ALBERTA ENERGY AND UTILITIES BOARD
Calgary Alberta

TALISMAN ENERGY INC.
APPLICATION TO CONSTRUCT
A SOUR COMPRESSOR STATION **Examiner Report 2001-2**
KNOPCIK FIELD **Application No. 1076449**

1 RECOMMENDATION

Having carefully considered all of the evidence, the examiner concludes that Talisman Energy Inc. (Talisman) has demonstrated a need for the proposed facility and has selected the most appropriate location to allow maximum recovery of reserves and minimum impact on the environment. The examiner also concludes that the only real potential impact of the facility on the intervener is noise and that this issue has been adequately addressed by Talisman. The examiner therefore concludes that the applied-for facility is in the public interest and recommends approval of Application No. 1076449.

2 APPLICATION AND HEARING

2.1 Application

Talisman applied to the Alberta Energy and Utilities Board (EUB/Board), pursuant to Section 7.001 of the Oil and Gas Conservation Regulations, for approval to construct and operate a sour gas compressor station in Legal Subdivision (LSD) 2 of Section 27, Township 74, Range 11, West of the 6th Meridian (2-27 compressor/site). The 2-27 compressor would consist of a 1102 kilowatt (kW) (1478 horsepower) natural gas compressor and a 26 metre (m) emergency flare stack equipped with a sweet gas pilot. The compressor would be designed to have a capacity of 550 10^3 cubic metres/day (m^3/d) of raw gas with a maximum sulphur inlet of 8.95 tonne/d and a maximum hydrogen sulphide concentration of 1.2 per cent. The compressor would optimize production from the four wells in the Knopcik field, which are currently producing to an existing compressor facility located at LSD 16-35-74-11W6M (16-35 compressor site).

2.2 Intervention

On November 15, 2000, the EUB received an objection from Mr. Gordon Jones. Mr. Jones does not own the adjacent southwest quarter (Section 27-74-11W6), but his cattle graze there on a seasonal basis and he owns additional grazing leases to the west, north, and northwest of the proposed facility. He stated his objections as follows:

- noise (continuous);
- increased flaring of sour gas;
- the company already operates three compressors on a site 2.4 kilometres (km) (1.5 miles) north of the site; and
- devaluation of deeded land.

The landowner of the southeast quarter on which the proposed facility would be located has consented and there was no other intervention.

2.3 Hearing

The application and associated intervention were considered at a public hearing held at the Hythe Royal Canadian Legion, Hythe, Alberta, commencing March 29, 2001, before single examiner J. R. Nichol, 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
Talisman Energy Inc. (Talisman)	
B. K. O'Ferrall, Q.C.	S. Sobie, C.E.T. K. Beamish B. Loberg G. Thomsen, P.Eng., of Colt Engineering Corporation
G. and L. Jones	
J. D. Carter, Q.C.	G. Jones L. Jones
Alberta Energy and Utilities Board staff	
L. Lacasse, Board Counsel	
P. R. Forbes, C.E.T.	
A. Bell, E.I.T.	

3 ISSUES

The examiner considers the issues respecting the application to be

- need for the facility and location,
- noise and flaring, and
- other matters.

4 VIEWS OF THE APPLICANT

4.1 Need for the Facility and Location

Talisman indicated that its proposed facility would provide the ability to maximize the recovery of reserves, which is paramount to the successful exploitation of gas in the province. The proposed facility would increase the recovery of gas reserves from four wells in the Montney A halfway pool; the four wells are located at LSD 2-27-74-11W6M, LSD 4-26-74-11W6M, LSD 14-21-74-11W6M, and

LSD 2-22-74-11W6M (collectively referred to as the four southern area wells). The four wells were drilled between December 1994 and October 1997, and Talisman explained that a new compressor was necessary due to their declining production rates and the competitive drainage of the pool.

Talisman indicated that all four southern area wells are presently tied into the 2-27 site by pipelines. A 168 millimetre (mm) (6 inch) pipeline transports production from the 2-27 site to a point in the northwest quarter of Section 34, the tie-in point for the well located at LSD 9-33-74-11W6M (9-33 well). Production then continues northeasterly through a 219.1 mm (8 inch) pipeline to tie into the well at LSD 16-34-74-11W6M (16-34 well). The pipeline route follows an east-southeast direction to the existing Talisman 16-35 compressor site (with three compressors). The gas at this site is then transported to one of three sour gas-processing facilities. Two are located to the east of the 16-35 site, the Alberta Energy Company Ltd. (AEC) Saddle Hills plant (southwest quarter of Section 8-75-7W6M) and the Gulf Canada Ltd. Wembley plant (LSD 6-19-73-8W6M), and the other is located southwest of the 2-27 proposed facility, the AEC Sinclair plant (LSD 14-18-74-12W6M). The proposed compressor at 2-27 would also allow production from the 2-27 site to be directly tied into the system west to the AEC Sinclair processing facility, freeing up capacity at the 16-35 site for future wells currently being drilled and to be drilled near the 16-35 site.

Talisman investigated alternative locations for its proposed compressor. At the hearing, Talisman provided a table illustrating four of the alternatives, including the 2-27 site. At the request of the intervener, Talisman also provided a fifth case, which included the same data as provided for the other alternatives for a fifth location. The table on the next page illustrates and compares the merits of the five alternative sites.

Talisman submitted that the proposed 2-27 location was selected for the following reasons:

- Compression at the 2-27 site would allow the four southern area wells to produce at a much lower wellhead pressure. Lowering the abandonment pressures ultimately enhances the pool recovery.
- Locating the compressor at the 2-27 site offers the potential for extraction of an additional 366 10^6 m^3 (13 billion cubic feet [bcf]) of recoverable gas reserves that would otherwise be left in the ground.
- The proposed location affords maximum recovery and conservation of gas from all four southern area wells, as the proposed location is the central tie-in point for all four wells.
- The compressor at the 2-27 site would allow equitable competitive drainage of the pool.
- The 2-27 site is an existing well site on the node of the pipelines from the 4-26, 14-21, and 2-22 wells and requires no new pipelines. Surface disturbances and environmental impacts are therefore kept at a minimum.
- Less compressor horsepower is required at 2-27 (and emissions are therefore reduced) because of the shorter pipeline distances from the four southern area wells.

Thomson	Case 1: Base compressor at 2-27	Case 2: Compressor at 16-35 with no pipeline loop	Case 3: Compressor at 16-35 with pipeline loop	Case 4: 2-27 compressor moved as is to 16-35	Case 5: Compressor at 16-34 with pipeline loop
Production rate from southern area wells (10^3 m^3/d) initial rates	450	436	445	428	450
Horsepower required	1478	2446	2483	1478	2553
Installed cost of horsepower	$3050	$5047	$5124	$3050	$5269
% and $ increase in cost from compressor at 2-27	Base case	66% $2.0 million	82% $2.5 million	Base case	65% $2219
		Pipeline pressures (kilopascals) initial			
2-27	945	1588	1176	1852	945
11-34	3547	1021	1057	1433	3547
16-35	3447	600	600	1162	3447
Pipelines required	No	No	Yes	Yes	Yes
Installed cost of pipelines	0	0	$405 million	$405 million	$405 million
% and $ increase in total cost from compressor at 2-27	Base case	66% $2.0 million	82% $2.5 million	Base case	86% $2.6 million
Recoverable reserves lost (bcf)	0	4.4 13%	2.4 7%	5.4 16%	1.5 4.4%

- The landowner of the southeast quarter of Section 27-74-11W6M consented to the installation of the facility at the proposed site.

- The nearest resident is 1.1 km away and had no concerns with the proposed 2-27 site.

- Installation of the compressor at the 2-27 site is the least expensive alternative for Talisman, since it requires less horsepower and no new pipelines.

4.2 Noise and Flaring

Talisman indicated that the compressor was originally designed to meet the EUB noise guidelines contained in *Interim Directive 99-8: Noise Control Directive* and *Guide 38* (40 decibels [dBA] at the nearest residence). As a result of discussions with Mr. Jones, Talisman

agreed to implement measures to further minimize noise impacts associated with the proposed compressor at 2-27. The following measures will be implemented:

- The compressor will be situated so that the cooler fan faces north on the 2-27 site, away from Mr. Jones's lands.

- The compressor cooler fan will be a low-noise fan running at 275 revolutions per minute with low-noise "VT" blades.

- The engine exhaust silencer will be a critical grade silencer.

- The compressor will be housed in a building with a perforated liner and no vapour barrier.

As part of its application, Talisman provided a noise assessment showing that the compressor noise level would meet the EUB guidelines and that the predicted sound level at the nearest residence would be 34.5 dBA. In addition, Talisman referred to an internal policy requiring all operators to operate compressors with doors closed at all times, particularly in areas where noise sensitivities exist.

Talisman committed to install an automatic ignition system at the proposed site to minimize concerns regarding flaring. The system would operate continuously, igniting every couple of seconds, and would be equipped with an alarm to alert the operator if and when the flame went out. The design features also include high- and low-pressure, temperature, liquid level and vibration alarms to alert operators of problems. A supervisor control and data acquisition system to monitor and control the 2-27 site, backed up by an independent power supply in the event of a power outage, would also be installed. Talisman indicated that minimal flaring would occur for scheduled maintenance and that the amount of flaring would be minimal, since the compressor would have a double block and bleed valve. Flaring might also occur in rare cases of emergency.

5 VIEWS OF THE INTERVENER

5.1 Need for the Facility and Location

Mr. Jones did not object to the need for a compressor but disputed that the 2-27 site was the best location. He argued that the best location was the installation of the compressor at the 16-34 site or at least at the 16-35 site, where three other compressors already existed. Additionally, Mr. Jones was not satisfied with Talisman's consultation process. He stated that Talisman should have provided him with the alternative locations case study, and more particularly, with the case showing the facility at the 16-34 site, since he had had discussions with Talisman about that location.

Mr. Jones submitted that the 16-34 site was the best location for the proposed facility but did not say why he believed the 16-34 site would be more appropriate. He simply stated that if the compressor were located at the 16-34 site or 16-35 site, he would not object to it. He disputed Talisman's statement that the alternative locations would have a greater impact on all the residences in the Knopcik field because new pipelines would be required. Mr. Jones stated that because existing pipelines were

already located in the area and an additional pipeline system, if required, would be placed adjacent to the existing pipeline system, the impacts to area landowners would be minimal. Mr. Jones submitted that since there was an existing site to the north (16-34 site), which Talisman did not properly investigate, the big picture was not looked at before making the decision to locate the compressor at the 2-27 site and the examiner should therefore recommend a dismissal of the application.

5.2 Noise and Flaring

On further cross-examination by EUB staff and the examiner, Mr. Jones stated that his main concern with the compressor at the 2-27 site was that the noise would affect him and his cattle.

Mr. Jones stated that his cattle operation began and ended at the south end of Sections 27 and 28 and that the proposed compressor would have an impact on his ability to properly manage the cattle operation. He believed that his cattle would be attracted by the noise of the compressor and that, as a result, he would have to haze them out of the area. He explained that his cattle use the entire grazing area (20 quarters of land in total) from July to October and would be in the general southern area of Sections 27 and 28, in close proximity to the proposed compressor site, for approximately a month and a half. Additionally, he stated that this area was particularly quiet and that he enjoyed it personally for that reason.

Mr. Jones indicated that it was well documented that flaring occurred at compressor stations to depressurize pipeline systems. Mr. Jones stated that these flares often resulted in an incomplete burn, releasing all kinds of chemicals into the air, which could contaminate the ground and water. Mr. Jones believed that this would affect his cattle by hindering their performance, but he presented no evidence to support his concerns.

6 VIEWS OF THE EXAMINER

6.1 Need for the Facility and Location

The examiner takes notice of the fact that Mr. Jones did not object to the need for the facility. The examiner notes that Talisman's compressor is needed to provide the ability to maximize the recovery of reserves from the four southern area wells and would allow Talisman to address the competitive drainage of its reserves in this area. The examiner accepts that a new compressor at the applied-for site provides additional flexibility to allow production from the 2-27 site to be directly tied into the system directly west to the AEC Sinclair system, freeing up capacity at the 16-35 site. Therefore, given the evidence, the examiner agrees that there is a need for the proposed facility in the area.

In reviewing the five alternative locations presented by Talisman, the examiner must consider the public interest and balance factors such as the impacts on landowners and occupants, the interest of all Albertans, environmental impacts, and the most technically and economically feasible option. The examiner notes the various options provided by Talisman and accepts that the proposed location at the 2-27 site offers the most economic advantage, provides for maximum recovery of reserves, and has the least impact to the environment, since there would be less ground disturbance associated with the addition of new pipelines. Based on this information, the examiner believes that the 2-27 site is the best

overall location. However, the examiner must weigh these advantages over potential impacts of the facility on area landowners and occupants.

6.2 Noise and Flaring

With respect to the potential noise impact of the compressor at the 2-27 site on Mr. Jones and his use of the lands, the examiner notes that Talisman proposes to minimize potential impacts by the installation of low-noise, low-speed fan blades, a critical grade silencer, and a perforated building liner and by reorienting the compressor so that the cooler fan faces north, away from Mr. Jones's lands. Further, the examiner notes that these measures would result in a significant reduction in the noise level from what was originally proposed.

The examiner notes that the noise guidelines and the permissible sound levels in *Guide 38* were developed with a broad public view in mind and are widely accepted. The guidelines recognize that industrial activities will generate an increase in noise levels and set acceptable levels in rural as well as urban areas, based on a receptor-oriented method. The requirements of the guidelines have been tested and the EUB has repeatedly found them appropriate.

The examiner notes that it is not possible to eliminate noise completely but agrees that proponents should be encouraged to minimize noise wherever possible. In the present case, the examiner is satisfied that the noise level will be well within the guidelines and that Talisman has taken appropriate measures to mitigate as much as possible the noise impacts of the compressor on Mr. Jones. In addition, given the lack of evidence on how cattle are attracted to compressor noise and given the limited use of the land in the general area of the compressor station and the length of time cattle are actually in close proximity to the proposed 2-27 site, the examiner does not believe that the impacts associated with the compressor would materially affect Mr. Jones's cattle operation.

The examiner notes that Talisman is aware of the noise sensitivity issue in this case and has a policy of ensuring that doors to a compressor building are closed at all times where such sensitivity exists. The examiner encourages Talisman to apply this policy strictly in the present case.

With respect to Mr. Jones's concerns regarding flaring and the potential for chemicals to get into the soil and water, the examiner notes that Mr. Jones has brought no evidence to substantiate the assertion that flaring would affect his cattle performance. The examiner accepts the commitments by Talisman to monitor and control flaring at the 2-27 site and is satisfied that flaring incidents will be kept to a minimum and will not result in significant impacts on adjacent lands.

Finally, the examiner believes that Talisman's consultation process was adequate and resulted in mitigation measures to address the concerns raised by Mr. Jones.

7 OTHER MATTERS

Although EUB staff and the examiner have tried to obtain evidence from Mr. Jones about some of his concerns, Mr. Jones provided very little substantive evidence about any of the concerns listed above. The only issue raised by Mr. Jones at the hearing was the location of the facility. Nevertheless, the examiner has considered the noise and flaring issues and the evidence already in the file about mitigation measures to determine whether it is in the public interest to approve the present application. As there was absolutely no evidence about land devaluation, the examiner has not dealt with that issue.

The examiner notes that the intervener was represented by counsel in the present instance. At the onset of the hearing, counsel for the intervener informed EUB staff and the examiner that he had only received the application material the evening before. He did, however, acknowledge that he had only asked Talisman to provide it to him two days before the hearing. Counsel informed the examiner that he would seek an adjournment in order to adequately prepare his case. Ultimately, the parties agreed to proceed, with Talisman presenting its case first, followed by an adjournment to allow the intervener to review the application material with the help of EUB staff.

The examiner points out that the notice of hearing was issued on March 9, 2001, twenty days before the actual hearing took place. The notice indicated clearly that the applicant could obtain a copy of the application by contacting Talisman or view it at the EUB Grande Prairie or Calgary office. It is the responsibility of the intervener to obtain the proper information in advance to adequately prepare for the hearing.

The examiner also points out that no submissions were filed by the intervener (other than a typed version of the initial letter of objection) and very little substantive evidence was presented to assist the examiner in understanding the intervener's concerns. The examiner notes that when the EUB decides to hold a hearing with respect to an application, it expects interveners to be prepared to bring evidence to substantiate their concerns and to assist the examiner in giving proper consideration to these concerns.

Issued at Calgary, Alberta, on May 2, 2001.

ALBERTA ENERGY AND UTILITIES BOARD

<original signed by>

J. R. Nichol, P.Eng.