



**Environment**

Environmental Monitoring & Compliance Division

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August 2, 2011

File Number: 92100-30-064245-R01, Volume 2  
92100-30-064246-R01, Volume 2

Dr Peter Hill,  
President and CEO  
Triangle Petroleum / Elmworth Energy  
1660 Wynkoop Street  
Suite 900  
Denver, Colorado  
USA  
80202

COPY

RE: **Industrial Approvals to Operate:  
#2008-064245 R-01 and #2008-064246 R-01  
Kennetcook KC-1 and KC-2 Sites, Kennetcook, Nova Scotia  
Elmworth Energy**

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Dear Dr Hill,

The above Approvals for activities associated with Oil and Gas, under the Activities Designation Regulations, pursuant to the Nova Scotia Environment Act, expire on February 28, 2012. Present at each of these facilities are inactive well heads and storage of brine within bermed ponds.

The initial application in 2008 for approval to operate the Brine Storage Ponds, indicated the bermed ponds were designed and installed to hold fresh water for development of the wells on site. However during the development of these wells in 2007, a significant quantity of production water was encountered and this was accommodated within the bermed ponds. The application for operation of brine storage ponds was submitted after the ponds had been filled with the produced water.

As approval was given after the produced water was stored within ponds that were intended for the storage of fresh water, Nova Scotia Environment (NSE) considers the initial design of the ponds did not take into account the storage of the high saline content production water. Short term approvals of two years duration were issued on the understanding that storage of brine was temporary until final disposal of the brine could take place. The Approval was renewed in 2011 allowing the storage to occur for a further one year, with the requirement for a plan to be submitted by the end of June 2011, covering final disposal and reclamation of the facility. This plan has not been received.

Elmworth has submitted applications to dispose of the stored brine held in the ponds by deep

well injection into the wells present on each site. You have already been advised by a letter dated May 14, 2011 that a decision regarding the use of deep well injection as a disposal method for produced water is on hold pending completion of a review of hydraulic fracturing (and associated activities). Therefore deep well injection can not be considered as an option for the disposal of the current brine stored at the KC-1 and KC-2 sites.

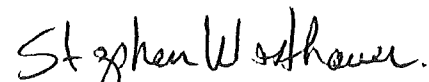
In a site visit on May 5, 2011, a seepage was found to be occurring at the KC-1 site, at the side of the berm. A Directive was issued in May 2011 by NSE to require a plan to prevent any release to the environment. Through the response to the Directive received by NSE, and as a result of further investigation by your consultant, your conclusion is that the seepage is most likely to be arising from the brine pond.

Given that one of the two brine ponds is leaking, that the original intention of the ponds was for the storage of fresh water, and that NSE has not received a plan for final disposal and reclamation of the facility as required by your Approvals, this letter is to advise you that NSE will not grant a further renewal of the existing Approvals beyond the expiry date of February 28, 2012. The contents of the brine ponds present at each facility must be removed by November 1, 2011 and site reclamation completed by February 28, 2012.

Two Directives have been issued and accompany this letter requiring the treatment and/or offsite disposal, and reclamation plan, for each facility, to be submitted as per condition 11(a) of each Approval, by the deadline specified in the Directives. These plans should take into account the need for the removal of the ponds and reclamation of each facility. Information should be included regarding the intentions for the well heads.

Please contact me at (902) 424-7773 if you have any questions.

Regards  
**NOVA SCOTIA ENVIRONMENT**

  
Stephen Westhaver  
District Manager

cc: Karen March, Dillon Consulting Ltd  
Christine Penney, Regional Director, NSE  
Tad Czarnik, Regional Engineer, NSE  
Elaine Marshall, Inspector Specialist, NSE  
Melanie Haggart, Regional Hydrogeologist, NSE  
Kim Doane, Manager, Petroleum Resources, Department of Energy  
Kathleen Johnson, Regional Engineer, NSE



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Process RSN Number: 5344970

**Environment Act**  
**DIRECTIVE**

**COPY**

APPROVAL HOLDER: ELMWORTH ENERGY  
APPROVAL NUMBER: 2008-064245-R01  
ISSUED TO: Elmworth Energy Corporation and Triangle Petroleum Corporation  
INSPECTION DATE: July 14, 2011  
MAILING ADDRESS: 1660 Wynkoop Street, Suite 900 Denver, Colorado, USA 80202  
SITE NAME: Kennetcook #1-Shale Gas  
SITE ADDRESS: Easting - Northing -

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Pursuant to Environment Act, 71(b) the following action(s) must be completed by August 10, 2011:

The Approval Holder shall ensure the level of liquid within the brine pond at Kennetcook KC-1, PID #45361060 is lowered so that it is held below that of the height of the seepage identified in the berm of the brine pond in May 2011 by August 10, 2011.

Pursuant to Environment Act, 118(b) the following action(s) must be completed by August 19, 2011:

The Approval Holder shall submit a Plan as required by condition 11(a) of Approval #2008-064245-R01 for the facility at Kennetcook (KC-1), PID #45361060. The Plan shall include but not be limited to

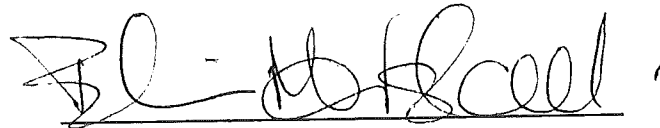
1. Proposed reclamation works to ensure the facility is returned to its natural state by February 28, 2012
2. Proposed works that shall result in the treatment and / or offsite disposal of the brine within the ponds by November 1, 2011, ensuring that at all times, the level of the brine within the pond remains below that of the height of the identified seepage in the berm.
3. Description of any erosion / siltation/ dust prevention measures required as a result of the above proposed works at the facility.
4. If it is the intention to no longer use the well for purposes of gas exploration / production, a well abandonment/closure plan.

The Plan shall be submitted in writing to Nova Scotia Environment, marked for the attention of Elaine Marshall by August 19, 2011.

These measures are the minimum required. Additional measures may be needed and as such you are encouraged to secure the services of a firm/person with sufficient knowledge and experience to install/undertake permanent measures to treat or prevent the release.

Be advised that failing to undertake all measures as above is an offence and may result in further enforcement action. An investigation involving the alleged release of a substance continues and is separate from this requirement to take measures. The satisfactory provision of measures will not influence the investigation outcome.

**Signature of Issuing Inspector:**



This Directive was issued by Elaine Marshall, Inspector Specialist with Nova Scotia Environment, who may be contacted at:

Nova Scotia Environment  
30 Damascus Road, Suite 115  
Bedford, N.S. B4A 0C1  
Phone: (902) 424-7773  
Fax: (902) 424-0597  
<http://www.gov.ns.ca/nse/>

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\* Supporting text where applicable:

*Prohibition s.67 - (1) No person shall knowingly release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations. (2) No person shall release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations. Environment Act 1994-95, c. 1*

*Duty to take remedial measures s.71 - Any person responsible for the release of a substance under this Part shall, at that person's own cost, and as soon as that person knows or ought to have known of the release of a substance into the environment that has caused, is causing or may cause an adverse effect, (a) take all reasonable measures to (i) prevent, reduce and remedy the adverse effects of the substance, and (ii) remove or otherwise dispose of the substance in such a manner as to minimize adverse effects; (b) take any other measures required by an inspector or an administrator; and (c) rehabilitate the environment to a standard prescribed or adopted by the Department. Environment Act 1994-95, c. 1*

*Assistance to inspectors s.118 - The owner or occupier of any place, or any person the inspector reasonably believes is related to or associated with any activity at the place, in respect of which an inspector is exercising powers or carrying out duties pursuant to this Part shall (a) give the inspector all reasonable assistance to enable the inspector to exercise those powers and carry out those duties (b) furnish all information relative to the exercising of those powers and the carrying out of those duties that the inspector may reasonably require. Environment Act, 1994-95, c.1*

*Right of entry and inspection s.119 - For the purpose of the administration of this Act, an inspector, subject to Sections 22 and 120, may, at any reasonable time, (h) require the production of any documents that are required to be kept pursuant to this Act or any other documents that are related to the purpose for which the inspector is exercising any power under clauses (a) to (g). Environment Act, 1994-95, c.1*