

COMPUTER APPLICATIONS TO SALT SOLUTION  
AND DEPOSITION OF THE MANNVILLE GROUP,  
EDAM, WEST CENTRAL SASKATCHEWAN

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Digital stratigraphy was applied to the Mannville Group  
in the Edam area of west-central Saskatchewan. Strati-

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graphic cross-sections were constructed using well logs, and markers that could be carried with confidence throughout the study area were chosen. There are nine markers within the Mannville sediments, five markers above the Mannville and one for the top of the Paleozoic unconformity that received numeric codes. All available well logs were examined in order to determine lithology, but only electric logs were used to give lithological subdivisions a numeric code, based on relative S.P. deflections.

The Edam area lies near the receding edge of thick beds of halite which comprise the Middle Devonian Prairie Formation. Significant variations in the thickness of the salt beds can be attributed to the solution of the Prairie evaporites. Computer generated structure, isopach and facies maps of different marker horizons have been used to determine the relationship of the solution of the Prairie evaporites to the deposition of the Mannville. Mappable structural and stratigraphic features, resulting from collapse of strata after localized solution of evaporites, include: (1) isolated prominences of salt; (2) subcircular or elongate sinks which appear as anomalies on structure maps for post-evaporite strata; (3) anomalous antiformal and synformal features; (4) anomalous thicks in post-evaporite strata; (5) dependence of ancient drainage patterns on antecedent trends in post-evaporite strata.

The above features can be given a geologic age based on the reasoning that structural trends will generally be younger than the affected salt beds.