

# ENFORCING CANADA'S NEW METHANE REGULATIONS

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### Introduction

Methane (CH<sub>4</sub>), a potent GHG, has a global warming potential of more than 70 times carbon dioxide (CO<sub>2</sub>), over a 20-year period.<sup>1</sup> It is a significant component of natural gas.<sup>2</sup> Environment and Climate Change Canada (ECC) has reported that the Canadian oil and gas sector was responsible for 25% of the national GHG emissions, during the period 1990 to 2012. In 2017, ECC reported that 44% of Canada's GHG emissions were from the same industry.<sup>3</sup>

In light of Canada's commitments under the Paris Agreement,<sup>4</sup> on June 29, 2016 Prime Minister Justin Trudeau announced that the federal government would reduce national methane emissions from the oil and gas industry to 40-45% below the 2012 levels by 2025.<sup>5</sup> In the last two years, the federal government has promoted the Pan-Canadian Framework on Clean Growth and Climate Change, which is a national plan directed toward reducing the effects of climate change, under which more stringent emission standards have been recommended.<sup>6</sup> In April 2018, pursuant to s. 332(1) of the *Canadian Environmental Protection Act*<sup>7</sup>, the Minister of Environment and Climate Change (ECC) published "Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)", in Part II of the Canada Gazette.<sup>8</sup>

### The New Methane Regulations

Section 1 of the regulations indicates they are designed to "reduce the immediate or long-term harmful effects of methane emissions and the associated VOCs".<sup>9</sup> The regulations focus on

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<sup>1</sup> Environment and Climate Change Canada, "Proposed methane regulations – A significant step in addressing climate change in Canada", (Ottawa: ECCC, June 2017), online: <http://ec.gc.ca/lcpe-cepa/default.asp?lang=En&xml=BF682B3-03F9-4B3D-B5A9-1D5B>.

<sup>2</sup> "Methane Emissions in the Oil and Gas Industry" (1 June 2018), online: American Geosciences Institute <[www.americangeosciences.org/critical-issues/factsheet/pe/methane-emissions-oil-gas-industry](http://www.americangeosciences.org/critical-issues/factsheet/pe/methane-emissions-oil-gas-industry)>.

<sup>3</sup> [ECCC], [www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry-proposed-methane-regulations-additional-information.html](http://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry-proposed-methane-regulations-additional-information.html).

<sup>4</sup> United Nations, Climate Change, entered into force Nov. 4, 2016, <https://unfccc.int/process-and-meeting/the-paris-agreement>.

<sup>5</sup> Drew Nelson, "The Power of Three: Mexico Aligns with U.S and Canada on Oil and Gas Methane Pollution", Environmental Defense Fund: Energy Exchange (June 29, 2016); Environment and Climate Change Canada, "Canada's methane regulations for upstream oil and gas, <https://www.canada.ca/en/environment-climate-change/services/canada-environmental-protection-act-registry/proposed-methane-additional-information.htm>.

<sup>6</sup> Government of Canada, Environment and Climate Change Canada, *Pan-Canadian Framework on Clean Growth and Climate Change: Canada's Plan to Address Climate Change and Grow the Economy*, (Gatineau, Quebec: Environment and Climate Change Canada, 2016).

<sup>7</sup> Canadian Environmental Protection Act, SC 1999, c 33.

<sup>8</sup> Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector, SOR 2018-66, P.C. 2018-3296 2018-04-03; online <https://www.canada.ca/en/environment-climate-change/news/2018/04/canada-finalizes-major-commitment-to-reduce-carbon-pollution.htm>.

<sup>9</sup> *Ibid.*

reducing methane emissions from the largest and emerging sources in Canada's upstream oil and gas industry: equipment leaks, venting and new oil and gas wells.<sup>10</sup>

## 1. Equipment Leaks

According to ECC, oil and gas facility equipment leaks account for 34% of the industry emissions.<sup>11</sup> In s. 2 of the regulations, the term "fugitive emissions" refers to gas leaks from equipment defined as "the emission of hydrocarbon gas from an upstream oil and gas facility in an unintentional manner".<sup>12</sup> The regulations focus on reducing emissions from larger facilities those that receive more than 60,000 standard m<sup>3</sup> of hydrocarbon gas during a 12 month period.<sup>13</sup> Addressing the smaller number of larger sources of emissions (facilities) reflects a high leverage approach. To reduce emissions s. 29 of the regulations requires operators to carry out leak detection and repair programs as follows:<sup>14</sup>

"Operators of a facility must establish and carry out at the facility a regulatory leak detection and repair program (LDAR) that satisfies sections 30 – 33; or an alternative leak detection and repair program referred to in subsection 35(1) that results in at most the same quantity of those fugitive emissions as would result from a regulatory program referred to in the paragraph above".

As far as the types of LDAR options available to facility operators, s. 35(1) of the regulations provides flexibility as to the types of leak repair program employed on the condition that the repair provides the same required emissions reduction.

S. 32 of the regulations provides that in most cases a leak must be repaired within 30 days of it being detected:

A leak from an equipment component that is detected, whether as a result of an inspection or otherwise, must be repaired if the repair can be carried out while the equipment component is operating, within 30 days after the day on which it was detected. In any other case, the equipment component must be repaired within the period before the end of the next planned shutdown unless that period is extended under section 33.<sup>15</sup>

In regard to facility inspections, the regulations provide that: "Equipment components at an upstream oil and gas facility must be inspected on or before the later of May 1, 2020 and the day that occurs 60 days after the day on which production at the facility first began; and at least 3 times/year and at least 60 days after a previous inspection."<sup>16</sup> The regulations mandate three annual inspections.<sup>17</sup> The types of technologies that will be used during inspections such as infrared cameras, sniffers, drones and satellite systems, is specified to avoid arguments and

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<sup>10</sup> *Supra* note 1.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Supra*, note 8.

<sup>13</sup> *Ibid.*, ss 26-45.

<sup>14</sup> *Ibid.*, s 29.

<sup>15</sup> *Ibid.*, s. 32.

<sup>16</sup> *Ibid.*, ss. 30(1)-(3).

<sup>17</sup> *Ibid.*

disputes that could arise as to whether there have been emissions that exceed the level permitted under the regulations.

The new requirements convey the increased emphasis that ECC is placing on operators taking action to prevent, detect and repair equipment leaks in a timely manner to further significantly reduce emissions from larger oil and gas facilities. The fact that time periods are specified in the regulations by which operators must complete equipment repairs should prompt facility operators to pay closer attention to the current volume of emissions from equipment leaks. In addition to the general provisions in the regulations that govern equipment leaks, there are specific provisions that apply to different types of equipment.

Twenty percent of Canada's national methane emissions from the oil and gas industry are from pneumatic device leaks.<sup>18</sup> A variety of automated instruments called pneumatic devices are employed throughout the industry that use natural gas to pump liquids and for other purposes. Some of these devices release methane. As with other types of oil industry equipment, the regulations prescribe operating efficiency standards for pneumatic controllers and pumps.<sup>19</sup> The regulations require operators to replace certain types of high-bleed pneumatic controllers that produce a larger volume of emissions with low bleed or no-bleed controllers that release a smaller volume of emissions. As with the other types of equipment, the repairs and/or equipment replacements must be completed within the time period specified in the regulations. As with other types of equipment, to provide facility operators with reasonable notice to budget for the upgrade or purchase new equipment to replace existing equipment, the provisions that apply to pneumatic devices are scheduled to come into force in 2023.<sup>20</sup>

## **2. Venting**

Venting is an industry practice that releases methane directly into the atmosphere which accounts for 23% of oil and gas industry methane emissions.<sup>21</sup> As natural gas is used to control pressurized equipment including pumps in multiple industry operations, methane is intentionally released from equipment in processing facilities through vents. The regulations are designed to reduce by 95% the volume of methane that is vented from larger oil and gas facilities. To achieve this objective, s. 26 of the regulations creates an annual venting limit for an upstream oil and gas facility of not more than 15 000 m<sup>3</sup> of hydrocarbon gas during a year. One exception to the maximum emissions limit in the regulations that provides flexibility to facility operators, allows them to apply for approval to vent methane for safety reasons in exceptional cases when there is an emergency such as an emergency depressurization or a plant maintenance upset at a larger gas processing facility.<sup>22</sup>

In non-emergency situations, as an alternative to venting gas, the regulations require operators to capture and use at least 95% of the methane in facilities for a beneficial purpose rather than wasting the gas. The regulations stipulate that at a minimum 95% of the gas must be captured and used for 1 of 3 beneficial purposes stipulated in the regulations. S. 5 of the

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<sup>18</sup> *Supra*, note 1.

<sup>19</sup> *Ibid*, s. 37(1), 37(2), 39(1).

<sup>20</sup> *Ibid*.

<sup>21</sup> *Supra*, note 1.

<sup>22</sup> *Ibid*.

regulations requires a minimum equipment operating efficiency as follows: “Hydrocarbon gas conservation equipment that is used at an upstream oil and gas facility must be operated in such a manner that at least 95% of the hydrocarbon gas is captured and conserved”.<sup>23</sup> S. 7 of the regulations stipulates that gas must be captured and conserved in one of the 3 following methods:

- (a) used at the facility as fuel in combustion device that releases at most 5% of the combusted hydrocarbon gas to the atmosphere as hydrocarbon gas;
- (b) delivered; or
- (c) injected into an underground geological deposit for a purpose other than to dispose of the gas as waste.<sup>24</sup>

Under the regulations, three gas capture and use methods are required. Rather than venting gas into the atmosphere and wasting it, the regulations require operators to use the gas in processing facilities for beneficial purposes. In regard to the first option, the regulations specify that no more than 5% of the gas can be released. The second option “delivered” refers to piping the gas to be sold and used. A third option subsurface injection also referred to as enhanced recovery, requires natural gas to be reinjected into an oil and gas reservoir to avoid release of methane into the atmosphere.

Another type of equipment that contributes 9% of the Canada’s national methane emissions is compressors which are mechanical devices used to increase the pressure in pipelines to move natural gas from production sites to consumers.<sup>25</sup> There are different types of compressors that emit different levels of emissions and the new regulations contain special provisions that limit the volume of emissions that can be vented from different types of compressors.<sup>26</sup> To reduce the volume of emissions from each type of compressor, there is a requirement that industry operators complete annual measurements to ensure that the emission limits stipulated in the regulations are satisfied. S. 14(a) requires measurement of gas flow volumes as the first step toward further reducing the volume of emissions. S. 16(3) requires that operators take initial and subsequent gas flow measurements during specific time periods as follows:

The flow rate must be initially measured on January 1, 2021, if the compressor is installed at the facility before January 1, 2020, and the 365<sup>th</sup> day after the day on which the compressor was installed at the facility in any other case; and subsequently, the period that ends on the 365<sup>th</sup> day after the day on which a previous measurement was taken.

S. 14 provides for optimal equipment performance that takes into account the different types of compressors used at different sites and the new regulations focus on optimal equipment maintenance and efficiency to minimize the level of emissions from the different types of compressors.<sup>27</sup> As with other types of equipment emissions, compressor operators are required to take action to conserve or destroy methane and meet the relevant venting limits for the

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<sup>23</sup> *Supra*, note 8.

<sup>24</sup> *Ibid*.

<sup>25</sup> *Supra*, note 1.

<sup>26</sup> *Supra*, note 8, ss. 14(b), 16(3).

<sup>27</sup> *Ibid*, ss. 18(2), 18(3).

compressor. Corrective action is required if emissions exceed the limit applicable to the compressor, which depends on the installation date, the type of compressor, and its rated brake power.<sup>28</sup> Specific timelines of 30 days and 90 days are stipulated in the regulations to complete the required work on compressors to reduce methane emissions.<sup>29</sup>

Another potential source of methane emissions addressed in the regulations is hydraulic fracturing (HF) operations and well completions at newly drilled oil and gas wells.

### 3. HF and completion of Oil & Gas Wells

HF of oil and gas wells refers to the process used to create cracks or fractures in rock that allows oil and gas to more freely move to the well surface. HF is an essential process at most shale oil and gas wells for there to be economic oil or gas production.<sup>30</sup> Fluids that contain methane in solution flow back to the wellsite surface and can release methane into the atmosphere if not properly managed. Recently, technology has been refined to detect and monitor methane releases from oil and gas wells. Employing satellite data, atmospheric methane emission trends in North America have been analyzed and compared before and after unconventional shale gas development. It has been reported that the concentration of fugitive emissions has increased in areas with shale oil and gas development.<sup>31</sup>

To prevent methane emissions from new oil and gas wells drilled throughout Canada, s. 11(2) of the regulations called “No Venting”, prohibits venting at new well sites and requires the capture and use of natural gas for a beneficial purpose or combustion/destruction of the gas. The section provides “Hydrocarbon gas associated with flowback at a well... must not be vented during flowback but must instead be captured and routed to hydrocarbon gas conservation equipment or hydrocarbon gas destruction equipment”. The prohibition on venting gas at new oil and gas wells will prevent an increase in methane emissions from these wells.

In regard to current provincial standards in BC and Alberta that limit emissions from oil and gas wells that are HF and completed, s. 13 of the regulations entitled “Non-application – British Columbia and Alberta” states:

Sections 11 and 12 do not apply in respect of an upstream oil and gas facility that is located in

- (a) British Columbia, if the facility is subject to the requirements with respect to well completion involving hydraulic fracturing that are set out in the guideline entitled *Flaring and Venting Reduction Guideline*, published by the Oil and Gas Commission of British Columbia in June 2016; and
- (b) Alberta, if the facility is subject to the requirements with respect to well completion involving hydraulic fracturing that are set out in the directive entitled

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<sup>28</sup> *Ibid*, s. 14.

<sup>29</sup> *Supra*, note 8.

<sup>30</sup> Canadian Centre for Energy Information, “Our Petroleum Challenge”, 8<sup>th</sup> ed. at 140.

<sup>31</sup> Oliver Scheising et al, “Remote sensing of fugitive methane emissions from oil and gas production in North America tight geologic formations” (2014) 2 (10) *Earth’s Future* 548.

*Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*, published by the Alberta Energy Regulator on March 22, 2016.

S. 13 of the regulations provides that operators which satisfy the current provincial requirements in BC<sup>32</sup> and Alberta 060<sup>33</sup>, do not have to comply with the new standards in the regulations as well, as the federal government has concluded that the 2016 provincial requirements that apply to emissions that arise from HF and completion of new wells are adequate.<sup>34</sup> However, in contrast to BC and Alberta, operators engaged in HF and well completion operations in other provinces and territories must satisfy the federal requirements to avoid prosecution.<sup>35</sup>

## Enforcement

There is no reported decision on a Canadian enforcement action under the new regulations.<sup>36</sup> In the U.S., in 2012 the 1<sup>st</sup> emissions reduction rules were released and then in 2016, “Oil and Natural Gas Sector – New Source Performance Standards”, developed by the U.S. Environmental Protection Agency (EPA) were adopted to further reduce oil and gas industry emissions as in Canada.<sup>37</sup> The 1<sup>st</sup> enforcement action taken against a natural gas gathering, transportation and processing company for venting excess emissions, was settled in April 2018.<sup>38</sup> Pursuant to s. 113(b) of the *Clean Air Act* (CAA)<sup>39</sup> and *Pennsylvania Air Pollution Control Act*<sup>40</sup>, the US Department of Justice, EPA, and the Pennsylvania Department of Environmental Protection filed a complaint against MarkWest Liberty Midstream & Resources, LLC and Ohio Gathering Company (MarkWest) for contravening the “Prevention of Significant Deterioration” provisions,<sup>41</sup> and the “Non-Attainment New Source Review” provisions,<sup>42</sup> due to venting excess emissions in Pennsylvania and Ohio.<sup>43</sup> In addition to being charged for releasing excess emissions from its facilities, the operator was charged for failing to secure the required permits and to maintain records for its stand-alone facilities and compressor stations. The defendant expressly denied any liability for contravening the emissions limits.<sup>44</sup> Federal and state regulators sought injunctive relief and civil penalties.<sup>45</sup>

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<sup>32</sup> BC Oil and Gas Commission, “Flaring and Venting Reduction Guideline”, online: <https://www.bcogc.ca/node/5916/download>.

<sup>33</sup> Alberta Energy Regulator, “Upstream Petroleum Industry Flaring, Incinerating and Venting”, AER Directive 060”, online: [www.aer.ca/documents/directives/Directive060.pdf](http://www.aer.ca/documents/directives/Directive060.pdf).

<sup>34</sup> *Supra*, note 8, ss. 11, 12.

<sup>35</sup> *Ibid.*

<sup>36</sup> *Supra*, note 8.

<sup>37</sup> US Environmental Protection Agency, “Actions and Notices about Oil and Natural Gas Pollution Standards”, online: <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/actions-and-not...>; “EPA Releases First-Ever Standards to Cut Methane Emissions from the Oil and Gas Sector” (May 12, 2016), online: US EPA: <https://archive.epa.gov/epa/newsreleases/epa-releases-first-ever-standards-cut-methane-em>.

<sup>38</sup> <https://www.epa.gov/enforcement/markwest-clean-air-act-settlement-information-sheet>.

<sup>39</sup> 42 USC § 7413(b).

<sup>40</sup> PL 2119, No. 787, 1959, as amended.

<sup>41</sup> 42 USC §§ 7490-7492.

<sup>42</sup> 42 USC §§ 7501-7515.

<sup>43</sup> Civil Action No. 2:18-cv-00520-LPL (US Dist Ct Western Penn).

<sup>44</sup> *Supra*, note 42.

<sup>45</sup> US Environmental Protection Agency, Consent Decree, online <https://www.epa.gov/sites/production/files/2018-04/documents/markwest-cd.pdf>, at 1.



According to Christopher Rimkus the Managing Counsel for the defendant, workers arrived at a pipeline site to carry out routine maintenance.<sup>46</sup> The maintenance activities were performed daily, weekly or monthly to avoid the buildup of condensate in gas gathering and transmission pipelines. The operations required venting gas to reduce any pressure in the pipeline before the maintenance activities could proceed. Federal government agents arrived at the site for an inspection at approximately 8 a.m.; halted routine maintenance activities; began questioning the workers and collected samples. The agents finished the site inspection and made requests for production of documents; however no additional action was taken by the federal agents at that time.<sup>47</sup> The managing counsel notes that after the execution of the federal search warrant it became clear to him that “the search warrant was based in large part on a number of misconceptions. Specifically the operations “were not occurring in secret” as they “are routinely scheduled” and the activities in question “do not vent the volume of the entire pipeline segment to atmosphere – but a much smaller amount when inserting or retrieving a tool”.<sup>48</sup> The managing counsel also notes that “Employees capture any natural gas liquids (NGLs) or other liquids that may be in the barrel in a storage vessel and do not release them to the ground. The public was categorically not at risk from the operations and no evidence has ever been presented to substantiate any claim to the contrary. Worker safety is protected during the operations as the studies conducted pre-search warrant attest to”.<sup>49</sup>

The action taken by the federal and state regulators was framed as an “Air Pollution Emergency” Claim” pursuant to §303 of the CAA. Counsel for the defendant reported that the basis for the search warrant and preliminary discussions with both the Department of Justice and the EPA focused on protecting industry workers and public health. He notes that “previous and subsequent scientific studies demonstrate there was no imminent and substantial danger to workers or public”,<sup>50</sup> and the “EPA, states, and industry have traditionally been under the impression that emissions from the operations in question were de minimis”.

After the site inspection and reviewing its operations the defendant “conservatively identified a small subset (less than 10%) of its sites where emissions might have been above Pennsylvania state de minimis permitting thresholds”. The managing counsel notes there was “No motivation or benefit for the company for not obtaining the appropriate permits as they are easy to obtain either for minor sources of emissions or under other criteria, and that operational design changes are easy and inexpensive to make so that the emissions fall below de minimis levels”.<sup>51</sup> The operator had previously investigated and evaluated the development and testing of new technologies to sample and estimate the level of volatile organic compounds (“VOCs”) in emissions from its operations, and had previously undertaken design enhancements that

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<sup>46</sup> Christopher Rimkus, “Launcher and Receiver Operational Enhancement: A Case Study”, Rocky Mountain States Section of the Air and Waste Management Association, March 14, 2018; <https://www.awma-rmss.org/wp-content/uploads/2018.3.8-LR-Slides-for-AWMA-Mtg2.pdf>.

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

<sup>49</sup> *Ibid.*

<sup>50</sup> *Ibid.*

<sup>51</sup> *Ibid.*

substantially reduced VOC, methane, and ethane emissions from its compressor stations and stand-alone facilities in Pennsylvania and Ohio.<sup>52</sup>

Notwithstanding the denial of liability, the company settled the action.<sup>53</sup> In the Consent Decree, both the defendant operator and governments acknowledge that “the settlement agreement was negotiated in good faith to avoid further litigation and that it is fair, reasonable, and in the public interest”.<sup>54</sup> The settlement provides for the payment of a civil penalty in the amount of US \$610,000 and the completion of three supplemental community environmental improvement projects designed to reduce emissions from oil and gas facilities at a minimum cost to the operator of US \$2 million.<sup>55</sup>

As part of what we refer to as a creative sentence in Canada, the 2018 settlement agreement requires the operator to install air pollution control equipment at more than 300 facilities to further reduce emissions and improve air quality in Pennsylvania and Ohio.<sup>56</sup> The EPA estimates that the new emissions controls will result in a reduction of 706 tons per year of VOCs, and a 91.5% decrease in annual emissions throughout the company’s natural gas gathering system.<sup>57</sup> Under the settlement agreement the operator must also install and operate ambient air monitoring stations near two compressor stations. The information collected from the monitoring stations about the nature and volume of emissions from the company’s operations must be shared with the general public. Furthermore, the operator must make available and share with other industry operators its innovative technologies developed to reduce emissions and allow other operators to use on a royalty-free basis through licenses, these technologies to further reduce emissions.<sup>58</sup>

In light of the new regulations, could an emissions reduction enforcement action that poses similar issues arise in Canada? As s. 1 of the new methane regulations indicates that they are designed to prevent environmental deterioration from emissions and the associated VOCs, and to protect the health and safety of Canadians, I submit that yes a similar enforcement action can arise. The Consent Decree/settlement agreement in the MarkWest enforcement action is 104 pages long,<sup>59</sup> and counsel may find it is useful to evaluate the issues that can arise in an enforcement action and how they were recently resolved. The following 14 actions provide some examples of those that the corporate defendant has agreed to complete, to reduce the possibility that it and other industry operators will contravene the emissions regulations in the future:

1. To ensure the defendant’s managers, employees and contractors are aware of the enforcement action to reduce the potential for releasing excess emissions in the future, the defendant must provide a copy of the settlement agreement to all of its officers and managers to ensure that employees and contractors whose responsibilities may include compliance with the agreement are made aware of the terms of the agreement; and the defendant company must place an

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<sup>52</sup> *Ibid.*

<sup>53</sup> *Supra*, note 40.

<sup>54</sup> *Supra*, note 46.

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*

<sup>58</sup> *Ibid.*

<sup>59</sup> *Ibid.*

electronic version of the agreement in a section of its internal website related to environmental matters. The company is clearly responsible to ensure that all employees and contractors that perform any future work carry out that work in compliance with the terms of the agreement<sup>60</sup>;

2. The agreement specifies the type of emissions reduction technology that must be used at compressor stations and the minimum efficiency (98%) that must be achieved to destroy and reduce emissions<sup>61</sup>;

3. A date is specified in the settlement agreement by which the defendant operator must implement the specified emissions reduction program<sup>62</sup>;

4. For the purpose of compliance with the agreement, the defendant company is obligated to calculate the mass of the VOC emissions<sup>63</sup>;

5. In regard to improving the containment of liquids at compressor stations and facilities to prevent emissions, new facilities that are built must incorporate liquid containers with grounded steel receptacles that are covered at all times when not in use<sup>64</sup>;

6. The financial penalty is shared between the federal and state governments with 80% to the federal government and 20% to the state government, with interest payable on any amount that is past due at a rate specified in the agreement<sup>65</sup>;

7. The financial penalty is not tax deductible<sup>66</sup>;

8. The settlement agreement prohibits the defendant from using the reduced emissions from projects completed under the creative sentence, for the purpose of clean development emissions reductions that include emissions offsets and obtaining, trading or selling any emission reduction credits<sup>67</sup>;

9. In regard to the sale or transfer of its facilities, the agreement provides that that the obligations are binding on the successors or assignees of the company,<sup>68</sup> and that the company must provide written notification to a successor or assignee and the government(s) of the existence of the agreement before the closing of the sale or transfer<sup>69</sup>;

10. The defendant must condition any sale or transfer of ownership or operation “of any covered facilities upon the execution by the third party of a modification to the agreement “to make the

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<sup>60</sup> *Ibid*, para 8.

<sup>61</sup> *Ibid*, para 13.

<sup>62</sup> *Ibid*, para 14.

<sup>63</sup> *Ibid*, para 11.

<sup>64</sup> *Ibid*, para 23.

<sup>65</sup> *Ibid*, para 24.

<sup>66</sup> *Ibid*, para 27.

<sup>67</sup> *Ibid*, para 47.

<sup>68</sup> *Ibid*, para 3.

<sup>69</sup> *Ibid*, para 4.

terms and conditions of the agreement related to the ownership or operation of the transferred facilities applicable to the third party<sup>70</sup>;

11. The defendant must spend a minimum of US \$2 million to implement the projects to reduce emissions under the creative sentence,<sup>71</sup> and the projects must not be ones that the defendant was planning or intending to build, carry out or implement other than for the purpose of settling the enforcement action<sup>72</sup>;

12. The company must share with other industry operators the lessons learned from the enforcement action by posting information on its website; and offering educational presentations that include hosting 4 demonstration or training sessions per year during a 3 year period;

13. In regard to transferring the proven innovative emissions control technology that the defendant developed, it must provide on a royalty-free basis, licenses to other operators to use its proprietary design that is proven to decrease liquid accumulation and emissions. To promote rapid adoption and use of the innovative technology by other operators, the defendant must make available on a website that is publicly accessible no later than 6 months after the effective date of the agreement, a royalty-free license and information on the design of the technology. The defendant must make its technical staff available in person at every educational session, to demonstrate the installation and adoption of the VOC emissions reduction technology. The defendant must create comprehensive educational materials on the installation and maintenance of the technology to reduce emissions<sup>73</sup>;

14. In regard to ambient air quality monitoring of emissions from compressors, the defendant must install and operate for a minimum of 720 days, 1 meteorological station and 2 air sampling stations to sample and analyze the level of total VOCs and reduced sulfur compounds. The defendant must submit by 120 days from the effective date of the agreement an ambient air monitoring plan to the EPA for approval. The defendant must follow the approved monitoring plan and submit quarterly information reports and annual reports to the EPA<sup>74</sup>;

In addition to the actions required under the settlement agreement, 3 specific practices that could be taken to protect workers from emissions include:

1. Incorporating standard operating procedures into training materials that include protocols for response to alarms;
2. Laminated job safety checklists for each site;
3. Respiratory protection for changing filters at compressor stations.<sup>75</sup>

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<sup>70</sup> *Ibid*, para 5.

<sup>71</sup> *Ibid*, para 28.

<sup>72</sup> *Ibid*, para 29.

<sup>73</sup> *Ibid*, para 28.

<sup>74</sup> *Ibid*, para 28.

<sup>75</sup> *Supra*, note 48.

## Conclusion

The new regulations will further reduce the volume of methane that currently enters the atmosphere from equipment leaks and venting at facilities and new oil and gas wells. Starting January 1, 2020, facility operators must start implementing equipment leak detection and repair (LDAR) programs. The regulations require timely implementation of LDAR programs within a specified time period at facilities and 3 annual inspections. Some provisions will be phased in during the next five years to allow facility operators to budget for equipment upgrades and/or replacement. The regulations create a cap on the volume of emissions that can be vented from facilities. There is a maximum venting limit from larger oil and gas facilities of 250m<sup>3</sup> of methane per month or a cumulative annual total of 3,000 m<sup>3</sup>. ECC has the technical capability to detect and measure the volume of emissions from facilities, to enforce the new venting limits. To comply with the venting limits, operators have 2 basic options. The preferred option is to capture and use otherwise wasted methane for beneficial purposes such as facility heating or generating electricity. A 2nd less desirable option is efficient combustion (flaring) of natural gas rather than just releasing methane into the atmosphere. The regulations prohibit venting at new oil and gas wells and require gas capture.<sup>76</sup> The regulations indicate that the current BC and Alberta provincial requirements which limit emissions from wells are adequate, and therefore operators that satisfy the 2016 provincial standards, do not have to satisfy a 2nd set of federal emissions reduction standards as well. However, in other provinces such as Saskatchewan and Manitoba where new shale oil and gas wells are being drilled and HF, operators must satisfy the federal requirements. As there is no reported Canadian prosecution under the new regulations that has been completed, the MarkWest case provides guidance as to the types of issues that have arisen in an enforcement action under the U.S. regulatory regime that has similar emissions reduction objectives, and how these issues were resolved in April 2018.

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<sup>76</sup> *Ibid.*, s. 11(2).