



minnesota department of health

717 s.e. delaware st. minneapolis 55440

(612) 296-5221

Handwritten initials: LLD, SBF, DW, JB, JS

June 24, 1980

RECEIVED

JUL 08 1980

MINN. POLLUTION CONTROL AGENCY

SW-57

Mr. Charles Weaver, Chairman  
Metropolitan Council  
Metro Square Building, Room 300  
7th and Robert Streets  
St. Paul, Minnesota 55101

Dear Mr. Weaver,

The staff of the Division of Environmental Health has reviewed the Draft Environmental Impact Statement for the Freeway Sanitary Landfill Expansion (dated June 4, 1980) and has proposed the addition of the following information that we feel will make the Statement complete.

The vertical expansion of the landfill will increase the duration of leachate production (p. 118). It is highly probable that this will also increase leachate concentration as the contact time of water percolating through the landfill is increased. Once field capacity is achieved, leachate production is estimated to be 3 inches/year, assuming the only source of water is derived from infiltration of precipitation falling directly on the landfill surface. Based on information included in the Draft Environmental Impact Statement, sections of the Freeway Landfill are usually beneath the watertable. Groundwater elevations range from 698 to 703 feet (p. 52), while the landfill bottom is at 695-700 feet. In addition, high river stages will elevate the local watertable, resulting in increased "submergence" of the landfill below the watertable. This is particularly critical when one realizes the river stage for a 10-year flood is 708.1 feet and the highest recorded flood stage is 718.6 feet (1965). Although these points are mentioned in the Draft Environmental Impact Statement, no comments are offered assessing the potential impact of submergence. From the above information, it would appear that leachate production may well exceed the 3 inch/year minimum due to normally high groundwater levels aggravated by flooding events.

The Draft Environmental Impact Statement indicates no threat to the nine Burnsville municipal wells located at least 3200 feet to the southeast. These wells are cased to the Jordan Sandstone. This contention is initially justified on the basis that regional groundwater flow is towards the Minnesota River (to the north) and that dewatering operations at the Kraemer Quarry intercepts any leachate migration to the south. On page 53, it states "The quarry pumping operation serves as a collector for all water percolating from the landfill area into the bedrock formation." The quarry is apparently

3020246

pulling water from the southern 400 feet of the landfill (p. 52), indicating the reversal of groundwater flow in the landfill site due to the quarry dewatering. Although the quarry should be an effective barrier to minimize the threat to the Burnsville wells, when the quarry eventually ceases operations, this barrier is removed. Although the nine municipal wells are all Jordan wells, the Jordan Sandstone is hydraulically continuous with the Shakopee-Onecta Dolomite (Prairie du Chien). The municipal wells are high capacity wells and drawdowns in the Prairie du Chien - Jordan system during heavy pumping periods is sufficient to cause groundwater flow reversal. This condition was identified in a report prepared by Bruce A. Liesch Associates, Inc., for the City of Burnsville (5/22/78).

Recognizing this serious threat, the City of Burnsville has installed two monitoring wells (one in the Jordan Sandstone, one in the Shakopee Dolomite) between the Freeway Landfill and the city's well field on Cliff Road. These wells are located approximately 1000 feet north of the intersection of River Ridge Boulevard and Cliff Road.

The City of Burnsville has also retained a consultant (Bruce A. Liesch Associates, Inc.) to conduct a hydrogeologic and geochemical study of the Prairie du Chien - Jordan system to more specifically define those conditions governing groundwater flow reversal and the potential impact of the Freeway Landfill. This program involves monitoring water levels in all municipal and observation wells, sampling biweekly for total organic carbon, iron, ammonia, bacteria, chlorides, pH, specific conductivity, and nitrates/nitrites, and detailing the bedrock geology. A preliminary report should be available in November, 1980. The Department of Health has required the City of Burnsville to install the two monitoring wells and to implement the hydrogeologic investigation before any more wells could be approved for the Cliff Road well field. The City anticipates doubling the number of wells by 1990.

X  
Realizing that leachate may migrate to the south due to quarry dewatering, and that the Burnsville municipal well field may draw leachate further south, it is strongly recommended that monitoring wells be located east and south of the landfill to detect any leachate migration that may occur in these directions and to assess the extent and magnitude of leachate spread. Of the five monitoring wells at the landfill, four are located north of the landfill and one is located within the landfill. In order to adequately assess the migration of leachate, the current monitoring effort is not sufficient, particularly when groundwater degradation by leachate underneath the landfill is known (p. 138).

We also have concerns about possible leachate migration to the south and east of the site. A well sample collected from a well serving the Corner House Restaurant (12020 Highway 35W) located southeast of the landfill (now the site of the Volkswagen Dealership) contained elevated levels of TDS (870 mg/l), chloride (180 mg/l), sulfates (67 mg/l), and specific conductivity (1200 mg/l). This well was abandoned in May 1976. Likewise, the U.S. Salt and Freeway Landfill domestic wells contain elevated levels of alkalinity, hardness, and sulfates.

This is the  
to  
McGowan's  
old dump  
east  
of 35W

In summary, the proposed vertical expansion of the Freeway Landfill will increase both the concentration and duration of leachate production. Current dewatering operations at the Kraemer Quarry appear to draw leachate towards the south and intercept the leachate. Once dewatering ceases, leachate may be drawn towards the Burnsville municipal well field during periods of high demand, threatening that supply.

Sincerely,

Roger L. DeRoos, Ph.D., Director  
Division of Environmental Health

RDD:plb

cc/Dale Wikre, NPCA  
Environmental Quality Board

cc:Gene Anderson, OCH  
Bruce Liesch, BAL Associates  
cc:Laura Gatman, HDH  
City of Burnsville

3020244