PRELIMINARY Health Assessment for

MADISON COUNTY SANITARY LANDFILL

CERCLIS NO. FLD981019235

MADISON, FLORIDA

MAY 31 1990

THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104(i)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, this Health Assessment has been conducted using available data. Additional Health Assessments may be conducted for this site as more information becomes available.

The conclusions and recommendations presented in this Health Assessment are the result of site specific analyses and are not to be cited or quoted for other evaluations or Health Assessments.

PRELIMINARY HEALTH ASSESSMENT

Madison County Sanitary Landfill

Proposed National Priorities List Update #7 Site

Madison, Florida

Prepared by:

Florida Department of Health and Rehabilitative Services

Under Cooperative Agreement with the

Agency for Toxic Substances and Disease Registry

Background

The Madison County Sanitary Landfill is located in a rural area approximately 1.2 miles north of the City of Madison, Florida, at the southeast junction of Rocky Ford Road and Jestlamb School Road (Figure 1). The site covers 133 acres, of which 80 acres has been used for municipal, residential, agricultural, and industrial waste disposal (Figure 2). Active landfill operations are occurring in the southeast corner of the site with the final cell being filled.

Future plans include above-ground disposal on approximately 10 acres along the northern boundary of the site.

The landfill began operation in June 1971, under the ownership of the City of Madison. The land was previously used as a soybean farm. An operating permit was issued in July 1975, and Madison County acquired the site from the city in March 1980.

In September and December 1984, the county installed landfill monitoring wells and collected ground water samples. Analyses revealed trichloroethene (TCE) in one well. The superintendent identified two sites within the landfill which received drums and other wastes from a local metal fabricating plant, ITT-Thompson. Thompson manufactures wheel ornamentation for cars, including wheel covers, wire wheel products and trim rings. Processes included painting the products and periodically cleaning equipment with TCE. The solvent was recovered via distillation with the remaining sludge collected, and packaged together with buffing compounds and other wastes into drums for disposal in the landfill. Drums from one location within the landfill were removed in November 1984 and relocated to an approved hazardous waste disposal facility. The second set of dumps was located and removed in October 1985. Contaminated soil under the drums was also excavated and transported to the disposal facility. Follow-up testing showed no additional soil contamination.

In response to the discovery of the drums and detection of TCE in the newly installed monitoring wells, the Environmental Health Section of Florida Department of Health and Rehabilitative Services (HRS) Madison County Public Health Unit collected samples from private drinking water wells in the vicinity of the landfill. TCE was found in five residential wells. Thompson initially provided bottled water to all affected well owners, and followed up with the installation of carbon filtration devices on contaminated wells. HRS, in conjunction with Thompson, the City of Madison and Madison County, continues to monitor levels of TCE in the affected wells, in addition to expanding the area of investigation to delineate the plume. Subsequent testing has detected degradation products of TCE including 1,2-dichloroethene and 1,1,1-trichloroethane; and other volatile compounds such as n-hexane, toluene, benzene, and methylene chloride.

The City of Madison, Madison County and ITT-Thompson have funded the construction of a municipal water supply in the affected area. This system was completed on March 1988, and resulted in the connection of the affected homes to the uncontaminated supply. A yearly sampling scheme has been implemented to evaluate water quality in residential wells near the boundary of the plume, which are not connected to a public water supply.

The following documents were reviewed by Florida HRS:

1. Belinda Brock, Document of Hazard Ranking System of Madison County Sanitary Landfill, EPA Region IV, May 8, 1987.

2. City of Madison. Madison Soil and Water Conservation District, Report for Sanitary Landfill Site, Florida, December 17, 1974.

3. Suwannee River Water Management District. A Hydrogeologic Investigation of a Landfill Site, April 15, 1975.

4. Consent Order between the Florida Department of Environmental Regulation, Madison County, City of Madison, and ITT-Thompson Industries, Inc.

5. R.A. Kirkner and Associates, Inc., Status Report and Outline of Phase II, Work for the Madison County Landfill Central Contamination Assessment Plan (CAP), August 1985.

6. CH_2M Hill, Work Plan for Contamination Assessment, Madison County Landfill, June 5, 1985.

7. Freeman, R.W. Madison County Landfill Database, Data Report, Florida Department of Health and Rehabilitative Services, April 19, 1989.

Environmental Contamination and Physical Hazards

On-Site Contamination

The following compounds were detected in ground water at levels of probable public health concern from monitoring wells and surface samples of the landfill.

MEDIA	Contaminant	RANGE (UNIT)
Ground Water	trichloroethene	5.5 - 7 ug/L
	trans-1,2-dichloroethene	4.8 ug/L
Soil	acetone	248 mg/kg
	tetrachloroethene	1,200 - 2,140 mg/kg
	trichloroethane	3,630 - 4,900 mg/kg
	trichloroethene	410 - 530 mg/kg

Off-Site Contamination

From the time monitoring wells on site were discovered to be contaminated to the present, private drinking water wells in the vicinity of the landfill have been tested for purgeable compounds. Compounds found in private wells include 1,2-dichloroethene, 1,1,1-trichloroethane, toluene, and n-hexane. Benzene at 5.0 ug/L and TCE at up to 16 ug/L were found at levels of probable public health concern in ground water.

Physical Hazards

There are no unique physical hazards present on the landfill. The majority of the site is covered, with only one cell remaining to be filled. There is discarded road maintenance equipment which belongs to the Madison County Transportation Department off site along the south west boundary of the landfill.

Environmental and Exposure Pathways

Contaminants detected at the Madison County Landfill include organic solvents found in ground water and soil. All known contaminated soil has been excavated and disposed of properly. Documented environmental pathways include migration of contaminated ground water from on-site locations to additional off-site areas. There is known ground water involvement off-site and private drinking water wells have been affected. Further movement of the contamination plume may be influenced by local rainfall events, consumptive use of ground water, and local subsurface geologic features. There is also the possibility of undetected areas of soil contamination within the landfill which would continue to contribute contaminants to the aquifer.

There is continued use of the aquifer for potable water. Private drinking water supplies having documented contamination by compounds associated with the landfill were treated via carbon filtration units and subsequently connected to municipal water. Human exposures to contaminants occurred before these measures were implemented including ingestion of and direct contact with contaminated ground water. Additional routes of exposure included inhalation exposures via volatilization of solvents during showering and bathing. No effort has been made to either remove contaminants from ground water or inhibit the movement of contaminated ground water in the area. Therefore, potential exists for additional private wells to be affected. Information reviewed did not address surface water, atmospheric transport, or edible plants and animals involvement on site or off site.

Demographics

The Madison County Municipal Landfill is located approximately one mile north of the City of Madison in a rural setting. There are 95 potable wells within a three-mile radius of the site. The City of Madison has three municipal wells within the same radius serving 4,000 individuals.

Evaluation and Discussion

There is documented contamination of the Floridan Aquifer in the vicinity of the Madison County Landfill. A number of private wells are contaminated with chlorinated compounds at concentrations greater than levels of probable public health concern. Municipal water has been supplied to affected residences thereby limiting exposure. Contaminated soil on site has been removed along with drums discovered during the initial site investigation. Although known sources of contamination appears to have been eliminated, the possibility of undiscovered sources is still present as landfill wastes are very heterogeneous, and records of disposal are not complete. Such contaminants may be acting as a reservoir for further contamination. Air contamination has not been evaluated as part of the investigation. However, due to the rural nature of the surrounding area and removal of known sources of contamination, exposure via ambient air is not expected to be important. Inhalation of contaminants volatilized from ground water during showering and bathing most likely occurred in the past in affected homes.

The occurrence and sampling of surface water was not addressed in the information reviewed.

Conclusions and Recommendations

Based on available information, this site is considered to be of public health concern because of the risk from the exposure to hazardous substances via ingestion, dermal contact, and inhalation during the use of contaminated ground water. Known exposures have occurred in the past, however, community water has been provided to affected residences. There are additional homes in the area that were either not constructed during the ground water investigation and therefore not sampled, or were found not to be contaminated at that time. Potential exists for additional residential wells to become affected as the contamination plume migrates. Environmental pathways including atmospheric transport, storm water run off, and surface water contamination have not been assessed and therefore cannot be ruled out as sources of exposure.

Additional environmental sampling of the ground water is performed on a regular basis by the Florida Department of Health and Rehabilitative Services and the Potentially Responsible Parties in conjunction with the Florida Department of Environmental Regulation. Sampling is targeted to

the area on the boundary of the contamination plume. However, this work is not designed to evaluate ground water flow or related mechanisms of transport or be used as a predictive tool. Therefore, an in-depth ground water survey should be addressed in the Remedial Investigation/Feasibility Study (RI/FS). The Agency for Toxic Substances and Disease Registry (ATSDR) and the Florida Department of Health and Rehabilitative Services will perform a more detailed assessment when additional information and data become available, such as from the RI/FS and potable well sampling.

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended, the Madison County Sanitary Landfill Site, Madison, Florida, has been evaluated for appropriate follow-up with respect to health studies. Although there are indications that human exposure to on-site and off-site contaminants may possibly be currently occurring and may have occurred in the past, this site is not being considered for follow-up health studies at this time because the people have been put on an alternate water supply. However, if data become available suggesting that human exposure to significant levels of hazardous substances is currently occurring or has occurred in the past, ATSDR and the Florida Department of Health and Rehabilitative Services will reevaluate this site for any indicated follow-up.

This Health Assessment was prepared by the Florida Department of Health and Rehabilitative Services Office of Toxicology and Hazard Assessment under a cooperative agreement with ATSDR. The Division of Health Assessment and Consultation and the Division of Health Studies of ATSDR have reviewed this Health Assessment and concur with it's findings.

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APPENDICES

Figure 1: Location of Madison County Landfill, Drum Burial Areas, local contaminated wells and sinkholes.

Figure 2: Layout of the Madison Bounty Landfill.

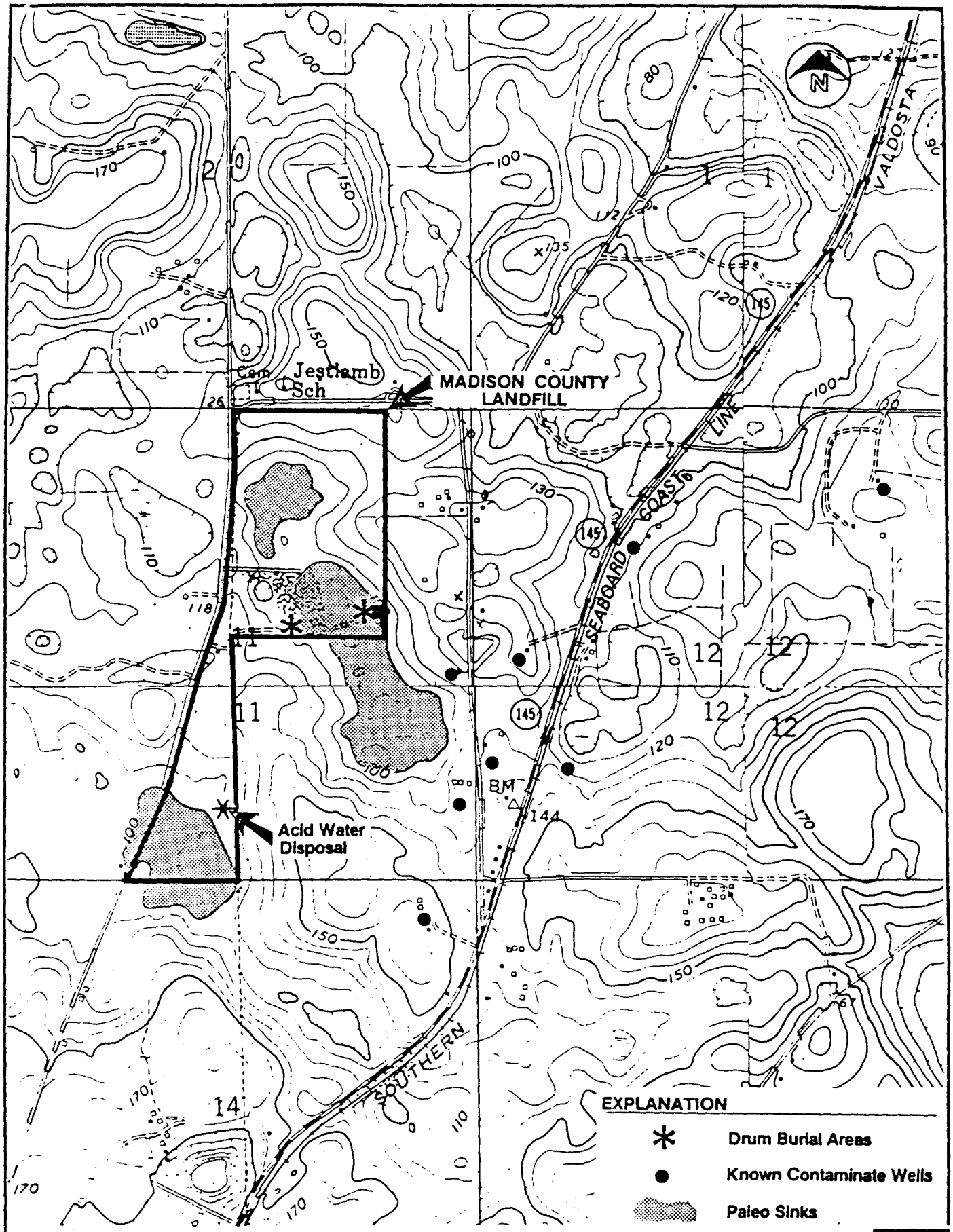

FIGURE 1.
Vicinity Map.

R.A. KIRKNER & ASSOCIATES, INC.

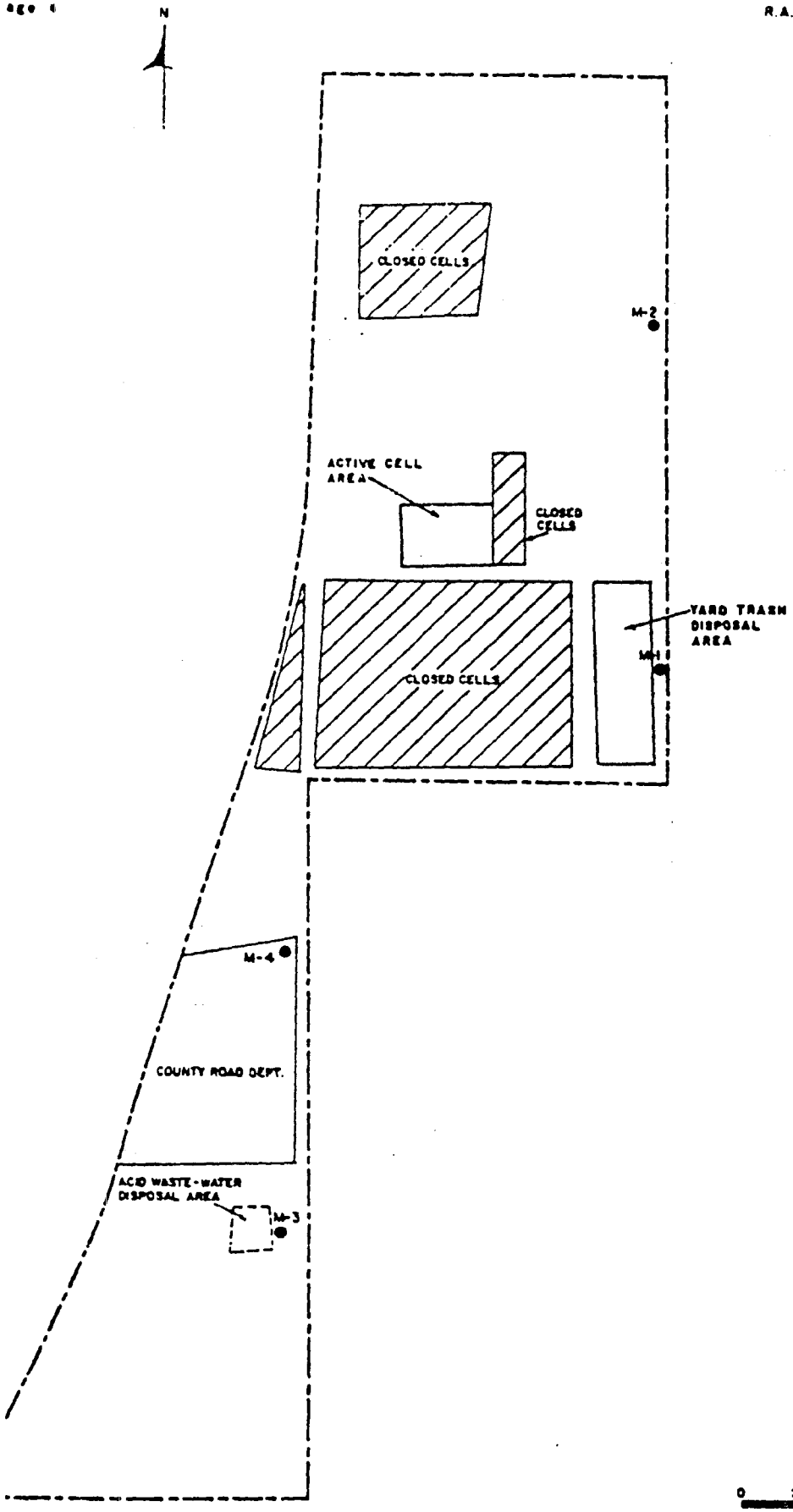

Figure 2. Madison County Central Landfill