



# Oil and Gas Appeal Tribunal

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## **DECISION NOS. 2016-OGA-001(b), 002(b), 003(b), 006(b) and 2017-OGA-004(a) [Group File: 2016-OGA-G01]**

In the matter of five appeals under section 72 of the *Oil and Gas Activities Act*, S.B.C. 2008, c. 36.

<b>BETWEEN:</b>	Penalty Ranch Ltd.	<b>APPELLANT</b>
<b>AND:</b>	Oil and Gas Commission	<b>RESPONDENT</b>
<b>AND:</b>	Crew Energy Inc.	<b>THIRD PARTY</b>
<b>BEFORE:</b>	A Panel of the Oil and Gas Appeal Tribunal Norman E. Yates, Panel Chair	
<b>DATE:</b>	September 12 – 14, 2017; November 2-3, 2017	
<b>PLACE:</b>	Dawson Creek, BC	
<b>APPEARING:</b>	For the Appellant: Hans Kirschbaum and Anja Hutgens For the Respondent: Dorothy Foster, Counsel For the Third Party: Rick Williams, Counsel Tim Pritchard, Counsel	

## **APPEALS**

[1] This decision pertains to five appeals by Penalty Ranch Ltd. (“Penalty Ranch”) against determinations made by the Oil and Gas Commission (the “OGC”). The OGC authorized a number of natural gas wells, and two well sites, located approximately 20 kilometres southwest of Fort St. John, British Columbia (“BC”). The well sites accommodate multiple natural gas wells. Each is authorized by a permit issued to Crew Energy Inc. (“Crew Energy”) pursuant to the *Oil and Gas Activities Act*, S.B.C. 2008, c. 36 (“OGAA”). Penalty Ranch appealed some, but not all, of the well permits that have been issued for the two well sites.

[2] Penalty Ranch’s first appeal is against one of five permits (WA 31822) issued by the OGC to Crew Energy on February 12, 2016 for natural gas wells at well site 15-10-82-20 W6M (“Well Pad 15-10”) [Appeal File 2016-OGA-001].

[3] Penalty Ranch subsequently appealed four other determinations issued by the OGC in favour of Crew Energy:

- two well permit determinations issued on June 3, 2016 for well site 15-9-82-20 W6M (“Well Pad 15-9”) [Appeal Files 2016-OGA-002 and 2016-OGA-003];

- a December 13, 2016 determination issuing four more well permits for Well Pad 15-10 [Appeal File 2016-OGA-006]; and
- a May 1, 2017 determination issuing five more well permits at Well Pad 15-10, to replace the original permits at 15-10 (those issued on February 12, 2016) [Appeal File 2017-OGA-004].

[4] In summary, Penalty Ranch's appeals consist of the following: three appeals filed against three decisions authorizing 10 permits for Well Pad 15-10, and two appeals filed in regards to two permits issued for Well Pad 15-9. These five appeals were commenced under section 72(2) of the *OGAA*, and were joined by the Tribunal under Group File 2016-OGA-G01 and heard together by agreement of the parties [collectively, "these Appeals"].

[5] The permits at issue in this decision are collectively referred to as the "Permits". This Panel is aware that Penalty Ranch has also appealed a number of other OGC determinations to issue well permits to Crew Energy. This Panel is not aware of the specifics of those appeals, nor does this decision relate to those matters.

[6] The Tribunal has authority to hear these Appeals pursuant to sections 19 and 72 of the *OGAA*. Section 72(6) of the *OGAA* gives the Tribunal the power to "confirm, vary or rescind" the Permits or to send them back to the OGC with directions.

[7] Penalty Ranch asks the Tribunal to rescind the Permits or, alternatively, to amend them such that no drilling or hydraulic fracturing (a process used to extract natural gas, commonly referred to as "fracking") can be done within a one-kilometre radius of the geological wetland feature known as Worth Marsh, which is more-or-less adjacent to the northwest corner of Penalty Ranch's cattle ranch.

[8] Penalty Ranch is generally concerned that establishing these wells will potentially have an adverse impact on those wetlands, and could contaminate - and adversely affect the flow - of the groundwater that feeds the springs on which it depends for potable water (for consumption by humans and livestock). In addition, Penalty Ranch is concerned about noise associated with the permitted activities and the potential for air pollution.

## **BACKGROUND**

### *General*

[9] Penalty Ranch is a company duly incorporated and in apparent good standing in BC. Hans Kirschbaum is the company's president and secretary.

[10] The Permits are all located on Crown land over which Penalty Ranch holds Agricultural Lease No. 344644 (the "Agricultural Lease"). Penalty Ranch also holds fee simple title to a parcel of land adjacent to the southeastern portion of the Agricultural Lease (the "home ranch").

[11] Penalty Ranch operates a cattle ranching operation on the Agricultural Lease and the home ranch. Mr. Kirschbaum, Anja Hutgens and members of their family

reside at the home ranch. As noted above, the area in question is located approximately 20 kilometres southwest of Fort St. John, BC.

[12] The OGC is a Crown Corporation. Its mandate is to assist in the regulation of exploration, drilling, extraction, processing and transporting of natural gas in BC. Its role, as it pertains to these Appeals, is to receive applications and determine whether to issue permits for natural gas wells under the *OGAA*. The OGC has the authority to issue permits, to determine what conditions go into the permits, and also to monitor compliance with the permitted activities.

[13] Crew Energy is an Alberta company that is registered to do business in BC. Its head office is in Calgary.

[14] All of the Permits were issued by the OGC to Crew Energy pursuant to the regulatory scheme mandated by the *OGAA*. The Permits collectively authorize Crew Energy to drill for, and produce, "sweet natural gas" from subsurface reservoirs over which it holds mineral tenure rights from the Crown, which in this case is the Government of British Columbia.

#### *The Process leading to the Permits and Appeals*

[15] In early 2015, Crew Energy advised Mr. Kirschbaum, in his personal capacity and as the representative of Penalty Ranch, of its plans to apply for and construct a multi-well pad on the Agricultural Lease land, at the location of what is now Well Pad 15-9. Mr. Kirschbaum gave his permission to survey the area.

[16] In or about February 2015, Crew Energy advised Mr. Kirschbaum of its plans to apply for and construct a multi-well pad on the Agricultural Lease land, at the location of what is now Well Pad 15-10.

[17] As mandated by section 22(2) of the *OGAA*, Crew Energy subsequently gave Penalty Ranch formal notice and an opportunity to provide input on the proposals.

#### Permits for Well Pad 15-9

[18] In September of 2015, Penalty Ranch was formally notified and invited to consult regarding a proposal for three well permits for Well Pad 15-9.

[19] Penalty Ranch provided a written submission to the OGC on September 24, 2015. It expressed concerns relating to the potential for adverse impacts on the aquifer that supplies the spring at the home ranch, the potential for sour gas and other contaminants to migrate upwards along the well bore, the impacts of flaring, and a concern that fluids used for fracking could unexpectedly resurface through other natural gas wells. Penalty Ranch requested that any pockets of sour gas encountered during drilling be emptied and that local aquifers ought to be mapped. Its full submission is reproduced, below:

Dear OGC,

We would like to express our objection to a well (15-9) proposed by Crew Energy.

As the vertical drill pass of the well may go through the aquifer that feeds our natural spring, which supplies water to us and our animals.

If the well is drilled it will break through and open a path through ground and rock formations currently sealing in dangerous sour gas and other bad substances present or added during fracking a long way underground.

We would ask for mapping of aquifers in the area to determine vulnerability of groundwater. We are also part of Simon Fraser University's study to determine risk level of aquifer contamination. If the well is to be permitted we ask that if sour gas is encountered that it would be produced and the pocket emptied. To be proactive so that in case of well abandonment there is less pressure on sour gas to work it's [sic] way to aquifers and surface.

Flaring is also a concern to us and our animals.

Another concern is highly poisonous additives to frack fluids finding its way (under high pressure) to groundwater and surface. In one case in our area frackfluid pumped into one well came up in a different well a mile away.

There is no way of knowing where poisonous fluids under pressure during man-made earthquakes (fracking) end up.

We therefore request well 15-9 not to be allowed.

[20] Crew Energy responded to each of the concerns raised in a letter dated October 28, 2015. In addition, between September and October of 2015, Crew's representatives met with Mr. Kirschbaum on six occasions to discuss Penalty Ranch's concerns with the 15-9 well site project. It also communicated with Mr. Kirschbaum by email regarding Penalty Ranch's concerns.

[21] On November 2, 2015, Crew Energy filed the requisite application for the initial permit and development of Well Pad 15-9, which attached a record of the correspondence and meetings with Penalty Ranch.

[22] It should be noted that, in an effort to address Penalty Ranch's concerns, Crew Energy retained Matrix Solutions Inc. ("Matrix") to carry out a hydrogeologic risk assessment of potential impacts of hydraulic fracturing on Worth Marsh and springs in the Pine River valley, which include the springs of concern to Penalty Ranch. The assessment was not specific to the Permits or Well Pads 15-9 and 15-10. Matrix set out its assessment process and conclusions in a December 2015 report, as revised in 2016 (the "Matrix Report"). Based on its review of available information, Matrix concluded (on page 13) that, "there is a low to negligible risk that Crew's Montney operations will have an impact on the assessed receptors, provided that Crew adheres to legislated drilling and completion requirements and responds to surface spills consistent with regulations and industry best practices."

[23] On May 20, 2016, the OGC issued Crew Energy a well permit (WA 31806) authorizing the construction, drilling, completion and operation of a single natural gas well at Well Pad 15-9. Penalty Ranch did not appeal this permit, but it is relevant to the chronology.

[24] On June 3, 2016, the OGC issued Crew Energy two more permits authorizing the construction, drilling, completion and operation of two more natural gas wells at Well Pad 15-9, referenced as WA 31807 and WA 31808. Penalty Ranch appealed both of these permits on June 23, 2016. In its Notices of Appeal, Penalty Ranch asks the Tribunal to rescind these latter two well permits, and seeks a moratorium on drilling natural gas wells within one kilometre of Worth Marsh. [As previously noted, those appeals were given individual appeal file numbers 2016-OGA-002 and 2016-OGA-003.]

[25] Although not appealed, but again relevant to the chronology, on December 13, 2016 three additional permits were issued for Well Pad 15-9. Crew Energy sent Penalty Ranch an invitation to consult on these proposed wells on September 27, 2016. In a written submission dated October 31, 2016 regarding these three permits (and four additional permits at Well Pad 15-10, which are referred to below) Penalty Ranch raised concerns about the Matrix Report, including induced seismicity and the potential risk to ground water contamination from gas wells “within the recharge area of the aquifer”, the possibility of fabricated water samples, and that the riparian zone around Worth Marsh had not been adequately considered. Mr. Kirschbaum requested a meeting with the OGC to discuss these concerns. On November 2, 2016, Crew Energy provided a written response to those submissions. On December 13, 2016, the OGC granted the three new well permits at the 15-9 Well Pad. As noted, Penalty Ranch did not appeal these three permits.

#### Permits for Well Pad 15-10

[26] On November 2, 2015, Mr. Kirschbaum, on behalf of Penalty Ranch, provided a written submission to the OGC regarding the proposed 15-10 multiwell site. Concerns were again expressed regarding the potential for groundwater contamination and other adverse impacts on groundwater, the direction of the proposed drill paths, noise associated with the activities, and the potential for air pollution. The submission is reproduced, below:

We object to this multi well pad site 15-10, 82-20 late (past the 3 week window) because we believed to have a verbal agreement with Crew Energy as to proposed drill paths direction.

Crew Energy refuses to put the agreement on paper.

Due to the excessive amount of gas wells drilled and proposed to be drilled close to our home, we are adversely effected [sic] in our way of life at the ranch, where we have lived for 35 years.

We have great concerns about our aquifer being contaminated. Therefore we are part of the Simon Fraser University water study and await their findings. We also worry about air pollution, witnessing continuous flaring around our home.

The noise from trucking, fracking and flaring disturbs our once peaceful place.

[27] Crew Energy responded in writing on November 3, 2015, and met with Mr. Kirschbaum on approximately eight occasions between February and November 2015 with a view to addressing the various concerns raised. On November 16, 2015, Crew Energy filed applications for five natural gas wells at Well Pad 15-10, which attached a record of the correspondence and meetings with Penalty Ranch.

[28] On February 12, 2016, the OGC issued five well permits at Well Pad 15-10 (sequentially numbered WA 31822 to WA 31826) authorizing Crew Energy to construct, drill, complete and operate natural gas wells from Well Pad 15-10. A condition was added that required a qualified professional to be on site during construction, operation and reclamation with a view to preventing any "material adverse effect to the Riparian Reserve Zone (RRZ) associated with the wetland classified as W1 located adjacent to the proposed development site" (the "Wetland Protection Condition").

[29] On March 3, 2016, Penalty Ranch filed a Notice of Appeal with the Tribunal against one of the five February 12, 2016 permits (WA 31822), asking the Tribunal to rescind that permit. It also requests a moratorium on drilling and hydraulic fracturing within a one mile radius of Worth Marsh, and a similar distance from a fresh water spring, or springs, on which the ranch's livestock and the Kirschbaum family rely for potable water. [As previously noted, this appeal in respect of WA 31822 is referenced by appeal file number 2016-OGA-001.]

[30] A right-of-way over a portion of the Agricultural Lease was granted in April 2016 so that Crew Energy could have access to, construct, drill, and operate, multiple wells (and associated infrastructure) at the approved location of Well Pad 15-10.

[31] On May 4, 2016, Penalty Ranch filed an application for a stay in respect of well permit WA 31822 with the Tribunal. The Tribunal dismissed that application on June 27, 2016 (see *Penalty Ranch Ltd. v. Oil and Gas Commission*, Decision No. 2016-OGA-001(a)).

[32] On June 1, 2016, the OGC amended the permits for Well Pad 15-10 to incorporate a number of conditions aimed at addressing Penalty Ranch's concerns regarding induced seismicity and the potential adverse impact to water (collectively, the "Supplemental Water Protection Conditions").

[33] The content of the Supplemental Water Protection Conditions is summarized as follows:

- (a) baseline testing of both water quality and flow at four springs proximal to the Agricultural Lease that had been identified by Penalty Ranch, one being the spring at the home ranch on which Penalty Ranch relies for everyday use, which is outside of the scope of these Appeals (the "Baseline Testing Condition");
- (b) the development and maintenance of emergency response protocols to protect Worth Marsh and the four springs (the "Emergency Response Condition");
- (c) annual testing of water quality and flow at two of the springs identified as Springs 1 and 2 (the "Annual Water Testing Condition");

- (d) testing water quality and flow at the springs in the event of a seismic event of a magnitude 4.0 or greater that is determined to be the result of Crew Energy's hydraulic fracturing (the "Seismic Event Condition"); and
- (e) ground motion monitoring during all hydraulic fracturing activities, and providing a ground monitoring report to the OGC after completing those operations (the "Ground Motion Monitoring Condition").

[34] On September 27, 2016, Penalty Ranch was formally invited to consult regarding a proposal for four more permits at Well Pad 15-10.

[35] Crew Energy began drilling at the 15-10 Well Pad in late October 2016, after doing additional water sampling at the four springs of concern to Penalty Ranch.

[36] On October 20, 2016, Mr. Kirschbaum provided a written submission to the OGC on behalf of Penalty Ranch regarding the four additional 15-10 permits, expanding on the concerns expressed in previous submissions; in particular, he had concerns about an aquifer that he believed had been affected by the drilling at the 15-10 site, and that Crew Energy had caused "8 small earthquakes ... very close to Worth Marsh."

[37] On October 31, 2016, Mr. Kirschbaum provided a further submission to the OGC on behalf of Penalty Ranch. It jointly addressed the three permits proposed for Well Pad 15-9, as well as the four additional permits proposed for the 15-10. As noted above regarding the 15-9 permits, Penalty Ranch's October 31<sup>st</sup> submission identified further concerns regarding induced seismicity and the potential risk of ground water contamination from gas wells "within the recharge area of the aquifer", the possibility of fabricated water samples, and a concern that the riparian zone around Worth Marsh had not been adequately considered.

[38] Crew Energy replied to Penalty Ranch, in writing, on November 2, 2016 addressing Penalty Ranch's specific concerns and written submissions, and the parties subsequently met.

[39] On December 13, 2016, the OGC issued a determination approving the four additional well permits for Well Pad 15-10 (the "Additional December Permits for 15-10").

[40] On December 27, 2016, Penalty Ranch appealed that determination, seeking to have the Additional December Permits for 15-10 rescinded. [As noted above, the appeal was given appeal file number 2016-OGA-006.]

[41] On January 19, 2017, Penalty Ranch filed applications with the Tribunal to stay the four Additional December Permits for 15-10, as well as the two well permits issued for Well Pad 15-9 on June 3, 2016. The Tribunal dismissed those applications on March 2, 2017 (see *Penalty Ranch Ltd. v. Oil and Gas Commission*, Decision Nos. 2016-OGA-002(a), 003(a) and 006(a)).

[42] Due to technical issues related to their design and operational considerations, Crew Energy subsequently applied for five more well permits at Well Pad 15-10 to replace the initial five permits that had been issued by the OGC on February 12, 2016. The OGC issued these new permits in a determination dated May 1, 2017 (the "Replacement Permits"). Crew Energy surrendered the initial five permits.

[43] Penalty Ranch filed a Notice of Appeal in respect of the Replacement Permits on May 12, 2017, asking that they be rescinded. The focus of that appeal is similar to the others; namely, the potential impact to groundwater. Penalty Ranch pointed out that the Replacement Permits came about after one of the original wells experienced an unexplained loss of circulation fluid during drilling, *ergo* there is an obvious cause for concern. [As previously noted, this appeal is referenced by appeal file number 2017-OGA-004.]

[44] Of note, the Wetland Protection Condition and the Supplemental Water Protection Conditions (noting that the Baseline Testing Condition would be redundant) were incorporated into the Permits beginning June 1, 2016.

### Summary of the Appeals

[45] In sum, these Appeals relate to 12 natural gas well permits, as amended, more particularly:

- 10 of the 14 well permits issued for Well Pad 15-10 (including the subsequently surrendered permit WA 31822 issued on February 12, 2016); and
- two of the six permits issued for Well Pad 15-9 (namely, WA 31807 and WA 31808, issued on June 3, 2016).

[46] In all of these Appeals, Penalty Ranch maintains that the OGC failed to properly consider its concerns regarding groundwater flow and the potential for surface and groundwater contamination from the permitted activities and due to seismic events associated with the permitted activities and its concerns regarding noise, flaring and air pollution.

[47] Penalty Ranch emphasized at the hearing that it would like to see all of the Permits rescinded and, ultimately, have the OGC agree that no drilling or fracking will occur within one kilometre of Worth Marsh.

[48] Of some note, the majority if not all of the wells that are the subject of these Appeals have been completed.

## **RELEVANT LEGISLATION**

[49] The scope of these Appeals is limited by section 72(2) of the *OGAA*; namely, a land owner, as defined, may appeal a permit on the basis that the OGC's determination to issue that permit was made without having due regard to a prior submission made to the OGC by the land owner. The relevant sections of the *OGAA* are reproduced below:

### **Definitions**

1(2) ...

"land owner" means

...



(b) a person to whom a disposition of Crown land has been issued under the *Land Act*

...

“oil and gas activity” means

...

(b) the exploration for and development of petroleum, natural gas or both,

(c) the production, gathering, processing, storage or disposal of petroleum, natural gas or both,

...

(f) the activities prescribed by regulation;

...

“operating area” means an area, identified in a permit, within which a permit holder is permitted to carry out an oil and gas activity;

...

### **Consultation and Notification**

**22(1)** In subsection (3), “prescribed applicant” means a person who intends to submit an application under section 24 and who is in a prescribed class of persons.

(2) Before submitting an application under section 24, a person must notify the land owner of the land on which the person intends to carry out an oil and gas activity of the person’s intention to submit the application, and the notice must advise the land owner that he or she may make a submission to the commission under subsection (5) of this section with respect to the application or proposed application.

(3) Subject to subsection (4), before submitting an application under section 24, a prescribed applicant must carry out the prescribed consultations or provide the prescribed notices, or both, as applicable, with respect to the oil and gas activities and related activities, if any, that will be the subject of the prescribed applicant’s application.

...

(6) If a person makes a submission under subsection (5), the commission must send a copy of the submission to the applicant or to the person intending to apply for a permit, as the case may be.

...

[Emphasis added]

### **Permits and authorizations issued by commission**

**25(1)** Subject to subsection (1.1), on application by a person under section 24 and after considering

(a) written submissions made under section 22 (5), if any, and

(b) the government's environmental objectives, if any have been prescribed for the purposes of this section,

the commission may issue a permit to the person if the person meets the requirements prescribed for the purposes of this section.

...

- (2) In issuing a permit under subsection (1), the commission
- (a) must specify the oil and gas activities the person is permitted to carry out, and
  - (b) may impose any conditions on the permit that the commission considers necessary.
- (3) A permit and any authorizations granted to the applicant for the permit may be issued as a single document.
- (4) If the commission issues a permit under subsection (1), the commission must provide notice, in accordance with subsection (5), to the land owner of the land on which an operating area is located.
- (5) A notice under subsection (4) must
- (a) advise the land owner of the issuance of the permit and of the location of the proposed site of an oil and gas activity on the land owner's land, and
  - (b) state that the land owner may appeal under section 72 the decision to issue the permit, and include an address to which an appeal may be sent.
- (6) A permit holder must not begin an oil and gas activity on a land owner's land before the expiry of 15 days from the day the permit was issued, unless the land owner consents in writing to the activity beginning before the expiry of that period.

[Emphasis added]

## **Part 6 – Reviews and Appeals**

### **Definitions and application**

**69(1)** In this Part:

...

“eligible person” means

- (a) an applicant for a permit,
- (b) a permit holder or former permit holder,
- (c) a land owner of land on which an operating area is located,
- (d) a person to whom an order under section 49(1),
- (e) a person with respect to whom the commission has made a finding of a contravention under section 62;

...

## Appeal

**72(2)** A land owner of land on which an operating area is located may appeal a determination under this section only on the basis that the determination was made without due regard to

(a) a submission previously made by the land owner under section 22(5) or 31(2) of this Act, or

(b) a written report submitted under section 24(2) o(c) or 31(6) ....

[Emphasis added]

[50] For clarification: section 24 of the *OGAA* sets out the process for application and authorization of permits; the OGC is the "commission" referred to; Crew Energy is the "prescribed applicant" as that term relates to these Appeals; the areas where Well Pads 15-9 and 15-10 are located is the "operating area"; and the Permits were issued, and Penalty Ranch was provided notice of the Permits pursuant to section 25.

[51] The Panel also wishes to clarify that there is no issue in these Appeals as to whether the notification and consultation process was followed, or whether Penalty Ranch received timely notice of the OGC's decision to issue each of the Permits.

## ISSUES

[52] The Panel is satisfied that Penalty Ranch has standing to appeal, pursuant to section 72(2) of the *OGAA*. The company meets the definition of "land owner"; namely, "a person to whom a disposition of Crown land has been issued under the *Land Act*". More particularly, the Agricultural Lease is a deemed disposition of Crown land under the *Land Act*, and the Permits are for wells located on the land covered by the Agricultural Lease.

[53] The Panel notes, however, that Penalty Ranch does not have standing with respect to the home ranch because that property is located outside of the area that needs to be considered under the *Consultation and Notification Regulation*, B.C. Reg. 279/2010. That is not at issue. Nor does Penalty Ranch have standing with respect to other lands adjacent to the Agricultural Lease – for example, Worth Marsh.

[54] Further, although they testified and made capable submissions at the hearing, Mr. Kirschbaum and Ms. Hutgens do not, themselves, have standing to appeal in their personal capacity as land owners: they do not meet the definition of either "eligible person" or "land owner of land on which an operating area is located". It must be kept in mind that Penalty Ranch has standing as a legal entity unto itself, and then only by reason of being it owns land on which an operating area is located – more particularly, in regards to the Agricultural Lease.

[55] Thus, the issue in these Appeals is, quite simply:

**Whether the OGC gave due regard to submissions made by Penalty Ranch, a land owner, under section 22(5) of the *OGAA* before issuing the Permits (or any of them).**

## DISCUSSION AND ANALYSIS

### **Whether the OGC gave due regard to submissions made under section 22(5) of the OGAA by Penalty Ranch, a land owner, before issuing the Permits (or any of them).**

[56] Penalty Ranch maintains that the OGC made the determinations to issue the Permits without adequately considering its written submissions. The OGC and Crew Energy assert the contrary. For clarification, these Appeals are not about whether the land owner's concerns are legitimate or whether they were addressed to the owner's satisfaction.

[57] The submissions that were made by Penalty Ranch pursuant to section 22(5) were reiterated and expanded on in the hearing of the Appeals. While not identical, the written submissions, and the details provided in them, were consistent over time. For simplicity, these Appeals have been heard and considered on the premise that Penalty Ranch has the same concerns in respect of each of the Permits.

[58] These Appeals were conducted in the manner of a hearing *de novo*: there were four days of evidence, supplemented by thorough submissions on a fifth day. Most of the evidence was received in a "witness panel" format. Only Dr. Gilles Wendling, an expert called on behalf of Penalty Ranch, testified alone.

### ***The Appellant's Case (expanding on its written submissions to the OGC)***

#### The Evidence

[59] It should be noted that Penalty Ranch was not represented by counsel and was given considerable leeway in terms of the scope and manner in which it presented its evidence.

#### *Hans Kirschbaum and Anja Hutgens*

[60] Mr. Kirschbaum and Ms. Hutgens testified on behalf of Penalty Ranch. They went into considerably more detail than the somewhat perfunctory written submissions made to the OGC pursuant to section 22(5) of the OGAA.

[61] Together, Mr. Kirschbaum and Ms. Hutgens described having lived in the area for 35 years, where they have raised a family and run a cattle ranching operation (Penalty Ranch). They have enjoyed the natural serenity of the surrounding area.

[62] At times, Mr. Kirschbaum and Ms. Hutgens have found it stressful dealing with matters related to the oil and gas industry, but acknowledge that they have benefited financially from the type of activities that underlie these Appeals. They explained the observable and potential impacts that exploration for, and extraction of, natural gas was having on the local environment and, in particular, on the potential harm to groundwater in the vicinity of Worth Marsh and to local aquifers. They are concerned about induced seismicity, flaring, noise and air pollution.

[63] From their evidence, it is apparent that Mr. Kirschbaum's and Ms. Hutgens' principal fear is that the riparian area associated with Worth Marsh and the

aquifer(s) that supply their potable water could be adversely affected by the permitted activities. They referred to an incident in Alberta where Crew Energy had accidentally fracked into an underground water table – making the point that if it happened once then it could happen again.

[64] Although they acknowledged that there is no direct evidence of cause-and-effect, they have noticed some turbidity and temperature anomalies in one of the springs used by the ranch and, in 2014, they suspected that drilling activities in the area disrupted the groundwater flow that supplies a spring which they have used to water their livestock over the years.

[65] Mr. Kirschbaum and Ms. Hutgens also expressed specific concerns with Crew Energy's past practices. They gave an example of having contacted the OGC regarding poor practices with containment berms at the 15-10 Well Pad, in response to which they were told that an inspector would be assigned. (The OGC reported back that the problem with the berm had been rectified and there was no consequential damage.)

[66] Mr. Kirschbaum and Ms. Hutgens acknowledged having access to records regarding water testing and seismicity. However, they are suspicious that water sampling at the springs has not been done properly in the past, and they do not trust that the testing will be done properly in the future.

[67] Mr. Kirschbaum and Ms. Hutgens also expressed concern with increased seismic activity in the area. They described having felt several small earthquakes that they attribute to drilling and fracking. They introduced records from data published by the OGC and by National Resources Canada showing that there has been considerable seismic activity in the area, including two seismic events that they felt at their home when wells were being drilled at Well Pad 15-9. They do not believe that Crew Energy has given them all of the ground motion monitoring reports that they have requested in the past.

[68] In addition, Mr. Kirschbaum and Ms. Hutgens believe that:

- there are too many unknowns associated with drilling and fracking;
- the fact that they could feel so many low-magnitude seismic events means that there must be something unique about the local area; and
- the OGC and Crew Energy have not addressed their concerns about how sour gas would – or should – be dealt with.

[69] Mr. Kirschbaum and Ms. Hutgens also expressed concerns about the integrity of the drill holes and safeguards at the wellheads. They do not have confidence in the processes that have been put in place to monitor the groundwater supplying the springs that they have identified as being important to their ranching operation.

[70] Mr. Kirschbaum and Ms. Hutgens believe that they have valid concerns about adverse impacts from drilling, the introduction of fracking fluids, and the fracking process generally. They state that there is overwhelming scientific research and opinions to validate their concerns, and provided a variety of articles in support. They expressed their collective view that best practices and the existing regulatory scheme cannot prevent groundwater contamination and random, accidental, subsurface impacts.

[71] Mr. Kirschbaum and Ms. Hutgens also described their concerns and experience with noise and air pollution from flaring, and noise from drilling, trucks and machinery used at the well sites.

[72] Both Mr. Kirschbaum and Ms. Hutgens acknowledged that the OGC and Crew Energy are well aware of their concerns, of the specific points they have raised and spoken about, and of the examples that they have given during their testimony. They agree that both the OGC and Crew Energy have been considerate and proactive in acknowledging and addressing their concerns. However, they still believe more should be done to protect the water sources, such as mapping the aquifers in the area and undertaking more local studies.

[73] Under cross-examination, Mr. Kirschbaum and Ms. Hutgens acknowledged that Penalty Ranch has been consulted by Crew Energy regarding all natural gas activities undertaken around the ranch, and that Crew Energy has always entered into agreements with interested parties – and compensated them – with respect to any development. Further, although Crew Energy has informally agreed not to drill in a westerly direction from Well Pads 15-9 and 15-10 (that is, towards the home ranch, generally) they are concerned about what the future has in store.

*Dr. Gilles Wendling*

[74] Dr. Wendling was qualified as an expert in hydrogeology, including the distribution of water through rock and soil. Dr. Wendling acknowledged that he has no experience with drilling natural gas wells, but said that he has some experience drilling wells for water, and that many of the principles pertaining to the movement of gas through soil and rock are similar to water.

[75] Dr. Wendling's testimony consisted of a PowerPoint-style presentation and narrative. He described the geology underlying the area in question and groundwater behaviour, generally. He explained various hydrogeologic principles and expounded his views regarding the drilling for and extraction of hydrocarbons, as well as theoretical considerations related to the potential risks associated with those activities. He acknowledged that he advocates against the type of natural gas exploration and production that underlies these Appeals due to his views about induced seismicity, and the theoretical potential for groundwater contamination from drilling and fracking, among other things.

[76] Dr. Wendling was cross-examined about having previously testified at a hearing before an Alberta board similar to this Tribunal regarding a matter that pertained to a proposal to drill natural gas wells from multiple locations, and that involved hydraulic fracturing. As in these Appeals, that proceeding dealt with concerns about the potential for groundwater and subsurface water contamination, a central issue being the integrity of well casings and potential long-term impacts associated with natural gas wells. Dr. Wendling acknowledged having asserted in that matter – as he did during his evidence in these Appeals – that there are significant risks associated with drilling and fracking for natural gas, notwithstanding the available scientific information to the contrary. He also acknowledged that he had been criticized for lacking objectivity as an expert and for reaching beyond the area of his expertise.

## Argument

[77] Penalty Ranch's submissions were effectively an extension of Mr. Kirschbaum's and Ms. Hutgens' evidence, expounding on the potential adverse impact that the drilling process and the resulting wells could have on the aquifer or aquifers that their family, and Penalty Ranch's livestock, rely on for potable water. As Ms. Hutgens stated, these Appeals are "really about the water".

[78] Penalty Ranch asserts that the scientific community understands very little about what goes on "deep underground" but that, "We do know toxic frack chemicals and other hazardous fluids freed by the drilling process can migrate and might find their way into aquifers." Another concern is contamination of surface water at the well sites. Its argument is that regulatory safeguards and the Supplemental Water Protection Conditions are only helpful if something goes wrong – as compared to being designed to prevent accidents from happening or otherwise protect the environment. Penalty Ranch argues that its concerns are valid, and were not given due consideration.

[79] Penalty Ranch did not expound on the other concerns identified in its written submissions to the OGC apart from asking the Panel to consider issues related to the possibility of air pollution from the flaring of sour gas, as well as noise from drilling, flaring, trucking and from the construction and operation of the wells, generally.

[80] Penalty Ranch effectively submits that the OGC did not give sufficient consideration to, nor adequately address, its concerns before issuing the Permits.

## ***The Respondent's Case***

### The Evidence

[81] The OGC's witness panel gave a comprehensive overview of the process that was followed in acknowledging and addressing the various concerns raised by Penalty Ranch. They went through the legislative framework and discussed the specific conditions that were incorporated into the Permits in response to Penalty Ranch's submissions.

[82] Specifically, the OGC's witnesses explained the process that the OGC follows when determining whether to issue a permit. That was supplemented by a discussion of some of the "hands-on" consultation between the parties, the specific considerations relative to the two well pads and the Permits (including permits that weren't appealed), and an overview of the OGC's role in relation to natural gas well design, risk mitigation, and emergency response protocols.

[83] The OGC's witnesses identified a broad spectrum of both scientific and practical considerations that went into the determination process. Penalty Ranch had full opportunity to question the witnesses and seek clarification of their evidence through cross-examination.

[84] The three witnesses on the panel were: Viva Wolf, Dr. Laurie Welch and Kevin Parsonage.

*Viva Wolf*

[85] Ms. Wolf was the executive director of permit adjudication for the OGC and was responsible for permitting and processes in BC. [The Panel understands that Ms. Wolf retired from this role sometime shortly after she testified.]

[86] Ms. Wolf explained the permitting process from the application to the determination of whether a permit is issued. She emphasized that the OGC must ensure that all permits comply with, and otherwise incorporate, a complex cross-section of regulatory requirements. The legislative and regulatory framework deals with stakeholder consultation (including land owners) and considerations such as well design, induced seismicity, flaring (related to sour gas emissions), emergency response and safety, along with a cross-section of environmental values including riparian values and air pollution.

[87] By way of example, Ms. Wolf explained that Crew Energy's applications triggered a thorough process of review that laid the foundation for the determinations as to whether to issue each of the Permits, their terms and conditions, and any subsequent amendments. She testified that the Nature Trust of BC owns Worth Marsh and is the only other land owner involved in these matters. Although notified of Crew Energy's applications, it declined the invitation to make submissions.

[88] Ms. Wolf further testified that, as with every application, experts in the particular subject matter area review and provide recommendations regarding the various aspects of each permit. Ms. Wolf said that a conscientious determination is made as to whether to issue a given permit. In the present case, the Permits contain standard conditions that incorporate the relevant regulations, and other considerations such as the OGC's policies regarding noise.

[89] Ms. Wolf clarified that the OGC also engaged in extensive discussions with Mr. Kirschbaum pertaining to, among other things, the location of the well pads, emergency response planning, ground and surface water integrity, induced seismicity, flaring noise and emissions, and noise generally. She emphasized that many of Penalty Ranch's concerns are addressed by the legislative and regulatory framework of the *OGAA*; however, the OGC undertook further investigation pertinent to induced seismicity and flaring. Ultimately, the OGC was satisfied that Penalty Ranch's concerns would be adequately addressed by the Permits' conditions.

[90] Regarding some of the specific concerns identified by Penalty Ranch, Ms. Wolf advised as follows:

- the footprints of Well Pads 15-9 and 15-10 were kept to a minimum, and relocating them in any significant way was not a realistic option;
- Well Pad 15-10, as approved, is subject to regulated setbacks and environmental protection considerations, whereas Well Pad 15-9 is located within an area of "existing disturbance" with a view to minimizing its impact on the environment;
- specific conditions were included to address the potential impact on Worth Marsh and groundwater, generally – and seismicity;



- the Permits are for “sweet” gas wells and, once in production, the gas will go directly into a pipeline which will minimize the need for flaring;
- emergency response measures are incorporated into the Permits (see below, where Mr. Parsonage discussed some of the specifics); and
- the OGC’s “Noise Control Best Practices” guidelines address Penalty Ranch’s concerns about noise.

[91] Ms. Wolf noted that permit conditions do not change if a permit gets transferred to another operator (if, for example, Crew Energy sold these wells).

[92] In her evidence, Ms. Wolf clarified that a permit could include (or be amended to include) a condition regarding the direction of drill paths from a given well pad, but that none of the proposed drill paths for the Permits were directed towards Worth Marsh. In the event that a drill path was proposed to go toward, or under Worth Marsh, Ms. Wolf emphasized that there would be prior consultation. She noted that, albeit not originating from Well Pad 15-09 or 15-10, there were already drill paths under Worth Marsh with no apparent adverse impacts.

[93] Ms. Wolf also pointed out that the OGC undertook its own hydrogeological review of the area (referring to Dr. Welch’s role which is discussed below) in addition to the Matrix Report that Crew Energy commissioned. In her view, surface water integrity is properly and appropriately addressed by:

- Regulations that specifically deal with environmental management;
- the Permits; and
- an enhanced water management plan incorporated into the Permits to specifically address Penalty Ranch’s concerns about water.

*Dr. Laurie Welch*

[94] Dr. Welch is a hydrogeologist employed by the OGC. She is a professional geoscientist and a board member of the International Association of Hydrogeologists. Dr. Welch has presented at conferences and written a number of peer-reviewed academic journal articles on topics related to groundwater and groundwater flow modeling. She has extensive experience in matters related to aquifer vulnerability and management related to BC’s oil and gas industry. Dr. Welch was qualified as an expert in hydrogeology in the context of oil and gas development in northeastern BC.

[95] Dr. Welch’s role with the OGC involves using her expertise to perform academic and non-academic special projects and research. She also does hydrogeologic reviews at the application stage for permits and other authorizations that have potential groundwater concerns. The OGC relies on her as a “subject matter expert” on issues such as the technical aspects of oil and gas well drilling, procedures used in cementing and completing wells, and the geology of northeastern BC generally (e.g., oil, gas and water zones).

[96] Among other things, Dr. Welch is responsible for the hydrogeological aspects of the regulation of water source wells permitted under the *OGAA*, and for the development of initiatives for groundwater protection and management related to

oil and gas activities in northeastern BC. One focus of her research and interagency involvement is to guide development of groundwater knowledge to better inform decision-makers on the sustainable management of groundwater resources in northeastern BC.

[97] Dr. Welch was involved in the investigative process that led to the Permits being issued. She testified that, as part of the process underlying the determinations to issue the Permits, she did a “desktop” hydrogeologic review. This review used available databases pertaining to mapped water wells, springs, surface water information, land use, and topography. This was followed-up by a more detailed investigation in response to Penalty Ranch’s concerns regarding long-term water supply, the potential for Worth Marsh to recharge the springs identified by Penalty Ranch, and other parameters including the potential for the aquifer(s) being contaminated by fluids introduced as an unintended result of drilling and fracking.

[98] Dr. Welch said that she concluded that it was possible, albeit extremely unlikely, that any of the springs would be adversely affected by the permitted activities. She therefore recommended adding the Supplemental Water Protection Conditions to the Permits. Her opinion has not changed.

[99] Dr. Welch also referred to Crew Energy having hired Matrix to do a hydrogeological risk assessment, and to monitor the flow and chemistry at some of the springs. In her opinion, it was not necessary for her to perform any additional fieldwork: she was satisfied with the information available to her.

[100] Dr. Welch referred to a recent Simon Fraser University project – apparently the same one referred to by Penalty Ranch – that developed methodology to study and monitor springs in the Peace River region. Not only was Dr. Welch familiar with it, she was a technical reviewer for that project. She said that the results of the study, although not yet published, were consistent with, and supported, her recommendation to add the Supplemental Water Protection Conditions to the Permits.

*Kevin Parsonage*

[101] Mr. Parsonage is a professional engineer employed by the OGC as a Field Engineering supervisor. He has a wealth of experience in the oil and gas industry, including the drilling and extraction processes used for subsurface hydrocarbons. Mr. Parsonage has extensive experience dealing with the *OGAA* and related regulations, including those involving wellbore integrity, hydraulic fracturing practices, seismic activity monitoring, safety practices, and waste management.

[102] Mr. Parsonage described the process of drilling and casing a natural gas well, and provided an overview of how hydrogeologic fracturing works. Although not qualified as an expert, Mr. Parsonage was obviously well qualified and presented his evidence in a helpful and objective manner.

[103] Mr. Parsonage explained the considerations that go into ensuring that well casings are designed and installed to prevent leakage (as compared to what is considered to be an acceptable seepage of methane) and blowouts. He went through the many requirements set out in the *Drilling and Production Regulation*, B.C. Reg. 282/2010, specifically regarding technical considerations, safety and

monitoring. In his view, it is highly improbable that a leak could occur through the type of casings used for the wells in question. Further, in terms of contamination and safety concerns, Crew Energy is required to use non-toxic drilling mud, and the cemented steel casings in the wellbores must meet regulatory requirements. Mr. Parsonage also met on a number of occasions with Mr. Kirschbaum and representatives of Crew Energy to discuss and consider Penalty Ranch's concerns, and he helped design the emergency response protocols.

[104] The Panel was advised that the wells are drilled through a 1,200 meter-wide strata of "mixed lithology sediments" that acts as a natural barrier, thus preventing fracking fluids from migrating into groundwater aquifers. Regulations also require operators to keep and submit records to monitor wellbore integrity, seismic events, and flaring activity. Of note, the regulations were amended in 2015 requiring that operations be suspended if they trigger an earthquake of magnitude 4.0 or greater – and other associated safeguards were effect in June 2016. Further, Penalty Ranch has been provided with available records regarding seismic activity in the vicinity of Well Pads 15-09 and 15-10.

#### Argument

[105] The OGC argues that the Permits' conditions adequately acknowledge and address Penalty Ranch's concerns. It emphasized that neither the consultation process, nor these Appeals, are about satisfying or appeasing Penalty Ranch; rather, the issue is whether the land owner's concerns were given appropriate consideration - given "due regard" - as part of the process of determining whether to issue a given permit and whether to include specific conditions. The OGC argues that it fulfilled its obligation and gave due regard to the points raised in Penalty Ranch's submissions both before, and after, the Permits were issued.

#### ***The Third Party's Case***

##### The Evidence

[106] Paul Dever, Ian Mills, and William Wilmot testified as a panel on behalf of Crew Energy. All three have considerable experience in the oil and gas industry in northeastern BC and in Alberta.

[107] Paul Dever has been the director of government and stakeholder relations for Crew Energy, and was directly involved in the application and consultation process for the Permits. He has considerable familiarity with Crew's operations, and the well sites and Permits under appeal. Mr. Dever was responsible for acquiring the sites where Well Pads 15-9 and 15-10 are located, applying for the Permits, and consulting with Penalty Ranch and other stakeholders.

[108] Ian Mills is a professional engineer employed by Crew Energy. He has a master's degree in mechanical engineering and has extensive experience in various parts of the world, including northeastern BC and northern Alberta, drilling natural gas wells involving aquifers and bringing the wells into production. Mr. Mill's evidence focused on Crew Energy's practices related to drilling and completing wells and bringing them into production. He is well-versed in the subsurface geology of the area in question and, specifically, the wells to which these Appeals pertain.

[109] William Wilmot is employed by Matrix. He acts as a consultant in the oil and gas industry, dealing with groundwater matters related to well design. Mr. Wilmot was qualified as an expert in hydrogeology specifically related to oil and gas development. His vocational pursuits mostly involve projects involving environmental and site assessments, and modeling and aquifer testing for multi-well pads and well network design. Most of his work relates to drilling through groundwater aquifers – including in northeastern BC and northern Alberta. He is well-versed in the geology of the area under review.

[110] Mr. Wilmot oversaw the risk assessment for the area, the results of which are contained in the Matrix Report. He has also done sampling and testing specific to the area.

[111] Collectively, these witnesses' evidence categorically covered the following subjects:

- the business that Crew Energy carries out in BC and, more specifically, in the area in question;
- the Permits generally, and Crew Energy's dealings with Penalty Ranch;
- the consultation process generally, and specifically Crew Energy's dealings with the Mr. Kirschbaum and Ms. Hutgens (on behalf of Penalty Ranch);
- Crew Energy's efforts to acknowledge, accommodate, and otherwise address Penalty Ranch's concerns; and
- the methods used to drill and extract natural gas.

[112] The witnesses testified that all of the wells planned for Well Pad 15-9 have been completed (drilled, fracked, and brought into production), and that only two had yet to be drilled at Well Pad 15-10.

[113] They also noted that, over the years, approximately 80 wells have been drilled within five kilometres of Worth Marsh, and approximately 70 wells have been drilled under the Agricultural Lease. The majority of those wells have brought natural gas to surface using fracking techniques.

[114] Regarding the Permits, the witnesses testified that the drill paths from Well Pad 15-9 have a north or northeast orientation – away from Worth Marsh; and those for 15-10 are in an easterly direction (also not towards, let alone under, the marsh nor specifically towards the home ranch). [To clarify: the wells are drilled vertically to a considerable depth into a targeted geological formation before heading horizontally in a given direction to a point where the fracking ultimately occurs.]

[115] The witnesses further testified that none of the wells drilled by Crew Energy have historically resulted in contamination of either surface or groundwater, nor has Penalty Ranch filed any objections to Crew Energy's activities in the area prior to the applications for Well Pads 15-9 and 15-10. In fact, Penalty Ranch has been generally cooperative in past years in regards to activities dealt with under the OGAA and continues to receive a substantial annual stipend from Crew Energy.

[116] The witnesses also discussed the Matrix Report. Notwithstanding that the study was not a requirement of the *OGAA*, Matrix's hydrological risk assessment of Worth Marsh and the four springs was done to determine if there were any identifiable risks associated with the activities that Crew Energy was proposing in respect of the Permits. The Matrix Report addressed the generic concerns raised by Penalty Ranch pertaining to groundwater, and specifically incorporated ongoing water sampling. A copy of the Matrix Report was provided to Penalty Ranch, and Crew Energy's representatives met with Mr. Kirschbaum and Ms. Hutgens to discuss it.

[117] In keeping with the Matrix Report and Crew Energy's consultations with Penalty Ranch, the Permits were amended – or conditions included in subsequent permits – to prevent contamination of surface water at the marsh and to monitor the springs, to monitor seismic events that might be related to the wells in question, and to generally enhance Crew Energy's emergency response plans, among other things. Further, to address Penalty Ranch's concerns, the Permits require Crew Energy to do annual water testing and to take samples at two of the springs every six weeks. However, the Panel heard that Crew Energy is doing even more comprehensive sampling than the Permits require.

[118] In this same vein, Crew Energy has endeavoured to work with Penalty Ranch "as good neighbours", over and above what the Permits and the legislation require. For example, Crew Energy involved Penalty Ranch in developing an emergency evacuation plan, and has provided radios to help ensure safe travel on roads being used for the permitted activities, as well as a satellite telephone and a cellphone booster to facilitate communication in case of an emergency.

[119] It was explained that the permit application process involves a combination of knowledge and experience, and that a given project entails a detailed study to assess foreseeable risks. Any identifiable peculiarities associated with the subsurface geology and environmental considerations must be addressed, including the protection of water integrity (surface and subsurface).

[120] The Panel was advised that Crew Energy endeavors to comply with the mandated regulatory framework throughout the exploration and production phases of work regulated by the *OGAA*, and aims to minimize long-term impacts to the land. For example, prior to commencing drilling at Well Pad 15-10 in October 2016, additional sampling was done at the springs identified by Mr. Kirschbaum. The Panel was shown photographs to illustrate Crew Energy's efforts to prevent or mitigate surface water contamination at the well sites, noting that neither site is intended to be a permanent infrastructure. It was also pointed out that all sites are required to undergo a thorough reclamation process (which is also part of the regulatory scheme).

[121] The Panel was given a detailed explanation about how the wells are designed to prevent hydrocarbons from moving between geological formations, and that the well casings meet, or exceed, industry safety and regulatory standards. Crew Energy uses state-of-the-art materials and equipment. Steel casings are installed in the drill holes, and the vertical portion of each well is "cemented to surface". According to the evidence, all of the wells were cemented to a considerable depth. For example, the wells at Well Pad 15-10 had 7-inch casing installed to a depth of

at least 500 metres below the wellhead (which is more substantive and deeper than the *Drilling and Production Regulation* requirement that casing be set to the base of groundwater). Atop that, the wellhead is constructed with blowout preventers, backed-up by stringent periodic testing to ensure the equipment is operating properly.

[122] In addition, there are emergency response plans in place for the various stages of its operations. Those emergency measures cover risk identification, personnel training, having equipment and contractors at the ready, and evacuation protocols.

[123] The hydraulic fracturing process was also explained in some detail:

- an extensive regulatory framework must be complied with;
- every planned frack has an associated fracture planning zone (determined by experience and computer modeling); and
- seismic activity associated with fracking activity is carefully monitored, and records are submitted to the OGC.

[124] There are regulatory consequences for any seismic event above a specified threshold. The Panel was told there was no abnormal seismic activity associated with the permitted activities at Well Pads 15-9 or 15-10; however, complications did arise when one of the wells at Well Pad 15-10 unexpectedly lost fluid circulation during drilling at a depth in excess of 400 metres below the surface casing. The witnesses testified that the underlying problem (leading to the loss of circulation fluid) occurred at a considerable depth in the highly permeable Cadomin formation, below any potential source of potable groundwater, and did not give rise to any environmental concerns. Unable to mitigate the problem, Crew Energy opted to abandon the original wells at that site (in compliance with the regulations aimed at ensuring hydrologic isolation and long-term integrity of the wellbores) and applied for the Replacement Permits, in respect of which the determination was made and the permits issued in May of 2017. The wells authorized by the Replacement Permits were drilled with a larger diameter wellbore and surface casing to allow the installation of intermediate casing, at depth, if loss of circulation recurred. [The Panel notes that there was no evidence that the problem described by the witness panel substantiated any of Penalty Ranch's concerns.]

[125] Under cross-examination, the witnesses acknowledged that there were risks associated with drilling, fracking and the potential failure of wellbore integrity. Crew Energy's witnesses acknowledged having experienced an incident in Alberta where a natural gas well casing was perforated from an explosive charge that prematurely detonated. The Panel heard that Crew Energy no longer uses the method or technology that gave rise to that incident, and that it was not a consideration or factor in respect of the Permits. Further, it was pointed out that the Matrix Report concluded that the risk that the wells could impact groundwater quality, or the flow to Worth Marsh or to the springs, is "low" as long as Crew Energy adheres to best practices, complies with the Permits' conditions, the legislation and regulations, and that it responds appropriately with emergency protocols if the need arises.

### Argument

[126] Crew Energy argues that the Permits address Penalty Ranch's concerns over and above that which the OGC is required to address, that the wells meet or exceed industry standards, are in compliance with the Permits, and comply with the legislative and regulatory scheme, generally.

[127] Similarly, it was acknowledged that there was a problem at another well related to pressure parameters, but that was a situation that did not pertain to, and could not arise with, any of the wells at Well Pads 15-9 and 15-10.

### ***The Panel's Findings***

#### *Credibility*

[128] The Panel found all of the witnesses to be sincere and, with the exception of a good portion of Dr. Wendling's evidence, the testimony was relevant, helpful and compelling. Some further comment is necessary in regards to Dr. Wendling's testimony.

[129] Although Dr. Wendling is obviously passionate about the subject matter of this proceeding, he acknowledged that he had no experience in drilling natural gas wells. Neither did he have any knowledge or experience regarding the wellbore integrity of natural gas wells, nor was he able to comment on the potential for degradation of cement used in oil and gas well casings (apart from what he's read or heard at symposiums) let alone the materials and technology of the wells under review in this matter. He also has no experience in seismology, geomechanics or geophysics (although he has taken courses and attended conferences that have dealt with those topics).

[130] While no doubt well-intentioned, Dr. Wendling acknowledged that he is biased in his views. He testified as an advocate rather than as an objective, non-partisan expert. During his evidence, Dr. Wendling kept overstepping the bounds of what is expected of an objective expert witness. The Panel cautioned him repeatedly to focus his testimony in keeping with his qualified expertise and the admissible evidence, and to temper his opinions accordingly. However, even after being admonished, most of his evidence was outside of his qualified expertise and not derived from factual premises on which the Panel could rely. For example, he asked the Panel to consider written materials that were beyond the limited scope of his testimony. This is not to say that an expert cannot be passionate about the subject matter, but such passion is not helpful in a matter such as this and, indeed, can negatively impact how expert testimony is received, particularly when viewed as an attempt to persuade the decision-maker.

[131] Ultimately, Dr. Wendling's evidence was not particularly helpful or relevant to the issues before the Panel, and has not been given much weight.

#### *The legal test*

[132] The question to be decided by the Panel is not whether the land owner's concerns are legitimate, or whether they were addressed to the land owner's

satisfaction. Nor is the question whether this Panel would have made a different decision than the OGC.

[133] As noted earlier, the legal issue here is limited by section 72(2) of the *OGAA* to whether “the determination was made without due regard to” the written submissions that Penalty Ranch made to the OGC under section 22(5) of the *OGAA*.

[134] In deciding these Appeals, the Panel has considered prior decisions of this Tribunal; in particular, see *James Bell v. Oil and Gas Commission*, (Decision No. 2012-OGA-003(b), December 12, 2013) [*Bell*], and *Ken Boon and Arlene Boon v. Oil and Gas Commission*, (Decision Nos. 2011-OGA-010(a) and 2012-OGA-001(b), September 27, 2012). Both of these decisions have been previously referred to, and followed, by the Tribunal.

[135] Of note, at paragraphs 41 to 45 of *Bell* the Tribunal reasoned that, to be successful, an appellant must establish that the OGC did not give “due regard” to its submissions. To be successful, the appellant land owner needs to convince the Panel, on a balance of probabilities, that the OGC should have given its submissions more weight, and then ought to have decided the matter differently.

[136] Also of consequence, an appeal under section 72(2) of the *OGAA* is treated as a hearing *de novo* in which the Panel is able to consider new evidence in support of, or related to, the land owner’s submissions. This was expressed in *Bell* as follows:

45. ... the Legislature has limited a land owner’s grounds for filing an appeal which, by implication, narrows the types of issues that may be relevant in land owner appeals. Those issues must relate to the decision-maker’s failure to have “due regard” to the appellant’s written submissions (see *Kerr v. Oil and Gas Commission*, Decision No. 2011-OGA-005(b), December 12, 2011). However, in that decision, the Tribunal also found that it could hear new evidence. This Panel finds that both the submissions in relation to the original submissions, and any new evidence provided in support of those submissions, must meet the burden and standard identified above. In particular, an appellant must be able to establish that the concerns expressed are reasonable and legitimate and that the OGC, and now the Tribunal, should give them greater weight and should make a different decision.

46. For example, if an appellant raises a concern about impact to drinking water, there should be some evidence that there is a source of water that could reasonably be impacted, and there should be some evidence of link between the risk and the water in order to establish that it should be protected, but that the decision under appeal did not/does not do so. As stated by the Board in the decision quoted above, there must be some evidence “that the process which lead to the decision was flawed in some way” and should now be changed. [Emphasis added]



*Whether the OGC gave "due regard" to Penalty Ranch's submissions*

[137] The concerns raised by Penalty Ranch in its written submissions to the OGC, as reiterated and expanded upon in these Appeals, can be summarized as follows:

- potential for contamination of Worth Marsh and the surrounding riparian area, both at surface and subsurface, from the right-of-way and construction activities related to the well pads, from drilling the wells, from processes used to extract natural gas, and from related activities associated with the well pads;
- potential adverse effects that drilling and fracking could have on the aquifer(s) that supplies water to a number of springs on the Agricultural Lease which Penalty Ranch relies on for potable water, due to upward seepage of contaminants along the wellbore;
- potential impacts of induced seismic activity associated with hydraulic fracturing processes;
- noise caused by the various activities related to the construction and operation of the well pads, and noise associated with drilling, fracking and the subsequent production of natural gas at the well sites; and
- noise and the potential for air pollution from flaring related to production of natural gas.

[138] The Panel has considered and addressed Penalty Ranch's concerns regarding location of the well pads and direction of the drill paths, potential impacts to water, induced seismicity, hydraulic fracturing generally, noise, flaring and "other" concerns under separate headings below.

*(a) Location of the Well Pads and Direction of the Drill Paths*

[139] In its written submissions to the OGC, and in its case before the Panel, Penalty Ranch objected to the Well Pads, in particular 15-10, being located in close proximity to a riparian zone. It argues that no wells should be drilled within a kilometre of Worth Marsh, nor under the marsh.

[140] The Panel is satisfied that the OGC took Penalty Ranch's objections into consideration. It is apparent from the evidence that there were limited options as to where the well pads could be located. The Panel notes that the footprints of the well pads were kept to a minimum, with appropriate setbacks and environmental safeguards in keeping with the regulations, and utilizing existing disturbance features where possible. The Wetland Protection Condition was specifically added with a view to alleviating concerns about the location of Well Pad 15-10. Further, no drill paths from Well Pads 15-9 or 15-10 go under the marsh. According to the evidence, to do so would require the OGC's prior approval. Crew Energy has agreed, on the record, not to drill in that direction.

[141] The Panel is satisfied that the OGC acknowledged, and gave due regard to, Penalty Ranch's objections and concerns regarding the location of the well pads and the direction of the drill paths.

(b) Water

[142] In her evidence, Ms. Hutgens stated that these Appeals are “really about the water”. She and her husband are worried about the marsh and the aquifer(s) that supply the springs on which their family – and their ranching operation – depends for potable water. Penalty Ranch argues that the regulatory safeguards and Supplemental Water Protection Conditions are only helpful if something goes wrong: they are not designed to prevent pollution or to prevent accidents from happening.

[143] In the course of their testimony, Mr. Kirschbaum and Ms. Hutgens referred the Panel to a number of newspaper clippings, journal articles and other written materials that were topical to Penalty Ranch’s concerns. Sometimes the rules of evidence can be tricky to understand – and although administrative tribunals are generally more flexible than traditional courts in terms of what evidence they will consider, this is not one of those exceptions. Collectively, those writings are unsubstantiated opinions in the category of hearsay evidence and – although they may be helpful to the Panel’s understanding of the concerns expounded by Penalty Ranch – they are not evidence. As such, the Panel has not given those materials any weight.

[144] Penalty Ranch asks the Panel to find that its evidence – for example, that periodic water sampling showed some temporary chemistry changes and a temperature anomaly at one or other of the springs – is sufficient to establish cause and effect. The Panel disagrees. The Panel finds that the chemistry changes were explained in context of how the samples in question were taken. The Panel further finds that the temperature of the water was within tolerances and, in any event, went back to “normal”. There was no evidence to connect either of those changes or anomalies to Crew Energy’s activities.

[145] Penalty Ranch also asks the Panel to find that the permitted activities are not adequately regulated. The most compelling evidence before the Panel, however, is that natural gas wells in northeastern BC are routinely established without apparent adverse impacts to surface water and groundwater. When evaluating the potential impact to Worth Marsh and the springs, the OGC nevertheless required Crew Energy to submit a mitigation strategy to address riparian zone values and to mitigate risk. In addition, the physical location of Well Pad 15-10 had to comply with environmental standards mandated by sections 4 and 5 of the *Environmental Protection and Management Regulation*, B.C. Reg. 200/2010.

[146] The Panel also notes that, among other things, the *Drilling and Production Regulation* anticipates that a natural gas well may bisect an aquifer. To prevent contamination of potable water sources from substances in deeper formations, the regulation requires that wells be constructed with surface casing and production casing. The surface casing must be cemented into place. The evidence supports a finding that the surface casings used by Crew Energy meet or exceed the regulatory standard.

[147] The evidence also establishes that the legislation is designed to protect against groundwater contamination. According to Dr. Welch, the risk of contamination from the wells is “low”. She concluded that there is no reason to

believe that hydraulic fracturing in the Montney level (the formation targeted by the wells) would somehow interact or connect with the strata above it, let alone with the “potable water bearing sediments”, which is the focus of Penalty Ranch’s concerns. Her conclusion was echoed by other witnesses who testified on behalf of the OGC and Crew Energy at the hearing. (And, as has been explained, the Panel found it was not able to give much weight to Dr. Wendling’s contrary evidence in this regard).

[148] Notwithstanding this conclusion, Dr. Welch acknowledged that the permitted activities are not without risk. As such, she recommended including the Supplemental Water Protection Conditions in the Permits specifically to address Penalty Ranch’s concerns.

[149] Further, the Panel notes that Crew Energy commissioned a hydrogeologic risk assessment of potential impacts from fracking on water resources, such as the springs identified by Penalty Ranch. The results are contained in the Matrix Report, a copy of which was made available to Penalty Ranch. The hydrogeologic risk assessment went so far as to consider water sources that are technically beyond the scope of these Appeals. The assessment concluded that Crew Energy’s operations would have a low to negligible impact on the water sources identified. That opinion was corroborated by Dr. Welch’s hydrogeologic review (which was part of the OGC’s determination process). Crew Energy was, nonetheless, required to carry out baseline testing of the springs, including the ones not on the Agricultural Lease. In addition, the OGC included the Supplemental Water Protection Conditions in the Permits to ensure sampling on an ongoing basis.

[150] Further, the Panel notes that water used for fracking is to be stored in “C-rings” for fracking operations which, according to the evidence before the Panel, keeps it from mixing with ambient water. As an aside, it is apparent from the sampling data that there has been no impact to the flow or quality of groundwater that recharges the springs and – although Penalty Ranch suspects otherwise - there is no evidence that water samples at the springs have been improperly tested in the past.

[151] The Panel finds that the baseline testing requirement, along with the other conditions in the Permits, were designed and included with a view to protecting water resources, and were appropriately responsive to Penalty Ranch’s concerns.

[152] This Tribunal has previously determined that a condition requiring baseline testing is sufficient to address a land owner’s concerns in respect of groundwater contamination from hydraulic fracturing: see *Bell, supra*, at paragraph 58. In this case, the OGC went even farther and clearly had due regard for, and responded proactively to, Penalty Ranch’s concerns notwithstanding what was seen as a “low risk” of there being any adverse environmental impact.

[153] To ensure there is no adverse effect on water, Penalty Ranch asked for the aquifers in the area to be mapped, and for, essentially, a stay of the activities under the Permits until the Simon Fraser University study is concluded. The Panel finds that the OGC also gave due regard to this request. More particularly, the Panel finds that the evidence does not support Penalty Ranch’s assertion that the aquifers ought to be mapped before the permitted activities occur. There is no compelling evidence that the drilling process could lead to contamination or disrupt

the flow of subsurface water. Further, Dr. Welch's insight into, and involvement with, the Simon Fraser University study makes this a moot consideration.

[154] In conclusion, the Panel is satisfied that the OGC gave due regard to Penalty Ranch's concerns about the potential impact of the permitted activities on surface water and groundwater.

(c) *Induced Seismicity*

[155] The Panel finds that the OGC had due regard to Penalty Ranch's concerns about induced seismicity. This is evident from the regulatory framework, bolstered by the Seismic Event Condition and the Ground Motion Monitoring Condition contained in each of the Permits. More particularly, seismic activity is anticipated, but must be monitored and reported. Further, operations must be suspended if fracking causes a seismic event of magnitude 4.0 or greater within a 3 kilometre radius of the drilling pad (section 21.1 of the *Drilling and Production Regulation*).

(d) *Hydraulic Fracturing (Generally)*

[156] Penalty Ranch's concerns with hydraulic fracturing were a central theme throughout the hearing. However, the Panel must consider whether the evidence supports, or provides a basis for, the concerns – and whether the OGC gave them adequate consideration. As discussed earlier, the Panel finds that the majority of Penalty Ranch's assertions are not supported by admissible opinion or other evidence that can be considered by the Panel. Based on the admissible evidence, the Panel finds that the OGC made its determinations after giving due regard to Penalty Ranch's concerns about the environmental impacts associated with hydraulic fracturing.

(e) *Flaring*

[157] The Panel similarly finds that the OGC gave due regard to Penalty Ranch's concerns with flaring when deciding whether to issue the Permits and what conditions to include. Although there are no conditions in the Permits that specifically address those particular concerns, the Permits deal extensively with flaring, and the Decision Rationales for the Permits considered flaring and the potential impacts on air quality.

[158] By way of example, the Permits are subject to stringent regulatory provisions that deal with flaring. As with seismicity, flaring is an anticipated byproduct of the process involved in bringing natural gas wells into production. The *Drilling and Production Regulation* deals with the storage and disposal of wastes with a view to preventing any hazard to public health or safety. It limits when a permittee is allowed to conduct flaring activities, and requires the permit holder to give the OGC and area residents 24-hours advance notice in specified circumstances, such as before a planned flaring event if the quantity of gas to be flared exceeds 10,000 cubic metres. In addition, section 40 of the *Drilling and Production Regulation* requires a permit holder to ensure that its operations at a well or facility "do not cause excessive noise or excessive emanation of light". The OGC's noise guidelines also apply.

[159] The Panel also notes that the wells are clearly to extract sweet gas, not sour gas (which is typically what gets flared), and the Panel heard that the wells are, or will be, linked directly to a pipeline. Once linked, the evidence is that flaring should be minimal and will not occur during normal operating conditions.

[160] Finally, the Panel understands that Penalty Ranch's principal concerns with flaring (namely, the odor and noise associated with flaring) arise from anecdotal observations made by Mr. Kirschbaum and Ms. Hutgens at the home ranch. Notwithstanding the Panel's finding that flaring was given due consideration by the OGC, and is collectively addressed within the Permits and the regulatory framework, the Panel notes that there is no evidence that flaring interferes with, or otherwise affects, Penalty Ranch's ranching operations on the Agricultural Lease.

(f) *Noise*

[161] The Panel's findings and comments about flaring also pertain to Penalty Ranch's concerns about noise, generally. As has been noted, section 40 of the *Drilling and Production Regulation* requires a permit holder to ensure that its operations at a well or facility "do not cause excessive noise or excessive emanation of light". The Panel also heard evidence that, in its efforts to be a good neighbour, Crew Energy strives to stay in compliance with the OGC's "Noise Control Best Practices Guidelines", which are designed to address noise-related issues associated with the permitted activities.

[162] Although anecdotal, the Panel accepts that there are times when sounds associated with drilling, machinery, heavy equipment, trucks, fracking and flaring seem prolonged, and can be heard from a distance. The evidence is that this type of noise can be heard at the home ranch. The Panel also takes notice that the noise associated with the permitted activities undoubtedly disturbs the natural quiet and serenity of the area. Nevertheless, the Panel finds that, in making its determinations to issue the Permits, the OGC had due regard to Penalty Ranch's concerns regarding noise.

(g) *Other Concerns*

[163] Finally, the Panel notes that the Decision Rationales for the Permits took into account Penalty Ranch's concerns regarding risks to humans, livestock, and the environment generally. The Panel finds that those topics were adequately addressed by reference to the existing regulatory requirements regarding emergency response protocols and containment at the well pads in the event of an accident or pollution-causing event. For example, these topics are addressed within the *Drilling and Production Regulation* and the permit conditions requiring that a qualified professional be on site.

[164] The Panel notes that operators must be in compliance with the *Emergency Management Regulation*, B.C. Reg. 217/2017. The Panel heard evidence of, and is satisfied that, there are other safeguards in place to ensure "the safe exploration, production and transportation of natural gas within the province", and that the protection of public health is paramount.

[165] During the hearing, Penalty Ranch asserted that the scientific community understands very little about what goes on “deep underground” but that, “We do know toxic frack chemicals and other hazardous fluids freed by the drilling process can migrate and might find their way into aquifers.” The Panel finds that this bold assertion is not substantiated by the evidence before the Panel. On the evidence put before the Panel, the Panel is satisfied that the provincial government has deemed that the permitted activities can be conducted safely within the existing legislative and regulatory framework, and that the OGC and Crew Energy employ personnel who are qualified to understand, prevent, or otherwise deal with the types of concerns that have been raised by Penalty Ranch.

[166] In *Dilworth and Jorgensen v. Oil and Gas Commission*, (Decision Nos. 2015-OGA-001(a) and 002(b), June 7, 2016), the Tribunal held that relevant permit conditions, coupled with the regulatory scheme, ought to be sufficient to address pipeline safety considerations (paragraph 177). Although these Appeals are not about the sufficiency of, or compliance with, pipeline safety standards, the Panel adopts that premise: without evidence to the contrary that satisfies the balance of probabilities test, the existing regulatory framework, and any additional conditions in the Permits, adequately address concerns related to water contamination, hydraulic fracturing and induced seismicity, flaring and noise.

[167] The regulatory scheme is devised to minimize risk to the public and the environment, while at the same time being responsive to an incidents or situations that are considered undesirable or unacceptable, or that requires an emergency response to mitigate potentially adverse consequences.

### *Conclusion*

[168] The Panel has considered Penalty Ranch’s written submissions, the OGC’s Decision Rationales for the issuance of the Permits, and all of the evidence and arguments presented in these Appeals.

[169] The Panel is satisfied, on a balance of probabilities, that the OGC had due regard to Penalty Ranch’s concerns, as set out in its submissions prior to the Permits being issued, and expanded upon during the hearing of these Appeals. The Panel finds that, in addition to adding specific conditions designed to deal with Penalty Ranch’s concerns, the Permits either specifically incorporate the requisite regulatory requirements and safeguards, or Penalty Ranch’s concerns are addressed via the general legislative requirements that pertain to permit holders.

[170] The Panel also finds that the evidence supports a conclusion that, in addition, to being in compliance with the Permits, Crew Energy strives to meet or exceed industry standards where that is a consideration – and the OGC is satisfied with that.

[171] The Panel finds that the evidence overwhelmingly supports a conclusion that the OGC gave due regard to the concerns set out in Penalty Ranch’s written submissions.

**DECISION**

[172] In making this decision, the Tribunal has considered all of the relevant documents and evidence, whether or not specifically referred to herein.

[173] To reiterate, the narrow issue before this Panel is whether Penalty Ranch has demonstrated, on a balance of probabilities, that the OGC's determinations to issue the Permits were made "without due regard to" the concerns described in written submissions previously made by Penalty Ranch. It is not whether the stated concerns were addressed to Penalty Ranch's satisfaction, nor whether this Panel might, or should, come to a different conclusion than that OGC in the circumstances.

[174] The Panel finds that the OGC gave due regard to Penalty Ranch's submissions and, more specifically, the concerns raised in those submissions. The OGC acted reasonably and with diligence in doing so. Having considered the evidence and submissions, these Appeals are dismissed.

[175] The OGC's determinations are upheld and confirmed.

"Norman E. Yates"

Norman E. Yates, Panel Chair  
Oil and Gas Appeal Tribunal  
June 22, 2018