



TOTAL DISSOLVED SOLIDS (TDS)

Background
 Groundwater is not pure because it contains dissolved minerals. A chemical analysis of groundwater is required to determine the "quality" of groundwater sampled. Parameters such as hardness and iron concentrations, as well as other constituents such as chloride, sulphate, sodium, calcium and magnesium are measured. The type and amount of these dissolved minerals can affect the usefulness of groundwater. If certain minerals are present in excessive amounts, water quality problems can occur. These include an objectionable taste or colour, laxative effects, excessive hardness, or encrustation and corrosion of the well and components of the distribution system.

The total amount of all constituents is expressed as total dissolved solids (TDS). TDS will vary depending on the route and rate at which groundwater moves through geological deposits. For drinking water, the Canadian Drinking Water Guidelines recommend a TDS of less than 500 mg/L. While higher levels are not necessarily unhealthy, some additional treatment would generally be recommended. In Alberta, TDS levels over 1000 mg/L are considered high.

Current Situation
 For the Grimshaw Aquifer, the amount of total dissolved solids, in submitted groundwater samples, has been calculated for over 180 samples. TDS typically ranges from less than 400 to 600 mg/L, with over 80% of all tests reporting less than 600 mg/L. In general, higher TDS values were noted for wells completed partially or completely in bedrock strata or in the buried valleys that divide the Grimshaw Gravels Aquifer into separate lobes. Reported TDS values are shown on the adjacent figure. This figure includes tests taken both on and off the Grimshaw Gravels Aquifer. TDS concentrations, as identified in the 1995 CAESA farmstead water well survey, are identified with a '(1995)' subscript.

Management Considerations
 The total dissolved solids for groundwater within the Grimshaw Gravels Aquifer is generally considered to be excellent. However, a water analysis is still recommended at sites considered for well development to determine if any type treatment would be required. Areas on the aquifer where elevated levels of TDS occur may be an indication that: the water quality in the aquifer is being influenced by the underlying bedrock deposits or the well is located in an isolated "pocket" of gravel.

Source of Data: Alberta Environmental Protection Groundwater Information Centre Chemistry data file (to March, 1996).

	GRIMSHAW GRAVELS AQUIFER		
	WATER QUALITY MAP: TOTAL DISSOLVED SOLIDS		
Scale AS SHOWN	Date JULY, 1996	PFRA No.	FIGURE B11