



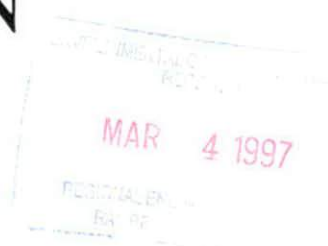
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation

546043

SARATOGA TREE NURSERY
ROUTE 50 FACILITY
Saratoga County, N.Y.

Remedial Investigation/Feasibility Study
ON-SITE WORK PLAN

June 1995



New York State Department of Environmental Conservation

Saratoga Tree Nursery Route 50 Facility
Remedial Investigation/Feasibility Study Work Plan

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SECTION 1: PURPOSE OF THE INVESTIGATION

This sampling program is designed to determine the extent of DDT or other pesticide/herbicide contamination in soil, groundwater, surface water, and sediment at the Saratoga Tree Nursery. Elevated levels of DDT have been detected in surface and subsurface soils in certain areas of the Saratoga Tree Nursery property where this compound was historically handled or stored. Also, low levels of DDT have been detected in site groundwater. As part of this investigation, the following activities will take place:

- Surface and subsurface soil samples will be collected and analyzed for pesticides to determine the extent of contamination associated with past DDT handling at the site.
- Monitoring wells will be installed. From these wells, groundwater data will be collected to assess groundwater quality and characterize local hydrogeology. Also, groundwater samples will be collected and analyzed to determine the extent of DDT contamination.
- Sediment and water samples will be collected from the two ponds that exist on the property.
- Any surface water and/or sediment in areas of historic flooding will be sampled. This will include the swale located behind the old building foundation and the creek running along the western fence line of the nursery.
- Test pits will be excavated in several locations. These locations include the wood pallet disposal area, the old mixing area, adjacent to the old foundation, and the area near building M (see Figure 2) along the entry road which is the location of the former underground storage tanks.
- All buildings that were used to store DDT and other herbicides/ pesticides will be inventoried and sampled as appropriate.

In summary, a comprehensive study of site soil, groundwater, and surface water will be undertaken to allow an accurate delineation of any contamination present. Subsequently, the investigative findings will be evaluated as part of a Feasibility Study (FS), to determine the most suitable remedial action(s) to address the contamination identified.

SECTION 2: SITE HISTORY AND BACKGROUND

Site History

The State of New York has operated a tree nursery at the Route 50 location since 1910. Approximately 30 acres of the total 130 acre site has been used for nursery related activities. About 100 acres remain forested; having never been developed for nursery use. Since 1969, only 12 acres

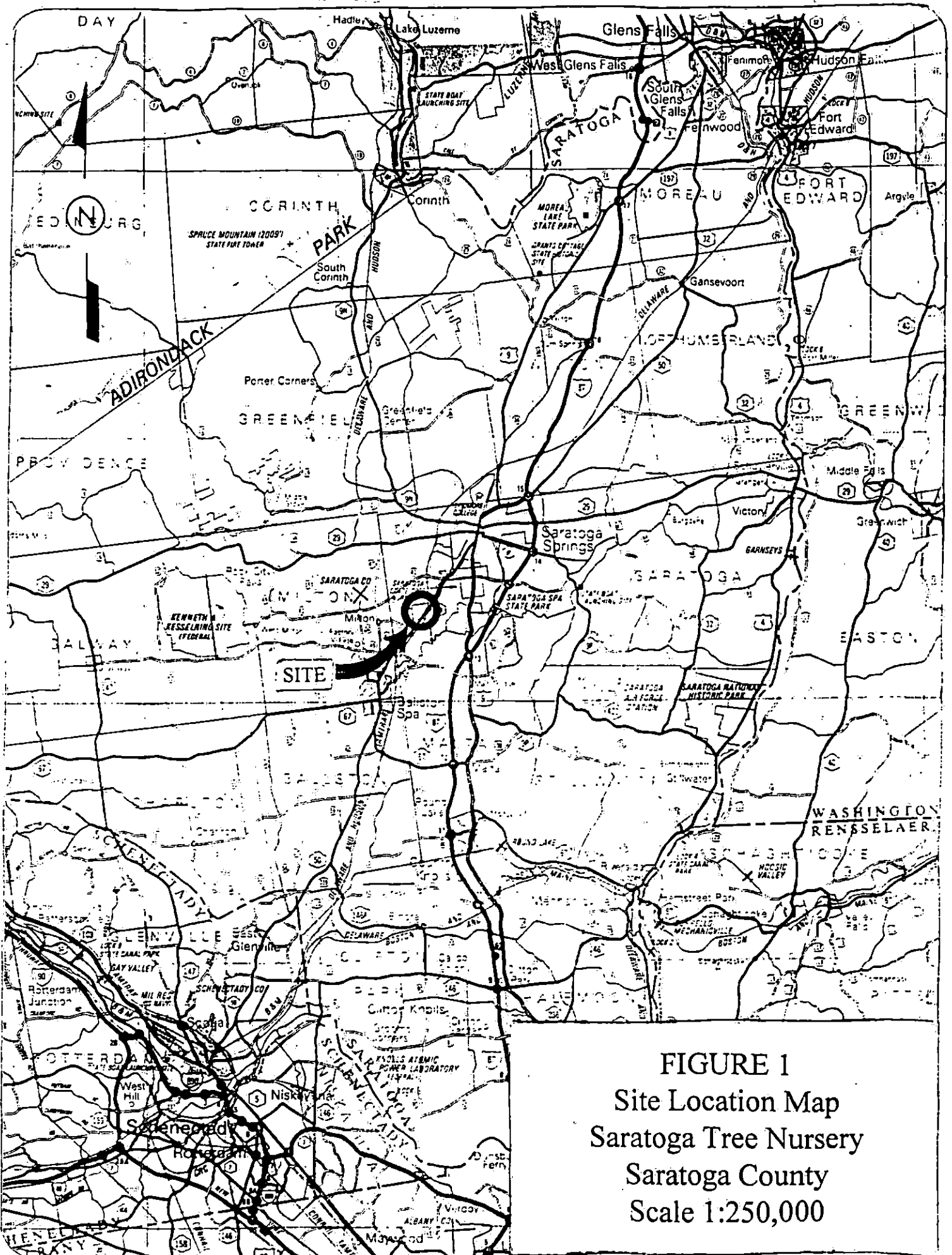
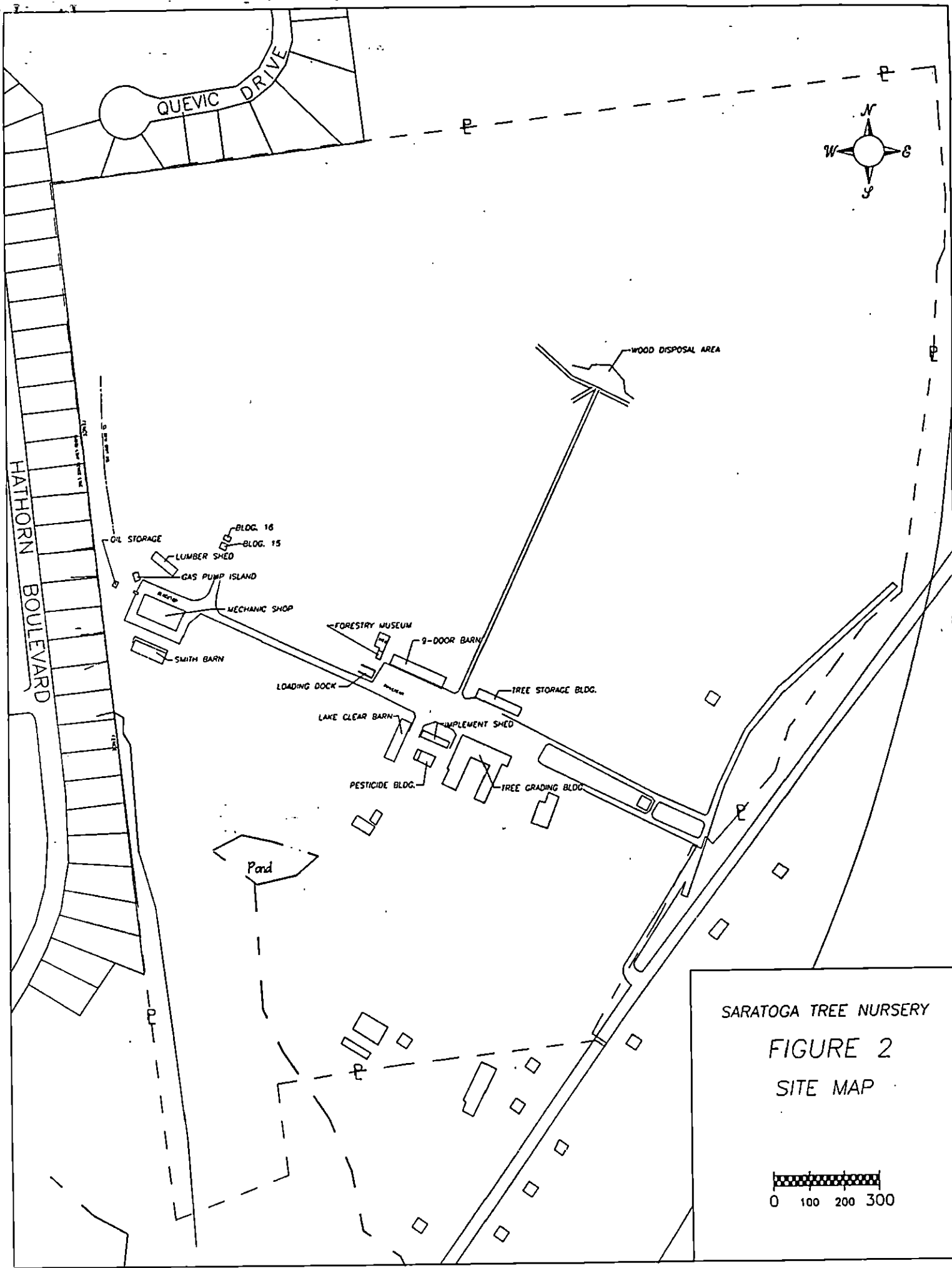
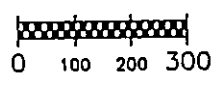


FIGURE 1
 Site Location Map
 Saratoga Tree Nursery
 Saratoga County
 Scale 1:250,000



SARATOGA TREE NURSERY
FIGURE 2
SITE MAP



of the original 30 have been used for nursery production. The nursery was originally operated by the Conservation Department before its incorporation into the Department of Environmental Conservation in 1970. Because of the acreage available and the proximity to the Saratoga County Airport, the nursery was used as a storage and mixing facility by the Bureau of Forest Insect and Disease Control.

Background

The Saratoga Tree Nursery was used as a storage site for DDT powder and as a formulation/ transfer station for the DDT emulsion used in the aerial spraying operations carried out by the State, from the 1940's until the use of DDT was discontinued in 1966. These spraying operations were part of an effort by the Bureau of Forest Insect and Disease Control to control the gypsy moth populations.

The formulation process involved dissolving DDT powder in fuel oil and using the solution to create an oil/water emulsion. The DDT emulsion was pumped into tanker trucks which were dispatched to waiting aircraft that were used in the spraying operation.

After the tanker trucks had delivered the DDT emulsion they were returned to the tree nursery, emptied of any residual emulsion and were rinsed and flushed with water. The rinsing and flushing operations were conducted in the vicinity of the present mechanic shop (see Figure 2, Bldg. J). It is believed contaminated rinse waters flowed to a low area at the western edge of the Route 50 facility. NYSDEC believes that the flushing and rinsing of the tanker trucks, including the disposal of the residual emulsion and the resulting contaminated rinse water, were the primary sources of the DDT contamination in this area.

Through the early 1980's, pesticides awaiting final disposition or disposal are reported to have been stored in two small storage sheds, the lumber barn, the mechanic shop, the loading dock, the Smith barn and in the former building of which only a foundation remains (Buildings E, F, G, H, J, K, & L respectively on Figure 2). These, as well as an alleged disposal event/incident in the wood pallet/shade frame disposal area, are the only areas where DDT is reported to have been stored or handled at the Nursery facility.

DDT was originally found in soil samples collected at the Route 50 facility in May of 1994. The samples were collected as part of the routine sampling for possible petroleum contamination required when the existing underground fuel tanks near the mechanic shop were replaced with new tanks. Based on this data, nursery facility staff requested the NYSDEC's Division of Hazardous Waste Remediation (DHWR) test additional locations in this vicinity for pesticide contamination. This sampling was conducted in the Fall of 1994.

Sampling was conducted in three separate events. The first event, which took place in October 1994, included sampling three water supply wells on the Nursery property and soil sampling to define areas which may have been impacted by the handling of DDT.

After NYSDEC reviewed the results of the first soil sampling, a second round of samples was collected in December 1994. These samples were collected along the western property boundary of the Route 50 facility, including nine locations adjacent to properties located on Hathorn Boulevard in the Geysers Crest Community. The area in question represents an area of about 600 feet along the western fence line.

To better define the northern and southern limits of contamination along the fence line, additional samples were collected in a third sampling event in January 1995. Also, existing on-site wells were sampled for the presence of lead and arsenic, since the pesticide lead arsenate was also reported to have been stored at the Tree Nursery.

In addition to the on-site sampling that has taken place, an Off-Site Investigation was conducted during the months of March and April, 1995. This investigation included an extensive sampling and analytical program. Ten private properties were sampled as part of this program, involving the collection and analysis of surface and subsurface soil samples, sampling private well points, digging test borings in an area of oil contamination, and installing and sampling temporary well points. The investigation identified and delineated off-site contamination of DDT. The investigation also found that although private well points had not been contaminated, DDT is present in source area groundwater. Details concerning the off-site investigation can be found in the report entitled, "Preliminary Remedial Investigation Report, Off-Site Sampling."

SECTION 3: SCOPE OF WORK

3.1 Surface and Subsurface Soil

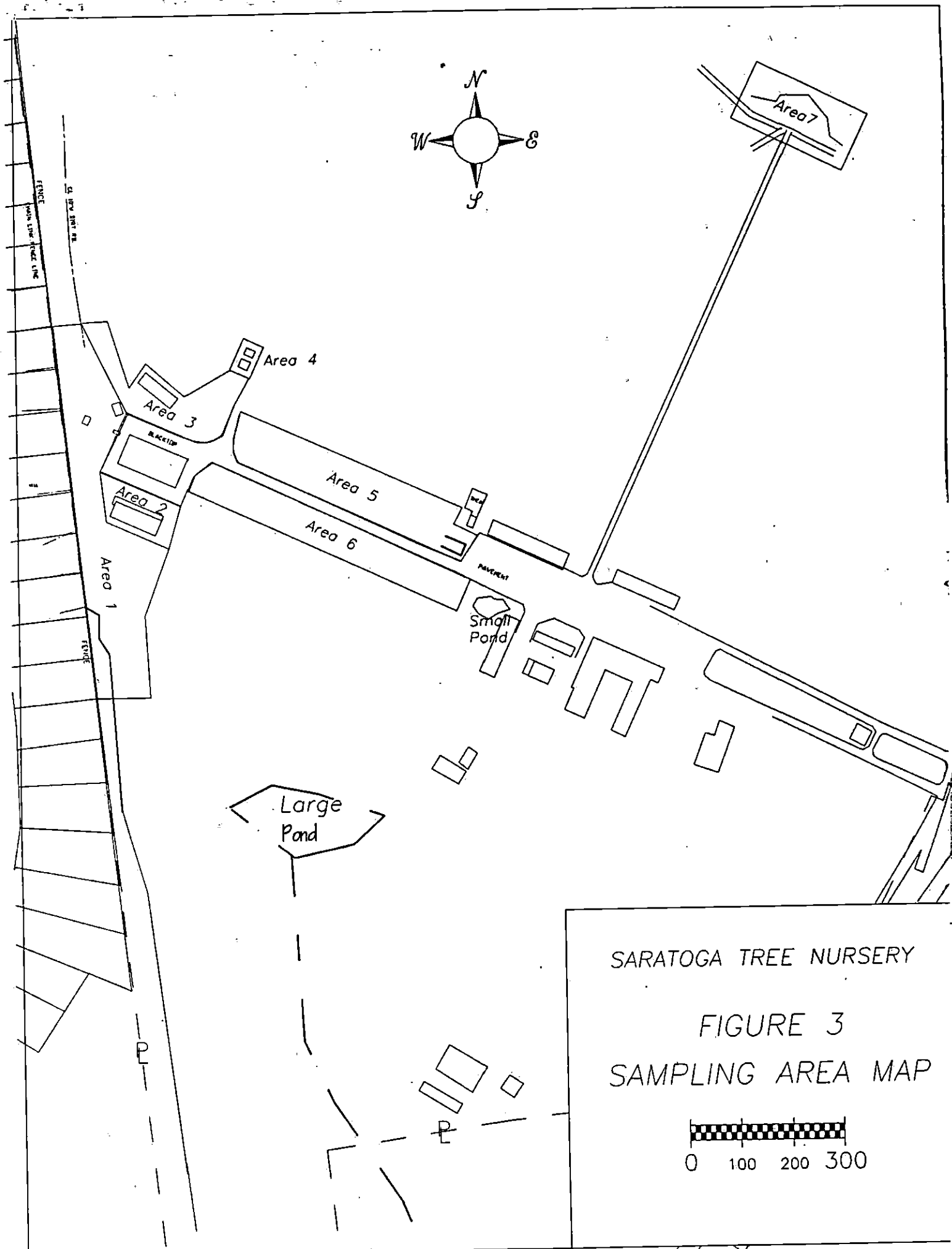
Through a records search and interviews with past nursery employees, it was revealed that DDT was handled at the loading dock, two storage buildings, the lumber shed, the mechanic shop, Smith Barn, and at the old building foundation (Figure 2, Bldgs. E, F, G, H, J, K, and L). It has been reported that rinse water from the trucks hauling the DDT emulsion was allegedly disposed of along the western property boundary of the nursery. Soil samples taken in these areas have confirmed DDT contamination. Based on all the information to date, a soil sampling program has been developed to assess the extent of the DDT contamination at the nursery. The nursery has been divided into seven areas of concern. These areas are shown on Figure 3. A description of the sampling rationale in each area is described below. The number of samples collected will be increased, if necessary, to fully characterize the extent of contamination in a given area.

Area 1: This area includes the fire road area and a creek that runs along the western property boundary of the nursery. Samples taken from this area have shown high concentrations of DDT. It is believed that rinse water from trucks containing an oil/water/DDT emulsion was disposed of in this area. A grid will be staked out and sampled in the area (700'x150' area). The grid will be modified to account for locations where samples were previously collected. Approximately 20 samples will be collected from Area 1.

Area 2: This area includes the Smith Barn (Bldg. K) and the adjacent tank trailers used for mixing DDT. Pesticides were reportedly stored in the Smith Barn. Tests conducted in Smith Barn by the Bureau of Pesticides in 1985 showed pesticide contamination of the soil and gravel floor. As a remedial measure, the floor was subsequently covered with 6 mil polyethylene and concrete. Four abandoned tanks are situated adjacent to the Smith Barn. Samples of material from the tank trailers identified DDT residue. Samples will be taken around the base of the foundation of the pole barn and around the tank trailers. Since fill was used in constructing Smith Barn, care will be taken to ensure samples are collected at sufficient depth to be representative of native material. Approximately eight samples will be collected.

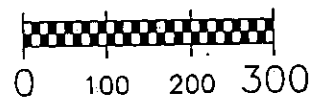
Area 3: This area comprises the lumber shed (Bldg. H) and surrounding area. It is reported that the lumber shed may have been used in past pesticide operations. Two samples will be taken near the lumber shed; one on the southeast side and one on the northeast side. The interior will also be thoroughly examined and sampled as necessary to characterize any area of concern. The surrounding area will also be sampled to detect any spill areas.

Area 4: This area comprises the storage buildings (Bldgs. F and G). Pesticides are currently stored in these two small storage buildings. A sample will be taken in the doorway of each of the two storage buildings. In addition, the interior of the buildings will be investigated and sampled as



SARATOGA TREE NURSERY

FIGURE 3
 SAMPLING AREA MAP



appropriate.

Area 5: This area comprises the grass field and loading dock (Bldg. E). It has been reported that past mixing operations occurred in the vicinity of the loading dock. West of the loading dock lies the grass field. Six underground tanks storing unknown liquids once existed in this grass field. Soil samples taken in this area have shown high concentrations of DDT. A grid will be staked out and sampled in the grassy field (300'x70' area). Approximately 15 samples will be collected from this area.

Area 6: This area comprises the old foundation (Bldg. L), a swale behind the foundation which leads to the small pond, and adjacent grass field across the access road from Area 5. It is suspected that DDT was stored and/or mixed in the building of which only a foundation still exists. Three samples taken from the swale behind the foundation contained elevated levels of DDT. The building foundation (100'x40' area) will be sampled in four locations. Samples will be taken in between cracks in the foundation or through borings in the concrete. A grid will be staked out and sampled in the grassy field adjacent to the foundation (350'x75' area). Swale sediment sampling is discussed in Section 3.3. Approximately 16 samples will be collected from this area.

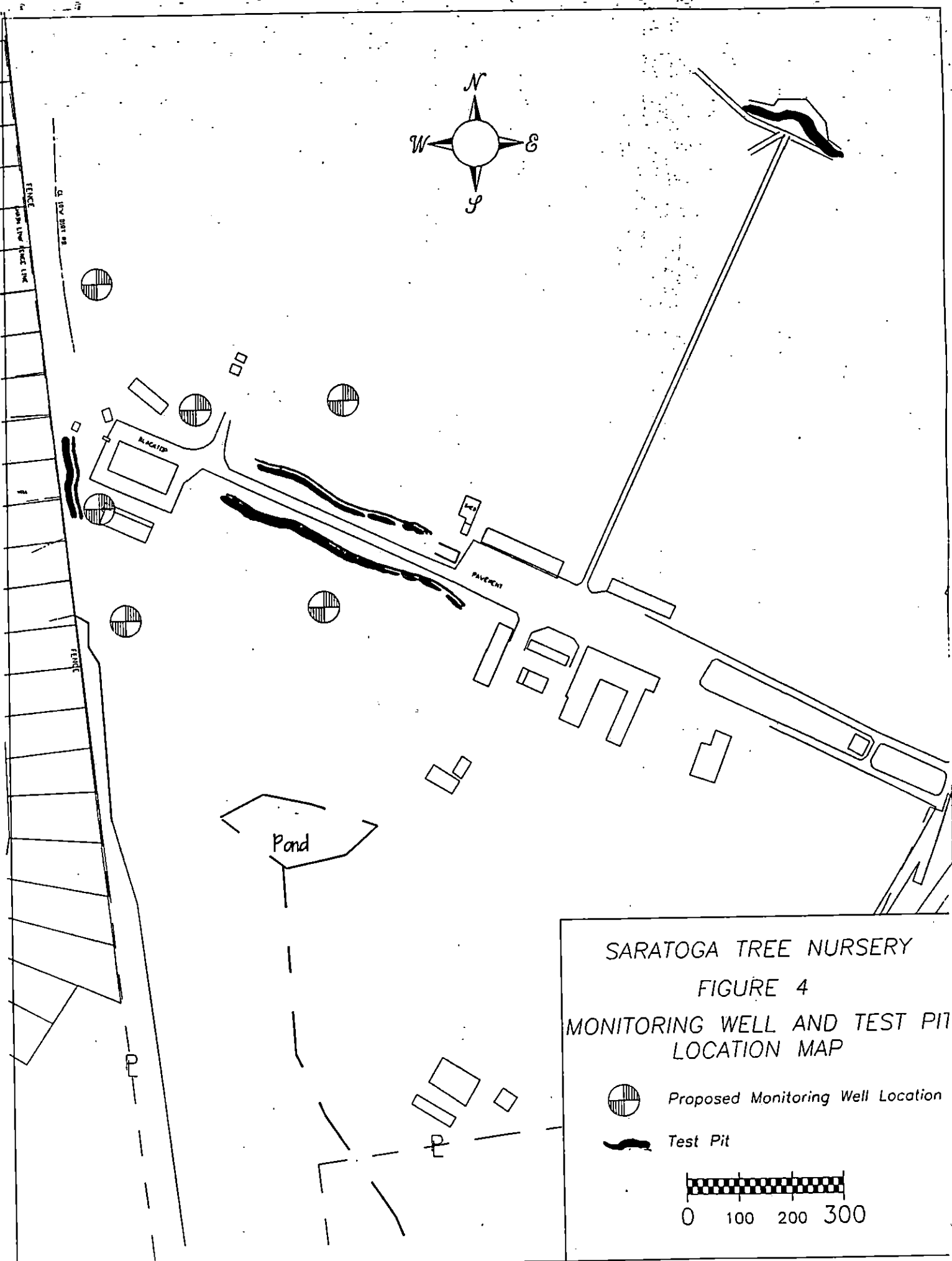
Area 7: This includes the wood disposal area, used to dispose of wood pallets and shade frames. An unsubstantiated report was made that DDT was disposed of in this area. Samples will be collected as necessary from test pits that will be excavated. Also, approximately ten samples will be collected along the base of the hill that comprises the wood disposal area. These samples should indicate if large quantities of DDT were disposed of since runoff would likely carry product to the base of the hill.

Samples collected from each of the areas will be analyzed with immunoassay field test kits (reference Appendix C). At least one in twenty samples, or a minimum of one sample in each area, will be subjected to a full pesticide scan in the laboratory. Also, samples from areas where other pesticides/herbicides are suspected to have been handled (ie: Smith Barn, the storage buildings, etc.) will be subjected to a full pesticide/herbicide analysis. Several samples will be duplicated and sent to an independent laboratory. These analytical procedures are discussed in greater detail in the Quality Assurance/Quality Control (QA/QC) section.

3.2 Groundwater

Existing water supply wells on the nursery property have been sampled previously. One of these wells, which is located adjacent to the area of highest DDT contamination, was found to be contaminated with low levels of DDT, DDD, and DDE. A groundwater monitoring program has been developed to define the soil type/lithology, hydrogeological conditions, and the extent of contamination.

Five to eight monitoring wells will be constructed, depending on site conditions. Six tentative well locations are shown on Figure 4. Monitoring wells will be drilled and installed using standard hollow



SARATOGA TREE NURSERY

FIGURE 4

MONITORING WELL AND TEST PIT LOCATION MAP



Proposed Monitoring Well Location



Test Pit



0 100 200 300

stem auger (HSA) methods or other NYSDEC approved methods. Split spoon samples will be collected continuously in two foot intervals in accordance with standard ASTM specifications. Soil samples will be visually classified and stored in sealed jars for future reference. All wells will be screened across the water table in order to obtain information about the upper portion of the aquifer. Typically, screen length will be 10 feet or less. The total depth of each monitoring well will be approximately fifteen feet.

Monitoring wells will be constructed of two inch ID threaded schedule 40 PVC flush-joint casing and properly sized section of machine slotted 0.010-inch well screen. The annulus around the well screen will be backfilled with No. 1 Morie sand. The sand pack will extend a maximum of two feet above the well screen. A bentonite seal will be placed above the sand pack to form a maximum three foot seal. A cement/bentonite grout will be placed to within three feet of the surface. Each well will have a vented cap and a four inch diameter steel protective casing with a hinged locking cover. A cement pad will be installed to channel surface water away from the well. A weep hole will be drilled in the protective casing to allow any water between the inner and outer casing to drain. A typical well construction detail and the well specifications are included in Appendix E.

Monitoring wells will be pumped or bailed to remove sediment from the well screen and sand pack. Well evacuation will be accomplished using a disposable polyethylene bailer or a pump and polyethylene tubing. Efforts will be made to develop the wells until pH, conductivity, and temperature are stabilized and until the water has a turbidity of less than 50 NTU's.

3.3 Surface Water

Sediment and surface water samples will be collected and analyzed from the two on-site ponds and from the creek that flows along the western property boundary. Sediment samples from the ponds will be collected by using a sediment sampler and boat. Water samples will be collected from the same locations as the sediment samples. To ensure water samples are representative, they will be collected prior to sediment samples, which will disturb sediment.

Sediment and surface water samples collected from the creek will be collected at 100 foot spacings. Sampling will be discontinued when two consecutive samples collected are less than 1 ppm.

Based upon field observations, representative water samples will be collected from locations if seasonal standing water is present. Soil sampling will be coordinated with the presence of standing water or will be biased towards areas of reported water ponding.

3.4 Test Pits

During the off-site investigation, an isolated area of oil contamination was observed. Soil samples contained a strong petroleum odor. This discovery, while on private property, was in the general vicinity of the former underground storage tanks (UST) which contained fuel oil and were removed. It is unclear whether a connection exists between the nursery and the petroleum contaminated soil.

However, since the nursery did have UST's with fuel oil in the area, a test pit will be dug between the contaminated area and the former UST location to confirm whether oil contaminated soil is present on site.

A disposal area for wood pallets and wood shade frames is located in a wooded area on the central portion of the nursery property. It has been alleged that DDT was disposed of in this area. Several test pits will be dug in the wood disposal area to investigate this allegation. Test pits will also be dug in the former mixing area, adjacent to and around the old foundation, and other areas as necessary based on results of the investigation.

Excavations will take place with a backhoe capable of excavating to a depth of 12 to 15 feet. Excavated material will be placed adjacent to the pit on the ground during test pit operations. Material will be replaced in the excavation when the test pit operations are complete.

Excavation will proceed as necessary to delineate the extent of any identified contamination. Test pit logs will be prepared describing the subsurface conditions encountered (including: thickness and type of fill material, depth to groundwater, depth to native soil, type of native soil, length-width-depth of pit, and any other pertinent information) for each test pit. Test pits will be visually inspected for the presence of contamination. If contamination is suspected, samples will be taken for pesticide analysis. Samples will be taken from material removed by the backhoe. No personnel will enter an open test pit.

3.5 Pesticide Storage Building Inventory

Two small pesticide buildings exist on the nursery property that were used historically for storing pesticides (Figure 1, Bldgs G and F). A site reconnaissance revealed containers of unknown pesticides. All pesticides in these buildings will be inventoried and properly stored or disposed of by Division of Lands and Forests (DLF) staff.

3.6 Remedial Investigation/ Feasibility Study Report

Data generated from this sampling effort will be used to define DDT concentrations in surface soils, subsurface soils, groundwater, and surface water within the area of investigation. After review and evaluation of sample results the NYSDEC and NYSDOH will establish an appropriate remedial objective to address the contamination present. The NYSDEC will then prepare a remedial investigation report which will define the nature and extent of the contamination. Following the Remedial Investigation (RI) a Feasibility Study, which evaluates alternatives to address the contamination identified in the RI, will be completed.

SECTION 4: SAMPLING METHODOLOGY

4.1 Field Log Books

All field activities will be documented in the field log book. This book will provide a record of the activities conducted at the site. All entries will be signed and dated at the end of each day of field work. The field log book will include, at a minimum the following: date and time of all entries, names of all personnel on site, weather conditions (temperature, precipitation, etc.), location of activity, and description of activity.

4.2 Equipment Decontamination and Disposal

Some of the field equipment will be disposable and not require decontamination. If decontamination is required, it will be carried out by washing with Alconox and rinsing with distilled water. Equipment will be kept in a clean environment prior to sampling. Hand augers will be properly decontaminated between samples. If a portable pump is necessary for well sampling, the pump will be properly decontaminated prior to sampling, and in between well sampling events. All discarded equipment (latex gloves, trowels, paper towels, etc.) will be drummed in accordance with applicable requirements. Decontamination water will be drummed and treated or disposed of.

4.3 Field Instrument Calibration

All field instruments will be calibrated prior to use.

4.4 Sample Collection

Surface and Subsurface Soils: Leaves and other debris will be cleared from sample locations prior to sampling. Surface samples will be collected with a disposable plastic trowel. Care will be taken to exclude rocks, sod, roots, etc. The samples will be taken from the 0-6" soil horizon. Subsurface samples will be collected from the 6-12" and 12-24" soil horizons using a stainless steel hand auger. These samples will be taken at the same location as the surface soil sample.

Sufficient soil will be collected to fill the number of sample bottles necessary for the test kits and pesticides analysis. All samples will be placed on ice in appropriate coolers until delivery to the lab. Any observable physical characteristics of the soil as it is being sampled (e.g., color, odor, physical state, waste material or debris encountered) will be recorded on the appropriate sampling data sheets (see Appendix 1).

Soil Sampling in Flooded Areas: Sediment sampling will take place after surface water sampling if the samples are to be taken in the same location. Rocks and vegetative material will be discarded and care taken to collect fine sediment materials. Samples will be collected with disposable trowels and transferred to an appropriate container as specified by the laboratory. All samples will be placed on

ice in appropriate coolers until delivery to the lab. Any observable physical characteristics of the sediment as it is being sampled (e.g., color, odor, physical state, waste material or debris encountered) will be recorded on the appropriate sampling data sheets.

Groundwater: Prior to sampling, the static water level will be measured from the top of casing. Groundwater samples will be taken with either a dedicated bailer, an existing dedicated pump, or a portable pump. The pH, conductivity, turbidity, and temperature will be noted for each well. Three to five well volumes will be removed from each well prior to sampling. If the well is bailed dry before removing the required amount of water, the well will be allowed to recover to 90% of the static level. After the well has recovered, it may be sampled. Turbidity will again be checked at the time of sampling. If turbidity measures higher than 50 NTU's, the water within the well may sit for up to 24 hours for the sediment to settle out. Sufficient water will be collected from each well to fill the sample bottles necessary for a pesticides analysis. All samples will be placed on ice in appropriate coolers until delivery to the lab. Any observable physical characteristics of the water as it is being sampled (e.g., color, odor, or physical state) will be recorded on the appropriate sampling data sheets.

Surface Water: Sediment and surface water will be collected from the two ponds using a boat and sediment sampler. Surface water samples will be taken from downstream locations first. Sufficient water will be collected to fill the sample bottles necessary for a pesticides analysis. All samples taken for full scan pesticides analysis (modified Method 8080) will be placed on ice in appropriate coolers until delivery to the lab. Any observable physical characteristics of the water as it is being sampled (e.g., color, odor, or physical state) will be recorded on the appropriate sampling data sheets.

4.5 Equipment

TABLE I SAMPLING EQUIPMENT LIST	
Field Book	Gloves
Sampling Jars	Plastic Trowels
Hand Auger	Tools (assorted)
Coolers	Respirator/Cartridges
Distilled Water	Field Sample Markers/Flags
Custody Forms	Brushes
Ice	Alconox
Knife	Portable Pump
First Aid Kit	Generator
Sediment Sampler	Clear Tape
Plastic Sheeting	Paper Towels
pH/temp./conductivity/turbidity meters	Disposable Bailers
Water Level Indicator	Distilled Water
Buckets	Rope
	Dust Monitor

All equipment will be collected and/or purchased prior to mobilization to the site.

SECTION 5: QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

5.1 Sample Custody

Chain-of-Custody forms will be filled out in order to provide an accurate written record that can be used to trace the possession and handling of sample from its collection through its analysis (See Appendix 1). This form will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secure area that is restricted to authorized personnel.

Samples will be properly stored and meet all holding times required for analysis.

Each sample will be labeled with an identification number and plastic clear tape over the label to prevent peeling while shipping or storing. Duplicate copies of the Chain of Custody form will be filled out. One copy of the form will be retained by the samplers, and one form will be sealed in a plastic bag and taped inside the lid of the shipping cooler. After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper. The samples must be delivered to the laboratory within 48 hours of collection.

5.2 Sample Documentation

A sampling summary sheet will be filled out for each sample taken. Please see Appendix 1 for an example of this form.

5.3 Immunoassay Protocols

The following QA/QC will be used for the analysis of samples collected at the Saratoga Tree Nursery:

1. All samples will be run in accordance with the manufactures procedures. These procedures can be found in Appendix C.

2. Each analysis group will include: a negative control, 3 standards, a duplicate, and a reference standard (a sample of known concentration).
3. The duplicate will be run every tenth sample. The difference in absorbance will be less than 0.20. If the difference in absorbance is greater than 0.20 then all samples will be re-run. If duplicates are out upon reanalysis the operator will re-extract and re-run.
4. Ten percent of all samples will be confirmed by GC/MS analysis. Of the confirmed samples, two samples will be sent to an outside lab for confirmation.
5. Three unconfirmed samples will be sent to an outside lab for confirmation.

SECTION 6: HEALTH AND SAFETY PLAN (HASP)

6.1 Community Health and Safety

DDT is non-volatile and the soil sampling portion of this investigation will be relatively non-intrusive. For these reasons, no perimeter air monitoring will be carried out during sampling efforts. During sampling, an exclusion zone will be set up. Only NYSDEC personnel will be permitted within the exclusion zone. All core plugs will be replaced after sampling. If significant dust is generated, the sampling will be discontinued until proper air monitoring is established.

Drilling and test pitting operations are intrusive in nature and may generate dust. For this reason, a dust monitor will be present on site during drilling and test pitting activities. If significant dust is generated, dust suppression methods such as wetting down the soil will be utilized. An exclusion zone will be established during drilling and test pitting. Only NYSDEC personnel and contractors will be permitted within the exclusion zone.

6.2 Investigation Health and Safety Plan

The inventory and sampling activities associated with the pesticide storage sheds, although technically not being carried out in a confined space, are being conducted in an area with little ventilation and a potentially hazardous atmosphere. This is due to the unknown pesticides that are/were stored in these two buildings. For this reason, a respirator with a dust/organic vapor/pesticide cartridge will be worn by all personnel working in these buildings. The remainder of the investigation will be carried out in open areas. Since DDT is non-volatile, no air monitoring will be carried out during the remainder of the investigation (other than dust monitoring). Gloves will be worn during all sampling and decontamination activities.

There are telephones on site at the laboratory and at the nursery office building. In case of emergency, call 911. The route to the nearest hospital is shown in the Health and Safety Plan in Appendix D.

SECTION 7: SCHEDULE

Table 3 below shows the schedule for all activities associated with on site investigation at the Saratoga Tree Nursery.

Table 3 SCHEDULE		
ACTIVITY	START DATE	END DATE
Develop On-Site Work Plan	5/1/95	6/1/95
Public Mailing/Make Work Plan Available to Public	6/7/95	NA
On-Site Sampling Program	6/26/95	8/4/95
Sample Analysis	6/26/95	9/5/95
Test Pit Excavation	7/17/95	7/21/95
Monitoring Well Installation	7/24/95	8/4/95
Develop Monitoring Wells	8/7/95	8/11/95
Pesticide Building Inventory	TBS	
Interpret Analytical Results/Prepare Remedial Investigation (RI) Report	8/15/95	10/15/95
Public Mailing/Make RI Available to Public	10/30/95	NA
Public Meeting to Discuss On-Site Investigation Results	11/15/95	NA

APPENDIX A

FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF TECHNICAL SERVICES

CHAIN OF CUSTODY RECORD

SITE NAME: _____

SITE CODE: _____

DEC REGION: _____

T&A CODE: _____

VOA (40ml)	BNA; PEST/PCB (1 liter)	METALS (preserved) (500ml/1 liter)	SOIL JARS
-----	-----	-----	-----

BOTTLES RELEASED BY: (Signature, date/time) _____

BOTTLES RECEIVED BY: (Signature, date/time) _____

FIELD ID	TYPE GRAB/ COMP	MATRIX	DATE	VOA	BNA PES PCB	MET	LAB ID

COLLECTED BY: (Signature, date/time) _____

RELINQUISHED BY: (Signature, date/time) _____

LABORATORY ACCESSION BY: (Signature, date/time) _____

APPENDIX B
MILLIPORE DDT SCREENING KIT

MILLIPORE

EnviroGard™ DDT in Soil Test Kit

ENVR 000 31

Intended Use

The EnviroGard DDT in Soil Test Kit is a qualitative or semi-quantitative field test for the detection of DDT and its metabolites DDD and DDE in soil. The EnviroGard DDT in Soil Test Kit allows rapid semi-quantitative screening for DDT at 0.2, 1.0, and 10.0 parts per million (ppm) in soils.

Test Principles

The EnviroGard DDT in Soil Test Kit is based on the use of polyclonal antibodies that bind either DDT or DDT-Enzyme Conjugate. These antibodies are immobilized to the walls of the test tubes. When DDT is present in the sample, it competes with the DDT-Enzyme Conjugate for a limited number of antibody binding sites.

- A sample containing DDT is added to a test tube containing Assay Diluent. DDT-Enzyme Conjugate is then added to the test tube. The DDT-Enzyme Conjugate competes with the DDT for the antibody binding sites.
- After the incubation, the unbound molecules are washed away.
- A clear solution of chromogenic Substrate is then added to the test tube. In the presence of bound DDT-Enzyme Conjugate, the clear Substrate is converted to a blue color. One enzyme molecule can convert many Substrate molecules.

Since there are the same number of antibody binding sites on every test tube and each test tube receives the same number of DDT-Enzyme Conjugate molecules, a sample that contains a low concentration of DDT allows the antibody to bind many DDT-Enzyme Conjugate molecules.

Therefore, a low concentration of DDT produces a dark blue solution. Conversely, a high concentration of DDT allows fewer DDT-Enzyme Conjugate molecules to be bound by the antibodies, resulting in a lighter blue solution.

NOTE: Color is inversely proportional to DDT concentration.

Darker color = Lower concentration
Lighter color = Higher concentration

Performance Characteristics

The EnviroGard DDT in Soil Test Kit will not differentiate between DDT, its metabolites, and other structurally similar compounds, but will detect their presence to differing degrees. The following table shows a number of compounds and the approximate concentration of each required to yield a positive result (Lower Limit of Detection or LLD), and the concentration required to inhibit one-half of the color developed by the Negative Control (IC50). Concentration is in parts per million (ppm) in soil.

Compound	LLD	IC50
<i>p,p'</i> -DDT (kit calibrator)	0.04	1.25
<i>p,p'</i> -DDD	0.01	0.3
<i>p,p'</i> -DDE	0.18	3.6
<i>o,p'</i> -DDT	4	93
<i>o,p'</i> -DDD	0.4	11
<i>o,p'</i> -DDE	3	93
DDA	0.002	0.04
Chloropropylate	0.007	0.08
Chlorobenzilate	0.03	0.35
Dicofol	0.14	2
Tetradifon	1.2	14
Thiobencarb	5	52
Tebuconazole	7	95
Nepuron	17	234
Chloroxuron	24	216
Monolinuron	25	714
Dicofop	70	>1500

The following compounds have lower limits of detection > 100 ppm:

2,4-D	4-chlorophenoxyacetic acid
Chlorbromuron	Chlordane
Chlortoluron	Dicamba
Disflubenzuron	Diuron
Lindane	Linuron
MCPA acid	MCPB
Mecoprop	

Precautions

- Treat DDT, solutions that contain DDT and potentially contaminated soil samples as hazardous materials.
- Where appropriate, use gloves, proper protective clothing, and methods to contain and handle hazardous material.
- Store all test kit components at 4°C to 8°C (39°F to 46°F) when not in use.
- Do not freeze test kit components or expose them to temperatures greater than 37°C (99°F).
- Allow all reagents to reach ambient temperature (18°C to 27°C or 64°F to 81°F) before beginning the test.
- Do not use test kit components after the expiration date.
- Do not use reagents or test tubes from one test kit with reagents or test tubes from a different test kit.
- Use approved methodologies to confirm any positive results.
- Do not dilute or adulterate test reagents or use samples not called for in the test procedure; this may give inaccurate results.
- Tightly recap the DDT calibrator vials to prevent evaporative loss.
- Distribution of DDT in soils may be highly variable. The use of a composite sampling technique may be appropriate. Development of a sampling plan that assures adequate sample number and distribution is the responsibility of the analyst.
- DDT is light sensitive. Store soil extracts at 2°C to 7°C, shielded from direct light.

Materials Provided

EnviroGard DDT in Soil Test Kit

This test kit contains the following items:

- 20 Antibody-Coated Test Tubes
- 1 vial of Assay Diluent

- 1 vial of Negative Control (methanol)
- 1 vial of 0.2 ppm DDT Calibrator in methanol
- 1 vial of 1.0 ppm DDT Calibrator in methanol
- 1 vial of 10.0 ppm DDT Calibrator in methanol
- 1 vial of DDT-Enzyme Conjugate
- 1 vial of Substrate
- 1 vial of Stop Solution
- 1 20-place Test Tube Rack
- 22 Pipette Tips, yellow (for the Gilson M-25 Micro-man® Positive Displacement Pipettor)

Materials Required and Ordered Separately

See "Ordering Information" for the appropriate catalogue numbers.

EnviroGard Soil Extraction Bottle Kit

Use this kit for the extraction of DDT in soil samples. This kit contains enough devices to process 14 samples:

- 14 30 milliliter (mL) LDPE Bottles with screw caps (each bottle contains stainless steel mixing beads)
- 14 filtration caps
- 14 Millex® HV13 filters
- 18 Wooden Spatulas
- 1 Syringe with coupler
- 1 Syringe coupler
- 14 Screw Top Glass Vials, 4.0 mL
- 14 Stoppers
- 18 Weigh Boats

Methanol

ACS reagent grade Methanol is required for soil extraction, but is not included in the EnviroGard Soil Extraction Kit. You must order it separately. (See "Ordering Information.")

Materials Required but Not Provided

You will also need several other items, some of which are included in the EnviroGard Soil Field Lab. (See "Ordering Information" for the appropriate catalogue number).

- Gilson M-25 Microman Positive Displacement Pipettor
- Eppendorf™ Repeater® Pipettor and five Combitips® (3 x 12.5 mL, 1 x 5.0 mL, and 1 x 50 mL)
- Balance capable of accurately weighing 5 grams
- Millipore Differential Photometer or Enviro-Quant Photometer
- Indelible marker for labeling test tubes
- Watch or timer
- Clean running water or a wash bottle containing tap or deionized water (500 mL)
- Calculator (optional)

Suggestions for Pipettor Use

- Practice using both pipettors (positive displacement and Repeater pipettor) with water and extra tips before you analyze your samples.
- Use a new tip each time you use the Repeater pipettor to avoid reagent cross-contamination. Label three 12.5 mL tips "Diluent", "Substrate" and "Stop," and one 5.0 mL tip "Conjugate".
- Draw the desired reagent volume into the Repeater pipettor and dispense one portion of the reagent back into the container to properly engage the ratchet mechanism. If you do not do this, the first volume delivered may be inaccurate.
- To add reagents using the Repeater pipettor, pipette down the side of the test tube just below the rim.
- To add samples and calibrators using the positive displacement pipettor, pipette down the side of the test tube just above the liquid level.
- The carryover volume of the positive displacement tips is minimal, but may affect results if you are going from a high to low DDT concentration. Use a new pipettor tip each time you pipette a new unknown.

Assay Procedure

Collect/Store the Sample

1. Collect soil in appropriately-sized and labeled containers.
2. Take care to remove excess twigs, organic matter and rocks or pebbles from the sample. For best results, wet soils should be air-dried overnight and thoroughly mixed before testing.
3. Store soil samples at 4°C (39°F).

Prepare the Sample/Extract the Soil

1. Please follow the instructions from the EnviroGard Soil Extraction Bottle Kit to prepare the soil extract before the assay.
2. **5 mL of Methanol** will be used to extract DDT residue from a 5 gram soil sample. As per instructions, attach a **50 mL Combitip** to the Repeater pipettor and set the dial to **5**. Deliver once to add **5 mL of methanol** to the extraction vial, and cap tightly.

Perform the Test

NOTE: Allow all reagents and sample extracts to reach room temperature before you begin the test. Do not analyze more than 20 test tubes at a time.

1. The choice of calibrators to use in the test will depend on the the selection of the analyst. The use of two calibrators may be appropriate if screening for a single level of DDT.

Remove the test tubes from the plastic bag and label them as follows*:

<u>Tube Label</u>	<u>Tube Contents</u>
NC	Negative Control
C1	0.2 ppm Calibrator
C2	1.0 ppm Calibrator
C3	10.0 ppm Calibrator
S1	sample 1
S2	sample 2
etc.	

* You are not required to perform the assay in duplicate; however, doing so will increase the precision.

Place the test tubes in the test tube rack. Push down on each tube so that it is held firmly and does not fall out of the rack when shaken.

CAUTION: Do not "snap" the test tubes into the rack as this may result in a cracked tube.

2. Attach the **12.5 mL Combitip** labeled "Diluent" to the Repeater pipettor and adjust the dial to **2**. Add 500 microliters (μL) of Assay Diluent to each test tube.
3. Attach a clean pipette tip to the Microman pipettor and adjust the dial to "**250**". Add **25 μL** of each calibrator (including Negative Control) to the corresponding test tube by placing the end

of the pipette tip against the side of the tube (just above the level of the Assay Diluent) and dispensing the volume. Use a clean pipette tip each time.

CAUTION: Replace the caps on the calibrator vials immediately after use to minimize evaporation.

4. Using a clean tip for each sample, add 25 μL of each sample extract to the appropriately-labeled test tube.
5. Attach the 5.0 mL Combitip labeled "Conjugate" to the Repeater pipettor and adjust the dial to 1. Add 100 μL of DDT-Enzyme Conjugate to each test tube.
6. Shake the test tube rack to mix for 10 to 15 seconds. Leave the test tubes undisturbed for 15 minutes.
7. Vigorously shake out the test tube contents into a sink or suitable container. Fill the test tubes to **overflowing** with cool tap or distilled water, then decant and vigorously shake out the remaining water.

Repeat this wash step three more times, being certain to shake out as much water as possible on each wash. After the final wash, remove as much water as possible by tapping the inverted tubes on absorbant paper.

8. Attach the 12.5 mL Combitip labeled "Substrate" to the Repeater pipettor and set the dial to 2. Add 500 μL of Substrate to each test tube. Leave the test tubes undisturbed for 10 minutes.

NOTE: If a blue color does not develop in the Negative Control test tube within 10 minutes after adding the Substrate, the test is invalid and you must repeat it.

Interpret the Results

You can either interpret the results visually within 10 minutes after adding the Substrate to each test tube, or you can perform a more precise analysis with a photometer after you add the Stop Solution.

Visual Interpretation

After you add the Substrate, wait 10 minutes then mix the test tubes by shaking them for a few seconds until they are a uniform blue color. Compare the sample test tube to the calibrator test tubes against a white background. The test tube rack in the kit is well-suited for this purpose.

NOTE: The word DDT in the interpretation instructions below refers to "total DDT", i.e. the sum of *p,p'*-DDT, *p,p'*-DDD, and *p,p'*-DDE.

- If a sample test tube contains *more* color than the calibrator test tube, the sample contains DDT at a concentration *lower* than the calibrator.
- If a sample test tube contains *less* color than the calibrator test tube, the sample may contain DDT at a concentration *greater* than the calibrator.
- If the sample test tube contains color that is between the calibrator test tubes, the sample contains DDT at a concentration between the calibrator concentrations.
- If a sample test tube contains *approximately the same* amount of color as the calibrator test tube, the sample contains DDT at a concentration *approximately equal* to the calibrator.
- If the sample test tube contains less color than the 10 ppm Calibrator test tube, you may dilute a fraction of the soil extract in methanol (for example, 1:100) and perform the assay again. To determine the concentration of the diluted extract multiply the result by the dilution factor. (Go to "Semi-Quantitative Interpretation" for further details.)

Photometric Interpretation

After you add the Substrate, wait 10 minutes then add the Stop Solution to each test tube.

WARNING: Stop solution is 1N Hydrochloric acid. Handle carefully.

Attach the 12.5 mL Combitip labeled "Stop" to the Repeater pipettor and set the dial to 2. Add 500 μL of Stop Solution to each test tube. This converts the blue color in the test tubes to yellow.

NOTE: After you add Stop Solution to the test tubes, results should be read within 30 minutes.

Millipore Differential Photometer

1. Place a water blank test tube containing 1.5 mL of Milli-RO[®] or Milli-Q[®] water, or equivalent in the left (reference) well.
2. Place the Negative Control test tube into the right (sample) well. Record the optical density (OD) of the Negative Control.
3. Remove the Negative Control test tube and replace it with the 0.2 ppm Calibrator test tube

to reactivate the photometer. Record the result. Repeat this step to determine the OD for each of the remaining calibrators and for each sample.

Semi-quantitative Interpretation

Compare the OD of each sample to the OD of each calibrator:

NOTE: The word DDT in the interpretation instructions below refers to "total DDT", i.e. the sum of *p,p'*-DDT, *p,p'*-DDD, and *p,p'*-DDE.

- If a sample OD is *equal* to the OD of a calibrator, the sample contains DDT at a concentration *approximately equal* to the calibrator.
- If a sample OD is *greater* than a calibrator OD, the sample contains *less* DDT than the calibrator.
- If a sample OD is *lower* than a calibrator OD, the sample may contain *more* DDT than that calibrator.
- If an assay result indicates that a soil sample contains greater than 10 ppm total DDT, but you need more specific information, the soil extract may be diluted 1:100 in neat methanol, and assayed again. You must then multiply the results of the re-assay by 100 to determine the approximate sample concentration.

NOTE: If you know in advance that the "action level" of interest is greater than 10 ppm total DDT in soil, the assay may be modified to pinpoint that particular concentration. For example:

If you wish to categorize samples as less than or greater than 250 ppm, you should dilute all sample extracts 1:250 in neat methanol (e.g. 20 µL extract plus 4.98 mL methanol) and compare the diluted extracts to the 1 ppm DDT kit calibrator. Due to the 250-fold dilution, the 1 ppm calibrator represents 250 ppm in the assay.

NOTE: If you are interested in action levels greater than 1000 ppm, please contact Millipore Technical Services for assistance.

Example

Actual OD values will vary. This data is for demonstration purposes only.

Tube	OD	Interpretation
NC	0.90	
C1 (0.2 ppm)	0.75	
C2 (1.0 ppm)	0.49	
C3 (10.0 ppm)	0.35	
S1	0.68	>0.2 ppm < 1.0 ppm
S2	0.16	> 10.0 ppm

NOTE: The EnviroQuant Photometer is also available from Millipore. This dual wavelength instrument measures the OD at 450 nanometers (nm) minus 600 nm of all samples and calibrators, and provides a printout of results. See "Ordering Information" for the appropriate catalogue number.

Limitations of the Procedure

The EnviroGard DDT in Soil Test Kit is a qualitative/semi-quantitative screening test only. Actual quantitation of DDT by EnviroGard immunoassay is not possible due to the Test kit's cross-reactivity with DDT breakdown products and other similar compounds and to the variations in extraction efficiency inherent in the fast extraction protocol described in this product insert.

Soil sampling error may significantly affect testing reliability. The distribution of pesticides in different soils can be extremely heterogeneous. Soils should be dried and homogenized before analysis by any method. Split samples (i.e. for GC and immunoassay) should always derive from the same homogenate.

Ordering Information

The following table lists descriptions and catalogue numbers for the EnviroGard DDT in Soil Test Kit, Soil Extraction Bottle Kit and related products.

Description	Catalogue Number
EnviroGard DDT in Soil Test Kit	ENVR 000 31
EnviroGard Soil Extraction Bottle Kit	ENSP 000 30
Methanol for soil extraction, 100 mL bottle	ELCR 000 07
Millipore Differential Photometer: <ul style="list-style-type: none"> • 115 volt (V), or • 230 V 	ENVR 000 00 ENVR 002 30
EnviroQuant Photometer, 110V, or EnviroQuant Photometer, 220V	ENVR T11 00 ENVR T22 00
EnviroQuant Replacement Paper, 12 rolls	ENVR T11 02
EnviroGard Replacement Pipettor Tips (available separately): <ul style="list-style-type: none"> • Positive displacement pipettor tips, 1-25 μL range 200/pk (not preassembled) • Repeater pipettor tips, 5.0 mL, 100/pk • Repeater pipettor tips, 12.5 mL, 100/pk • Repeater pipettor tips, 50 mL, 10/pk 	ENVR L04 09 ENVR L01 09 ENVR L02 09 ENVR L03 09
EnviroGard Soil Field Lab includes: <ul style="list-style-type: none"> • 1 Positive displacement precision pipettor • 1 Eppendorf Repeater pipettor • 1 Electronic timer • 13 Polystyrene test tubes, 12 mm X 75 mm (for blanking the spectrophotometer and sample dilutions) • 1 Portable balance with 100 gram calibrator weight • 1 Wash bottle, 500 mL • 4 Test tube racks, six-position • 8, 5.0 mL Pipette tips for the Repeater pipettor, for 0.1 mL through 0.5 mL dispensing volumes • 4, 12.5 mL Pipette tips for the Repeater pipettor, for 0.25 mL through 1.250 mL dispensing volumes • 1, 50 mL Pipette tip for the Repeater pipettor, for 1.0 mL through 5.0 mL dispensing volumes • 100 pipette tips, 2.0-25 μL (not preassembled) • 100 pipette tips, 50-250 μL (not preassembled) Contact Millipore Technical Service for kit component replacement or reordering information. (See the "Technical Assistance" section for the number of the Millipore office nearest you.)	ENVR L00 09

Technical Assistance

For additional information about Millipore products, call the nearest Millipore office listed below.

Call toll-free 800-MILLIPORE (800-645-5476)

FAX Orders 508-624-8873

Millipore Worldwide:

Australia

A•C•N: (001) 239-818
Toll Free (008) 222-111
In Sydney Area (02) 428-7333

Austria, Central Europe, C.L.S., Africa, Middle-East, and Gulf

In Austria: (43) 1-877-8926

Baltic Republics

In Finland: (90) 801 90 77

Belgium and Luxembourg

(02) 242-17-40

Brazil

Tel. (011) 548-7011

Canada

Toll Free 1-800-268-4881
In Toronto Area:
416-678-2161

China, People's Republic of

Beijing: (86) 1-5135114
Guangzhou: (86) 20-686217
Shanghai: (86) 21-3203856

Czech Republic

Tel. (42) 2-35-02-27
(42) 2-35-23-75

Denmark

Tel. (45) 59-00-23

Finland

Tel. (90) 8045110

France

Tel. (1) 30-12-70-00

Germany

Tel. (06196) 494-0

Hong Kong

Tel. (852) 803-9111

Hungary

Tel. (36) 11-66-86-74

India

Bangalore:
Tel. (812) 394657

Italy

Milano: (02) 25078-1
Roma: (06) 5203600
Padova: (049) 8803720

Japan

Tel. (03) 3474-9111

Korea

Tel. (82-2) 5548305

Malaysia

Tel. (60) 3-7571322

Mexico

Tel. (525) 576-96-88

The Netherlands

Tel. (01608) 22000

Norway

Tel. 472- 267-82-53

Poland

Tel. (48) 2-669-12-25
(48) 2-663-70-31

Puerto Rico

Tel. (809) 747-8444

Singapore

Tel. (65) 253-2733

Spain

Madrid: 91-729-03-00
Barcelona: 93-325-96-16
Sevilla: 95-425-68-77

Sweden

Sundbyberg:
08-628-69-60

Switzerland

Tel. (01) 945-3242

Taiwan

Tel. (886-2) 7001742

United Kingdom and Ireland

Tel. (0923) 816375

United States of America

Tel. Toll Free
800-MILLIPORE
(800-645-5476)

In Puerto Rico:
(809) 747-8444

In All Other Countries:

Millipore Intertech, U.S.A.
397 Williams Street
Marlborough, MA
01752-9152 U.S.A.
Tel. (508) 624-8622
Fax (508) 624-8630

General Limited Warranty

Millipore Corporation ("Millipore") warrants the products manufactured by it against defects in materials and workmanship when used in accordance with the applicable instructions for a period of one year from the date of shipment of the products or where applicable, for a period not to extend beyond a product's printed expiration date. **MILLIPORE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The warranty provided herein and the data, specifications and descriptions of Millipore products appearing in Millipore's published catalogues and product literature may not be altered except by express written agreement signed by an officer of Millipore. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and if given, should not be relied upon.

In the event of a breach of the foregoing warranty, Millipore's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in materials or workmanship within the warranty period, provided the customer notifies Millipore promptly of any such defect. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as Millipore is willing to repair or replace any nonconforming Millipore product or part. **Millipore shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by a customer from the use of its products.** However, in some states the purchaser may have rights under state law in addition to those provided by this warranty.

Safety

To receive complete safety information on this product, contact the nearest Millipore office and request Material Safety Data Sheet documents P70002, P34782, P34207 and P34210.

Acknowledgment

This kit was developed in collaboration with the Commonwealth Scientific and Industrial Research Organization (Australia) using reagents produced and supplied under exclusive license to Millipore and ImmunoSystems Incorporated.

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EnviroGard, Millex, Milli-Q and Milli-RO are trademarks of Millipore Corporation.
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Microman is a trademark of Gilson Medical Electronics.

APPENDIX C

HEALTH AND SAFETY PLAN

SAMPLING & INVESTIGATION SITE SAFETY PLAN

GENERAL INFORMATION

SITE: Saratoga Tree Nursery I.D. N/A

LOCATION: Rte. 50, Saratoga Springs, Saratoga Co CONTACT: Jeff Edwards

PLAN PREPARED BY: Jeff Edwards DATE: 5/17/95

APPROVED BY:

BUREAU SAFETY OFFICER: _____ DATE: _____

SECTION CHIEF: _____ DATE: _____

WORK SCOPE: Soil, groundwater, surface water sampling. Building Inventory,
Test Pitting, Monitoring well installation.

PROPOSED DATE OF INVESTIGATION: Summer 1995

WAS A BACKGROUND REVIEW COMPLETED?: YES NO If yes; from what source:

Facility records

OVERALL HAZARDS ANTICIPATED:

Serious: _____ Moderate: _____ Low: X Unknown: _____

B. SITE/WASTE CHARACTERISTICS

WASTE TYPE (S): Mixed Municipal _____ CED _____ Industrial _____ Hazardous X

CHARACTERISTIC (S): Corrosive _____ Ignitable _____ Radioactive _____

Volatile _____ Toxic X Reactive _____ Unknown _____

FACILITY FUNCTION: Tree nursery for the production of seedlings. Was
used until 1966 for mixing and storage of DDT.

Principal Disposal Method: Rinse water flowing into
area on western boarder of the site.

Unusual Features Known To Exist On Site: None

Status: (active, inactive, unknown) Inactive

History: (Worker or non-worker injury; complaints from public; previous agency action): _____

No former complaints.

HAZARDOUS/TOXIC MATERIAL (known or suspected, contaminated media or in storage container, etc.)

Soil contaminated with DDT, DDE, DDD, endrin, chlordane, groundwater contaminated with DDT, DDD, DDE, endrin. Unknown pesticides in storage building.

HAZARD ASSESSMENT (toxic and pharmacologic effects, reactivity, stability flammability, and operational concerns, sampling decontaminating, etc.)

See attached MSDS

C. SITE SAFETY WORK PLAN

PERIMETER ESTABLISHMENT: Map/Sketch attached Site secured? yes

Perimeter Identified/_____ Zone(s) of Contamination Identified? *yes

see note below

PROPOSED ON-SITE ACTIVITIES: Soil sampling, well sampling, surface water sampling. Test pit excavation and monitoring well contamination.

Building inventory.

* Based on historical accounts, two areas on the Nursery property are believed to be affected by past operations. These include the western property boundary and the former pesticide mixing area. Access to that area will be limited to OSHA - certified personnel during the course of all remedial activities on site (ref. attached figure).

RECOMMENDED LEVEL OF PROTECTION: Level D

*Modifications: Respirators will be used when working in the pesticide storage buildings.

Monitoring Equipment and Materials: Dust monitoring will be utilized during drilling and test pit excavations.

DECONTAMINATION AND DISPOSAL:

Decontamination Procedure: () label to be utilized

Level A - Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal, suit/safety boot wash, suit safety boot rinse, (Tank Change), safety boot removal, suit and hard hat removal, inner glove wash, inner glove removal, inner clothing removal, field wash, redress.

Level B - Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal, suit/safety boot wash, suit/SCBA/boot/glove/rinse, (tank Change) safety boot removal, (splash suit removal) SCBA backpack removal, inner glove wash, inner glove rinse, face piece removal, inner glove removal, inner clothing removal, field wash, redress.

Level C - Segregated equipment drop, boot cover and glove wash, boot cover and glove rinse, tape removal, boot cover removal, outer glove removal suit/safety boot wash, suit/safety boot rinse (Canister or Mask Change, safety boot removal, splash suit removal, inner glove wash, inner glove rinse, face piece removal, inner glove removal, inner clothing removal, field wash, redress.

X Level D - Segregated equipment drop, boot and glove wash, boot and glove rinse.

*Modifications (specify) _____

*If modified in the field, be sure to attach statement to file copy upon return to office.

LIST OF PERSONNEL AT SITE

1. **Bob Schick**
2. **Mike Ryan**
3. **Brad Brown**
4. **Jeff Edwards**
5. **Fred Woodward**
6. **Dave Camp**
7. **Andrew Fleck**
8. **Mike DePietro**
9. **Karen Mauriano**
10. **Brian Surprenant**
11. _____
12. _____
13. _____
14. _____
15. _____

EMERGENCY PLANNING

HOSPITAL: 911

AMBULANCE: 911

POLICE: 911

FIRE: 911

POISON CONTROL CENTER: 800-336-6997

D.E.C. REGIONAL CONTACT: _____

ROUTE TO HOSPITAL (Attach Map)

From tree nursery, take left on Route 50. After 1.75 miles take

left onto West Avenue. Take West Avenue 1.6 miles to end at

T-intersection. Take right on Church Street (Route 9N). Hospital

is 0.38 miles on left.

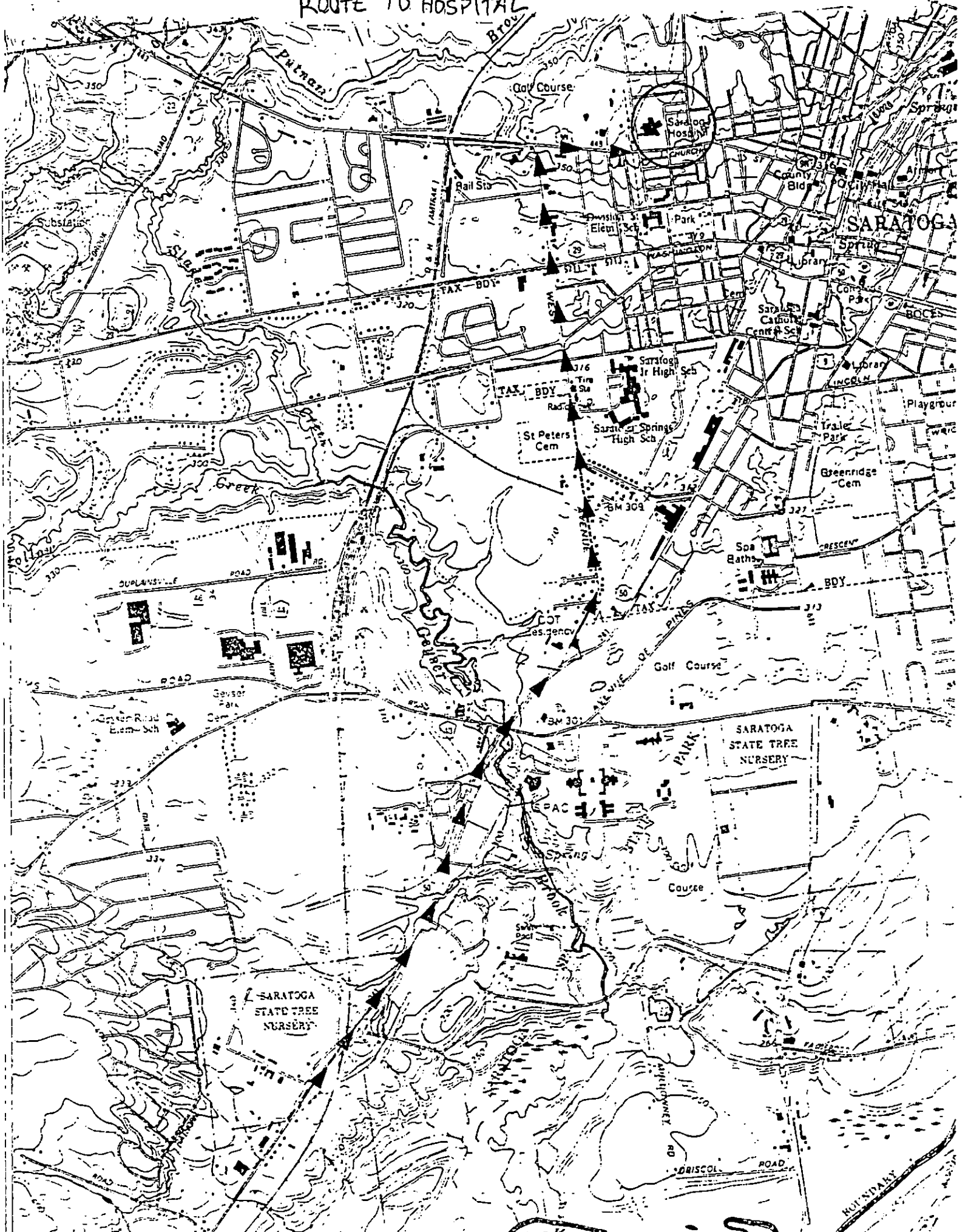
D.E.C. Office:

Phone No.

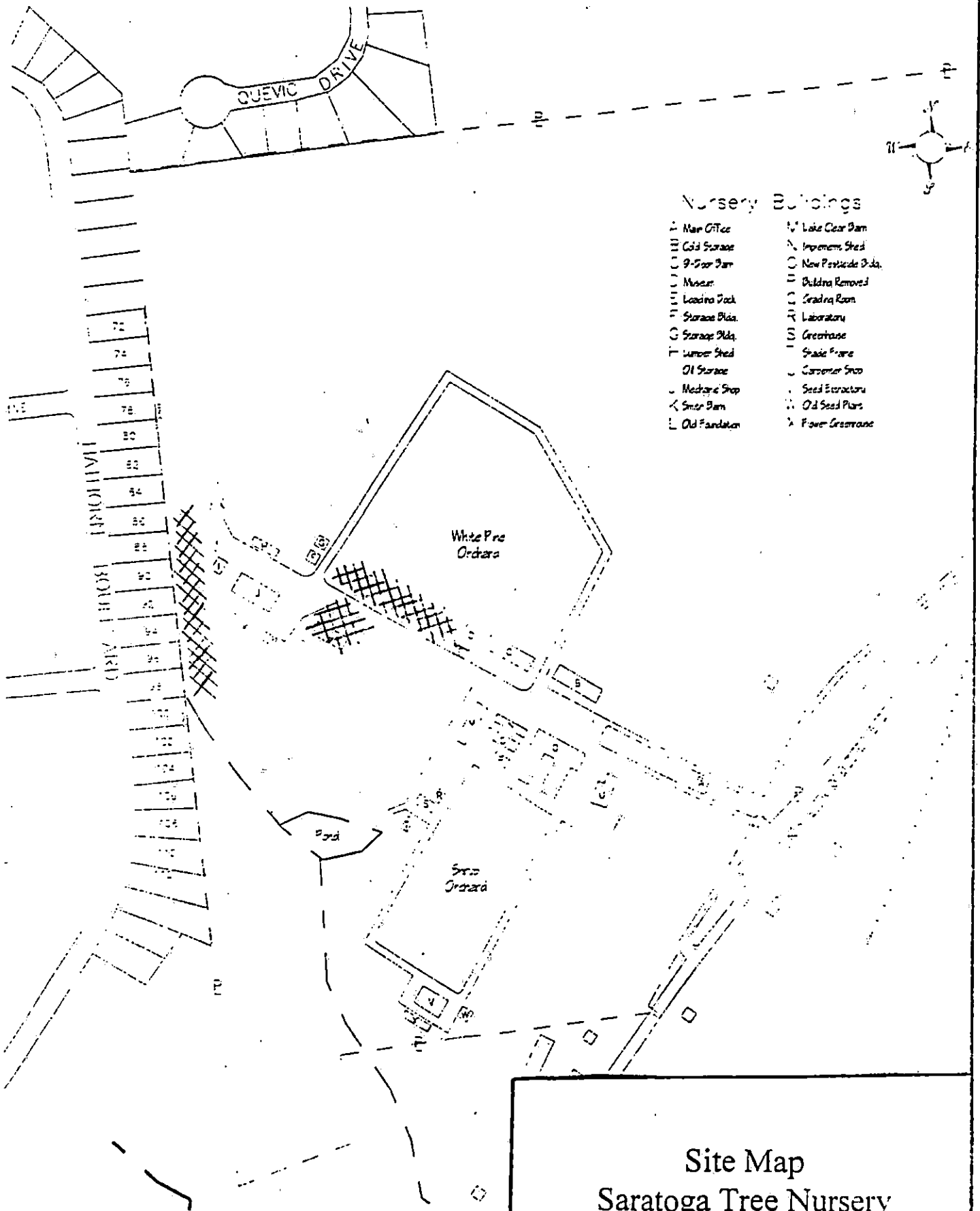
BC: Edward Belmore
SC: Robert Schick

(518) 457-0414
(518) 457-4343

ROUTE TO HOSPITAL



NOTE: Crosshatching depicts areas of past operations and/or disposal - access restricted.



Site Map
Saratoga Tree Nursery

09/10/90

Last revised June 1989

SECTION I

PRODUCT SPECIFICATIONS *Endrin*

CAS NO. F98S

0.1mg/ml Hexachloro-epoxy-octahydro-endo-endo-dimethanonaphthalene in Methano

CAS NO. 72-20-8

Supplied by CHEM SERVICE, Inc. PO BOX 3108, WEST CHESTER, PA, 19381 (215)692-3026

EMERGENCY PHONE #: 215-386-2100

SECTION II

TOXICITY DATA

Since this solution contains a very low concentration of active component, the primary hazard is from the solvent.

The LD50 for the minor component (Hexachloro-epoxy-octahydro-endo-endo-dimethanonaphthalene): 8mg/kg

The following information is for the solvent:

RAT OR MOUSE LD50	RTECS#	OSHA PEL	ACGIH TLV
5628mg/kg	FC1400000	200 ppm (260 mg/m3)	200 ppm(260 mg/m3)

This compound is generally considered to be non-toxic. This statement is based upon OSHA's assesment of the LD50

SECTION III

PHYSICAL DATA

For the solvent:

MELTING POINT	BOILING POINT	DENSITY	VAPOR PRESSURE	VAPOR DENSITY	EVAPORATION RATE (Butyl acetate)
-98 C	64.6 C	0.791	97 mm@20 C	1.11	NOT AVAILABLE
ODOR	COLOR	PHASE		SOLUBILITY IN WATER	
NOT AVAILABLE	Colorless	Liquid		Miscible with	

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

For the solvent:

FLASH POINT: 11 C This is a flammable chemical.

EXTINGUISHING MEDIA: Carbon dioxide or dry chemical powder. DO NOT USE WATER!

UPPER EXPLOSION LIMIT: 36% LOWER EXPLOSION LIMIT: 6.7%

SECTION V

HEALTH HAZARD DATA

For the solvent:

Contact lenses should not be worn in the laboratory.

All chemicals should be considered hazardous - Avoid direct physical contact!

Can be fatal if absorbed through the skin! Can be fatal if inhaled!

Can be fatal or cause blindness if swallowed.

Repeated exposure to vapors and/or dust can cause eye injury.

Can cause gastro-intestinal disturbances. Can cause liver injury. Can cause kidney injury.

Can cause cardiovascular system injury. Can cause convulsions.

SECTION VI FIRST AID

For the solvent:

An antidote is a substance intended to counteract the effect of a poison. It should be administered by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water 15-20 minutes. If no burns have occurred-use soap and water to cleanse skin.
If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations.
If patient is in cardiac arrest administer CPR.
Continue life supporting measures until medical assistance has arrived.
Get medical attention if necessary.
Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION VII REACTIVITY DATA

For the solvent:

Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides. Incompatible with strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION VIII SPILL OR LEAK PROCEDURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area. Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal. Wash contaminated surfaces to remove any residues.
DISPOSAL: Burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION IX PRECAUTIONS TO BE TAKEN IN HANDLING

This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Keep tightly closed in a cool dry place. STORE UNDER NITROGEN. Store only with compatible chemicals.

SECTION X SPECIAL PRECAUTIONS AND COMMENTS

The above information is believed to be correct on the date it is published and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. Responsibility for updates lies with the employer and not with CHEM SERVICE, Inc. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for a particular purpose.

This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticidal products, food additives or as household chemicals.

09/10/90

Last revised June 1989

SECTION I PRODUCT SPECIFICATIONS *Chlordane*

CAS NO. 57-74-9
CAS NO. 57-74-9
Supplied by CHEM SERVICE, Inc. PO BOX 3108, WEST CHESTER, PA, 19381 (215)692-3026
EMERGENCY PHONE #: 215-386-2100

SECTION II TOXICITY DATA

Since this solution contains a very low concentration of active component, the primary hazard is from the solvent.

The LD50 for the minor component (Octachloro-hexahydro-methano-1H-indene):
367mg/kg

The following information is for the solvent:

RAT OR MOUSE LD50	RTECSH	OSHA PEL	ACGIH TLV
5628mg/kg	FC1400000	200 ppm (260 mg/m ³)	200 ppm(260 mg/m ³)

This compound is generally considered to be non-toxic.
This statement is based upon OSHA's assesment of the LD50

SECTION III PHYSICAL DATA

For the solvent:

MELTING POINT	BOILING POINT	DENSITY	VAPOR PRESSURE	VAPOR DENSITY	EVAPORATION R (Butyl acetat
-98 C	64.6 C	0.791	97 mm@20 C	1.11	NOT AVAILABLE
ODOR	COLOR	PHASE	SOLUBILITY IN WAT		
NOT AVAILABLE	Colorless	Liquid	Miscible with		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

For the solvent:

FLASH POINT: 11 C This is a flammable chemical.
EXTINGUISHING MEDIA: Carbon dioxide or dry chemical powder. DO NOT USE WATER!
UPPER EXPLOSION LIMIT: 36% LOWER EXPLOSION LIMIT: 6.7%

SECTION V HEALTH HAZARD DATA

For the solvent:

Contact lenses should not be worn in the laboratory.
All chemicals should be considered hazardous - Avoid direct physical contact!
Can be fatal if absorbed through the skin! Can be fatal if inhaled!
Can be fatal or cause blindness if swallowed.
Repeated exposure to vapors and/or dust can cause eye injury.
Can cause gastro-intestinal disturbances. Can cause liver injury. Can cause kidney injury.
Can cause cardiovascular system injury. Can cause convulsions.

SECTION VI

FIRST AID

For the solvent:

An antidote is a substance intended to counteract the effect of a poison. It should be administered by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If no burns have occurred-use soap and water to cleanse skin. If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations. If patient is in cardiac arrest administer CPR. Continue life supporting measures until medical assistance has arrived. Get medical attention if necessary. Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION VII

REACTIVITY DATA

For the solvent:

Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides. Incompatible with strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION VIII

SPILL OR LEAK PROCEDURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area. Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal. Wash contaminated surfaces to remove any residues.
DISPOSAL: Burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION IX

PRECAUTIONS TO BE TAKEN IN HANDLING

This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Keep tightly closed in a cool dry place. STORE UNDER NITROGEN. Store only with compatible chemicals.

SECTION X

SPECIAL PRECAUTIONS AND COMMENTS

The above information is believed to be correct on the date it is published and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. Responsibility for updates lies with the employer and not with CHEM SERVICE, Inc. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for any particular purpose.

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09/10/90

Last revised June 1989

SECTION I PRODUCT SPECIFICATIONS

CAS NO. F94S

0.1mg/ml 4,4'-DDD (p,p'-TDE) in Methanol.

CAS NO. 72-54-8

Supplied by CHEM SERVICE, Inc. PO BOX 3108, WEST CHESTER, PA, 19381 (215)692-3026

EMERGENCY PHONE #: 215-386-2100

SECTION II TOXICITY DATA

Since this solution contains a very low concentration of active component, the primary hazard is from the solvent.

The LD50 for the minor component (4,4'-DDD (p,p'-TDE)): 113mg/kg

The following information is for the solvent:

RAT OR MOUSE LD50	RTECS#	OSHA PEL	ACGIH TLV
5628mg/kg	PC1400000	200 ppm (260 mg/m3)	200 ppm(260 mg/m3)

This compound is generally considered to be non-toxic.

This statement is based upon OSHA's assesment of the LD50

SECTION III PHYSICAL DATA

For the solvent:

MELTING POINT	BOILING POINT	DENSITY	VAPOR PRESSURE	VAPOR DENSITY	EVAPORATION F (Butyl aceta
-98 C	64.6 C	0.791	97 mm@20 C	1.11	NOT AVAILABLI
ODOR	COLOR	PHASE		SOLUBILITY IN WA	
NOT AVAILABLE	Colorless	Liquid		Miscible with	

SECTION IV FIRE AND EXPLOSION HAZARD DATA

For the solvent:

FLASH POINT: 11 C This is a flammable chemical.

EXTINGUISHING MEDIA: Carbon dioxide or dry chemical powder. DO NOT USE WATER!

UPPER EXPLOSION LIMIT: 36% LOWER EXPLOSION LIMIT: 6.7%

SECTION V HEALTH HAZARD DATA

For the solvent:

Contact lenses should not be worn in the laboratory.

All chemicals should be considered hazardous - Avoid direct physical contact!

Can be fatal if absorbed through the skin! Can be fatal if inhaled!

Can be fatal or cause blindness if swallowed.

Repeated exposure to vapors and/or dust can cause eye injury.

Can cause gastro-intestinal disturbances. Can cause liver injury. Can cause kidney injury.

Can cause cardiovascular system injury. Can cause convulsions.

SECTION VI FIRST AID

For the solvent:

An antidote is a substance intended to counteract the effect of a poison. It should be administered by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If no burns have occurred-use soap and water to cleanse skin.
If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing.
If patient has stopped breathing administer artificial respirations.
If patient is in cardiac arrest administer CPR.
Continue life supporting measures until medical assistance has arrived.
Get medical attention if necessary.
Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION VII REACTIVITY DATA

For the solvent:

Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides. Incompatible with strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION VIII SPILL OR LEAK PROCEDURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area. Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal. Wash contaminated surfaces to remove any residues.
DISPOSAL: Burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION IX PRECAUTIONS TO BE TAKEN IN HANDLING

This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Keep tightly closed in a cool dry place. **STORE UNDER NITROGEN.** Store only with compatible chemicals.

SECTION X SPECIAL PRECAUTIONS AND COMMENTS

The above information is believed to be correct on the date it is published and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. Responsibility for updates lies with the employer and not with CHEM SERVICE, Inc. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for any particular purpose.

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09/10/90

Last revised June 1989

SECTION I PRODUCT SPECIFICATIONS

CA 9. F93S

0.1mg/ml 4.4'-DDE (p.p'-DDX) in Methanol.

CAS NO. 72-55-9

Supplied by CHEM SERVICE, Inc. PO BOX 3100, WEST CHESTER, PA, 19381 (215)692-3026

EMERGENCY PHONE #: 215-386-2100

SECTION II TOXICITY DATA

Since this solution contains a very low concentration of active component, the primary hazard is from the solvent.

The LD50 for the minor component (4.4'-DDE (p.p'-DDX)): 880mg/kg

The following information is for the solvent:

RAT OR MOUSE LD50	RTECS#	OSHA PEL	ACGIH TLV
5628mg/kg	FC1400000	200 ppm (260 mg/m3)	200 ppm(260 mg/m3)

This compound is generally considered to be non-toxic.
This statement is based upon OSHA's assesment of the LD50

SECTION III PHYSICAL DATA

For the solvent:

MELTING POINT	BOILING POINT	DENSITY	VAPOR PRESSURE	VAPOR DENSITY	EVAPORATION RATE (Butyl acetate)
98 C	64.6 C	0.791	97 mm@20 C	1.11	NOT AVAILABLE
ODOR	COLOR	PHASE		SOLUBILITY IN WATER	
NOT AVAILABLE	Colorless	Liquid		Miscible with	

SECTION IV FIRE AND EXPLOSION HAZARD DATA

For the solvent:

FLASH POINT: 11 C This is a flammable chemical.

EXTINGUISHING MEDIA: Carbon dioxide or dry chemical powder. DO NOT USE WATER!

UPPER EXPLOSION LIMIT: 36% LOWER EXPLOSION LIMIT: 6.7%

SECTION V HEALTH HAZARD DATA

For the solvent:

Contact lenses should not be worn in the laboratory.

All chemicals should be considered hazardous - Avoid direct physical contact!

Can be fatal if absorbed through the skin! Can be fatal if inhaled!

Can be fatal or cause blindness if swallowed.

Repeated exposure to vapors and/or dust can cause eye injury.

Can cause gastro-intestinal disturbances. Can cause liver injury. Can cause kidney injury.

Can cause cardiovascular system injury. Can cause convulsions.

SECTION VI

FIRST AID

For the solvent:

An antidote is a substance intended to counteract the effect of a poison. It should be administered by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If no burns have occurred-use soap and water to cleanse skin.

If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing.

If patient has stopped breathing administer artificial respirations.

If patient is in cardiac arrest administer CPR.

Continue life supporting measures until medical assistance has arrived.

Get medical attention if necessary.

Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION VII

REACTIVITY DATA

For the solvent:

Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides.

Incompatible with strong oxidizing agents. Incompatible with strong reducing agents.

Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION VIII

SPILL OR LEAK PROCEDURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area.

Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal. Wash contaminated surfaces to remove any residues.

DISPOSAL: Burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION IX

PRECAUTIONS TO BE TAKEN IN HANDLING

This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Keep tightly closed in a cool dry place. **STORE UNDER NITROGEN.** Store only with compatible chemicals.

SECTION X

SPECIAL PRECAUTIONS AND COMMENTS

The above information is believed to be correct on the date it is published and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. Responsibility for updates lies with the employer and not with CHEM SERVICE, Inc. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for any particular purpose.

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09/10/90

Last revised June 1989

SECTION I PRODUCT SPECIFICATIONS

CAT NO. F92S

0.1mg/ml 4.4' DDT in Methanol.

CAS NO. 50-29-3

Supplied by CHEM SERVICE, Inc. PO BOX 3108, WEST CHESTER, PA, 19381 (215)692-3026

EMERGENCY PHONE #: 215-386-2100

SECTION II TOXICITY DATA

Since this solution contains a very low concentration of active component, the primary hazard is from the solvent.

The LD50 for the minor component (4.4' DDT):

87mg/kg

The following information is for the solvent:

RAT OR MOUSE LD50	RTECSN	OSHA PEL	ACGIH TLV
5628mg/kg	PC1400000	200 ppm (260 mg/m3)	200 ppm(260 mg/m3)

This compound is generally considered to be non-toxic.

This statement is based upon OSHA's assesment of the LD50

SECTION III PHYSICAL DATA

For the solvent:

MELTING POINT	BOILING POINT	DENSITY	VAPOR PRESSURE	VAPOR DENSITY	EVAPORATION RA (Butyl acetate)
98 C	64.6 C	0.791	97 mm@20 C	1.11	NOT AVAILABLE
ODOR	COLOR	PHASE	SOLUBILITY IN WATER		
NOT AVAILABLE	Colorless	Liquid	Miscible with		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

For the solvent:

FLASH POINT: 11 C This is a flammable chemical.

EXTINGUISHING MEDIA: Carbon dioxide or dry chemical powder. DO NOT USE WATER!

UPPER EXPLOSION LIMIT: 36% **LOWER EXPLOSION LIMIT:** 6.7%

SECTION V HEALTH HAZARD DATA

For the solvent:

Contact lenses should not be worn in the laboratory.

All chemicals should be considered hazardous - Avoid direct physical contact!

Can be fatal if absorbed through the skin! Can be fatal if inhaled!

Can be fatal or cause blindness if swallowed.

Repeated exposure to vapors and/or dust can cause eye injury.

Can cause gastro-intestinal disturbances. Can cause liver injury. Can cause kidney injury.

Can cause cardiovascular system injury. Can cause convulsions.

SECTION VI FIRST AID

For the solvent:

An antidote is a substance intended to counteract the effect of a poison. It should be administered by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If no burns have occurred-use soap and water to cleanse skin.
If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing.
If patient has stopped breathing administer artificial respirations.
If patient is in cardiac arrest administer CPR.
Continue life supporting measures until medical assistance has arrived.
Get medical attention if necessary.
Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION VII REACTIVITY DATA

For the solvent:

Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides. Incompatible with strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION VIII SPILL OR LEAK PROCEDURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area. Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal. Wash contaminated surfaces to remove any residues.
DISPOSAL: Burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION IX PRECAUTIONS TO BE TAKEN IN HANDLING

This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Keep tightly closed in a cool dry place. STORE UNDER NITROGEN. Store only with compatible chemicals.

SECTION X SPECIAL PRECAUTIONS AND COMMENTS

The above information is believed to be correct on the date it is published and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. Responsibility for updates lies with the employer and not with CHEM SERVICE, Inc. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for any particular purpose.

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APPENDIX D

MONITORING WELL SPECIFICATION

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233



Michael D. Zagata
Commissioner

May 18, 1995

Dear Contractor:

RE: Saratoga Tree Nursery- Monitoring Well Drilling Services

The Department is preparing to investigate contamination at the above referenced site located on Route 50 in the City of Saratoga Springs, Saratoga County (refer to enclosed map). The site is a tree nursery operated by the New York State Department of Environmental Conservation (NYSDEC) and was formally used as a storage, mixing, and distribution center for DDT from the 1940's until 1966. Soil sampling has confirmed DDT contamination in soil and groundwater.

A component of the investigation will be a groundwater monitoring program. Monitoring wells are to be installed to a depth of fifteen feet. The drilling program will be carried out during a time period between July 10, 1995 and July 31, 1995, as agreed upon by the drilling contractor and the NYSDEC. The monitoring wells will be installed in accordance with the following specifications:

1. Driller must be qualified to work on a hazardous waste site (ie: OSHA 40-hour trained).
2. Overburden monitoring wells will be installed in 6¼-inch ID hollow stem auger (HSA) drilled boreholes. Continuous split spoon samples will be collected ahead of the augers. Figure 1 shows typical construction details for the new monitoring well.
3. Casings will be flush joint, threaded schedule 40 PVC with a two inch inner diameter. No glue will be used on the PVC joints. Casing will be steam cleaned prior to installation
4. The screen will be 0.010" slot schedule 40 PVC well screen set approximately two feet above the water table. The well screen will be approximately ten feet in length. Bottom plugs on the screen will be threaded, not slip on.
5. The sand pack will consist of #1 Morie sand (no substitutions) and will be introduced gradually inside the 6¼-inch diameter augers, and fill the annular space between the screen and borehole adjacent to the screen, extending one to two feet above the screen. The augers will be withdrawn in increments so that the native formation materials are not allowed to collapse directly against the well casing or screen.
6. A one to two foot thick bentonite pellet seal above the sand pack will be provided. Bentonite will be allowed to hydrate for at least one hour. Cement/bentonite grout will

- be installed above the bentonite seal to within three feet of ground surface. No organic polymer additives are permitted. The grout will be mixed with a mud pump to a consistency acceptable to the NYSDEC. Neat cement or concrete will be used from three feet to the ground surface.
7. An outer protective steel casing will be provided and cemented in place around the PVC riser pipe. The top of the steel casing will extend approximately three feet above the finished grade and two inches above the top of the PVC well casing. Three feet of steel casing will be below ground. The monitoring well will have a vented and locked cap. The cement collar will be tapered away from the well to divert surface runoff from the well.
 8. All drilling equipment such as augers, casing, bits, and sampling equipment which may come in contact with subsurface materials will be steam cleaned before being brought onto the site. The drilling and sampling equipment will be steam cleaned before leaving the site. All PVC materials (screens and risers) will be steam cleaned prior to well installation.
 9. Drilling fluids will be disposed of on site.
 10. Drill cuttings will be placed in 50 gallon drums and consolidated on site.
 11. Provide Abus brass marine locks, model 50-55 MB. All locks will be keyed alike. Four sets of keys will be provided.

Bids should be sent to:

Mr. Ralph Burger
New York State Dept. of Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010

Minority and women's businesses are encouraged to submit proposals in response to this solicitation. The NYSDEC is an Equal Opportunity/Affirmative Action Employer. All bids are due by 1:00 p.m. on Tuesday, June 13, 1995. The bid must include the enclosed bid sheet (complete and signed) and the MacBride Fair Employment Principles sheet (complete and signed). If you have any questions, please call me at (518) 457-4343

Sincerely,



Jeffrey A. Edwards
Project Engineer
Bureau of Western Remedial Action
Div. of Hazardous Waste Remediation

Enclosure

TYPICAL WELL CONSTRUCTION

