

AEE requirements for DWI applications (14/2/13)

(This has been pasted from section 6.1.2 the DRAFT of *Guide to regulating oil and gas exploration activities under the Resource Management Act (Taranaki Regional Council 2012)*).

A detailed AEE is required for any application for consent to discharge waste fluids by DWI. The information presented in the AEE must demonstrate that the proposed activity will not result in any adverse environmental effect that is deemed to be more than minor. Specific examples of the range of information and data that can be required to make this assessment are as follows:

- Specific details of the proposed injection site including well site and well reference names, address, the legal description of property, ownership details, geographical co-ordinates of site and injection well and the location of any nearby water abstraction points;
- A summary section [schematic] showing geologic formations and identifying the impermeable and laterally persistent units [confining layer(s)], any major faults or shear zones, the disposal well path and well perforation intervals;
- The depth to which freshwater extends below the site and the location of the freshwater/saline water interface zone;
- Geophysical logs and interpretation to support geologic data and depth to freshwater/saline water interface zone;
- Details of the proposed injection well including a well engineering completion summary report, including the initial and proposed pressure test programme to show the disposal well will remain secure;
- Consideration of any abandoned wells in the vicinity and their condition;
- The location of the injection zone and associated casing perforations;
- A full and complete list of all contaminants to be disposed of [eg. contaminated storm water, HF fluids and operational products used] in addition to saline produced water containing hydrocarbon residues;
- The maximum expected volumes of materials to be disposed of over the life of the activity, and the modelled radius of influence of the contaminant plume;
- A description of equipment installed on the disposal well used to monitor injection pressure and annular pressure;
- A written procedure that identifies the conditions which would trigger concerns about the integrity of the disposal well or injection zone, and the action to be taken by the consent holder when triggered; and
- Results to show that the water chemistry in the disposal zone is compatible with that of the fluids to be disposed of and any possible adverse geochemistry effects that may arise.

The AEE must as a minimum adequately demonstrate that:

- The geologic formation into which the wastewaters are injected is sufficiently porous and permeable so that the wastewater can enter the rock formation without an excessive build up of pressure;

- The injection zone is overlain by a relatively non-permeable layer of rock which will confine the injected fluids within the intended disposal interval and prevent them from moving vertically toward a freshwater aquifer;
- The site-specific geologic properties of the subsurface around the well offer another safeguard against the movement of injected wastewaters to a freshwater aquifer;
- There are no wells or other artificial pathways between the injection zone and freshwater aquifers through which fluids can travel;
- That the injection well is designed and constructed to prevent the movement of injected waste waters into freshwater aquifers;
- A constant pressure will be maintained in the annular space and will be continuously monitored to verify the injection well's mechanical integrity and proposed operational conditions; and
- All of the materials of which injection wells are made are corrosion-resistant and compatible with the wastewater and the formation rocks and fluids into which they come in contact.

After reviewing the information submitted with the consent application, the Council can request additional information from applicant which is deemed necessary to adequately assess the application. The Council can also set consent conditions that require additional information to be submitted prior to or while the consent is being exercised.