

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

APPLICATION FOR A WELL LICENCE

CARVEL FIELD

LOON ENERGY INC.

LSD 3-33-53-2 W5M

Examiner Report 98-8
Application No. 1027655

1 INTRODUCTION

1.1 Application and Intervention

Loon Energy Inc. (Loon), applied on 7 July 1998 to the Alberta Energy and Utilities Board (EUB), pursuant to Section 2.020 of the Oil and Gas Conservation Regulations, for a well licence to drill a directional sweet gas well from a surface location in Legal Subdivision (Lsd) 14, Section 28, Township 53, Range 2, West of the 5th Meridian, to a bottomhole location in Lsd 3 of Section 33, Township 53, Range 2, West of the 5th Meridian. The purpose of the well, LOON CARVEL 3-33-53-2 W5M (3-33 well), would be to obtain gas production from the Eilerslie and Ostracod Formations. During the course of the proceeding, Loon proposed an alternate location located 75 metres (m) south of its original surface location.

The EUB received an objection to the subject well licence application (the Application) from Ms. Jean Aquash, of Lakewood Estates 1 (Lakewood Estates), a country residential subdivision located in the south half of Section 33, north of the proposed location. The objection outlined concerns regarding the need for the well, water quality, and other impacts of industrial development located near country subdivisions, and accordingly, the Board directed, pursuant to Section 29 of the Energy Resources Conservation Act, that a public hearing be held to consider the application. The attached figure shows the proposed well location, alternate location, the subdivision, and certain features of the area.

Additionally, letters of concern were filed by Ms. Irene Stewart and Ms. Michelle Senych, prior to the commencement of the hearing. Neither attended the hearing.

1.2 Hearing

A public hearing was convened on 20 October 1998 in St. Albert before an examiner panel consisting of G. C. Dunn, P.Eng., R. D. Batten, C.M.A., and T. A. Dibus, P.Geol.

Those who appeared at the hearing are listed in the following table.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)

Witnesses

Loon Energy Inc. (Loon)

A. S. Hollingworth, L.L.B.

T. Field, P.Eng.
J. Boissonneault, P.Geol.
L. Smith, P.Eng. of Crest Energy
Consultants Inc.

Ms. Jean Aquash

R. Kruhlak, L.L.B.

J. Aquash

Alberta Energy and Utilities Board staff

S. D. Wilson, B.Sc.
A. E. Wiechert, P.Geol.
D. A. Larder, Board Counsel
T. Tran, P.E.T.

2 ISSUES

The examiners consider the issues with respect to the application to be:

- the need for the well,
- the surface location and impacts of the well, and
- other matters.

3 NEED FOR THE WELL

Loon presented information to substantiate that it obtained petroleum and natural gas leases covering the mineral rights under Section 33-53-2 West of the 5th Meridian. It stated the bottom-hole location was selected based on a geological mapping and reservoir interpretation. Due to this geological interpretation, Loon's applied-for location was determined to be the lowest risk location offsetting the 15-28-53-2 W5M (15-28 well) wellsite and gas processing plant operated by Rigel Energy Corporation (Rigel). Loon interprets the Rigel 15-28 well is producing gas from the same pool as the proposed well, and believes pool drainage is occurring. Loon believes it needs to drill the proposed well in order to obtain its share of production from the Ellerslie and Ostracod sandstones, and to relieve the competitive drainage situation that is occurring.

Ms. Aquash contested the need for the well based on the need to access the resources and the economic benefits therefrom. Ms. Aquash, in maintaining her objection to the well on 17 September 1998, indicated to Mr. Field of Loon that she objected to all developments that disturb the earth. At the hearing, Ms. Aquash reiterated this, and said that Mother Earth sustains and nurtures all life, and therefore maintained her objection to the well. Further, Ms. Aquash, expressed the view that the need to drill for minerals was questionable given the impacts she believed to be happening.

The examiners note Ms. Aquash's love of nature and spiritual attachment to the land and recognize some of her concern is a matter of public policy that is not addressed by this Board but by Government. However, the examiners note that Loon has acquired rights to the minerals underlying Section 33 and believe that the well could benefit the Province of Alberta by proving up additional reserves and supplying additional economic benefit to the mineral owners as well as the province. The examiners agree that there is a need for the well.

4 SURFACE LOCATION AND IMPACTS

Lakewood Estates is a country residential subdivision located in the south half of Section 33. Loon said that it is preferable to drill a vertical well because of the economics, and because it carries the lowest operational risk. However, it was unable to consider this location as it would have placed the drilling operation in the midst of Lakewood Estates subdivision. Loon believed that the impact of drilling a vertical well from the 3-33 surface location would be unacceptable to residents. It also felt that running a pipeline through the subdivision from a successful well at the 3-33 location would be more difficult and expensive. Loon considered and rejected an alternate location in the north half of Section 33 due to increased pipeline costs, and its belief that a surface location on the north side of the subdivision would have an impact on residents equal to a location on the south side of the subdivision. Loon stated either of the 14-28 surface sites is acceptable because it allowed a bottomhole location in the gas target area, placed both wellsites away from the subdivision in a treed area, and minimized surface disturbance. In addition, both sites maintained lateral offsets that were in the acceptable range of 400 m to 500 m.

Loon stated that future production equipment required at the proposed wellsite would be limited to a dehydrator and an underground tank to store water from the dehydrator, but indicated the possibility that neither would be necessary if dehydration could be utilized at the Rigel plant. It stated that production would be transported by pipeline to the Rigel plant in Lsd 15-28. Further, if no dehydration was required, the only surface equipment needed to operate a successful well would be a small control building, which could be painted in earth tones, and the wellhead itself. Loon said an operator would be required to check the well daily, using roads into the area from the south, in conjunction with the Rigel facility and access road.

Ms. Aquash expressed the view that oil and gas companies should not be allowed to drill near residential subdivisions. She raised concerns including water quality, intrusion of an industrial development in close proximity to country residential development, and noise associated with the drilling of the well.

Loon confirmed they were aware of Ms. Aquash's objections to the proposed well and had made repeated efforts to deal with her concerns during negotiations. Ms. Aquash had agreed that a surface location approximately 500 feet (152 m) to the south of the applied-for location was acceptable. She subsequently withdrew her acceptance.

At the hearing, Loon asked the Board to consider an alternate surface location 75 m south of the applied-for location. Loon requested the Board to consider both the applied-for location as well as the alternate. However, Loon confirmed it was prepared to drill the well from a location 75 m south of the applied-for location, thus providing an opportunity of positioning the lease in a deadfall area leaving a larger buffer of trees between the wellsite and the subdivision. Ms. Aquash acknowledged that a location 75 m south of the applied-for site was a common sense location because the use of deadfall area would minimize removal of living trees.

Moving the wellsite a distance of 500 feet (152 m) away from the applied-for location was the first of six conditions Ms. Aquash cited in order to mitigate the effects of the well. Secondly, Loon committed to utilizing an electric drilling rig or a conventional rig with higher-grade mufflers to minimize noise levels during the drilling of the well. A third commitment Loon made was that it would make every reasonable effort to limit routine tripping to daylight hours in order to reduce noise during evening hours. The fourth condition Loon committed to was the testing of Ms. Aquash's water well for rate and quality. Condition five concerned Loon's commitment to providing a name and telephone number of the field contact at the drilling rig during drilling operations. Loon said the sixth condition required Loon to reimburse Ms. Aquash for expenses, including legal expenses to that point in time the conditions were put forward. Loon indicated that even though Ms. Aquash was earlier prepared to withdraw her intervention providing her conditions were met, on 17 September 1998, Ms. Aquash affirmed she had retracted the offer.

The examiners believe that with the exception of the first condition, the conditions originally agreed to by Loon are reasonable and would expect Loon to abide by its commitment to these conditions. The first condition, as set by Ms. Aquash was not agreed to by Loon. The sixth condition dealing with compensation issues, is outside the Board's mandate.

With regard to the first condition, the examiners agree that the placement of the wellsite 75 m to the south of the applied-for site would create the least impact. The additional tree buffer should eliminate or minimize the visibility of the wellsite to the residents of Lakewood Estates. In addition, the examiners agree that this location would be environmentally preferable by utilizing an area of deadfall timber as it reduces the removal of live trees compared to the applied-for location. Since production will be pipelined to the Rigel plant, wellsite facilities will be minimized, and painting the well control building with earth tone colors should effectively camouflage the presence of the proposed well.

The examiners note the evidence regarding both 14-28 surface locations:

- both locations minimize impacts to the community, but the alternate location was preferable,

- both surface locations met reasonable lateral offset criteria of surface to bottomhole location, however the applied-for location was preferable,
- both sites minimized the distance to the Rigel Plant, optimized pipeline costs, and reduced traffic near the subdivision, with the alternate location being slightly closer to the Rigel plant, and
- both surface locations met minimum setback requirements.

The examiners also note Loon's commitment to contract a drilling rig with higher-grade silencers, and to have the engine exhausts pointed away from Lakewood Estates to mitigate noise levels. The examiners agree that this should be effective in minimizing the noise levels during drilling activity to a level within the EUB's noise guidelines.

Loon committed to testing a random sample of water wells in the subdivision for water quality and rate prior to commencing drilling operations and then re-testing the wells within one month after the completion of drilling operations. Loon also made the following points with regard to ground water protection. The surface casing would be set at 240 m, while water wells in the area are typically between 70 m and 90 m in depth. Loon proposed a minimum of six wells to be tested including those of Ms. Aquash's and the Zacharzewski's (residents of Lakewood Estates). Loon indicated while it had estimated that there were 25 water wells in Lakewood Estates, an exact count of the number of wells would be made. It also proposed that random water well selection sampling would take into account proximity to the surface location of the 3-33 well and that testing would be based on an assessment of the aquifers in the area, including Ms. Aquash's well at a depth of approximately 325 feet (99 m).

Ms. Aquash verified that her household uses water from her well and is concerned that Loon did not file any studies to demonstrate that its activities would not adversely affect her water well, and that it may not be possible to remedy contaminated water wells.

The examiners note that Loon plans to set surface casing to a depth of 240 m. The examiner's also note that the base of ground water protection recommended by Alberta Environmental Protection is 191 m. Further, Loon has committed to testing a minimum of six wells, including Ms. Aquash's and the Zacharzewski's well. The examiners believe that Loon's commitment to test area water wells for rate and quality adequately addresses the described concerns about potential water well damage. The examiners would expect Loon to honour this commitment and test the appropriate number of wells to ensure that all aquifers that contribute to Lakewood Estates water supply are included.

Loon stated that the bottomhole location of the proposed 3-33 well was determined with consideration for an on-target location in Section 33 and its geological model of narrow, linear estuarine channel fills and sand bars, and the resultant mapping. Further, it stated that analysis of the geological trend and evaluation of the proximity to the existing Rigel well at 15-28, indicated movement off the trend would reduce the chance of having a successful well.

In developing its drilling program, Loon said it attempted to control potential downhole operational risks associated with directional drilling and subsequent production operations by maintaining a wellbore angle of less than 30 degrees. Its program called for drilling the well vertically to 345 m, and then beginning directional drilling with a build angle of up to five degrees per 30 m, resulting in a final angle of 30 degrees and holding that angle until total depth. This would allow for a surface hole some 400 to 500 m to the south of the bottomhole location. In cross-examination, the intervener suggested that the targeted gas reservoir was not large and questioned why the resource could not be accessed from the Rigel 15-28 well. In response, Loon stated that the reservoir was large enough to produce economically, and further, that typical gas well spacing is a one-section drilling spacing unit. In addition, Loon said that it is not uncommon to see some drainage from one spacing unit to the next, but emphasized that did not imply that all the reserves could be effectively recovered from one well.

The intervener acknowledged that Loon had shown good judgement and was well intentioned in its decision to drill directionally. However, the intervener questioned the tolerable latitude in locating the surface location given Loon's offer to move the location 75 m south. In response Loon indicated that it could deal with an offset of 400 to 500 m operationally, but an offset greater than 600 m would not be feasible for this well. Loon stated that both the applied-for location and the alternate location 75 m south met its directional drilling criteria.

The examiners find both the applied-for location and alternate location acceptable and both meet the criteria for approval. The examiners accept that the location 75 m south falls within the operational tolerances outlined by Loon and agree that given the geological model and mapping, significant movement of the bottomhole location increases the risk of an unsuccessful well. The examiners also note that by choosing to drill directionally, Loon attempted to mitigate resident concerns with regard not only to the applied-for location but also with regard to the additional potential disturbance that a pipeline tie-in would create with a successful well. The examiners agree that while directional drilling is a common practice, it comes with increased operational risks and Loon developed a drilling program that minimized the impacts and provides acceptable risk to the company. In addition, the examiners agree that Loon, in proposing the alternate surface location, is offering a further compromise position that reduces the environmental impacts and maintains the reasonable drilling and production risks.

5 OTHER MATTERS

Loon stated, based on its review of the surrounding wells in the area, that none of the formations penetrated would contain hydrogen sulphide gas (H₂S). It also indicated that there were no lost circulation or over-pressured zones encountered in drilling other wells in the area, and the likelihood of either of these problems is low.

Ms. Aquash was concerned that gas, whether sweet or sour (containing H₂S) could still be combustible, although she did acknowledge there was a difference between the two with respect to public safety.

As the well is expected to encounter sweet gas, the examiners believe that the possibility of a serious event arising from the drilling of the proposed well would be extremely low. Further, they believe the subsequent public safety and environmental impacts during production operations would also be very low.

With regard to public consultation, Loon stated that it had taken more than the required steps to notify parties about the proposed development, and had engaged a land agent to carry out notification on its behalf. It said it had gone beyond the 200 m minimum public notice requirement by contacting people in Lakewood Estates, and had engaged in numerous communications with Ms. Aquash as well as others to try to address their concerns fairly. Loon emphasized that it had demonstrated a willingness to make reasonable accommodation in the public consultation process with regard to a number of factors, including considerable flexibility on different items that were technically reasonable and economically feasible.

In closing argument, counsel for Ms. Aquash outlined a view of the inadequacy of the public consultation process carried out by Loon, pointing out deficiencies in dealing with concerns. The point was raised that Loon had relied on the representative of the Lakewood Estates Community Association to represent all parties, and noted that Ms. Aquash was not a member of the community association.

The examiners believe that although the public consultation program carried out by Loon was adequate in this instance, there was some room for improvement, particularly notification procedures, and follow-up issues management. For example, the examiners note the water well investigation could have been more thorough in its scope. This may have alleviated some anxiety about this matter earlier. As another example, the examiners note that communication may have been enhanced with a formal open house, advertised in the community, with technical experts available to explain the project to the public. The examiners concur with the intervener that there was an undue reliance on the community association representative to notify parties of Lakewood Estates, but also note that Ms. Aquash was able to respond to Loon's project early on in the process. However, the examiners observed that the company did maintain an attitude of earnestly attempting to satisfy resident concerns.

6 RECOMMENDATION

The examiners have carefully considered the evidence and conclude that both the applied-for location and the alternate location 75 m to the south are acceptable. However, the examiners conclude that the alternate location is preferable. The examiners recommend approval of Loon's well licence Application No. 1027655 at the alternate location, subject to confirmation of landowner consent, the submission of a revised survey plan, and honouring commitments made to area residents.

Dated at Calgary, Alberta, on 30 November 1998.

ALBERTA ENERGY AND UTILITIES BOARD

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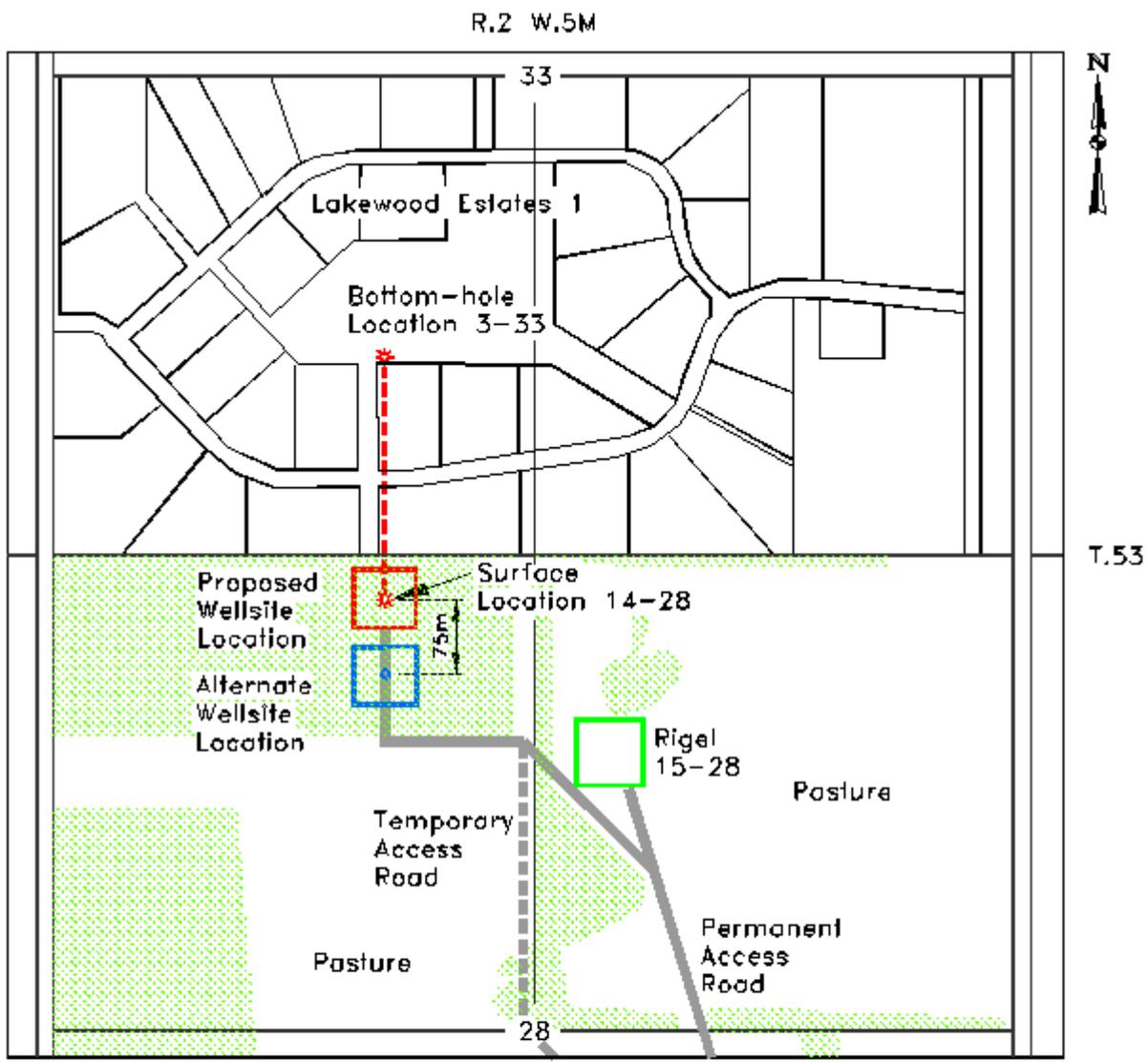
G. C. Dunn, P.Eng.

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T. A. Dibus, P.Geol.



- Legend**
-  Subdivision lots
 -  Bush

CARVEL AREA
APPLICATION NO. 1027655
LOON ENERGY INC.
SCHEMATIC DIAGRAM

Examiner 98-8