

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

**POST ENERGY CORPORATION
APPLICATION FOR A SWEET WELL
ARMISIE FIELD
11-30-51-25 W4M**

**Decision 99-5
Application No. 1031434**

1 INTRODUCTION

1.1 Application

Post Energy Corporation (Post), applied to the Alberta Energy and Utilities Board (the Board) in accordance with Section 2.020 of the Oil and Gas Conservation Regulations and Guide 56, Energy Development Application Guide and Schedules, to license a sweet well located in Legal Subdivision 11, Section 30, Township 51, Range 25, West of the 4th Meridian. The purpose of the well is to obtain gas production from the Basal Quartz Formation. A map of the area is shown on the attached figure. Post expected the well to encounter gas considered to be slightly sour (0.11 per cent) and at flow rates considered below critical well status within the regulation.

1.2 Interventions

Written objections to the application (the Application) were received by the Board on 4 August 1998, 6 November 1998, and 26 January 1999 from Man-Yee Yau. Written objections were also received on 8 August 1998, 3 November 1998, and 19 January 1999 from Chius Enterprises Ltd (Chius). Mr. Yau is the registered owner of the northeast quarter of section 30-51-25 W4M with the exception of a 20 acre parcel in the northeast portion of the said property. Mr. Yau's objection stated that the construction and operation of an oil well in the land north of Quadrant Avenue would have a negative environmental impact on the surrounding area. Mr. Yau also indicated that the development might deny possible future residential developments in the surrounding area, thereby affecting the value of properties neighboring the proposed development site. Mr. Yau urged the EUB to deny the application.

Chius is the registered owner of the south half of the southeast quarter of section 31-51-25 W4M. The Chius' objection stated that the well would pose a potential hazard to the property and other acreages in the area. They indicated that the proposed development might affect the future developments on their property and recommended that the development be cancelled.

1.3 Hearing

The application and interventions were considered at a public hearing in Edmonton, Alberta on 4 February 1999, before Board members F. J. Mink, P.Eng., T. McGee, and Acting Board Member M. J. Bruni. The panel viewed the proposed site on the afternoon of 4 February 1999. Those who appeared at the hearing and abbreviations used in this report are listed in the following table:

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations used in Report)

Witnesses

Post Energy Corporation (Post)
L. Cusano

T. Hunt, P.Eng.
B. Wasyliw, P.Eng.
C. Buckley, P.Geol.
Dr. D. Leahy, Ph.D.

Man-Yee Yau (Yau)

H. Yau

Alberta Energy and Utilities Board staff
D. Brezina, Board Counsel
M. Brown
M. Drake
B. Fairgrieve, P.Geol.
C. Johnson
K. Wherry

Ms. A. Chiu attended only the first hour of the hearing on behalf of Chius , posed some questions to the application but did not present any evidence.

2 ISSUES

The Board has considered all technical environmental and socio-economic aspects about the application and finds the application generally meets the regulatory requirements. The Board considers the outstanding issues respecting the application to be:

- need for the well,
- well operations,
- H₂S release rate,
- risk assessment,
- land use impacts, and
- public consultation.

3 NEED FOR THE WELL

3.1 Views of the Application

Post stated that the well was required to assess a new Basal Quartz gas pool identified by a seismic anomaly. Post estimated that the 1300 metre (m) exploratory well had a one in eight chance of success. It indicated in its application that it had the mineral rights to a complete drilling spacing unit. It noted that the majority of its company's corporate activity was located within 60 miles of the City of Edmonton (the City), with approximately 150 wells drilled to

date, 12 of which were drilled within the city limits. Post stated it had chosen the location of the well to maximize the distance from existing residential subdivisions to the south and to minimize the technical and geological risks associated with drilling the well. Post noted that it had adjusted the well location away from the Yau lands and it could not move the well further to the west as suggested by Mr. Yau as it believed it was on the edge of the pool already. Post contended that accessing the reservoir directionally could result in a poor cement job and consequently poor isolation of underlying aquifers, creating a number of environmental concerns.

Post contended that the proposed well would likely contain gas since the equivalent intervals in adjacent wells contain only gas or gas with uneconomic oil. Based on evaluations of adjoining wells in the same horizon, Post believed the oil bearing Basal Quartz interval present in the area would be absent at the proposed location since it anticipated the lower 25 m of the Mannville would be absent. Post stated that if oil were encountered in the well, it would accelerate recovery by implementing pad and horizontal drilling techniques. Post estimated gas reserves of $56\,600\,10^3\text{m}^3$ (2 BCF) in the pool. Post also stated that the proposed location would allow it to drain the pool with only one well if gas were encountered. It was Post's view that the subject well location was the ideal location taking into account Post's objectives and landowner interest.

3.2 Views of the Interveners

Mr. Yau did not question the rights of Post to recover potential resources obtained under the lease. Mr. Yau indicated that he and his family were opposed to the well, given that the proposed development would be an infringement on their property rights. He questioned Post about the potential to move the well further to the west.

3.3 Views of the Board

The Board acknowledges that Post holds a valid P&NG lease to recover gas from the Basal Quartz formation. Given the typical size of gas pools in the area, the Board accepts that deviation from the seismic line presents an exploration risk and as a result believes the location of the well to be confined. In the Board's view, the evidence suggests the well would encounter gas rather than oil and appears to be optimally located. Unless other public interest issues preclude the development, the Board acknowledges the applicant's right to recover the resource.

4 WELL OPERATIONS

4.1 Views of the Applicant

Post stated it would limit its surface disturbance during well site construction. Permanent access for the site would be from the south to minimize land disturbance. Post plans to negotiate for temporary access from the west during drilling and completion to minimize the impacts of traffic on existing residents to the south. If temporary access was not granted, Post would follow any

recommendations from the City with respect to traffic movement. Drilling operations would take approximately six days and completions operations would be done within five days.

If the well were successful, gas flow rates and composition would be tested and evaluated over a period of approximately one week. Test procedures would involve flaring gas through a 12 m stack. There would be no permanent flaring facilities at the site. During drilling operations a safety trailer would be on the site manned by an independent safety contractor. There would be H₂S detection on the perimeter of the well site, as well as in the substructure of the drilling rig. Post would also be using real time measuring to detect gas while drilling and would react to the information it received while drilling.

If oil were encountered rather than gas, Post stated it would use horizontal drilling techniques and pad drilling to accelerate the depletion of the reserves. Post also stated that it would use progressive cavity pumps rather than pump jacks to minimize visual impacts of any oil wells.

Post stated that if the well were to be considered a Level 1 sour gas well it would meet or exceed all the requirements of Interim Directive (ID) 97-6 entitled, *Sour Well Licensing and Drilling Requirements*. Post committed to submitting an emergency response plan and a detailed drilling plan to the EUB for review and approval prior to spudding the well.

Should the well prove successful, the well site would be equipped with a dehydrator, including an incinerator to incinerate vapours, and metering facilities. Gas would be conveyed to an existing gas processing facility via a new pipeline to be installed to the west. Post stated that its facilities would be operated as closed systems (no emissions). All surface facilities would be secured in a chain link security fence. Although Post believed that the existing trees around the well site would minimize the visual impacts of the well, if requested by impacted residents or landowners, it would be fully prepared to house the facilities in esthetically appealing buildings. All moving equipment would be run on electrical power. All facilities would be operated within the guidelines outlined in EUB ID 94-4 entitled, *Noise Control Directive*.

4.2 Views of the Interveners

Mr. Yau indicated that his family was concerned about heavy vehicles that would present traffic safety and noise issues.

4.3 Views of the Board

The Board recognizes that when energy developments are proposed for an area, they may affect the surrounding area and that effect will be more acute during the drilling and testing stages. When developments are close to urban areas it is important that operators be very aware that special measures may be necessary to reduce any negative impacts. Regardless of the status, Post will be required to meet all the requirements for sour gas wells outlined in ID 97-6 and the Alberta Recommended Practices. The Board notes Post's commitment to comply with ID 97-6.

The Board notes Post's experience in drilling wells in the City and its commitment to follow the recommendations set out for development in the area*. The Board notes Post's efforts to minimize impacts of the well by committing to the following: electric equipment to reduce noise, closed vapour recovery system to reduce odours, incineration of inherent emissions from the dehydration equipment, erecting adequate fencing to secure the facility and prevent unauthorized entry, and locating the well to minimize visual impacts. The Board also acknowledges Post's efforts to obtain temporary access from the west to minimize the impacts of traffic on the subdivisions to the south.

The Board believes this development to be compatible with the multi-land use status of the area. It is the Board's view that the drilling of the well and its operations can be conducted in a safe manner with minimal impacts on the adjoining residents in the area or the environment.

5 H₂S RELEASE RATE

5.1 Views of the Applicant

Post indicated that the highest flowrate and H₂S concentration, measured from gas wells in the area, were used to calculate the potential H₂S release rate. Post utilized the absolute open flow (AOF) and H₂S measured from a 3 m interval in the well 14-25-51-26W4 (14-25 well) to estimate its H₂S release rate potential of 0.0091 cubic metres per second (m³/sec) for the well. Although it had not done so, Post agreed it was appropriate to adjust the estimated flowrates to account for the thickness of net pay expected.

5.2 Views of the Board

The Board agrees with Post's use of the highest flowrate and H₂S concentration from the adjoining 14-25 well to estimate the potential release rate at the subject location. The Board also agrees with Post that H₂S release rate estimates submitted need to be adjusted to reflect predicted pay thickness. Given a sandface AOF of 143.6 10³m³/d at the 14-25 well and a projected 7 to 7.5 m pay thickness at the subject well it would result in an H₂S release rate of 0.02275 m³/s, assuming an adjusted flowrate of 359 10³m³/d and an H₂S concentration of 0.55 per cent. The Board deems this well to be a Level 1 critical sour gas well at this time.

6 RISK ASSESSMENT

6.1 Views of the Applicant

Post provided a report to address risk associated with the proposed well. It concluded that the chances of a well blowout resulting in a release of H₂S were very small. Plume dispersion calculations demonstrated that in the event of a well blowout the maximum ground-level SO₂ concentration would be at 0.02 parts per million (ppm) if the escaping gas were ignited. This value would be much less than Alberta Environmental Protection (AEP) ambient air quality guideline of 0.17 ppm. No adverse environmental effects would occur. If escaping gas were not

* ERCB Inquiry Report D83F – Resource Development/Urban Development: West Edmonton Area

ignited then the ground-level H₂S concentrations would be 2.4 ppm during the period of release. The concentration would be sufficient to cause a minor to moderate odour but would not represent a health or safety risk to the public. Post maintained that exposures to the effects of an unignited plume would persist for no more than 30 minutes until additional resources would be brought to the well site to ensure successful combustion of the escaping gas. Post noted that even if the well were considered a Level 1 facility, the emergency planning zone would at most be 250 m with no residents within the planning zone.

6.2 Views of the Interveners

Notwithstanding the evidence submitted by Post, Mr. Yau expressed ongoing concerns over the speculative nature of Post's development, such as H₂S content and downwind exposure concentrations. Mr. Yau questioned Post's use of a worst case scenario and argued that it did not take into account possible future residential development close to the proposed well site.

6.3 Views of the Board

Given Post's experience drilling wells in urban areas and given the care which would be taken in the drilling of the well, the chances of an accidental sour gas release would be very small. In the unlikely event of an accidental release, the Emergency Planning Zone is such that there should not be a serious threat to the safety of the public. This is particularly true in this case because of the low H₂S level expected and the ignition criteria which would be utilized.

7 LAND USE IMPACTS

7.1 Views of the Applicant

Based upon its experience in the area, Post estimated that it would deplete the reserves within eight years. Post noted that there were no plans to subdivide the land owned by the adjoining landowners and believed even if such plans were to emerge in the coming years, it could drain the reserves prior to subdivision development. Post argued that it was in the best interest for them to drill the well now and deplete the resource and reclaim the site before subdivision development would take place.

Post stated that it had relocated the well to maximize setback distances noting that the well centre would be 65 m from the Yau's property line. Post stated that it would be willing to relax the setback requirements in the event subdivision proceeded during the operation of the well to allow for development within 50 m of the well. This would not place any restrictions on development on the Yau's land. Post stated that if the well were considered a Level 1 critical sour gas well then a 100 m setback would be required, however, as production rates declined the operational life of the well, it could be reclassified as a non-critical well thus relaxing the setback requirements.

Post maintained that there would not be any visual effects from the well as there were significant stands of trees along the north, south, and east boundaries of the quarter section. Post also stated that there would only be a wellhead and a dehydrator building on the site that would be difficult to see from the road. If Post received concerns from landowners or residents in the area, it committed to housing the facilities in esthetically pleasing buildings or installing cedar slats in the chain link fence. Post indicated that the reclamation of the site would return the site to its original condition.

With respect to property values, Post stated that they did not believe that there would be a decrease in land value because the well would not affect future development. Again, Post argued that the reserves would most likely be depleted and the well gone by the time the land was being subdivided for residential development.

7.2 Views of the Interveners

Mr. Yau indicated that the land in question had been owned by his family since 1972 and was presently used for agricultural purposes. The family had no immediate plans to develop the property. Mr. Yau was concerned, however, about the affects of the proposed well on their land, their ability to develop the land and property values of the land in the event the proposed well was drilled. Mr. Yau indicated that having a well site next to his property would devalue the land. He believed it infringed upon his property rights and was a blatant violation of his individual rights. He wanted the well moved as far from his land as possible. The Yau's correspondence indicated they were concerned that the close proximity of the wellsite to residential development was inconsistent with the planning and development of residential subdivisions within the municipality. The Yau's viewed the wellsite as a form of industrial development or at least rural activity that should not be permitted within city boundaries. The Yau's were also concerned that further development might take place as a result of this well.

7.3 Views of the Board

The Board believes that the effects of the proposed well and surface location on the adjacent landowners would be minimal and in keeping with the multi-land use status of the area. The Board notes that there are no current plans to develop the lands adjacent to the proposed wellsite into residential subdivisions. The Board agrees that producing the resource now would be in the interest of all parties so as to return the site to its original state as early as possible to minimize any impact on future residential subdivision of the land if it occurs. While the setback requirements of 100 m imposed upon the well would initially impact on Mr. Yau's lands, the Board notes that the status of a well may be changed to reflect changing production characteristics as the resource is depleted. In time, this may result in the 100 m setback being relaxed and there being no impact on land use on Mr. Yau's land.

The question of reduced property values was raised by the interveners. The Board accepts site-specific downward pressure on property values might occur as a result of immediately present industrial operations if residential development were contemplated near the site. At the same time, the overall beneficial economic impacts of industrial operations on a region undoubtedly creates an upward pressure on property values. In this specific case, and recognizing that few

noise, odour, or other impacts would be expected from the operation, there was no evidence presented to the Board that would indicate there would be negative impacts on property values.

8 PUBLIC CONSULTATION

8.1 Views of the Applicant

While Post stated that it had not finalized a surface lease with the owner of the land on which the well would be located, it indicated that the landowner gave his permission to survey the site and acquire a lease pending final negotiations. Post stated it was presently talking to him on compensation issues. Post indicated that the landowner seemed to be proceeding forward in good faith and that it was just a matter of agreeing on the compensation package.

Post stated that it conducted its public notification as per EUB Guide 56. Since the proposed well was within the City of Edmonton, the City also notified area residents regarding the well. Post stated that it was the practice of the City to notify landowners and residents within 400 m of the land parcel, in this case, the quarter section that could be affected. Post believed that its consultation program went beyond what was required by the EUB and resulted in no other objections.

In response to concerns raised by Mr. Yau about future resource development, Post stated any future wells would be subject to well licensing and approval. Area landowners and residents would have an opportunity to raise concerns about any future wells. As a method of keeping area residents informed regarding operations in the area, Post stated that it would be prepared to consider a liaison committee with area residents.

8.2 Views of the Interveners

Mr. Yau indicated that despite the assurances provided by Post at the hearing, he had great concerns with the notification process. He was concerned that there would be no second chance to question Post once the post drilling values respecting H₂S content and flow rates were known. He again was concerned with the speculative nature of the information Post was providing. In his view the lack of public participation at the hearing indicated that notification had not been conducted properly. He believed that the best way to do it was to do it over again, do it the right way. Mr. Yau argues that the landowner where the well site would be located was not as informed as he should have been regarding the process. Mr. Yau did not believe it was fair to approve the well without the involvement of future residents in the developed subdivisions surrounding the proposed well site.

8.3 Views of the Board

In an effort to improve public consultation, the Board and AEP developed Informational Letter (IL) 89-4. It set out the expectation to proactively consult with the public prior to making applications, during the application review process, and throughout the operational phase of development right through to abandonment. Members of the public can assist by taking advantage of opportunities to learn about proposed developments and the regulatory processes

to review applications and monitor operations. The Board believes that Post followed the intent of public notification outlined in EUB Guide 56, and the intent of IL 89-4.

The Board notes that the City of Edmonton becomes involved in the public consultation process when a development is proposed in the City. The Board notes that this notification was above that required by the Board.

The Board is satisfied that affected parties were aware of the proposed development and were provided with an opportunity to raise concerns.

9 DECISION

The Board has carefully considered all the evidence and the views of the applicant and interveners. The Board believes there is a need for the well and that the well can be drilled and operated in an environmentally acceptable manner with minimal impact to the adjacent landowners. The Board also believes that the well can be drilled and operated without compromising public safety. Accordingly, the Board will approve the application subject to the following:

1. The well is considered a Level 1 critical sour gas well.
2. Post shall submit, prior to spudding the well, a detailed drilling plan as outlined in Section 4 of ID 97-6, *Sour Well Licensing and Drilling Requirements*, for the Board's review and approval.

ALBERTA ENERGY AND UTILITIES BOARD

Dated at Calgary, Alberta on 13 April 1999.

[Original signed by]

F. J. Mink, P.Eng.
Presiding Member

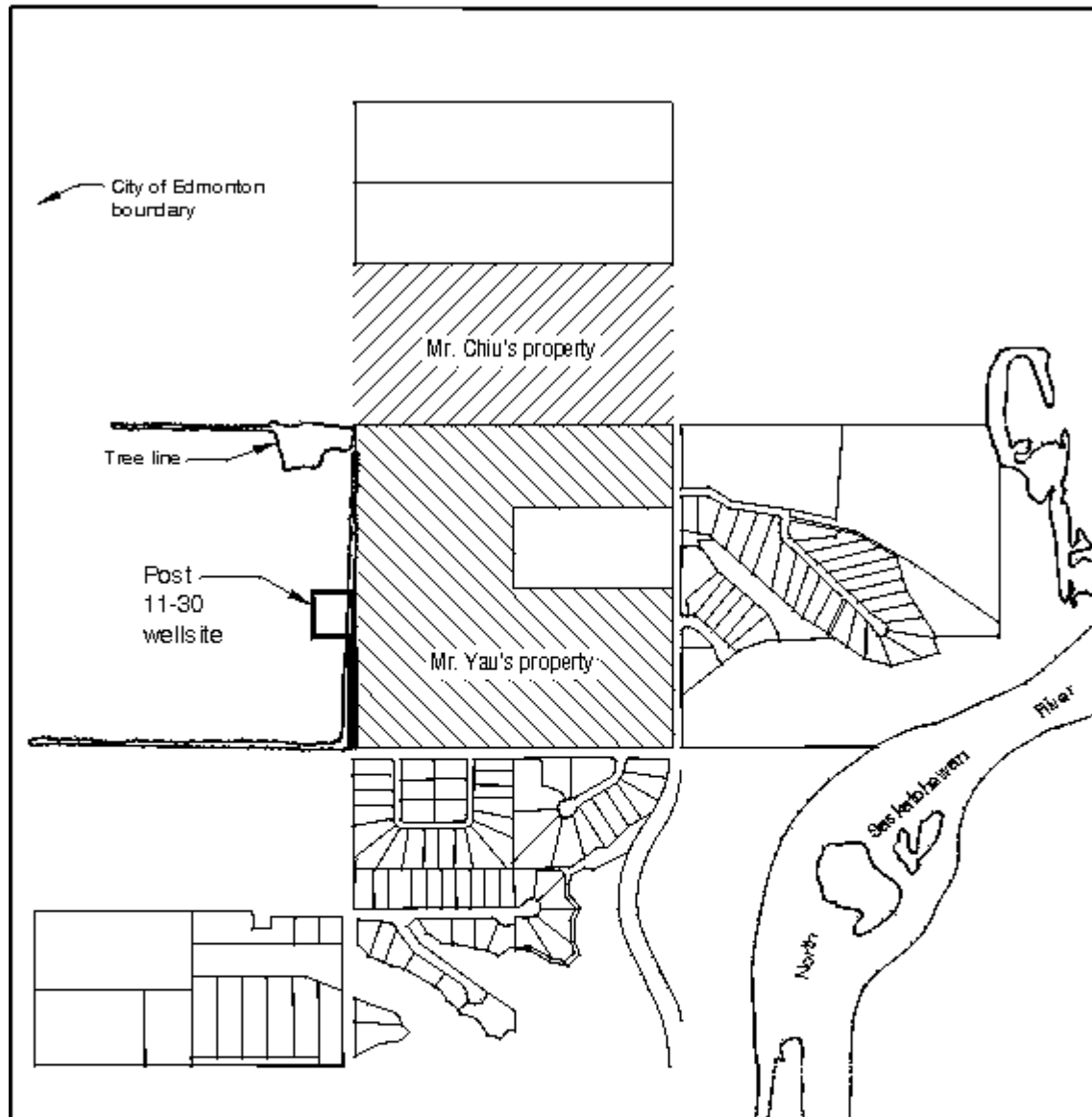
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T. McGee
Board Member

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M. J. Bruni
Acting Board Member

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Post Energy Corporation
Well Application
11-30-51-25 W4M