# PHASE I SITE ASSESSMENT REPORT

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# EXECUTIVE SUMMARY

ENVIRON International Corporation ("ENVIRON") conducted an environmental review of the University of California Bay Area Research & Extension Center (BAREC), located at 90 North Winchester Boulevard, Santa Clara County, City of Santa Clara, California (the Site). The purpose of the review was to identify areas of potential environmental concern at the Site and to formulate recommendations for additional investigation and/or remediation. In the context of our review, potential environmental concerns are considered to be issues that are likely to be present significant risks to a future onsite residential population or issues for which there is likely insufficient information to characterize the Site. It is ENVIRON's understanding that this parcel will be redeveloped for residential and open space use.

Based on our review, ENVIRON identified the following potentially significant environmental concern at the Site:

- Since the 1920s, the Site has been used as an agricultural research station. The primary research efforts at the Site have focused on improving crop production methods, irrigation systems, nutrition and variety characteristics of crops, and crop disease control. Part of this research has involved demonstrating the efficacy of a variety of research and development (R&D) pesticides. As required by California regulations, the facility began recording pesticide usage at the Site in the late 1970s. Prior to that time, a comprehensive record of pesticide usage in the test field plots does not exist. As a result of the application of pesticides to soil and the handling of pesticides on-site, it is possible shallow surface soil in test field plots and the greenhouses may contain pesticide residues. In addition to the application of pesticides to surface soil, the former presence of a sewer leach pit raises the possibility that deeper subsurface soil and potentially ground water beneath the Site may contain pesticide residues as well. Further surface and subsurface investigations of soil are necessary to reduce the uncertainty associated with the former operations that were conducted on-site.

The following noteworthy issues were identified:

- From 1973 to 1985, the facility operated an evaporation bed on-site that received rinsate from the washing of pesticide containers and application equipment. The washwater was allowed to evaporate in the rubber-lined evaporation bed. This area

was the subject of a soil investigation in 1988 and the bed was removed and closed under the oversight of the California Regional Water Quality Control Board. Based on the results of the report, soil beneath the former evaporation bed does not appear to be significantly impacted by former operations. No further investigation of the evaporation bed appears warranted at this time.

- In 1989, a limited asbestos survey was conducted of the building on-site and asbestos was identified in numerous areas of the Site including: heating ducts, insulation material in the bench top ovens, planter boxes, vent pipes, and hard board bench tops. Because the survey appears to have been limited in extent and because the buildings are old, it is possible that other sources of asbestos containing material exist on-site.

- Similarly, based on the age of the buildings, it is possible that the facility may have light ballasts that contain polychlorinated biphenyls (PCBs). Facility personnel were unaware of any other potential sources of PCBs. There are several pole-mounted, utility-owned transformers on-site. It is not know whether these transformers contain PCBs; however, it would be the responsibility of the utility to manage and dispose of these transformers.

- The facility formerly had two underground storage tanks on-site that were used to fuel facility vehicles including tractors and other field equipment. A 1000-gallon gasoline tank was located adjacent to the maintenance shop; the second tank, a 1000-gallon diesel tank was located adjacent to Building 207, a storage building. Both tanks were removed in May 1993 under the oversight of the City of Santa Clara Fire Department. The tanks were observed to be in good condition with no holes or corrosion. Soil samples were collected from below the tanks and analyzed for gasoline, diesel, lead, benzene, toluene, ethylbenzene and xylenes. None of these constituents were detected. The facility was granted a closure letter dated October 7, 1993, indicating that the City of Santa Clara Fire Department had reviewed and approved the closure of the tanks. Based on this information, no further investigation of the tanks is needed at this time.

# I. INTRODUCTION

ENVIRON International Corporation ("ENVIRON") conducted an environmental review of the University of California Bay Area Research & Extension Center (BAREC), located at 90 North Winchester Boulevard, Santa Clara County, City of Santa Clara, California (the Site). The purpose of the review was to identify areas of potential environmental concern at the Site and formulate recommendations for additional study/investigation. This report does not include a review of current environmental compliance issues.

This report has been prepared exclusively for use by the State of California Department of General Services (DGS) and may not be relied upon by any other person or entity without ENVIRON's express written permission. The conclusions presented in this report represent ENVIRON's professional judgment based on the information available to ENVIRON during the course of this assignment and on conditions that existed at the time of the assessment. No independent verification of the information provided to ENVIRON was made. While ENVIRON has no reason to doubt the accuracy of any of the information provided, this report is accurate and complete only to the extent that information provided to ENVIRON was itself accurate and complete.

This report presents the results of our investigation. It is based primarily on the following:

- A Site visit by ENVIRON personnel, Margaret David and Daniel Barrientos, on July 23, 2002.

- An interview during the Site visit with Dr. Zak Mousli, Superintendent for the Bay Area Research and Extension Center.

- A review of documents and reports provided to ENVIRON by Dr. Mousli and David Towle of the Administrative Office for the Research & Extension Centers of the University of California (UC) including: a report of closure for the former evaporation bed, underground tank removal documents, an asbestos survey report, irrigation well documents, business plan documents, a chemical inventory, a pesticide list and restricted materials permit, septic system documents, a pesticide use summary monthly report from 1979 to 2002, and a business plan and chemical inventory.

- A review of historical aerial photographs for the Site and surrounding area dated 1937, 1954, 1958, 1960, 1963, 1966, 1968, 1971, 1974, 1976, 1978, 1980, 1982, 1984, 1988, 1989, 1990, 1992, 1994, 1996, 1997 and 1999 conducted at Pacific Aerial Surveys, Oakland, California on July 26, 2002.

- A review of regulatory agency databases for the Site and vicinity conducted by Environmental Data Resources, Inc. (EDR) and reported to ENVIRON on July 18, 2002. EDR conducted searches of federal databases including: United States Environmental Protection Agency (EPA) National Priorities List; EPA Comprehensive Environmental Response, Compensation, and Liability Information System; EPA Emergency Response Notification System; Corrective Action Report; and Resource Conservation and Recovery Information System; Flood Zone Data from the Federal Emergency Management Agency (FEMA). State databases included: Notify 65, which lists Proposition 65 records; California Environmental Protection Agency's Annual Workplan, which identifies known hazardous substance sites targeted for cleanup; Leaking Underground Storage Tank Information System; Underground Storage Tank Database; and Former Manufactured Gas (Coal Gas) Sites. In reviewing the environmental databases, it should be noted that such databases are not instantaneously updated by the specific regulatory agencies. Depending on the database and the agency, update frequency may be as infrequent as annually. The dates of the most recent updates for the searched environmental databases are listed in the EDR report, from which a copy is presented as Appendix A.

- A review of historic City Directory information for the Site and neighboring properties obtained from EDR.

- A review of a 1966 historic Sanborn Fire Insurance Map for the Site and neighboring properties obtained from EDR. Since the map showed only a small portion of the Site, ENVIRON requested but has not yet received a more complete map.

- A review of the United States Geological Survey (USGS) San Jose West, California 7.5-minute series topographical map, dated 1961, photorevised 1980.

- A review of historical United States Geological Survey (USGS) topographical maps, dating 1895, 1899, 1939, 1953, and 1961, with photo revisions from 1968 and 1978.

- A review of available Site files at the City of Santa Clara Fire Department on August 9, 2002.

- A review of available files for two properties in the vicinity of the Site (690 and 780 North Winchester Boulevard) at the City of San Jose Fire Department on August 9, 2002.

- A review of available files for the property located at 690 North Winchester Boulevard at the San Francisco Bay Area Regional Water Quality Control Board on September 3, 2002.

# II. DESCRIPTION OF THE SITE AND ITS OPERATIONS

## A. Site Description

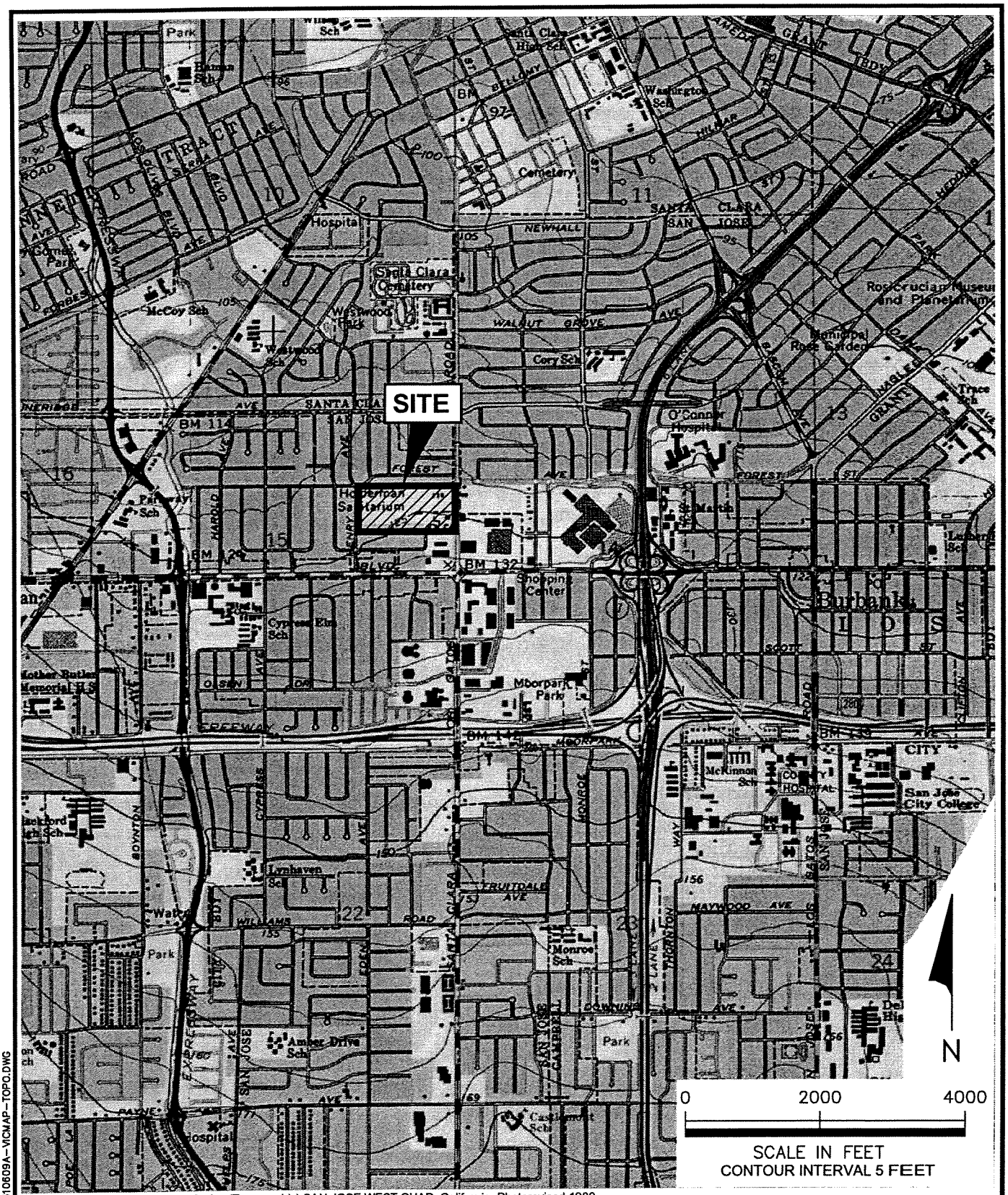
The Site is located at 90 North Winchester Boulevard, approximately three and one half miles south of downtown Santa Clara, California. The location of the Site is presented on Figure 1. The Site is an approximately 17-acre, roughly rectangular-shaped property.

As shown in Figure 2, 12 small buildings are located on the eastern portion of the Site. The estimated construction dates, the uses and a brief description of the buildings are presented on Table 1.

The remainder of the property consists of agricultural fields, unpaved roadways and paved parking lots. The fields are numbered one through twelve. They cover a total of approximately eleven acres. Field 9 is covered by screens, which form a covered building. It was used in the past to experiment the effects of insecticides and the screens have subsequently deteriorated. The unpaved roadways provide access to the fields. The only paved area is the northwest corner of the property, where buildings 100, 103, 104, 105, 201 and 204 are located, and is used for parking.

The area surrounding the Site consists primarily of residential/commercial land. Immediately surrounding the Site to the north, west and south are residential homes. In addition there is, to the south of the Site along Winchester Boulevard, a commercial building, a veterinary clinic and parking lot. To the east and southeast beyond Winchester Boulevard, is a large shopping mall (Valleyfair West Mall), a bank, and several restaurants. To the northeast of the Site are more restaurants and Dunn-Edwards Paints, a paint supply company.

The topographic elevation at the Site is approximately 125 feet above mean sea level (MSL). Based on a review of the USGS San Jose West Topographic Map, the nearest surface water bodies appear to be an intermittent stream, Saratoga Creek, situated one and one-half mile northwest of the Site and an intermittent river, Los Gatos Creek, situated two and one-half miles to the southeast. Additionally, a review of the historical topographical maps showed another intermittent stream, San Tomas Aquinas Creek, situated three-quarters of a mile west of the property. San Tomas Expressway currently appears to overlie this creek.




SOURCE: USGS Map 7.5 Min Series (Topographic) SAN JOSE WEST QUAD, California, Photorevised 1980.

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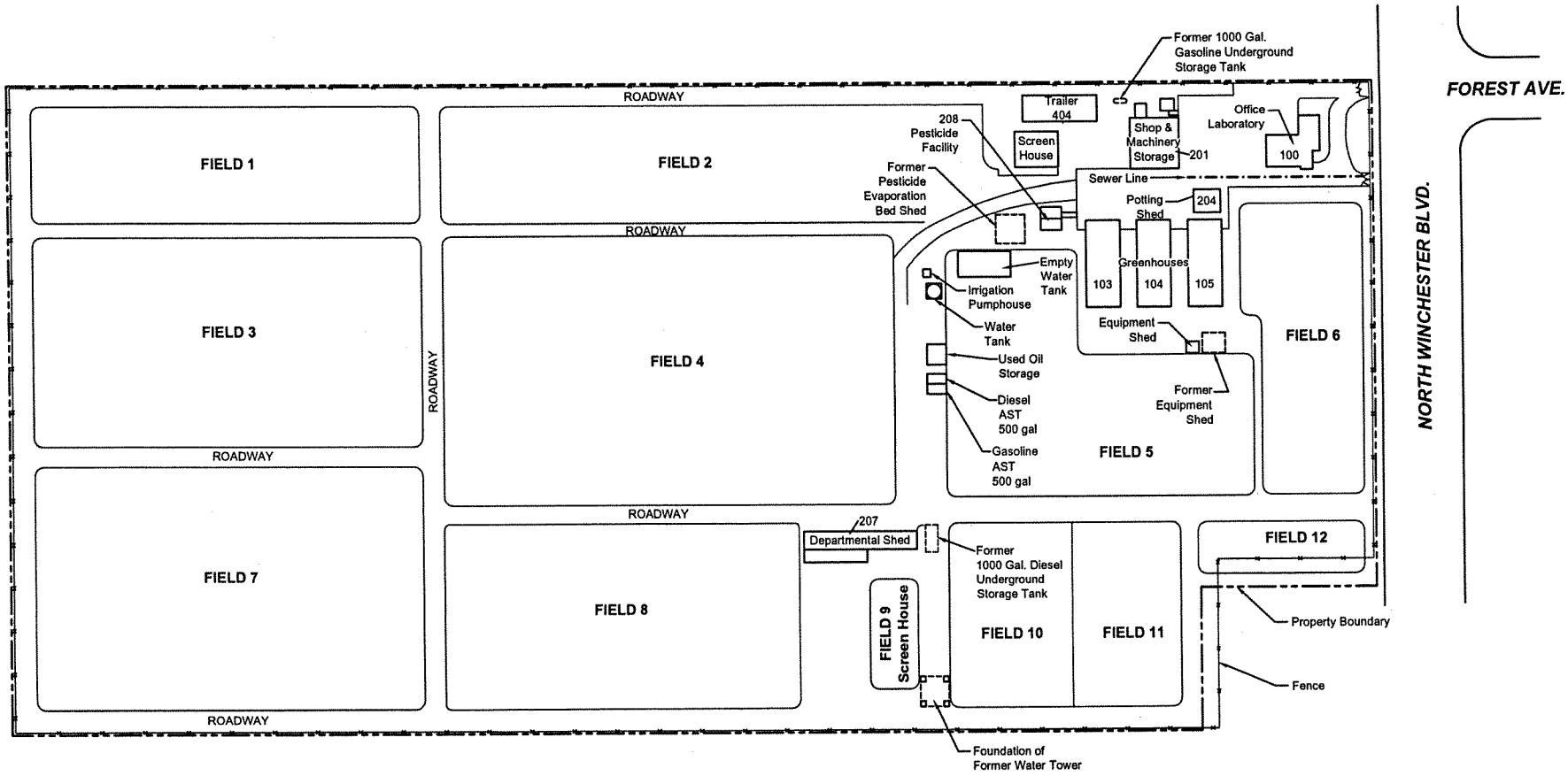
ENVIRON

6001 Shellmound St., Suite 700, Emeryville, CA 94608

**Site Location Map**
BAREC
90 N. Winchester Blvd.
Santa Clara, California

Figure
**1**

Drafter: RS | Date: 8/19/02 | Contract Number: 03-10609A | Approved: | Revised:

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6001 Shellmound Street, Suite 700, Emeryville, California 94608

**Site Layout**
BAREC
90 N. Winchester Blvd.
Santa Clara, California

| DATE: | CONTRACT NUMBER: | | FIGURE |
|---|---|---|---|
| 8/19/02 | 03-10609A | | 2 |
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**Table 1**

**Description of Buildings at BAREC**

| BAREC Building No. | Estimated Construction Date | Use and Description |
|---|---|---|
| 100 | 1928 | A two-story wooden structure that is used as the main administration building. |
| 103 | 1960s | Greenhouse. Single-story structure, wooden frame with corrugated fiberglass walls and roof. It has no floor. |
| 104 | 1960s | Greenhouse. Single-story structure, wooden frame with corrugated fiberglass walls and roof. It has no floor. |
| 105 | 1960s | Greenhouse. Single-story structure, wooden frame with corrugated fiberglass walls and roof. It has no floor. |
| 201 | 1928 | Vehicle maintenance shop. Single-story wooden structure. |
| 203 | Between 1937 and 1954 | Shed and pump house. Single-story wooden structure. |
| 204 | Between 1937 and 1954 | Small potting shed. Single-story wooden structure with corrugated fiberglass walls and roof. |
| 207 | 1970s | Storage building. Single-story, wooden frame with corrugated metal walls and roof. |
| 208 | 1970s | Pesticide shed. Single-story wooden structure. |
| 404 | Brought to the Site 10 years ago | Trailer, used for office space. |
| Unnumbered Screen House | 1998 | Screen house and plant nursery located directly east of Building 404 |
| Unnumbered Equipment Shed | 1970s | Storage area for plant pots located directly north of Building 105. It has no floor. |
| Unnumbered Military Trailer | Unknown | Small portable metal military trailer, located next to the two fuel ASTs. It is located next to Field 5 |
| Unnumbered Covered Area | Unknown | Covered area located next to Building 208, used as parking for the tractors |

In general, the topography of the area slopes in a northeasterly direction. Site personnel were not aware of any flooding at the Site. Flood information from the Federal Emergency Management Agency (FEMA) Santa Clara County map indicates the Site is located within a 500-year flood zone. Based on wetlands information compiled by the U.S. Fish and Wildlife Service and provided by EDR, the Site does not contain any wetlands. ENVIRON did not observe any vegetation indicative of wetlands at the time of the Site visit.

### A.1 Geology and Hydrogeology

Site-specific geologic and hydrogeologic information was not obtained by ENVIRON as part of this environmental assessment; however, based on information in the Dames and Moore report regarding the closure of the former evaporation bed, the Site is located near the center of the South Bay hydrologic sub-basin of the San Francisco Bay hydrologic basin which is located in the Coast Ranges geomorphic province. The Coast Ranges geomorphic unit is characterized by predominantly northwest trending mountains, valleys and faults. The South Bay unit is a broad alluvial valley sloping north toward San Francisco Bay. The Site is underlain by Quaternary alluvium deposited by streams that merge near the center of the San Jose Alluvial Plain and flow north toward San Francisco Bay. The alluvium is composed of unconsolidated interbedded gravel, sand silt and clay. The alluvium becomes progressively finer-grained northward toward the Bay and contains a series of laterally extensive marine clay layers.

Dames and Moore interprets the Site to be within or on the margin of the area underlain by extensive clay layers. According documentation provided by David Towle for the irrigation well at the Site, gravel was observed at the Site to a depth of 39 feet. The gravel was underlain by layers of clay, sandy clay, gravelly clay and gravel to a depth of 360 feet. Blue clay was reported at depths of 70 to 75 feet, 105 to 119 feet, 239 to 244 feet, and 261 to 272 feet which is consistent with Dames and Moore's interpretation that the Site is on the margin of the area underlain by extensive clay layers.

### A.2 Ground Water

According to the Dames and Moore report, most water wells in the San Jose Alluvial Plain withdraw ground water from the Quaternary alluvium. Four correlatable regional aquifers have been identified in the alluvial plain; the 60-foot, 250-foot, 350-foot, and 450-foot aquifers. Most major producing wells in the Santa Clara area withdraw water from a zone 150 to 250 feet below ground surface under confined or

semi-confined conditions. BAREC personnel indicate that one groundwater well is located on-site. It is located inside the pump house and is used for irrigation of the fields. The well at the Site is screened from a depth of 200 to 250 feet below ground surface (bgs); the depth to groundwater in this well is 140 feet and approximately 3.7-million gallons are pumped annually. The EDR report identified nine additional active wells within a one-mile radius of the Site. They are operated by O'Connor Hospital, the San Jose Water Company, the City of San Jose, and the City of Santa Clara. No additional information about these wells was found.

There is no Site-specific information on shallow ground water at the Site. ENVIRON reviewed a Soil and Ground Water Report prepared for McCulley, Frick & Gilman, Inc. for the Dunn-Edwards Corporation Facility located at 690 Winchester Boulevard, approximately 1/8 mile north of the Site. The report indicated that shallow ground water was encountered between 20 and 30 feet bgs and that shallow ground water flowed towards the Bay to the east.

## B. Site History

According to facility personnel, the Site was originally occupied by a veterans' widows home. The agricultural experimental field station operations began in 1928. The home remained in operation until the 1960s, when it was demolished and replaced with more agricultural fields. According to historical topographical maps, the name of the facility used to be Holderman Sanitarium. Based on a review of historical titles and deeds, obtained from DGS, four lots owned by Margaret Osborne were deeded to the State of California in 1921 and 1924. The four lots were incorporated into three lots, two of which were deeded by the State of California to the UC in 1952 and 1963. The third lot, located directly southwest of the Site, remained property of the State of California, and is currently occupied by a commercial establishment.

The field station's initial purpose was to serve the farmers in the surrounding area. Up until roughly 1990, deciduous fruit trees (such as apples, citrus, cherries, almonds and ornamental) were planted in the different fields at different times to conduct research on fertilizers, irrigation, variety characteristics of crops, and crop disease control. This research included testing of pesticides and insecticides. As the surrounding area changed and became urban, the trees were replaced with various crops, such as strawberries, corn, tomatoes, beans and flowers. According to David Towle at the UC, during the past 5 years, eighty percent of the research at BAREC has focused on crop improvement, whereas only twenty percent has involved pesticide use.

Based on the information obtained from available historical information sources, ENVIRON has assembled the following chronology of historic activities at and in the vicinity of the Site:

- At some point before 1937, the Holderman Sanitarium was built. Based on a review of the aerial photograph from 1937, it apparently occupied most of what is now Fields 4,10 and 11 and consisted of two large structures and approximately six smaller structures. There were no roadways in-between the fields, but there was an access road from Winchester Boulevard south of the current gate. Buildings 100 and 201 were built before 1937, as well as another structure in the place of the current unnumbered screen house. A water tower also existed at that time, located next to the current Field 10. Agricultural fields similar in configuration to the current fields appear to occupy the remaining area of the property.

- Based on a review of aerial photographs from 1937 and 1954, buildings 103, 203 and 204 were built at some point between 1937 and 1954.

- Based on a review of aerial photographs from 1968, 1971, 1976 and 1982, the Holderman Sanitarium and water tower were demolished between 1968 and 1971. Buildings 103, 104, 105, 208 and the equipment shed behind Building 105 were apparently constructed in that period. Starting in 1971, the area previously occupied by the Holderman Sanitarium was transformed to agricultural fields. The evaporation bed appears to have been constructed between 1971 and 1976, and was covered with a roof between 1976 and 1982.

- Based on a review of aerial photographs from 1992, 1994, 1996, 1997 and 1999, Building 404 was placed between 1994 and 1996. The existing empty water tank was placed between 1996 and 1997. The current unnumbered screen house replaced the previous structure at some point between 1992 and 1999.

## C. Description of Operations

Currently, the facility is an agricultural research facility that has provided community out-reach information on improving crop production, irrigation systems, nutrition and variety characteristics of crops, and crop disease control. Dr. Mousli

reported that a variety of crops are planted on-site including corn, tomatoes, beans, flowers, grass sod turf, and deciduous fruit trees (e.g., apples, cherries, ornamental trees). The 17-acre Site is parceled into 12 field plots. Within each field plot, a specific crop such as deciduous fruit trees or grass turf is grown. For research involving crop disease, select pesticides are applied to determine the efficacy at ameliorating the pest or disease of concern by UC researchers. According to Dr. Mousli, the crops and type of research are routinely changed and, therefore, the pesticides applied also change. Brief descriptions of activities are presented by building below.

**Main Administration Building, Building 100 and Administrative Trailer Building 404.** The building contains administrative offices, a large meeting room and a dry laboratory. According to facility personnel, no chemicals are used in the laboratory. Soils are dried and weighed in preparation for outside analysis of chemical and physical properties. Additional administrative activities are undertaken in a portable trailer, Building 404. The trailer contains a small office and a dry laboratory for specimen preparation. No chemicals are used or stored in this building.

**Greenhouses, Buildings 103, 104, and 105, and Potting Shed, Building 204.** Buildings 103 through 105 are fiberglass structures without floors that have been historically used as greenhouses. Currently, Greenhouse Building 103 stores compost bins; Greenhouse Building 104 stores planter boxes, old furniture and equipment. Greenhouse Building 105 is currently used to grow vegetables. The vegetables grow in pots located on top of tables. Water and fertilizer are sprayed directly onto the plants. Some herbicide is sprayed occasionally between the tables to control weeds.

The potting shed is located adjacent to the greenhouses and is used to pot small plants before they are placed in the greenhouse. At the time of the Site visit, one small sink was located in this room. Dr. Mousli indicated that the sink is no longer in service, and that was previously used exclusively to wash pots. According to Dr. Mousli, the sink used to drain through a pipe to a 6-feet wide, 6-feet long underground wooden tank, located in Field 6. The depth of the tank is unknown. Dr. Mousli indicated that the tank was accidentally broken, and that the pipe was subsequently plugged.

**Pesticide Storage Shed, Building 208.** This building is, according to facility personnel, the only storage area for pesticides. The building is divided into two rooms. In the first room, a variety of pesticides are stored on shelves. Small quantities of

pesticides are also mixed in this room and poured into 60-gallon tanks and backpacks for application in the field. A fume hood is located in the building and is used for mixing the pesticides. There are no drains or sinks in this room. The second room contains personal protective gear, showers and lockers for the employees using pesticides. A floor drain is located in this portion of the building that is currently connected to the City sanitary sewer. Prior to connection to the sewer, this floor drain discharged to the evaporation bed (Section G). No information is available regarding whether this drain existed prior to 1973 when the evaporation bed was constructed, and if it existed prior to 1977, where it discharged.

Adjacent to this building is a wastewater treatment system for pesticide rinsate. This area formerly contained an evaporative wastewater bed. Both of these wastewater systems are discussed in more detail in Section G.

**Shop and Machinery Storage, Building 201 and Portable Military Trailer.** BAREC owns nine vehicles consisting of: three trucks, four tractors, one forklift and one car. These vehicles are serviced inside Building 201. According to facility personnel, the operations conducted inside this building consist of oil changes and degreasing operations, in which a small amount of solvent is placed on rags and subsequently the rags are used to wipe the desired surface. The solvent is allowed to evaporate off the rags before they are discarded in the trash. At the time of the Site visit, ENVIRON observed a small shelf that contained small containers (less than one gallon) of a variety of solvents, lubricants, and cleaning supplies. One small air compressor was noted in the building. In addition to the maintenance shop, the facility also stores used oil and used oil filters in a portable metal trailer located adjacent to Field 5.

According to facility personnel, the maintenance shop has never had any hydraulic lifts or maintenance pits. At the time of the Site visit, no significant stains were observed on the floor of the shop. In addition to the shop, the building also houses a walk-in refrigerator that was formerly used to store vegetables.

An equipment washer is located outside the building, although the current personnel have never used it. Historically, a steam cleaner was used just outside the shop, however it was stolen sometime before 1996, according to facility personnel. No stains were noted at this location during the Site visit.

**Irrigation Pumphouse, Building 203.** The irrigation well is located inside this building. The pump was recently replaced due to a broken shaft. The current

submersible pump is located at a depth of 200 ft and has a capacity of 500 gallons per minute.

**Departmental Shed, Building 207.** This building is located in close proximity to the fields and is divided into several compartmentalized rooms with large barn doors for access. According to facility personnel, the building is used for storage of fertilizers, old equipment and furniture, and as parking for one of the tractors. Additionally, one room is used to grow mushrooms.

## D. Polychlorinated Biphenyls (PCBs), Asbestos and Lead-Based Paint

### PCBs

According to facility personnel, BAREC does not use nor own any transformers. At the time of the Site visit, ENVIRON noted six pole-mounted transformers located on the property, all of which are reportedly owned by PG&E. Since the UC does not own these transformers, demolition or relocation of these transformers would not be the responsibility of the UC or the Department of General Services. It is unknown whether these transformers contain PCBs, but no leaks have been observed by facility personnel and none were noted during the Site visit. Facility personnel were unaware of any PCB containing equipment. It is possible, based on the age of the buildings, that light ballasts from fluorescent lights contain small quantities of PCBs.

### Asbestos

The UC conducted a limited asbestos survey in 1989. A total of six samples were analyzed for asbestos-containing material (ACM) and limited abatement was performed or recommended:

- The first sample, which contained a high percentage of asbestos, was obtained from the conference room cabinet in Building 100. The substance appeared to be fire door gasket material, and it was placed in a plastic bag for disposal.
- Two ACM containing samples were obtained from a cloth duct wrap used to connect the heating duct in the lower level of the same building. Only one spot of this cloth wrap was considered to be friable ACM, and was recommended to be sealed.
- One sample was obtained from a small quantity of insulating material inside

an oven in the laboratory of Building 100. It was considered extremely friable ACM and the recommendation was to abate it immediately.

- One sample was obtained from planter boxes in Building 105. Although the sample tested positive for ACM, the report considered most of the boxes in good condition and no abatement was recommended. Only a few were observed to be damaged, and they were recommended to be abated using a silicone sealant.
- The last sample was obtained from some floor tiles in Building 100. No ACM was detected.

No information was found in the documents provided to ENVIRON on whether the recommendations for abatement were followed.

Additionally, the following areas were found to contain non-friable ACM:

- Furnace vent pipe in the upper level crawl space, and floor tile throughout Building 100
- Hardboard surface in the work benches of Building 204
- Laboratory table tops, hardboard sections and several pipe sections in Building 207
- Fume hood and hardboard surfaces in the work bench in Building 208.

Additionally, facility personnel reported during the Site visit that one of the irrigation field standpipes has ACM. The standpipe was noted to be located south of Field 8, during the Site visit. Approximately six feet of the pipe extends above ground.

**Lead-Based Paint**

The only specific standard regarding the use of lead-based paint in buildings is 24 CFR 35, which prohibits the use of lead-based paint in public housing, effective in 1978. Therefore, buildings constructed prior to 1978 are more likely to contain lead-based paint. The majority of the structures within the Site were constructed prior to 1978 and, therefore, may contain lead-based paint. It was not within the scope of this study to determine which buildings may or may not contain lead-based paint. However, once specific future development plans are identified, an investigation for lead-based paint in buildings that are to remain at the Site may be warranted.

## E. Hazardous Materials Use and Storage

### Hazardous Materials Use

According to facility personnel, the facility uses the following chemicals on-site: pesticides and fertilizers for the crops; gasoline and diesel for the vehicles; paints and solvents for general maintenance. Most of these chemicals are stored in small quantities (i.e., less than five gallons) with the exception of diesel, gasoline, waste oil and ammonium nitrate. A list of the chemicals currently stored on-site is presented in Appendix B.

According to facility personnel, there were no regulations applicable to the Site as far as record keeping of pesticide use before 1980. ENVIRON obtained pesticide application records starting in 1979; they are summarized in Appendix C.

### Underground Storage Tanks

There are no underground storage tanks (USTs) currently in use at the Site. Two 1,000-gallon fuel tanks were formerly located on-site. The date of installation of the tanks is unknown. A 1000-gallon gasoline UST was located next to Building 201 a 1000-gallon diesel UST was located next to Building 207 (see Figure 2).

UC personnel removed the tanks in 1993. Two samples were taken from approximately two feet below the bottom of the gasoline UST excavation, and one sample was taken from approximately two feet below the bottom of the diesel UST excavation. The soil samples were analyzed for gasoline, diesel, lead, benzene, toluene, ethylbenzene and xylenes. None of these constituents were detected. The tanks were reportedly in good condition with no evidence of damage at the time of the removal. A letter dated October 7, 1993, from the City of Santa Clara Fire Department confirms that there was no sign of contamination, and that no further work is required.

### Aboveground Storage Tanks

Two double-walled 500-gallon aboveground storage tanks (ASTs) are located on-site in the vicinity of Field 5. The ASTs are currently on top of concrete pads. The date these tanks were installed is unknown but it was before 1996, according to facility personnel. It is likely they were installed after the USTs were removed in 1993.

Additionally, there is a water tank next to the pump house that is used for water storage. Another water tank was installed next to the first one, but has never been used.

As part of the equipment wash system, described in section G, three tanks of various sizes are located next to the pesticide shed (Building 208).

### Drums and Small Containers

There are a number of smaller containers (less than five gallons) in Building 201, containing paints, diesel, gasoline, oil, and paint thinner.

## F. Non-hazardous and Hazardous Waste

### Non-hazardous Waste

Solid waste generated as a result of facility operations includes miscellaneous paper and cardboard debris and empty containers (e.g., potting containers). All of this solid waste is disposed in the garbage dumpster, which is located next to the trailer (Building 404).

### Hazardous Waste

According to Dr. Mousli, hazardous wastes are generated sporadically at the Site. Reportedly, these wastes have always been sent off-site for disposal and, with the exception of pesticide rinsate, no materials have been disposed of on-site. Dr. Mousli was unable to provide a comprehensive file of manifests demonstrating off-site disposal of materials.

ENVIRON was, however, provided with a summary sheet that indicated several of the off-site haulers that BAREC has used. This information is presented on Table 2.

## G. Wastewater

### Sanitary Wastewater

Sanitary wastewater generated from the main administrative building, Building 100, is currently discharged into the City of Santa Clara sewer system. According to documentation given to ENVIRON by the UC, the connection to the city system occurred in 1977. Prior to 1977, wastewater from these buildings was discharged into a sewage leach pit. According to a drawing dated April 1, 1977, the leach pit was approximately four feet wide, six feet long and four feet deep, and was located between buildings 201 and 100 as shown on Figure 2. The leach pit was abandoned in accordance with Uniform Plumbing Code Standards for cesspools.

**Table 2**
**Hazardous Waste**

| Waste Type | Volume Generated | Location of Storage | Company in Charge of Disposal |
|---|---|---|---|
| Used oil | 50 gal/year | Military Trailer | Bayside Oil of Santa Cruz, CA |
| Used oil filters | 12 / year | Military Trailer | Bayside Oil of Santa Cruz, CA |
| Used antifreeze | Unknown | Building 201 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Unused Pesticide | Unknown | Building 208 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Used Pesticide Containers | Unknown | Building 208 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Fluorescent Lights | Unknown | Building 201 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Used batteries | Unknown | Building 201 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Solvent rags | Unknown | Building 201 | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Oil contaminated soil | Unknown | Military Trailer | Santa Clara Valley Hazardous Waste of Santa Clara, CA |
| Spent carbon | Unknown | Equipment Wash System Tanks | US Filter of Parker, AZ |

Additionally, a 1963 plan indicates the existence of a septic tank located in a leach field next to the Holderman Sanitarium on what is currently Field 4. No additional information was found.

An equipment wash system is located next to the pesticide shed (Building 208). It was installed in the early 1990s, according to facility personnel. It consists of three aboveground tanks and a series of filters, and is used to wash the exterior of the fertilizer

tanks. The interior of the fertilizer tanks is rinsed thrice in the field and the contents applied to the same field. The sludge of the wash system was reportedly tested and contained diesel only.

There is currently one sewer line under the parking lot that discharges to the City of Santa Clara sewer system. It collects wastewater from the office building (Building 100) and from the equipment wash system.

**Former Evaporation Bed**

According to a Dames & Moore report (1988), an evaporation bed was constructed in 1973 to dispose of diluted pesticide wastes. Rinsate from the washing of pesticide containers and application equipment was applied to the evaporation bed from 1973 to 1985. Use of the evaporation bed was discontinued in 1985 and inlets to the basin were sealed.

The evaporation bed consisted of a lined soil evaporation bed, which was 20-feet long and 15-½feet wide. A translucent corrugated fiberglass roof shielded the bed from rainfall. A compacted earthen embankment covered by 2 inches of washed sand and a rubber liner formed the floor and walls of the bed. The fill in the evaporation bed consisted of 16 inches of sandy loam soil overlying a 6-inch layer of graded gravel and 2 inches of washed sand. Perforated bituminous fiber pipes in the gravel layer were connected to a distribution box within the bed. The distribution box was composed of pressure-treated wood. A 4-inch bituminous fiber pipe penetrated the liner on the east side of the bed and connected the distribution box to the sediment trap, located 5 feet east of the bed. The sediment trap consisted of a cylindrical concrete box, 3 feet in diameter and 6 feet deep, with a manhole cover. Because the elevation of the pipe carrying rinsate into the sediment trap was higher than that of the pipe carrying the rinsate out, heavier particles sank into the trap and were not carried to the evaporation bed. Two drains, one in the pesticide shed and one in the concrete wash slab, were connected to the sediment trap by a 4-inch plastic pipe and a 4-inch cast iron pipe, respectively.

The rinsing occurred in a concrete wash slab adjacent to the pesticide storage shed (Building 208). Rinsate drained first into the sediment trap from which sediment was cleaned out periodically and distributed on the evaporation bed. From the sediment trap water flowed into the distribution box of the evaporation bed where perforated pipes connected to the distribution box dispersed the diluted pesticide solutions throughout the bed's gravel layer. Capillary forces in the loam soil drew the rinsate solution up through the overlying soil to evaporate at the surface. Hydrated lime (calcium hydroxide) was

tilled into the soil bed to increase the soil pH, which accelerated the breakdown of organophosphate and carbamate pesticides.

The liner in the evaporation bed was composed of two sheets of 20-mil-thick nylon-reinforced butyl rubber liner, spliced together on-site. The liner was inspected carefully during bed removal activities and appeared to be in good condition. At the time the Dames & Moore report was written, there was no history of leaks or repairs to the liner at the Site.

Prior to its removal, the evaporation bed was sampled in July 1987 by UC (UC) staff. The bed was divided into 16 quadrants of approximately equivalent size; one sample from each quadrant was collected for depths of zero to 12 inches. A composite sample of all 16 samples was submitted for analysis. Based on the analytical results, Dames & Moore concluded that the soils in the evaporation bed would be considered non-hazardous according to California Department of Health Services (DHS) regulatory criteria (California Administrative Code, Title 22, Division 4, Chapter 30, Article 11). Sample results are summarized in Table 3.

**Table 3**
**Summary of Soil Chemical Test Results – July 1987 Soil Samples**

| | Detection Limit (mg/kg) | Bed Soil (0-1 ft) (mg/kg) |
|---|---|---|
| Toxaphene | 1.6 | * |
| Guthion | 10 | 16 |
| Baygon | 0.01 | 0.028 |
| Chloropropham | 0.005 | 0.04 |
| Fluometuron | 0.001 | 1.6 |
| 2,4-D | 0.025 | 1.2 |
| Afugan | (1) | 0.089 |
| 2-(Phenylazo)-Benzoic Acid | (1) | 2.5 |
| Zytron | (1) | 0.17 |
| Arsenic | 40 | 78 |
| Copper | 3 | 27 |
| Calcium | 10 | 28,800 |

* Not detected

(1) Detection Limit not available - constituent concentration estimated from library search

Source: Dames & Moore Report (1988), Table D-4

The UC, with the assistance of Dames & Moore, removed the evaporation bed in October 1987. All materials were excavated from inside of the liner and the liner was checked for integrity. After the liner was removed, the underlying two inches of soil were excavated from the bed to minimize any possible residual contamination.

Four samples were collected from the bottom of the evaporation bed excavation after the liner was removed. The carbamate pesticide chloropropham was reported at a concentration of 2.8 mg/kg in one of the samples. No other pesticides or herbicides were detected in the four samples collected below the former evaporation bed. Sample results are summarized in Table 4.

**Table 4**

**Summary of Soil Chemical Test Results – October 1987 Soil Samples**

| | Detection Limit (mg/kg) | Background | | Beneath the Evaporation Bed | | | |
|---|---|---|---|---|---|---|---|
| | | DFFS-1A (mg/kg) | DFFS-2A (mg/kg) | DFFS-3A (mg/kg) | DFFS-4A (mg/kg) | DFFS-5A (mg/kg) | DFFS-6A (mg/kg) |
| DDE | 0.016 | 0.023 | 0.17 | * | * | * | * |
| DDT | 0.016 | 0.016 | 0.17 | * | * | * | * |
| Organophosphate Pesticides | 0.1-2.0 | * | * | * | * | * | * |
| Chloropropham | 0.5 | * | * | 2.8 | * | * | * |
| Triazine Herbicides | 0.1 | * | * | * | * | * | * |
| Chlorinated Herbicides | 0.025-0.13 | * | * | * | * | * | * |
| Other Organic Compounds | - | * | * | * | * | * | * |
| Arsenic | 40 | * | * | * | * | * | * |
| Copper | 3 | 24 | 29 | 22 | 22 | 18 | 20 |
| Barium | 10 | 120 | 120 | 110 | 120 | 110 | 110 |
| Cadmium | 0.5 | 0.66 | 0.59 | 0.52 | 0.54 | * | 0.63 |
| Chromium | 1 | 42 | 34 | 34 | 37 | 35 | 47 |
| Cobalt | 3 | 9.4 | 8.4 | 8 | 9.1 | 8.2 | 10 |
| Lead | 5 | * | 27 | * | * | * | * |
| Nickel | 5 | 52 | 49 | 48 | 51 | 43 | 49 |
| Vanadium | 5 | 31 | 28 | 27 | 29 | 29 | 31 |
| Zinc | 2 | 51 | 56 | 44 | 48 | 41 | 45 |

- Not available

* Not detected

Source: Dames & Moore Report (1988), Table D-6

Dames & Moore concluded that there was no indication that the operation of the former evaporation bed had a significant impact on the environment.

**Storm Water**

Currently, storm water runoff at the facility percolates into the fields. The parking lot area stormwater goes to the street, where it enters the City of Santa Clara storm drain system.

## H. On-site Soil and Ground Water Contamination, Investigation and Remediation

ENVIRON identified the following potential sources of on-site soil contamination:

### 1. Current and Historical Pesticide Use

Since the 1920s, the Site has been used as an agricultural research station. The primary research efforts at the Site have focused on improving crop production methods, irrigation systems, nutrition and variety characteristics of crops, and crop disease control. Part of this research has involved demonstrating the efficacy of a variety of research and development (R&D) pesticides. As a result of the application of pesticides to soil and the handling of pesticides on-site, it is possible shallow surface soil in test field plots and the greenhouses may contain pesticide residues. In addition to the application of pesticides to surface soil, the former presence of a sewer leach pit raises the possibility that deeper subsurface soil and potentially ground water beneath the Site may contain pesticide residues as well. Further surface and subsurface environmental investigations are necessary to determine whether soil and/or ground water has been adversely impacted by pesticide use.

### 2. Former USTs

The facility had two underground storage tanks on-site that were used to fuel facility vehicles including tractors and other field equipment. Both tanks were removed in May 1993 under the oversight of the City of Santa Clara Fire Department. The tanks were observed to be in good condition with no holes or

corrosion. Soil samples were collected from below the tanks and analyzed for gasoline, diesel, lead, benzene, toluene, ethylbenzene and xylenes. None of these constituents were detected. Based on this information, the facility was granted a closure letter dated October 7, 1993 by the City of Santa Clara Fire Department. No further investigation of the former USTs appears warranted at this time.

**3. Former Evaporation Bed**

From 1973 to 1985, the facility operated an evaporation bed on-site that received rinsate from the washing of pesticide containers and application equipment. The washwater was allowed to evaporate. This area was the subject of a soil investigation in 1988 and the bed was removed and closed under the oversight of the California Regional Water Quality Control Board. Based on the results of the report, soil beneath the former evaporation bed does not appear to be significantly impacted by former bed operations. No further investigation of the evaporation bed appears warranted at this time.

**4. Off-site sources**

The EDR report identified a Leaking Underground Storage Tank (LUST) site at the Dunn-Edwards Corporation facility. The contents of the leaking tank were reported to be paint thinner. ENVIRON reviewed a Soil and Ground Water Investigation Report prepared by McCulley, Frick & Gilman, Inc., for this facility, located at 690 North Winchester Boulevard, approximately less than a quarter of a mile north of the Site. Since the report indicated that the hydraulic gradient of the shallow ground water at the Dunn-Edwards facility was to the east away from the BAREC Site, ENVIRON considers the Dunn-Edwards site to pose little or no threat of contamination to the Site.

# APPENDIX A
# EDR REPORT

# APPENDIX B
# CHEMICALS STORED (1997 TO PRESENT)

## Appendix B

## Chemicals Stored (1997 to Present)

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| Cal Jan Tub Tile & Bowl Cleaner | 9 QT. PLS BTL | Unknown | CIS |
| Clorox Toilet Bowl Cleanser | 2-24 OZ. PLS BTL | Sodium Hypochlorite | CIS |
| Ajax Oxygen Bleach Cleanser | 2-21 OZ. CARD CAN | Calcium Carbonate | CIS |
| Envirosafe Glass Blast | 2 GAL. PLS BTL | Unknown | CIS |
| Lucky Bleach | 4 GAL. PLS BTL | Sodium Hypochlorite | CIS |
| Liquid Plumr, clog remover | 2QT. PLS BTL | Sodium Hypochlorite, Sodium Hydroxide | CIS |
| Spray N'Clean | 24 OZ. CAN | Unknown | CIS |
| OSH Ant Roach & Spider Control | 24 OZ. PLS BTL | Diazinon | CIS |
| Sta-Lube Lanolin Cream Hand Cleaner SL 1211 | 2-24 OZ. CARD CAN | Petroleum Distillate | CIS |
| Sta-Lube Lanolin Cream Hand Cleaner SL 1211 | 7 LB. CAN | Petroleum Distillate | CIS |
| Super Stripe Traffic Paint | 12-18 OZ. CAN | Toluol | CIS |
| Lube-Zit Rubber Lubricant | 1 GAL. CAN | Unknown | CIS |
| Sta-Lube Molybium #3143 Multi-purpose Grease | 5 LB. CAN | Lithium Base | CIS |
| RPM Wheel Bearing Grease | 10 LB. CAN | Unknown | CIS |
| Unitrac Universal Tractor Hydraulic Fluid | 2-5 GAL. PLSDRUM | Unknown | CIS |
| Extra-Duty, Multipurpose Gear Lubricant 80-90-wt. | 35 LB. PLSDRUM | Unknown | CIS |
| Chevron Multi-Motive Grease-1 | 35 LB. CAN | Unknown | CIS |
| Revere Hydro-Lock Quick Setting Hydraulic Cement | 45 LB. PLSDRUM | Unknown | CIS |
| 2 Cycle Engine Oil | 2 QT. PLS BTL | Unknown | CIS |

1 Notes: CIS = Chemical Inventory Sheet dated March 12, 1999

SCAG = Santa Clara County Department of Agriculture Restricted Materials Permit, dated January 9, 2002.

PL = BAREC Pesticide List, dated July 26, 2002

HAZMAT = Santa Clara Fire Department Hazardous Materials Inventory for BAREC dated April 2, 1997

The chemical names for materials found in SCAG and PL were found in the Crop Protection Reference, C&P Press 1997

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| Lacquer Thinner | 1 GAL. CAN | Petroleum Naphta | CIS |
| Pure Row Linseed Oil | 1 GAL. CAN | Petroleum Naphta | CIS |
| A-1 Thermolite Enamel | 8 OZ. CAN | Petroleum Distillates, Pigment | CIS |
| Rust-Oleum Thinning Oil | 8 OZ. CAN | Petroleum Spirits 84% | CIS |
| R-O Gloss Protective Enamel | 2 QT. CAN | Unknown | CIS |
| Delthane Polyurethane | 1 GAL. CAN | Unknown | CIS |
| Delthane Polyurethane | 11.5 OZ. CAN | Unknown | CIS |
| Ace Acrylic Semi Gloss Latex Enamel | 29 OZ. CAN | Unknown | CIS |
| Man-O-War Salin Spar Marine Varnish | 1 QT. CAN | Unknown | CIS |
| Acry-luster Acrylic Semi-Gloss | 1 GAL. CAN | Unknown | CIS |
| Emulsa-Bond Stir in Bonding Primer | 1 GAL. CAN | Unknown | CIS |
| Weld On PVC P-70 Primer | 1 QT. CAN | Unknown | CIS |
| Pipe Thread Compound | 2-8 OZ. CAN | Unknown | CIS |
| Concrete Bonding Adhesive | 2 QT. PLS BTL | Unknown | CIS |
| Wet Dry Roof Cement | 1 GAL. CAN | Asphalt | CIS |
| Black Jack Pourable Driveway Crack Filler | Unknown | Unknown | CIS |
| Thompson's Deck Wash | 2 GAL. PLS BTL | Unknown | CIS |
| Paint Thinner | 1 GAL. PLS BTL | Petroleum Distillates | CIS |
| Jasco TSP | 1 QT. PLAS BTL | Tri-Sodium phosphate Organic Esters | CIS |
| Revero Rev-Grip | 1 GAL. CAN | Unknown | CIS |
| Luck Bond Floor Adhesive | 2 GAL. CAN | Unknown | CIS |
| Jasco Termin-8 | 1 GAL. CAN | Copper Napthanate | CIS |
| Jasco Termin-8 | 1 QT. CAN | Copper Napthanate | CIS |
| Eager Beaver Solid Color Alkyd Stain | 1 GAL. CAN | Unknown | CIS |
| Jack Belanger Enamel | 1 GAL. CAN | Unknown | CIS |
| Solder Seal/Gunk Non-Flammable Puncture Seal | 24.5 OZ. CAN | 1,1,1,2 Tretrafluoroethane | CIS |
| Thrust Quick Starting Fluid (Solder Seal/Gunk) | 1 OZ. CAN | n-beptane | CIS |
| S.S./Gunk Havy Duty Brake Fluid | 1 QT. PLS BTL | Polyglycol esters | CIS |
| Bell-Ease Belt Dressing #BD-6 | 3-5.5 OZ. CAN | Petroleum Distillates | CIS |

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| Mitee Threadcutting Oil (Dark) | 2 QT. CAN | Unknown | CIS |
| Craftsman Penetrating Oil | 1 PT. CAN | Petroleum Distillates | CIS |
| Rema Tip Top Bead Sealer | 1 QT. CAN | Unknown | CIS |
| Sta-Lube Hydraulic & Jack Oil #2552 | 1 QT. PLS BTL | Petroleum Oil | CIS |
| Dupont No. 7 Cooling System Cleanser | 10 OZ. CAN | Oxalic Acid / Sodium Carbonate | CIS |
| Ace Paint Thinner | 1 QT. CAN | Stoddard Solvent | CIS |
| Aervoe Fluorescent Glo Paint | 5-12.5 OZ. CAN | Toluol | CIS |
| OSH Spray Primer | 12.5 OZ. CAN | Xylene | CIS |
| OSH Spray Enamel | 4-12.5 OZ. CAN | Xylene | CIS |
| Evercoat Spray Under Coating #405 | 20 OZ. CAN | Unknown | CIS |
| Brush Flush Oil & Latex Paint Brush Cleaner | 1 QT. BTL | Unknown | CIS |
| Ever Fix Epoxy Resin | 8 OZ. CAN | Epoxy Resin | CIS |
| Evercoat Marine Resin | 1 QT. PLS BTL | Epoxy Resin | CIS |
| Clearly Visible Summer Formula Windshield Wash | 1 GAL. PLS BTL | Unknown | CIS |
| Prestone Antifreeze Coolant | 2 GAL. PLS BTL | Ethylene Glycol | CIS |
| Sta Lube Disc Brake High Temp Grease #3161 | 2 GAL. PLS BTL | Aluminum Complex Base | CIS |
| Light Weight Titeseal | 14 OZ. CAN | Unknown | CIS |
| Sta-Lube General Purpose Lithium Grease (SL 3310) | 2-14 OZ. CARTRIDGE | Unknown | CIS |
| Permutez Form-A-Gasket (2B Small 2C Large) | 1 OZ. TUBE | Unknown | CIS |
| Permutez Form-A-Gasket (2B Small 2C Large) | 3 OZ. TUBE | Unknown | CIS |
| Deveon 5 Minute Epoxy | 1 OZ. – 2 TUBE PACKAGE | Epoxy Resin / Polyamine Hardener | CIS |
| Rust-Oleum Striping Paint 2326 Blue | 4-18 OZ. CAN | Xylene | CIS |
| Cover Right Acrylic Latex Semi-Gloss | 1 GAL. CAN | Unknown | CIS |
| Exterior High Gloss Alkyd Enamel | 1 GAL. CAN | Unknown | CIS |
| Compo Exterior Primer/Undercoater | 1 GAL. CAN | Unknown | CIS |

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| M-P Prime Acrylic Multi-Purpose Primer | 1 QT. CAN | Unknown | CIS |
| Vin-L-Tex Premium Vinyl Acrylic Exterior Finish | 1 QT. CAN | Unknown | CIS |
| Permasheen Acrylic Semi Gloss Paint | 1 GAL. CAN | Unknown | CIS |
| Stainseal Wiping Oil Stain | 1 QT. CAN | Unknown | CIS |
| MinWax Wood Finish | 1 QT. CAN | Unknown | CIS |
| Armor All Car Wax Paste | 8 OZ. CAN | Petroleum Distillates | CIS |
| Simoniz Super Blue Car Wax | 9 OZ. CAN | Unknown | CIS |
| Plasti-Dip | 2 PT. CAN | Unknown | CIS |
| WD-40 | 2-12.9 OZ. CAN | Petroleum Distillates | CIS |
| Noco NCP-2 Battery Corrosion Preventative Spray (A-202) | 12 ¾ OZ. CAN | Unknown | CIS |
| Flux, Soldering Solder Seal/Gunk (VW-1) | 4 OZ. JAR | Unknown | CIS |
| Powdered Car Wash | 9 OZ. FIBER CAN | Alkyl Aryl Sulfonate | CIS |
| STP Fuel Injector Cleaner | 20 OZ. PLS BTL | Petroleum Distillates | CIS |
| GM Power Steering Fluid | 1 QT. CAN | | CIS |
| DICAMBA | Unknown | 3,6-dichloro-2-methoxybenzoic acid | SCAG |
| BANVEL | Unknown | 3,6-dichloro-o-anisic acid | SCAG |
| 2,4-D | Unknown | Dichlorophenoxyacetic Acid | SCAG |
| TRIMEC | Unknown | Mixture. Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid Dimethylamine salt of 2,4-dichlorophenoxy acetic acid. Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) | SCAG |
| PARAQUAT | Unknown | Paraquat Dichloride | SCAG |
| 10% Sevin Dust | Unknown | 1-napthyl N-methylcarbamate | PL |
| Kocide DF | Unknown | copper-hydroxide | PL |

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| Thiolux | Unknown | Sulfur | PL |
| X-77 spreader | Unknown | Alkylarylpolyoxyethylene ether | PL |
| Reward | Unknown | Diquat dibromide | PL |
| Omite-30WS | Unknown | Propargite | PL |
| Poast | Unknown | Sethoxydim | PL |
| Ronstar G | Unknown | OXADIAZON | PL |
| Trimec | Unknown | Mixture. Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid Dimethylamine salt of 2,4-dichlorophenoxy acetic acid. Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) | PL |
| Subdue Maxx | Unknown | mefenoxam | PL |
| Fusilade II | Unknown | Fluazifop-P-butyl Butyl (R)-2-[4-[[5-(trifluoromethyl)-2-pyridinylloxy] phenoxylpropanoate | PL |
| Turflan II Amine | Unknown | Butoxyethanol Ester Dichlorophenoxyacetic Acid | PL |
| Turflon Ester | Unknown | Triethylamine triclopyr | PL |
| Turflon | Unknown | 3,5,6-trichloro-2-pyridinyloxyacetic acid | PL |
| Tupersan | Unknown | 3,5,6-trichloro-2-pyridinyloxyacetic acid | PL |
| Buctril | Unknown | Octanoic acid ester of bromoxynil | PL |
| Gramoxone | Unknown | PARAQUAT (1,1'-dimethyl-4.4'-bipyridilium ion) | PL |

| Material | Quantity Stored | Primary Chemical Components | Source 1 |
|---|---|---|---|
| Methar 30 | Unknown | Disodium Methanearsonate, Anhydrous | PL |
| Benlate | Unknown | benomyl | PL |
| Rally 40W | Unknown | Aluminum silicate dihydrate | PL |
| 26019 | Unknown | IPRODIONE | PL |
| Ambush | Unknown | (3-phenoxyphenyl) methyl(±)-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate) | PL |
| Agrimek 0.15 EC | Unknown | Abamectin | PL |
| Roundup Pro | Unknown | Isopropylamine Salt of glyphosate | PL |
| Roundup Ultra | Unknown | Isopropylamine Salt of glyphosate | PL |
| Aatrex 4L | Unknown | atrazine | PL |
| Dacthal W-75 | Unknown | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) | PL |
| Prowl 3.3 EC | Unknown | pendimethalin | PL |
| Dual Magnum | Unknown | acetamide | PL |
| Acetylene | 150 CF | Acetylene | HAZMAT |
| Oxygen | 200 CF | Oxygen | HAZMAT |
| Diesel Fuel | 500 GAL. | Dodecane | HAZMAT |
| Gasoline | 500 GAL. | Gasoline | HAZMAT |
| Ammonium Nitrate | 500 LBS. | Ammonium Nitrate | HAZMAT |
| Waste Oil | 30 GAL. | Unknown | HAZMAT |

# APPENDIX C
# PESTICIDE USE SUMMARY

## Appendix C
## Pesticide Use Summary

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| 1979 | Round Up | Isopropylamine Salt of glyphosate |
| | Chevron Ortho Paraquat | Paraquat Dichloride |
| | Phytar 560 | Sodium Cacodylate |
| | Vendex 50WP | Fenbutatin-Oxide [Hexakis (2-Methyl-2-Phenylpropyl) distannoxane] |
| | Pipron | Piperalin: 3-(2-methylpiperidino)propyl-3,4-dichlorobenzoate |
| | Pentho-WP | Bis (Pentachloro – 2,4 – cyclopentadien,1,yl) |
| 1980 | Chevron Ortho Paraquat | Paraquat Dichloride |
| | Phytar 560 | Sodium Cacodylate |
| | Orthene 755 | Acephate |
| | Round up | Isopropylamine Salt of glyphosate |
| | Pipron | Piperalin: 3-(2-methylpiperidino)propyl-3,4-dichlorobenzoate |
| | Kocide 101 | Copper Hydroxide |
| | Flowable Sulphur | Sulphur |
| 1981 | Phytar 560 | Sodium Cacodylate |
| | Chevron Ortho Paraquat | Paraquat Dichloride |
| | Flowable Sulphur | Sulphur |
| | Round Up | Isopropylamine Salt of glyphosate |
| 1983 | Triforine | Triforine |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Montar | Sodium Cacodylate/Cacodylic Acid |
| 1984 | Diquat | diquat dibromide |
| | Plictran | Cyhexatin |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Kocide 101 copper | Copper Hydroxide |
| | Montar | Sodium Cacodylate/Cacodylic Acid |
| | Pentac | Bis (Pentachloro – 2,4 – cyclopentadien,1,yl) |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Orthene 755 | Acephate |
| | Diquat | diquat dibromide |
| | Triforine | Triforine |
| | Heavy Dormant Oil | Petroleum Oil |
| 1985 | Surflan | Oryzalin |
| | Triforine | Triforine |
| | Heavy Dormant Oil | Petroleum Oil |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Kocide 101 Copper | Copper Hydroxide |
| | Devrinol | Napropamide |
| | Montar | Sodium Cacodylate/Cacodylic Acid |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Doo Spray | Dinitro (1-methyl heptyl)**phenyl crotomate |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) |
| | Doo Spray | Dinitro (1-methyl heptyl)**phenyl crotomate |
| | Diquat | diquat dibromide |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Kocide 101 | Copper Hydroxide |
| 1986 | Aatrex Nine-O | Atrazine |
| | Devrinol 50WP | Napropamide |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl |
| | Triforine | Triforine |
| | Surflan AS | Oryzalin |
| | Doo Spray | Dinitro (1-methyl heptyl)**phenyl crotomate |
| | Diquat | diquat dibromide |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Kocide 101 | Copper Hydroxide |
| 1987 | Funginex | Triforine |
| | Surflan AS | Oryzalin |
| | Diazinon 50W | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Diquat | diquat dibromide |
| | Kocide 101 | Copper Hydroxide |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Triforine | Triforine |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) |
| 1988 | Devrinol 50WP | Napropamide |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Malathion 50 | Malathion |

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| | Kerb 50WP | Promanide |
| | | Calcium Lignosulfonate |
| | Pentac WP | Bis (Pentachloro – 2,4 – cyclopentadien,1,yl) |
| | Diquat | diquat dibromide |
| | Aatrex Nine-O | Atrazine |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) |
| | Mavrik | Tau-Fluvalinate |
| 1989 | Mavrik | Tau-Fluvalinate |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) |
| | Diquat | diquat dibromide |
| | Vendex | Fenbutatin-Oxide [Hexakis (2-Methyl-2-Phenylpropyl) distannoxane] |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Orthene | Acephate |
| | Funginex | Triforine |
| 1990 | Orthene | Acephate |
| | Mavrik Aquaflow | Tau-Fluvalinate |
| | Omite 30W | Propargite |
| | Funginex | Triforine |
| | Round up | Isopropylamine Salt of glyphosate |
| | Aatrex Nine-O | Atrazine |
| | Dimilin 25W | Difluron |
| | Ronstar 50WP | Oxadiazon |
| | Ronstar G | Oxadiazon |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Malathion | Malathion |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | Diquat | diquat dibromide |
| | Guthion | O,O-Dimethyl S-(4-oxo-1,2,3-benzotriazin-3(4H)-yl)methylphosphorodithioate |
| 1991 | Round Up | Isopropylamine Salt of glyphosate |
| | Orthene | Acephate |
| | Funginex | Triforine |
| | Aatrex Nine-O | Atrazine |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Ronstar-G | Oxadiazon |
| | Poast | Sethoxydim: 2-[1-(ethoxymino)butyl]-5-[2-(ethylthio)propyl]-3-hydroxy-2-cyclohexen-1-one* |
| | Herbimax | Petroleum Hydrocarbons (Light Paraffinic Distillate, odorless aliphatic petroleum solvent) |
| | Diquat | diquat dibromide |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | Malathion | Malathion |
| | Benlate | Benomyl (methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate) |
| 1992 | Ronstar-G | Oxadiazon |
| | Round up | Isopropylamine Salt of glyphosate |
| | Aatrex Nine-O | Atrazine |
| | Dacthal W-75 | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl |
| | Ronstar 50 WP | Oxadiazon |
| | Diquat | diquat dibromide |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | 26019 Fungicide | Iprodione |
| | Primo/Experimental | cimectacarb 4-(cyclopropyl-alpha-hydroxy-methylene)-3,5-dioxo-cyclohexanecarboxylic acid ethyl ester |
| | Citridal | Not found |
| | Daconil 2787 75WP | Chloroathalonil |
| | | Kaolin |
| | Benlate | Benomyl (methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate) |
| | Surflan | Oryzalin |
| | Pre M 60 WDG | Pendimethalin |
| | Dimension 1E | Dithiopyr |
| | Promiadine 65 WDG | Experimental (Not found) |
| | Team 2g | Benefin |
| | | Trifluralin |
| | Snapshot 2.5g | Trifluralin |
| | | Isoxaben |

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| | Balan 60 WDG | Benefin |
| | Treflan | Trifluralin |
| | Gallery 75DF | Isoxaben |
| | Betasan 4E | Bensulide |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| 1993 | Round up | Isopropylamine Salt of glyphosate |
| | Omite 30W | Propargite |
| | XL 2G | Benefin |
| | | Oryzalin |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Ronstar 50WP | Oxadiazon |
| | Pennant (L) | Metolachlor |
| | Surflan AS | Oryzalin |
| | Gallery 75F | Isoxaben |
| | Pendulum WDG | Pendimethalin |
| | Malathion | Malathion |
| | Treflan EC | Trifluralin |
| | Aatrex Nine-O | Atrazine |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | Diquat | diquat dibromide |
| | Surflan | Oryzalin |
| | Ronstar G | Oxadiazon |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Basamid | Dazomet |
| | Vapam | Sodium methyldithiocarbamate (anhydrous) |
| | Weedar 64 | 2,4-d DMA Salt |
| | Acclaim 1E | Fenoxaprop-p-ethyl |
| | Turflon 4E | Triclopyr, butoxyethyl ester |
| | Bueno 6 | Monosodium acid methanearsonate |
| | Benlate | Benomyl (methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate) |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| 1994 | Round Up | Isopropylamine Salt of glyphosate |
| | Malathion | Malathion |
| | Diquat | diquat dibromide |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | Avid | Abamectin |
| | | N-methylpirrolidone |
| | Orthene | Acephate |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Herbimax | Petroleum Hydrocarbons (Light Paraffinic Distillate, odorless aliphatic petroleum solvent) |
| | Surflan | Oryzalin |
| | Aatrex Nine-O | Atrazine |
| | Eagle | Myclobutanil |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Safer Soap | Potassium salts of fatty acids |
| | Funginex | Triforine |
| | Ronstar G | Oxadiazon |
| 1995 | Round Up | Isopropylamine Salt of glyphosate |
| | Malathion | Malathion |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Reward | diquat dibromide |
| | Aatrex Nine-O | Atrazine |
| | Diazinon | O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) Phosphorothioate |
| | Diquat | diquat dibromide |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Atrimmec PGR | Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-hexulofuranosonic acid) |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| 1996 | Omite 30W | Propargite |
| | Reward | diquat dibromide |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| | Atrimmec PGR | Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-hexulofuranosonic acid) |

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Rally 40W | Myclobutanil |
| | | Kaolin |
| | Stinger | Clopylarid, monoethanolamine salt |
| | Weedar 64 | 2,4-d DMA Salt |
| | Confront | Triclopyr as triethylamine salt |
| | | Clopylarid, monoethanolamine salt |
| | Round up | Isopropylamine Salt of glyphosate |
| | Aatrex Nine-O | Atrazine |
| | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Ace Lawn & Weedkiller | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Bueno-6 | Monosodium acid methanearsonate |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Ronstar G | Oxadiazon |
| 1997 | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Atrimmec | Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-hexulofuranosonic acid) |
| | Reward | diquat dibromide |
| | Banvel | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Gallery | Isoxaben |
| | Dimension | Dithiopyr |
| | Pre M | Pendimethalin |
| | Dacthal | Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate) |
| | Manage | Halosulfuron-methyl |
| | | Sillica, amorphous precipitated |
| | | Kaolin |
| | Thiazopyr | Thiazopyr |
| | Dimension 1EC | Dithiopyr |
| | Rout | Oxyfluorfen |
| | | Oryzalin |
| | Aatrex Nine-O | Atrazine |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Basagran T/O | Sodium Bentazon |
| | Buctril | Bromoxynil octanoate |
| | | 1,2,4 - Trimethylbenzene |
| | | Xylene |
| | | Ethylbenzene |
| | Liberty | Glufosinate - Ammonium |
| | Weedar 64 | 2,4-d DMA Salt |
| | Confront | Clopylarid, monoethanolamine salt |
| | | Triclopyr as triethylamine salt |
| | Daconate 6 | Monosodium acid methanearsonate |
| | Transline | Clopylarid, monoethanolamine salt |
| | Barricade | Prodiamine |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| 1998 | Buctril | Bromoxynil octanoate |
| | | 1,2,4 - Trimethylbenzene |
| | | Xylene |
| | | Ethylbenzene |
| | Round up Ultra | Isopropylamine Salt of glyphosate |
| | Ronstar G | Oxadiazon |
| | Lorox 50WP | Linuron |
| | Prowl 3.3 EC | Pendimethalin |
| | A-Maizing Lawn | Maize Gluten Meal |
| | Factor 65 WDG | Prodiamine |
| | Dimension IL | Dithiopyr |
| | Finale | Glufosinate - Ammonium |
| | Snapshot 2.5G | Trifluralin |
| | | Isoxaben |
| | Visor 2E | Thiazopyr |

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| | | Xylene |
| | | Ethylbenzene |
| | Abamectin | Abamectin |
| | Terpinoid cmpds (kairomones) | Experimental (Not found) |
| | Cinnamaldehyde | Beauveria Bassiana Strain GHA |
| | Hydrazine carboxylic acid | Experimental (Not found) |
| | Fenpropathrin | Fenpropathrin |
| | | Naphtalene |
| | Oxazole | Experimental (Not found) |
| | Experimental | Experimental (Not found) |
| | Milbemectin | Experimental (Not found) |
| | Chloropyridazin | Pyridaben |
| | Hexythiazox | Hexythiazox |
| | Potassium Salts of fatty Acids | Potassium salts of fatty acids |
| | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Naphtalenedione | Experimental (Not found) |
| | Agrimek | Abamectin |
| | | N-methylpirrolidone |
| | Aatrex 90 | Atrazine |
| | Dual 8E | Metolachlor |
| | Dual Magnum | S-Metolachlor |
| | Banvel | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Ronstar G | Oxadiazon |
| | Pendulum 2G | Pendimethalin |
| | Prowl | Pendimethalin |
| 2001 | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Goal | Oxyfluorfen |
| | Buctril | Bromoxynil octanoate |
| | | 1,2,4 - Trimethylbenzene |
| | | Xylene |
| | | Ethylbenzene |
| | Aatrex Nine-O | Atrazine |
| | Prowl 3.3 EC | Pendimethalin |
| | Round Up Ultra | Isopropylamine Salt of glyphosate |
| | Up John Enide 50W | Not found |
| | Ronstar G | Oxadiazon |
| 2002 | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Goal 2XL | Oxyfluorfen |
| | | N-methylpirrolidone |
| | | Naphtalene |
| | Round Up Ultra | Isopropylamine Salt of glyphosate |
| | Banvel | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Aatrex 4L | Atrazine |
| | Dual Magnum | S-Metolachlor |
| | Sevin 5 Balt | Carbaryl |

| Year | Pesticide Name | Chemical Name |
|---|---|---|
| | | Solvent Naphta, petroleum, heavy aromatic |
| | Frontier 6 | Dimethanamid |
| | Quinclorac | Quinclorac |
| | Gallery 75DF | Isoxaben |
| | RegalStar | Oxadiazon |
| | | Prodiamine |
| | RegalKade | Prodiamine |
| | Thiolux | Sulphur |
| | Kocide DF | Copper Hydroxide |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Atrimmec | Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-hexulofuranosonic acid) |
| | Devrinol 50 DF | Napropamide |
| | Quadris | Azoxystrobin Technical |
| | Aatrex Nine-O | Atrazine |
| | Dual 8E | Metolachlor |
| | Prefar 4E | Bensulide |
| | Home Defense #2 | Chlorpyrifos |
| | Round up Pro | Isopropylamine Salt of glyphosate |
| 1999 | Round Up Pro | Isopropylamine Salt of glyphosate |
| | Round Up | Isopropylamine Salt of glyphosate |
| | Round Up Ultra | Isopropylamine Salt of glyphosate |
| | Ronstar G | Oxadiazon |
| | Trimec | Dimthylamine salt of (MCPP) 2-(2-methyl-4-chlorophenoxy propionic acid |
| | | Dimethylamine salt of 2,4-dichlorophenoxy acetic acid |
| | | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Aatrex Nine-O | Atrazine |
| | Dual 8E | Metolachlor |
| | Atrimmec | Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-hexulofuranosonic acid) |
| | Turflon Ester | Triclopyr, butoxyethyl ester |
| | | Kerosene |
| | Goal 1.6 E | Oxyfluorfen |
| | Devrinol 50DF | Napropamide |
| | Banvel | Dimethylamine salt of dicamba (3,6-dichloro-O-anisic acid) |
| | Subdue Max | Mefenoxam |
| | Methyl Bromide | Methyl Bromide |
| | Telone C35 EC | 1,3 - Dichloropropene |
| | | Chloropicrin |
| | Chloropicrin | Chloropicrin |
| | Vapam HL | Sodium methyldithiocarbamate (anhydrous) |
| | Carcentrazone | Carfentrazone-ehtyl |
| | | Sillica, amorphous precipitated |
| | | Lignosulfate acid, sodium salt |
| | Sulfentrazone | Sulfentrazone |
| | Isoxaben | Isoxaben |
| | Confront | Clopylarid, monoethanolamine salt |
| | | Triclopyr as triethylamine salt |
| | Turflon | Triclopyr, butoxyethyl ester |
| | Stinger | Clopylarid, monoethanolamine salt |
| | Fusilade II | Fluazifop - P - Butyl Technidal |
| | | Naphtalene |
| | | 1,2,4 - Trimethylbenzene |
| | Azafenidin | Experimental (Not found) |
| | Flumioxazin | Experimental (Not found) |
| | Pendimethalin | Pendimethalin |
| | Isoxaben | Isoxaben |
| | Dithiopyr | Dithiopyr |
| | Dimethanamid | Dimethanamid |
| | Oxadiazon | Oxadiazon |
| | Trifluralin | Trifluralin |
| | Pendulum 2G | Pendimethalin |
| | Prowl | Pendimethalin |
| | Gramaxone | Paraquat Dichloride |
| | Spreader X77 | Alkylarylpolyoxyethylene ether |
| 2000 | Round Up Ultra | Isopropylamine Salt of glyphosate |
| | Zeneca Paraquat | Paraquat Dichloride |
| | Buctril | Bromoxynil octanoate |
| | | 1,2,4 - Trimethylbenzene |