

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

FLETCHER CHALLENGE ENERGY CANADA INC. APPLICATION FOR AN APPROVAL TO CONSTRUCT A SWEET MULTIWELL BATTERY LEDUC AREA

**Decision 99-19
Applications No. 1033164 and 1033789**

1 DECISION

Having carefully considered all of the evidence received, the Alberta Energy and Utilities Board (the Board) hereby approves Application No. 1033789 for a sweet multiwell battery located at 11-26-48-26 W4M. This approval is subject to Fletcher Challenge Energy Canada Inc. (Fletcher) meeting all regulatory requirements. The Board also expects Fletcher to adhere to the commitments made prior to and during this hearing. A summary of these commitments is listed in Attachment 1. The existing temporary battery Approval No. 1998-1985 is extended to 1 February 2000.

The reasons for the Board's decision are presented below.

2 APPLICATIONS AND HEARING

2.1 Applications 1033164 and 1033789

Fletcher Challenge Energy Canada Inc. (Fletcher) applied pursuant to Section 7.001 of the Oil and Gas Conservation Regulations for approval to construct and operate a new sweet multiwell oil battery in the Leduc area. Fletcher proposed two alternative sites for its central battery. The site identified in Application No. 1033164 would be located at Legal Subdivision (LSD) 10 of Section 34, Township 48, Range 26, West of the 4th Meridian. Fletcher's preferred site is identified in Application No. 1033789 and would be located in LSD 11-26-48-26 W4M. An area map showing the alternative locations of the proposed facilities is provided in the attached figure.

2.2 Interventions

Objections by residents adjacent to the proposed locations of the batteries were received by the EUB. Those interveners registered at the hearing are listed in Attachment 2.

2.3 Hearing

The applications were to be considered at a hearing on 13 April 1999. At the opening of the hearing, a number of interveners requested an adjournment, which was granted. The hearing was reopened on 9 June 1999 in Leduc, Alberta, before Board Member G. J. Miller and Acting Board Members G. C. Dunn, P.Eng., and R. N. Houlihan, P.Eng., Ph.D. The Board panel and staff conducted a site visit of the proposed facilities and the surrounding area prior to the commencement of the hearing.

3 ISSUES

The Board believes the issues concerning the applications to be

- need for the proposed facility,
- proposed facility location and impacts, and
- public consultation.

4 NEED FOR THE PROPOSED FACILITY

Fletcher submitted that a central facility is needed to continue gathering production from three single well batteries currently producing from the Leduc-Woodbend Glauconitic D oil pool. Gas would be separated out to be transported through an existing pipeline to the ATCO Watelet Gas Plant, and transportation of sales oil would occur through a future pipeline to a gathering facility operated by Probe Exploration Inc. (Probe) in 13-8-49-25 W4M. Fletcher states that, with the drilling of additional wells in the pool and the implementation of a waterflood, additional producers and water injection wells could also be tied in to the proposed facility. Fletcher maintained that a central facility would allow the conservation of solution gas and reduction in flaring and trucking in the area, as well as facilitate the implementation of a waterflood scheme to recover additional reserves. The interveners acknowledged the need to tie wells in to a central facility or battery to reduce flaring and trucking. Given this, the Board is satisfied that a battery is required for effectively handling production from this pool. Additionally, the battery allows for the gathering and conservation of production from this pool in order to reduce flaring, emissions, and truck traffic resulting from the development of this pool.

5 PROPOSED FACILITY LOCATION AND IMPACTS

5.1 Flaring and Emissions

Based on concerns about flaring raised by area residents, Fletcher confirmed that its battery design would include a vapour recovery unit (VRU) to recover stock tank vapours. The company indicated that the plan was to conserve all gas recovered via the VRU and direct it to the ATCO Watelet plant using an existing pipeline system. The installation of the VRU was proposed by Fletcher to help alleviate the concerns from area residents about emissions and odours. Fletcher confirmed that the use of VRUs to recover sweet solution gas has been the exception rather than the rule for the company.

Fletcher further indicated that this would eliminate all flaring except for possible outages and/or maintenance of the VRU system. Fletcher estimated that these outages would be infrequent and of short duration, in the order of three incidents per month, with an expected duration of some four hours each. The company emphasized that both the VRU compressor and the main pipeline gas compressor would be electric drive, with inherently higher reliability than the current internal combustion driven compressor now on site at the temporary battery. Fletcher confirmed that it operates similar VRUs at a number of sour facilities and had estimated VRU reliability based on this information.

In response to concerns raised by interveners, Fletcher indicated that it understood that the operator of the ATCO Watelet plant was considering some facility modifications/expansions. These modifications should eliminate or reduce situations where solution gas volumes could be backed out of the plant and end up being flared from the battery. Fletcher also amended its application to include the provision of redirecting the sales gas to the sales oil pipeline during periods of battery outages. Fletcher confirmed it had a verbal agreement with Probe to receive and treat oil emulsion at Probe's facility at 13-8-49-25 W4M on a short-term basis when the ATCO Watelet plant was unable to receive Fletcher's solution gas.

Fletcher confirmed that it would have an operator dedicated to the facility on a 24-hour on-call basis and further indicated that the response time would be within 45 minutes to have the site attended in the event of a problem.

Fletcher also presented expert testimony to address potential emissions issues and the resulting impacts. Fletcher's reports describe possible air quality impacts as a result of emissions dispersion modelling, as well as potential impacts on human and animal health. Fletcher also emphasized that the modelling was done using input values and assumptions that resulted in the overestimation of NO_x, SO₂, H₂S and volatile organic compounds (VOCs). Fletcher's modelling indicated that the emissions were within current provincial standards regulated by Alberta Environment. Modelled emission levels were then used to estimate potential health impacts/effects, using a risk assessment model. This assessment concluded that there were no significant or unacceptable health risks resulting from the proposed facility.

Fletcher also indicated that monitors would be used to detect hydrocarbon leakage sources and that these monitors would be checked daily. Fletcher also intends to utilize the VRU system to recover tank truck vapours. Vapours produced during pipeline pigging operations would be directed to the flare stack to reduce the possibility of odours and emissions.

Fletcher confirmed that an extended gas analysis indicated a level of 3 ppm H₂S in the solution gas. Fletcher emphasized that this level of H₂S is within sales gas specifications and does not present either emissions or safety problems in any way.

In response to interveners' questions, Fletcher agreed that it would be prepared to install air monitoring devices prior to construction to monitor existing emissions and leave the devices in place for a short period of time following construction and start-up.

Intervenors expressed concerns about the facility and its operation, particularly as it related to emissions, odours, and other impacts. Both Mr. Parsons, testifying as an expert on behalf of a number of the intervenors, and Dr. Beck commented on the need to consider and address sub-critical cumulative environmental and quality-of-life impacts due to increasing local exploration and production activities. Intervenors also questioned the applicant's representatives about its predictions regarding the effects of potential carcinogens and different emissions on sensitive individuals. Concerns were also raised regarding the 16-26 well. Intervenors were unclear as to the sour content of this well, especially given situations that occurred resulting in emissions and odours from this well.

Mr. Parsons questioned the exclusive use of modelled emission levels in health risk assessments. In order to compare and establish which of the two proposed facility locations is more suitable from the standpoint of environmental impact, Mr. Parsons contended that site-specific characteristics, as well as actual “representative” emission levels, should have been measured and employed as input data for the simulated assessments.

The Capital Health Authority recommended that an air monitoring program be negotiated with a committee consisting of itself, Fletcher, and the area residents. The Capital Health Authority suggested that it would work with Alberta Environmental Protection with regard to the use and need for its monitoring unit to perform some tests in the area.

The interveners also posed a number of questions about the reliability of battery equipment and the validity of the assumptions used in modelling flaring periods during equipment outages. One intervener questioned society’s general acceptance of the risks associated with emissions but did not disagree with the submissions and modelling work done by Fletcher. Some interveners focused on the proximity of the proposed site nearest to their residence.

The Board has considered the emissions modelling and health risk models provided by the applicant. The Board believes that the modelling results are conservative in nature and do provide a measure of the potential impacts of the proposed facility that incorporates orders of magnitude as a safety factor.

The Board also notes the concerns voiced about the potential of H₂S being handled at the battery. The Board defines a sour facility as handling gas with 0.01 moles or more of H₂S per kilomole of natural gas (10 ppm). The Board is satisfied that the H₂S content of the gas is well within the design and operational capability of this sweet facility. In addition, given the applicant’s commitment to managing solution gas and fugitive emissions, the Board is satisfied that the likelihood of odours and emissions would be very low. The Board also notes that the 16-26 well will not be tied in to the proposed facility. It also notes that many of the concerns of residents have been alleviated since that well was tied in and the flaring was eliminated. It appears to the Board that much of the concern about emissions arose from flaring at single-well battery sites, some of which has already been eliminated and the rest of which would, in fact, be reduced or eliminated by the construction and operation of the proposed facility.

During the hearing, Fletcher committed to an undertaking to amend the EUB’s records to correctly reflect the volumes flared from the temporary battery at 11-26-48-26 W4M since the battery commenced operation. These amended reports were submitted to the EUB on 22 June 1999, with copies issued to all parties. The EUB is working with Fletcher to ensure that its measurement and reporting procedure is appropriate. Also during the course of the hearing, Fletcher referenced the *Upstream Petroleum Industry Flaring Requirements*,¹ in draft form at the time of the hearing, and indicated that it intended to meet these requirements. The Board expects Fletcher to design and operate its battery to meet the requirements of *Guide 60*. Fletcher is directed to review the operational requirements of repeat non-routine flaring incidents, specifically referring to Section 2.6 in *Guide 60*, wherein re-occurring events of similar cause at

¹ EUB *Guide 60: Upstream Petroleum Industry Flaring Guide* (June 1999)

a conserving battery during a 30-day period require the operator to take steps necessary to eliminate or reduce the frequency of such incidents.

Based on the evidence provided, the Board notes that the anticipated flaring and emissions from either of the proposed sites are well within regulations and guidelines. The Board believes, from an emissions perspective, that either site is acceptable.

5.2 Ground Water/Surface Drainage

Fletcher evaluated water well data from the area and noted that surrounding farmsteads obtain potable water from the bedrock aquifers from depths generally between 40 and 80 metres. Based on visual inspection of both sites, Fletcher initially maintained that the 10-34 site afforded superior natural protection of these bedrock aquifers. Fletcher subsequently ranked the sites as approximately equal in natural groundwater protection based on evidence obtained from boreholes drilled at each site to obtain specific geologic information.

Interveners in proximity to both the 10-34 and the 11-26 sites expressed concern regarding potential impacts to surface water and groundwater. It was noted that Fletcher had not determined the location of stock watering dugouts and therefore had not assessed potential impact in this area. Mr. Bucsis noted that surface runoff collects on his land due to an inadequate number of culverts on the access road to the 11-26 site. Additionally, Mr. Bucsis reported an odour associated with his well water from February 1998 to April 1999.

Fletcher indicated that surface runoff water would be diverted around each site by berms and, as a result, runoff would be prohibited from leaving or entering the site. Fletcher proposed to allow any water that accumulated on the site to evaporate naturally.

Fletcher maintained that the batteries were designed to minimize spills and leaks in order to protect soils and groundwater. Additionally, Fletcher committed to testing residents' water wells if requested. Fletcher also agreed to deal with the concern about adequacy of culverts on the access road to the 11-26 site.

The Board believes that Fletcher has addressed intervener concerns related to surface water flow by committing to the installation of a berm around the entire battery site. The Board notes, however, that Fletcher may require additional onsite surface water management as a result. In consideration of the 11-26 site, Fletcher is required to ensure that its operations do not affect the adjacent water-filled borrow pit. Additionally, the problem of surface water ponding on Mr. Bucsis land shall be immediately addressed.

The Board notes Fletcher's commitment to test landowner water wells. Fletcher has provided the location of dugouts in the area and addressed potential impacts on them. The Board does not believe that a battery at either site would pose a risk to area dugouts.

With respect to groundwater and surface water protection, it is the Board's opinion that the evidence presented shows that the risk to groundwater or surface water is not significantly different at one site or the other. The Board notes that Fletcher has committed to additional spill containment features, not required under EUB regulations, in response to groundwater and surface water concerns voiced by landowners. The Board is satisfied that the design of the proposed batteries at either site would protect groundwater and surface water.

5.3 Noise and Other Impacts

Fletcher confirmed that the proposed facility would utilize electric drive compressors and stated that this would reduce the source noise as compared to the source noise from the existing temporary battery. Fletcher indicated that noise readings taken near the residences proximate to the proposed sites were as high as 31 dBA. Fletcher had retained a noise expert to predict noise levels from each of the proposed alternative sites. These noise levels were predicted to be 23.7 dBA from the 11-26 site and 20.2 dBA from the 10-34 location.

In response to area residents' concerns about safety and adequacy of road design, Fletcher emphasized that the construction of a permanent battery would reduce truck traffic from about 33 truck trips per week to about 4 trips per week. Fletcher acknowledged that truck traffic would increase to about 42 truck trips per week during downstream facility turnarounds; however, it was estimated that this would be only for about 10 days per year.

Interveners expressed concern about the site selection process, citing earlier planning by Fletcher to utilize the Probe battery at 13-8-49-25 W4M to treat the emulsion. They viewed Fletcher's plans to utilize the Probe facility as a "commitment" to build the permanent battery at a location away from the local area. Interveners also argued that facilities should be centralized to avoid proliferation of facility sites and the attendant impacts. Additionally, given that the company was no longer considering the option of using the Probe facility, interveners were opposed to the alternative location nearest to their residence or farming operation. Residents near the 10-34 alternative site argued that the impacts of locating the battery at 10-34 would be higher because of its distance from the pool and the wells in the pool; this would require transporting the emulsion away from the geographic centre of the pool. The 11-26 site, they argued, was centrally located with respect to the pool and the wells.

The Board notes that the evidence presented with regard to the impact of noise indicates that both sites would have noise emissions well within the EUB noise guidelines. The Board notes that the residents' concerns about noise appeared to be more related to existing or former facilities than specifically to the facility under consideration. The Board encourages area residents to discuss concerns about noise and other items with the operator or the EUB area field office. With regard to truck traffic, the Board agrees that the permanent battery will substantially reduce the amount of truck traffic compared to the current situation.

The Board understands that, while Fletcher attempted to alleviate the residents' concerns by working with Probe to treat the oil at its facility, it is obvious that the discussion about this option raised residents' expectations about that possibility. The Board also notes evidence presented that the Probe battery would have required significant expansion to handle the

additional emulsion even in the event that this negotiation had been successful. This in turn would have simply transferred the impacts from one location to another, perhaps at significant additional capital and operating costs, as well as environmental disturbance through pipeline and satellite construction. The Board accepts that the Probe facility is not an option and believes that Fletcher did what could be reasonably expected in exploring this possibility.

With regard to the two alternative sites proposed by Fletcher, the Board believes that either site would meet its requirements. The Board believes that both sites are acceptable from noise and truck traffic perspectives. It also agrees with Fletcher that the 11-26 location is preferable to the 10-34 site because a central battery located at 10-34 would still require the maintenance of the 11-26 as a satellite location. In addition, a significant amount of additional pipeline construction would be required to move, measure, and treat emulsion using 10-34 as a central facility.

6 PUBLIC CONSULTATION

A number of concerns were raised by interveners regarding Fletcher's consultation process. The Board believes that Fletcher met and/or exceeded the EUB's minimum consultation requirements; however, there still appeared to be a significant amount of misunderstanding by the area residents about Fletcher's intent with regard to its proposed development of the pool. Given the length of time and the different locations that were being considered for this project, the Board concurs with the suggestion that another open house and additional discussions may have been appropriate when Fletcher determined that it was prepared to move forward with its application for a permanent facility. It was Fletcher's responsibility to ensure that all affected parties were aware of the specifics of the project and had full opportunity to have their concerns addressed. In this case, it appears to the Board that the elongated schedule of events and lack of closure by Fletcher in dealing with the residents hampered the company's effort in communicating its action plan to the public and getting reactions to it. The Board believes it is incumbent upon an applicant to proceed with a timely action plan and ensure follow-up with residents on items of contention. Some evidence presented indicated that Fletcher's contact list was not included in the information packages. The Board expects the public to actively participate in the consultation process but in this case recognizes this may have been more difficult without the list of contacts.

The Board concurs with the recommendation that a committee be established to address commitments made during the course of this hearing, such as an air monitoring program, as well as issues that may arise during the development of this pool. The committee should consist of Fletcher, other industry operators in the pool, area residents, and government agencies. Staff from the EUB field office are available to assist the committee, if required. This committee should work proactively to ensure that all parties have the opportunity to understand and rectify concerns as soon as possible.

7 DECISION

Refer to section 1 of this report.

DATED at Calgary, Alberta, on 18 August 1999.

[Original signed by]

G. J. Miller
Board Member

[Original signed by]

G. C. Dunn, P. Eng.
Acting Board Member

[Original signed by]

R. N. Houlihan, P. Eng., Ph.D.
Acting Board Member

ATTACHMENT 1 TO DECISION 99-19**Commitment 1**

The battery design will include a vapour recovery unit to recover stock tank and truck tank vapours.

Commitment 2

Fletcher will finalize its agreement with Probe to receive and treat oil emulsion at Probe's facility at 13-8-49-25 W4M on a short-term basis when the ATCO Watelet plant is unable to receive Fletcher's solution gas.

Commitment 3

The lease site will be bermed to prevent surface runoff from leaving or entering the site.

Commitment 4

Fletcher will test the water wells of area residents, if requested.

Commitment 5

Fletcher will address the adequacy of culverts on the access road to the 11-26 site.

Commitment 6

Fletcher will use electric drive compressors to reduce noise from the battery.

Commitment 7

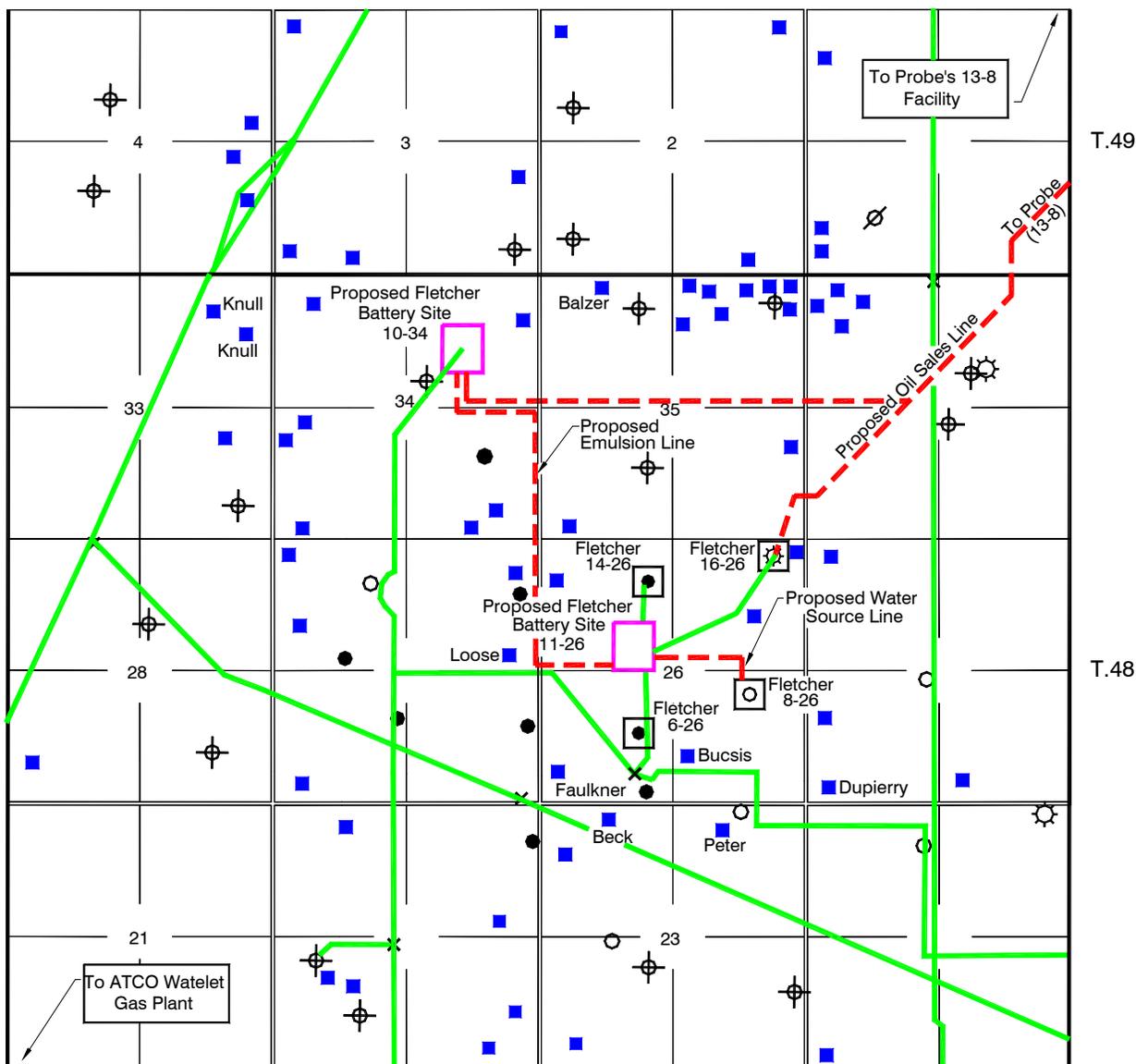
Fletcher will establish a committee of appropriate parties to address commitments made and issues that may arise during the development of this pool. One of the initial tasks of this committee is to develop an air monitoring program to monitor ambient air emissions around the 11-26 site.

ATTACHMENT 2 TO DECISION 99-19**THOSE WHO APPEARED AT THE HEARING**

| Principals and Representatives (Abbreviations Used in Report) | Witnesses |
|--|---|
| Fletcher Challenge Energy Canada Inc. S. M. Munro | D. Calvert, B.Comm. G. Scott, P.Eng. D. Rossiter, P.Eng., of Tartan Engineering Ltd. R. C. Rudolph, M.Sc., of Conor Pacific Environmental Technologies Inc. D. B. Davies, Ph.D. of Cantox Environmental Inc. M. Trudell, Ph.D., P.Geol., of Komex International Ltd. R. Patching, M.Eng., P.Eng. H. Bye |
| Greg and Christine Loose (the Looses); Les and Sharon Bucsis (the Bucsis); and Anton and Erica Peter (the Peters) J. P. Kudrinko R. Secord | G. Loose C. Loose L. Bucsis E. Peter S. Parsons, of Parsons Environmental Corp. |
| Douglas Balzer | D. Balzer |
| Drs. Byron and Susan Beck (the Becks) | B. Beck, DVM |
| Capital Health Authority | A. Mak E. Zazulak |
| Roger Dupierry | R. Dupierry |
| Gordon Knull | G. Knull |
| Gary Faulkner | G. Faulkner |
| Alberta Energy and Utilities Board staff D. F. Brezina, Board Counsel S. L. Cowitz, C.E.T. B. Austin, P.Geol. J. I. Fujikawa, B.Sc., M.Sc. | |

Howard Langert, Alda Labrecque, Carrie Bendfeld, and Ian and Verena Peden filed a submission but did not participate in the hearing. Marjorie Jasper filed a submission and registered as a participant during the hearing but did not participate directly.

R.26 W.4M.



Legend

- | | |
|--------------|--------------------------|
| ⊗ Disposal | ● Oil |
| ⊘ Suspended | ⊙ Gas |
| ○ Standing | — Existing pipelines |
| ⊕ Abandoned | - - - Proposed pipelines |
| ■ Residences | |

Leduc-Woodbend Field Development
 Applications No. 1033164 and 1033789
 Fletcher Challenge Energy Canada Inc.

Decision 99-19