

# **ALBERTA ENERGY AND UTILITIES BOARD**

---

**Calgary Alberta**

## **RANGE PETROLEUM CORPORATION APPLICATION FOR A WELL LICENCE**

**LSD 4-35-70-24W5M  
STURGEON LAKE AREA**

**Addendum to Decision 99-18  
Application No. 1019406**

---

### **1 DECISION**

Having carefully considered all of the evidence, the Alberta Energy and Utilities Board (EUB/Board) hereby approves Application No. 1019406 for a well licence for RANGE ET AL STURLS 4-35-70-24 subject to the conditions set out in Attachment 1 and in *Decision 99-18* (Attachment 2).

### **2 BACKGROUND**

On January 26, 1999, the Board held a hearing to consider an application by Range Petroleum Corporation (Range) for a well licence to drill a noncritical level-1 sour oil well from a surface location at 4-34-70-24W5M (the 4-34 surface location) to a bottomhole location at 4-35-70-24W5M (the 4-35 well). At the hearing, the Board considered the following issues with respect to the application: the need for the well; details on the selected bottomhole location and drilling risks; the surface location and public and environmental impacts. While Range did not submit a full project application due to the absence of drilling results, it did commit to an off-site production facility and identified several pipeline options. Range committed to preparing a proper emergency response plan (ERP) prior to drilling the well and to expand the calculated emergency planning zone (EPZ) of 315 metres (m) to include nearby residential developments in that plan. The EPZ was expanded to include the Narrows Subdivision (Narrows) and Boyd's Lakeshore Properties (Boyd's) and to account for numerous day users that could be present in the area. This expansion reflected the high outdoor recreation use in the area, the single egress of the Narrows that traverses the EPZ, and general concerns of residents in Boyd's. As discussed in *Decision 99-18* issued July 5, 1999, the Board indicated that on the basis of the evidence, it believed it would be possible to drill the proposed well safely and with minimal risk subject to the conditions listed in the report. However, the Board deferred its decision on the well licence application pending the preparation of an effective site-specific ERP.

Range developed and presented its ERP to the local community at town hall meetings in Valleyview and Grande Prairie, Alberta, on February 1 and 2, 2001, respectively. A number of community residents were dissatisfied with the ERP and remained opposed to the project. As a result, the Board reopened the hearing for the limited purpose of considering the ERP and associated impacts.

### **3 REOPENING OF THE HEARING**

The ERP and interventions were considered at a public hearing on June 21, 2001, in Grande Prairie, Alberta, before Board Member J. D. Dilay, P.Eng. (Presiding Member) and Acting Board Members R. J. Willard, P.Eng., and M. J. Bruni, Q.C. The Board also received responses

to several undertakings from the applicant on July 10, 2001, as committed to at the hearing. Figure 1 is a map of the area with relevant features represented. 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

---

Range Petroleum Corporation (Range)  
R.B. Brander

R. Zaharko, P.Eng.  
B. W. Goruk, P.Eng.  
R. Brown,  
of Bissett Resource Consultants Ltd.

Cottage Owners and Residents:  
P. Barnett, N. Boivin, R. & S. Bourgeois,  
B. & K. Bustin, G. & G. Cambridge, J. Carlson,  
E. Chychul, Dr. W.S.C. & S. Cox,  
J. & M. Detwiler, W. Disney, D. Ditch, R. Durda,  
G. & C. Evaskevich, A & L. Gagnon,  
P. & M. Garret, J. & J. Gibbs, A & P. Gorman,  
D. & A. Guenette, M. Head, J. & V. Jenner,  
R. & M. Kirscht, R. Lessoway, K. MacDonald,  
G. Marcy, G. & T. Mayne, M. & A. Menzies,  
B. & J. Olanski, J. & L. Pitre, P. & M. Pitre,  
P. & A. Pitre, R. Pitre, K. Rigler,  
W. & L. Rodacker, L. & D. Roy, R. Rutberg,  
L. & B.A. Ryan, C. Scott, C. & L. Stevenson,  
L. & J. Vavrek, L. & L. Wagner, G. Wardill,  
G. & K. Watt, J. & J. Wiebe, M. Wrosek,  
J. & M. Wythe  
(The Interveners)  
A. Hull  
M. Carter

G. Cambridge \*  
K. Rigler \*  
G. Marcy \*  
R. Durda  
K. MacDonald

Alberta Energy and Utilities Board staff  
D. A. Larder, Board Counsel  
L. Wilson-Temple  
S. Etifier  
F. Ziola

---

\* These individuals spoke on behalf of the Cottage Owners, Residents, and other concerned parties.

## 4 EMERGENCY RESPONSE PLAN

### 4.1 Views of the Applicant

Following the issuance of EUB *Decision 99-18* in July 1999, Range contacted the residents of the Narrows and Boyd's, as well as other nearby landowners. In a letter dated August 11, 1999, it emphasized its commitment to developing a site-specific ERP and requested their input into a plan being prepared by emergency response planning specialists it had retained. Range indicated that it also circulated a questionnaire to residents soliciting confidential landowner and resident information for the plan. Unable to secure a suitable drilling rig for the 1999/2000 winter drilling season, Range stated that it then deferred finalizing the ERP until the fall of 2000 so that the plan would remain up to date and communicated that deferral to the community residents in several letters.

In December 2000, Range again sent letters to the community advising the residents that Bissett Resources Consultants (Bissett) would be contacting each of them to obtain or update their personal confidential information for incorporation into the plan. Bissett stated that it did not support mail-outs/letters to collect resident information; door-to-door visits and telephone calls were its preferred method of contact. It confirmed that the public consultation program it undertook on behalf of Range involved contacting over 136 residents to obtain their input into the ERP.

Range stated that it developed its site-specific ERP to deal with the public's issues and concerns for the area. Range said it felt confident that its ERP maximized the protection of the public and set out the framework for an appropriate response in the event of a potential or an actual sour gas release at the 4-35 well. Range noted that although the calculated EPZ equates to only 315 m, it had included both the Narrows and Boyd's, as well as the rural area west of the proposed well site in its modified EPZ, as directed by the Board.

Range stated that it believed the ERP was complete and compliant with relevant requirements and, in fact, exceeded those requirements. It committed to the following safety features and enhancements in response to community concerns:

- to use two stationary monitors, one to be located to the north of the 4-34 surface location just before the Narrows and the other to the southeast at Boyd's; this would be in addition to on-lease monitors;
- to enhance the ignition criteria applied to both stationary monitors from 20 parts per million (ppm) for a 3-minute time-average to 10 ppm for a 3-minute time-weighted average to provide additional safety;
- to investigate adding an alternative temporary egress route in the Narrows and, in response to concerns about potential vandalism, to have it secured by a locked gate and to man it 24 hours per day during sour drilling operations;

- to invite members of the public to the ERP prepenetration meeting located at the remote command post;
- to invite the public to appoint a representative to examine its operations on a weekly basis, subject to well site safety;
- to incur the costs of relocating sensitive residents within the modified EPZ during drilling in the sour zone;
- to have rovers maintain a record of the location of livestock in the area and a record of pets for evacuation purposes;
- to employ two rovers, working alternate 12-hour shifts, to scout the area and identify users on a daily basis;
- to dispatch a mobile air-monitoring unit to the area at the declaration of a level-1 alert; and
- to conduct a communication exercise prior to conducting sour operations.

Range also identified that a helicopter would be on call for additional support but cautioned that due to weather limitations, this would be a supplement to its plan. Range committed to begin immediate ignition procedures at the well if there were an uncontrolled release of sour gas that endangered the public or if any of the ignition criteria set out in the ERP were met. In response to what it believed were community doubts as to whether Range would actually ignite the 4-35 well, it introduced a document to be incorporated into the ERP and to be signed by the president of Range and the ERP manager that specifically set out the responsibilities and the authority to initiate ignition procedures.

Range emphatically stated that protection of the public would be assured by evacuation, shelter, and/or ignition. Bissett emphasized that the philosophy for public protection in the ERP it developed was to remove the people from the hazard, and if this were not possible, then to remove the hazard from the people. In recognizing that there was only one egress road from the community, Range stated that it would ensure the public was evacuated from the area if there were a possible threat of an incident and would not wait for an actual hazard or release of hydrogen sulphide (H<sub>2</sub>S). Range believed that by doing this, the egress road, which traverses the EPZ, would be safe to travel. With respect to an alternative egress route suggested through the golf course, Range stated that it was currently investigating the possibility with affected landowners along the proposed route and that negotiations were ongoing. Range acknowledged that as most properties in the area contained cabins and trailers that would not be airtight, sheltering was an effective public protection method for only a short period of time.

Range stated that it would hold a detailed ERP review meeting with its personnel and contractors prior to drilling into the sour formations to ensure that all involved understood their responsibilities. It did not propose to carry out a full deployment exercise of the response, but would conduct a communications exercise that would ensure that the crew had proper training.

Range explained the three different levels of alert and how it would respond at each level. Range noted that it would have two rovers working 12-hour shifts to scout the area during sour drilling operations, but felt that the decision to increase the number of rovers should depend on the circumstances at the time of an incident. Range indicated that it would rely on the rovers to identify and document the level of resident activity and track outdoor users and other aspects inside the EPZ. It affirmed that it would increase the numbers of rovers commensurate with a higher level of public usage in the area. In response to community concerns about the lack of telephones in the residences and poor cellular phone coverage, Range confirmed that it would not be solely dependent on those utilities to provide for people in the EPZ. Range was adamant that its plan provided an appropriate level of response to contact residents through phone calls, scouting by rovers or other personnel, or by whatever means possible to ensure public safety. In response to questions about people near the lakeshore using the lake, Range committed to using a rover to identify recreational users on the water/ice or docks and providing the appropriate protection or assistance.

Range contacted all government agencies named in its ERP to verify acceptance of their duties and responsibilities as outlined in the *Government of Alberta Support Plan for an Upstream Petroleum Incident*. Range stated that it confirmed that all government agencies named in the plan understood, accepted, and were prepared to enact their respective duties. Range noted that its plan did not specifically include the lake in its modified EPZ, stating that responsibility beyond the planning zone lies with the MD of Greenview (MD). However, Range confirmed that should the MD not be capable of responding, Range would take responsibility and expand its response zone accordingly. Range also said it was fully aware that the government and resident information must be kept up to date and committed to once again ensuring its accuracy prior to conducting drilling operations.

Range acknowledged that due to its limited number of employees it would rely heavily on contract services to fill several response positions outlined in its ERP. Although Range did not have a written contract with its ERP consultant, consistent with the consultant's normal practices, it assured the Board and the residents that the outside expertise would be available for the drilling, completion, and testing phase of the project should there be an incident. As well, Bissett stated that, if necessary, a letter of confirmation could be drawn up to guarantee its commitment to the project.

In response to concerns that Range lacks corporate experience in sour gas operations to fulfill its commitments and the plan, Range noted the considerable experience of its new president and other full-time Range personnel. Range also specifically identified its personnel and the consulting experts who would man certain critical ERP positions and described the extensive ERP experience of other supporting consulting personnel.

Range explained that, consistent with Alberta requirements, it had a corporate plan on file with the EUB and that the corporate ERP would support and work in conjunction with the site-specific ERP. It stated that the corporate plan addressed compensation, insurance, and corporate strategies not addressed in the site-specific ERP. Range also confirmed that additional well-specific insurance coverage of \$15 million would be obtained once a well licence was issued. It stated that this amount reflected an analysis of blowout costs and did not include an assessment of property values.

With respect to the issue of evacuation of the residents, Range stated that it would be conducted in accordance with the levels of alert outlined in the ERP. Range further stated that due to the wide scope of scenarios that could result in the declaration of a level-1 alert, notification to all area residents would not normally be warranted, as there would be no risk to the public at a level-1 alert. Priority notification to sensitive residents would be part of the plan at any level if evacuation difficulties were expected. In response to questions from the interveners, Range discussed what would occur and where residents would go during an evacuation of the area. Range indicated that residents who were requested to evacuate would be checked in at an evacuation centre in Valleyview. The evacuees would be required to check in with Range personnel and then make alternative arrangements for accommodation if necessary. Range confirmed that it would cover reasonable costs associated with evacuation and relocation of the residents. However, Range further stated that it was not aware of the number of residents that would require accommodation in the event of an evacuation, nor was it aware of the number of hotel rooms in the area. Range did not believe that its ERP should be revised to include this level of detail.

Although Range believed that emergency response planning should focus on public protection, it agreed to work with the residents to develop a protocol for animal protection/evacuation.

In response to the interveners' concerns about the potential for causing a forest fire in the event ignition of the well was required, Range believed that the risk was extremely low, especially given that drilling was restricted to the period October 15 to May 1. Range also commented that it would be in contact with Alberta Sustainable Resource Development (Alberta Forestry) should unusual dry conditions exist at the time of drilling and would work with them to reduce any risk.

Range stated that if the well were successful, it would establish the actual H<sub>2</sub>S content and flow data and then work with the community to develop an appropriate ERP for the production phase of the well. Range agreed that the release potential was often reduced following completion and depletion, especially in an oil well.

In summary, Range believed that it had addressed all public concerns and the uniqueness of the area in the site-specific ERP. It commented that the public in the area were cooperative and appreciative of the plan's attention to the distinctive features of the area. Range acknowledged that an unfortunate statement had been made by one of its representatives during one of the town hall meetings that seemed to indicate the company had little regard for the effect the well might have on the community, especially in connection with noise and odours. It apologized to the community and reiterated its commitment to work with the community and to sincerely attempt to address all concerns.

## **4.2 Views of the Intervenors**

The interveners raised a number of general concerns with Range's ERP and maintained they did not feel confident that the plan assured their safety. The interveners believed that the ERP was incomplete, as this was a highly populated area with numerous residents and transient day users. Specific details were not evident to them in the plan to deal with this unique setting. They

believed that the plan had not been adapted to address specific resident concerns and did not adequately address local health sensitivities.

The interveners believed that it would be extremely difficult to carry out an effective evacuation in the area and expressed serious concerns over having to egress or evacuate by a route that traverses the EPZ. Some of the interveners believed that a permanent alternative egress route should be developed, as problems could occur at the well site during both the drilling and production phases. The interveners suggested that Range's commitment to pursue an alternative egress was insufficient and that the Board should require this access to be in place before granting an approval.

The interveners believed that Range's ERP relied heavily on telephone communication and perceived that to be a significant problem, given the low number of residents with telephone service and unreliable or absent cellular phone service. They were dissatisfied with Range's response to several scenarios they had suggested and believed that it pointed to serious flaws in the ERP. Further, the interveners expressed a concern over Range's failure to have a contract in place with its ERP consultant. They interpreted this as further evidence of Range's lack of commitment or ability to provide for the public safety. Without formal contracts, the interveners were not assured that experienced personnel and consultants would be involved, and they had no confidence in Range's ability or available resources to enact the ERP on its own.

Mr. Marcy, a resident of Boyd's, stated that, as a school principal, he was charged with the responsibility of ensuring that emergency procedures at his school were tested on a continuous basis. Mr. Marcy therefore believed that Range should test its plan with an evacuation exercise but agreed that a communication test would be useful. Mr. Marcy believed that two rovers would not be sufficient to assist the public with evacuation and also had concerns about Range's reluctance to provide public protection and response to those who may be using the lake.

Mrs. Rigler, a resident of Boyd's, found the ERP to be unacceptable because she strongly believed that there was no possible way for Range to implement an effective response plan in this area. She said that her neighbours in the Narrows needed a second egress. Given that this is a heavily treed recreational area, Mrs. Rigler expressed concern that ignition of the well could result in a forest fire, which could cause extensive property damage.

The interveners did not accept Range's assurance that the MD or, in fact, any of the government agencies would assist with response actions. They believed that there was a lack of coordination with government agencies but did not provide specific evidence to support this conclusion. Their concerns were not assuaged by Range's confirmation that it had canvassed the agencies and documented their commitment to respond, as they did not believe they could assume response would occur.

The interveners did not understand why the ERP failed to address a production scenario. They understood from articles that the majority of blowouts over the last few years had occurred on producing wells. The interveners noted that most blowouts were preventable and agreed that a sudden blowout was not common. However, they were concerned about their safety and with Range's lack of corporate experience to deal with such an event. The interveners were also dissatisfied with the insurance coverage proposed, as they did not believe it adequate. They did

not provide evidence as to what they believed would be adequate coverage.

Mr. Cambridge, a permanent resident in the Narrows with 28 years of construction experience in the oil industry, was not satisfied with the 315 m EPZ. He expressed concern that the ERP did not address the topography in the area and believed Range was unaware of and unprepared for special local conditions, such as difficulties experienced with travel in the winter due to the heavy snowfall. Although Mr. Cambridge indicated that he appreciated Range's offer of relocation while drilling in the sour zone, he was reluctant to move his family out. Mr. Cambridge stated that the proposed stationary monitors were not located appropriately and should be placed in low-lying areas.

The interveners cited inappropriate statements made to the public by a Range representative at the town hall meeting as further evidence that it had a reduced level of commitment to public concerns and safety.

In summary, the interveners stated the ERP should be redesigned to include the production phase and to address the potential for additional wells. The interveners concluded by stating that they believed that this application was similar in nature to that of the Shell Ferrier application for a well licence dealt with in EUB *Decision 2001-9*. They described comparable features, such as high recreation and diverse use, transient population, and the uniqueness of the area. The interveners believed that the Board should rely on this precedent to deny the 4-35 well and to determine that the ERP was incomplete.

#### **4.3 Views of the Board**

The Board notes the time between *Decision 99-18* in July 1999 and the reopening of the hearing in June 2001. This extended time period has undoubtedly created significant challenges for both Range and the interveners, but it also provided opportunities that were not achieved. The Board was optimistic that the parties might use the time to strengthen their relationship and find creative solutions to the issues faced by both Range and the community. The Board believes that one of the by-products of designing ERPs is building relationships and confidence.

The Board does not believe that Range's initial mail-out in 1999 of an information sheet was the appropriate method for gathering personal information for use in the ERP, nor would it encourage the respectful reciprocal relationship and information-sharing that the Board envisages in that process. That said, the Board is satisfied that the subsequent consultation that occurred in late 2000 was consistent with its expectations. It is also clear to the Board that at least some members of the community remain opposed to the project and unconvinced that any ERP would provide for public safety during the drilling of the 4-35 well. The Board takes note of the negative effect on Range's corporate image and reputation in the community when a senior Range representative made a statement at a town hall meeting that suggested disregard for the community's concerns. The Board is disappointed to hear that this occurred but is hopeful, given the apologies offered by Range's new management at the hearing, that it will continue to work to overcome the reaction to the comment.

The Board believes that the modification of the 315 m calculated EPZ to include the Narrows and Boyd's was reasonable and responsible in this specific case, partly exceeding minimum



expectations. The Board also notes that while Range has identified the presence of the lake in its ERP, there are no specific emergency response procedures for the protection of the recreational users on the lake. However, Range does acknowledge that it must address in its plan anyone who accesses the EPZ through the boat ramp or along the shore and is also prepared to expand its response zone if the responsible government agencies are unable to respond to needs outside the EPZ.

The Board accepts Range's principle that it must remove the public from a hazard or, if it cannot, it must remove the hazard from the public. The Board's concern is that public users on the lake may be subject to different risks if they cannot safely remove themselves from water/ice conditions. While coordination with other agencies will normally address such situations, the Board believes that in this case the recreational use of the lake requires some specific coverage. The Board believes that Range must adopt some additional public protection measures to improve awareness of day users who have not participated in ERP discussions and to build public confidence in its ability to protect public users on the lake. The Board therefore directs that signage be posted along the shore and at the boat launch area to notify the public that may access or otherwise use the planning zone and to have on location equipment to assist in lake evacuation.

The Board acknowledges and supports Range's commitment to conduct a communication exercise to test certain response features of its ERP and to invite a public representative to be present during the test. The Board will assign staff to monitor this exercise, as well as have EUB field staff conduct drilling inspections and make the findings available to the residents. With regard to the H<sub>2</sub>S monitors, the Board believes that the on-site monitors are the first line of public protection and finds that the additional secondary monitors near the two subdivisions are appropriately positioned. In addition, the Board believes that the well-specific insurance coverage proposed by Range in addition to corporate insurance is sufficient. The Board notes Range's commitment to obtain coverage after receiving a well licence.

The Board generally accepts Range's public notification protocols and agrees with Range that early notification of priority and sensitive parties who need additional assistance is critical. For these parties, the Board believes notification should occur at a level-1 alert. The Board finds that notification of everyone at any level-1 alert is not warranted but expects it to occur as proposed at level 2. The Board has reviewed and accepts Range's proposed ignition criteria, noting they are significantly above the requirements for this type of well.

The Board notes the interveners' concerns regarding the appropriate number of rovers required for this area. For effective notification, the public activities must be monitored and given the information and support needed to respond in case of an emergency. The Board believes the use of rovers would be effective in regard to the public's use of this area. The Board is not entirely satisfied with the resources currently allocated. Accordingly, the Board will require two rovers per 12-hour shift and one additional rover per 12-hour shift as an on-site backup to address unknown contingencies, for a total of 6 rovers while drilling in the sour zone. Future additional resources may be needed as local conditions dictate and as explained in the ERP.

The Board notes the interveners' lack of confidence in the responses expected from government agencies identified in the ERP but was not provided with any basis for it. The Board requires

Range to submit its documentation to the EUB's Emergency Response Planning Group, which will confirm that the agencies are prepared to respond.

Due to the amount of time that will have elapsed between when the ERP was developed and when the well may be drilled, Range must review its information to ensure that it is current and accurate. The Board notes Range's commitment in this regard. As such, Range is required to ensure that the residents are revisited within the modified EPZ to confirm that the public information is accurate.

The Board is aware of the interveners' concerns related to the use of consultants and the lack of a formal agreement between Range and its emergency response planning specialists. Use of consultants, experts, professionals, and contract staff is a common industry practice. The Board finds nothing unusual in the arrangement between Range and Bissett that would cause it to intervene in this matter. The Board notes Range's extra step to identify specific key individuals to man critical positions. These individuals are known to the Board and are accepted as experts in their areas. However, the Board does suggest that in this case Range may want to confirm and identify the non-Range staff to the community and provide assurances they will be maintained on the project.

Regarding the interveners' concerns about the possibility of an alternative egress route through the golf course, the Board does not believe that it is necessary to construct a second egress route in order to provide adequate protection of the public. The situation should be able to be managed through early notification and evacuation of those who would need to egress through the EPZ. The Board acknowledges that while egress away from the source is desirable, there are many cases across the province where this does not exist and operators have effectively addressed such matters through other procedures. The Board notes Range's commitments to investigate a temporary egress, since that would address a major concern of some of the public, but the Board is not prepared to make this a condition of approval. Additionally, the Board does not believe that Range's operations significantly increase the risk of forest fire potential in the area. The Board expects that Range will have an ERP in place in the production phase should the well be successful.

The Board notes the various commitments made by Range in this proceeding and expects them to be honoured. The Board emphasizes its expectation that Range continue consulting with the community and discuss any remaining special needs and concerns.

In summary, the Board believes that, subject to the directions in this report, the ERP will be effective and appropriate for the circumstances and hereby grants approval.

Issued at Calgary, Alberta, on July 31, 2001.

**ALBERTA ENERGY AND UTILITIES BOARD**

*[Original signed by]*

J. D. Dilay, P.Eng.  
Presiding Member

*[Original signed by]*

R. J. Willard, P.Eng.  
Acting Board Member

*[Original signed by]*

M. J. Bruni, Q.C.  
Acting Board Member

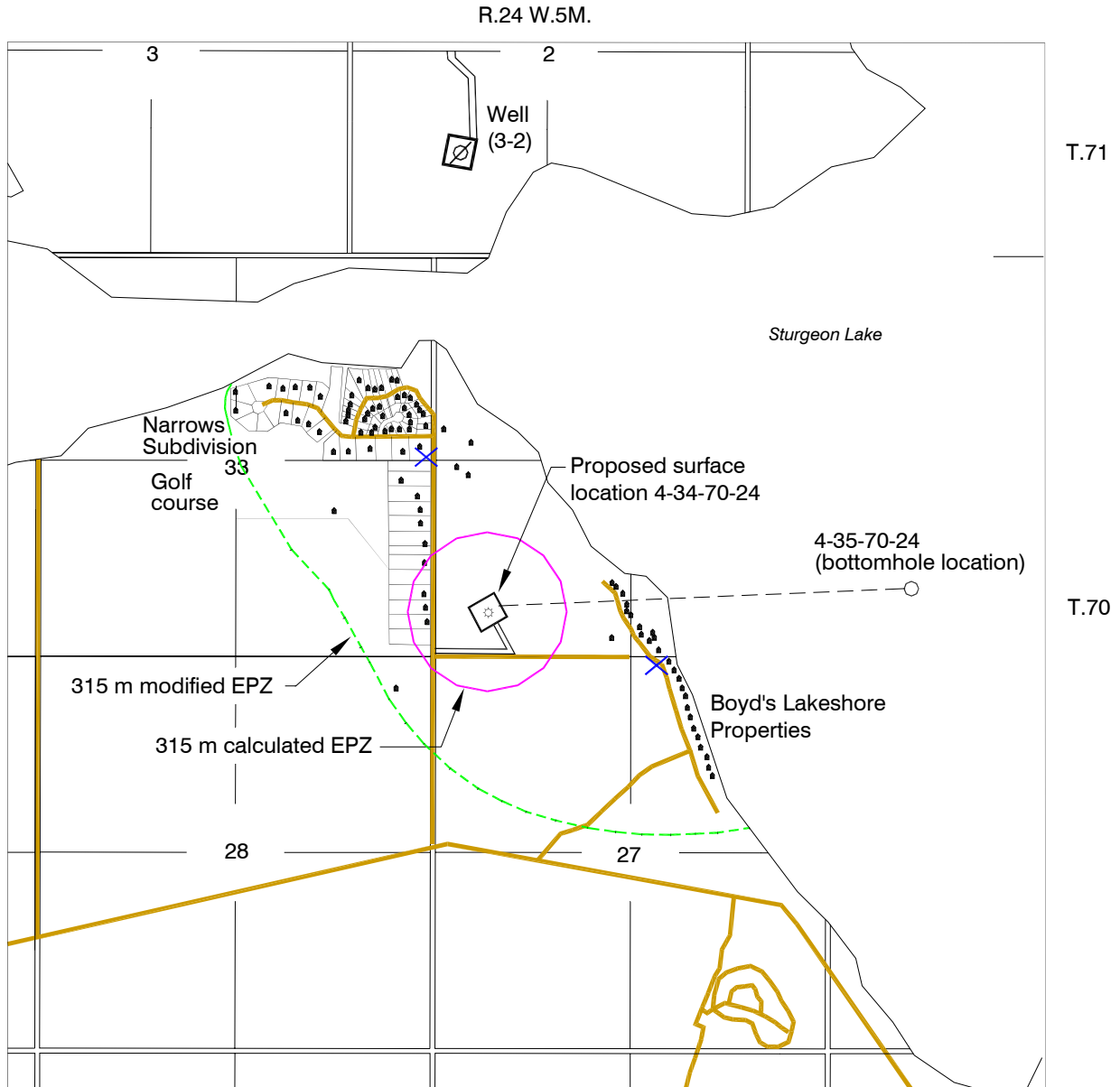


## **ATTACHMENT 1**

### **ADDENDUM TO 99-18 ATTACHMENT 2 Conditions to Well Licence for RANGE ET AL STURLS 4-35-70-24**

- 1) Range must ensure that warning signs are erected along the shoreline of Sturgeon Lake from the Narrows Subdivision to Boyd's Lakeshore Properties at least 48 hours prior to drilling into the sour zone and during all completion operations. In addition, appropriate equipment (having regard for water and weather conditions) must be on site to assist in lake evacuation.
- 2) Range must employ two (2) rovers per 12-hour shift, with one (1) additional rover per 12-hour shift as an on-site backup, for a total of six (6) rovers.
- 3) Range must submit documentation to the EUB confirming that other government agencies are prepared to respond.
- 4) Range must revisit residents within the modified EPZ to confirm that the public information records are accurate.





**Legend**

- ▲ Residences/cabins
- Access roads
- × Stationary air monitor (in addition to monitors located on lease site)

Figure 1  
 Application No. 1019406  
 RANGE PETROLEUM CORPORATION

Addendum to  
 Decision 99-18  
**EUB**





## ATTACHMENT 2

### ALBERTA ENERGY AND UTILITIES BOARD

---

Calgary Alberta

#### RANGE PETROLEUM CORPORATION APPLICATION FOR A WELL LICENCE

Lsd 4-35-70-24W5M  
STURGEON LAKE AREA

Decision 99-18  
Application No. 1019406

---

## 1 DECISION

Having carefully considered the evidence, the Board believes that it would be possible to drill the proposed well safely and with minimal risk, subject to the conditions listed in the Attachment 1. However, in light of the unique setting of the area, including the residences and the configuration of the roads and lakeshore, and the difficulty that would exist in preparing an effective ERP, the Board will defer its decision on the well licence application until an approved ERP is in place.

## 2 INTRODUCTION

### 2.1 Application and Intervention

Range Petroleum Corporation (Range) applied 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 sour oil well from a surface location in Legal Subdivision (Lsd) 4, Section 34, Township 70, Range 24, West of the 5th Meridian, directionally to a bottom-hole location under Sturgeon Lake in Lsd 4-35-70-24W5M (4-35 well). The purpose of the proposed well, Range et al Sturles 4-35-70-24W5M would be to obtain sour oil production from the Leduc Formation. The well would be a Level 1<sup>1</sup> well because it would have a potential maximum hydrogen sulphide release rate of 0.0412 cubic metres (m) per second (m<sup>3</sup>/s).

The EUB received objections to the application from landowners, cattle ranchers, farmers, residents, and cottage owners (the interveners) in the area of the proposed well (see attached Figure 1).

### 2.2 Hearing

The application and intervention were considered at a public hearing on 26 January 1999 in Grande Prairie, Alberta before Board Member J. D. Dilay, P.Eng. (Presiding Member), and Acting Board Members, R. J. Willard, P.Eng., and M. J. Bruni. The Board viewed the proposed surface location, the previous Lsd 3-2 surface location, and the surrounding area prior to the commencement of the hearing.

---

1 Sour wells are designated by levels pursuant to Interim Directive 97-6 depending on their potential maximum H<sub>2</sub>S release rate. Level 1 wells have a potential maximum H<sub>2</sub>S release rate of not more than 0.3 m<sup>3</sup>/s. Level 1 wells may not be located closer than 100 metres from an individual permanent dwelling.

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**

Range Petroleum Corporation (Range)  
R. B. Brander, LLB

J. E. O'Byrne  
B. W. Goruk, P.Eng.  
M.G. Hadley, P.Geol.  
M. J. Mawdsley, P.Geoph.  
C. J. Bellis, P.Eng.  
Frontier Engineering and  
Consulting Ltd.

Cottage Owners and Residents  
(The Interveners)

D. Carter, Q.C.

D. Buyar  
K. Rigler  
R. Lessoway  
S. Bourgeois  
K. Bustin  
B. Durda

Alberta Energy and Utilities Board staff:

S. D. Wilson  
A. Beken, P.Eng., P.Geol.  
D. A. Larder, Board Counsel  
L. J. Morrison  
A. Girgis, P.Eng.

---

### **2.3 Background**

The proposed well would be located on the south shore of “the Narrows” of Sturgeon Lake, approximately between “the Narrows” subdivision and Boyd’s Lakeshore Properties and near the intersection of two dead-end roads accessing these developments (see attached Figure 1).

Sturgeon Lake is located approximately 125 kilometres east of Grande Prairie and approximately 25 kilometres west of Valleyview. People from both communities use the lake for a variety of recreational uses on both a permanent and seasonal basis. Cattle ranching is carried out on the land to the southwest of the proposed wellsite.

Range applied in March 1997 to drill directionally from a surface location in Lsd 4-34 to a bottomhole target at Lsd 6-35 under Sturgeon Lake. Opposition from interveners located on the south shore of “the Narrows” caused Range to reconsider its preferred surface location. Range agreed to attempt to drill directionally from a surface location on the north shore of “the

Narrows” at Lsd 3, Section 2, Township 71, Range 24, West of the 5th Meridian (3-2 surface location). The Board issued the well licence August 1997.

According to Range, the drilling of the well from the Lsd 3-2 surface location was unsuccessful because it experienced hole problems while drilling through the Fernie Formation (Fernie), an unconsolidated shale formation. Problems included: hole collapse in the Fernie, operational problems drilling a new hole, and the parting and loss of a downhole motor. In trying to overcome these operational difficulties, Range plugged back the well with cement to above the Fernie, and side-tracked to the base of the Fernie. In total, Range made three attempts to drill through the Fernie. Range encountered additional problems in trying to case through the Fernie to prevent sloughing, as the casing was stuck at a depth of 1200 m, but it was eventually freed.

After 48 days of drilling time and spending in excess of \$2.9 million on the hole, Range made the decision to abandon the well and release the drilling rig based on its assessment that hole conditions had deteriorated, and the continued operational risks of drilling from Lsd 3-2 were too great. The proponent reapplied in the spring of 1998 for approval to drill at the originally applied-for Lsd 4-34 surface location to a bottomhole location in Lsd 4-35. However, the residents maintained their opposition to the Lsd 4-34 surface location.

## **2.4 Preliminary Matters**

Prior to the commencement of the hearing, the interveners asked the Board to direct the applicant’s former drilling contractor to attend the hearing and testify as to the reasons why the drilling of the well at Lsd 3-2 in 1997 was unsuccessful. The applicant submitted that it would adduce sufficient evidence from its proposed witnesses (which did not include the drilling contractor), to address the issues arising from its current application to drill from the Lsd 4-34 location. The applicant added, that apart from the knowledge gained from the unsuccessful well in evaluating the appropriate drilling program for the current application, an inquiry into the drilling of the Lsd 3-2 well was irrelevant and beyond the scope of the current well licence application.

The Board advised the parties that it would not compel the drilling contractor to attend, but if it were necessary to reconsider the matter at the hearing, it would review its decision.

While the Board has the authority to compel the attendance of persons to a public hearing for the purpose of providing direct evidence, it also has considerable latitude in determining the nature of the evidence that it will admit on any relevant issue before it. The Board is satisfied that the applicant’s witnesses, who gave evidence regarding the 1997 drilling problems, have properly familiarized themselves through direct discussions with the drilling contractor, review of appropriate drilling reports, notes, logs or other data, and discussion among themselves so as to provide the Board with an accurate account of the 1997 drilling problems. The Board notes that the drilling contractor was reporting directly to the applicant. For these reasons, the Board is not disposed to issue a subpoena or notice to attend to the drilling contractor.

## **3 ISSUES**

The Board considers the issues with respect to the application to be:

- the need for the well,
- the need for the bottomhole location at Lsd 4-35 and drilling limitations,
- surface locations and public/environmental impacts, and
- public safety.

## **4 NEED FOR THE WELL**

### **4.1 Views of Range**

Range said that it obtained petroleum and natural gas leases covering the mineral rights under Section 35. Range submitted that, on the basis of its interpretation of the geophysical 3-D seismic and geological data, it identified an anomaly in the Devonian age Leduc (D-3) reef under Sturgeon Lake within the area of its lease holdings and needed to drill the proposed well in order to obtain production. Range expected to encounter a Leduc oil pool with similar characteristics to the Sturgeon Lake South Pool. If the exploratory well were successful, Range indicated that it would consider drilling up to three more wells in the same structure, which could contain possible recoverable oil reserves of 2.4 million cubic metres. In addition to the Leduc primary target for the proposed Lsd 4-35 well, Range considered the Nisku (D-2) Formation as a secondary target with some hydrocarbon potential based on nearby analogue wells and the overall geological setting of this area.

### **4.2 Views of the Interveners**

The interveners did not question Range's right to explore for and develop its mineral rights in Section 35.

### **4.3 Views of the Board**

The Board notes that Range has acquired rights to the minerals under Section 35. The Board believes that a well is required to determine if oil is present, and if so, to enable Range to produce it.

The Board also notes that the subsurface location under Sturgeon Lake is a considerable distance from the nearest shoreline. Resource extraction will require highly technical high-cost drilling and operations assuming an acceptable surface location can be determined given the extensive existing land use. In the following section, the Board will review the technical aspects of accessing the exploration target.

## **5 THE NEED FOR A BOTTOMHOLE LOCATION AT 4-35 AND DRILLING LIMITATIONS**

### **5.1 Views of Range**

Range stated the proposed bottomhole location Lsd 4-35 was selected based on its interpretation of the geological and geophysical data. Range believed that the bottomhole location, which would yield the highest probability of successfully encountering a permeable oil formation, is situated under the lake in Lsd's 4, 5, and 6 of Section 35. Range considered it imperative, for the bottomhole location of this initial exploratory well, to be at Lsd 4-35 to test the most updip portion of the Leduc structural closure. Range stated that this crestal could have up to 25 metres of pay and would drain reserves from the structural attic. Range claimed that, based on its latest geophysical mapping, any movement away from the Lsd 4-35 location may result in reduced reservoir and oil column thickness, increased risk of top and/or lateral seal failure, and reduced chance of encountering the best quality reservoir.

Range stated that it initially considered a bottomhole location at Lsd 6-35-70-24W5M. As a result of its re-evaluation of the seismic data, Range concluded that a Lsd 5-35 or 6-35 location was too high a geological risk and changed the well design to reflect a bottomhole location target in Lsd 4-35.

In planning the previous Lsd 3-2 well, Range submitted that it had reviewed the directional drilling evidence in the area, especially the Amerada Coho Sturls 16-25-70-24W5M well drilled directionally under the lake to a total depth of 4230 m after 132 days.

From this review, Range applied a different mud program for the 3-2 well from that used in previous wells to address the Fernie shale problems, albeit unsuccessfully.

Range developed a different drilling program for the proposed Lsd 4-34 well involving vertical drilling through the shale, setting casing through the shale, and then directionally drilling at a shallow angle. This technique has a reported practical horizontal reach limit of 1800 m. Accordingly, Range submitted that extra drilling time would increase the cost of drilling a longer hole from Lsd 3-2 by about \$1 million and present unacceptable risks of losing the well.

### **5.2 Views of the Interveners**

The interveners expressed concern that the bottomhole location had shifted from Lsd 6-35 to Lsd 4-35 since the drilling of the Lsd 3-2 surface location. They questioned Range's assertion that the Lsd 4-35 bottomhole location was essential to the company's drilling program from the Lsd 4-34 surface location. The interveners observed that the lateral displacement from the Lsd 3-2 or Lsd 4-34 surface location would be similar if the company had not changed its original bottomhole location thus removing the technical risk preference argued by Range. The interveners presented no technical evidence on either geology or drilling limitations.

### **5.3 Views of the Board**

On the basis of the geological and the geophysical models presented by Range, the Board agrees that Range's geological assessment of a possible oil reservoir under the lake in Lsd's 4, 5, and 6 of Section 35 is reasonable. The Board concurs with Range's geological assessment that, to test the most updip portion of the Leduc Formation structural closure of the reservoir as mapped, the bottomhole well location would have to be in Lsd 4-35 to obtain the best chance at the highest quality reservoir. The Board also notes that it is not uncommon for companies to change bottomhole locations with new data, new interpretative techniques, or seismic processing evaluation.

The Board believes that a successful well could be drilled from the Lsd 3-2 surface location, particularly now that the kind of problems that were encountered earlier at the Lsd 3-2 site can be anticipated and prepared for. However, it would likely be more risky and substantially more expensive than a well drilled from Lsd 4-34 to Lsd 4-35. Such additional risk and costs would only be warranted, if the impacts of the proposed well location were too great, and the proposed well could not be drilled from Lsd 4-34. In the following sections of this report, the Board assesses the impacts of the proposed well to determine whether or not they would be acceptable in the public interest.

## **6 SURFACE LOCATIONS AND PUBLIC/ENVIRONMENTAL IMPACTS**

### **6.1 Views of Range**

Range indicated that it had a valid surface lease and landowner consent to drill at the Lsd 4-34 location. Range said that it had chosen the Lsd 4-34 surface site because it allowed a bottomhole location that had economic and operational risk acceptable to Range. It also placed the well site location away from the cottage subdivisions in a treed area, out of sight from the road into the area, on an existing cut-line, to obscure the site as much as possible from the recreational dwellings.

Range stated that it would apply the same commitments it had made for the previous Lsd 3-2 well. The maximum amount of surface equipment required at the proposed wellsite would be limited to a treater, if necessary, and the wellhead and control building. It stated that the produced fluid from the well would be transported by pipeline to either the PetroCanada plant to the north at Lsd 10-29-71-23W5M, or to the Lyse battery to the south at Lsd 5-17-70-23W5M, or that it may build a remote facility of its own. Range said that an operator would be required to check the well twice daily. No drilling would occur in July or August.

Range further committed to have the proposed lease site bermed to contain any possible spills, and that this measure in combination with the distance of the lease from Sturgeon Lake provided sufficient protection against a potential spill affecting the lake. Range indicated that it planned to use water from Sturgeon Lake during the drilling of the well, and that Sturgeon Lake water was used for the drilling at the Lsd 3-2 location. Range expected that the Water Resources Branch of Alberta Environmental Protection would allow a similar arrangement.

Range did not comment on property values at the hearing.

Range stated that it had done a preliminary site assessment. It was aware of two water wells in the vicinity of its proposed drilling activity. Range stated that it was unable to provide details regarding the distance and direction of the wells from the proposed drilling location, the depth of the wells, or the water quality and quantity. Further, Range said that it was unable to comment on the presence of any other wells in the area or what other sources of drinking water were used by local residents. Range committed to complete a water-testing program for all water wells in “the Narrows” and Boyd’s Lakeshore areas for water quality and rate prior to commencing drilling operations. Range had completed a groundwater protection search to determine groundwater conditions in the area, and found the base of useable groundwater to be 350 m in depth. Accordingly, Range stated that it would protect groundwater by drilling the surface hole to a depth of 350 m, and then run surface casing and cement to surface. In addition, Range said that it would drill to the Debolt Formation, set intermediate casing, and cement it to surface.

Range confirmed that it would use a fresh water-based drilling fluid for drilling of the surface hole. Further, it noted that the Lsd 3-2 drill experienced no surface loss of circulation, and that it proposed to use the same procedures for drilling and groundwater protection at the proposed Lsd 4-34 location. Range also indicated that it was not aware of any near-surface lost circulation in the drilling of other wells in the vicinity of Sturgeon Lake.

Range indicated that it would use above ground containment tanks for fluids during drilling, but proposed to have some in-ground pits for overflow containment. It believed that there would be no risk to groundwater from these in-ground pits because they would be lined or the naturally occurring clay soils would be compacted. Range produced a pre-disturbance assessment that provided soil data. It evaluated soils to a maximum depth of 40 centimetres on the proposed lease site and access road, indicating soil textures to be predominantly silty loam to silty clay loam. Range confirmed that further assessment of surficial deposits would be needed to determine their suitability for in-ground pits.

Range stated that it would be using a closed production system to reduce the risk of odours in the area and that flaring would occur only during testing of the well, taking two to four weeks to complete. Range confirmed that it would have qualified personnel on site during drilling and testing, to monitor air quality on-site and away from the site.

Range confirmed that it proposed off-site land spreading for disposal of its drilling materials.

## **6.2 Views of the Interveners**

The interveners stated that the abandonment of the well at the Lsd 3-2 surface location was based on mechanical and technical problems, and that Range should attempt to rectify these problems and re-drill from the Lsd 3-2 surface location. The interveners also believed that Range would face similar technical problems drilling through the Fernie shale at the Lsd 4-34 surface location and that Range only wanted to save money.

The interveners submitted that their three major areas of concern were safety, health, and the impact on the value of their property. The primary concern was the safety of the operation and their inability to leave the area in the event of an emergency. The interveners also raised the

concern of non-compatible industrial activity in a recreational setting citing odour, noise and safety issues from H<sub>2</sub>S emissions and increased traffic. The interveners said that they believed a complete and comprehensive environmental impact study should be undertaken before any drilling is allowed to proceed.

The interveners expressed concern about the potential release of lost circulation drilling material or production and its effect on their water wells, the quality of Sturgeon Lake, the quality of recreational activities at the lake, and the local fishery. The interveners submitted that the water quality was murky during the drilling of the well from Lsd 3-2 although no evidence to show a direct link between the two events was available. The interveners believed that they need a mechanism to report incidents such as this, and have them investigated. The interveners suggested that, if the well were drilled, Range should undertake to sample the baseline water quality of the lake prior to drilling.

The interveners were concerned about the potential for loss in property value, and submitted that the sale of properties had declined to zero during the 1998 summer, compared to previous summer sales. They believed that this was due to the drilling at Lsd 3-2.

The interveners sought some conditions concerning any drilling from either site that included: no production facilities at the site, mud tank usage rather than sump pits, no drilling to occur between 1 May and 1 October, testing of the water wells in the area, testing of the lake water, and, pipeline plans to be in place before the well is approved.

### **6.3 Views of the Board**

The Board notes that considerable planning has occurred to select a site south of “the Narrows” that minimizes potential impacts. The treed location using minimal on-site and closed facilities, H<sub>2</sub>S detectors, and remote production would substantially reduce any significant public or environmental impact. Further safeguards or precautionary actions proposed by Range, concerning surface casing, and water well testing is prudent.

The Board believes some additional safeguards are warranted for this site. There remains a risk that fluids may migrate from an in-ground pit or a bermed site and potentially reach groundwater and the lake. For this reason, above ground pits and a secondary containment around the tanks would be required.

The Board further believes that the Lsd 4-34 surface location warrants minimal flaring even during well testing. While there are no existing pipelines to permit testing through pipe, the Board believes that flaring for test purposes should be limited to determining well characteristics and not prolonged reservoir studies. Unless authorized by the Board, the flare test is not to exceed 10 days. Gathering additional information would await completion of the pipeline and closed production facilities. Given the area’s concentrated summer recreational use, the Board believes that no drilling or production testing should occur between 1 May and 15 October.

With respect to the issue of property values, the Board notes that the Sturgeon Lake area had oil and gas activity, at various areas around the lake, in place prior to the drilling attempt at the Lsd 3-2 surface location. The Board understands the apprehension that some residents have about the



potential impact on property values, however, there was not conclusive evidence to indicate that there would be such an impact.

## **7 PUBLIC SAFETY**

### **7.1 Views of Range**

Range calculated an emergency planning zone (EPZ) of 315 m for the Lsd 4-35 well based on the Leduc analogue reservoirs in the nearby Sturgeon Lake South and Calais Fields. Range stated that it believed that the proposed well is a Level 1 facility based upon EUB guidelines. It believed that the Nisku Formation, if penetrated by the proposed well, would have negligible impact on the well's total H<sub>2</sub>S release rates because of the low probability of encountering a significant Nisku reservoir. The EPZ did not encroach on currently developed property but Range committed to preparing a proper emergency response plan (ERP) prior to drilling the well that included both residential developments.

### **7.2 Views of the Interveners**

The interveners were concerned that, because there was only one road into the lake subdivisions, there would be a safety problem if an accidental release from the well occurred. Further, they were also concerned that there were additional daily recreational users that used the area for a variety of purposes throughout the year that may not be notified in the event of an emergency. The interveners requested that the Board impose a requirement for a professional ERP to be in place before any drilling would occur, although they stated they were firm in their conviction they did not want the well in the vicinity of their recreational dwellings.

### **7.3 Views of the Board**

Residents' concern about their health, well being, and safety when living near sour oil or gas facilities is a paramount consideration of the Board when reviewing these applications. Indeed, the bulk of the Board's regulations, requirements, and guidelines in this area embody the principles of protection of the public's well being and the environment. Strict regulations are in place that governs the drilling and subsequent production of sour gas and oil.

It is the Board's view that the risk of a blowout during drilling or other unplanned release of oil or gas is very low given the drilling, testing, and production criteria that the applicant must meet. For the most critical Level 4 H<sub>2</sub>S wells, such detailed plans must be filed as part of an application. For the other situations including non-critical Level 1 wells, such as the proposed Lsd 4-34 well, it is the Board's normal practice to address the well license first followed by an approval of the ERP. Where residents have raised specific safety concerns, and, the issues and impacts are the subject of a hearing, the Board expects that the applicant would be prepared to address its plans in sufficient detail.

In this particular case, Range has committed to include the unique topographical and subdivisional features in an expanded ERP. However, the Board is concerned that the applicant may not appreciate the specific circumstances associated with "the Narrows" site, the concerns

expressed by the residents, and the importance of such a plan as early as possible. It has provided the Board with a generic ERP. While the Board recognizes that the plan is in draft form, the Board notes that it is seriously deficient in a number of areas including: basic information (number of residents, distance to nearest town, name, and phone number of evacuation centre), detailed response actions with an adequate number of responders, personnel responsibilities, communications plan, air monitoring, coordination of responsibilities with government agencies, and inaccurate mapping. The Board believes that a detailed ERP is required before it can complete an assessment of the impacts of the proposed Lsd 4-34 well.

In the present case, the applicant proposes to drill a Level 1 sour oil well with permanent homes, cottages, and recreational trailers in close proximity to the outer edge of a normally calculated ERP planning zone. The Board was advised that large numbers of the general public also make use of this popular destination for boating, fishing, snowmobiling, and related activities. The salient feature of the location from an emergency response perspective is that there is only one road providing ingress and egress from the area. The road stops at “the Narrows” at a public dock. It traverses parts of the EPZ. For most of the people in the area, whether residents or visitors, the road represents the most feasible means of egress if evacuation is necessary. Even if it is not necessary in terms of public safety, some people may wish to leave the area. There may be other means, such as moving people to the north over “the Narrows” but options were not discussed at the hearing.

Dated at Calgary, Alberta, on 5 July 1999.

## **ALBERTA ENERGY AND UTILITIES BOARD**

J. D. Dilay, P.Eng.  
Presiding Member

M. J. Bruni  
Acting Board Member

R. J. Willard, P.Eng.  
Acting Board Member

## **ATTACHMENT 1 TO DECISION 99-18**

### **Condition 1**

Drilling of the Lsd 4-34 well and associated pipeline activity and facility construction is not to occur during the period 1 May to 15 October.

**Condition 2**

No permanent flaring shall occur at the Lsd 4-34 wellsite.

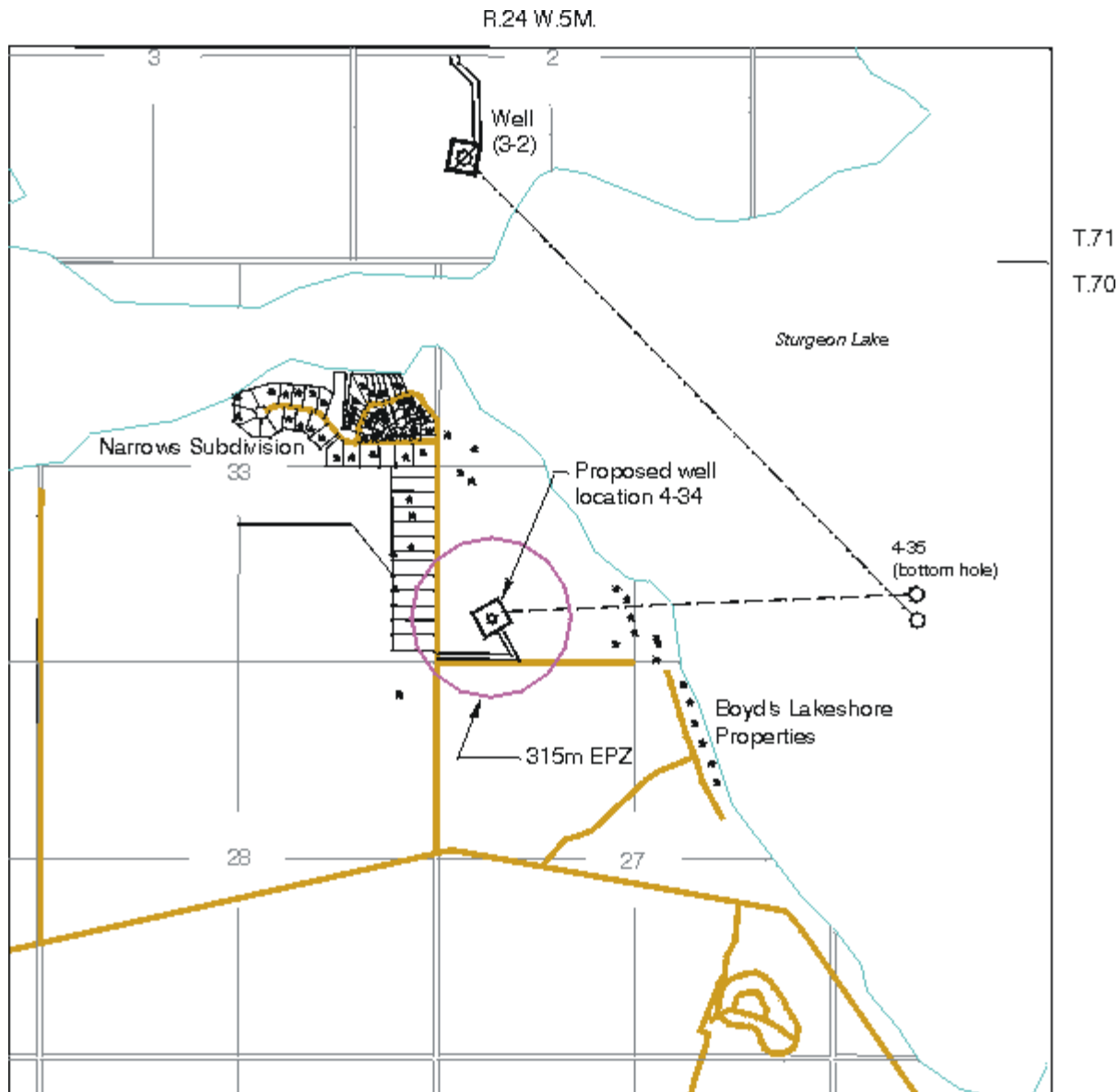
**Condition 3**

Range shall provide the residents with a minimum of 72 hours notice of the planned flaring activities to test the well. Flaring related to testing is not to exceed a period of 10 days unless otherwise approved by the Board.

**Condition 4**

Range must test the appropriate number of water wells for quality and quantity prior to spudding the Lsd 4-34 well.





Legend

- ★ Residences/cabins
- Access roads

Figure 1  
 Application No. 1019406  
 RANGE PETROLEUM CORPORATION  
 Based on Exhibit #7 from Hearing

Decision 99-18  
