

## Provincial Role

A variety of laws and regulations address one or more aspects of the transportation, handling and storage of fuels and other chemicals. These include:

- the federal *Transportation of Dangerous Goods Act (Canada)* and the *Dangerous Goods Transportation Act (Ontario)* which, as the titles imply, specify requirements for the transportation of various products and substances, including flammable and combustible liquids;
- the provincial *Technical Standards and Safety Act, 2000* which came into effect in June 2001, under the Ministry of Consumer and Business Services. It is administered by the privately-run Technical Standards and Safety Authority (TSSA). A fairly complex web of regulations, code adoption documents, codes, and protocols have been issued under the *Act* including:
  - Ontario Regulation 210/01 (Oil and Gas Pipeline Systems) and the Oil and Gas Pipeline Systems Code Adoption Document
  - Ontario Regulation 211/02 (Propane Storage and Handling) and the Propane Code Adoption Document
  - Ontario Regulation 212/01 (Gaseous Fuels) and the Gaseous Fuels Code Adoption Document
  - Ontario Regulation 213/01 (Fuel Oil) and the Fuel Oil Code Adoption Document
  - Ontario Regulation 217/01 (Liquid Fuels), the Liquid Fuels Handling Code Adoption Document, and the Liquid Fuels Handling Code, and
  - the Environmental Management Protocol for Operating Fuel Handling Facilities in Ontario (October 2001).
- Part 4 of the Ontario Fire Code (Ontario Regulation 388/97), issued under the *Fire Protection and Prevention Act, 1997*, which addresses fire safety requirements relevant to flammable and combustible liquids, in particular those used as a feedstock for industrial processes.

For several of the regulations under the *Technical Standards and Safety Act, 2000*, the existing Canadian national (CAN/CSA) standards are adopted in the “code adoption documents” as the rules that will apply in Ontario.

The above regulatory documents generally address how to safely handle and store fuels and chemicals, and how to prevent accidents such as leaks, spills and fires. These documents were not developed with the specific goal of protecting groundwater resources. However, implementation of many of the requirements and precautions outlined in these documents would, indirectly, have the effect of preventing impacts on groundwater. Rules for underground storage tanks are specifically noted in some of the documents as follows:

- under the Fuel Oil regulation, Ontario Regulation 213/01, distributors of fuel oil must provide the TSSA with the address of every fuel oil underground tank to which they supply fuel; the owners must have their underground tanks registered, appropriately upgraded, and inspected as required; rules for removal of underground tanks following permanent closure of a fuel handling facility are also specified;
- the certification requirements for workers who install underground tanks are outlined in Ontario Regulation 216/01, Certification of Petroleum Equipment Mechanics;
- requirements for underground tanks storing flammable and combustible liquids, where the tank capacity exceeds 230 litres, are specified in Part 4 of the Ontario Fire Code; Subsections 4.3.8 to 4.3.11 outline rules for underground tank installation, corrosion prevention, and venting; Subsections 4.3.15 and 4.3.16 address leakage testing and detection; Section 4.10 specifies requirements for the temporary withdrawal of a tank from service, and for permanent removal and disposal of a tank.

### Municipal Regulatory Options

There is an extensive regulatory regime in place related to underground storage tanks, including the provincial legislation and regulations noted above. Therefore, as with other groundwater impact issues, a municipal regulatory option would be to use municipal powers related to development approvals and servicing to ensure that the provincial requirements are being followed within the municipality. For example, municipalities could require proof of proper installation, registration, upgrading or removal of any underground storage tanks as a condition of development approval (i.e. for applications for consent, site plan approvals and subdivision approvals), or as a precondition for hook up to a municipal water system.

### Non-Regulatory Initiatives

The following non-regulatory initiatives could be implemented by municipalities, conservation authorities or interest groups:

- develop a working relationship with the TSSA to assist in the process of identification of underground tank owners and registration of the tanks;
- identify a staff or group member to act as a local education and liaison representative regarding existing requirements, in particular the rules under the *Technical Standards and Safety Act* and the Fire Code;
- provide educational forums on the need for and methods of proper underground storage tank installation, maintenance and removal.

#### **3.2.1.4 Oil and Gas Wells**

##### Issue Definition

Oil and gas exploration and production represent important economic activities in parts of southwestern Ontario, including most areas within the Essex/Chatham-Kent Region. Oil and gas resources are typically found in very deep geological formations laid down during the Cambrian, Mesozoic and more recent periods of the Paleozoic era. The installation of an oil or gas well involves drilling into these deep horizons, which are located much further underground than the layers containing the region's potable groundwater resources. Oil and gas wells therefore extend much deeper underground than water wells, and must be drilled through and beyond the fresh water bearing zones. As a result, oil and gas wells can represent a threat to groundwater quality, since they intersect these aquifers. Numerous instances of shallow groundwater contamination by the oil production processes, whether from oil and gas production or brine disposal, have been reported in southwestern Ontario.

##### Provincial Role

A number of Ontario provincial regulatory documents apply to oil and gas exploration and production including:

- the *Oil, Gas and Salt Resources Act* administered by the Ministry of Natural Resources;
- Ontario Regulation 245/97 titled “Exploration, Drilling and Production”, issued under the *Oil, Gas and Salt Resources Act*;
- R.R.O. 1990, Regulation 341 titled “Deep Well Disposal”, issued under the Environmental Protection Act;
- the *Ontario Energy Board Act, 1998* administered by the Ministry of Energy, and
- Ontario Regulation 210/01 titled “Oil and Gas Pipeline Systems”, issued under the *Technical Standards and Safety Act, 2000*.

The *Oil, Gas and Salt Resources Act* contains provisions related to the requirement to obtain a licence for well activities; the appointment and powers of inspectors - including the power to order a well to be plugged if it is no longer active or is considered a hazard to the public or the environment; and the power of the province to issue drilling and production regulations. Ontario Regulation 245/97 which is issued under the *Act* specifies at the outset that oil and gas well operators must comply with the “Oil, Gas and Salt Resources of Ontario Operating Standards” published by the Ministry of Natural Resources. The regulation also contains details about the scope, fees and expiry of well licences; the spacing requirements for oil and gas wells; the requirements regarding the “pooling” or “unitization” of oil and gas interests; the prescribed amounts for well security trust funds to be used if a well becomes hazardous or is abandoned; the protection of gas storage areas; and the conditions for Ministry release of information obtained from operators.

The *Ontario Energy Board Act, 1998* provides for the appointment of an minimum five-member Ontario Energy Board with responsibilities related to the sale, transmission and conservation of electricity and gas. The Board’s responsibilities related to gas include powers to designate gas storage areas, to approve or fix gas rates, and to appoint a director who can issue gas marketing licences. With respect to gas storage, subsection 38 (1) allows the Board to “authorize a person to inject gas into, store gas in and remove gas from a designated gas storage area....”, while section 37 prohibits the injection of gas for storage into a geological formation unless it is a designated gas storage area. Part VI of the *Act* addresses permission to construct hydrocarbon transmission and distribution lines.

Regulation 341, “Deep Well Disposal”, sets out the rules for the deep well disposal of liquid industrial waste into geological formations, including the standards for the location, maintenance and operation of the deep well disposal sites. Oil field brine from oil and gas drilling and production operations is specifically exempted from this regulation.

Ontario Regulation 210/01 applies to the design, construction, operation, and maintenance of pipelines systems for the transmission and distribution of oil and gas.

As indicated by the selected examples of provincial laws and regulations in the above review, existing rules provide a basis for the safeguarding of groundwater resources from oil and gas well activities. The Province could strengthen its role by improving the funding and staff resources available for field inspections of oil and gas operations.

### Municipal Regulatory Options

The regulatory options for municipalities vis-a-vis oil and gas wells are similar to those mentioned in previous sections and would include the use of municipal powers related to development approvals and servicing to ensure that the provincial requirements are being followed within the municipality.

### Non-Regulatory Initiatives

Non-regulatory initiatives could include the maintenance of at least an ongoing liaison with local Ministry of Natural Resources staff for the exchange of information and maintenance of a data base regarding both old and active oil and gas wells.

## **3.2.2 Use of Nutrients and Chemicals**

### ***3.2.2.1 Land Application and Storage of Nutrients***

#### Issue Definition

Within the Study Area, and across Ontario, nutrients of various kinds are applied to farm lands, fields, and recreation areas such as golf courses in order to improve the productivity of the land and quality of the crops being produced. Land-applied nutrients most often consist of livestock manure, poultry manure or commercial fertilizers, but can also include municipal biosolids, septage, industrial pulp and paper sludge and other residuals. Nutrients can also be generated in the soil as a natural by-product of dead farm animal decomposition.

The use of nutrients for soil fertilization and optimum crop production is a widely accepted practice and is considered an essential component of many agricultural operations, recreational businesses, and residential property owners (urban and rural). When handled properly and applied in reasonable amounts, nutrients do not normally pose a threat to groundwater resources. Water resource management concerns arise when nutrients are improperly handled or stored, applied in excessive amounts, used too close to water bodies, or when a leak or spill occurs. The water resource risks include the potential for both chemical and biologic contamination.

It is important to ensure that practices throughout the Study Area protect water resources from the risks of contamination by land-applied nutrients. It is of particular importance where ground or surface waters are in close proximity to the areas of nutrient application, or when conditions are such that nutrients can move quickly to these water sources.

#### Provincial Role

Bill 81, the *Nutrient Management Act*, was introduced by the Government of Ontario in June 2001; the Act received Royal Assent in June 2002. The stated purpose of the Act is “to provide for the management of materials containing nutrients in ways that will enhance protection of the natural environment and provide a sustainable future for agricultural operations and rural development”. The Act is intended to apply to all land-applied materials including livestock or poultry manure, commercial fertilizer, municipal biosolids, septage, industrial pulp and paper sludge and other residuals. It provides authority for the government to issue regulations governing various aspects of nutrient management including: the collection, storage and transportation of nutrient materials; the need for Nutrient Management Plans (NMPs) for the assessment of soil and crop nutrient needs and optimal application rates and methods; the establishment of an NMP registry; the specification of minimum distance separation requirements for land application and buildings to protect land and water; and the disposal, storage and transportation of dead farm animals.

To begin the process of implementing the Act, the province developed two sets of draft regulations under the Act outlining specific nutrient management requirements. The draft regulations were the subject of an extensive public consultation process which began in August 2002 and included thirty-four information sessions and other stakeholder meetings held over the fall and winter. On March 21, 2003, the Minister of Agriculture and Food announced a number of changes regarding the government’s plans for implementation of regulations under the Act including the following proposals: