

IN THE MATTER of a CONTRAVENTION  
of the *OIL AND GAS ACTIVITIES ACT*  
[SBC 2008] Chapter 36  
before  
The BC OIL and GAS COMMISSION  
Case File 2017-002DC

BETWEEN

The BC Oil and Gas Commission

AND

Crew Energy Inc.

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ADMINISTRATIVE FINDING

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Before

Vice President, Operations, Lance Ollenberger

Representing the BC Oil and Gas  
Commission

Operations Officer, Hack Waldon

Representing Crew Energy Inc.

Chief Operating Officer, James Taylor

Decision Date

March 21, 2019

## **Introduction:**

1. On December 17, 2016, a Level 3 Incident occurred at Crew Energy Inc.'s (Crew's) wellsite located at 04-34-081-20 (the Site) during flowback operations. There was an explosion that injured a worker and caused a buffer tank to catch fire which spread to the C-ring and resulted in produced water spilling onto the lease.
2. A Contravention Report (the Report) dated June 21, 2018 was sent to me alleging that Crew contravened sections 41(1)(a) and 51(6)(d) of the *Drilling and Production Regulation (DPR)*.
3. On July 20, 2018 a letter and the Report were sent to Crew informing it that the BC Oil and Gas Commission (Commission) was considering making a finding of contravention pursuant to sections 41(1)(a) and/or 51(6)(d) of the DPR. The letter informed Crew of its opportunity to be heard in written form and advised that a finding of contravention could result in the Commission imposing an administrative penalty in accordance with section 63 of the *Oil and Gas Activities Act (OGAA)*.
4. Crew provided a response in a letter dated August 22, 2018 (the Response).
5. On October 9, 2018, at Crew's request, the Commission met with Paul Dever, Jamie Taylor and Ian Mills to allow for the presentation of a supplementary oral response with supporting documentation (the Supplementary Response).
6. The Commissioner of the BC Oil and Gas Commission has delegated me authority under sections 62 and 63 of the OGAA. I will be making a determination with regards to: whether Crew contravened sections 41(1)(a) and/or 51(6)(d) of the DPR; whether to impose an administrative penalty under section 63 of the OGAA; and the amount of the penalty, if any. I have reviewed the Report, Crew's Response and the Supplementary Response. In making a determination, I rely on these documents, and the applicable legislation.

## **Applicable Legislation**

7. Section 41(1)(a) of the DPR states that a permit holder must not vent gas unless the gas heating value, volume or flow rate is insufficient to support stable combustion and the venting is conducted in a manner that does not constitute a safety hazard.
8. Maximum penalties for specific violations are set by regulation. Section 5(4) of the *Administrative Penalties Regulation (APR)* provides that a person who contravenes section 41(1)(a) of the DPR is liable to an administrative penalty not exceeding \$100,000.
9. Section 51(6)(d) of the DPR states that a well permit holder who uses an above ground structure with a liner as the primary means of containment to store water-based fluids with a concentration of total dissolved solids greater than 4,000 ppm must ensure that the structure is located and constructed in a place and manner that ensures the contained fluids will not migrate beyond the lease boundary in the event of a containment failure.
10. Section 5(5) of the APR provides that a person who contravenes section 51(6)(d) of the DPR is liable to an administrative penalty not exceeding \$50,000.

11. Section 62(1) of the OGAA states that, after providing an opportunity to be heard to a person who is alleged to have contravened a provision of the Act, the regulations, a permit, an authorization or an order, the Commission may find that the person has contravened the provision.
12. Section 62(5) of the OGAA states, in part, that the Commission may not find that a person has contravened a provision of the OGAA or the regulations if the person demonstrates to the satisfaction of the Commission that they exercised due diligence to prevent the contravention.
13. Section 63(1) states that, if the Commission finds that a person contravened a provision of the OGAA or its regulations, the Commission may impose an administrative penalty. Section 63(2) of the OGAA sets out the factors that must be considered when determining whether to impose an administrative penalty under section 63(1) and the amount of the penalty. These include:
  - (a) previous contraventions by, administrative penalties imposed on, or orders issued to the person;
  - (b) the gravity and magnitude of the contravention;
  - (c) the extent of harm to others resulting from the contravention;
  - (d) whether the contravention was repeated or continuous;
  - (e) whether the contravention was deliberate;
  - (f) any economic benefit derived by the person from the contravention;
  - (g) the person's efforts to prevent and correct the contravention; and
  - (h) other prescribed matters.

## **Background**

14. On December 17, 2016, an explosion occurred at the Site that caused a buffer tank to catch fire and spread to a C-ring that contained condensate. The C-ring fire resulted in produced water spilling onto the location and threatening to breach the lease berm. Crew immediately shut in all wells, evacuated personnel and set up roadblocks with the assistance of emergency services.
15. Commission personnel attended the Site following receipt of the incident notification and met with Crew representatives along with other provincial agencies already at the location. At the time, the fire was still burning and had compromised the C-ring which allowed the liquids contained within it to flow out onto the lease and pool in a low corner along the berm. WorkSafeBC (WCB) ordered everyone to evacuate the Site until it had completed its investigation. There was some concern that there was a high risk of the produced water breaching the berm and flowing downhill into the Pine River; therefore, WCB consented to allow Crew to initiate clean-up efforts. Vacuum trucks were allowed back onsite and a bell hole was created to facilitate removal of the produced water.
16. Fire suppression measures were initiated putting out the fires the same day and the incident was subsequently downgraded to a Level 1. Further clean-up works were completed by Crew to empty and clean out the C-ring which was completed by December 23, 2016. Following completion of clean-up efforts, both Crew and the Commission commenced investigations into the incident.

## Issues

17. The issues which I will decide are:

### Section 41(1)(a) of the DPR:

- Did Crew vent gas such that the gas heating value, volume or flow rate was sufficient to support stable combustion and in a manner that constituted a safety hazard?
- Did Crew exercise due diligence to prevent venting gas such that the gas heating value, volume or flow rate was sufficient to support stable combustion and in a manner that constituted a safety hazard?
- Did Crew contravene section 41(1)(a) of the DPR?

### Section 51(6)(d) of the DPR:

- Did Crew fail to ensure that the above ground structure was located and constructed in a place and manner that ensured the contained fluids did not migrate beyond the lease boundary?
- Did Crew exercise due diligence to ensure that the above ground structure was located and constructed in a place and manner that ensured the contained fluids did not migrate beyond the lease boundary?
- Did Crew contravene section 51(6)(d)?

If Crew is found to have contravened sections 41(1)(a) and/or 51(6)(d) of the DPR what if any, administrative penalty to impose.

### Section 41(1)(a) of the DPR:

Did Crew vent gas such that the gas heating value, volume or flow rate was sufficient to support stable combustion and in a manner that constituted a safety hazard?

18. The Report alleges that Crew failed to ensure that adequate provision was made for the management of produced water, condensate and gases being released from the condensate in the buffer tank. It is alleged that gases being released from the condensate in the buffer tank were not safely vented to atmosphere as the buffer tank was an open top tank and that these vented gases were sufficient to support stable combustion and constituted a safety hazard.

19. Crew's Post Incident Report states that the "the buffer tank was implemented to assist in identifying foaming issues" and "condensate carry-over is possible and does occasionally occur. When necessary the condensate is skimmed off the buffer tank using a vac truck." However, Crew also asserts that there was no indication of significant volumes of condensate in the buffer tank prior to ignition of the fire. Nevertheless, Crew's Post Incident Report concludes that the presence of ignitable gas was the result of condensate carry-over in the buffer tank. By storing condensate in an open topped tank, gases were not safely vented to the atmosphere and created a combustible hazard.

20. I find that Crew vented gas such that the gas heating value and volume were sufficient to support stable combustion and in this manner constituted a safety hazard.

Did Crew exercise due diligence to prevent venting gas such that the gas heating value, volume or flow rate was sufficient to support stable combustion and in a manner that constituted a safety hazard?

21. Pursuant to section 62(5) of the OGAA, I may not find that Crew contravened section 41(1)(a) of the DPR if Crew demonstrates to my satisfaction that it exercised due diligence to prevent the contravention. The test to be applied is whether Crew has demonstrated that it took all reasonable steps to prevent the contravention. Crew is not required to show that it took all possible or imaginable steps to avoid the contravention. The standard is not one of perfection, but rather of a reasonable person in similar circumstances.

22. In its Response, Crew states that it maintained, directly and through its contractor, continuous 24 hour supervision onsite during operations and flowback. In addition, according to Crew's Response, it had an early foaming detection process and buffer tank in place to enable visual identification of foaming issues and minimization of condensate carryover. The process included the injection of chemicals upstream to reduce foaming and improve separation. Equipment installed onsite included both low and high pressure vessels to ensure proper fluid separation and the flow rate was closely monitored. Crew states its intention was to reduce the condensate surplus to the buffer tank and C-ring.

23. A reasonable step Crew could have taken to safely manage gases would have been to use a closed top tank to store the condensate and minimize the risk of stable combustion, even if gas heating value and volume would support it. Additionally, it is reasonable to expect that Crew would have ensured that stationary gas monitors were installed onsite and that personal monitors worn by its workers were on and functioning properly for early gas detection and possibly prevention of the explosion.

24. Crew has failed to satisfy me that it took all reasonable steps to prevent the contravention.

Did Crew contravene section 41(1)(a) of the DPR?

25. Based on the above, I am not satisfied that Crew exercised due diligence to prevent the contravention. I find that Crew contravened section 41(1)(a) of the DPR.

**Section 51(6)(d) of the DPR:**

Did Crew fail to ensure that the above ground structure was located and constructed in a place and manner that ensured the contained fluids did not migrate beyond the lease boundary?

26. Crew advised the Commission that the C-ring on the Site had the capacity to hold approximately 6500 cubic meters of fluids at maximum volume. At the time of the incident, the C-ring contained about 1400 cubic meters of produced water with total dissolved solids of 180,000ppm. Approximately 250 cubic meters spilled onto the Site as a result of the fire. Due to the concerns that produced water would breach the lease berm, clean-up was initiated

immediately to control and remove the fluid from the Site and the C-ring was drained shortly thereafter.

27. If the C-ring had continued to leak and the remainder of fluid had been released onto the Site, there was a high probability that the berm would not have been capable of containing the produced water since 250 cubic meters of fluid nearly breached the berm. While this incident did not result in migration of fluids beyond the lease boundary, the risk was substantial given the improbability that a 1 meter berm could have sustained potentially 6500 cubic meters of fluid.
28. Therefore, I find that Crew failed to ensure the above ground structure was located and constructed in a place and manner that ensured the contained fluids did not migrate beyond the lease boundary.

Did Crew exercise due diligence to ensure that the above ground structure was located and constructed in a place and manner that ensured the contained fluids did not migrate beyond the lease boundary?

29. In its Response, Crew states that it considered a variety of factors when determining the placement of the C-ring on the Site. It was constructed in accordance with lease construction standards of a minimum berm height of 1 meter around the perimeter of the lease. Secondary containment measures were in place along with daily C-ring inspections completed by Crew personnel.
30. The Commission acknowledges that Crew has subsequently conducted a review of sites containing C-rings to calculate the total capacity of C-rings against berm heights to meet a minimum threshold. However, it is reasonable to expect that this step would have been completed initially at the lease planning and construction stage so that berm heights could confine fluids onsite in the event of a containment failure.
31. Crew has not demonstrated to my satisfaction that it took all reasonable steps to prevent the contravention.

Did Crew contravene section 51(6)(d) of the DPR?

32. I find Crew contravened section 51(6)(d) of the DPR.

**Section 63(2) of the OGAA:**

If Crew is found to have contravened section 41(1)(a) and/or 51(6)(d) of the DPR what if any, administrative penalty is to be imposed?

33. Section 63(2) of the OGAA sets out factors that the Commission must take into consideration when determining whether or not to impose an administrative penalty. In the following paragraphs, I consider the applicability of those factors to this contravention.

34. Two previous orders, one contravention and one administrative penalty have been issued against Crew by the Commission, although the other contravention for which a penalty was issued occurred after this contravention.
35. The gravity and magnitude of the contravention is high given that one worker was injured and the imminent risk of the produced water breaching the lease boundary had the entire volume of liquid contained in the C-ring escaped.
36. The contravention was not repeated or continuous.
37. The contravention was not deliberate.
38. Crew did not derive any significant economic benefit from the contravention.
39. Crew did exert efforts to correct the contravention by immediately implementing measures to remediate and clean up the spill. Crew has subsequently developed new corporate operating policies, procedures and supervisor checklists; installed stationary gas detection and alarms on leases; added a multi-stage separator and closed condensate storage tank to its equipment design; initiated berm integrity inspections and a review of all leases that contain C-rings for adequacy of berm heights; and review of policy and procedures by key personnel.

### **Conclusion**

40. In consideration of the foregoing, I find that Crew contravened sections 41(1)(a) and 51(6)(d) of the DPR. Based on the above discussion of the various factors set out in section 63(2), I am imposing an administrative penalty of \$10,000.



Lance Ollenberger  
Vice President, Operations  
BC Oil & Gas Commission

Date: March 21, 2019