

Figure G-1

APPENDIX G

KEY OFFSITE HAZARDOUS WASTE MANAGEMENT FACILITIES

Wastes from generators in Alameda County in 1986 went to four major facilities outside the county:

- o IT's Panoche facility (Solano County)
- o IT's Vine Hill/Baker facility (Contra Costa County)
- o Chemical Waste Management's Rattlesman Hills facility (Kings County)
- o Casmalia Resources' landfill (Santa Barbara County)

INTERNATIONAL TECHNOLOGY'S PANOCHÉ (BENICIA) FACILITY

International Technology Corporation's (IT) Panoche facility is located in a group of low hills approximately 2 miles northeast of the City of Benicia, in Solano County. The facility is located on Lake Herman Road, west of Interstate 680 and Suisun Bay and northeast of the Carquinez Straits (see Figure 1).

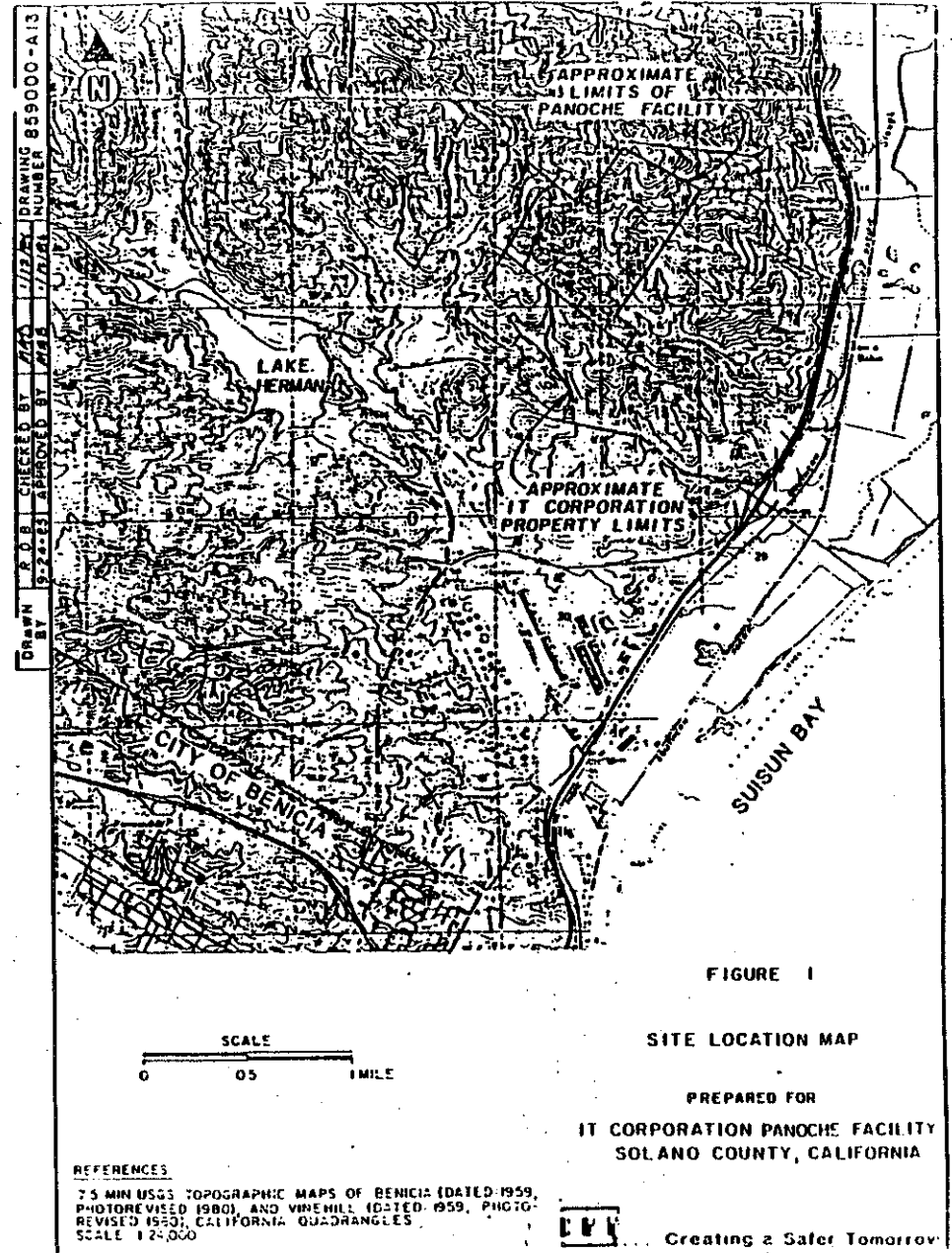
This hazardous waste management facility covers 242 acres, of which 190 acres are permitted for disposal of hazardous wastes, within a 2350-acre parcel of land owned by IT. The land surrounding the hazardous waste management facility is utilized for grazing. The western border of the site is adjacent to a 550-acre parcel of undeveloped land which is owned by the City of Benicia.

The site is drained by a series of intermittent streams. Water wells are located within 1 mile of the facility and provide drinking water and water for livestock. Water within 1/2 mile of the facility may be a potential source of drinking water. Groundwater occurs 40 to 50 feet below the surface of the facility and to a depth of 600 feet beneath the site. Lake Herman, located in a different watershed, is approximately one mile south and west of the site.

Site History

Operations at the IT Panoche facility predated IT ownership. In 1968, the facility was permitted by the State of California as a Class I hazardous waste disposal site and received its first conditional land use permit from Solano County. The site was operated by J & J Disposal Company until IT purchased the disposal site in 1974. The facility was operated by IT's subsidiary, Pacific Reclamation and Disposal Service, until 1977. Since 1977, the facility has been operated directly by IT. No other changes in ownership have taken place, although the name of the facility was changed in 1986 from IT Benicia to IT Panoche.

Since operations were initiated at the site in 1968, the facility has been used for the land disposal of liquid and solid hazardous wastes. Waste management practices have included the use of landfarming/landspreading, surface impoundments, landfilling, and trench burial. Historically, the Panoche and nearby IT Vine Hill/Baker facilities operated as an integrated unit for the treatment, storage, and disposal of hazardous wastes. Sludges



from surface impoundments at Vine Hill/Baker were regularly disposed at Panoche. In some instances, liquids from the Panoche facility have been disposed at the Vine Hill/Baker site.

A December 19, 1986 Department of Health Services (DHS) order halted acceptance of all new waste receipts at the Panoche facility. This order is still in effect, and the facility is not accepting any wastes at the present time.

Transportation Access

To access the facility, vehicles travel Interstate 680 to the Lake Herman Road exit and proceed approximately one mile to the private entrance road of the facility. The facility cannot be accessed by rail.

Types of Waste Received

The facility accepted both solid and liquid wastes considered to be by-products of chemical and manufacturing processes associated with the following industries: petroleum; aerospace; metal finishing; electronics and electroplating operations. The facility also accepted wastes associated with the cleanup of numerous hazardous waste sites. The specific types of hazardous waste handled by the facility included: acid and alkaline solutions; metal sludges; solvents; pesticide rinse water; low level PCB's; organic liquids; paint sludge; laboratory wastes; heavy metal wastes; contaminated soils; asbestos; catalyst fines; and oils. Predisposal analytical testing of wastes received is performed by the Vine Hill/Baker laboratory, followed by verification testing of the incoming waste by the IT Panoche laboratory prior to disposal.

From 1970 to 1985, the facility annually received between 80,000 and 220,000 tons of hazardous waste for disposal. Until 1981, a portion of the wastes were received in drums, which were buried at the facility. Approximately 4,000 drums were buried at the site during the 1975 - 1981 period.

During 1985, more than 98% of all the hazardous wastes received at the facility were from outside Solano County. The total amount of wastes received by the IT Panoche facility in 1984 was approximately 216,000 tons; in 1985 it decreased to 169,000 tons. In 1986, the Panoche facility accepted 67,867 tons of waste for landfill disposal, and approximately 7 million gallons of liquid waste which were disposed in surface impoundments.

Waste Management Units

The initial RCRA permit application for the IT Panoche facility was filed in August 1983. At that same time, the facility had 44 surface impoundments (some clay lined, none synthetically lined), a landfill, three waste pile areas, five inactive drum burial areas, two landspraying areas, and an inactive landfill. The site currently consists of three multiple lined surface impoundments (O and P series), an inactive landfill, and three waste piles. Waste management units which are presently non-operational include a landfill, five drum burial areas, and several surface impoundments. As of

November 1985, only five surface impoundments continued to receive new wastes (O, P series, 8, 17, and 18).

At the present time, most of the surface impoundments are either taken out of service, capped, or in the process of stabilization and solidification. A final containment surface impoundment (Pond 2B) is used to store stormwater runoff, and to contain accidental spills and overflows from the other surface impoundments. Treated water from surface impoundment 2B is discharged to nearby surface waters and to the marsh under an NPDES (National Pollutant Discharge Elimination System) permit.

Regulation of the Facility

The Panoche facility operates under an Interim Status Document (ISD) issued by the Department of Health Services (DHS) on March 30, 1981. In addition, Waste Discharge Requirements were issued by the San Francisco Bay Regional Water Quality Control Board on May 20, 1981 (Order No. 81/31), prescribing waste discharge prohibitions, waste disposal specifications, and provisions designed to protect the waters of the state. The facility was issued a revised NPDES permit (No. CA 00028100, Order No. 87/11, effective February 1987) for a stormwater collection surface impoundment (2B) which discharges treated rainwater to a tributary of Suisun Bay. The facility also received Conditional Use Permits R-418 and R-708 (land use) from Solano County; a permit from the Department of Water Resources (DWR), Division of Safety and Dams (No. 449); and a grant of interim status from the Environmental Protection Agency (EPA). In addition, the facility has been issued permits to operate by the Bay Area Air Quality Management District (BAAQMD), which are updated annually.

A number of enforcement actions have been taken against the Panoche facility in recent years. In June 1984, DHS referred an enforcement action to the Contra Costa County District Attorney's office involving a number of IT sites throughout the state, including IT Panoche. In February 1985, the Contra Costa County District Attorney entered into a Consent Decree with IT identifying the following violations: failure to maintain containers in a safe and proper condition; handling incompatible wastes in such a way as to cause fires; insufficient waste analysis; and an incomplete closure plan. DHS recommended a fine of \$125,000. The case eventually settled for \$30,000. In September 1984, EPA issued a civil complaint to IT for interim status violations found during a March 1984 inspection of the facility. The violations included: lack of an adequate groundwater monitoring program; failure to maintain adequate containment of surface impoundments; failure to prevent wind dispersal of wastes; failure to manage waste in such a way as to prevent fires; inadequate freeboard; and land application of inappropriate wastes. In July 1986, EPA and IT signed a Consent Agreement to resolve the September 1984 complaint.

The RWQCB issued a Cleanup and Abatement Order in January 1985 (Order No. 85-003), ordering IT to comply with the requirements of the Interim Status Document. The RWQCB had previously (in November 1981) granted a waiver to IT for an ISD groundwater monitoring program, based on the determination that the monitoring program specified in the Waste Discharge Requirements was adequate to determine if wastes were migrating offsite.

In June 1985, DHS issued an enforcement order mandating compliance with their regulations requiring that adequate liability coverage be maintained. The IT facility is now in compliance with those regulations and currently maintains over \$73 million in total liability coverage.

In August 1986, DHS sent IT a Notice of Violation (NOV), which identified 27 events where the IT Panoche facility was observed to be in violation. Many were repeated violations, such as wind dispersal of wastes, freeboard, waste analysis, inadequate closure plan, and groundwater monitoring. The NOV also addressed violations at the IT Vine Hill facility in Contra Costa County. The NOV was referred to the State Attorney General's Office in November 1986 with a request that the Attorney General seek civil penalties and injunctive relief. On April 1, 1987, the DHS reached a \$3.2 million settlement with IT. Approximately 1/3 of the penalties were assessed against IT Panoche, and 2/3 against IT Vine Hill. IT was required to perform extensive corrective action at the facility, purchase emergency response equipment, and pay civil penalties relating to the Panoche facility totalling over \$1,100,000.

The RWQCB issued a Cleanup and Abatement Order to the IT Panoche facility in September 1986 (Order No. 86/013). The order requires IT to perform specific hydrogeological investigations and determine the status of the facility's surface impoundments.

In December 1986, DHS ordered all waste management operations at the Panoche facility to cease until further actions were taken to characterize the condition of the drums buried at the site and ensure the safety of workers at the site. This order is still in effect.

A Cleanup and Abatement Order on the Panoche facility was issued to IT by the RWQCB in June 1987 (Order No. 87/058). This order amended the previous cleanup and abatement order and required IT to address the recommendation from the EPA Groundwater Task Force Report issued for the Panoche facility in May 1987.

The RWQCB issued a Cease and Desist Order, which unlike a CAO requires a public hearing, to IT on July 15, 1987. This Order requires IT to deinventory all of the hazardous waste surface impoundments at the facility by June 30, 1988, under the Toxic Pits Cleanup Act. IT is presently contesting the Board's finding that the Panoche facility is within one-half mile of a potential source of drinking water.

On June 26 and 27, 1986, DHS conducted a public hearing (SB 501 hearing) in the community of Benicia, to determine whether the operation of the Panoche facility might pose an imminent and substantial endangerment to health and the environment, pursuant to Section 25149 of the Health and Safety Code. On July 31, 1987, DHS made the determination that operation of the IT Panoche facility did not pose an imminent and substantial endangerment to health and the environment.

The RCRA land disposal restrictions and the Hazardous Waste Management Act of 1986 (SB 1500) may have a significant impact on Panoche's future waste activities, if the facility is permitted to re-open. The RCRA Amendments require EPA to promulgate waste treatment standards for wastes placed in

landfills, surface impoundments, waste piles, and other land-based units. SB 1500 sets forth land disposal restrictions similar to those found in the RCRA amendments. Many wastes, such as organics, may require incineration. (IT does not have plans for an incinerator at Panoche.) Most wastes will require some type of treatment prior to disposal. Because the EPA has yet to develop final treatment standards for many of the wastes, it is difficult to predict the actual effect that these requirements might have on land disposal at Panoche.

Environmental Problems

Since 1984, several instances of groundwater contamination have been documented at the Panoche facility. The January 1985 RWQCB Cleanup and Abatement Order addressed the concern that contaminants had migrated offsite, contaminating adjacent property owned by the City of Benicia.

The May 1987 EPA National Groundwater Task Force report states that relative to background levels, their data confirm the presence of increased chlorides, sulfates, total organic carbon (TOC), total organic halogens, and elevated specific conductance in groundwater at the site. In addition, EPA data indicated the presence of volatile organics (e.g., chloroform, TCE, tetrachloroethene, 1,2-dichloropropane) in a number of monitoring wells at the facility.

Citizen Opposition

In recent years, the IT Panoche facility and state and local authorities regulating the facility have met with local opposition from the community of Benicia, as well as opposition from environmental organizations in the Bay Area. During the "501" hearings, the community civic leaders, physicians, and citizenry voiced their strong objections to having the facility in their community.

Operational Changes

IT has proposed to upgrade, expand, and modernize the Panoche facility. They have recently applied for operating permits, land use permits, and Waste Discharge Requirements, required by the regulatory agencies, for the conversion of the facility from a liquid hazardous waste disposal facility to an expanded solid hazardous waste disposal site.

The proposal included the phased land construction of a lined, "state-of-the-art" landfill which will cover 53 acres of land and have a total volume of 6.4 million cubic yards. (The 6.4 million cubic yards includes the 2.6 million cubic yards of waste and underlying contaminated material currently onsite that will be disposed in the landfill.) The project includes a treatment/stabilization unit intended to pretreat wastes prior to landfilling. The unit would treat and stabilize solid and liquid wastes by mixing them with neutralizing and stabilizing agents (e.g., lime, kiln dust, and cement). In addition, IT proposes to retrofit six surface impoundments for the storage, treatment, and management of stormwater runoff and liquids generated onsite, and to construct a series of treatment/storage tanks for the

Figure G-2

wastewater generated on site prior to either offsite discharge under the NPDES permit, or onsite evaporation.

The facility has also proposed a 55-acre foot expansion of the "Area 5" landfill. If the proposal is approved, the ultimate capacity of "Area 5" will be 530-acre feet. The Department of Health Services is preparing an Environmental Impact Report on the Area 5 expansion.

Modernization of this facility is planned to occur in phases over a projected period of seven years. IT has estimated that once the project is in place, hazardous waste receipts will total approximately 150,000 tons per year. Solano County recently hired a consultant to produce an Environmental Impact Report (EIR) for the entire modernization project, which will also discuss the existing facility as a whole.

Many activities at the facility are contingent upon IT's challenge to the RWQCB's finding that the facility is within 1/2 mile of a potential source of drinking water. The inability of the facility to use surface impoundments for truck wash-outs, treatment, and rainwater collection could have a significant effect on the waste management operations at the facility.

INTERNATIONAL TECHNOLOGY'S VINE HILL/BAKER FACILITY: CURRENT CAPACITY

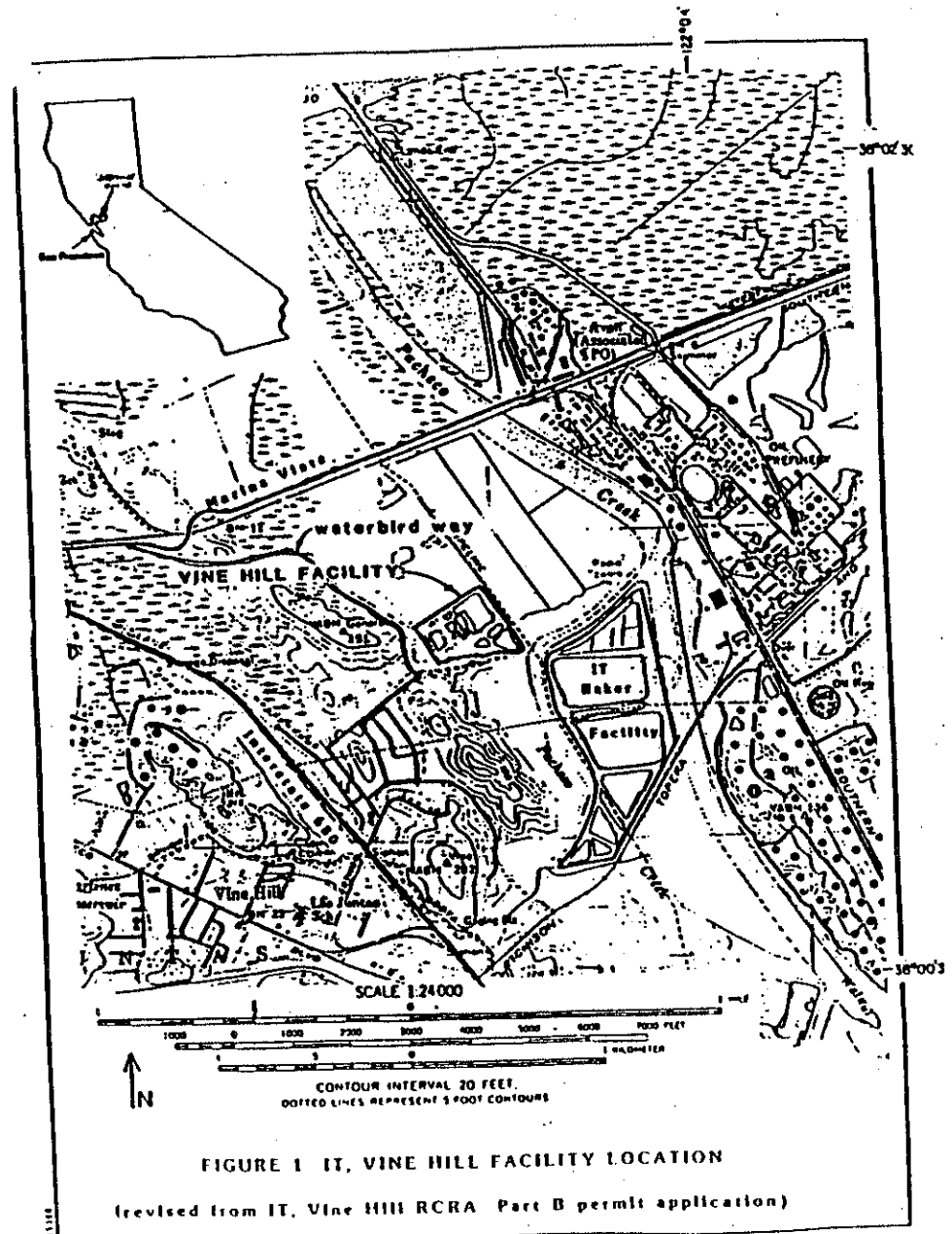
The International Technology Corporation's Vine Hill/Baker facility is located east of Martinez, in Contra Costa County, approximately 20 miles northeast of San Francisco (see Figure 2). The facility is located near the confluence of Walnut and Pacheco Creeks, adjacent to tidal marshland of Suisun Bay. The 41 acre Vine Hill site is bordered on the north and west by the Acme Landfill, on the east by marshland, and on the south by the Martinez Gun Club. The 130 acre Baker site is located 1/4 mile southeast of Vine Hill and is bordered by Walnut Creek to the east and Pacheco Creek to the west. The Baker site is connected to the Vine Hill site by a pipeline over Pacheco Creek.

Groundwater is found a few feet below the surface of the facility. The quality of the water is brackish, which suggests a direct connection to waters of Suisun Bay. The Regional Water Quality Control Board states there are no known current uses for brackish water due to its naturally occurring salinity. Residences and industrial facilities, including two major refineries and a sanitary landfill, are located within 1000 feet of the facility.

This facility voluntarily stopped accepting new hazardous waste receipts on December 1, 1987.

Site History

Operations at the IT Vine Hill/Baker facility predated IT's purchase of the Vine Hill property. In 1958, IT obtained the first land use permit for disposal activities at the Vine Hill facility. Prior to 1958, the area was used for disposal of municipal and industrial refuse. It is not known if hazardous wastes were disposed of at the Vine Hill site prior to IT's



ownership, but this may be possible given general industrial practices at that time. Prior to 1948, the site was undeveloped.

The handling of hazardous wastes at the IT Vine Hill site began with waste oils. This activity evolved into the IT Oil Reprocessing Facility now located at the site. Actual treatment of chemical wastes in tanks and unlined surface impoundments began at the Vine Hill site in October 1967.

IT purchased approximately 130 acres of nearby property in 1970. This became the Baker site, which is comprised of a series of unlined surface impoundments. IT installed a liquid waste injection incinerator in the early 1970's. A centrifuge operation for the dewatering of sludge was added in late 1984. In late 1985, Vine Hill acquired 19 acres from the Acme Pail Corporation, which contains four hazardous waste surface impoundments (201-204, all inactive). IT acquired the Acme property in order to provide sufficient space for the planned modernization of the Vine Hill Treatment Complex.

Transportation Access

The IT Vine Hill/Baker facility is located at the intersection of Water Bird Way and Arthur Road, approximately 1 1/2 miles east-southeast of the Marina Vista exit from Interstate 680. Historically, trucks containing hazardous wastes were routed through the neighborhood near the facility, but a special road, Water Bird Way, was constructed in 1982 for the trucks and routing through the neighborhood no longer occurs.

A rail line adjacent to the site is not normally used for transport of wastes because IT does not have a rail spur. Utilization of rail transport is not planned for the future.

Types of Wastes Received

The facility accepts liquid wastes which are by-products of chemical and manufacturing processes associated with the following industries: petroleum; electronic equipment; resin and paints; pharmaceutical; food processing; and metal finishing. These wastes consist primarily of acids, bases, cyanides, solvents, waste fuel oils, and heavy metals.

Incoming wastes are characterized and treated at the Vine Hill site by various processes, including neutralization, followed by placement into unlined impoundments for settling. Subsequently, the liquids are pumped into a series of unlined impoundments at the Baker site for solar evaporation. In some instances, wastes have been disposed directly into the Baker surface impoundments.

During 1985-1986, more than 65% of the hazardous waste received at the facility came from generators located outside Contra Costa County.

The average annual waste receipts at the IT Vine Hill/Baker facility during 1984 and 1985 was 43 million gallons. The total volume of waste received in 1986 was in excess of 26 million gallons. The facility is in the process of

closing its impoundments and upgrading its treatment facility. When their new treatment facility is on line, IT expects to receive a total of approximately 22 million gallons of hazardous wastes per year.

Waste Management Units

Current waste treatment and disposal units include storage, treatment and/or disposal in tanks, surface impoundments, and the incinerator and the centrifuge.

At the 41-acre Vine Hill site, 17 acres are unlined surface impoundments (Impoundments 100, 102, 103, 104, 105, 106; and Acme impoundments 201, 202, 203, and 204). In 1987, only impoundments 103, 105, and 106 continued to receive new wastes. Primary hazardous waste treatment processes used at Vine Hill include: cyanide, sulfide and organic material oxidation; heavy metals precipitation; acid-base neutralization; solids/oil/water separation; chromium reduction; odor reduction; air/nitrogen stripping; incineration; sludge dewatering; and liquid waste reduction. The incinerator has a permitted capacity of approximately 23 million BTU/hr. In addition, the existing oil recovery facility is presently operational, and has a capacity in excess of 10 million gallons/year.

The 130-acre Baker site contains 78 acres of unlined surface impoundments (Impoundments A-1, A-2, A-3, A-4, B, C, D1, D2, D3, and E) utilized for solar evaporation of hazardous waste effluent pumped via pipeline from the Vine Hill Treatment site. The individual Baker surface impoundments range in size from approximately two acres to greater than 21 acres.

The facility is equipped with an onsite analytical laboratory which performs analyses on all incoming wastes and is used for treatment process monitoring, waste compatibility determination, and predisposal analysis.

Regulation of the Facility

This facility's operations are regulated by several permits. The San Francisco Bay Regional Water Quality Control Board (RWQCB) adopted Waste Discharge Requirements (Order No. 78-76) on September 19, 1978, for the IT Vine Hill/Baker facility. The Order prescribes provisions and specifications to regulate methods of waste disposal, in order to protect waters of the State. The facility has a Conditional Use Permit (land use) from Contra Costa County. Both IT Vine Hill and IT Baker received interim status from the Environmental Protection Agency (EPA) and the Department of Health Services (DHS) in 1981. On October 5, 1983, the DHS issued a final Hazardous Waste Facility Permit for certain specific operations at the Vine Hill facility. In addition, the facility has been issued permits to operate by the Bay Area Air Quality Management District (BAAQMD), which are updated annually.

Numerous enforcement actions have been taken against the facility. In June 1984, DHS referred an enforcement action to the Contra Costa County District Attorney's office involving a number of IT sites, including IT Vine Hill/Baker. The Vine Hill/Baker violations addressed inappropriate waste

management practices at the facility. DHS recommended a fine of \$125,000. The case was eventually settled for \$30,000.

On January 16, 1985, the RWQCB issued Cleanup and Abatement Order (CAO) No. 85-004 to the IT Vine Hill/Baker facility, based on technical data submitted to the RWQCB that suggested that hazardous waste constituents were migrating into groundwater. IT was requested to assess the extent of contaminant migration and install a groundwater monitoring program which could detect leakage from the impoundments.

EPA inspections in 1984 at the IT Vine Hill and Baker sites (and at IT Panoche) revealed a number of violations, including inadequate monitoring of groundwater and inadequate analysis of incoming wastes. A settlement was reached in June 1986 for \$45,000 to cover the violations at the sites.

On September 30, 1986, the RWQCB issued another CAO for the IT Vine Hill/Baker facility. This order required IT to perform a more comprehensive hydrogeological investigation and to assess the sources and extent of contaminant migration.

On April 1, 1987, the DHS reached a \$3.2 million settlement with IT regarding violations based on findings of the EPA's National Enforcement Investigations Center (NEIC) and inspections made by DHS. Approximately 1/3 of the penalties were assessed against the IT Panoche facility, and 2/3 against IT Vine Hill. Among the violations noted were inadequate waste analysis, transfer of wastes from Vine Hill to Baker without waste analysis, inadequate closure plan, and improper management of surface impoundments.

The RWQCB issued a Cease and Desist Order, which unlike a CAO requires a public hearing, to IT Vine Hill on April 15, 1987. This Order was based on the RWQCB's finding that the surface impoundments at the facility were threatening to pollute the waters of the State by adversely impacting the beneficial uses of Pacheco and Walnut Creeks and requests that all liquids be removed from all surface impoundments by January 1, 1989. In addition, however, the RWQCB found that the surface impoundments were not within 1/2 mile of a potential source of drinking water.

On May 1, 1987, the U.S. Department of Justice, on behalf of the EPA, filed suit against IT Corporation for violation of laws relating to storage of hazardous wastes in surface impoundments at the Baker site. The outcome of this suit is still pending.

The Toxic Pits Cleanup Act of 1984 (TPCA) requires all unlined hazardous waste surface impoundments to be either free of liquid hazardous wastes or be retrofitted in a prescribed manner by January 1, 1989. Further, TPCA requires that all surface impoundments containing hazardous waste, located within 1/2 mile upgradient of a potential source of drinking water, be free of liquids by July 1, 1988. In addition, Federal Resources Conservation and Recovery Act (RCRA) amendments require all active surface impoundments to be retrofitted with a double liner by November 8, 1988. Since the Vine Hill/Baker facility utilizes surface impoundments primarily, the TPCA and RCRA Amendments have a profound effect on the facility as a whole. The RCRA land disposal

restrictions and the Hazardous Waste Management Act of 1986 (SB 1500) may have significant impact on IT Vine Hill/Baker's future waste activities. The RCRA Amendments require EPA to promulgate waste treatment standards for wastes placed in surface impoundments and other land-based units. SB 1500 sets forth land disposal restrictions similar to those found in the RCRA Amendments. Many wastes, such as organics, may require incineration. Because the EPA has yet to develop final treatment standards for many of the wastes, it is difficult to predict the actual effect this may have on waste handling practices at the facility. However, most wastes will require some type of treatment prior to disposal.

Environmental Problems

According to a RWQCB memorandum dated April 3, 1987, "... there is substantial evidence indicating that the surface impoundments at both Baker and Vine Hill are leaking and/or that the existence of the facilities are threatening to pollute State waters. The Vine Hill surface impoundments were constructed on municipal fill. It is known that at least part of the fill beneath Vine Hill is heavily contaminated with hydrocarbons. In addition, two monitoring wells at the Vine Hill site have shown high concentrations of boron and phenolics. In a 1981 investigation conducted by DuPont Corporation, tetra-ethyl lead was found in one area of the Vine Hill site at depths of 90 feet below the surface. Information submitted by IT in late 1984 indicated that waste constituents were migrating into groundwater at the Baker site. Although data from various groundwater monitoring wells have been inconsistent, data from 1985 have indicated the presence (low ppb) of several organic chemicals (tetrahydrofuran, acetone, n-butanone, methylene chloride, to name a few). According to a State Water Resources Control Board (SWRCB) memorandum of February 9, 1987, these chemicals correlate with those found in the impoundments and would not be expected in background water quality samples. (Note: Tetrahydrofuran is found in PVC pipe and may be an artifact of well construction.)

Several environmental factors at the Baker site contribute to concerns regarding the probability of groundwater contamination both beneath and adjacent to the site. Among these concerns are: the facility's location adjacent to tidal marshlands; its proximity to surface water; and the shallow depth of groundwater beneath the site. Testing performed by IT at both Pacheco and Walnut Creeks has indicated differences in metal concentrations between upstream (background) and downstream waters. In response to the recent Cease and Desist Order issued by RWQCB, IT is currently testing nearby waters to determine the extent of waste migration and to thoroughly characterize the hydrogeology beneath the facility.

Citizen Opposition

Over the years, the IT Vine Hill/Baker facility has met with local opposition from the nearby community, as well as opposition from environmental organizations elsewhere in the state. The Blum Road Alert, an organization of residents in the Martinez community, has raised a number of issues regarding transportation routes to the facility and the facility's impact on air, groundwater, and surface water. More recent, the community group has participated in the Joint Contra Costa Task Force and Bay Area Air Quality

Management District Meetings on IT Corporation, which provides a forum for public interaction with the regulatory agencies and input in the permitting process of the proposed modernization project. Other local opposition has been raised by Contra Costans Against Toxic Pollution. In addition, the proposed new incinerator at the facility has met with strong opposition from Greenpeace.

Operational Changes

Although the IT Corporation has planned for the closure of the surface impoundments for a number of years, implementation of the Toxic Pits Cleanup Act (TPCA) has forced IT to expedite the phase out and planned closure of its surface impoundments. As part of the ongoing closure process, IT has decreased the amount of wastes accepted at the facility. Ultimately, closure of the impoundments will result in a drastic change in the manner in which wastes will be managed at this facility.

Preliminary plans for changes at the facility called for a "state-of-the-art" modernization of the treatment facility by upgrading the initial chemical treatment process and adding additional treatment steps (secondary and tertiary) to the wastewater effluent. Various methods of handling the effluent have been proposed by IT, including: "mechanical" evaporation (tanks); discharge of treated effluent to a Publicly Owned Treatment Works (POTW), or release directly to nearby surface waters under a NPDES permit. In addition, a modernized incinerator has been proposed to replace the incinerator presently in operation at the facility. The oil recovery plant will also be upgraded. Surface impoundments will not be part of these treatment, storage, or disposal processes.

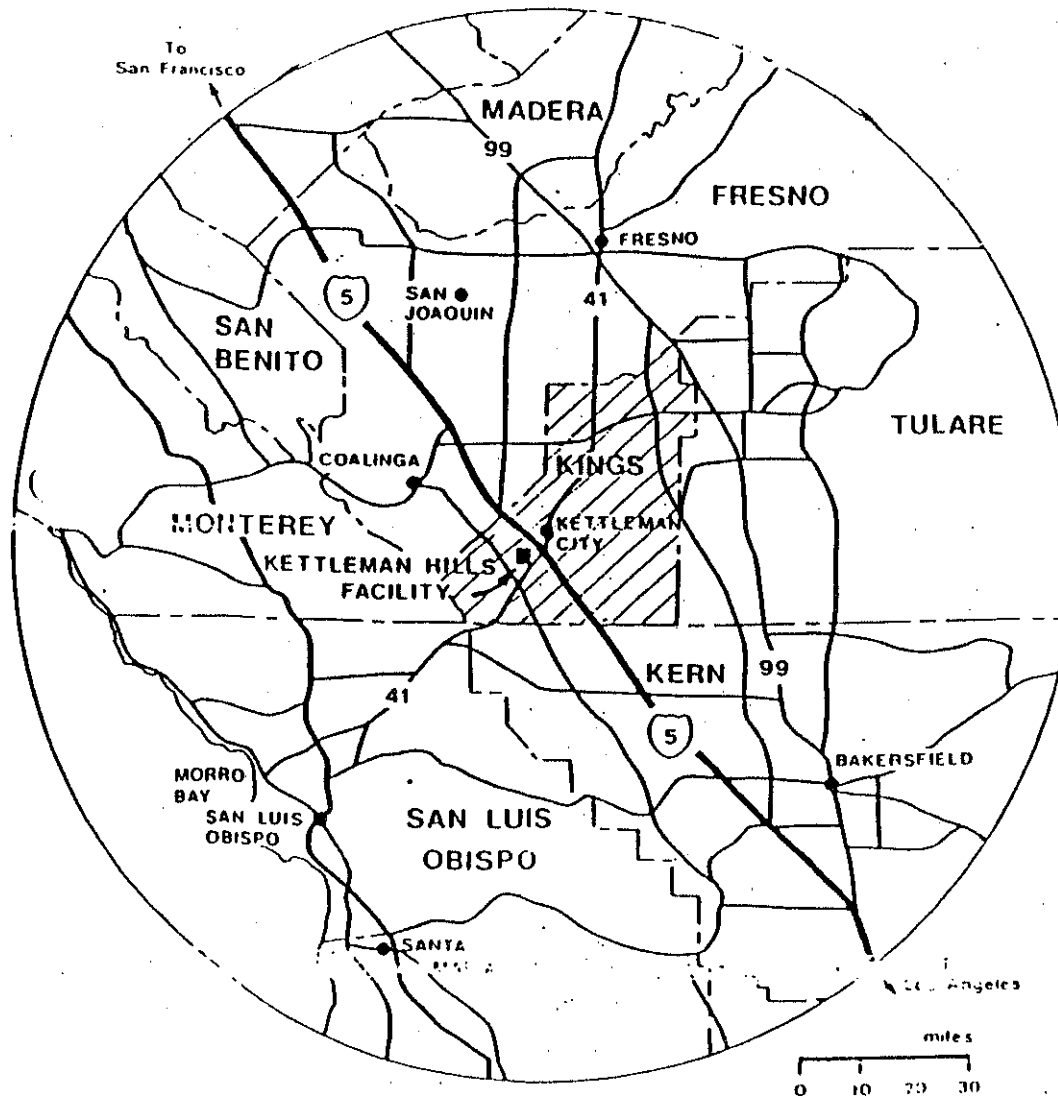
CHEMICAL WASTE MANAGEMENT'S KETTLEMAN HILLS FACILITY: CURRENT CAPACITY

Chemical Waste Management (CWM) owns a 1,600-acre property in an unincorporated area of Kings County about three miles west of Kettleman City. This site lies just off Interstate 5, roughly equidistant between Los Angeles and the San Francisco Bay Area (see Figure 3). Only 210 acres of this property are currently used for hazardous waste management. In 1986, CWM gained approval from Kings County to expand its waste management operations onto approximately 288 acres of contiguous lands within this property. Land surrounding the Kettleman Hills facility (KHF) is zoned for general agriculture, and is used for cattle grazing and oil and gas production. There are no irrigation wells, or other public water systems within 1 mile of the site. The closest well, 1.8 miles west of the site, is used for irrigation.

Groundwater underlies this site at depths of about 291 to 435 feet. The groundwater is not currently used. Because preliminary information indicates that its yield may be relatively low, future beneficial uses may be limited. The groundwater is generally stagnant with an apparent inclination toward the south. Differential geologic permeabilities combined with the generally static condition of the groundwater indicates that there is a low potential for groundwater migration from the site. Potable groundwater aquifers exist several miles to the east and west of the Kettleman Hills facility and serve communities in those areas.

Figure G-3

LOCATION OF KETTLEMAN HILLS FACILITY



Site History

Hazardous waste management activities began in the mid-1970's at the KHF, which was initially owned and operated by the McKay Trucking Company. McKay sold the facility in 1979 to CWM, a subsidiary of Waste Management, Inc. At that time, the processes at the facility included container storage, land spreading, several surface impoundments, and landfills.

During the last few years, CWM has made a number of major operational changes at the facility. In 1983, CWM stopped land spreading activities. In 1984, the firm added a cyanide treatment unit to conform to California land disposal ban requirements concerning several types of hazardous wastes, including cyanides. In the same year, CWM began retrofitting surface impoundments with double (or triple) liners, and leachate collection and removal systems to meet the minimum technological standards in the RCRA amendments. To date, the facility has installed liners at each of its five operating surface impoundments. Two of the surface impoundments have double liners composed of a composite synthetic and one foot clay liner, followed by a leachate collection system and a two foot clay liner. Although not required to do so by EPA regulations, CWM has agreed to retrofit these two units to add an additional foot of clay to the bottom liner in conformance with new EPA liner specifications or to close the units by November 8, 1988.

In 1985, to meet the ban on the disposal of liquids in landfills imposed by the 1984 RCRA amendments, CWM began operating a waste stabilization unit at this facility. This unit removes free liquids and also stabilizes reactive wastes. The stabilized materials are then placed in a new double-lined RCRA landfill.

During 1985 and 1986, CWM closed a number of surface impoundments and lined the landfills at the Kettleman Hills facility. The facility has proposed to add several new lined impoundments, landfills, and waste treatment units. Many of these units are to be constructed in the 288 acre expansion area.

Transportation Access

Hazardous wastes are trucked to this facility on Interstate 5 from Southern California and the Bay Area to Route 41 (near Kettleman City). From this junction, wastes are transported a short distance on Route 41 to the KHF access road. The access road is one mile long. The facility has no rail access.

Types of Wastes Received

This facility receives virtually every type of category of RCRA hazardous wastes, plus PCB wastes regulated by the Toxic Substances Control Act (TSCA). These waste groupings include cyanide, corrosive, ignitable, reactive, and organic liquid wastes which are received in containers or in bulk. The KHF also receives some solid and semi-solid wastes and sludges.

Wastes received by the facility are characterized and subsequently managed by different processes. Liquid wastes are reclaimed via decanting, treated in tanks, stabilized, and either landfilled or placed in lined surface impoundments for solar evaporation. All liquid wastes are dewatered before

being placed in the landfill. In addition, the concentration of organic wastes in impoundments is limited to less than 1 percent. Semi-solid, and solid hazardous wastes and sludges are stabilized prior to being placed in the landfill. Liquid wastes containing less than TSCA regulated levels of PCBs (i.e., less than 50 ppm) are stabilized, if necessary, and disposed of in double-lined RCRA landfills. Liquids with greater concentration of PCBs are sent to CEMM incinerators elsewhere in the country. Only PCB solids (e.g., transformer carcasses) are deposited in the TSCA landfill. TSCA landfills are only required to have a single liner.

Approximately 314,000 tons of manifested wastes were received by the facility in 1986. More than 99% of this waste was generated outside of Kings County, primarily in Southern California. Some out-of-state wastes were also received.

Waste Management Units

Active waste management unit at the Kettleman Hills facility include container storage, storage and/or treatment in tanks and surface impoundments, and disposal in landfills. The major units are:

- o Drum Storage Unit. This unit stores drums, most of which are 55 gallons in volume, prior to treatment and/or disposal elsewhere at the facility. Approximately 70,000 gallons of waste (1280 drums) can be stored at this unit.
- o Cyanide Treatment Unit (CTU). The CTU is comprised of two 18,000 gallon tanks with a design capacity of approximately 5,000 gallons/day. The unit mixes a sulfurous reagent with the cyanide wastes to form a less reactive thiocyanate complex. Once the wastes are treated, they are discharged into a surface impoundment or stabilized and placed into a landfill.
- o Stabilization Unit. This unit consists of six steel tanks. This process stabilizes reactive wastes and removes free liquids by mixing the wastes with stabilization materials (i.e., kiln dust or other lime-based ingredients).
- o PCB Flushing/Storage Unit. This unit, which is regulated under TSCA, removes PCBs from transformers or drums and stores the liquid for stabilization and landfilling if PCB content is less than 50 ppm or for shipment out of state for incineration if PCB content is greater than 50 ppm.
- o Surface Impoundments. The facility has five active surface impoundments, each with a double liner. Treated or untreated liquid wastes are placed into these units for solar evaporation. Except for an acid neutralization surface impoundment from which CWM removes and landfills residues every two or three years, CWM's practice has been to only remove residues from active impoundments which are being retrofitted. Together, the design capacity of these impoundments is approximately 16 million gallons.
- o Landfills. Currently, Kettleman Hills contains two TSCA PCB landfills and one operating RCRA landfill (B/19), which is being constructed in three phases. Phase I, recently completed, provides approximately 2.2 million cubic yards of remaining capacity. This new unit has a RCRA-approved double liner and leachate collection and removal system.

Regulation of the Facility

This facility has obtained or is seeking several permits which regulate its hazardous waste management activities. On the local level, CWM has a conditional use permit (land use) from Kings County. Also, it has been granted an air quality permit by the Kings County Air Pollution Control District (APCD).

The Central Valley Regional Water Quality Control Board (RWQCB), located in Fresno, has granted the Kettleman Hills facility a waste discharge permit. This permit regulates the facility's waste disposal practices in order to protect ground and surface waters.

On November 19, 1980, the facility received interim status (i.e., a right to operate pursuant to RCRA until receiving a formal permit) from the U.S. Environmental Protection Agency (EPA) and the California Department of Health Services (DHS). A joint draft RCRA permit on the entire Kettleman Hills facility was issued by EPA and DHS on July 22 and July 24, 1987, respectively. EPA and DHS are currently responding to public comments received on this draft permit. EPA expects to issue its formal permit for the KHF in the near future.

In 1985, EPA brought an enforcement action against CWM which addressed several alleged violations by this facility, including insufficient groundwater monitoring and a failure to adequately document the stabilization of liquid wastes or wastes containing liquids prior to disposal in a landfill. On November 7, 1985, EPA and CWM settled the action. The terms of the enforcement agreement included:

- o A commitment by CWM to close unlined disposal units and to construct new or retrofit old units with liners and leachate detection and control systems (according to CWM, this commitment has been met);
- o Agreement by EPA and CWM on a satisfactory groundwater monitoring strategy (according to CWM, this agreement has also been implemented); and
- o A one-time payment by CWM of \$2,103,000 to EPA and annual payments of \$100,000 to DHS for costs of oversight to monitor compliance with applicable regulations implementing RCRA and/or hazardous waste enforcement and response training.

A few key upcoming regulatory changes will affect the facility's activities. First, the 1984 federal RCRA amendments require all active surface impoundments to be retrofitted with a double liner by November 8, 1988. The State's Toxic Pits Cleanup Act of 1984 (TPCA) also requires retrofitting (by January 1, 1989). In addition, July 1, 1988, TPCA requires that all surface impoundments that contain hazardous wastes be free of liquids if they are located within 1/2 mile upgradient of a potential source of drinking water. According to TPCA, if a facility can meet the location restrictions and is granted all possible variances, it must stop accepting liquid hazardous wastes by January 1, 1991. The Kettleman Hills facility has already retrofitted three of its five operating surface impoundments to meet EPA's new liner specifications. CWM expects to retrofit a fourth unit by November 8, 1988. The remaining impoundment will probably be converted into part of a new landfill.

CWM has submitted information to the RWQCB on the quality and quantity of the groundwater within 1/2 mile of its surface impoundments. Within a few months, the RWQCB is expected to make a determination on the application of TPCA's locational restrictions to the KHF.

New federal and state land disposal restrictions will have the most profound effect on the KHF's future activities. The 1984 RCRA amendments require EPA to promulgate treatment standards for all wastes placed in landfills, surface impoundments, waste piles, and any other land-based units. No untreated wastes can be disposed on the land without specific EPA findings of safety. EPA has already restricted the disposal of liquids in landfills, solvents, and wastes on the "California list," which include cyanide wastes, certain metals, halogenated organic compounds, and low pH wastes. EPA and DHS are evaluating the KHF's waste analysis plan to determine if CWM is in compliance with these restrictions.

EPA has developed a schedule of additional land disposal restriction determinations, with high volume/high toxicity wastes receiving early review. The RCRA amendments require EPA to finalize treatment standards for one-third of these wastes by August 8, 1988, another third by June 8, 1989, and the final third by May 8, 1990. Unless EPA postpones these additional land disposal restrictions (for no longer than two years, and thereafter, case-by-case extensions for up to one year, renewable once), treatment standards for these wastes will become effective on the dates listed above. EPA will likely require incineration for many organic wastes; others, such as metals, may still be permitted in landfills after being stabilized. However, until EPA develops final treatment standards, it will be difficult to predict their precise effect on current land disposal at the KHF.

The state Hazardous Waste Management Act of 1986 (SB 1500 Roberti) sets forth land disposal restrictions that are very similar to those in the RCRA amendments. However, by May 8, 1990, SB 2500 requires treatment of all wastes prior to land disposal regardless of specific findings of safety. Extensions are also available. It is probable that the state will follow EPA's lead on treatment standards.

CWM is currently exploring several alternative technologies to meet treatment demands, including freeze crystallization, mobile incineration technology, recycling operations, solvent recovery, aqueous organic and inorganic treatment systems and the like.

Environmental Problems

Groundwater contamination has been detected in two areas in the western portion of the facility. Constituents with the highest concentrations are chloroform (.155 PPM) and 1-2 Dichloroethylene (DCE) (.08 PPM). These concentrations exceed the RWQCB's no degradation standard. To date, no contaminants have been detected beyond the facility's property boundary. At this time, EPA believes that there is no groundwater contamination beyond the property line at the Kettleman Hills facility. Current investigation of onsite contamination is designed to characterize the hydrogeology and movement of the chemicals in the aquifer in order to determine the most appropriate clean-up strategy.

According to CWM, it has complied with all regulatory requirements for addressing the contaminant remnants of past legal disposal of solid and liquid wastes in unlined units at the facility. 31 wells are regularly sampled to obtain water quality data. If contamination of groundwater is suspected, CWM begins an assessment program to determine the nature and extent of the possible problem more fully. If required, corrective actions are taken after regulatory agency approval. As noted, to date the groundwater monitoring program has confirmed contamination in two wells, and corrective actions are being undertaken, including groundwater extraction at well K-4. In both cases, the contamination has been linked to the past use of unlined surface impoundments, a practice no longer followed at this facility. Groundwater monitoring results continue to show no new impacts to groundwater and the constituents cyanide and 2,4,D remain at levels below the minimum detection line.

According to EPA, there is extensive soil contamination at the Kettleman Hills facility. However, this contamination is moving very slowly down through the unsaturated zone and, therefore, may not present a serious threat to groundwater.

Although there have been several complaints by Kettleman City residents concerning air and/or odor problems, during the last couple of years air contamination has not been a major issue. After the Kings County APCD and CWM agreed to limit organic chemical concentrations to less than 1 percent a few years ago, air problems have been minimal.

CWM has installed 3 permanent air monitoring stations at the facility, one station in the City of Avenal, and one station in Kettleman City. The air monitoring network continues to operate 24 hours/day, 7 days/week. To date, average concentrations observed by CWM are at normal background levels.

EPA recently completed a Draft RCRA Facility Assessment (RFA) at the KHF to investigate contamination from old and inactive units. This analysis is required under the "corrective action" provisions of the 1984 RCRA amendments. The results of this investigation are not yet available. Although one potential alternative for corrective action could include the excavation of contaminated soils necessitating redispersion of large volumes of unearthed wastes in the facility's new landfills, CWM believes that the more likely option is the interception and removal of any contaminants if they are discovered, followed by capping, stabilizing, and continued monitoring of the old units. According to CWM, the important considerations are that: (1) the facility conforms to the new siting requirements; (2) the geology of the area and the design of the older landfill units provide protection against wastes reaching the groundwater (i.e., the wastes are not migrating); and (3) CWM continues to monitor for migration from old landfills and has not yet detected any migration.

Citizen Opposition

There is little local opposition to the Kettleman Hills facility. However, Greenpeace has strongly opposed initial proposals to construct an incinerator at this site (see discussion below).

Expected Operational Changes

CWM has extensive plans to expand and improve the facility's hazardous waste management capabilities. Every new unit will require a RCRA permit. A new drum storage unit capable of holding up to 8,500 drums is scheduled for construction. This unit will be on a bermed concrete pad in order to prevent run-on and run-off from the drum storage area. Once constructed, this unit will help CWM address temporary treatment capacity shortages by providing space to store wastes for extended periods of time.

A new stabilization unit with a capacity of 132,000 gallons of waste/day is to be constructed. In addition, this unit will include several times more liquid storage capacity than the existing stabilization facility.

A neutralization/filtration unit (NFU) will replace acid waste treatment operations in which bulk and containerized wastes are discharged directly to a surface impoundment and are treated by the in-pond addition of a neutralizing reagent slurry (e.g., sodium hydroxide). The NFU is designed for the treatment of inorganic and organic wastes, although CWM may make provisions in the future also to treat caustic wastes. The treatment process will produce a slurry which will be drawn through a filtration unit. The filtrate will be discharged directly to a lined surface impoundment for further treatment. The filter cake will be collected and disposed in an onsite landfill. The capacity for the entire process will be approximately 69,000 gallons/day.

A second PCB flushing/storage building is proposed. This unit will be similar to the existing operation.

CWM has proposed nine new surface impoundments. Six units have a design capacity of 4,700,000 gallons each; the other three have capacities of 4,500,000, 6,100,000, and 6,300,000 gallons. CWM expects to phase in two new impoundments a year starting in 1988 and ending in 1991. Each would meet EPA RCRA standards. The facility expects to add the ninth impoundment in 1992.

If CWM constructs these units, their impoundment design capacity will increase by over 280%. However, construction of new surface impoundments depends on market conditions and the impact of state and federal regulations. For instance, it is unlikely that CWM will construct all of these units if EPA begins to require alternative treatment methods for many of the wastes that the facility currently places in impoundments. Also, as previously discussed, one of the existing surface impoundments will probably become a new landfill area.

The facility has proposed significant increases in landfill capacity. Phase II of the B-19 landfill expansion is under construction. After completion, it will provide 2,600,000 cubic yards of disposal capacity. Phase III at B-19, with an expected date of operation of January 1989, will increase capacity by 900,000 yards. In addition, CWM has proposed to construct two very large new landfills: B-17 would begin accepting wastes in June 1989, with a capacity of 6,100,000 cubic yards; B-18, with an expected starting date of January 1992, would have a capacity of 9,700,000 cubic yards. Similar to any expansion of impoundments, CWM's decision to construct the landfills will be driven by market calculations and regulatory conditions.

Figure G-4
FACILITY LOCATION

Finally, although CWM has not yet submitted a formal application to EPA, the firm has taken preliminary steps toward siting an incinerator at the KHF. An incinerator would be capable of treating the large quantity of organic wastes that the KHF now accepts. Because the land disposal restrictions will probably require incineration for many of the organic wastes that the KHF currently places in surface impoundments, an incinerator would help the facility meet the future needs of most of its present generators.

CASMALIA RESOURCES' CASMALIA FACILITY: CURRENT CAPACITY

The Casmalia Resources facility is located in an unincorporated area in the northwest portion of Santa Barbara County approximately ten miles southwest of Santa Maria and 16 miles north-northwest of Lompoc (see Figure 4). The facility occupies approximately 252 acres and is in the center of a 4,700-acre parcel of land owned by Casmalia Resources. The site is two miles north of the small unincorporated community of Casmalia (population of 250) and abuts Vandenberg Air Force Base to the west. The land uses in the area of the facility are predominantly cattle grazing, with limited dry farming.

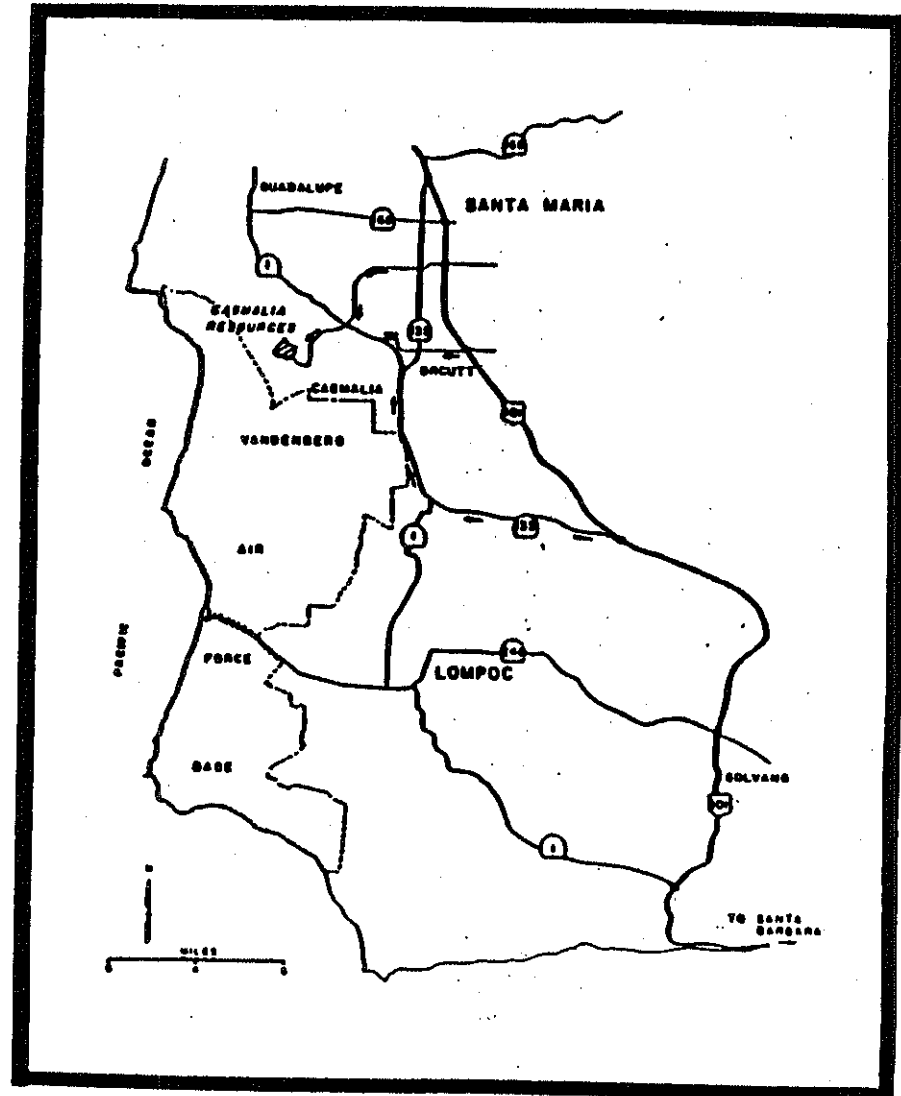
Casmalia Creek, which runs south along the site's western boundary joins Shuman Creek about one mile from the eastern boundary of the site. These creeks then drain west four miles to the Pacific Ocean. At higher elevations, in the northern area of the site, depth to groundwater is between 150' and 200 feet. At lower elevations, in the southern area of the site, groundwater is 10 to 100 feet below the surface. The groundwater flows to the west.

The site is located between two large groundwater basins -- the Santa Maria Valley basin to the north and the San Antonio Creek basin to the south. These groundwater basins, and the Santa Ynez Valley aquifer, are the main source of drinking water for the region. Studies indicate that the groundwater beneath the site is not connected to these groundwater systems.

Site History

The Casmalia Resources facility has been owned and operated by the Casmalia Resources partnership, for which Kenneth H. Hunter, Jr. is the general partner, since waste management activities began in 1973. The facility has historically operated a number of landfills, surface impoundments, and disposal trenches.

In 1976, the County of Santa Barbara approved a 70 acre expansion which Casmalia used to construct new surface impoundments and landfills. When these new units became operational in 1978, a PCB landfill, regulated under the Toxic Substances Control Act (TSCA), was given approval to operate at a capacity of 14,800 cubic yards by the U.S. Environmental Protection Agency (EPA). In 1980, this landfill was permitted to expand capacity to 180,000 cubic yards. In 1980, the Central Coast Regional Water Quality Control Board (RWQCB), located in San Luis Obispo, approved a 75 acre expansion adjacent to the site's western boundary. This expansion was initially used for four impoundments, and subsequently, a few additional impoundments were installed in this area.



(Source: RCRA Part B)

In addition to the facility's land-based units, a Zimpro wet-air oxidation unit began operating in 1983. This unit is designed to treat liquid wastes, such as cyanides, pesticides, and general organic waste waters. The liquid effluent from this facility is discharged to surface impoundments.

By September 1985, Casmallia consisted of six landfills, 42 surface impoundments, and the Zimpro treatment unit. In the 12 years between 1973, when operations began, and 1985, the annual amount of liquid waste received increased from approximately 13 million gallons to over 66 million gallons. In the same period of time, solid waste volume increased from 123 cubic yards to an estimated 132 thousand cubic yards.

Since late 1985, Casmallia has made significant operational changes to modernize its waste management capabilities and to comply with agreements made with the State Department of Health Services (DHS) and the County of Santa Barbara. Overall, these changes have resulted in a significant reduction in Casmallia's waste management capacity. In August 1985, the facility stopped accepting wastes at most of its surface impoundments. In December 1985, Casmallia agreed to a request made by DHS to stop accepting bulk liquid wastes until it acted on possible adverse health effects resulting from air emissions from the site. The facility still does not accept bulk liquid wastes.

In 1986, the PCB landfill was closed in settlement to a conflict between Casmallia resources and the County of Santa Barbara over unpermitted land use expansions by the facility.

In 1987, the facility began operating an acid neutralization unit. This unit consists of a series of tanks which blend liquid acid and alkaline wastes with lime. This process generates two waste streams -- a solid waste stream containing metals, which is solidified and landfilled, and a low acidity waste stream, which contains low concentrations of metals. This liquid effluent is discharged to a RCRA surface impoundment.

On April 28, 1987, the County closed Casmallia's wet air oxidation unit for operating without a county air permit. Casmallia Resources has no immediate plans to reactivate this unit.

Transportation Access

Trucks hauling wastes from both Southern and Northern California reach the Casmallia area via Highway 101. From Highway 101, trucks can follow several different routes to the facility. All local roads are two lane. The main line of the Southern Pacific Railroad runs two miles east of the facility, but it is not used to transport wastes to Casmallia.

Wastes Received

The Casmallia Resources site receives a wide spectrum of hazardous wastes. The facility accepts containerized solid wastes including pesticides, alkalines, acids, cyanides, resins, phenols, laboratory wastes, and metal sludges. Much of the volume of solid waste the facility receives is from oil and gas production activities (e.g., drilling muds, brines) and is classified as non-hazardous.

In 1986, the facility accepted approximately 136,000 tons of hazardous waste; down from an estimate 282,000 tons in 1985. Over 96% of this waste was trucked in from outside the county. The counties that contribute the most to the total amount of waste received by Casmallia include Los Angeles (45%), Orange (8%), San Diego (4%), and Santa Clara (7%). Casmallia receives approximately 10% of Los Angeles County's waste, 16% of Orange County's, and 5% of San Diego County's.

Waste Management Units

Active hazardous waste management units at the facility include a number of surface impoundments, four RCRA landfills, and the acid neutralization unit. The number of Casmallia's active surface impoundments is continuously changing because the facility is systematically closing all of its impoundments. All of its impoundments are unlined.

The four RCRA landfills each receive a different waste stream: solvent/pesticide wastes; acid wastes; heavy metal/sludge wastes; and caustic/cyanide wastes. Much of these solid wastes are received in containers and inspected for free liquids before being placed in the appropriate landfill. Each landfill has a clay liner. The remaining capacity of the landfills is approximately 1,915,000 cubic yards.

As previously described, the acid neutralization unit consists of several tanks and treats acid and alkaline wastes. The solid waste stream generated from this process is solidified and placed in the heavy metal/sludge landfill. The liquid effluent is ponded. The annual capacity of this unit is approximately 36,000 tons.

Regulation of the Facility

Casmalia Resources has been granted or is seeking several permits which regulate its hazardous waste management activities. On the local level, the facility holds a conditional use permit (land use) from the County of Santa Barbara.

The RWQCB has granted Casmallia a waste discharge permit which regulates the site's disposal operations in order to protect groundwater. The facility has not fully complied with groundwater monitoring requirements set forth in this permit.

The facility was granted RCRA interim status in 1980 by EPA and the State Department of Health Services (DHS). Casmallia has submitted a RCRA Part B application to EPA and DHS and is still awaiting permitting.

As previously discussed, in December 1985, Casmallia agreed to a request made by DHS to stop accepting liquid wastes until it acted on possible adverse health effects resulting from air emissions from the site. Also, the facility has been cited for a number of violations at the local, state, and federal levels. An administrative order, addressing many violations, issued to Casmallia by DHS in September 1986, required the facility to conduct additional

groundwater assessment, make operational changes, and further study the hydrogeology of the site in accordance with a Schedule of Compliance.

There are three key upcoming state and federal regulatory deadlines or decisions that will have a dramatic effect on the facility's future waste management capacity. First, Casmalia's surface impoundments are subject to a series of regulatory deadlines. The RCRA Amendments of 1984 require all active surface impoundments to be retrofitted with a double liner by November 8, 1988. The California Toxic Pits Cleanup Act (TPCA) also requires retrofitting by January 1, 1989. In addition, by July 1, 1988, TPCA requires that all surface impoundments that contain hazardous wastes to be free of liquids if they are located within 1/2 mile upgradient of a potential source of drinking water. According to TPCA, even if a facility can meet the location restrictions and is granted all possible variances, it must stop accepting liquid hazardous wastes for placement in its surface impoundments by January 1991. RWQCB staff have indicated that Casmalia's surface impoundments are located within 1/2 mile upgradient of a potential source of drinking water. The RWQCB is expected to make a final determination on Casmalia's surface impoundments on December 4, 1987. Casmalia has announced that it will closed down all of its surface impoundments to comply with these requirements and does not plan to install RCRA surface impoundments in the future.

The second regulatory decision, which may have a significant effect on Casmalia's future, is whether or not the RWQCB will issue Casmalia a surface water discharge permit for the facility's contaminated run-off and effluent. On October 15, 1987, Casmalia Resources applied to the RWQCB for this permit. Casmalia has proposed to discharge treated run-off and waste waters from the facility into Casmalia Creek. If Casmalia is denied a permit, run-off from its landfills and effluent from its acid neutralization unit would be difficult to manage properly (assuming that the facility is not permitted to use surface impoundments), and, therefore, operation of these units may be impossible or severely limited.

The third group of key regulatory changes that will affect Casmalia is the state and federal land disposal restrictions. These programs may significantly affect the types of wastes the facility will be allowed to landfill in the future. The RCRA amendments require EPA to promulgate treatment standards for wastes placed in landfills, surface impoundments, waste piles, injection wells, and other land-based units. No untreated wastes can be disposed of on land without specific EPA findings of safety. EPA has already restricted the disposal of liquids in landfills, and wastes on the "California list." The wastes on this list include cyanide wastes, certain metals, liquid and solid halogenated organic compounds, and low pH wastes. However, EPA has postponed placing a restriction on solid halogenated organic compounds until the summer of 1989. EPA has also delayed restricting the land disposal of solvents until November 1988. According to a DHS staff person involved with the facility, Casmalia has complied with all of the EPA land disposal restrictions which have taken effect so far.

EPA has developed a schedule of additional land disposal restriction determinations, with high volume/high toxicity wastes receiving early review. The RCRA amendments require EPA to finalize treatment standards for one-third

of these wastes by August 8, 1988, another third by June 8, 1989, and the final third by May 8, 1990. Unless EPA postpones these additional land disposal restrictions because of treatment capacity shortages (for no longer than two years, and there after, case-by-case extensions for up to one year, renewable once), treatment standards for these wastes will become effective on the dates identified above. EPA will likely require incineration for many organic wastes; others such as metals, may still be permitted in landfills after being solidified. Because the EPA has yet to develop final treatment standards for most wastes, it is difficult to predict the actual effect on current land disposal at Casmalia.

The state Hazardous Waste Management Act of 1986 (SB 1500 Roberti) sets forth land disposal restrictions that are very similar to those in the RCRA amendments. However, by May 8, 1990, SB 1500 prohibits all untreated wastes from being land disposed regardless of specific findings of safety. The state is likely to follow EPA's lead on wastes for which EPA requires treatment prior to disposal.

Environmental Problems

Various state and federal agencies have identified onsite groundwater contamination at the facility. Starting in 1984, groundwater monitoring data gathered by the RWQCB at the facility indicated the presence of low levels of a number of different chemicals in onsite downgradient monitoring wells. Various organic chemicals were found, including phenols, chloroform, methylene chlorides, and phthalate. Current evidence indicates that groundwater beneath the site moves at very low velocities and that even if offsite migration should occur, it would not pose a threat to groundwater in the Santa Maria Valley Basin. However, this evidence is based on only partial knowledge of the site's hydrogeology. Casmalia has installed barrier dikes at the lower ends of the site to intercept any contamination that might migrate from the facility. The effectiveness of these barriers is indetermined.

Beginning in late summer and early fall of 1984, numerous odor complaints were received from the residents of Casmalia. Residents complained of a strong chemical odor that reportedly caused headaches, nausea, and eye irritation. The odor problem caused the Casmalia Elementary School to close for two days in November 1984. Air samplings downwind from one of the surface impoundments (impoundment 4) indicated levels of hydrogen sulfide exceeding its California ambient air quality standard (i.e., 30 ppb per hour). However, since Casmalia stopped accepting bulk liquid wastes, airborne emissions and odor problems from the site have been less significant. Emissions from the site are currently being studied by DHS in consultation with the County, other state agencies and the EPA.

Citizen Opposition

During the past few years, the Casmalia Resources facility has met with strong local opposition from the nearby community and from citizens in Santa Barbara. Hearings held by the County of Santa Barbara and DHS have been very well attended. In addition, several major environmental groups have raised concerns about the facility.

Expected Operational Changes

Casmalia has plans to make major operational changes at the facility. First, as previously mentioned, the facility is expected to close down all of its RCRA surface impoundments by either June (TPCA deadline) or November 1988 (the EPA retrofitting deadline). Also, Casmalia Resources plans to close its existing landfills, as they reach capacity, and construct five double-lined RCRA replacement landfills in the area where the surface impoundments are now located. These landfill units are expected to have 4,900,000 cubic yards of capacity. At this point, Casmalia's future waste management plans predominantly include landfilling, with sizable treatment capacity provided by its acid neutralization unit, which the facility plans to expand to a capacity of 144,000 tons/year. The Zimpro unit is included in Casmalia's modernization plan. However, before operating this unit, the facility would seek new permits from DHS and Santa Barbara County.

POTENTIAL EXPANSION OF EXISTING KEY FACILITIES

AB 2948 requires that each county's hazardous waste management plan include an analysis of the probable extent to which that county's future waste stream can be managed in existing treatment, storage, and disposal facilities (TSDFs). As documented in Chapter 3, four facilities received a large proportion of Alameda County's manifested wastes in 1986: Casmalia, Kettleman Hills, Panoche, and Vine Hill/Baker. This section describes alternatives for future expansion at these facilities.

CASMALIA: FUTURE WASTE MANAGEMENT CAPACITY

Casmalia's future waste management capacity depends on, first the willingness of Casmalia Resources to continue to operate the facility, and to change or improve capacity. This depends on the facility's profitability and on the firm's ability to obtain financing for new activities.

Second is the pressure on Casmalia Resources to close down the facility. Many commercial hazardous waste management facilities have been forced to close due to public outrage over environmental problems. Citizen opposition to Casmalia in Santa Barbara is strong, and the site could be forced to close if additional evidence of contamination gathered by regulatory agencies proves that it presents a significant threat to human health or the environment.

Third is the impact of state and federal regulations on existing and future waste management activities. For instance, if EPA requires further pre-treatment for certain wastes which Casmalia currently only solidifies and landfills, the facility may not be able to continue to place certain waste streams in its landfills.

Different outcomes based on these factors can be used to develop three "reasonable" alternatives in terms of providing waste management capacity for Alameda County's generators in the future. The alternatives range from least to most waste management capacity. In developing alternatives, it is assumed that the Casmalia facility will remain profitable enough to continue operation.

Casmalia Resources has submitted plans to expand landfill capacity to 4.9 million cubic yards, and to increase the acid neutralization unit's capacity to 144,000 tons per year by the early 1990s. The facility also has plans to reactivate the existing wet air oxidation unit. This unit was deactivated in April 1987 for operating without an air permit. This wet air oxidation unit is designed to treat liquid pesticide and cyanide wastes and liquid non-halogenated organic wastes. These plans are currently being reviewed by DHS.

Alternative I: Closure

- o Conclusive evidence is found proving that the facility presents a significant threat to human health or the environment.

The result of this alternative would probably be closure of the facility.

Alternative II: Restricted Status Quo

- o Caswallia is not allowed to replace landfills as existing landfills reach capacity.
- o EPA and the state require further treatment for wastes the facility currently only landfills.
- o Caswallia is not granted a surface water discharge permit.

This alternative would permit Caswallia to operate its landfills with certain additional restrictions until they reach capacity (an estimated 10 years to reach capacity based on an average of 200,000 tons of waste per year). Caswallia would probably be permitted to collect and evaporate facility runoff and treated waste waters in lined RCRA surface impoundments. It is unlikely that the TPCA locational restrictions would apply to surface impoundments that only accept treated waste water and runoff. As existing landfills reach capacity, the facility's waste management capacity would diminish. Although the facility would still be permitted to operate its acid neutralization unit, when its landfills reach capacity Caswallia may decide to cease all operations because income from the neutralization unit may be insufficient to cover the facility's operating costs.

Alternative III: Replacement Landfills Permitted

- o The facility is permitted to construct replacement landfills.
- o EPA and the state require further treatment for landfilled wastes.

The effect of this alternative would be to permit Caswallia to maintain or expand the landfill capacity (the extent of capacity would depend on the size of new landfills and wastes Caswallia receives).

KETTLEMAN HILLS: FUTURE WASTE MANAGEMENT CAPACITY

The Kettleman Hills facility's future waste management capacity also depends on many of these same factors. First is the willingness of Chemical Waste Management to continue to operate the facility, and to change or improve its capacity. Decisions to continue or to expand/modify operations will be based on the expected profitability of the Kettleman Hills facility, as well as on CWM's ability to obtain financing for new ventures. (CWM is a much larger company than Caswallia Resources).

Second is possible pressures on CWM to close or restrict the facility's activities. Such pressures may come from the public and regulatory agencies. As noted above, many commercial hazardous waste management facilities have closed during the last few years because of public pressures to shut down leaking sites. Some groundwater contamination has already been detected at KHF. However, this contamination appears to be limited to two former wells below former unlined surface impoundment areas. Corrective action is now underway at these two wells. At the present time, EPA does not believe that the KHF presents an immediate threat to human health or the environment. Citizen interest in this facility is not particularly evident in Kings County as of late 1987.

Third is the impact of state and federal regulations on existing and future waste management activities, for example, new waste treatment standards imposed by the EPA.

Results based on these factors can be used to develop two operational alternatives providing waste management capacity at the KHF in the future. These alternatives range from least to most waste management capacity. In developing these alternatives, it is assumed that the Kettleman Hills facility will remain profitable, and that the public and regulatory agencies will not cause the facility to close.

CWM has submitted plans to make significant changes to the Kettleman Hills facility. These include: expanding drum storage capacity to 8,500 drums; expanding the stabilization unit to handle an annual throughput of 158,400 tons per year; expanding surface impoundment capacity to 180,400 tons by 1992; adding 19.3 cubic yards of landfill capacity by 1992; and, finally, siting a major incinerator at this location. All these expansion plans are currently being reviewed by DHS and EPA.

Alternative I: Status Quo

- o The facility is allowed to continue to operate its surface impoundments (until 1991), but it is not permitted to construct and operate a major incinerator.
- o The EPA (and DHS under SB 1500) requires incineration for certain high volume liquid organic wastes currently accepted by the facility and placed in impoundments.

In the short-term, CWM may still be able to place liquid wastes which exhibit low toxicity in lined surface impoundments. However, certain types of liquid organic wastes would have to be disposed in other ways. Without an incinerator at KHF, CWM would have a disruption in liquid treatment capacity.

Alternative II: Incinerator Approved

- o The facility can continue to operate its surface impoundments (until 1991).
- o EPA and DHS require incineration for certain types of high volume liquid organic wastes.
- o CWM decides and is permitted to install a major incinerator.

In the short-term, CWM would have substantial capacity to handle liquid and solid hazardous wastes at the KHF. By 1991, CWM may be able to install alternatives to its surface impoundments for handling liquid wastes which do not require incineration.

PANOCHÉ AND VINE HILL/BAKER: FUTURE WASTE MANAGEMENT CAPACITY

Future waste management capacity at these two International Technology facilities depends on several factors. First is the willingness of IT to restart operations, to change or improve the capacity of the sites. This

depends on the specific regulatory demands on the facility, and on IT's ability to obtain permits from the regulatory agencies. Since IT announced in March 1988 that it has been unable to find any suitable purchaser for its facilities, and announced permanent facility closure, it is assumed that they will be closed to receipt of future hazardous wastes from Alameda County generators.

ROMIC CHEMICAL CORPORATION

This facility is located in East Palo Alto, San Mateo County. The Romic hazardous waste management facility consists of solvent and fuel recovery and incineration processes. Currently, the capacities for these units are: 20,000 tons per year for solvent recovery; 20,000 tons per year for fuel recovery; and 8,000 tons per year for incineration.

Romic has plans to expand its solvent and fuel recovery capacities to 80,000 and 50,000 tons respectively. The company also plans to expand its incinerator's annual throughput to 20,000 tons.

Romic has applied to the City of Newark to site a rail transfer facility capable of handling 23,000 tons of waste annually. Plans are to transport waste from the East Palo Alto facility to the Newark facility via the Dumbarton Bridge. Waste would be loaded on outbound rail cars at the Newark facility. The Newark facility would handle Alameda County and other counties' wastes, thus serving as a regional facility.

OTHER FACILITIES

Other proposals for new commercial waste management units include: Stauffer Chemical Corporation's proposed incinerator in Contra Costa County; the proposed incinerator in Vernon, California; the proposed waste injection well in Kern County; and the cement kiln incinerator of General Portland Cement, in Lebec, California. All of these proposals are currently being reviewed by regulatory agencies.