



# TULLY VALLEY BRINEFIELD MUDBOIL CONNECTION PROJECT

**Project Description:** The purpose of this project is to determine how to reduce the hydraulic head (water level) in the mudboil aquifer where water enters the aquifer system rather than where it discharges at the mudboils. Reducing mudboil activity from the current, nearly-constant rate to that of the early 1900's, which was apparently intermittent, could reduce future long-term costs of managing the mudboils.



**Large Freshwater Sinkhole in the Eastern Brinefield**

**Location:** The location of the project is in the Tully Valley section of the Onondaga Valley – roughly from Otisco Road, south, to Solvay Road at the base of the Tully Moraine.

**Project Sponsor:** The project sponsors are Onondaga County and U.S. Environmental Protection Agency through the auspices of the Onondaga Lake Partnership. The Honeywell Corporation is also assisting in the project by allowing access to their property to carry out this study.

**Current Status:** The project began about one year ago with the assistance of the Central New York Association of Professional Geologists who walked the two brine field areas to note hydrogeologic and physical features within and adjacent to the east and west brine fields. Their work was followed up by a student from St. Lawrence University who studied, under the guidance of the USGS, specific features identified in the brine field walkabouts. An informal report of these activities was used to identify potential options to reduce the infiltration of surface water to ground-water through man-induced pathways (losing streams and sinkholes) and to reduce ground-water infiltration in locations up-gradient of the mudboil area.

Currently the USGS is evaluating the geology and hydrology of the area – documenting fractures in the walls of the valley, adjacent to the brine field, where surface water could be lost to ground water. They are also investigating one stream channel which loses approximately 500 gallons of water per minute from its bedrock channel to coarse sand and gravel deposits and probably to bedrock fractures beneath. The USGS will also perform marine-seismic surveys in a series of sinkholes in both brine fields to determine if they provide a “window” to the ground-water aquifer.



**Bedrock Fracture in Hillside Above Sinkhole**

Concurrently the Onondaga County Soil and Water Conservation District is collecting data near the sinkholes and the losing reach of stream channel to design a series of remedial projects to restore water to streams flowing to Onondaga Creek. Their designs will be evaluated and a number of projects will be proposed and implemented – sealing the losing reach of one stream, pumping water from several sinkholes using wind or solar power. Removal of water from the sinkholes, which are probably connected to the aquifer that supplies the artesian head which drives mudboil activity, might reduce mudboil discharges and restore them to a more seasonal type of activity – much like they are during drought conditions and were over a hundred years ago.