

The protection of potable ground water through a purposive or objective approach to regulation

By Nigel Bankes

Cases Considered:

[ERCB Decision 2009-029, CCS Corporation, Section 40 Review and Variance of Application No. 1515213, Class 1b Waste Disposal Scheme, Well 00/09-01-048-14W5M, Brazeau River, March 24, 2009](#)

There are at least five reasons to read and blog on this decision. First, it is very rare for the ERCB ("the Board") to issue a reasoned decision on an application relating to a disposal well. Others include ERCB D 90-17 and D2002-055. The Board deals with most such decisions administratively. Typically there will be no reasoned decision and the general public will not have a clue that the Board has just approved a proposal to inject oilfield waste or acid gas into a geological formation unless they happen to live within a fairly circumscribed radius of the well. Other well operators are far more likely to receive notification than the general public. Second, the decision deals with a topic of crucial societal importance, the protection of potable groundwater and how to ensure that. Third, the decision contains a very interesting discussion of two different approaches to regulation. One approach (which we will term the prescriptive approach) seeks to set certain prescriptive standards that any project must meet in order to be approved. This approach works on the basis that if the proponent complies with that standard, the desired regulatory objective (e.g. protection of groundwater) will be achieved. The other approach (which we will term the purposive or objective approach) requires the applicant to meet the desired regulatory objective but affords the applicant greater discretion as to how it achieves that objective. Fourth, the decision offers some interesting comments on the interrelationship and respective responsibilities of the ERCB and Alberta Environment. And fifth it is important to look at this decision for what it might tell us about the Board's approach to the regulation of disposal operations associated with carbon capture and storage.

The decision

CCS Corporation ("CCS") applied for approval of a scheme to use an existing well for Class 1b waste disposal as required by the *Oil and Gas Conservation Act*, R.S.A. 2000, c. O-6, s.39(1)(d) ("OGCA"). [For the classification of disposal wells see [ERCB Directive 051](#)]. The well, originally drilled in 1979, was initially used for gas injection as part of a gas cycling scheme. The well was drilled into the Nisku reservoir in an isolated pinnacle reef. It was subsequently

used for production during blowdown operations. Once acquired by CCS in 1999 it was used by CCS as a 1b (produced water\specified oilfield wastes) disposal well for five years before being converted to a Class II water disposal well. The well was considered to be an excellent disposal well since the disposal zone took fluid “on vacuum” and was highly porous and permeable.

CCS applied to the Board in July 2007 to have the well converted back to a 1b disposal well. The Board rejected the application. CCS sought review and variance and the Board agreed to consider the matter, sending the application to Alberta Environment (AENV) for comment. AENV did not support approving the application since the well did not meet current standards and in particular the well lacked cemented casing from the base of groundwater protection (BGWP) to the surface.

CCS acknowledged that the well did not meet these cement casing requirements but it argued that it should still be able to get an approval if it could demonstrate that the groundwater resource might be adequately protected by means other than cement through the full BGWP interval.

The Board accepted that argument. It held that while full cementing would be the normal standard and would apply to new wells it should still be open to an applicant to demonstrate that it can provide equivalent or better protection of non-saline groundwater by other means. This approach had the benefit that it might contribute to meeting other legislative objectives including (at p.6) “good land-use practices, minimizing environmental footprints and public impacts, avoiding other risks due to long-distance trucking of waste, having access to drilled and tested subsurface zones with superior containment properties, and avoiding economic waste.”

In this case: (1) BGWP was set at the default of 600 mKB (KB = kelly bushing, the adapter at the surface that connects to the drillstem, for our purposes simply “the surface”), (2) there was cement casing down to 373 mKB, (3) the intermediate casing was cemented from 1351 mKB down to the injection zone from 3365 mKB to 3395 mKB with a permanent packer set at 3224 mKB for the production casing and well tubing (there is a useful wellbore schematic at p.17).

The Board concluded that there would need to be simultaneous failures of the well tubing, production casing, and intermediate casing for the injected fluid to come into contact with the uncemented interval of the production casing. Given that the Board was prepared to approve the application subject to a number of conditions including: (1) additional tests to ensure the integrity of casing and cementing and to ensure hydraulic isolation, and (2) a monitoring program designed to detect pressure increases or drops which would be an indication of a failure and a cooperative effort with Board staff to develop a compliance assurance program. The Board noted the testing requirements were beyond the norm but were justified in this case because of (at p.9) “the expanding interest in ensuring protection of groundwater resources requires a high level of diligence, especially where the ERCB is reviewing wells not conforming to normal standards and a stricter schedule to reconfirm integrity is necessary.” The same reasoning applied to the monitoring program requirements (at p.11).

The Board also considered the alternatives. One possible alternative was to order remedial cementing. But on this the Board accepted CCS's submission to the effect that there were risks associated with such an operation including damage to the integrity of production casing because of the need for additional perforations as well as the economic risks of a botched job. On the whole, the Board was of the view that a monitoring program would offer better protection and certainly earlier detection of possible problems than a remedial casing program (at p.12). Other alternatives included trucking of waste to another location for injection or the drilling of a new well. The Board was convinced that the alternatives were not appropriate (at p.14):

The Board agrees with CCS's and Keyera's determination of the risks and impacts associated with continued trucking of waste and/or the drilling of new wells. The Board attempts to achieve a balancing of risk factors to meet a series of legislative objectives and the protection of groundwater. Although the protection of groundwater is an essential and important objective, it is not the only objective. The Board's decision also considers the broader perspective of the economic, environmental, and social impacts of trucking waste and/or drilling of new wells to facilitate waste disposal, as well as whether the project provides for the economic, orderly, and efficient development in the public interest of the oil and gas resources of Alberta.

The project may still not go ahead. Section 39(2) of the *OGCA* provides that the Board shall refer any disposal or storage application to the Minister of the Environment for the Minister's approval. Section 39(4) creates an exception where the Minister may direct that particular categories of application may not need to be approved by AENV. Pursuant to that authority the ERCB and Alberta Environment entered into an agreement in April 2007 (attached to [ERCB Bulletin 2007-06](#)) in which the parties agreed that: (1) class 1a applications (oilfield waste) should continue to be referred, and (2) class 1b applications (produced water\specified wastes) need not be referred since the Minister has concluded that the ERCB's "requirements for these applications are protective of groundwater." The conundrum for the applicant and the ERCB in this case was this: could this application take the benefit of that conclusion even through the Board was basing its decision on something other than full cementing protection below BGWP. The applicant argued that it could take the benefit; the Board was unsure and accordingly referred the matter (at p.6):

Accordingly, the Board agrees with CCS and Keyera that regulatory consideration can be given to wells proposed to be converted to disposal that do not have the normal standard of a combination of surface, intermediate, or production casing cemented to surface from a minimum of 25 m below the base of groundwater.

The Board has reviewed the subject application and is of the view that the application falls within the scope and processes contemplated by Bulletin 2007-06 and the MOU. However, there is the potential that Alberta Environment may have a different interpretation of the MOU. Accordingly, the Board determines that Application No. 1553726 can be approved based on its merits and will, in this

case, refer the application to Alberta Environment to decide whether a ministerial approval is required, in accordance with Section 39(2) of the OGCA, or whether the subject application falls within the processes and approvals contemplated by the MOU and a ministerial approval is not needed. If a ministerial approval is not required, the Board will then issue a Waste Disposal Approval to CCS. If Alberta Environment determines that a ministerial approval is required, the Board will await the results of Alberta Environment's review of the application, as outlined under Section 39(2).

Comment

There is much to applaud in this decision. For example, it is good to see an explicit discussion of different methods of regulating (prescriptive/objective) and the commitment to learning by doing and monitoring is admirable. But I also have a few reservations which I shall discuss under the following headings: (1) the Board's procedure, (2) the standard that the applicant must meet, (3) balancing, and (4) the interaction between the ERCB and AENV.

The Board's procedure

In this decision the Board was effectively considering the circumstances under which it would relax its standard requirements. In making its decision the Board heard from the applicant (CCS) and a like-minded intervener (Keyera Energy) (and by the way how did Keyera Energy manage to get intervener standing? See my post [Sauce for the Goose](#)). The Board did not hear from Alberta Environment and it did not hear from a public interest organization interested in ensuring the protection of potable groundwater. I think that this points to a defect in Board procedure. This is the type of policy-making decision that would benefit from hearing a range of potential views and expertise.

The standard that the applicant must meet and relevant principles

The decision stands for the proposition that an applicant in a case like this may satisfy the Board in one of two ways. First, it can comply with the prescriptive approach of the relevant Directive. Second, it can convince the Board that the applicant can achieve as good a level of protection as required by the Directive by alternative means. The burden of proof is clearly on the applicant. But what is the standard of proof? Is it just the balance of probabilities? And precisely what must the applicant prove (compare here the requirements of the US *Safe Drinking Water Act*, 88 Stat. 1660 (1974))? Just as good as or better protection or no risk of contaminating groundwater? Some reference to the precautionary approach or principle would have been welcome here.

Balancing

The Board emphasises both in its introductory comments and in its conclusions (quoted above) that the relevant legislation recognizes that we have multiple objectives in mind when considering energy projects in the province. This is true. But it does not follow that they are all of equal weight and it does not follow that one objective can always be traded off against another

objective. Some objectives and standards are surely so important to everything else that they represent ground rules that cannot be traded. And one such ground rule is surely the protection of potable groundwater. Now I think that the Board's decision seems to offer that protection but that last paragraph seems to be far too cavalier in the manner in which it treats the value of groundwater protection versus, for example, the economic costs of alternative waste disposal.

Interaction between the ERCB and Alberta Environment

AENV and the ERCB protect different resource values and they do so under different legislative mandates. Section 39 of the *OGCA* recognizes these different roles and provides for dual approvals for disposal operations. But the section also provides that AENV can effectively choose to rely on the ERCB with respect to categories of applications and has done so with respect to class 1b disposal operations by means of the MoU discussed above. Given the uncertainty in the application of the MoU on the facts of this case it seems entirely appropriate for the ERCB to defer on the matter and give the last word to AENV. That approach is consistent with precaution (a little redundancy is helpful in protecting core values) and also with the structure of s.39 which clearly intended to leave the last word to the Minister of Environment.