

April 18, 2005

Our File: 33

Jennifer Fisher
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Calgary, Alberta T2P 3G4

VIA FACSIMILE: 1-403-297-7336

Dear Ms. Fisher,

RE: NORM Technical Report Feedback

The Environmental Law Centre (“ELC”) is pleased to provide some brief comments regarding the final draft of the *Technical Report on the Management of Naturally Occurring Radioactive Material (NORM) in Waste* (the “*Technical Report*”).¹

About the Environmental Law Centre

The ELC is a registered charitable organization established in 1982 to provide Albertans with an objective source of information about environmental and natural resources law and policy. The ELC’s mission is to ensure that laws, policies and legal processes protect the environment.

Technical Report Overview

Disposal options for wastes such as Naturally Occurring Radioactive Material (NORM) must be assessed and evaluated using a precautionary approach. A precautionary approach is particularly relevant to NORM disposal due to the very long period of radioactivity of NORM waste and the concurrent long-term risks to environmental and human health.

While the effects of higher levels of radioactivity have been studied and their carcinogenic, mutagenic and teratogenic effects on organisms have been shown, the potential impacts of lower levels of radiation (such as that associated with NORM) are not well known. These knowledge gaps are more significant when one considers the various progeny of these wastes and the differing impacts and interactions they have with organisms (such as the case with radon gas). This lack of scientific certainty dictates that a precautionary approach should be taken in relation to disposal of these wastes.

Use of Descriptive Nomenclature

The use of the NORM acronym is used throughout the *Technical Report* however consideration should be given to changing the terminology to better reflect the nature of the waste being discussed. Indeed, while the radiological property of the produced waste is naturally occurring it

¹ NORM Waste Management Technical Committee, Final Draft, February 2005.

is concentrated through anthropogenic processes. Nomenclature used in other jurisdictions, such as Technology Enhanced Naturally Occurring Radioactive Materials (TENORM), is an appropriate way to distinguish this produced waste from natural radioactivity.² For this reason the following references to TENORM refer to what the *Technical Report* has called NORM.

Public Participation Reflecting the Public Interest

The ELC feels it is important to incorporate public participation in processes involving environmental law and policy at the earliest stages possible. The current consultation is certainly a part of this participation process however it is unfortunate that further incorporation of public input and education was not pursued when the Technical Committee was struck.

The fact that the Committee primarily consists of government and industry (that produces the waste) is unfortunate as it not only creates an appearance of bias but it also excludes the public at large from determining the depth of investigation and scientific review undertaken by the Committee.

The issues surrounding radioactive waste disposal, and the long-term health, environmental and financial implications of NORM disposal is an issue that is relevant to all Albertans, today and into the future. The public interest dictates that future public consultations regarding decisions involving NORM disposal be more extensive.

An Assessment of Quantity and Nature of TENORM Waste is Required

The *Technical Report* relies heavily on the standards provided by the *Canadian Guidelines for the Handling of Naturally Occurring Radioactive Waste (Canadian NORM Guidelines, or Guideline)*.³ This in turn relies heavily on recommendations of the International Commission on Radiological Protection. This reliance, while certainly understandable, fails to consider the particular implications for landfill disposal of TENORM waste in Alberta.

When entering into an inquiry of long term storage and disposal of TENORM it is important to assess the relative amount of waste that is being produced, the amount of waste currently on production sites in need of disposal, and likely future production of this waste. An inventory of TENORM production, particularly in the oil and gas sector, is needed.

The ELC supports the first conclusion of the *Technical Report* that immediate action be taken to assess the extent, quantity, and type of TENORM/NORM waste in Alberta.⁴

Prior to landfill disposal being considered, an assessment of the capacity of existing Class I and Class II landfills, and how this relates to the type and quantity of TENORM waste produced, is also required.

² See the Environmental Protection Agency TENORM website at <http://www.epa.gov/radiation/tenorm/index.html>.

³ Health Canada, Canadian NORM Working Group, Federal Provincial Territorial Radiation Protection Committee, first edition, October 2000, p. 23.

⁴ *Supra* note 1, at p.3.

Precaution is Needed where Public and Worker Exposure is Likely

The second conclusion of the *Technical Report* indicates that the *Canadian NORM Guidelines* are appropriate standards for the handling, storage and disposal of TENORM. While the *Canadian NORM Guidelines* discuss disposal standards they fail to adequately outline considerations regarding long-term assessment, monitoring and management of these produced wastes, and the implications of the disposal options on environmental and human health. This is reflected in the third conclusion of the *Technical Report* where it is noted that the *Guideline* does not address NORM disposal options.

In particular, the use of the 0.3 mSv/a standard for public exposure in areas surrounding landfills fails to take a precautionary approach. The *Guideline* sets an unrestricted classification for public exposure to a level less than 0.3mSv/a as the incremental annual dose.⁵ The *Guideline* indicates that above this 0.3 mSv/a level investigation and management actions should be triggered.⁶

The ELC views this as indicative that the 0.3 mSv/a threshold is not sufficiently precautionary in nature. To apply the *Guidelines*, it appears that once this level is exceeded management changes may result. To address these management issues, particularly if there is a significant amount of material onsite, may be both costly and technically difficult (when compared to a smaller amount of TENORM waste on a production site).

It would therefore appear that, if landfill disposal must be considered at all, an appropriate level of acceptable public exposure would be significantly lower than 0.3 mSv/a. This would provide some leeway or assurance that drastic and potentially costly measures to alter management and containment of TENORM waste would not be required. This of course presumes that the *Guideline* investigation and management thresholds would be followed in situations where public exposure exceeded 0.3mSv/a.

Liability Management and Financial Security

The recommendations regarding liability management and financial security provided at page 19 of the *Technical Report* are inadequate. It appears that the *Technical Report* considers liability and security issues to cease upon reclamation.⁷

The report should be revised to reflect a “polluter pays” principle, entailing that the liability or at least a significant portion thereof is borne by the producer of the waste. The question of the amount of the security required, considering the long half-life of these wastes, also needs to be addressed.

This issue is of particular note when the public interest is once again considered. Currently TENORM waste is being created in a manner and to the benefit to private companies, by virtue of the vast amount of exports. The increasing amounts of TENORM waste and the very long-term implications of disposal of this waste should not be borne by Albertans and the implications for long term monitoring and risk are, arguably, not reflected in current royalty regimes.

⁵ *Supra* note 2 at pages 15-17.

⁶ *Ibid.*

⁷ *Supra* note 1 at p. 20

Landfill Disposal should be the Last Option

Disposal options for TENORM that have increased exposure pathways to workers, the public and the environment, such as landfill disposal, should be the last option for TENORM waste. The ELC feels that if landfill disposal of TENORM waste is necessary stringent regulations are required to properly enforce standards that will protect both humans and the environment from unnecessary risks.

As a disposal option, the use of a landfill should be viewed as a temporary solution, with emphasis being given to assessing and arriving at longer-term solutions that reflect risk minimization.

The *Technical Report* recommends that landfills are the last option, only to be used “where no other *practical* or feasible recovery or disposal option is available”(emphasis added)⁸. The ELC views the breadth of interpretation of what is “practical” as too encompassing in relation to the landfill disposal option. Proponents of minimizing costs may easily assert landfills as the only practical option, due in large part to the limited options currently available to them.

Risk Assessment of Existing Landfills and Regulation Review is Required.

The ELC supports the sixth and seventh conclusions of the *Technical Report*.⁹ If landfill disposal is to be considered there must be a thorough risk assessment of Class I and Class II landfills as defined in Alberta waste regulations. Standardized methods for evaluation and assessment of TENORM radionuclide also need to be developed.

We appreciate the opportunity to provide comment on the final draft report on NORM waste management. We are hopeful that as the process moves forward the ability for public input will be further expanded. Please contact the writer with any questions or comments you may have.

Yours truly,

Jason Unger
Staff Counsel

⁸ *Supra* note 1 at p. 47

⁹ *Ibid.* at p.3-4