Noteworthy Decision Summary

Decision: WCAT-2012-02266 **Panel:** Hoole, Morton, Yeager **Decision Date:** August 28, 2012

Section 196 of the Workers' Compensation Act – Policy items D12-196-2 and D12-196-6 of the Prevention Manual – Quantum of Administrative Penalty – Presidential Penalty – Table Penalty - Wilfully or with Reckless Disregard – Due Diligence

This case is noteworthy for its analysis of when a presidential penalty is appropriate versus a table penalty under item D12-196-6 of the *Prevention Manual* and for its analysis of the appropriate quantum of penalty in this serious workplace accident where a young worker was killed as a result of a blowout on one of the employer's natural gas drilling rigs.

In this case the panel found that the presidential penalty of $250,000.00 was not appropriate. A presidential penalty requires that an employer has committed a high risk violation wilfully or with reckless disregard, and that a worker has died or suffered serious permanent impairment as a result. Although the employer's contraventions constituted high risk violations and a worker died as a result, the panel found that the employer did not act wilfully or with reckless disregard. The panel found that the employer's failure to adequately prepare for what it reasonably considered to be a remote risk was one which involved a failure to exercise due diligence rather than one involving wilful or reckless disregard for the safety of its workers. The panel found that the employer complied with industry practice and that this precluded a finding that the employer was acting wilfully or with reckless disregard in relation to safety issues. Further, the panel found that the employer did not proceed in the face of actual or constructive knowledge of a safety hazard. The panel concluded that a Category A table penalty was appropriate in the circumstances that the employer did not act with due diligence in identifying and planning for the possibility of a blowout. This reduced the penalty quantum to $68,648.19.

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WCAT Decision Number: WCAT-2012-02266
WCAT Decision Date: August 28, 2012
Panel: Warren Hoole, Vice Chair
Herb Morton, Vice Chair
Sherryl Yeager, Vice Chair

Introduction

[1] On January 28, 2005, one of the employer's natural gas drilling rigs experienced an uncontrolled release of gas from the wellbore, known as a "blowout." The gas ignited and the resulting flames immediately threatened a derrickman on the platform at the top of the drilling rig, known as a "monkey board." Because the flames prevented the worker from accessing his evacuation trolley he instead improvised an escape from the platform by climbing down a rigging line. Tragically, the worker lost his grip on the rope and fell to his death. The worker was just 23 years old.

[2] The Workers' Compensation Board (Board)[1], investigated the circumstances leading to the worker's death. As a result of its investigations, the Board issued two inspection reports citing the employer for safety contraventions. We will refer to these two inspection reports as the "contravention orders."

[3] The Board subsequently decided that the circumstances of the contravention orders merited the imposition of an administrative penalty on the employer. In this case, the Board selected a "presidential penalty" in the amount of $250,000.00 as the appropriate penalty amount. We will refer to the inspection report levying this penalty on the employer as the "penalty order."

[4] Presidential penalties are substantially higher than the bulk of penalty options available to the Board. Such penalties are, in a general sense, intended to reflect the Board's increased regulatory response to employers who commit particularly significant safety contraventions in the context of a serious injury or death.

[5] The employer agreed that it should be subject to a penalty; however, it disagreed that its safety contraventions merited a presidential penalty. The employer therefore requested a review. In *Review Decision #R0111064*, dated July 19, 2010, a review officer confirmed all aspects of the penalty order, including the amount of $250,000.00.

[6] The employer now appeals to the Workers' Compensation Appeal Tribunal (WCAT). Pursuant to subsection 238(5) of the *Workers Compensation Act* (Act), the WCAT chair appointed a three-member panel to hear the employer's appeal. The worker's family participated as a respondent with representation from the Workers' Advisers Office.

[1] Operating as WorkSafeBC

[7] We considered whether the employer's appeal should proceed by way of written submissions or oral hearing. The underlying events in the appeal are not in substantial dispute. Rather, in our view, the appeal turns primarily on what conclusions should be drawn from the events in question. Such conclusions will necessarily involve consideration of expert opinion evidence in the technical field of oil and natural gas operations. We find that such issues are as effectively discussed through written submissions as in oral proceedings.

[8] Further, we secured an independent opinion from an expert in oil and gas operations. Because we secured an independent opinion from an oil and natural gas expert we do not consider an oral hearing is otherwise required to ensure fairness between the parties.

[9] Finally, we note that the review officer has already held an oral hearing. The audio recording of the Review Division proceedings forms part of the record in the current appeal proceedings.

[10] For all these reasons, we find that an oral hearing is not required and that the employer's appeal may fairly proceed by way of written submissions.

Issue(s)

[11] What is the proper quantum of the penalty order?

Jurisdiction

[12] The WCAT's jurisdiction in this appeal arises under subsection 239(1) of the Act, as an appeal of a final decision of a review officer under paragraph 96.2(1)(c) of the Act confirming a Board order respecting an occupational health and safety matter under Part 3 of the Act.

[13] The employer concedes that it breached its safety obligations as set out in the contravention orders. It further concedes that a penalty order is an appropriate regulatory response. Consequently, the only area of dispute in this appeal is the proper quantum of the penalty order. In light of the employer's concessions on these points, this appeal is limited to that sole issue.

Background and Evidence

[14] The review officer has already set out a detailed summary of much of the background to this appeal. His decision is publicly available on the Internet at www.worksafebc.com and we need not cover the same ground at length. However, in order to provide context to our reasons, we will briefly summarize the key facts. Where necessary, we will describe new evidence in more depth.

[15] This appeal involves technical issues in the oil and gas industry. As a result, expert opinion evidence plays a significant role in the appeal. We note the respondent's concern with the employer's expert, Mr. McLelland. We agree that his opinions have been somewhat inconsistent, particularly in relation to the specific cause of the blowout. Overall, we prefer the independent expert evidence of Mr. Grace. Mr. Grace's opinion was well-reasoned and objective. Where both Mr. McLelland and Mr. Grace agreed on particular points, we accept that evidence.

[16] The respondent has provided evidence that it says is contrary to that of Mr. McLelland and Mr. Grace. This evidence was in the form of reported conversations with a university professor and the worker's father, who had worked in the oil and gas industry. The employer has pointed out the difficulties with this type of evidence and we agree. Overall, we place the greatest weight on Mr. Grace's opinion.

[17] The employer operates in the natural gas industry. Part of its business involves drilling wells to exploit natural gas resources. With respect to the well in question in this appeal, the employer owned the well lease. The employer generally supervised the well although the physical drilling operations were primarily carried out by a subcontractor who owned and staffed a drilling rig. Other subcontractors also provided various services from time to time throughout the rig operations. This is standard practice in the industry.

[18] In this particular case, the employer was in the early stages of drilling a well to exploit a natural gas formation that it believed would be contacted at approximately 1,254 meters below surface.

[19] At the time of the incident, the employer and its subcontractor were drilling what is described as a "surface hole." A surface hole is a preliminary and relatively shallow well that must be prepared prior to commencing deeper drilling operations. The depth of a surface hole varies depending on local conditions. In this case, the engineering called for the surface hole to descend 150 meters from the surface.

[20] As we understand it, the surface hole in this case passed through loose, glacial till material. Once completed, the surface hole would be lined with a drill casing, which in turn would be cemented in place. The drill casing therefore provides a solid barrier between the wellbore and the outside environment.

[21] The blowout incident in question occurred when surface hole drilling had achieved a depth of around 140 meters. In other words, the preliminary process of completing the surface hole had almost concluded when the blowout took place. There is no dispute that, at the time of the blowout, the employer had not installed a blowout diverter on the well.

[22] A diverter is a type of safety equipment that diverts unexpected gas formations intruding into a well away from the drill rig. The diverted gas is then burned at a safe distance

from the rig. A potential limitation of a diverter is that it may rapidly become plugged with debris from the blowout. The resulting build-up of pressure in the wellbore may then, in a worst-case scenario, broach the uncased walls of the wellbore, fracture the immediate area around the drilling rig and, in rare cases, cause the rig to topple over. Other consequences may include damage to underground aquifers and damage to otherwise viable hydrocarbon formations.

[23] Diverters are therefore not "magic bullets" as they have engineering and situational limits; however, it is clear that they at least potentially increase the level of protection afforded a drilling rig exposed to an unexpected gas intrusion into the wellbore.

[24] At the time of the accident, the BC Oil and Gas Commission (Commission) did not require diverters or blowout preventers on the type of surface hole drilling in question in this appeal. Following the accident, the Commission recommended but did not make mandatory the use of diverters in locations similar to those where the accident occurred.

[25] At the time of the accident, because the Commission did not require diverters for surface holes such as the one in question, the use of such equipment was left to the discretion of well lease holders, such as the employer. The employer in this case decided not to install a diverter because it believed from its geophysical mapping and experience with other wells in the general region that there was a low potential for the type of shallow gas formations that we now know the drilling rig in fact encountered on January 28, 2005.

[26] We note at this point that a surface hole drilling operation, even in the absence of a blowout diverter, is not without any method to control the intrusion of natural gas formations into the wellbore. Such intrusions may be controlled or at least mitigated by skilled and attentive drilling operators. This is because drilling operations include pumping liquid into the well. This liquid is described as "mud" and serves, amongst other things, to maintain hydrostatic pressure in the well.

[27] Thus, even if an unexpected gas formation intrudes into the wellbore of a surface hole, early detection of the intrusion may permit an attentive and skillful operator to manipulate hydrostatic pressure in such a manner as to eliminate, reduce, or at least delay a blowout. However, we note that at certain stages of drilling operations, it is impossible to manipulate hydrostatic pressure. One such stage is during the process of removing or "tripping out" the drill string from the wellbore. This point is of significance because the blowout in question occurred during tripping out operations.

[28] Returning to the circumstances of this appeal, the employer and its contractor set up the drilling rig on January 25, 2005. After cleaning out extensive sloughing of the initial production hole and then installing the Kelly casing, surface hole drilling commenced around 16:30 hours on January 27, 2005.

[29] The drilling contractor encountered considerable difficulties throughout its operations that evening. The primary problem was excessive sloughing into the wellbore of the loose glacial till material layer through which the surface hole passed. In order to move this material out of the wellbore and to the surface, it was necessary to increase the viscosity of the drilling mud. The increase in viscosity resulted in the drilling mud becoming "foamy." It was thought that the foam was merely entrained air bubbles; however, no testing to confirm this assumption was carried out and drilling operations continued. It was also thought that the mud tanks had not been properly cleaned from an earlier drilling job, with the result that the foaminess could be due to chemicals still in the tanks.

[30] The drilling contractor and employer were troubleshooting the drilling difficulties at the same time as the contractor continued on with its drilling operations. At 13:34 hours on January 28, 2005, the drill bit became stuck. The employer and drilling contractor discussed pulling the drill string out of the well and replacing all the drilling mud in the well. However, after 50 minutes of working the drill string up and down the driller managed to unstick the drill bit and drilling operations resumed.

[31] At approximately 15:14 hours and at a depth of 140 meters, the employer and drilling contractor decided that the best way to resolve the ongoing drilling problems was to remove the drill string from the well and replace the drilling mud. The drill string is made up of pipe lengths. In order to remove the drill string from the well, each length, or "stand," of pipe is removed from the drill string and stored.

[32] This process of pulling up stands of pipe commenced around 15:16 hours. The first stand was pulled to sufficient height that it could be disconnected from the drill string. At 15:18 hours, when the first stand of pipe was at the rig's monkey board, a "kick" occurred, spraying the rig and its elevator with mud. Because of cold outdoor temperatures, the mud froze immediately.

[33] The drilling contractor and employer discussed the kick and concluded that it was likely just air rather than a sign of a natural gas formation intrusion into the well. They therefore returned to the plan of removing the drill string from the well. The first stand of pipe was lowered to permit the frozen elevators to be steamed. It was then raised again and successfully disconnected from the drill string and stored. As the drilling contractor began raising the second stand of pipe at 15:37:10 hours, monitoring equipment known as the "pit volume totalizer" started to show a rapid increase in volume. The contractor's crew also observed drilling mud being forced out of the well and up onto the drilling rig floor.

[34] Approximately 50 seconds later, at 15:38 hours, a blowout occurred. Rocks, gravel, debris, and gas shot up more than 28 meters. The rocks crashed through truck windows and damaged nearby buildings. The gas ignited within a few seconds. The contractor's crew evacuated the rig. However, the worker, who had been stationed on the monkey board, was trapped by the fire and rocks. He was unable to access the

escape equipment and likely jumped off the side of the monkey board to avoid the fire, knowing that his fall arrest system would keep him suspended a meter or so below the monkey board.

[35] The contractor's crew then improvised a rigging line and placed it into position to try and assist the worker to escape from where he was suspended just below the monkey board. After struggling to get out of his safety harness, the worker managed to grab the rigging line and he began to descend the line to safety; however, the worker lost his grip and fell to his death.

[36] Subsequent testing of the drilling mud showed the presence of natural gas. In addition, evaluation of data from the drilling recorder system, known as "Pason data," demonstrated that a natural gas formation intruded into the well possibly several hours earlier, but at the latest by 15:18:40 hours while the drill bit was at 114.93 meters.

[37] Various investigations into the circumstances and likely causes of the blowout were undertaken. At this point it is sufficient to note the central themes as to the probable causes of the blowout and related safety contraventions. Because this appeal involves the employer's actions and not those of the drilling contractor, we will focus on the potential causes that fell within the employer's responsibility.

[38] The Board identified a number of causes that it believed contributed to the accident. First, the absence of a diverter was considered of significance. Had this safety equipment been installed, the blowout accident might have been avoided or at least delayed for sufficient time to fully evacuate the rig.

[39] Second, in its discussions with the drilling contractor, the employer appears not to have understood the significance of the kick at 15:18 hours, approximately 20 minutes before the blowout. Had the employer been more alert to the possibility of a natural gas formation intrusion into the wellbore, its response to the kick might have been different.

[40] Third, and on a similar note, neither the foamy mud nor the mud from the kick was tested for natural gas, despite the ongoing problems with the drilling mud that the drilling contractor reported to the employer from the start of the drilling operations.

[41] Fourth, the employer was said to have generally failed to adequately recognize or consider the risks associated with shallow gas formations in the region when planning the drilling operations. The employer's belief that shallow gas formations were unlikely to be present resulted in tunnel vision and prevented it from installing a diverter or recognizing and responding to the early warning signs of a blowout.

[42] Finally, it was noted that the oil and gas industry culture is marked by hard work, long shifts, tough weather conditions, and a strong emphasis on production at all costs.

[43] With these general themes in mind, the Board issued the two contravention orders already noted earlier in our reasons. The Board focused on the employer's failure to identify the potential for shallow gas formations in the region of the drilling rig, the employer's failure to test the foamy drilling mud for natural gas, the employer's failure to install a diverter, and the employer's failure to identify, at least from the time of the kick at 15:18 hours, the intrusion of a natural gas formation into the wellbore. The Board relied on section 23.5 of the *Occupational Health and Safety Regulation*, B.C. Reg. 296/97, and paragraph 115(2)(a) of the Act in support of the contravention orders.

[44] For its part, the employer carried out its own analysis of the blowout incident, primarily through Mr. McLelland, an engineer and expert in the oil and gas industry. His first report is dated April 5, 2005. Mr. McLelland disagreed with the bulk of the Board's conclusions. He was of the opinion that the known problem with contaminated tanks offered the most obvious explanation for the foamy mud. He therefore did not consider it surprising that no-one thought to test the mud for gas. This was particularly so as the mud was foamy right from the first few meters of drilling, a depth where gas could not be present.

[45] Mr. McLelland also noted that the kick at 15:18 hours would again more reasonably be attributed to the "swabbing" effect of pulling the first stand of pipe from the wellbore. Mr. McLelland therefore dismissed the kick at 15:18 hours as an obvious indicator of a gas formation intruding into the wellbore.

[46] In addition, Mr. McLelland noted that in the context of drilling a surface hole the task of identifying warning signs of a blowout is more difficult than for a completed well producing oil or gas. Mr. McLelland indicated that, in many cases, identification of an impending blowout "filters down to a tank gain or loss." The standard volume change in the industry that would set off an automated alarm is 1 cubic meter. Here, a sudden change approaching this threshold warning sign did not occur until 50 seconds prior to the blowout. Even then, the tank volume change was still only 0.9 of a cubic meter. Mr. McLelland was therefore of the opinion that tank volume changes, the primary warning system for surface hole drilling, did not provide the operator or the employer with a reasonable indicator of the impending blowout until it was too late.

[47] Finally, Mr. McLelland noted that, in the region of the blowout accident, there were no known records of shallow gas blowouts. Mr. McLelland noted a gas producing field in Sousa, Alberta, known for shallow natural gas formations. There, it was standard procedure to install pressure cemented conductors and diverters as a precaution; however, Mr. McLelland considered the region in question in this appeal to be "significantly different" because of the absence of data identifying shallow gas formations. Mr. McLelland therefore did not consider it necessary to install a diverter in the current case. He also was of the view that, given the extensive debris thrown up by the blowout, a diverter system would in any event have become plugged and failed almost immediately. Mr. McLelland therefore doubted a diverter would have avoided or ameliorated the January 28, 2005 accident.

[48] The employer also provided the Board with reports describing their geological assessments and mapping of the region in which the blowout occurred. The geologists described the likelihood of encountering shallow gas formations as "statistically miniscule."

[49] In an April 21, 2009 letter, the Board advised the employer that it was considering imposing an administrative penalty on the employer in relation to the contravention orders. The Board provided the employer with a "Statement of Reasons for Administrative Penalty" from its senior safety officer. The officer was of the opinion that the swabbing effect of removing the drill string from the wellbore provided the most likely explanation for the influx of the gas formation into the wellbore. In combination with insufficient drilling mud density to control the well, the influx of natural gas then escalated into a blowout. The officer emphasized the absence of a diverter system and the continued use of foamy mud, which reduces hydrostatic efficiency, as key factors in the blowout that the employer could and should have mitigated.

[50] The officer also noted that the presence of foamy mud permitted the employer and drilling contractor to assume that the kick at 15:18 hours was merely the release of trapped air; however, if clean mud had been used, this assumption might not have been so easily made. The officer therefore considered that the continued use of contaminated mud contributed substantially to the blowout and its fatal outcome.

[51] With respect to the use of a diverter, the officer disagreed with Mr. McLelland that it was not appropriate in this case. The officer pointed out that diverters were regularly used in other regions and that, even if they did fail due to debris plugging, this at least provided extra escape time and was in any event unlikely to have worse outcomes than not using a diverter at all.

[52] Finally, the officer disagreed with the employer's view that the prospect of encountering shallow gas was "miniscule." The officer referenced a number of recent studies, journal articles, and presentations in the oil and gas industry referencing the possibility of viable shallow natural gas formations in the general region in question in this appeal. The officer therefore rejected the employer's reliance on its experience with other wells in the area.

[53] The officer also queried whether other wells were properly comparable to the specific location of the blowout and also queried the employer's reports that it had not encountered shallow natural gas formations. In essence, the officer considered that the risk of encountering natural gas formations could not be described as nil. Given the serious results that can arise from contacting a shallow gas formation while surface hole drilling, the employer should therefore have ensured that a diverter system was installed.

[54] In light of these factors, the officer concluded that the employer had acted wilfully or with reckless disregard in failing to identify the potential for encountering shallow natural gas

and in failing to provide a diverter system to manage this risk. The officer noted that the cost of installing a diverter was in the range of $10,000.00 to $15,000.00 and required an additional 7 hours of work. The officer believed that the decision not to install this protective equipment was a function of a cost-saving and time-saving attitude in a production-first industry. The officer therefore proposed levying a presidential penalty in the amount of $250,000.00 on the employer.

[55] The employer responded in a May 28, 2009 letter. It said that the shallow gas formation in question in this appeal was an anomaly and could not have been reasonably predicted. The employer argued that it acted with due diligence in establishing the drilling operation. The employer also suggested that there was little purpose in issuing an administrative penalty more than four years after the incident, particularly as the employer, and the industry generally, immediately moved to installing diverters in surface hole drilling operations in the region. The employer and industry had also improved escape systems, training, and awareness. In all these circumstances, the employer submitted that an administrative penalty was inappropriate.

[56] The officer responded in a statement dated September 4, 2009. He reiterated that the oil and gas industry was aware of the potential for shallow gas formations in the region of the blowout. Even if this risk could arguably be characterized as "low" it could not be described as "miniscule" with the result that safety precautions were required. The Board then went on to levy the penalty order on the employer.

[57] As already noted, the employer requested a review of the penalty order. It filed a preliminary objection to the penalty order on the basis of excessive delay; however, the review officer rejected that objection in a letter dated May 31, 2010.

[58] The review therefore proceeded to an oral hearing. The worker's family attended the hearing with a representative from the Workers' Advisers Office. The officer and counsel also attended on behalf of the Board. The employer called several witnesses, including Mr. McLelland, who had already filed an expert report and was questioned on it during the oral hearing. He repeated his view that the shallow natural gas formation was an anomaly. He referenced gas analysis testing that had identified the gas as being of a biogenic origin released from clathrate, a kind of formation that Mr. McLelland described as "unprecedented" in continental North America. Further, Mr. McLelland discussed the Pason data recordings and concluded that they did not support the Board's explanation for the sequence of events leading to the blowout and that the penalty order was therefore unwarranted.

[59] The employer's geologist also testified. He provided further post-hearing evidence as well. He confirmed that aeromagnetic surveys did not reveal a risk of shallow natural gas formations in the region of the blowout. In essence, his opinion on this point depended on the absence of channels through which deep gas formations could migrate upwards to form shallow gas formations.

[60] As already noted, the review officer confirmed the penalty order, leading to the current appeal.

[61] As noted above, we decided that we required additional expert evidence in relation to the significance, if any, of using foamy drilling mud in the 22 hours prior to the blowout of January 28, 2005. Pursuant to paragraph 246(2)(d) of the Act, we therefore requested that the Board secure the opinion of an independent expert in the oil and gas industry regarding the use of foamy drilling mud.

[62] In response, the Board secured the opinion of Mr. Grace, a registered professional engineer with bachelor of sciences and master of sciences degrees in petroleum engineering. Mr. Grace considered that, in the context of industry practices at the time of the blowout, "…there would be no safety concerns associated with the use of foamy mud…. The only concerns would be operational." In short, Mr. Grace was of the opinion that the continued use of foamy mud did not represent a significant safety issue.

[63] With regard to the employer's failure to take steps to mitigate the danger associated with shallow gas in the region, Mr. Grace did not consider the employer substantially at fault and pointed out that there was no regulatory requirement for diverters on surface holes in the region at issue. In addition, Mr. Grace stated, in relevant part:

> Consistent with custom and practice, the [employer] went further. The [employer] considered the local experience and regional geology. There was shallow commercial production in [another region]. But, that was a considerable distance away and the regional geology was completely different. There was no commercial shallow production nearby in British Columbia.
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> The operator also considered local experience. The operator had drilled several wells in the area without any indication of shallow gas. In addition, this location was on a map with over 7600 other wells, none of which reported the presence of hydrocarbon accumulation in the surface hole. While this statistic was judged vague and insufficient by the [Board], as a matter of custom and practice within the industry worldwide, it would be well understood, compelling, and strongly considered in the decision making process. The bottom line, in my experience and opinion, is that the probability for shallow gas at the location in question was as close to zero as it could be. Within the industry, [the employer] would be not considered negligent or reckless in concluding that it was safe to proceed as planned at this location with regard to shallow gas.
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> [reproduced as written, except as noted]

[64] Mr. Grace's overall conclusion in relation to the blowout of January 28, 2005, was that the swabbing action related to removing the drill string from the wellbore caused an

initial kick at 15:18 hours of approximately 7 barrels. Mr. Grace described this as a "…substantial volume considering that the hole volume was only roughly 100 barrels." Mr. Grace indicated that this loss went unnoticed. On the other hand, in the following 20 minutes, the well continued to maintain balance, proof that gas was not migrating to the surface. This fact tended to obscure the potential that the first kick had been a warning sign of a potential blowout. Further, when the first stand of pipe was lowered to permit cleaning of the elevators and then again removed from the well, no further swabbing effect occurred, according to the Pason data. Mr. Grace described this as a "mystery" but in any event the Pason data demonstrated that when the second stand of pipe was pulled from the well a further swabbing effect occurred, causing the natural gas formation to flow into the wellbore and exit as a blowout within a few seconds and without sufficient time to do anything to stop it.

Submissions

[65] The parties have provided extensive and thoughtful submissions. Rather than attempting to summarize these submissions, we will address relevant aspects of their arguments in the course of our reasons. To the extent that we do not discuss aspects of the submissions put to us, we have not done so because we did not consider it necessary given the ultimate path of our reasoning in this appeal.

Reasons and Findings

[66] As already noted, the employer does not dispute the safety breaches outlined in the contravention orders. It further concedes that it did not demonstrate due diligence in relation to the contravention orders and that an administrative penalty is therefore warranted. However, the employer argues that a presidential penalty was not merited and requests that the penalty order be varied accordingly. We accept the employer's concessions and we therefore direct our reasons to the single issue of the proper quantum of the penalty order.

[67] We further note that the employer appears to have abandoned the argument about inordinate delay that it made before the Review Division. We therefore need not address that issue here. We turn then to consider the proper quantum of the penalty order.

What is the proper quantum of the penalty order?

[68] The Board's authority to levy administrative penalties is set out in section 196 of the Act as follows:

> **196** (1) The Board may, by order, impose an administrative penalty on an employer under this section if it considers that

> (a) the employer has failed to take sufficient precautions for the prevention of work related injuries or illnesses,
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> (b) the employer has not complied with this Part, the regulations or an applicable order, or
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> (c) the employer's workplace or working conditions are not safe.
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> (2) An administrative penalty which is greater than [$500,000.00, subject to Consumer Price Index adjustments] must not be imposed under this section.
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> (3) An administrative penalty must not be imposed under this section if an employer exercised due diligence to prevent the circumstances described in subsection (1).
>
> …

[69] The Board's *Prevention Manual* (Manual) provides direction as to how the Board should exercise its discretionary authority to levy administrative penalties. Applicable policies set out in the Manual are binding on us pursuant to subsection 250(2) of the Act. The Manual provides for several different types of administrative penalties.

[70] The most common type of penalty is sometimes referred to as a "table" penalty because it is calculated with reference to a table or grid relating the amount of the penalty to an employer's payroll. The amount of a table penalty also depends on whether the penalty is categorized as a "Category A" or "Category B" contravention. The former are more serious and thus more costly, whereas the latter are less serious and less costly. A table penalty may be further adjusted upwards or downwards by as much as 30% to take into account specific circumstances of each case.

[71] Another type of penalty is what we have referred to as a "presidential" penalty because it requires the approval of the president of the Board. This type of penalty is relatively unusual and significantly more costly than a table penalty.

[72] The question then, is whether a table penalty or a presidential penalty is the appropriate regulatory response to the circumstances of the January 28, 2005 blowout accident.

[73] The Manual describes presidential penalties at policy item D12-196-6 as follows:

> **2. Penalties up to $250,000**
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> With the approval of the President or delegate, the Board may impose an administrative penalty of up to $250,000 where:

(a) the employer has committed a high risk violation wilfully or with reckless disregard; and

(b) a worker has died or suffered serious permanent impairment as a result.

[74] The policy establishes criteria for imposing a presidential penalty. An employer must commit a "high risk violation" with "reckless disregard" or "wilfully" and the violation must have a causal connection to a worker's serious injury or death. We will consider each of these criteria in turn.

High Risk Violation?

[75] The contravention orders refer to both general and specific safety breaches on the employer's part. First, at a general level, the employer failed to adequately recognize and respond to the hazard of encountering shallow gas formations in planning and implementing the surface hole drilling operations in question in this appeal. This general level of inadequate hazard assessment resulted in the employer failing to install diverter equipment and down-hole gas monitoring systems.

[76] Second, at a more specific level, the employer failed to recognize that the kick at 15:18 hours was a potential indicator of gas formation intrusion into the wellbore, with the result that the employer failed to discharge its obligation to identify and remedy workplace hazards.

[77] The employer does not challenge the contravention orders in this appeal. Were it necessary to do so, we would in any event confirm the contravention orders. We are also of the view that the contravention orders demonstrate high risk violations within the meaning of the Manual.

[78] In this regard, the Manual discusses the meaning of a "high risk violation" at policy item D12-196-2 "Administrative Penalties – High Risk Violations" and suggests that three factors should be considered: 1) the likelihood of an injury occurring; 2) the number of workers affected; and 3) the likely seriousness of any injury.

[79] With respect to the general contraventions, we accept that there was a low probability of encountering a shallow gas formation in the course of drilling a surface hole.

[80] On this point, we note that the expert evidence provided to us indicated the possibility of contacting a shallow gas formation was "miniscule." Similarly, we note that Mr. Grace stated in his report that the risk of contacting shallow gas was "…about as close to zero as it could be." However, although the risk appears to have been a remote one, none of the experts dismissed the risk as non-existent.

[81] Consequently, we agree that the relatively low probability of contacting a shallow natural gas formation weighs against characterizing the general contravention as a "high risk violation."

[82] However, in our view, the two other factors to consider outweigh the low probability of contacting a shallow gas formation. Drilling rigs operate with many workers on-site at all times. In addition, a blowout, although rare, obviously carries with it serious consequences. Indeed, Mr. Grace indicated that it was a wonder none of the other crew members were injured by falling debris, some of which penetrated crew trailers and vehicles.

[83] We therefore consider that the general contravention of failing to identify and plan for potential contact with a shallow gas formation, albeit low, was nevertheless a high risk violation because of the number of workers exposed to the resulting risk and because of the serious injuries or death that could be obviously anticipated to arise from a blowout.

[84] With respect to the specific contravention, we similarly conclude that the failure to identify the initial kick at 15:18 hours as a precursor to a blowout reflects a high risk contravention. The employer should at least have considered the possibility of something more significant than mere trapped air as an explanation for the fact that 7 barrels out of a total approximate volume of 100 barrels were kicked to the surface.

[85] The employer, after only a brief consultation with the drilling contractor, instead appears to us to have demonstrated tunnel vision in relation to its assumption that the kick could only have been due to air trapped in the drill string. We do not know whether testing of the mud from the kick would have revealed the presence of gas such that the employer might have been alerted to the impending accident early enough to prevent it or mitigate its effects. We recognize that Mr. Grace at least did not consider this likely. However, we are of the view that the employer should at least have considered this option rather than simply pressing on.

[86] Consequently, we find that the specific contravention of failing to more diligently investigate and respond to the hazard inherent in the kick, in combination with the number of workers present and the serious nature of a blowout, reflects a high risk violation within the meaning of the policy item.

[87] Thus, in both the general and specific aspects of the contravention orders, a high risk violation was present such that the first criterion for imposing a presidential penalty is satisfied.

A. Wilfully or with Reckless Disregard?

[88] The issue of whether the employer acted with wilfullness or with reckless disregard in relation to the contravention orders lies at the heart of this appeal.

[89] In our view, the notion of acting wilfully or with reckless disregard is more than merely acting without due diligence. The Manual provides little guidance as to the meaning of these terms; however, a detailed analysis of the issue is set out in *WCAT-2010-00104*, dated January 13, 2010. There, the panel summarized his interpretation of acting wilfully or with reckless disregard at paragraph 116 of his reasons as follows:

> Upon consideration of the foregoing, I agree with the reasoning in *Review Decision #R0058376*, in which the review officer found that in determining whether there has been reckless disregard in any case the concern is not just whether the person failed to take reasonable care based on what the person knew and the other circumstances, but it must be possible to describe the failure by language such "wanton," "heedless," "extreme," "gross" or "highly irresponsible." However, I question the suggestion that only in exceptional cases will the Board be able to obtain sufficient evidence that a violation was committed "knowingly" or with "reckless disregard." It is not necessary that the Board have direct evidence of the employer's state of mind. If a court may infer the necessary mental element from the conduct which is found to depart substantially from the norm, for the purposes of finding criminal liability, so too may the Board draw an inference from an employer's conduct regarding the employer's state of mind.

[90] We agree with the earlier WCAT panel's analysis. In short, we consider that a mere lack of diligence does not establish recklessness or wilfulness. We consider that such modifiers as "wanton," "heedless," "extreme," "gross," or "highly irresponsible" must also be applicable to the conduct in question. Here, we doubt such modifiers are properly applied to the employer's breach of its occupational health and safety obligations, as set out in the contravention orders.

[91] With respect to the general planning contravention order, in our view, the evidence does not demonstrate that the employer knew or should reasonably have known that shallow gas formations would be encountered in the course of the surface hole drilling. The employer did not have actual or constructive knowledge of risk that it then ignored. It follows that the employer lacked the mental state required to amount to wilful or reckless disregard of safety.

[92] In reaching this conclusion, we note the employer's evidence from its geology expert, which is uncontradicted by other expert opinion evidence, that the geology of the region did not reveal shallow channels connecting deeper natural gas formations with the surface in the region in question.

[93] We also note the absence of on-the-ground experience of contacting shallow gas formations in the region in question. Much has been made of the validity of comparing different regions and even the proper radius outside of which any inference may be

drawn from the experience of other drilling sites. However, the bottom line here is that there was little or nothing in local experience to suggest the presence of shallow gas formations at the drilling rig location.

[94] We further note the contemporaneous studies and lectures suggesting the presence of commercially viable shallow formation gas in the region. In our view, at the time the employer was planning the well, that information was speculative at best. It was not sufficiently clear or definite that this information should have caused the employer to otherwise ignore the aeromagnetic studies and local drilling experience that suggested shallow formation gas was unlikely. Indeed, we note that the industry regulator at the time similarly did not appear to consider shallow formation gas a problem because it did not require diverter equipment in the circumstances of the surface hole drilling operation in question. This is of significance given the highly regulated nature of oil and gas operations.

[95] We also note that the review officer concluded that the employer's conduct in failing to conduct a proper risk assessment and implement any reasonable steps if shallow gas was encountered, amounted to reckless disregard for the safety of its own workers and other workers at the work site. At page 45, the review officer reasoned:

> In my opinion, the employer did not conduct an occupational health and safety risk assessment. Instead, because it used employees with little or no experience or training in occupational health and safety it conducted a straight probability assessment. As such, I have little hesitation in finding that the employer's conduct did amount to reckless disregard for the safety of workers at the work site on January 28, 2005.

The review officer cited the Canadian Centre for Occupational Health and Safety's risk assessment table for ranking hazards. The review officer concluded that the employer had shown reckless disregard for the safety of its workers. We consider, however, that the employer's failure to adequately prepare for what it reasonably considered was a remote risk was one which involved a failure to exercise due diligence rather than one involving wilful or reckless disregard for the safety of its workers. If the employer knew, or should have known, that there was some reasonable prospect that shallow gas would be encountered, but failed to address that possibility, that would provide a stronger basis for concluding that the employer's conduct was wanton, heedless, extreme, gross or highly irresponsible so as to amount to reckless disregard.

[96] Simply put, in our view, the employer complied with industry standards when it planned the surface hole drilling operation in question. Mr. Grace in particular supported this conclusion and we are satisfied that, as an independent expert in the field, his views merit considerable weight. We consider that complying with industry practice, particularly in such a highly regulated field as the oil and gas industry precludes, at least in most cases, a finding that the employer was acting wilfully or with reckless disregard in relation to safety issues.

[97] It follows that we are unable to conclude that the employer acted wilfully or with reckless disregard in relation to the general contravention order of failing to identify and plan for the hazard of contacting shallow gas formation in the context of the surface hole drilling operation at issue in this appeal.

[98] With respect to the specific contravention of failing to recognize the impending blowout, particularly following the kick at 15:18 hours, we similarly conclude that the employer did not act wilfully or with reckless disregard. The events following the initial kick occurred in a short space of time in the context of what appears to have been virtually continuous difficulties with the surface hole drilling operation.

[99] According to Mr. Grace, the employer and drilling contractor operated with prudence when they circulated the well for approximately 50 minutes prior to pulling the first stand of pipe. Until that point there was little indication of a gas formation intrusion; indeed, the expert consensus was that the gas formation was at only a slight pressure differential and was contained by hydrostatic pressure until the second stand of pipe was pulled from the well. This meant that neither the Pason data nor the tank volume readings provided any clear indication of an impending blowout until it was too late to act.

[100] With the benefit of hindsight, we consider that the employer should have paid more attention to the kick at 15:18 hours. However, we recognize that at the time of the kick the employer discussed the matter with the drilling contractor and everyone agreed that it was merely an air "burp." Although ultimately incorrect, this was not an unreasonable assumption. The drilling operations were marked by entrained air for much of the time, commencing right from the outset when there was no possibility of encountering shallow gas. Obvious indicators of an impending blowout were not apparent. The volume also changed very little in the minutes following the kick. Finally, it must be remembered that the decision-making at the time took place against the backdrop of surface hole drilling when no-one expected to contact shallow natural gas formations.

[101] In these circumstances, we find the employer did not proceed in the face of actual or constructive knowledge of a safety hazard. On the basis of the expert opinion evidence, particularly that of Mr. Grace, we are of the view that the employer and operator made mistakes in their response to the kick at 15:18 hours and could have acted with greater diligence. However, we are unable to conclude that the employer's actions can properly be characterized as resulting from wilful or reckless disregard of its safety obligations.

[102] We therefore conclude that the employer did not act with wilful or reckless disregard in relation to either the general or specific aspects of the contravention orders.

[103] In reaching this conclusion, we are acutely aware of the young worker's death in the January 28, 2005 blowout. Our finding that the employer did not act with wilful or reckless disregard in relation to the contravention orders is not intended to diminish in any way the tragic loss of his life and nor do we intend to suggest that the employer

should be relieved of all responsibility for the contraventions leading to the worker's death. Rather, we conclude that the employer, although still blameworthy from a regulatory perspective, cannot be said to have acted with wilful or reckless disregard in relation to the contravention orders.

[104] The comments of the panel in *WCAT-2010-00104*, a somewhat similar case involving the death of another young worker in the oil industry, are equally applicable to the current appeal:

> In the face of the tragic death of a young worker, there is a natural inclination to view any high risk violation by the employer which contributed to the incident as necessarily involving reckless disregard. Such an approach would, however, deprive of any meaning the policy requirement that the violation have been committed "wilfully or with reckless disregard." The fact that a high risk violation was a factor in the death of a worker does not by itself show that there was reckless disregard.

[105] In the result, we find that the employer did not act with wilful or reckless disregard in relation to the contravention orders. As the presence of such conduct is a requirement before a presidential penalty may be levied, it follows that the employer cannot be subject to a presidential penalty.

B. Table Penalty

[106] The employer is not liable for a presidential penalty; however, it concedes that a penalty is appropriate. We agree.

[107] Although the employer did not act wilfully or with reckless disregard it appears to concede that it acted without due diligence. Even if that were not so, we would in any event find that the employer failed to act with due diligence. The notion of due diligence is well understood and demands not merely an absence of negligence but also the more rigorous obligation to actively take all reasonable steps to ensure safety contraventions do not occur.

[108] Here, the employer should have done more to identify and plan for the possibility, albeit remote, of encountering shallow gas formations. The employer therefore did not exercise due diligence within the meaning of the Act and the Manual.

[109] We consider this to be particularly so in the context of surface hole drilling, where hydrostatic pressure is the sole form of well control. If hydrostatic pressure is lost, there is no ability to control or ameliorate a blowout.

[110] Further, according to Mr. Grace, blowouts in surface hole operations typically occur with little or no warning. Moreover, they frequently occur while removing stands of pipe from

the wellbore, an activity that occurs when the Kelly casing is disengaged and when the operator therefore lacks the ability to adjust hydrostatic pressure in the well to counteract possible influx of gas formation into the well. This means to us that surface hole drilling rigs are vulnerable to blowout at the very time that they are unable to control hydrostatic pressure, the only safety system generally available to them.

[111] In such circumstances, it appears to us that, notwithstanding industry practices, common sense suggests a need for the oil and gas industry to change its perspective regarding secondary well control measures such as the installation of diverters.

[112] Indeed, it appears from the Board officer's evidence, which is uncontradicted on this point, that the cost and time required to install diverters is relatively minor in the context of the serious risk posed to worker safety by blowouts.

[113] In these circumstances, although we recognize that Mr. McLelland in particular did not support the use of diverters, we disagree with him. We understand that diverters are not a primary well control system. We further understand that they may fail and lead to other problems that, in the worst and most unusual case, might still result in damage or even destruction of the drilling rig. However, we do not consider that Mr. McLelland's opinions establish that diverter systems pose a greater hazard than not having a diverter system at all. Indeed, if this were not so, the use of such safety equipment in known shallow gas formation regions such as the Sousa field in Alberta would not be standard practice.

[114] Consequently, although we do not suggest that diverter systems will necessarily work in every case, or that they would have worked in this particular case, we consider that their installation for surface hole drilling is a sensible step as a matter of routine, except perhaps where the risk of encountering shallow gas formation is, in fact, nil. Again, this is particularly so in the context of surface hole drilling where, other than hydrostatic pressure, no well control measures are in place, where blowout indicators are difficult to identify, and where blowouts, if they occur, usually do so quickly and with little warning.

[115] Therefore, rather than approaching the question from the perspective of whether a diverter system is justified, as was industry practice prior to January 28, 2005, a more prudent approach would be to presume that a diverter or other protective technology is required unless local conditions demonstrate with certainty that they would serve no purpose.

[116] Were we required to do so, we would therefore find that the employer did not exercise due diligence in relation to its decision not to install diverters at the site in question, albeit that the risk of contacting shallow gas formations was small.

[117] Similarly, we consider that the employer did not exercise due diligence in its response to the kick at 15:18 hours. In our view, the report of Mr. Grace suggests that further steps could reasonably have been taken to identify the cause of this kick. In particular,

Mr. Grace indicates, and we accept, that it would have been prudent to pay more careful attention to the Pason data in combination with ascertaining whether expected volume changes occurred in the well when the first and second stands of pipe were removed.

[118] By simply maintaining the pumps on the well, the operator, and by extension the employer who consulted with the operator about the kick, failed to ensure that expected volume changes from removal of the pipe were within proper parameters. In his report, Mr. Grace identified this point particularly as a problem with the employer and drilling contractor's response to the kick at 15:18 hours.

[119] Evidently, we do not know whether this action would have made any difference to the subsequent blowout and fatality. Nevertheless, in our view, as stated by Mr. Grace, this would have been a prudent option to take and the employer's failure to do so reflects an absence of due diligence.

[120] We further consider that testing of the mud for the presence of gas would have been a prudent step, particularly given that testing equipment was available at the rig site. Again, it might well be that testing would not have revealed the presence of gas in the mud. In any event, as Mr. Grace opined, the presence of gas in the mud would not necessarily mean that a significant gas formation was intruding into the wellbore. We further understand that Mr. Grace and Mr. McLelland query whether, even if gas was found on testing the mud, such information would have altered the decision-making process.

[121] Nevertheless, we consider that it would have been a simple matter to test the mud and a prudent choice in the context of a kick that expelled approximately 7 barrels from a well with a total volume of only 100 barrels. Whether this would have led to a different outcome is not the point. The question is whether the employer took all reasonable steps in the circumstances. By failing to test the mud for the presence of gas, the employer lost the opportunity to potentially gain useful information, at little expense, that at least might have resulted in a different outcome.

[122] In summary, we are satisfied that the employer did not demonstrate due diligence in relation to both contravention orders. Because the employer did not act with due diligence and because it otherwise accepts that it should be subject to an administrative penalty, we conclude that an administrative penalty is appropriate under the table method.

[123] As already noted, policy item D12-196-6, "Administrative Penalties – Amount of Penalty" creates two categories for table penalties.

[124] A "Category A" penalty applies where an employer's contravention is of a high risk nature, resulted in serious injury or death, or was the result of wilful or reckless

disregard. A "Category B" penalty applies to less serious situations not captured under Category A. Category B penalties are significantly less costly than Category A penalties.

[125] Here, we have already found that the contravention orders revealed a high risk of worker death or serious injury. It is also apparent that the contravention orders in fact led to the loss of a young worker's life. It follows that a Category A penalty is required. In accordance with the Manual, the Category A penalty is to be calculated on the basis of the employer's assessable payroll in 2004.

[126] As a final point, we note that table penalties may be varied up or down pursuant to policy item D12-196-6. The policy item describes various factors to consider in assessing whether or not to vary the basic amount of a Category A penalty.

[127] Here, perhaps because the focus of the appeal turned on the presidential penalty, the parties did not file submissions on whether, if the quantum of the penalty was instead calculated using the Category A table, the resulting basic amount of the penalty should be varied up or down.

[128] However, the issue of variation factors appears to us to have been an obvious one to address in the course of submissions, particularly as both parties have experienced representatives. Accordingly, we did not seek further submissions on this point.

[129] Factors in the employer's favour include its prompt response by increasing safety training, installing diverters, and encouraging better information sharing in the industry regarding local operational hazards and conditions. On the other hand, the employer appears to us to have demonstrated tunnel vision about the possibility of contacting a natural gas formation and its conduct led, in part, to the tragic death of a young worker. Our view is that the variation factors support neither an increase nor decrease in the basic Category A penalty amount.

[130] In summary, we vary the penalty order by substituting a Category A penalty, without variation, for the presidential penalty. We understand that the employer's payroll in 2004 was $5,318,548.00, which would result in a penalty of approximately $68,648.19; however, we leave it to the Board to calculate the precise amount of the Category A penalty.

[131] As a result, we allow, in part, the employer's appeal.

Conclusion

[132] We vary *Review Decision #R0111064*. We confirm that an administrative penalty is appropriate; however, we reduce the quantum of that penalty from a $250,000.00 presidential penalty to a Category A penalty without variation.

[133] Neither party requested reimbursement for appeal expenses nor were any such expenses apparent to us. Consequently, we make no order for the reimbursement of appeal expenses.

Warren Hoole
Vice Chair

Herb Morton
Vice Chair

Sherryl Yeager
Vice Chair

WH/gl