

BURLINGTON RESOURCES CANADA ENERGY LTD.

PRODUCTION OPERATIONS EMERGENCY RESPONSE PLAN

Decision 2001-98

GREGG LAKE, HINTON AREA

Application No. 1247815

1 DECISION

Having carefully considered all of the evidence, the Alberta Energy and Utilities Board (EUB/Board) hereby approves Burlington Resources Canada Energy Ltd.'s (Burlington's) site-specific production operations emergency response plan (ERP) at its Gregg Lake project.

2 BACKGROUND

Burlington applied on April 17, 2001, for licences for sour gas pipelines and a compression facility and to resume drilling a horizontal leg at a pre-existing well. Burlington referred to the development as its Gregg Lake project, located within Townships 52 and 53, Ranges 25 and 26, West of the 5th Meridian. Some residents of the nearby Gregg Lake Subdivision raised concerns about and objections to the development as proposed. On May 30, 2001, a document was jointly submitted to the EUB by Burlington and some area residents that indicated they had reached agreement on their outstanding issues. As a result of this agreement and in view of Burlington's commitments to the community, the EUB cancelled a hearing on the project scheduled for June 1, 2001, and issued the appropriate approvals.

One of the commitments in the agreement between Burlington and many community residents provided for continued development and evaluation of the production operations ERP for the project area. As a result of an objection to the ERP received by the EUB, the Board decided to hold a public hearing for the limited purpose of hearing submissions to emergency response planning matters. A map of the project area and relevant features is attached to this report.

3 HEARING

The ERP and interventions were considered at a public hearing on November 23, 2001, in Edmonton, Alberta, before Board Member T. McGee (Presiding Member) and Acting Board Members R. J. Willard, P.Eng., and N. G. Berndtsson, P.Eng. 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

Burlington Resources Canada
Energy Limited (Burlington)
B. K. O’Ferrall, Q.C.

S. Colebrook
J. Bell, P.Eng.
D. Pane
T. Smith
R. Mabley
I. Dowsett,
of RWDI West Inc.

C. Tymstra

C. Tymstra

L. and L. Ramsey

Mr. L. Ramsey

Alberta Energy and Utilities Board staff

G. Bentivegna, Board Counsel
L. Wilson-Temple
M. D. Brown, P.Eng.
S. Etifier
K. Mather
E. Maj

The Board considers the issues respecting the application to be

- the adequacy of the production operations ERP, and
- communication.

4 ADEQUACY OF THE PRODUCTION OPERATIONS ERP

4.1 Views of the Applicant

Burlington submitted that the primary purpose of its ERP for the Gregg Lake project was to facilitate a response that in the unlikely event of an emergency would provide for the safety of residents and the general public in the vicinity of its operations. Burlington stated that its overall approach to its project was to design it right, build it right, and operate it right and that ultimately, should an event occur, it would respond quickly and appropriately.

Burlington maintained that its ERP met or exceeded all EUB requirements. It said that the hazard assessment used to evaluate the size of the emergency planning zone (EPZ) was based on meteorological assumptions that Burlington felt represented a worst-case scenario. Burlington confirmed that the simulation assumed that the wind direction would always carry a release toward receptors. Burlington stated that the modelling results would not change as a result of including site-specific meteorological data. It was confident that its consideration of terrain effects in the modelling was conservative. Overall, it believed that its modelling overestimated the expected concentrations in the event of an accidental release. Burlington further concluded that there would not be any public safety consequences in the community.

Burlington said that it had retained Conor Pacific (now RWDI West Inc.) to conduct a hazard assessment. It advised that in response to community concerns it had also agreed to an expert peer review of this hazard assessment and that the peer review panel retained by the community supported the findings of the hazard assessment. In addition, Burlington said that it had funded a third-party evaluation of its ERP by an emergency response planner selected by the community; it had then given consideration to the recommendations made by the planner and incorporated the revisions into its ERP.

Burlington stated that the ERP took into account the high number of sensitive individuals, the limited access to the subdivision, and the high level of recreational use in the area. Burlington explained that its ERP used a three-level approach to define an incident: level 1 implied a potential emergency that could possibly escalate, and levels 2 and 3 implied emergencies that could extend beyond the company property. Burlington maintained that this approach provided for an escalated response effort based on the assessed severity of the hazard and level of exposure. Burlington further indicated that it would respond on a level-1 basis should there be an alarm triggered by any of the monitors at the 7-7 well site (see below) reading 5 parts per million (ppm) or greater. It confirmed that a level-1 response included provision for Burlington staff to be dispatched to the subdivision and provided the opportunity for voluntary evacuation of sensitive individuals.

Burlington explained that it had taken a conservative approach in its facility design and plan, providing for both minor and major occurrences, and had managed the consequences and probabilities through sound engineering design. Specifically, Burlington commented on its efforts to have its facilities located as far as possible from the subdivision and its increased use of emergency shutdown valves (ESDs) in the pipeline system to minimize the volume that could be released near the community or the William A. Switzer Provincial Park in the event of a pipeline failure. It confirmed that it had used plume dispersion modelling to determine the best locations for the ESDs. Burlington stated that it had addressed concerns on pipeline corrosion by installing a nylon liner the entire length of the gathering system for added protection and that it would monitor the area between the liner and the pipe for any changes in pressure, making it easier to detect leaks.

Burlington noted that with regard to the two well sites at Legal Subdivision (LSD) 7, Section 7, Township 53, Range 26, West of the 5th Meridian (7-7 well) and LSD 10-27-52-26W5M, it had located three hydrogen sulphide (H₂S) monitors at optimum locations on both leases. Burlington said that in each case one monitor was located at the wellhead, one in the line heater building, and one at the lease boundary nearest the subdivision. In addition, it indicated that it had installed equipment to monitor wind speed and direction at each lease and that its entire monitoring system was linked by a Supervisory Control and Data Acquisition (SCADA) system to both its Gregg Lake compressor station and the control room at the Berland River plant site. Burlington recognized the interveners' request for a weather station that would be capable of monitoring relative humidity and temperature. However, it was not of the view that the additional information would assist it in reacting to an event in the Gregg Lake project area. Furthermore, Burlington suggested that area residents could not agree on the location of a weather station even if Burlington were to agree to one. Burlington maintained that the installed features would assist its crews with early detection and assessment and would provide for remote shut-in of any of its facilities, as well as early warning while crews were responding to the area. Burlington discussed its response strategy as defined in its ERP. It said that it would

assess and confirm the situation, define the impacted area in order to assign the appropriate resources, notify and support impacted parties, and provide additional response as required.

Burlington submitted that it would be installing an H₂S monitor at the subdivision to automatically trigger a horn audible at both the subdivision and a nearby weir. It stated that the horn would be located at the 7-7 well site and would automatically sound if H₂S readings of 10 ppm or greater were detected at the subdivision. However, as the control room would be already monitoring on a real-time basis, a reading of 5 ppm from any of the monitors would activate a voice alarm to Burlington's field crews. It emphasized that it believed the likelihood of the monitor at the subdivision triggering the alarm without an earlier detection of H₂S by another source was extremely remote. Burlington also elaborated that it could manually activate the horn at its operator's discretion should a need arise. Burlington reported that its horn would have two signals, one for an emergency and another to indicate all clear.

Burlington stated that it had installed a new radio system that covered the Gregg Lake area. It explained that the radio linked to its computer system so that when any monitor detected H₂S readings of either 5 ppm or 10 ppm, a voice alarm would be activated that would identify the reading and which monitor had been tripped. Burlington also confirmed that it had contracted for a pay phone to be installed in the subdivision to ensure that a telephone was available for emergencies, as it was aware only a limited number of permanent phone lines or cellular phones were available in the community. It also confirmed that it would be installing warning signs to alert the public of the presence of nearby sour gas facilities at appropriate sites on hiking trails and river access points, and both developed and identified random camping sites in the area. Burlington said that two motorboats located at nearby Jarvis Lake would be quickly available and be sufficient to assist in notifying lake users in the event of an incident. Burlington confirmed that during an alert, its personnel would take an inventory of recreational users and evaluate lake usage and access from the shoreline using either a quad in summer or a snowmobile in the winter months.

Burlington committed to have personnel at its Gregg Lake facilities on a 24-hour basis after start-up until it was satisfied that all systems were operating as designed. Burlington indicated that two operators would be on shift at any time during that period and then it would switch to a day shift, with operators on call in the evenings for normal operations. While it acknowledged that its response time to the area from Hinton and the Berland River gas plant was 30 to 45 minutes, it emphasized that the automatic controls would shut in the facility long before personnel would arrive on scene. Burlington identified other agencies and operators that could provide mutual aid in the event of an emergency. It said that it had reviewed its support requirements with Central Alberta Midstream Ltd., Suncor Energy, Hinton Search and Rescue, Hinton and Brule Fire Departments, staff at the provincial park, the RCMP, and the Westview Regional Health Unit. In addition, it was aware of support it could enlist from several local industry service companies. Burlington pointed out that its plan provided for use of helicopters when conditions dictated it and the number and location of transients was in question. During the winter months, Burlington committed to plow the roads in the subdivision if it was conducting work-over activities or pipeline maintenance. In any case, Burlington confirmed that it would assess the condition of the egress from the subdivision if there were an emergency and respond appropriately.

Burlington stated that its monitors and other equipment would be completely tested before start-up of production from the 7-7 well, expected the first week of December 2001. In addressing the

concerns of one resident, Burlington confirmed that the monitors would be fully tested initially, calibrated monthly, and tested twice yearly.

Burlington advised that it had tentatively booked three training sessions for December 4 and 5, 2001, in Hinton and Edmonton respectively for Burlington personnel, external support agencies, and community residents. Burlington stated that it intended to conduct an additional exercise/training program in May 2002, when the majority of the cottage owners were using the area on a more frequent basis. Burlington acknowledged the importance of educating responders and the public with the features of its plan in order to ensure the appropriate response in the unlikely event of an emergency. It agreed that this training and a deployment exercise arranged to test the response of its personnel would need to occur prior to start-up of its operations.

Burlington acknowledged that a few typographical errors were identified in the ERP by one of the interveners and confirmed that it had amended the document or provided clarification as appropriate. It also emphasized that the ERP was a living document and subject to revision when necessary or appropriate and expressed its commitment to do so as required.

Burlington requested that the EUB should approve its site-specific ERP immediately or, in any case, have regard for the start-up time of early December proposed for the project.

4.2 Views of the Intervenors

Mr. Tymstra, a resident of the Gregg Lake community, stated that he was not entirely satisfied with Burlington's ERP and wanted Burlington to prepare the best possible ERP. He felt that to date a number of issues had not been adequately addressed. Mr. Tymstra stated that the Gregg Lake Subdivision was unique from other subdivisions for the following reasons: a large number of cottage owners were considered sensitive, few cottage owners had telephones, and there was high level of recreational use the area.

Mr. Tymstra questioned the ability of the hazard assessment modelling to accurately simulate the effects of terrain on plume behaviour. Further, he believed that site-specific weather data should be used to fine tune the assessment. He believed that by using these data, it would be possible to better allocate the emergency response resources, while also gaining an understanding of the frequency of worst-case meteorological conditions. Mr. Tymstra also maintained that the peer review had recommended a weather station be built in the area. While he held these concerns, he stated that the peer review was successful in assuring that the modelling approach used was reasonable. Mr. Tymstra indicated he was aware of the work done to evaluate Burlington's ERP by a neutral third-party emergency response planner and was satisfied.

Mr. Tymstra asked that the Board make a determination on a number of matters in reviewing the adequacy of the ERP. On the use of helicopters, he asked that the Board determine the reliability of this response given that in his experience, their availability was uncertain. He also asked that the Board include an evaluation of the need for a helipad in the area. Were the Board, in its evaluation, to find that a helicopter and helipad were not useful, he recommended that the Board provide an appropriate alternative to compensate for the lack of this resource. Mr. Tymstra requested that the Board look at the need for and value of gathering enhanced weather information beyond the wind speed and direction data that Burlington agreed to. He asked that relative humidity and temperature data be gathered, interpreted, and archived for use during a

sudden event, as well as to assist in long-term fine-tuning of the ERP.

Mr. Tymstra expressed concern about the remote operation of the facilities and the length of response time for Burlington personnel to travel to the area and investigate any incident. He described his concerns about boaters on Gregg Lake and how they would be alerted or evacuated in the event of a sour gas release. Mr. Tymstra was satisfied with the new information regarding the horn and the fact that it could be heard as far away as the weir. However, he was not certain that the public would know what to do if they heard it. He was concerned about his responsibility as a community resident to assist his neighbours or the public in the event of an emergency. Mr. Tymstra also expressed concern about snow removal arrangements on roads in the subdivision, as he indicated that the county was sometimes delayed in its response to the area. He acknowledged that Burlington had agreed to clear roads in the winter in the event of an emergency or when a work-over or servicing was occurring.

Mr. Tymstra discussed the recreational use of the area and said he believed that the ERP did not adequately provide for the detection and protection of the general public and transient population. He was also not confident that sufficient measures were in place to deal effectively with a higher than normal population of individuals with health sensitivities in the area. He emphasized the lack of full telephone service in the subdivision and indicated that Burlington should do more to overcome this problem. Mr. Tymstra suggested that Burlington assist the community by installing additional telephones or subsidizing cellular telephones. He believed these resources would improve notification and evacuation of individuals in the area for recreation. Mr. Tymstra asked the Board to evaluate the ERP and modify the plan where necessary.

The Ramseys expressed a concern with regard to Burlington's reliance on new, untested equipment and systems. They were, however, assuaged by Burlington's commitments to check the functioning of the monitors initially and to calibrate and test them on scheduled basis thereafter. The Ramseys identified several typographical errors in the ERP, which they suggested somewhat lowered their confidence in the document. They confirmed that Burlington had communicated with them regarding the errors but asked the Board to ensure the Board conducted a careful scrutiny of the plan.

4.3 Views of the Board

The Board has evaluated Burlington's ERP and notes that it is a comprehensive document that exceeds the Board's requirements. The Board acknowledges that the ERP contains significant enhancements, provide an additional measure of protection for the residents and public in the Gregg Lake area.

The Board notes that Mr. Tymstra raised questions about the hazard modelling that reflected an understanding of the sensitivity of model results to certain inputs. The Board has reviewed the hazard assessment reports done by Burlington's expert and considers them to be highly realistic and to represent the latest understanding of the science. The modelling also employs appropriate conservative assumptions, including simulation of emergency shutdown valve response time. The Board supports the use of worst-case meteorological inputs for determining EPZs. This tends to overestimate the consequences by assuming that the least-favourable conditions always exist at the time of an accident, rather than accounting for the site-specific frequency of the various possible meteorological conditions. The result is an EPZ size that errs in favour of

safety. The Board is confident that Burlington has considered the worst case in its hazard modelling and is therefore satisfied with the proposed EPZ.

The Board notes that there is agreement on the hazard assessment report between Burlington's expert and the peer review panel. The formation of a peer review panel was a unique additional step taken by Burlington. It represented an impressive combination of experience and expertise in the science of modelling and its conclusions speak strongly to the acceptability of the work done by Burlington's expert. The Board is pleased that the panel's review was successful in increasing the community's confidence in the hazard assessments. While the panel made a valuable contribution to the communication process, it is not the intent of the EUB that such a review be required for every application. In response to the recommendations of the Provincial Advisory Committee on Public Safety and Sour Gas in its December 2000 report, the EUB is in the process of developing a standard methodology for dispersion modelling and risk assessment. The goal of this methodology is to clarify acceptable modelling approaches and to increase stakeholder confidence. The Board accepts that Burlington's site-specific ERP has been developed with regard for the appropriate risk and hazards expressed in the report.

The Board is aware from Burlington's evidence that it intends to maintain personnel on a 24-hour basis until all of its system is operating as designed. The Board believes this is an important measure of assurance to the community and expects Burlington to be conservative in the transition to normal operations.

The Board acknowledges that the configuration and number of ESDs, the H₂S monitors at the well sites and at the subdivision, the horn to be installed at the 7-7 well, and the public telephone at the subdivision meet or exceed the Board's requirements. However, the Board understands that these commitments are a result of Burlington's consultation with the community. The Board is satisfied with the mutual aid details provided in the ERP and is confident that with adequate personnel training the plan will work as designed. That said, the Board notes the short time that Burlington has allowed for training of its personnel, external support agencies, and the residents of the Gregg Lake Subdivision, given its representation that it is prepared to start production from the 7-7 well the first week of December. The Board expects Burlington to assure full training of its personnel and support agencies before start-up. The Board also expects the residents to take full advantage of the training sessions and expects Burlington to be flexible in accommodating the training needs of the residents by offering additional sessions as needed. The Board agrees that an additional training session scheduled for the residents in May 2002 will provide a further opportunity to ensure that the cottage owners are aware of the appropriate response actions prior to the area being frequented more regularly.

The Board recognizes that the plan includes escalating level 1, 2, and 3 response actions, emphasizing early notification, voluntary evacuation, sheltering and an increased number of rovers to assess the level of recreational users in the area. While the Board agrees that an ERP is a living document, it reminds Burlington of the importance of adhering to *Informational Letter (IL) 90-17: Emergency Procedure Plans for Sour Gas Facilities – Biennial Meetings*. Pursuant to *IL 90-17*, operators must hold an internal exercise once a year for each of its facilities and must fully review the emergency procedure plan annually, forwarding changes to the EUB. The Board wishes to stress the importance of Burlington incorporating its experiences and additional public information gathered throughout the year into its annual updates.

The Board has considered the requests of Mr. Tymstra to make a determination on the need for helicopters in an evacuation scenario, having regard for reliability, the need for a helipad in the

area if helicopters are to be used or an alternative, and the need and value of an enhanced weather station. The Board notes Burlington's commitment to use helicopters where appropriate and available and to gather information on wind speed and direction. While the collection and analysis of site-specific meteorological data, such as humidity, temperature, and frequency of meteorological conditions, would provide academically interesting information, the Board does not believe this would change the worst-case predictions, which is the basis for emergency response planning. The Board is satisfied that these measures meet its requirements.

5 COMMUNICATION

5.1 Views of the Applicant

Burlington stated that it had conducted a three-year public consultation program on its Gregg Lake project to ensure the public was fully informed of its plans for the area. Burlington indicated that it welcomed the discussions, debates, and negotiations that occurred with the residents of the community. Burlington emphasized that its experience with the Gregg Lake community produced significant results and reinforced that community consultation, stakeholder participation, and willingness to work cooperatively are essential for a successful project. Burlington credited all of the participants with this significant accomplishment and asked that the Board consider this achievement against the backdrop of the few remaining concerns.

Burlington indicated that early in its project evaluation it recognized the uniqueness of the Gregg Lake area and its residents. As a result, it held numerous multistakeholder workshops and meetings and several open houses, communicated information to the residents of the subdivision through 19 newsletters, and arranged field tours of other Burlington operations.

Burlington said that a group of local residents called the Gregg Lake Cottage Owners (GLCO) actively engaged with Burlington on issues related to its overall project and its ERP. Burlington acknowledged that it had reached an agreement in May 2001 with certain members of the GLCO that resulted in the removal of objections to its facility applications. A condition of the agreement, however, was that Burlington commit to ongoing consultation with the community on the ERP. Burlington also acknowledged that the agreement provided for the EUB to adjudicate the adequacy of the ERP if the parties could not agree.

Burlington described its recent efforts to communicate with local residents on its ERP. It provided copies of its newsletters 17, 18, and 19 dated between June and October 2001 that were sent to the community and detailed the features of the ERP, the results of the third-party evaluation, plans for the horn, and other related matters.

Burlington expressed some frustration that its efforts had not resulted in an approval of its ERP outside of the EUB hearing process. Burlington acknowledged the concerns it heard about tight time lines but also believed that the lack of consensus in the GLCO also contributed to the difficulty in meeting time lines. It confirmed that it believed that it had communicated extensively, appropriately, and with integrity and believed that it had met both the needs of local residents and regulatory requirements.

Burlington confirmed its commitment to continue open and honest communication with all members of the community.

5.2 Views of the Interveners

While Mr. Tymstra acknowledged that Burlington had been consulting and communicating with the community for some three years on its overall project, he maintained that significant dialogue on the ERP had occurred only in the past three months.

Mr. Tymstra was complimentary both of Burlington and the members of the GLCO for their extensive work to explain, evaluate, and negotiate broad issues concerning the project. He confirmed that he had actively participated with the group in coming to resolution with a number of concerns. He was, however, critical of the tight time lines imposed and the lack of a structured decision-making process, which he believed was necessary to bring closure to the matters at hand.

Mr. Tymstra also expressed concern about what he described as a lack of leadership and engagement by EUB staff who attended meetings and assisted during the consultative process. While Mr. Tymstra expressed uncertainty about the role of the EUB staff, he stated that he would have appreciated more guidance and direction. He thought the EUB staff should have ensured a resolution to outstanding concerns.

Mr. Tymstra confirmed that he would continue to communicate and work with Burlington on this project. He also agreed to be an observer when Burlington conducted tests of its system.

5.3 Views of the Board

The Board acknowledges the extensive effort of all the parties to communicate and cooperate over the extended period of time this project evolved. The Board recognizes the effort and time the public must take to familiarize and educate itself with an energy development such as this and commends the residents of the Gregg Lake Subdivision for its active participation. The Board is of the opinion that the decision-making process was evident in that the only matter that could not be finalized was Burlington's ERP.

The Board is especially gratified to have heard a willingness and commitment to continue working together from the hearing participants.

The Board would like to comment on the issue raised by Mr. Tymstra as to the involvement of the Board's staff in workshops, meetings, and open houses on energy projects. While EUB staff regularly participated during Burlington's public involvement program for the Gregg Lake project, the Board believes Mr. Tymstra misunderstood the role of the EUB and its staff. The Board also believes it is important that the public understands the roles and responsibilities of participants in a public consultation program so that its expectations are consistent with the deliverables.

EUB staff, particularly from the Field Centres, attend hundreds of industry and public engagements yearly. The most common role adopted by the EUB staff is one of a resource to all participants. However, they may be called upon to comment on EUB regulations, policies, inspection practices, and inspection results.

The Board has set out guidelines regarding public consultation on energy applications. For example, each applicant is responsible to fashion an appropriate public consultation program that informs residents, landowners, and other stakeholders in the area of the proposed well, facility, or pipeline of its impacts and to provide opportunities to discuss and address concerns of those persons. Those opportunities may include one-on-one or larger public meetings, workshops, and open houses in order to fully engage the community in a dialogue about a proposed development. Generally speaking, the scope and complexity of the consultation program increases with the complexity and size of a proposed project.

The Board is aware that its staff encounter many negotiations and agreements that deal with items outside of the EUB's jurisdiction. In that regard, the staff are careful not to voice an opinion but may provide information on what others have done in a similar situation. The EUB's staff have no decision-making authority when parties are considering and negotiating private agreements. Staff must be, and appear to be, neutral and unbiased to all parties and not advocate for either side in a dispute. In some cases, EUB staff are requested to act as facilitator or mediator between an applicant and other parties. If the parties see a mutual need for EUB staff or other parties to act in this capacity, it must be clearly identified early in the process. The Board encourages interested parties to refer to EUB *IL 2001-1: Appropriate Dispute Resolution (ADR) Program and Guidelines for Energy Industry Disputes* for assistance in understanding the EUB role in the ADR process and other options participants may wish to consider.

Issued at Calgary, Alberta, on December 4, 2001.

ALBERTA ENERGY AND UTILITIES BOARD

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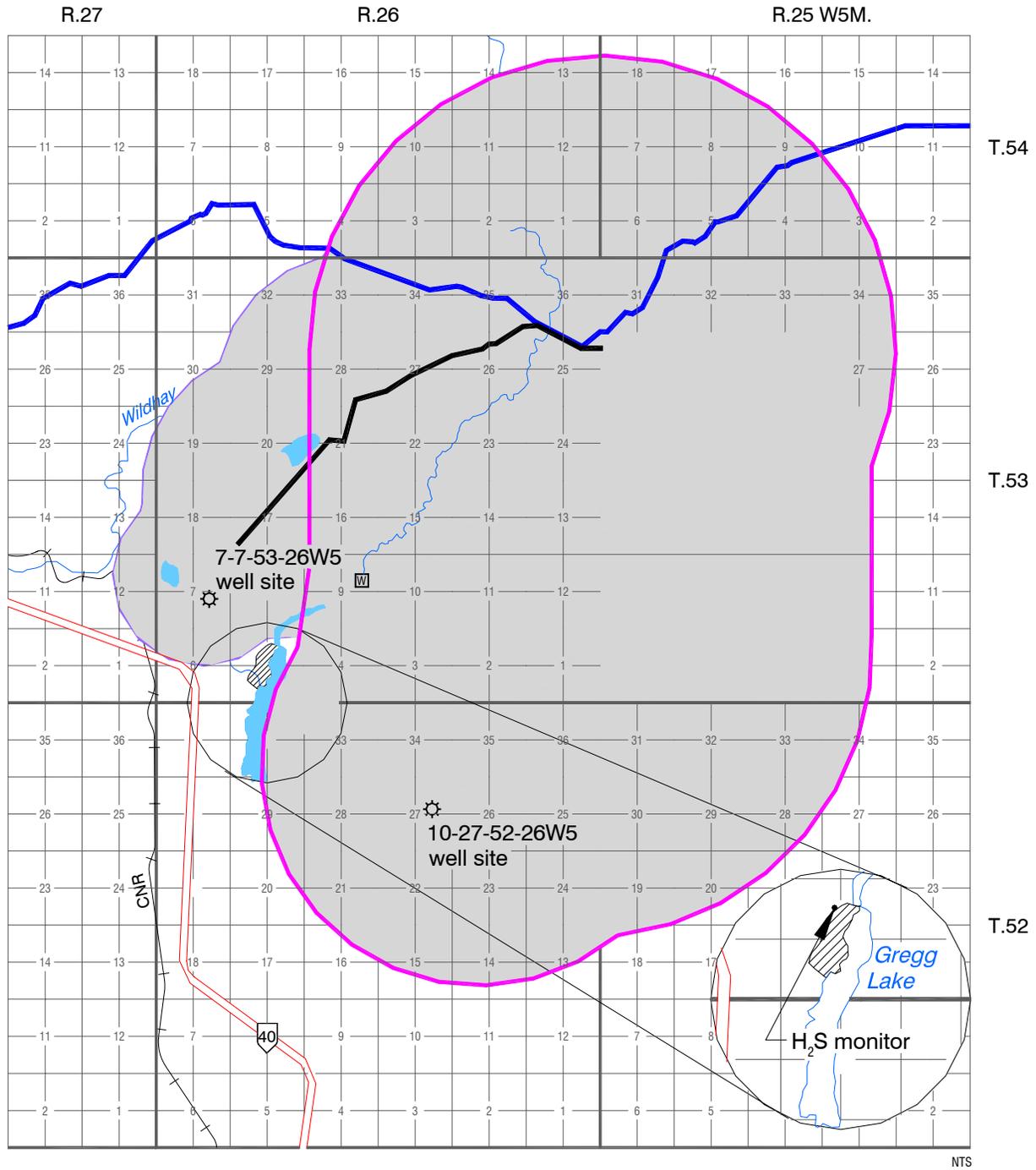
T. McGee
Presiding Member

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



Legend

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|---|-----------------------------|---|-------------------------------------|---|---|
| ⚙ | Sour gas wells | W | Weir | — | Burlington's approved sour gas pipelines |
| ■ | Compressor station | ▨ | Gregg Lake Subdivision | — | Central Alberta Midstream Ltd.'s pipeline |
| ▲ | Proposed warning horn tower | ■ | Pipelines' emergency planning zones | | |

Gregg Lake Area

Application No. 1247815

Burlington Resources Canada Energy Ltd.

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