PRELIMINARY Public Health Assessment for

SYDNEY MINE SLUDGE POND
VALRICO, HILLSBOROUGH COUNTY, FLORIDA
CERCLIS NO. FLD000648055
SEPTEMBER 14, 1992

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
Agency for Toxic Substances and Disease Registry

PRELIMINARY PUBLIC HEALTH ASSESSMENT

SYDNEY MINE SLUDGE POND

VALRICO, HILLSBOROUGH COUNTY, FLORIDA

CERCLIS NO. FLD000648055

Prepared by

Florida Department of Health and Rehabilitative Services
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY

The Sydney Mine National Priorities List (NPL) site is located approximately 3 miles east of Brandon, Florida. Hillsborough County leased a portion of the former phosphate strip mine for disposal of septic wastes, waste automotive oils, grease trap wastes and manufacturing cutting oils.

In the eight-year span of the waste disposal operation, an estimated 16 million gallons of wastes were deposited in three small pits. These wastes were transported to the site by various haulers serving homes, schools, hospitals, and manufacturing and commercial establishments in the Tampa Bay Region. Subsequent to use of the mine for sludge disposal, septage and waste oil areas were identified as sources of groundwater contamination.

Site cleanup began in 1984. Initial remediation activities included construction of a slurry wall for groundwater containment, surface cleanup consisting of excavation and incineration of more than 10,000 cubic yards of contaminated materials, installation of a groundwater recovery treatment and disposal system, and installation of groundwater monitoring wells. Following these activities, site media were resampled to ascertain levels of contaminants remaining on site. Trichloroethene, vinyl chloride, methylene chloride, 1,2-dichloroethane, and benzene were identified in on-site monitoring wells at levels of health concern. Other Florida Department of Health and Rehabilitative Services Environmental Health (HRS) and Department of Community Affairs concerns associated with the site relate to its prior use as a phosphate strip mine. Concerns associated with reclaimed phosphate-mined lands which may preclude their future use for residential development include: 1) low soil shear strength and land subsidence characteristic of clay settling areas, 2) elevated radon emissions from tailings, and 3) groundwater contamination from liquids used for ore beneficiation.

Based on the available information, this site is considered to be an Indeterminate Public Health Hazard because insufficient data are available to determine the potential for current or future human exposure. Because current access to this area is restricted and future residential use of the area is unlikely, off-site migration of solvents in groundwater, or via groundwater that recharges surface water, are the most likely potential sources of human exposure to site-related contaminants. The sludge ponds were located at least 0.5 mile in all directions from public roads and current or future residential sites. Currently, remediation workers or trespassers could come in contact with contaminated groundwater in holding tanks for the airstripper on the site.

Based on the available information, this site is considered to be an Indeterminate Public Health Hazard because insufficient data are available to determine the potential for current or future

human exposure. As noted in the Environmental Contamination and Other Hazards section, human exposure to contaminated groundwater may occur through future off-site migration. The recommendations in this public health assessment include additional monitoring and characterization of groundwater, monitoring of downgradient drinking water wells, and restriction of new drinking water well installations downgradient of the site if studies indicate a need.

The Sydney Mine site information has been evaluated for appropriate follow-up health activities by the ATSDR Health Activities Recommendation Panel (HARP) and the state. The Health and Rehabilitative Services (HRS) Hillsborough County Public Health Unit is currently conducting health education activities with residents living in the site vicinity. Because there is no indication that human exposure to contaminants at levels of public health concern is occurring or has occurred in the past, this site is not being considered for additional follow-up health activities at this time. However, if data become available suggesting that human exposure to hazardous substances at levels of public health concern is occurring or has occurred in the past, ATSDR will reevaluate this site for health follow-up activities.

BACKGROUND

A. SITE DESCRIPTION

The Sydney Mine National Priorities List (NPL) Site is a former disposal site located southeast of Tampa, in Brandon, Florida (Hillsborough County) (Figure 1). The location of the former waste disposal areas of the site are off East Brandon Boulevard/State Road 60 (SR 60), about 1 mile east/southeast of the Valrico Lookout Tower (Figure 2). The area was strip-mined for phosphate during the 1930s and 1950s. After mining activities ceased, the land was used for the disposal of tailing sands and phosphatic wastes from ore processing activities. The strip-mined area was allowed to revegetate until early 1970.

In late 1973, Hillsborough County leased a portion of the Sydney Mine site from American Cyanamid and constructed a sludge disposal pond. The pond received wastes from grease traps, septage waste, and waste oil. In July 1979, the waste disposal site was expanded and modified (Figure 2). At that time, the operation consisted of two primary impoundments: a 1.5-acre septage pond and a 0.6-acre waste oil pond. A third impoundment (surface area approximately 0.25 acre) was located adjacent to the east dike of the septage pond and was reportedly used for disposal on only a few occasions. Waste disposal activities terminated on November 27, 1981.

In 1979, the Environmental Protection Agency (EPA) found heavy metals and organic solvents in the septage pond and oil pond. Operating under a Florida Department of Environmental Regulation (DER) closure permit, Hillsborough County initiated what became a two phased site cleanup program in November 1984. The main tasks of Phase I were: 1) construction of a slurry wall for groundwater containment; 2) surface cleanup consisting of excavation and incineration of more than 10,000 cubic yards of contaminated materials; 3) installation of a groundwater recovery, treatment, and disposal system; and 4) groundwater monitoring and installation of additional monitoring wells. The surface cleanup was completed in January 1986; the groundwater system has treated more than 100 million gallons of water to date.

In December 1986, DER detected several additional areas of soil contamination. The county remediated contaminated soil from these areas on site by air drying and biological treatment (this became known as Phase II of the remediation process). Due to contamination in downgradient monitoring wells and in an attempt to facilitate cleanup of the site, the county installed additional monitoring and recovery wells. This public health assessment includes the groundwater monitoring results from

samples collected quarterly (and sometimes more frequently) by CH2M Hill from June 1989 to June 1990. Hillsborough County continues to operate and maintain the existing groundwater recovery and treatment system.

B. SITE VISIT

A site visit by EPA staff, Department of Environmental Regulation (DER) staff, a state congressman, and ATSDR-HRS cooperative agreement staff was made in August 1990. The site is located approximately 0.5 mile south of SR 60. Site access is restricted. Locked gates are located at the intersection of the access road and SR 60, and at the entrance to the site.

The site is traversed by a series of dikes, a drainage ditch known as the slime ditch, and Turkey Creek. Turkey Creek runs north-south along the east edge of the property. The topography of the site is generally flat except for several gentle depressions, containment dikes, and the 4- to 15-foot dikes surrounding the ponds, all of which are fairly well camouflaged by scrub vegetation, various grasses, vines, and scrub brush. When new data become available, another site visit will be conducted.

C. COMMUNITY HEALTH CONCERNS

During the August 1990 site visit, Hillsborough County television and newspaper reporters asked the EPA Regional Project Manager about the efficacy of the equipment that was remediating the contaminated groundwater. Their concerns included questions about effluent concentrations of solvents exuded by the air stripper. They also asked whether prevention of groundwater contamination plume movement performed by the recovery wells was adequate to assure the plume would not move off site. On August 19, 1992, HRS contacted the Hillsborough County Health Department. No citizens have expressed new concerns or expressed further interest in the site.

D. STATE AND LOCAL HEALTH DATA

Health outcome data have not been researched for this site because no human exposures to contaminants have been identified. If future health concerns are identified through new data or if the public expresses health concerns to HRS, health outcome data will be researched and evaluated.

DEMOGRAPHICS, LAND USE, AND NATURAL RESOURCE USE

Land extending south, east, and west of the site, within a 1-mile radius, includes abandoned mined areas covered with scrub vegetation. The former mine is partially rimmed with high banks and trees. This land is not in active use, but several wells still exist on the site that were used in former mining operations. Along State Road 60, 0.5 mile north of Sydney Mine, are three small mobile home parks and several private businesses. Private businesses include a small strawberry farm, a building supply, a gas station and a tire store. Each of the mobile home parks contains about 35 to 50 residences and are at least 10 years old. Two of the parks are located north of SR 60, and the third is northeast of Sydney Mine but located immediately south of SR 60. All of the potable and irrigation water for this area is supplied by local wells. Local wells also supply mobile home parks, churches and businesses although these wells are regulated as public rather than private supply wells.

In 1979, Florida DER and EPA staff included the site in their inventories of potential hazardous waste sites in Florida. As a result of the site's inclusion in these inventories, EPA's Air and Hazardous Materials Division conducted a surface water and groundwater investigation of the site during October and November 1979. The sampling program carried out at that time determined that potable wells in the vicinity did not contain organic contaminants above detection levels or heavy metals above background levels. According to the Southwest Florida Water Management District's well survey in P.E. Lamoreaux and Associates hydrogeologic report (1982), the nearest well tapping the surficial aquifer is 38 feet deep and serves 90 people. This well is located less than 4,500 feet northwest of the northwest corner of the on-site groundwater monitoring wells and serves the Valrico Hills Mobile Home Park. Other public and private wells are closer to the site than the Valrico Hills Mobile Home Park well, but these wells tap the deeper Floridan Aquifer. Although these wells tap the deeper aquifer, well casings have been known to serve as conduits for groundwater (and its contaminants); therefore, well casings for these deeper area wells could allow contamination of the Floridan Aquifer from contamination present in shallower groundwater.

Remedial Investigation workers on the site report having seen motorcycle riders on the site, but hunters and fisherman were not reported, nor were areas appropriate for fishing observed during the site investigation. The hydrogeologic report by P.E. Lamoreaux and Associates (1982) indicated that under perched water conditions groundwater from the former sludge area could flow into Turkey Creek. Evidence of site-related contaminants in this creek have not been seen, although sediments upstream and downstream from the site exhibited elevated levels of metals.

ENVIRONMENTAL CONTAMINATION AND OTHER HAZARDS

A. ON-SITE CONTAMINATION

Initial sampling included surface soil, sediments, surface water and groundwater. Surface water samples indicated the presence of heavy metals in Turkey Creek both upstream and downstream from the former pond location, indicating a non-sludge pond source. The contaminated soils and sludges were excavated, air-dried on site, and removed to a Resource Conservation and Recovery Act (RCRA)-approved landfill.

Post-remedial sampling performed for surface soils and sediments in May 1987 indicated that concentrations of contaminants in soil were below health-based levels of concern. On-site ambient monitoring for total volatile organic compounds (VOCs) in soil has not indicated ambient soil concentrations above background levels at any on-site location since the completion of soil remediation. Air quality at the site, with respect to holding pond and air-stripper emissions, has not been addressed.

The most recent groundwater data (June 1989-June 1990), collected and reported by Hillsborough County contractor CH2M Hill, Southeast, Inc., under orders from the EPA, indicate that groundwater remains contaminated with VOCs (Figure 3). Twelve of these wells, from which groundwater samples have been collected, are 20 to 50 feet deep, and are screened to the top of the unmined sediments. Two wells are 60 and 100 feet deep and have detected contaminants in the unmined Bone Valley and Hawthorn Formations. Information on contaminants present in groundwater at levels that exceed the EPA acceptable levels for long-term consumption and use (Maximum Contaminant Levels) from the most recent sampling events is included below. Although methylene chloride is listed in the table, the chemical is often associated with laboratory contamination and may not actually be present in groundwater.

ON-SITE GROUNDWATER (SURFICIAL AQUIFER) CONTAMINANTS

Contaminant	#Positive/#Sampled*	Concentration Range (ug/L)
Vinyl Chloride	28/116	<1.0-139.0
Methylene Chloride	02/048	<2.0-15.0
1,2-Dichloroethane	22/115	<1.0-155.0
Benzene	71/104	<1.0-250.0
Trichloroethene	02/116	<1.0-4.2

* This tally reflects the number of analyses that contained levels of contaminants above the detection level verses the number of samples analyzed for that chemical. All data are from CH2M Hill, Southeast, Inc., 1989-90 quarterly monitoring, and concentration values are in micrograms per liter (ug/L).

As previously stated, HRS and the Department of Community Affairs concerns associated with reclaimed phosphate-mined lands which may preclude future use of these lands for residential development include: 1) low soil shear strength and land subsidence characteristic of clay settling areas, 2) elevated radon emissions from tailings, and 3) groundwater contamination from liquids used for ore beneficiation. The EPA standard for radium-226 in soil is 5 picocuries per gram (pCi/g) above the background within 15 centimeters of the surface, measured over a 100-square-meter area. Although radon emissions from clay settling areas average 23.4 pCi/g in central Florida (O'Meara and others, 1986), and the average radium-226 activity in unaltered surface soil in Polk County is 0.6 pCi/g, no site-specific radon level measurements have been done. In addition to possible elevated radon levels; an estimated 5% of the water containing kerosene, fatty acids, and amines used to concentrate the phosphate ore in the clay slurries (an estimated total of 310 million gallons (CH2M Hill, 1989)), has been interred with the clay wastes and may contribute to future degradation of groundwater. Although concerns about other sources of groundwater contamination were not addressed in this public health assessment, the EPA project manager noted that background wells in the mined areas are generally below detection levels for kerosene, fatty acids, and their derivatives (USEPA2, 1990).

B. OFF-SITE CONTAMINATION

All of the monitoring wells on the site that are north (directly downgradient) of the former sludge ponds are contaminated with VOCs above levels considered acceptable for use of groundwater as a potable source. The lack of sufficient groundwater monitoring wells makes plume characterization and movement impossible.

Groundwater samples were collected from the 8 nearest downgradient wells (both private and community water systems) in October 1990 by an HRS Hillsborough County Public Health Unit representative. The residences using these wells are located along Highway 60. As of July 1, 1991, these wells had not been resampled, but the county HRS plans to resample these wells periodically because the Valrico Hills mobile home park well contained chloroform and chlorodibromomethane at levels of 1.4 and 2.2 micrograms per liter (ug/L) or parts per billion (ppb), respectively. Those chemicals are classified as trihalomethanes and are not considered site-related. Trihalomethanes commonly result from the chlorination (bacteria-control) process. The combined level of those compounds is more than 10 times lower than the accepted level for trihalomethanes in Florida community systems (100 ppb). Bromodichloropropane was also detected at 2.0 ug/l in the wells.

C. TOXIC CHEMICAL RELEASE INVENTORY INFORMATION

To identify possible facilities that could contribute to the air and groundwater contamination near the Sydney Mine site, HRS Toxicology and Hazard Assessment Office personnel searched the 1987, 1988, and 1989 Toxic Chemical Release Inventory (TRI) databases. TRI databases are developed by the EPA from chemical release to air, water, and soil information provided by certain industries. TRI databases did not contain information on toxic chemical releases in the Dover zip code area which encompasses the area immediately around the site.

D. QUALITY ASSURANCE AND QUALITY CONTROL

The quality assurance and quality control information were not available for review. Detection limits were adequate for addressing all analytes at levels of health-based concern. The conclusions presented in this public health assessment are based on the available data; therefore, the validity of the conclusions is dependent on the quality of the data provided.

E. PHYSICAL AND OTHER HAZARDS

An air stripper and its accessory equipment including electrical pumps and an air blower are running continuously at the site and

are monitored by an automatic controller. "On-site ambient monitoring for total volatile organics has not indicated ambient concentrations above background at any on-site location since the completion of Phase II rehabilitation" (USEPA, 1989). Two, large, open tanks are used for holding water: a contaminated-water holding tank which holds water that will be treated in the air stripper, and a treated water holding tank which feeds treated water to the spraying fields. Because the remediation system is generally unattended, it is possible that trespassers could cause some physical harm to themselves by vandalizing this equipment or by climbing into the tank that holds contaminated water.

PATHWAYS ANALYSES

A. ENVIRONMENTAL PATHWAYS (FATE AND TRANSPORT)

Post sludge removal testing did not indicate elevated levels of contaminants in soil, sediments, or surface water. According to the information given, the potential environmental pathways of concern are off-site groundwater migration and atmospheric transport of volatile chemicals from the air stripper; however, on-site ambient air monitoring for total volatile organics has not been carried out. Assuming that plants or animals could have access to groundwater and do have access to air stripper effluent, neither group would bioconcentrate VOCs and, therefore, neither would constitute an environmental pathway for human exposure.

Mining activities have disrupted the local geology, resulting in a complex hydrogeological situation. The area consists of a series of manmade shallow perched aquifers composed of tailing sands, underlain by partially consolidated low-permeability phosphatic clay wastes. Groundwater flow appears to be generally northward.

Prior to mining activities, the shallow sedimentary units below the site consisted of sandy sea-terrace deposits and finer-grained clay-rich units overlying the phosphate ore-bearing Bone Valley Formation. To extract phosphate, the units overlying the Bone Valley were removed to tailings stacks, and the phosphate ore was mixed with liquids. Waste materials from this clay-rich liquid were buried by layering with sandy overburden sediments to hasten compaction. This process resulted in a complex series of permeable and non-permeable units which facilitate lateral movement of shallow groundwater and impede vertical movement.

However, the latest round of groundwater samples have detected VOCs in the deep monitoring well in the clay-rich, sandy Hawthorn Formation that underlies the mined sediments, indicating that vertical movement of the contaminants has occurred.

The off-site contaminated groundwater plume movement to the north and northwest should be slowed by the pumping of groundwater from the north dike by 13 recovery wells. As indicated in the demographics section, the surficial aquifer is used by the Valrico Mobile Home Park as the potable supply for 90 people. This well is located 4,500 feet northwest of the northwestern-most monitoring well on the site. The closest residences downgradient of the site are 2,640 feet to the north but tap the Floridan (deeper) Aquifer for their water supply. Because both aquifers are used as potable water sources in this area, and because of the anticipated development of this area with mobile home parks, movement of contaminated groundwater off site presents an environmental pathway of long-term concern.

B. HUMAN EXPOSURE PATHWAYS

Inhalation of organic volatile chemicals from the air stripper, and dermal contact with contaminated groundwater (contaminated groundwater is pumped into the holding pond ultimately to be fed into the air stripper) are immediate potential human exposure pathways. The receptors of concern are on-site workers and trespassers. Such human exposures were possible but not probable as workplan requirements dictated that local air monitoring be carried out to insure worker safety at the time of the second remediation (sludge removal), and air contaminants were not detected above background levels. The holding tanks are above-ground, 4.5-foot-high, stainless-steel, uncovered enclosures that would require effort to enter or exit, although volatilization of VOCs may occur from their surfaces.

Although the roads to the site are fenced, the site is accessible to the local population. CH2M Hill personnel (CH2M Hill, 1989) have reported motorcycle riders around the site periodically, but have not observed hunters or other trespassers during working hours.

Potential routes of human exposure include ingestion, inhalation and dermal absorption of contaminated groundwater from the use of water from contaminated wells, should the plume move off site. The nearest adjacent residential population of concern is approximately 0.5 mile downgradient.

PUBLIC HEALTH IMPLICATIONS

Vinyl chloride, methylene chloride, 1,2-dichloroethane, benzene and trichloroethene all move readily in groundwater. The population at immediate risk of low level exposure to contaminants from on-site groundwater includes trespassers and remediation workers who could be exposed to low levels of contaminants in groundwater via contact with remediation equipment. Low level, long-term exposure to contaminants detected on site is of health concern because most contaminants are known or possible human carcinogens, and current EPA exposure assessments assume the effects of carcinogens to be additive. Future health concerns associated with long-term exposure to contaminants involve use of wells downgradient of the plume. The following paragraphs describe possible non-cancer adverse health effects as well as the potential cancer risk that may result from exposure to the contaminants.

Human exposure and the systemic health effects resulting from human exposure to low levels of vinyl chloride and benzene via ingestion of drinking water at levels similar to those in on-site groundwater have not been studied. However, the estimated minimal risk level for vinyl chloride which is based on currently available animal data, is less than the highest levels detected in groundwater on site. Therefore, the potential for harmful non-cancer effects from exposure to vinyl chloride via groundwater cannot be ruled out. Systemic effects could include decreased life span and liver toxicity for vinyl chloride (ATSDR, 1989); these effects are based on animal studies.
The environmental media evaluation guide for benzene is calculated as 100 ug/L assuming that a 10 kilogram child (approximately 20 pounds) drinks 1 liter of water each day. This level is also based on animal data (ATSDR 1991). The maximum concentration (250 ug/L) of benzene in groundwater exceeded this criteria; therefore, non-cancer effects from benzene cannot be ruled out. Systemic effects could include harm to the immune system, increasing the chance for infections and perhaps lowering the body's defense against tumors. Exposure to benzene has also been linked with genetic changes in humans and animals (ATSDR, 1989).

At high exposure concentrations in humans, benzene has been shown to cause cancer of the tissues that form white blood cells (Leukemia), and vinyl chloride has been linked with the occurrence of liver cancer. Because of the links between these chemicals and cancer, Florida has set drinking water standards of 1 microgram per liter (ug/L or part per billion (ppb)) for both benzene and vinyl chloride to protect against adverse health effects including cancer. Water containing these levels of contaminants should not be consumed. If levels of vinyl chloride or benzene above 1 ppb are detected in drinking water on or off the site, it will be recommended that the water should not be

used, although it is very unlikely that the risk of additional cancers, after a lifetime of drinking water at these concentrations (1 ppb of either vinyl chloride or benzene), will be greater than one in one million for benzene and one in one hundred thousand for vinyl chloride.

Human exposure to low levels of 1,2-dichloroethane and trichloroethene via ingestion of drinking water at levels similar to those in on-site groundwater have not been studied. There is no available health comparison criteria for trichloroethene at this time. The Maximum Contaminant Level is 5 ppb and the Maximum Contaminant Level Goal for drinking water is 0 ppb because the cancer-causing potential for this chemical is currently unknown. The trichloroethene level at the site is less than the Maximum Contaminant Level, which includes technological considerations as well as health considerations. Animal studies indicate that the minimal risk level for non-cancer adverse health effects is greater than levels found at the site. Therefore, no harmful non-cancer effects are expected to occur (ATSDR, 1989).

The available health comparison criteria for 1,2-dichloroethane is the short-term (acute) minimal risk level, which is also based on currently available animal data. The maximum 1,2-dichloroethane concentration of 155 ug/L in groundwater exceeds the recommended short term exposure for a 10 kg child (about 20 pounds) (ATSDR, 1991). Since the estimated dose exceeds the available short-term advisory level, it is expected that it will probably exceed any long-term advisory that will be determined in the future.

At high exposure concentrations in animals, 1,2-dichloroethane has been implicated in cancer at various sites, and trichloroethene is not yet classified for cancer-causing potential. Because of the link between 1,2-dichloroethane and cancer in animals and the uncertainty of the link between trichloroethene and cancer, Florida has set a drinking water standard of 3 ppb for 1,2-dichloroethane and trichloroethene to protect against adverse health effects including cancer. Water containing these levels of contaminants should not be consumed. If levels of 1,2-dichloroethane or trichloroethene above 3 ppb are detected in drinking water on or off the site, it will be recommended that the water should not be used, although it is very unlikely that the risk of additional cancers, after a lifetime of drinking water at these concentrations (3 ppb of either 1,2-dichloroethane or trichloroethene), will be greater than one in one million for trichloroethane and one in one hundred thousand for 1,2- dichloroethane.

The concentrations of methylene chloride identified in on-site groundwater samples may be the result of laboratory contamination rather than site contamination. However, the adverse health

effects associated with methylene chloride exposure are presented since laboratory contamination has not been confirmed. Quantitative data on the effects of human exposure to ingestion of methylene chloride at levels similar to those detected in on-site groundwater are not available. The results of animal studies suggest that frequent or lengthy exposures to methylene chloride can cause changes in the liver and kidney. Long-term exposure to ingested methylene chloride caused liver changes in rats but no renal effects were reported. Kidney changes were reported only on rats that continuously inhaled methylene chloride for 100 days. The available screening criteria for methylene chloride is the chronic (long-term) minimal risk level, which is based on currently available animal data (ATSDR, 1989). This minimal risk level is greater than the highest level detected in groundwater on site. Therefore, harmful non-cancer effects are not expected to occur.

Methylene chloride is not known to cause cancer in humans, but based on animal studies, the EPA believes that methylene chloride has the potential to cause cancer in humans. Because of this potential and the links between methylene chloride and cancer in animals, the EPA has set a drinking water standard of 5 ppb for methylene chloride to protect against adverse health effects including cancer. Water containing these levels of contaminants should not be consumed. If levels of methylene chloride above 5 ppb are detected in drinking water on or off the site, it will be recommended that the water should not be used, although it is very unlikely that the risk of an additional cancer, after a lifetime of drinking water at this concentration (5 ppb), will be greater than one in one million.

At this time there is no evidence of human exposure to site contaminants via groundwater ingestion although future exposure potential remains. Planned land use based on the Hillsborough County Land Use Map (Hillsborough County City-County Planning Commission, 1988) indicates 1,983 persons will be the potential maximum population for all land use designations within 1 mile of the Sydney Mine site (Figure 4). These land use designations may serve to limit future exposure potential.

B. HEALTH OUTCOME DATA

No adverse health effects are believed to have occurred in off-site receptor populations because exposure to contaminated groundwater or sediments is not known to have occurred. When indicated by public health needs, and as resources permit, the available additional relevant health outcome data and community health concerns may be evaluated.

C. COMMUNITY HEALTH CONCERNS EVALUATION

Environmental Health personnel from Hillsborough County addressed concerns that sampling of downgradient potable wells had not been carried out recently; public and private potable well sources were sampled in October 1990. The results indicate a need for further monitoring in this area. The Valrico Hills Mobile Home Park well contained a trace of chloromethane (less than 1 ppb) and carbon tetrachloride at 1.2 ppb. Those chemicals have not been identified at the site. The HRS Hillsborough County Public Health Unit Environmental Engineering staff will sample the downgradient area regularly to assure the safety of this public water source and other public and private water sources in the area.

CONCLUSIONS

Based on the available information, this site is considered to be an Indeterminate Public Health Hazard because insufficient data are available to determine the potential for current or future human exposure. As noted in the Environmental Contamination and Other Hazards section, human exposure to contaminated groundwater may occur through contact with the water in the holding tanks. However, trespassers would have to purposely vandalize equipment or enter the groundwater treatment tanks for exposure to occur. Potential private and public well contamination is of concern. However, the groundwater treatment system that is in place should minimize contaminant concentrations that are presently leaving the site, and periodic monitoring of the potentially contaminated wells should detect site-related contaminants should contamination occur.

RECOMMENDATIONS

1. Install additional monitoring wells to characterize the contaminant plume and its movement. These monitoring wells should include wells in the uppermost limestone formations that comprise the Floridan Aquifer. The latest sampling events demonstrate that all of the monitoring wells located downgradient of the site contain amounts of VOCs that exceed the EPA's Maximum Concentration Levels for drinking water.

2. Restrict the installation of new drinking water wells in the downgradient vicinity of the site if warranted by the delineation of the contaminant plume.

3. Continue to periodically monitor downgradient private wells. Restrict domestic use of these wells if they should become contaminated before the groundwater remediation is complete to minimize the potential for human exposure.

4. Assure appropriate safety precautions are taken by contract personnel when performing site sampling and remediation work.

5. Evaluate available additional relevant health outcome data and community health concerns when indicated by public health needs and as resources permit.

The Sydney Mine site information has been evaluated for appropriate follow-up health activities by the ATSDR Health Activities Recommendation Panel (HARP) and the state. The Health and Rehabilitative Services (HRS) Hillsborough County Public Health Unit is currently conducting health education activities with residents living in the site vicinity. Because there is no indication that human exposure to contaminants at levels of public health concern is occurring or has occurred in the past, this site is not being considered for additional follow-up health activities at this time. However, if data become available suggesting that human exposure to hazardous substances at levels of public health concern is occurring or has occurred in the past, ATSDR will reevaluate this site for health follow-up activities.

Public Health Actions

No completed human exposure pathways were identified in this public health assessment. However, the HRS Hillsborough County Public Health Unit is conducting health education activities to help residents understand the health implications of exposures to contaminants if exposures should occur. No other health actions are planned at this time.

PREPARERS OF REPORT

Connie Garrett, M.S.
Environmental Specialist
Florida Department of Health and Rehabilitative Services
Office of Toxicology and Hazard Assessment

Randy Merchant, M.S.
Biological Administrator III
Florida Department of Health and Rehabilitative Services
Office of Toxicology and Hazard Assessment

ATSDR Regional Representative
Chuck V. Pietrosewicz
Regional Services
Office of the Assistant Administrator

ATSDR Technical Project Officer
Richard Gillig
Division of Health Assessment and Consultation
Remedial Programs Branch

CERTIFICATION

This public health assessment has been prepared by the Florida Department of Health and Rehabilitative Services, Office of Toxicology and Hazard Assessment, under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the public health assessment was initiated.

Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health assessment and concurs with its findings.

Director, DHAC, ATSDR

REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicologic Profile for Benzene, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-88/03. May 1989.

Agency for Toxic Substances and Disease Registry (ATSDR), 1990. Toxicologic Profile for 1,1-Dichloroethene, and Vinyl Chloride, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-90-12. December 1990.

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicologic Profile for 1,2-Dichloroethane, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-89/10. December 1989.

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicologic Profile for Methylene Chloride, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-88/25. April 1989.

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicologic Profile for Trichloroethene, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-88/24. October 1989.

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. Toxicologic Profile for Vinyl Chloride, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia. Publication No. ATSDR/TP-88/25. August 1989.

Agency for Toxic Substances and Disease Registry, 1991. Draft Health Assessment Guidance Manual, February 1991, U.S. Public Health Service. Atlanta, Georgia.

CH2M Hill, Southeast, Inc., 1989. Sydney Mine Waste Disposal Site Endangerment Assessment, Prepared for Hillsborough County Department of Solid Waste, CH2M Hill, Southeast, Inc.; Tampa Florida

CH2M Hill, Southeast, Inc., 1988. Phase II Cleanup Activities Summary Report CH2M Hill Sydney Mine Waste Disposal Site. - March 1988.

CH2M Hill, Southeast, Inc., 1986. Investigation of Additional Contaminated Areas, Sydney Mine Waste Disposal Site. - January 1986.

CH2M Hill, Southeast, Inc., 1983. Sampling and Analysis Report. Sydney Mine Waste Disposal Site.- February 1983.

CH2M Hill, Southeast, Inc., 1987. Sydney Mine Waste Disposal Site North Dike Investigation, Status Report. - January 1987.

Hillsborough County City-County Planning Commission, 1988. Hillsborough County Land Use Plan and Land Use Map

O'Meara, Timothy E., Wayne R. Marion, Charles E. Roessler, Genevieve S. Roessler, Henri A. Van Rinsvelt, and Orrin B. Myers. Environmental Contaminants in Birds: Phosphate-Mine and Natural Wetlands. Prepared for Florida Institute of Phosphate Research. Publication No. 05-003-045 - 1986.

PBS & J Environmental Laboratories, 1988. PBS & J Environmental Laboratories Report of Analysis for Hillsborough County Solid Waste Department for Sydney Mine Monitoring Wells. - July 1988.

P.E. Lamoreaux and Associates, Inc., 1982. Hydrologic Impact of Liquid Waste Disposal with Recommendations for Remedial Action by the Sydney Mine Site Hillsborough County, Florida. - March 1982.

USEPA, United States Environmental Protection Agency, 1989. RECORD OF DECISION, The Decision Summary, Sydney Mine Sludge Ponds Site, Hillsborough County, Florida, U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia.

USEPA2, RPM. Personal correspondance with Gallo Jackson, RPM. 1990.

APPENDICES

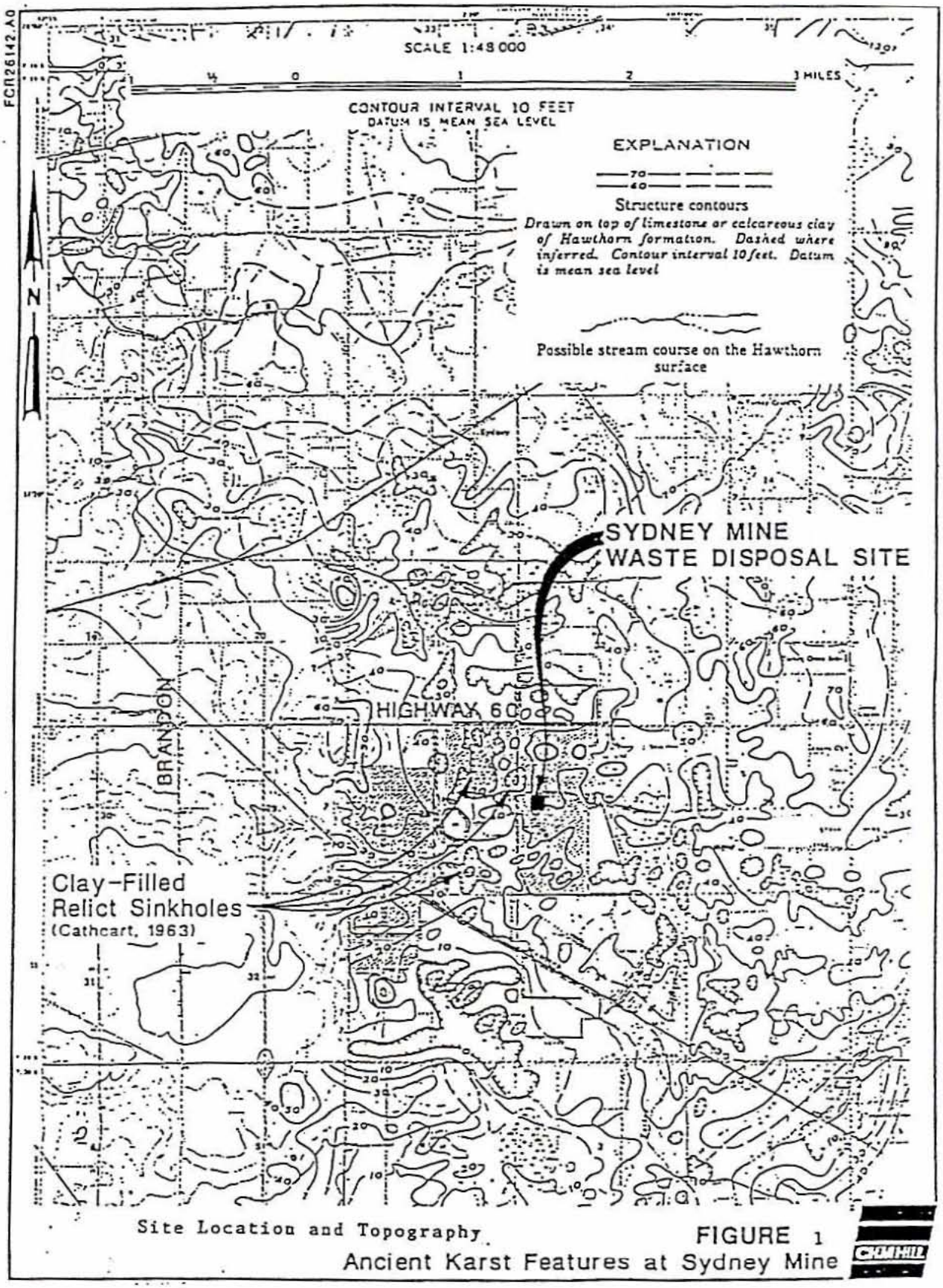
FIGURE 1. Site Location and Local Topography.

FIGURE 2. Definition of Sludge Impoundment Areas.

FIGURE 3. Historic Map of VOCs Plume, January 4-5, 1989 sample data.

FIGURE 4. Land Use Planning Map.

fig. 1

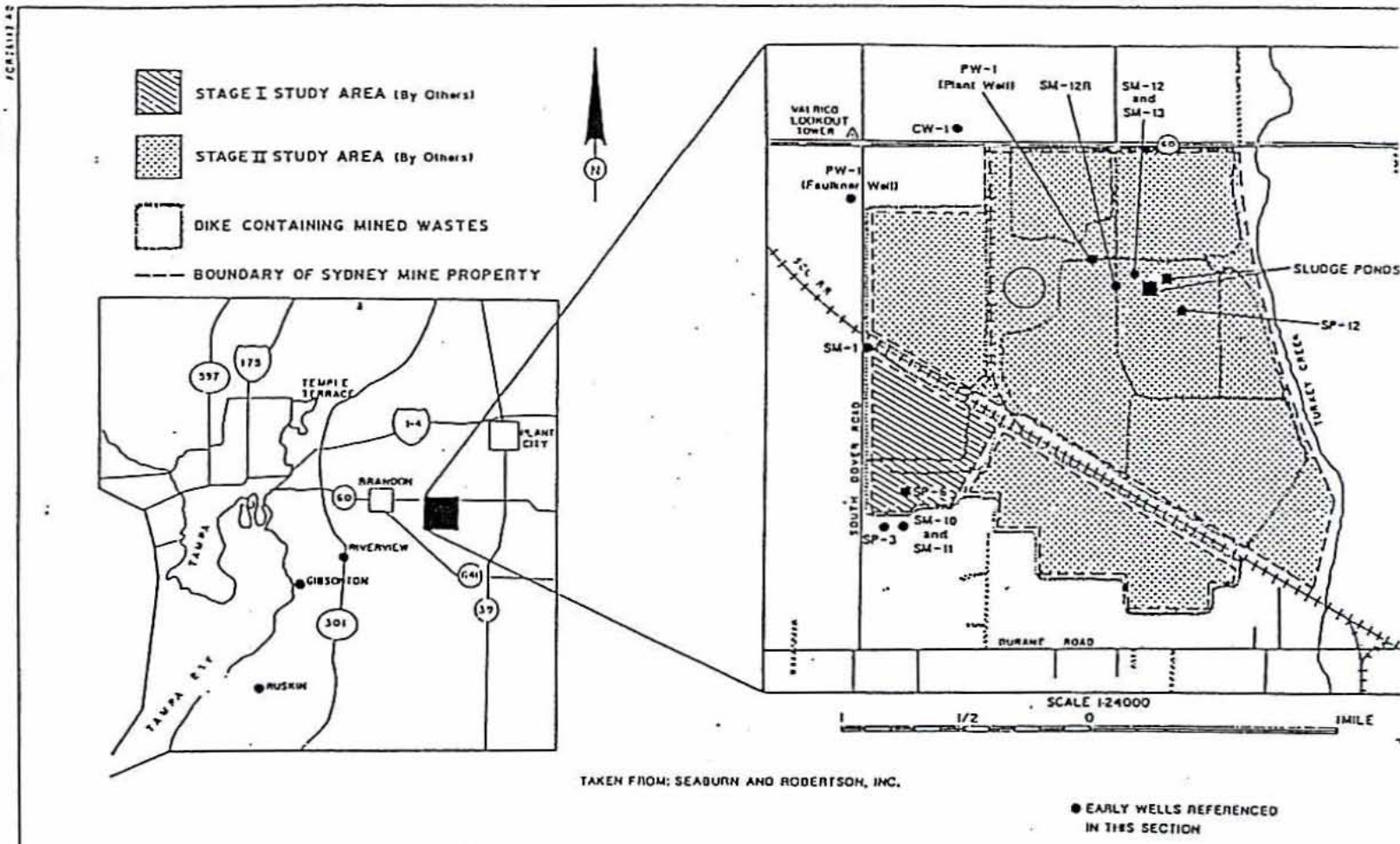


Site Location and Topography

FIGURE 1

Ancient Karst Features at Sydney Mine

fig. 2

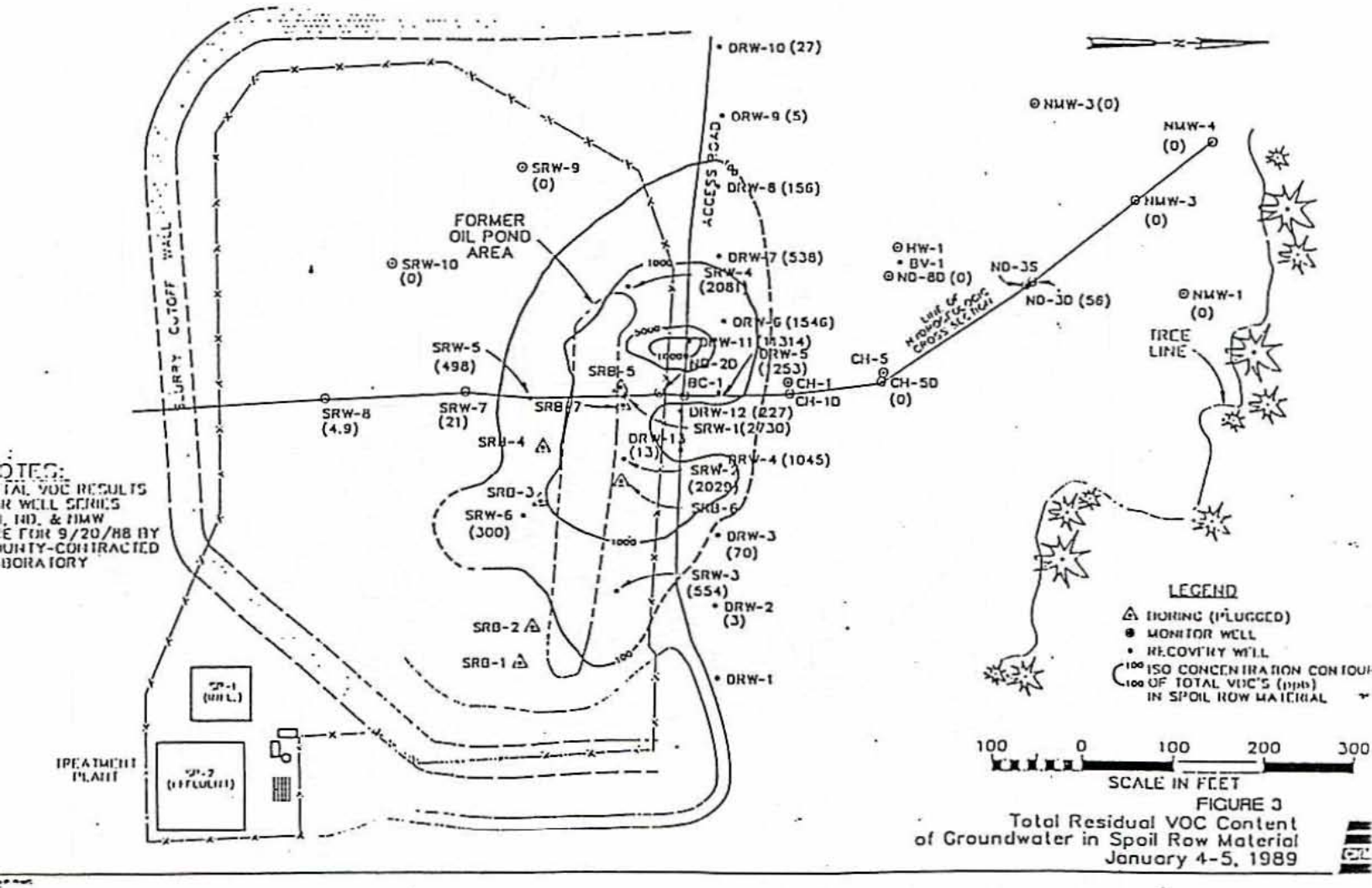


TAKEN FROM: SEABURN AND ROBERTSON, INC.

● EARLY WELLS REFERENCED IN THIS SECTION

FIGURE 2
SYDNEY MINE WASTE DISPOSAL SITE - VICINITY MA

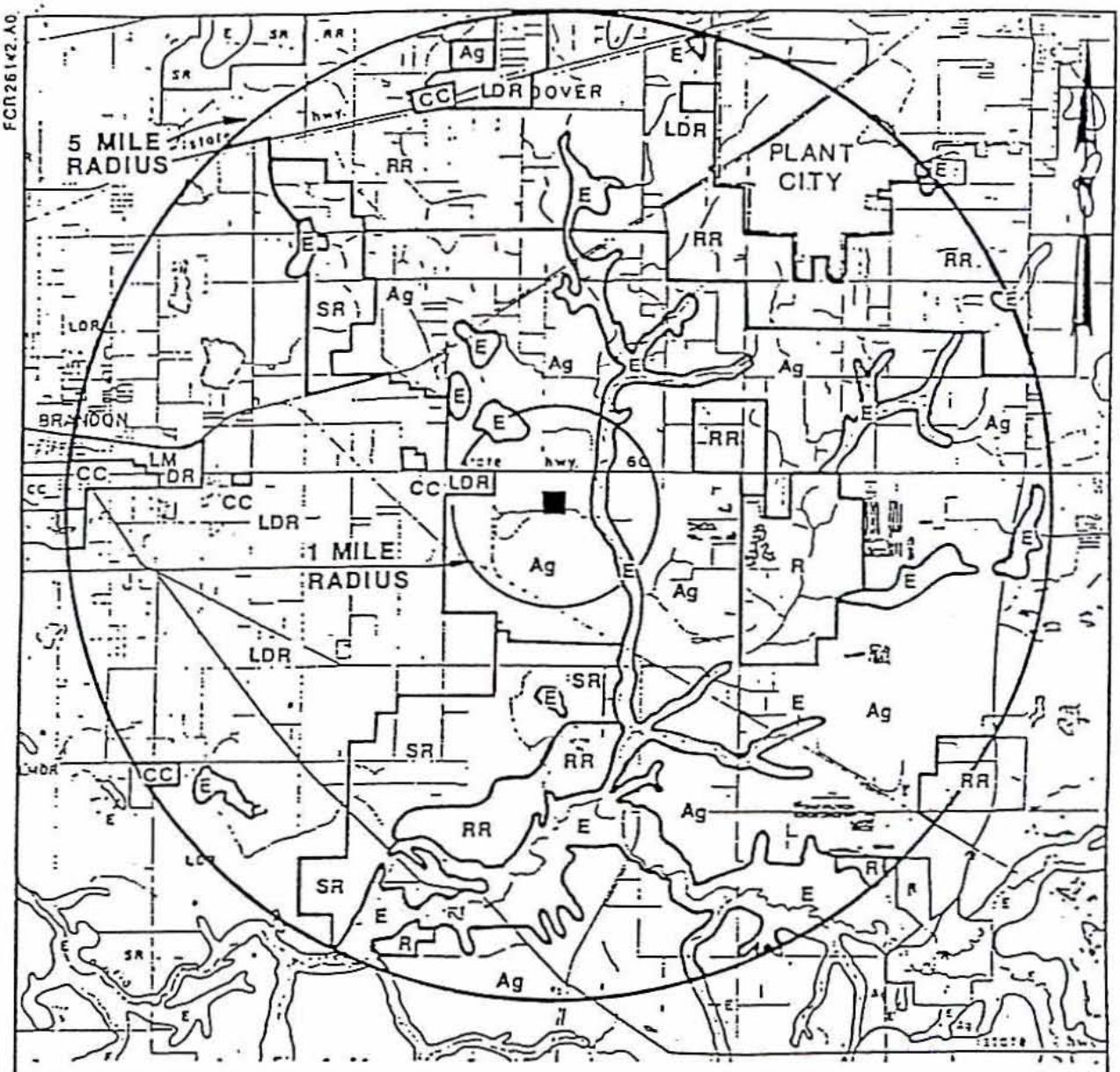
fig. 3



OTES:
TAL VOC RESULTS
R WELL SERIES
, ND, & NMW
E FOR 9/20/88 BY
UNTY-CONTRACTED
BORATORY

FIGURE 3
Total Residual VOC Content
of Groundwater in Spoil Row Material
January 4-5, 1989

fig. 4



Land Uses In Vicinity of Sydney Mine, Hillsborough County, Florida

FIGURE 4