

Health Assessment for

MIAMI DRUM SERVICES SITE

CERCLIS NO. FLD876027820

DADE COUNTY, FLORIDA

OCTOBER 11, 1983

Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

DEPARTMENT OF HEALTH AND HUMAN SERVICES

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Remedial Investigation for Miami Drum Services Site (MDSS) Florida

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Through: Mr. Chester L. Tate, Jr. _____

As per a September 29, 1983 request from Mr. Tate, I have reviewed the materials submitted on the MDSS and the Biscayne Aquifer. While this material came to us as a single review package, it was in reality two separate projects and we have treated them as such.

Biscayne Aquifer

Due to time constraints, I have made only a few general comments about the Draft Report Biscayne Aquifer/Dade County Volumes I and II. This report requires a comprehensive review of the potential health effects and hazards associated with the use of the Biscayne Aquifer. The regional impact of contamination upon this sole source aquifer needs to be carefully assessed and considered with regard to the significance of the exposure pathway, the imminency of the health hazard and the need for immediate and/or long-term remedial action because of the danger or potential danger to human health. While additional review time is needed to make a complete regional impact appraisal of the potential health effects, the following preliminary comments are offered. A more complete review will be undertaken if requested by SIG.

According to the Biscayne Aquifer Report (pp. ES-5 and B5-3), the Phase II data will be evaluated by the CDC for human health effects. It appears that our Superfund Implementation Group has already made an evaluation and has offered alternative ground water criteria that EPA may want to consider instead of those now in use. These are described in Ms. Jones' August 18, 1983 memorandum and on pages 4-25 to 4-30 in Volume I of the Biscayne Aquifer Report. While the criteria levels in these items are clearly footnoted, it concerns me that a clear distinction is not made between cancer risk levels and recommended criteria or guidelines. EPA has declared that their water quality criteria cancer risk levels (November 28, 1980, Federal Register) were provided for information purposes only and do not represent an agency judgment on an "acceptable" risk level. In view of the recommended and possibly unattainable water quality criteria of zero for known or suspected carcinogens, we must be careful not to advocate or endorse these cancer risk levels as acceptable levels or criteria in ground water unless we have the appropriate supportive materials for justification.

With regard to the alternative criteria values that have been provided and endorsed in Ms. Jones' memorandum, I have concern that these values are already being identified as "Centers for Disease Control (CDC) Recommended Criteria" (page 4-30, Volume I) for appraising the health effects of contaminated water/resources. The "recommended criteria" have not been approved, or subjected to a peer review by the Chronic Diseases Division. Consideration needs to be given to the national ramifications of endorsing certain criteria for classifying ground water contamination. Proving the existence of ground water contamination and developing criteria for the "classification" of groundwater contamination would appear to be the responsibility of EPA or the U.S. Geological Survey, and not CDC. While ground water contamination can be harmful to human welfare and health, its existence is not dependent upon certain levels that may or may not be protective of human welfare or human health.

Miami Drum Services Site

Based on the MDSS report, the ground water investigation revealed no significant concentrations of metals or pesticides in the ground water (even though several chlorinated pesticides and herbicides were found) at the site. However, a number of volatile organic compounds were found at the MDSS in the ground water at levels that appear significant to human health. Maximum levels for vinyl chloride (38 ug/L), 1, 1-dichloroethene (7.7 ug/L), benzene (8 ug/L) and chloroform (13 ug/L) exceed both (1) EPA's Final Ambient Water Quality Criteria of zero for maximum protection of human health and (2) the cancer risk level of each compound for one additional case of cancer per 100,000 population. The maximum levels given for 1, 1-dichloroethene and benzene do not exceed EPA's Health Advisory for any one-day, ten-day or longer term level of exposure. No Final Water Quality Criteria, guidelines, or standards exist for 1, 1 dichloroethane (maximum level found, 92 ug/L) and chloroethane (maximum level found, 136 ug/L).

According to the MDSS report, the groundwater investigation could not identify any specific contamination plumes or the source of the contamination present in the three clusters of wells drilled, sampled and analyzed by the U.S. Geological Survey. The contamination found was similar to the results of the Biscayne Aquifer Study pertaining to widespread toxic contamination of the ground water in Northwest Dade County. With regard to the presumed benefits of the initial remedial actions by Dade County for mitigating metal and pesticide contamination (pp 6-16 and 6-19), the MDSS report needs to address whether the overall design of the ground water investigation could acceptably detect the presence or absence of a contamination plume(s) from the MDSS. For example, were the number and depth of the well clusters sufficient to identify and/or delineate the boundaries of a contamination plume? The sampling scheme and results should describe the influencing factors of (1) any groundwater flow reversals due to excessive rainfall and higher canal water levels, (2) pumping at Medley Well Field, and (3) pumping at the Miami Springs Preston Well Field or other fields at the time of sampling. While a cone of depression of about three meters deep can be created around the Miami Springs Preston Well Field with a withdrawal rate of 150 mgd and it is reported that MDSS can lie within this cone of depression, did this cone of depression exist during the period of sampling? Without clarification of the above factors in the MDSS Report, any interpretation of the groundwater sampling data and appraisal of the initial remedial measures is limited.

In addition, a statistical analysis should be made of the values found at the MDSS site and/or upgradient wells versus the downgradient wells to show that there most likely has been a significant increase in a specific parameter or that there has not been a change in a specific parameter. This method of analysis is described in the July 26, 1982 Federal Register, Vol. 47, No. 143, p. 32367. If the evaluation is properly designed, it can be useful (with sufficient data at each well) in assessing the significance of possible ground water contamination from a given source or ground water flow direction.

With the exception of ground water data, no other environmental information is provided about the site. Local surface water pathways, including water, soil, sediment and possibly aquatic organisms (benthos) should also be evaluated since many of the metals and pesticide compounds present on the site are more likely to be transported by this pathway than by ground water. Careful study and examination of these local pathways may help identify some of the ground water contamination sources since surface waters can provide valuable recharge to ground waters during drought conditions. Soil levels onsite will also help determine the effectiveness of the initial remedial measures.

Summary

In conclusion, interim remedial measures of treating potable waters to reduce adverse organic contamination may be appropriate in certain cases if justified by ground water data. However, this remedial measure is not preventative and therefore, it is important that every effort be taken to seek out and eliminate possible sources of contamination that may continue to degrade the ground water resources. Despite the widespread contamination present in the Biscayne Aquifer, the methodologies used to evaluate the ground water contamination problem in the Biscayne Aquifer appear to result in only a very general appraisal of the problem; and therefore needs to be reevaluated and modified to assess the significance of the health effects in the contaminated areas from a variety of organic compounds with different health risks and to better identify and eliminate the individual sources of contamination.

Please refer to my November 16, 1982 report from Dr. Lisella to Ms. Georgi Jones for information about our previous involvement with the Madley Wellfield and the Miami Drum Services Site. A copy is attached.



Robert L. Kay, Jr.

Attachment

cc:
Dr. Lisella
Dr. Falk

CDC:CEH:CDD:SSB:RKay:tp:10/13/83/Doc#2461S