RECEIVED
SEP 26 1968
DIVISION OF SANITARY ENGINEERING
ILLINOIS DEPT. OF PUBLIC HEALTH

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
JOHN C. WATSON, DIRECTOR, SPRINGFIELD
BOARD OF NATURAL RESOURCES AND CONSERVATION
CHAIRMAN - - - JOHN C. WATSON
GEOLOGY - - - LAURENCE L. SLOSS
CHEMISTRY - - - ROGER ADAMS
ENGINEERING - ROBERT H. ANDERSON
BIOLOGY - - - THOMAS PARK
FORESTRY - - CHARLES E. OLMSTED
UNIVERSITY OF ILLINOIS
DEAN WILLIAM L. EVERITT
SOUTHERN ILLINOIS UNIVERSITY
PRESIDENT DELYTE W. MORRIS

ILLINOIS STATE GEOLOGICAL SURVEY

NATURAL RESOURCES BUILDING
URBANA, ILLINOIS 61801

JOHN C. FRYE, CHIEF

115 South Washington Street
Naperville, Illinois 60540
September 24, 1968

Mr. Clarence W. Klassen
Chief Sanitary Engineer
State Public Health Department
Springfield, Illinois

Dear Mr. Klassen:

This is in response to a request by Mr. M. E. Gish for a description of the geologic materials in the vicinity of a proposed solid waste disposal site in the SW$\frac{1}{4}$ of Section 15, T37N,R12E, Cook County, on U. S. Route 45 between 107th and 111th Streets.

We are enclosing two earlier reports by the Geological Survey on this site. The significant geologic factors related to solid waste disposal are:

1) The refuse will be emplaced in an abandoned sand and gravel pit in a deposit which extends south, east, and west of the site for a considerable distance. This sand and gravel is permeable and probably hydrologically continuous with the underlying Silurian dolomite, which is a major aquifer, but according to Mr. Robert Sasman of the State Water Survey, is not heavily pumped in this area.

2) Two ponds are present in the base of the pit and water drains out of these ponds through a ditch in the southeast corner. The water in the ponds is permanent and therefore refuse in the lower parts of the site will be below the top of the zone of saturation.

931836
EPA Region 5 Records Ctr.
300621

3) Dissolved solids moving with the ground water from this site would probably remain near the top of the zone of saturation and discharge into the Calumet Sag Channel, approximately 0.2 miles to the south. These dissolved solids will be attenuated to some degree during their travel.

During the last two years we have investigated the hydrogeology of four landfills in northeastern Illinois. One of these sites, the Elgin Site, is in a hydrogeologic environment similar to that at the proposed site. The Elgin site is described in our progress report to the U. S. Public Health Service.

Very truly yours,

George M. Hughes (per VMC)

George M. Hughes
Associate Geologist
Northeastern Illinois Office
Section of Groundwater Geology
and Geophysical Exploration

enc. 2

Northeast Illinois Office
115 South Washington Street
Naperville, Illinois 60540
May 3, 1965

Mr. Robert deJonge
Chief Sanitary Engineer
Cook County Dept. of Public Health
329 South Wood Street
Chicago 12, Illinois

Dear Mr. deJonge:

This is in response to your request of April 26, 1965 concerning a geologic evaluation of a proposed sanitary landfill operation in the SW¼ Section 15, T37N,R12E, Cook County. The information provided in this report is based on geologic control currently available in our files and in publications dealing with the soils and geology of the area in question. Such information is adequate to provide a general assessment of geologic conditions which are likely to be present, but a precise determination of the character, thickness and depth of materials and water saturation levels at a specific site will usually require a properly conducted boring program. In the event that a boring program would be required, the Illinois State Geological Survey would be glad to make recommendations on the location and depth of bore-holes and in the interpretation of data obtained.

Field investigations were made in this area on April 13, 1965. The site in question is an abandoned sand and gravel pit that has been excavated into the upland north of the Calumet Sag Channel. Exposures at both the southwestern and northwestern corners of the pit were observed. The general sequence in these exposures was that of a thin silty clay till overlying fine to medium-textured gravel overlying cross bedded sands and silts. Some thin bedded silts and clays were present overlying the sand. The gravel appeared to thin in a northerly direction. A driller's description of the

sequence of materials, as encountered in a water well located at the extreme southwest corner of Section 15, is as follows:

Material	Thickness	Depth
Gravel	29	29
Sand	19	48
Gravel	7	55
Clay & gravel	4	59
Gravel	9	68
Limestone		

Water was present in more deeply excavated portions of the pit at the southern and northern ends. These levels were within the permeable sand and gravel and therefore correspond with the levels of ground-water saturation for this area. The direction of ground-water movement in the vicinity of the pit can be expected to be toward the south where it discharges into the Calumet Sag Channel.

On the basis of regional geologic and soils mapping, the surficial materials can be described as consisting of a silty clay loam till at the northern end of the pit and sand and gravel at the extreme southern end of the pit.

Regional subsurface maps in the files of the State Geological Survey indicate that the glacial drift at this site is approximately 80 feet thick. The drift is approximately 20 feet thick at the Calumet Sag Channel as indicated by engineering borings, and thickens rapidly in a northerly direction. The drift overlies the Silurian dolomite aquifer, which in this area is approximately 200 feet thick.

The State Geological Survey has records of 2 wells in Section 15 that produce water from the Silurian dolomite aquifer. Our records are not complete and other wells producing from the glacial drift or Silurian dolomite may exist in the area.

In summary, the glacial drift at this site is approximately 80 feet thick overlying approximately 200 feet of Silurian dolomite. A description of a water well log in the extreme southeastern corner of Section 15 indicates that the drift is comprised of sand and gravel. Regional mapping and field investigations indicate that the sand and gravel is overlain by fine-textured silty clay till materials. Water in the pit is ground water and fluctuation in the level of the ponds will correspond to regional fluctuations in the level of ground-water saturation.

Sincerely,

Ronald A. Landon, Asst. Geologist
Northeast Illinois Office
Section of Ground Water Geology
and Geophysical Exploration

STATE GEOLOGICAL SURVEY DIVISION

JOHN C. FRYE, CHIEF
NATURAL RESOURCES BUILDING
URBANA

Northeast Illinois Field Office
117 South Washington Street
Naperville, Illinois
Aug 1963

Mr. John R. Sheaffer
NIMAPC
72 West Adams
Chicago 3, Illinois

Dear Jack:

This letter is in response to your request for a geologic evaluation of a proposed refuse disposal site located east of route 45, between 107th and 111th streets, in the SW¼ of Section 15, T37N, R13E, Cook County.

This site is located in a sand and gravel pit north of the Calumet Sag Channel on what is probably a high level terrace. The pit covers approximately 40 acres and is 20 to 30 feet in depth. The southern half of the pit contains a small lake, surrounded by aquatic plants and appears permanent. The northern part of the pit also contains water in its lower portions.

The southern portion of the pit contains no good exposures, however, the northern portion showed approximately 10 feet of poorly sorted gravel overlying 10 feet or more of finer textured sandy gravel and silt. Till was visible on the extreme north face of the pit, but this till did not extend an appreciable distance to the south. An unpublished map showing the character of surficial materials in northeastern Illinois compiled by R. B. Ellwood, for the Northeastern Illinois Metropolitan Area Planning Commission described this material as "thin valley train sand and gravel over bedrock" and showed it to extend a considerable distance both to the east and to the west of the site along the Calumet Sag Channel.

Non Responsive

Non Responsive

This well penetrated 55 feet of sand and gravel, 4 feet of clay and gravel, and 9 feet of gravel, before encountering the Silurian dolomite. The water level in this well was 1[illegible] feet in January of 1941, when the well was drilled. Our records in the vicinity of the pit are confined to this one well and drilling would be necessary to confirm the above sequence over the remainder of the site. Both the sand and gravel and the Silurian dolomite are aquifers in this area, and as such, should be protected from pollution.

In summary, the following environmental factors would be considered unfavorable at this site.

a) The pit extends below the level of the local water table, which would permit more or less continuous saturation of refuse and consequent leaching of contaminants.. This environment is particularly hazardous for refuse disposal, (see: "Refuse Disposal Needs and Practices in Northeastern Illinois", Northeastern Illinois Metropolitan Area Planning Commission Technical Report #3, chapter 5) .

b) The site is located in a permeable sand and gravel deposit in direct hydrologic connection with the underlying Silurian dolomite aquifer.

In view of the above environmental factors we would consider that the potential hazard for pollution and contamination of the ground water reservoir resulting from the disposal of waste at this site would be large.

George M. Hughes
Assistant Geologist
Northeast Illinois Field Office
Section of Ground Water Geology
and Geophysical Exploration

cc: Mr. Benn Leland
State Sanitary Water Board

Sorry about this copy but our copy was poor