene	09-06-89		30.9	-		<1.0	-						
					Trichloroethene	12-05-89		47.6	-		<1.0	-						
					Trichloroethene	03-08-90		35.2	39.2		<1.0	-						
					Trichloroethene	06-04-90		29.9	-		NA	-						
					Trichloroethene	12-03-90		45.0	-		NA	-						
					Trichloroethene	06-06-91		17.0	-		NA	-						
MAIN VILGE PLAZA 161 N MAIN GI)	NONE			II	Trichloroethene	07-02-86		<1.0	-		-	-						
					Trichloroethene	12-02-86		16.3	-		-	-						
	TOTAL	Y	Y		Trichloroethene	11-30-87	729177	5.9	-	729195	<1.0	-	30387	10.0	-	30386	<0.5	
					Trichloroethene	03-02-88		12.9	-		<1.0	-						
					Trichloroethene	06-06-88		24.1	-		<1.0	-						
					Trichloroethene	09-06-88		16.6	-		<1.0	-						
					Trichloroethene	12-06-88		15.3	-		<1.0	-						
					Trichloroethene	03-07-89		16.8	-		<1.0	-						
					Trichloroethene	06-01-89		19.1	-		<1.0	-						
					Trichloroethene	09-05-89		21.3	-		<1.0	-						
					Trichloroethene	12-06-89		<1.0	<1.0		<1.0	NA						
					Trichloroethene	03-05-90		18.8	-		<1.0	-						
					Trichloroethene	06-05-90		<1.0	-		<1.0	-						
					Trichloroethene	12-03-90		23.3	-		28.0	-						
					Trichloroethene	06-07-91		20.0			<1.0	-						

AR301689

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
24 HARRIS (7-11), 169 N. MAIN	HOME		N	II	Trichloroethene	12-02-86		3.8	-		-	-						
					Trichloroethene	12-01-87	729318	2.8	-		-	-						
					Trichloroethene	06-06-88		4.3	-		-	-						
					Chloroform	09-06-88		-	-		-	-	4084C-10	2.1	-	-	-	-
					Trichloroethene	12-05-88		3.0	-		-	-						
					Trichloroethene	06-01-89		2.4	-		-	-	4678C-7	4.0	-	-	-	-
					Trichloroethene	12-04-89		3.3	-		-	-						
					Trichloroethene	06-04-90		3.6	-		-	-						
					Trichloroethene	12-03-90		3.1	-		-	-						
					Trichloroethene	06-06-91		16.0	-		-	-						
25 MORRIS (APT 8) 170 N. MAIN	HOME		N	I	Trichloroethene	08-04-86		3.7	-		-	-						
					Trichloroethene	12-02-86		2.2	-		-	-						
					Trichloroethene	11-10-87	729174	3.9	-		-	-						
					Trichloroethene	06-07-88		4.8	-		-	-						
					Methylene Chloride	12-06-88		-	-		-	-	3-105933/34	0.3J	-	-	-	-
					Chloroform	12-06-88		-	-		-	-	3-105933/34	2.0	-	-	-	-
					1,1,1-Trichloroethane	12-06-88		-	-		-	-	3-105933/34	0.3J	-	-	-	-
					Trichloroethene	12-06-88		4.2	-		-	-	3-105933/34	2.3	-	-	-	-
					Carbon Tetratchloride	12-06-88		-	-		-	-	3-105933/34	0.7J	-	-	-	-
					1,1,2,2-Tetrachloroethene	12-06-88		-	-		-	-	3-105933/34	0.3J	-	-	-	-
					Bromoform	12-06-88		-	-		-	-	3-105933/34	0.3J	-	-	-	-
					Trichloroethene	06-01-89		2.0	-		-	-						
					Trichloroethene	12-05-89		4.4	-		-	-						
					Trichloroethene	06-05-90		3.2	-		-	-						
					Trichloroethene	12-03-90		2.4	-		-	-						
					Trichloroethene	06-07-91		2.6	-		-	-						
26 FAMILY HEALTH CARE, 174 N MAIN	HOME			II	Trichloroethene	06-23-86		7.8	-		-	-		4.4	-	-	-	-
					Trichloroethene	12-02-86		2.5	-		-	-						
	BB		N		1,1,1-Trichloroethane	11-30-87	729198	3.3	-		-	-						
					Chloroform	11-30-87	729198	1.8	-		-	-						
					trans-1,2-Dichloroethene	11-30-87	729198	2.9	-		-	-						
					Trichloroethene	11-30-87	729198	36.6	-		-	-						
					Trichloroethene	02-29-88		4.7	-		-	-	3-105864	4.4	-			
					Trichloroethene	06-06-88		2.5	-		-	-						
					Trichloroethene	09-07-88		1.5	-		-	-						
					Trichloroethene	12-06-89		3.2	-		-	-	5120-C-15	2.4	-	-	-	-
					Trichloroethene	03-05-90		2.6	-		-	-						
					Trichloroethene	12-03-90		3.0	-		-	-						
					Trichloroethene	06-07-91		1.9	-		-	-						

AR301690

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to200ug/L III=TCE>200ug/L	SCH	PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
27 DUBLIN FIRE COMPANY,194 N MAIN	HOME		N	I/II	Trichloroethene	07-15-86		2.5	-		-	-							
					Trichloroethene	12-02-86		4.0	-		-	-							
					Trichloroethene	11-30-87	729284	8.6	-		-	-		30393	<0.5	-	-	-	-
					Trichloroethene	06-06-88		2.4	-		-	-		3-105916	6.1	-	-	-	-
					Trichloroethene	09-07-88		<1.0	-		-	-		4084C-5	<1.0	-	-	-	-
					Trichloroethene	12-06-88		2.7	<1.0		-	-							
					Trichloroethene	03-07-89		2.0	-		-	-							
					Trichloroethene	06-01-89		<1.0	-		-	-							
					Trichloroethene	09-05-89		<1.0	-		-	-							
					Trichloroethene	12-05-89		<1.0	-		-	-							
					Trichloroethene	03-05-90		<1.0	-		-	-							
					Trichloroethene	06-04-90		<1.0	-		-	-							
					Trichloroethene	12-03-90		<1.0	-		-	-							
					Trichloroethene	06-06-91		<1.0	-		-	-							
28 DUBLIN DINER, NORTH MAIN	HOME			II	Trichloroethene	06-26-86		58.9	-		-	-							
					1,1,1-Trichloroethane	06-26-86		2.3	-		-	-							
	TOTAL	Y			Trichloroethene	11-26-86		64.6	-		<1.0	-							
					trans-1,2-Dichloroethene	11-30-87	729190	1.5	-	729181	4.2	-							
					Trichloroethene	11-30-87	729190	<1.0	-	729181	12.7	-							
					Trichloroethene	03-02-88		96.2	-		21.1	-		-	-	-	3-105826	40.0	-
					Trichloroethene	06-06-88		145.0	-		2.2	-							
					Trichloroethene	09-07-88		<1.0	-		<1.0	-							
					Trichloroethene	12-06-88		<1.0	-		<1.0	-							
					Trichloroethene	06-01-89		<1.0	-		13.0	-							
					Trichloroethene	09-06-89		93.2	-		10.1	-							
					Trichloroethene	12-04-89		168.0	-		<1.0	-							
					Trichloroethene	03-05-90		143.0	-		<1.0	-							
					Tetrachloroethene	03-05-90		<5.0	-		<1.0	-							
					Vinyl Chloride	03-05-90		<5.0	-		<1.0	-							
					Trichloroethene	06-05-90		66.5	-		<1.0	-							
					Trichloroethene	12-03-90		130.0	-		<1.0	-							
					Trichloroethene	06-07-91		160.0	-		91.0	-							

AR301691

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
29 DUBLIN POST OFFICE, WEST MAIN	POU	Y	N	II	Trichloroethene	12-02-86		33.7	-		<1.0	-	?	3.8	-	-	-	-
					1,1,1-Trichloroethane	12-02-86		27.9	-		2.4	-						
					1,1,1-Trichloroethane	11-30-87	729193	3.0	-	729200	<1.0	-						
					trans-1,2-Dichloroethene	11-30-87	729193	6.6	-	729200	<1.0	-						
					Trichloroethene	11-30-87	729193	73.5	-	729200	<1.0	-						
					Trichloroethene	02-29-88		245.0	-		<1.0	-	3-105824	318.0	-	-	-	-
					Trichloroethene	06-06-88		34.4	-		<1.0	-	-	-	-	3-105925	8.5	-
					Trichloroethene	09-06-88		38.5	-		<1.0	-	4084C-1	13.0	-	-	-	-
					Chloroform	09-06-88		-	-		-	-	4084C-1	3.7	-	-	-	-
					Trichloroethene	12-05-88		10.4	-		<1.0	-	-	-	-	-	-	-
					Vinyl Chloride	12-05-88		16.5	-		<1.0	-	-	-	-	-	-	-
					Chloroform	03-06-89		-	-		-	-	890308-11	1.7	-	-	-	-
					1,1,1-Trichloroethane	03-06-89		-	-		-	-	890308-11	20.7	-	-	-	-
					Trichloroethene	03-06-89		13.2	-		<1.0	-	890308-11	6.7	-	-	-	-
					1,2-Dichloropropane	03-06-89		-	-		-	-	890308-11	6.3	-	-	-	-
					Trichloroethene	06-01-89		22.6	-		<1.0	-						
					1,1-Dichloroethane	09-06-89		-	-		-	-	890907-10	1.1J	-	890907-11	<1.0	-
					1,1,1-Trichloroethane	09-06-89		-	-		-	-	890907-10	28.4	-	890907-11	<1.0	-
					1,2-Dichloropropane	09-06-89		-	-		-	-	890907-10	8.7	-	890907-11	<1.0	-
					Trichloroethene	09-06-89		10.6	-		<1.0	-	890907-10	11.1	-	890907-11	<1.0	-
					Trichloroethene	12-04-89		111.0	-		<1.0	-						
					Trichloroethene	01-16-90		94.7	-		<1.0	-						
					Trichloroethene	03-05-90		123	-		<1.0	-						
					Trichloroethene	06-04-90		154.0	160.0		NA	NA	5429-C-07,08	150.0L	82.0L	-	-	-
					Vinyl Chloride	06-04-90		3.9	1.1		NA	NA	5429-C-07,08	<1.0	<1.0	-	-	-
					1,2-Dichloroethene	06-04-90		-	-		-	-	5429-C-07,08	3.9L	3.2L	-	-	-
					Trichloroethene	12-03-90		NA	-		<1.0	-						
					Trichloroethene	06-06-91		13.0	-		<1.0	-						

AR301692

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CHILLICAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL (I=TCE<5ug/L (II=5to260ug/L (III=TCE>260ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
30 JACOBS AUTO BODY, 133 N. MAIN	BOHS		N	II	Trichloroethene	12-02-86		14.5	-		-	-						
					1,1,1-Trichloroethane	12-02-86		29.3	-		-	-						
	BP				1,1,1-Trichloroethane	11-30-87	729202	6.2	-		-	-						
					trans-1,2-Dichloroethene	11-30-87	729202	10.5	-		-	-						
					Trichloroethene	11-30-87	729202	142.0	-		-	-						
					Trichloroethene	02-29-88		174.0	-		-	-	3-105897	>50	-	-	-	-
					Trichloroethene	06-07-88		36.2	-		-	-						
					Trichloroethene	09-07-88		16.7	-		-	-						
					Trichloroethene	12-05-88		12.1	-		-	-						
					Vinyl Chloride	12-05-88		16.8	-		-	-						
					Chloroform	03-06-89		-	-		-	-	890308-18	1.3	-	-	-	-
					1,1,1-Trichloroethane	03-06-89		-	-		-	-	890308-18	20.5	-	-	-	-
					Trichloroethene	03-06-89		12.8	-		-	-	890308-18	5.7	-	-	-	-
					1,2-Dichloropropane	03-06-89		-	-		-	-	890308-18	5.5	-	-	-	-
					Trichloroethene	06-01-89		22.7	-		-	-						
					Trichloroethene	09-06-89		18.8	-		-	-	890907-12	14.9	-	-	-	-
					1,1-Dichloroethene	09-06-89		-	-		-	-	890907-12	4.6J	-	-	-	-
					1,1-Dichloroethane	09-06-89		-	-		-	-	890907-12	0.8J	-	-	-	-
					1,1,1-Trichloroethane	09-06-89		-	-		-	-	890907-12	38.6	-	-	-	-
					1,2-Dichloropropane	09-06-89		-	-		-	-	890907-12	9.4	-	-	-	-
					Trichloroethene	12-04-89		121.0	-		-	-						
					Trichloroethene	03-05-90		139.0	-		-	-						
					Trichloroethene	06-04-90		128.0	-		-	-						
					Trichloroethene	12-03-90		14.6	-		-	-						
					Trichloroethene	06-06-91		9.6	-		-	-						
31 HILLER, 113 ELEPHANT RD	BOHS			II	Trichloroethene	12-02-86		(1.0	-		-	-						
			N		Trichloroethene	11-01-87	729321	3.8	-		-	-						
					Trichloroethene	06-07-88		6.7	-		-	-						
					Trichloroethene	09-07-88		(1.0	-		-	-						
					Methylene Chloride	12-06-88		-	-		-	-	13-105947/48	0.2J	-	-	-	-
					Chloroform	12-06-88		-	-		-	-	13-105947/48	1.9	-	-	-	-
					Trichloroethene	12-06-88		(1.0	-		-	-	13-105947/48	3.3	-	-	-	-
					Trichloroethene	03-07-89		117.0	-		-	-						
	BP				Trichloroethene	06-01-89		8.0	-		-	-	4670C-11	7.6	-	-	-	-
					Trichloroethene	09-05-89		(1.0	-		-	-						
					Trichloroethene	12-06-89		42.4	-		-	-						
					Trichloroethene	03-06-90		(1.0	-		-	-						
	TOTAL				Trichloroethene	06-04-90		1.2	-		(1.0	-						
					Trichloroethene	12-03-90		(1.0	-		(1.0	-						
					Trichloroethene	06-07-91		4.7	4.9		(1.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
32 SLAYBAKER, 114 ELEPHANT RD	NONE			I	Trichloroethene	07-01-86		<1.0	-		-	-						
					Trichloroethene	11-26-86		<1.0	-		-	-						
	TOTAL	Y	N		Trichloroethene	11-30-87	729192	<1.0	-	729179	<1.0	-						
					Trichloroethene	06-07-88		<1.0	-		<1.0	-						
					Chloroform	12-05-88		<1.0	-		<1.0	-	3-105941/42	1.2	-	-	-	-
					Trichloroethene	12-05-88		<1.0	-		<1.0	-	3-105941/42	1.0	-	-	-	-
					Trichloroethene	06-01-89		<1.0	-		<1.0	-						
					Trichloroethene	12-05-89		3.1	-		<1.0	-						
					Trichloroethene	06-05-90		3.7	-		<1.0	-						
					Trichloroethene	12-03-90		NA	-		<1.0	-						
					Trichloroethene	06-06-91		<1.0	-		<1.0	-						
33 GRACE, 115 ELEPHANT RD	NONE			II	Trichloroethene	06-26-86		<1.0	-		-	-						
					Trichloroethene	12-02-86		5.3	-		-	-						
					1,1,1-Trichloroethane	12-02-86		1.5	-		-	-						
			N		trans-1,3-Dichloropropene	12-01-87	729330	9.6	-		-	-						
					Trichloroethene	02-29-88		<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	09-07-88		<1.0	-		-	-	4-84C-11	<1.0	-	-	-	-
					Trichloroethene	12-05-88		<1.0	-		-	-						
					Trichloroethene	03-07-89		15.9	-		-	-						
					Trichloroethene	06-01-89		<1.0	-		-	-	4678C-13	<1.0	-	-	-	-
					Trichloroethene	09-05-89		<1.0	-		-	-						
					Trichloroethene	12-05-89		<1.0	-		-	-						
					Trichloroethene	03-06-90		2.1	1.4		-	-						
					Trichloroethene	06-04-90		<1.0	-		-	-						
					Trichloroethene	12-03-90		4.2	-		-	-						
34 BLACK, 116 ELEPHANT RD	NONE			II	Trichloroethene	06-05-86		5.6	-		-	-						
					Trichloroethene	11-26-86		5.9	-		-	-						
	POU	Y	N		Chloroform	12-01-87	729325	<1.0	-	729326	13.0	-						
					Methylene Chloride	12-01-87	729325	17.3	-	729326	15.5	-						
					Trichloroethene	12-01-87	729325	5.5	-	729326	<1.0	-						
					Trichloroethene	02-29-88		<1.0	-		<1.0	-						
					Trichloroethene	06-07-88		2.0	-		<1.0	-						
					Trichloroethene	09-07-88		2.4	-		<1.0	-						
					Trichloroethene	12-05-88		1.4	-		<1.0	-						
					Chloroform	03-06-89		-	-		-	-	890308-10	1.8	-	-	-	-
					Trichloroethene	03-06-89		11.0	7.8		1.4	-	890308-10	6.4	-	-	-	-
					Trichloroethene	03-06-89		<1.0	2.3		1.0	-	890308-10	1.2	-	-	-	-
					Trichloroethene	06-01-89		22.4	21.7		<1.0	-						
					Trichloroethene	09-05-89		8.7	-		<1.0	-						
					Trichloroethene	12-05-89		10.3	-		<1.0	-	5138-C-12	8.4	-	-	-	-
					Methylene Chloride	12-05-89		-	-		-	-	5138-C-12	1.4B	-	-	-	-
					Trichloroethene	03-06-90		13.3	-		<1.0	-						
					Trichloroethene	06-04-90		168.0	-		NA	-						
					Trichloroethene	12-03-90		1.8	1.6		NA	-						
					Trichloroethene	06-06-91		56.0	-		NA	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE(5ug/L II=5to200ug/L III=TCE)200ug/L	PARAMETER	DATE	BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DIF (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
35 LABS, 118 ELEPHANT RD	POU	Y		II	Methylene Chloride	12-01-87	729325	17.3	-	729327	20.2	-						
					Trichloroethene	12-01-87	729325	5.5	-	729327	(1.0	-						
					Trichloroethene	02-29-88		(1.0	-		(1.0	-						
					Trichloroethene	06-07-88		2.0	-		(1.0	-						
					Trichloroethene	09-07-88		(1.0	-		(1.0	-	-	-	-	40860	(1.0	-
					Trichloroethene	12-05-88		-	-		(1.0	-						
					Trichloroethene	06-01-89		16.8	-		(1.0	-						
					Trichloroethene	09-05-89		25.5	-		(1.0	-						
					Trichloroethene	12-06-89		7.7	-		(1.0	-						
					Trichloroethene	03-06-90		18.2	-		(1.0	-						
					Trichloroethene	06-06-90		72.2	72.9		NA	-						
					Trichloroethene	12-03-90		2.6	-		NA	-						
					Trichloroethene	06-06-91		80.0	-		NA	-						
36 MYERS, 139 ELEPHANT RD	NONE			II	Trichloroethene	05-09-86		1.3	-		-	-						
					1,1,1-Trichloroethane	05-09-86		2.7	-		-	-						
					Trichloroethene	11-26-86		1.2	-		-	-						
			N		1,1,1-Trichloroethane	11-30-87	729207	5.1	-		-	-						
					Trichloroethene	11-30-87	729207	1.7	-		-	-						
					Trichloroethene	06-07-88		3.4	-		-	-						
					Trichloroethene	06-01-89		3.3	-		-	-						
					Trichloroethene	12-05-89		7.0	-		-	-						
					Trichloroethene	03-08-90		5.6	-		-	-						
					Trichloroethene	12-03-90		4.5	-		-	-						
					Trichloroethene	06-06-91		2.6	-		-	-						
37 MOYER, 146 ELEPHANT RD	NONE			II	Trichloroethene	06-04-86		150.0	-		-	-						
					Trichloroethene	11-26-86		106.0	-		-	-						
	TOTAL	Y	N		1,1-Dichloroethene	11-26,30	729173	2.2	-	729189	(1.0	-						
					trans-1,2-Dichloropropene	11-26,30	729173	4.4	-	729189	(1.0	-						
					Trichloroethene	11-26,30	729173	86.0	-	729189	(1.0	-	-	-	-	30399	(0.5	-
					Trichloroethene	03-02-88		126.0	-		(1.0	-	3-105822	185.0	-	-	-	-
					Trichloroethene	06-06-88		149.0	-		(1.0	-						
					Trichloroethene	09-07-88		114.0	-		(1.0	-						
					Trichloroethene	12-06-88		136.0	-		(1.0	-						
					Trichloroethene	03-07-89		107.0	-		(1.0	-						
					Trichloroethene	06-01-89		155.0	-		(1.0	-						
					Trichloroethene	09-06-89		118.0	-		(1.0	-						
					Trichloroethene	12-05-89		151.0	-		(1.0	-						
					Trichloroethene	03-06-90		135.0	-		(1.0	-						
					Tetrachloroethene	03-06-90		(5.0	-		(1.0	-						
					Vinyl Chloride	03-06-90		(5.0	-		(1.0	-						
					Trichloroethene	06-05-90		159.0	-		(1.0	-						
					Trichloroethene	12-03-90		135.0	-		(1.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE(5ug/L II=5to260ug/L III=TCE)260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
38 DETWEILER, 150 ELEPHANT RD	NONE			II	Trichloroethene	09-09-86		2.0	-		-	-						
					Trichloroethene	11-26-86		2.2	-		-	-						
					1,1,1-Trichloroethene	11-26-86		1.3	-		-	-						
			N		Methylene Chloride	12-01-87	729331	16.6	-		-	-						
					trans-1,2-Dichloroethene	12-01-87	729331	2.6	-		-	-						
					Trichloroethene	12-01-87	729331	7.6	-		-	-						
					Trichloroethene	06-06-88		8.0	-		-	-	3-105908,09	6.8	9.8	-	-	-
					Trichloroethene	09-07-88		9.3	-		-	-						
					Trichloroethene	12-05-88		17.4	-		-	-						
					Trichloroethene	03-07-89		12.2	-		-	-						
					Trichloroethene	05-01-89		NA	-		-	-	4617-C-03	(1.0	(1.0	-	-	-
					Trichloroethene	06-01-89		5.5	-		-	-						
	SW				Trichloroethene	09-05-89		17.4	22.3		-	-						
					Trichloroethene	12-05-89		24.5	-		-	-	5120-C-11	22	-	-	-	-
					Methylene Chloride	12-05-89		-	-		-	-	5120-C-11	1.6B	-	-	-	-
					Trichloroethene	03-06-90		22.9	-		-	-						
					Trichloroethene	06-04-90		21.9	-		-	-	5429-C-02	11.8	-	-	-	-
					1,2-Dichloroethene	06-04-90		-	-		-	-	5429-C-02	1.3	-	-	-	-
					Trichloroethene	12-04-90		20.4	21.4		-	-						
					Trichloroethene	06-06-91		8.7	-		-	-						
39 RUSH, 152 ELEPHANT RD	NONE			I	Trichloroethene	?		1.0	-		-	-						
					Trichloroethene	11-26-86		(1.0	-		-	-						
			N		Trichloroethene	12-01-87	729332	(1.0	-		-	-						
					Trichloroethene	06-07-88		(1.0	-		-	-						
					Methylene Chloride	12-05-88		-	-		-	-	3-105939/40	0.33	-	-	-	-
					Chloroform	12-05-88		-	-		-	-	3-105939/40	1.1	-	-	-	-
					1,1,2,2-Tetrachloroethene	12-05-88		-	-		-	-	3-105939/40	0.33	-	-	-	-
					Trichloroethene	12-05-88		(1.0	-		-	-	3-105939/40	(1.0	-	-	-	-
					Trichloroethene	06-01-89		(1.0	-		-	-						
					Trichloroethene	12-05-89		(1.0	-		-	-						
					Trichloroethene	06-04-90		(1.0	-		-	-						
					Trichloroethene	12-03-90		(1.0	-		-	-						
					Trichloroethene	06-06-91		(1.0	-		-	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGIAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE(5ug/L III=5to200ug/L IIII=TCE)200ug/L	DCH	PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
00 BEAUTY SHOP, 104 MAPLE	TOTAL			III		Trichloroethene	11-26-86		82.0	104		99.7							
						1,1,1-Trichloroethane	11-26-86		2.9	-		2.9	(1.0						
		Y	N			1,1,1-Trichloroethane	11-30-87	729319	3.5	-	729320	(1.0	-						
						Trichloroethene	11-30-87	729319	464.0	-	729320	(1.0	-						
						Trichloroethene	03-02-88		159.0	-		(1.0	-	3-105867	245.0	-	-	-	-
						Trichloroethene	06-07-88		2320.0	-		2.3	-	3-105921	238.0	-	-	-	-
						Trichloroethene	07-07-88		266.0	-		(1.0	-						
						Vinyl Chloride	07-07-88		(1.0	-		14.6	-						
						Trichloroethene	09-07-88		501.0	-		(1.0	-	-	-	-	4084C-17	(1.0	-
						Trichloroethene	10-18-89		246.0	-		(1.0	-						
						Trichloroethene	12-05-88		1230.0	1302.0		(1.0	-						
						Trichloroethene	01-26-89		690.0	-		240.0	-						
						Tetrachloroethene	01-26-89		3.6	-		(1.0	-						
						Trichloroethene	02-23-89		606.0	-		151.0	-						
						cis-1,2-Dichloroethene	03-06-89		-	-		-	-	890308-08	(1.0	-	890308-09	1.3	-
						Chloroform	03-06-89		-	-		-	-	890308-08	1.5	-	890308-09	1.9	-
						Trichloroethene	03-06-89		537.0	-		111.0	-	890308-08	75.9	-	890308-09	230.0	-
						Trichloroethene	04-25-89		630.0	-		856.0	-						
						Trichloroethene	05-16-89		913.0	-		(1.0	-						
						Trichloroethene	06-01-89		700.0	-		(1.0	-	-	-		4678C-4	(1.0	-
						Trichloroethene	06-01-89		1.2	-		(1.0	-						
						Trichloroethene	07-21-89		392.0	-		6.7	-						
						Trichloroethene	08-10-89		296	-		(1.0	-						
						Tetrachloroethene	08-10-89		(1.0	-		(1.0	-						
						Vinyl Chloride	08-10-89		(1.0	-		(1.0	-						
						Trichloroethene	09-05-89		102.0	-		(1.0	-						
						Trichloroethene	10-26-89		436.0	-		(1.0	-						
						Trichloroethene	11-09-89		967.0	-		(1.0	-						
						Tetrachloroethene	11-09-89		2.0	-		(1.0	-						
						Trichloroethene	12-05-89		1201.0	-		(1.0	-						
						Tetrachloroethene	12-05-89		2.2	-		(1.0	-						
						Trichloroethene	01-16-90		88	-		(1.0	-						
						Tetrachloroethene	03-06-90		1.9	-		(1.0	-						
						Trichloroethene	03-06-90		573.0	-		(1.0	-						
						Trichloroethene	06-05-90		314.0	-		(1.0	-						
						Trichloroethene	09-04-90		190.0	-		(1.0	-	900905-09	210.0	-	-	-	-
						1,1-Dichloroethene	09-04-90		-	-		-	-	900905-09	0.3J	-	-	-	-
						cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-09	1.5	-	-	-	-
						Carbon Tetrachloride	09-04-90		-	-		-	-	900905-09	0.2J	-	-	-	-
						Tetrachloroethene	09-04-90		-	-		-	-	900905-09	0.3J	-	-	-	-
						Trichloroethene	12-03-90		545.0	-		(1.0	-	5927C-13	748.0&	-	5927C-12	(1.0	-
						1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-13	9.7	-	5927C-12	(1.0	-
						Tetrachloroethene	12-03-90		-	-		-	-	5927C-13	2.6	-	5927C-12	(1.0	-
						Trichloroethene	03-04-91		518.0	-		26.7	-						
						Trichloroethene	06-06-91		212.0	-		167.0	-						

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BANK, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
41 DUBLEY SPORTS, 112 MAPLE AVE	NONE			I/II	1,1,1-Trichloroethane	06-26-86		2.0	-		-	-						
					Trichloroethene	11-02-86		8.3	-		-	-						
					1,1,1-Trichloroethane	11-02-86		1.5	-		-	-						
	DU			I	1,1,1-Trichloroethane	11-30-87	729201	2.8	-		-	-						
					Trichloroethene	02-29-88		<1.0	-		-	-						
					Trichloroethene	06-07-88		14.2	-		-	-	3-105922	19.3	-	-	-	-
					Trichloroethene	09-07-88		<1.0	-		-	-						
					Trichloroethene	12-05-88		<1.0	-		-	-						
					Trichloroethene	03-07-89		<1.0	-		-	-						
					Trichloroethene	06-01-89		<1.0	-		-	-	4678C-8	<1.0	-	-	-	-
					Trichloroethene	09-05-89		<1.0	-		-	-						
					Trichloroethene	12-05-89		<1.0	-		-	-						
					Chloroform	03-05-90		-	-		-	-	900307-02	2.0B	-	-	-	-
					Trichloroethene	03-05-90		<1.0	<1.0		-	-	900307-02	<1.0	-	-	-	-
					Trichloroethene	06-04-90		<1.0	-		-	-						
					Trichloroethene	12-03-90		<1.0	-		-	-	5927C-14,15	1.0	<1.0	-	-	-
					Trichloroethene	06-06-91		<1.0	-		-	-						
42 DRAKE, 110 MAPLE AVE	NONE			I/II	Trichloroethene	11-26-86		12.5	-		-	-						
					Trichloroethene	12-01-87		<1.0	-		1.6	-						
	TOTAL	Y	Y		Methylene Chloride	12-01-87	729308,03	<1.0	13.3	729304	<1.0	-						
					Trichloroethene	03-02-88		<1.0	-		<1.0	-						
					Trichloroethene	06-07-88		<1.0	-		<1.0	-						
					Trichloroethene	09-07-88		<1.0	-		<1.0	-						
					Methylene Chloride	12-05-88		-	-		-	-	13-105937/38	0.2 J	-	-	-	-
					Chloroform	12-05-88		-	-		-	-	13-105937/38	1.8	-	-	-	-
					Trichloroethene	12-05-88		<1.0	-		<1.0	-						
					Trichloroethene	03-07-89		<1.0	-		<1.0	-						
					Trichloroethene	06-01-89		<1.0	-		<1.0	-						
					Trichloroethene	09-06-89		<1.0	-		<1.0	-						
					Trichloroethene	12-05-89		<1.0	-		<1.0	-						
					Trichloroethene	03-05-90		<1.0	-		<1.0	-						
					Trichloroethene	06-04-90		<1.0	-		<1.0	-						
					Trichloroethene	12-03-90		<1.0	-		<1.0	-				5927C-04	<1.0	-
43 DUBLIN ACRES WELL#1, RICKETS RD	NONE			I	Trichloroethene	06-25-86		3.2	-		-	-						
			Y		Trichloroethene	12-01-87	729333	<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Chloroform	12-06-88		NA	-		-	-	13-105918/920	5.1	-	-	-	-
					Trichloroethene	12-06-88		NA	-		-	-	13-105918/920	0.38	-	-	-	-
					Bromodichloromethane	12-06-88		NA	-		-	-	13-105918/920	2.2	-	-	-	-
					Dibromochloromethane	12-06-88		NA	-		-	-	13-105918/920	1.6	-	-	-	-
					Bromoform	12-06-88		NA	-		-	-	13-105918/920	1.0	-	-	-	-
					Trichloroethene	06-01-89		<1.0	-		-	-						
					Trichloroethene	12-06-89		<1.0	-		-	-						
					Trichloroethene	06-06-91		<1.0	-		-	-						

AR301698

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGIN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=PCE(5ug/L II=5to250ug/L III=TCE)250ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
44 DUBLIN ACRES VILLAGE,RICKETS RD	NONE			I	Trichloroethene	06-25-86		<1.0	-		-	-						
					Trichloroethene	12-02-86		1.6	-		-	-						
			Y		Trichloroethene	12-21-87	A31387	<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	12-06-88		2.6	-		-	-						
					Trichloroethene	06-05-90		<1.0	-		-	-						
					Trichloroethene	12-03-90		<1.0	-		-	-						
45 OTT, 105 MIDDLE RD	NONE			I	Trichloroethene	07-15-86		2.1	-		-	-						
			N		Trichloroethene	12-01-87	729312,10	<1.0	<1.0		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	12-05-88		<1.0	<1.0		-	-						
					Trichloroethene	06-01-89		<1.0	-		-	-						
					Trichloroethene	12-05-89		<1.0	-		-	-	5120-C-13	<1.0	-	-	-	-
					Methylene Chloride	12-05-89		-	-		-	-	5120-C-13	1.28	-	-	-	-
46 WOOD EDGE APTS, 136 MIDDLE RD	NONE			I	Trichloroethene	06-27-86		<1.0	-		-	-						
					Trichloroethene	12-21-87	A31387	<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	12-05-88		<1.0	-		-	-						
					Trichloroethene	06-01-89		<1.0	-		-	-						
					Trichloroethene	12-05-89		<1.0	-		-	-						
47 DUBLIN INN, 101 S. MAIN ST	NONE			I/II	Trichloroethene	09-09-86		<1.0	-		-	-						
	NONE				Bromodichloromethane	12-21-87	A31386	49.0	-		-	-						
					Chloroform	12-21-87	A31386	2.8	-		-	-						
					cis-1,3-Dichloropropene	12-21-87	A31386	3.7	-		-	-						
					Trichloroethene	12-21-87	A31386	1.2	-		-	-						

AR301699

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
48 PARK BUREAU, 104 HILL ST	HOME			III	Trichloroethene	06-26-86		1000.0	-		-	-						
					Tetrachloroethene	06-26-86		1.4	-		-	-						
					1,1,1-Trichloroethane	06-26-86		6.0	-		-	-						
					Trichloroethene	11-26-86		357.0	-		<1.0	-						
					1,1,1-Trichloroethane	11-26-86		2.1	-		<1.0	-						
	POU	Y/N	N		1,1-Dichloroethene	11-30-87	729185	<1.0	-	729184	<1.0	-						
					trans-1,2-Dichloroethene	11-30-87	729185	<1.0	-	729184	<1.0	-						
					Trichloroethene	11-30-87	729185	1590.0	-	729184	76	-	30395	1600	-	30386	<0.5	-
					Trichloroethene	02-29-88		3260.0	3189.0		217	-	3-105863	>50				
					Tetrachloroethene	02-29-88		4.0	<1.0		<1.0	-						
					Trichloroethene	06-07-88		1911.0	-		<1.0	-	3-105910	245.0	-	-	-	-
					Tetrachloroethene	06-07-88		1.1	-		<1.0	-						
					Trichloroethene	09-07-88		3970.0	-		<1.0	-						
					Tetrachloroethene	09-07-88		2.9	-		<1.0	-						
					Trichloroethene	12-05-88		<1.0	-		<1.0	-						
					cis-1,2-Dichloroethene	03-06-89		-	-		-	-	1890308-07	2.9	-	-	-	-
					Chloroform	03-06-89		-	-		-	-	1890308-07	2.3	-	-	-	-
					1,1,1-Trichloroethane	03-06-89		-	-		-	-	1890308-07	11.1	-	-	-	-
					Trichloroethene	03-06-89		4450.0	-		<1.0	-	1890308-07	476.0	-	-	-	-
					Tetrachloroethene	03-06-89		2.3	-		<1.0	-	1890308-07	<1.0	-	-	-	-
					Trichloroethene	06-01-89		1460.0	-		<1.0	-						
					Trichloroethene	09-06-89		932	-		<1.0	-						
					Trichloroethene	12-05-89		15.1	-		<1.0	-						
					Chloroform	03-06-90		-	-		-	-	900307-13	2.2B	-	900307-14	2.2B	-
					Trichloroethene	03-06-90		12.6	15.7		<1.0	<1.0	900307-13	11.0B	-	900307-14	2.7B	-
					Trichloroethene	09-04-90		1930.0	1930.0		NA	NA						
					Trichloroethene	12-03-90		4620.0	-		31.6	-						
					Trichloroethene	03-06-91		3740.0	-		NA	-						
					Trichloroethene	06-07-91		1733.0	1742.0		NA	-						

AR301700

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to200ug/L III=TCE>200ug/L	BCH PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
49 THOMPSON PLANT WELL,1,120 HILL	HOME			III	Trichloroethene	06-23-86		5000.0	*******		-	-						
					Tetrachloroethene	06-23-86		8.6	-		-	-						
					1,1,1-Trichloroethane	06-23-86		27.0	-		-	-						
					Trichloroethene	07-15-86		10000.0	-		-	-						
					1,1,1-Trichloroethane	07-15-86		25.0	-		-	-						
					Trichloroethene	11-26-86		516.0	-		-	-						
					1,1,1-Trichloroethane	11-26-86		2.0	-		-	-						
	EP		X		Trichloroethene	11-30-87	729187	4000.0	-		-	-						
					Trichloroethene	02-29-88		5127.0	5871.0		-	-	3-105866	>50	-	-	-	-
					Tetrachloroethene	02-29-88		12.2	10.2		-	-						
					Trichloroethene	06-07-88		5600.0	5900.0		-	-	3-105913	400.0	-	-	-	-
					Chlorobenzene	06-07-88		-	-		-	-	3-105913	11.6	-	-	-	-
					1,1-Dichloroethene	12-05-88		-	-		-	-	13-105923/24	3.4	3.3	-	-	-
					Methylene Chloride	12-05-88		-	-		-	-	13-105923/24	0.3J	0.3J	-	-	-
					trans-1,2-Dichloroethene	12-05-88		-	-		-	-	13-105923/24	0.3J	-	-	-	-
					1,1-Dichloroethane	12-05-88		-	-		-	-	13-105923/24	1.0	0.3J	-	-	-
					cis-1,2-Dichloroethene	12-05-88		-	-		-	-	13-105923/24	-	1.0	-	-	-
					Chloroform	12-05-88		-	-		-	-	13-105923/24	3.2	3.2	-	-	-
					1,1,1-Trichloroethane	12-05-88		-	-		-	-	13-105923/24	13.4	13.5	-	-	-
					Trichloroethene	12-05-88		5340.0	2880.0		-	-	13-105923/24	659	581	-	-	-
					Carbon Tetrachloride	12-05-88		-	-		-	-	13-105923/24	1.0	1.3	-	-	-
					1,1,2,2-Tetrachloroethene	12-05-88		-	-		-	-	13-105923/24	5.2	5.3	-	-	-

AR301701

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
50 THOMPSON PLANT WELL[2,120 HILL	NONE			III	Trichloroethene	06-23-86		100.0	-		-	-						
					1,1,1-Trichloroethane	06-23-86		2.0	-		-	-						
					Trichloroethene	11-26-86		3900.0	-		-	-						
					1,1,1-Trichloroethane	11-26-86		18.0	-		-	-						
	DD		N		1,1,1-Trichloroethane	11-30-87	729176,83	2.6	3.6		-	-						
					trans-1,2-Dichloroethene	11-30-87	729176,83	2.4	2.5		-	-						
					Trichloroethene	11-30-87	729176,83	368.0	237.0		-	-	30385,96	560.0	530.0	-	-	-
					Tetrachloroethene	11-30-87	729176,83	<1.0	<1.0		-	-	30385,96	<5.0	0.7	-	-	-
	TS				Trichloroethene	02-29-88		208.0	183.0		<1.0	-	3-105825	>50	-	3-105825	<1.0	-
					Trichloroethene	06-07-88		117.0	235.0		<1.0	-						
					Trichloroethene	09-06-88		-	-		1.1	-	-	-	-	4084C-15	<1.0	-
					Trichloroethene	12-05-88		10.1	-		<1.0	-						
					Chloroform	03/06/89		-	-		NA	-	890308-06	1.4	-	-	-	-
					Trichloroethene	03/06/89		77.4	-		11.8	-	890308-06	46.8	-	-	-	-
					Trichloroethene	06-01-89		141.0	-		<1.0	-	4678C-12	130	-	-	-	-
					Trichloroethane	06-01-89		-	-		-	-	4678C-12	2.9	-	-	-	-
					Trichloroethene	09-06-89		263	-		220	-						
					Trichloroethene	12-05-89		426.0	431.0		<1.0	<1.0	-	-	-	5120-C-14	<1.0	-
					Methylene Chloride	12-05-89		-	-		-	-	-	-	-	5120-C-14	1.4B	-
					1,1,1-Trichloroethane	12-05-89		-	-		-	-	-	-	-	5120-C-14	5.1	-
					Chloroform	03-05-90		-	-		-	-	-	-	-	900307-08	2.3B	-
					1,1-Dichloroethene	03-05-90		-	-		-	-	-	-	-	900307-08	1.6	-
					1,1-Dichloropropene	03-05-90		-	-		-	-	-	-	-	900307-08	9.3B	-
					Trichloroethene	03-05-90		277.0	-		42.7	-	-	-	-	900307-08	34.7	-
					Trichloroethene	06-05-90		191.0	-		338.0	-						
					Trichloroethene	09-04-90		587.0	-		<1.0	-	900905-04	633.0	-	-	-	-
					1,1-Dichloroethene	09-04-90		-	-		-	-	900905-04	0.1J	-	-	-	-
					cis-1,2-Dichloroethene	09-04-90		-	-		-	-	900905-04	0.4J	-	-	-	-
					1,1,1-Trichloroethane	09-04-90		-	-		-	-	900905-04	2.9	-	-	-	-
					Carbon Tetrachloride	09-04-90		-	-		-	-	900905-04	0.1J	-	-	-	-
					Tetrachloroethene	09-04-90		-	-		-	-	900905-04	0.8J	-	-	-	-
					Trichloroethene	12-03-90		348.0	295.0		116.0	113.0	5927C-05	546.0L	-	-	-	
					Tetrachloroethene	12-03-90		-	-		-	-	5927C-05	0.8	-	-	-	
					1,1,1-Trichloroethane	12-03-90		-	-		-	-	5927C-05	14.0	-	-	-	
					Trichloroethene	03-04-91		186.0	188.0		<1.0	<1.0						
					Trichloroethene	06-06-91		349.0	-		439.0	-						

AR301702

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TTHM LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	MCM PARAMETER	BEFORE TREATMENT DATE	SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	CONC (UG/L)	DUP (UG/L)
51 DAIRY QUEEN, MAIN STREET	NONE			I	Trichloroethene	06-26-86		1.0	-		-	-						
					Trichloroethene	06-06-88		<1.0	-		-	-	3-105915	6.6	-	-	-	-
					Chloroform	09-06-88		-	-		-	-	4084C-4	2.5	-	-	-	-
					Trichloroethene	09-06-88		-	-		-	-	4084C-4	<1.0	-	-	-	-
					Trichloroethene	06-01-89		<1.0	1.2		-	-	4678C-2	3.5	-	-	-	-
					Trichloroethene	06-04-90		<1.0	-		-	-						
					Trichloroethene	06-06-91		<1.0	-		-	-						
52 HARRIS,215 FRONTIER ST,HELL A	NONE			I	Trichloroethene	08-04-86		1.0	-		-	-						
					1,1,1-Trichloroethane	12-02-86		1.3	-		-	-						
			N		Trichloroethene	12-01-87	729329	<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Chloroform	12-05-88		-	-		-	-	3-105935/36	1.2	-	-	-	-
					Trichloroethene	12-05-88		<1.0	-		-	-						
					Trichloroethene	06-04-90		<1.0	-		-	-	5429-C-05	<1.0	-	-	-	-
					Trichloroethene	12-03-90		<1.0	-		-	-						
					Trichloroethene	06-07-91		<1.0	-		-	-						
53 HARRIS,215 FRONTIER ST,HELL B	NONE			I	Trichloroethene	12-02-86		<1.0	-		-	-						
					Trichloroethene	12-21-87		<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	12-05-88		<1.0	-		-	-						
54 SUPPLEE, 105 CHERRY LANE	NONE			I	Trichloroethene	06-26-86		<1.0	-		-	-						
55 PASQUA, 111 CHERRY LANE	NONE			I	Trichloroethene	06-23-86		<1.0	-		-	-						

AR301703

NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
56 ALLEN, 115 CHERRY LANE	NONE			I	Trichloroethene	08-05-86		<1.0	-		-	-						
57 MYERS, 120 CHERRY LANE	NONE			I	Trichloroethene	06-26-86		<1.0	-		-	-						
58 DUBLIN VIL APTS, CHERRY LANE	NONE			I	Trichloroethene	06-23-86		<1.0	-		-	-						
59 HOYER, CHERRY LANE	NONE			I	Trichloroethene	06-23-86		<1.0	-		-	-						
60 WILLIAMS, 114 MAPLE AVE, APT A	NONE			I	Trichloroethene	12-02-86		<1.0	-		-	-						
61 NESTER, 122 MAPLE AVE	NONE			I	Trichloroethene	12-02-86		<1.0	-		-	-						
62 MORGAN, 126 MAPLE AVE	NONE			I	Trichloroethene	12-02-86		<1.0	-		-	-						
63 HINSBERGER, 140 MAPLE AVE	NONE			I	Trichloroethene	06-26-86		<1.0	-		-	-						
64 BOROUGH HALL, MAPLE AVE	NONE			I	Trichloroethene	06-26-86		<1.0	-		-	-						
65 TULP, MAPLE AVE	NONE			I	Trichloroethene	06-26-86		<1.0	-		-	-						
66 SLAYBAKER, 163 S. MAIN	NONE			I	Trichloroethene	07-01-86		<1.0	-		-	-						
					Trichloroethene	06-07-88		<1.0	-		-	-						
					Trichloroethene	12-06-88		<1.0	-		-	-						
					Trichloroethene	06-01-89		<1.0	-		-	-						
					Trichloroethene	12-06-89		<1.0	-		-	-						
67 WORTHINGTON, 155 ELEPHANT RD.				I	Trichloroethene	05-01-89		NA	-		-	-	4617-C-05	<1.0	-	-	-	-
68 FAIRBANKS, 3206 RICKERT RD				I	Trichloroethene	05-01-89		NA	-		-	-	4617-C-06,07	<1.0	<1.0	-	-	-
69 RESIDENT, 3212 RICKERT RD				I	Trichloroethene	05-01-89		NA	-		-	-	4617-C-08	<1.0	-	-	-	-
70 HACKMAN, 164 ELEPHANT RD.				I	Trichloroethene	05-01-89		NA	-		-	-	4617-C-09	<1.0	-	-	-	-
71 KRIFF, 170 ELEPHANT RD				I	Trichloroethene	05-01-89		NA	-		-	-	4617-C-10	<1.0	-	-	-	-

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	COLLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to200ug/L III=TCE>200ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
72 STATE POLICE, 3218 RICKERT RD.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-11	<1.0	-		-	-
73 BEDFORDS, 3232 RICKERTS RD.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-12	<1.0	-		-	-
74 SIMON, 100 DEEP RUN RD.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-13	<1.0	-		-	-
75 BOECKER, 111 DEEP RUN RD.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-14	<1.0	-		-	-
76 CROUTHAMEL, 179 N. MAIN ST.				II	Trichloroethene	05-01-89	NA	-		-	-	4617-C-15	1.6	-		-	-
					Trichloroethene	12-05-89	2.8	-		-	-						
					Trichloroethene	06-05-90	7.4	-		-	-	5429-C-15	6.76	-		-	-
77 MYERS, 173 N. MAIN ST.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-16	1.8	-		-	-
				I	Trichloroethene	06-04-90	2.1	-		-	-						
78 FRANKLIN, 104 MIDDLE RD-WELL 1				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-17	<1.0	-		-	-
79 FRANKLIN, 104 MIDDLE RD-WELL 2				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-18	<1.0	-		-	-
80 SUBURBAN,N MAIN & RICKERT RD.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-20	<1.0	-		-	-
81 SCHULTZ, 100 MAPLE AVE.				I	Trichloroethene	05-01-89	NA	-		-	-	4617-C-21	<1.0	-		-	-
82 STAUFFER, 111 ELEPHANT RD.				II	Trichloroethene	05-01-89	NA	-		-	-	4617-C-22	7.7	-		-	-
	POU				Trichloroethene	12-05-89	<1.0	-		9.9	-						
					Trichloroethene	03-06-90	47.9	-		<1.0	-						
					Trichloroethene	06-04-90	4.9	-		NA	-	5429-C-04	2.4	-		-	-
					Trichloroethene	12-04-90	7.3	-		3.2	-						
					Trichloroethene	06-06-91	<1.0	-		<1.0	-						

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NAME, ADDRESS	TYPE OF SYSTEM (POU = Point-of-use)	CULLIGAN SYSTEM? (Y=yes) (N=no)	BIO-TREATMENT (Y=yes) (N=no)	TIER LEVEL I=TCE<5ug/L II=5to260ug/L III=TCE>260ug/L	BCM PARAMETER	BEFORE TREATMENT DATE	BEFORE TREATMENT SAMPLE NO.	BEFORE TREATMENT CONC (UG/L)	BEFORE TREATMENT DUP (UG/L)	AFTER TREATMENT SAMPLE NO.	AFTER TREATMENT CONC (UG/L)	AFTER TREATMENT DUP (UG/L)	VERSAR BEFORE TREATMENT SAMPLE NO.	VERSAR BEFORE TREATMENT CONC (UG/L)	VERSAR BEFORE TREATMENT DUP (UG/L)	VERSAR AFTER TREATMENT SAMPLE NO.	VERSAR AFTER TREATMENT CONC (UG/L)	VERSAR AFTER TREATMENT DUP (UG/L)
83 SMELL, 119 CHERRY LANE				I	Trichloroethene	05-01-89	NA	-	-	-	-	4617-C-23	(1.0	-	-	-	-
					1,1,1-Trichloroethane	05-01-89	NA	-	-	-	-	4617-C-23	3.4	-	-	-	-
84 VANDER LECUW, 166 ELEPHANT RD.				I	Trichloroethene	05-01-89	NA	-	-	-	-	4617-C-24	(1.0	-	-	-	-
85 SMITH, 168 ELEPHANT RD.				I	Trichloroethene	05-01-89	NA	-	-	-	-	4617-C-25	(1.0	-	-	-	-
86 MOYERS DAIRY, 183 N. MAIN ST.	NONE			II	Trichloroethene	05-01-89	NA	-	-	-	-	4617-C-02	1.3	-	-	-	-
					Trichloroethene	12-04-89	1.4	-	-	-	-	5120-C-03	(1.0	-	-	-	-
					Methylene Chloride	12-04-89	-	-	-	-	-	5120-C-03	2.9B	-	-	-	-
					Trichloroethene	06-04-90	2.0	-	-	-	-	5429-C-03	1.3	-	-	-	-
					1,1,1-Trichloroethane	06-04-90	-	-	-	-	-	5429-C-03	1.0	-	-	-	-
					Trichloroethene	12-03-90	1.2	-	-	-	-						
					Trichloroethene	06-06-91	9.0	-	-	-	-						
87 BERTOLET, 101 DEEP RUN	NONE			I	Trichloroethene	02-06-90	NA	-	-	-	-	CBF32/CBF33	(5.0	(5.0	-	-	-
88 HESS, 119 ELEPHANT ROAD	NONE			II	Trichloroethene	02-06-90	NA	-	-	-	-	CBF34	130	-	-	-	-
					1,2-Dichloroethene	02-06-90	NA	-	-	-	-	CBF34	33	-	-	-	-
	TOTAL				Trichloroethene	03-04-91	58.6	-	(1.0	-							
					Trichloroethene	06-06-91	18.0	-	(1.0	-							

NA = NOT ANALYZED
ND = NOT DETECTED
BW = BOTTLED WATER
J = ANALYTE PRESENT. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.
B = NOT DETECTED SUBSTANTIALLY ABOVE LEVELS REPORTED IN LABORATORY OR FIELD BLANKS
D = DILUTED SAMPLE
L = REPORTED VALUE MAY BE BIASED LOW

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