



Shell Canada Limited

Applications for Pipeline and Facility Licences
Waterton Field

May 28, 2013

ENERGY RESOURCES CONSERVATION BOARD
Decision 2013 ABERCB 009: Shell Canada Limited,
Applications for Pipeline and Facility Licences, Waterton Field

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CONTENTS

Decision	1
Introduction.....	1
Applications.....	1
Intervention.....	1
Background.....	2
Hearing	3
Background from Decision 2011-007.....	3
Issues.....	6
Need	6
Evidence.....	6
Analysis and Findings.....	7
Safe Operation	7
Evidence.....	7
Analysis and Findings.....	9
Emergency Response Planning	10
Evidence.....	10
Analysis and Findings.....	11
Environment	13
Evidence.....	13
Analysis and Findings.....	13
Ambient Air Monitoring.....	13
Evidence.....	13
Analysis and Findings.....	15
Engagement	15
Evidence.....	15
Analysis and Findings.....	16
Conclusion	16
Appendix 1 Hearing Participants.....	18
Appendix 2 Summary of Conditions and Commitments.....	19
Appendix 3 RWDI Report Recommendations for Improvements	21
Appendix 4 Action Plan for ERCB Decision 2011-007	24

ENERGY RESOURCES CONSERVATION BOARD

Calgary Alberta

**SHELL CANADA LIMITED
APPLICATIONS FOR PIPELINE
AND FACILITY LICENCES
WATERTON FIELD**

**2013 ABERCB 009
Applications No. 1726204, 1726205, and 1727102**

DECISION

[1] Having carefully considered all of the evidence, the Energy Resources Conservation Board (ERCB/Board) hereby approves Applications No. 1726204, 1726205, and 1727102 (the applications) subject to the conditions outlined in the report and summarized in appendix 2.

INTRODUCTION

Applications

[2] Shell Canada Limited (Shell) applied, pursuant to part 4 of the *Pipeline Act*, for approval to construct and operate two pipelines. One pipeline is intended to transport natural gas with a maximum hydrogen sulphide (H₂S) concentration of 320 moles per kilomole (or 32 per cent) from Legal Subdivision (LSD) 10, Section 1, Township 6, Range 3, West of the 5th Meridian, to an existing facility at LSD 6-12-6-3W5M. This proposed pipeline would be about 1.2 kilometres (km) long with a maximum outside diameter of 168.3 millimetres (mm) and would operate as a level-2 pipeline.

[3] The other pipeline is intended to transport fuel gas with no H₂S from LSD 6-12-6-3W5M to LSD 10-1-6-3W5M, and would run parallel to the first line. This proposed pipeline would be about 1.2 km long with a maximum outside diameter of 60.3 mm.

[4] Shell also applied under section 7.001 of the *Oil and Gas Conservation Regulations* for approval to construct and operate a single well gas battery at LSD 10-1-6-3W5M, which is about 5.8 km southwest of the hamlet of Beaver Mines. The facility would handle production from the existing Waterton 68 well at LSD 10-1-6-3W5M (WT68 well) and would be licensed for a maximum H₂S concentration of 320 moles per kilomole (or 32 per cent).

Intervention

[5] The Board received objection letters dated May 9, May 10, June 1, and September 17, 2012, from Mr. Michael Judd stating concerns about his proximity to the project, health and safety, pipeline integrity, emergency response plans, the environment, and quality of life. The Board issued a notice of application on July 18, 2012, and no additional objections were received.

[6] The Board sent a letter to Mr. Judd dated October 31, 2012, stating that it had decided to hold a hearing of the applications and that he was entitled to full participation rights in the hearing.

Background

[7] A notice of hearing was issued on November 19, 2012, for a hearing to commence on March 12, 2013. The final submission date for all interested parties was January 29, 2013, and the final response submission date for the applicant was February 19, 2013.

[8] The Board sent a letter to all involved parties on November 27, 2012, to allow parties to give their opinions about the scope of the hearing. Responses were received from both Shell and Mr. Judd. The Board received a request from Mr. Judd on January 7, 2013, to adjourn the scheduled hearing to June 10, 2013, and make corresponding changes in submission filing dates. On January 9, 2013, the Board sent a letter to Mr. Judd and Shell indicating the scope of the issues the Board would consider at the hearing, along with an extension to February 8, 2013, for Mr. Judd to file his submissions. In the same letter, the Board asked Mr. Judd to indicate by January 11, 2013, if he wished to proceed with his adjournment request. Shell was asked to respond by January 15, 2013.

[9] After receiving responses from both parties, the Board sent a letter dated February 4, 2013, addressing the scope of the hearing, denying Mr. Judd's request for adjournment, and responding to a number of other matters raised by Mr. Judd in his correspondence.

[10] Before the start of the hearing, the Board received a notice of question of constitutional law (NQCL) from Mr. Judd. Mr. Judd's NQCL posed the following two questions:

- "Does the structure and/or scope of the hearing to be conducted by the Energy Resources Conservation Board (ERCB/Board) to consider Applications No. 1726204, 1726205 and 1727102 as set out in the Notice of Hearing issued by the Board on November 19, 2012 and more specifically set out in a letter of the Board (the "Scoping Decision"), dated February 4, 2013, violate the Applicant's rights guaranteed by section 7 of the *Canadian Charter of Rights and Freedoms (Charter)*?"
- "If the answer to [the above] question . . . is yes, does the violation of section 7 of the *Charter* constitute a reasonable limit demonstrably justified in a free and democratic society pursuant to section 1 of the *Charter*?"

[11] The Board provided a process for receiving written submissions on matters relating to the hearing panel's jurisdiction over, or the hearing panel's consideration of, the two questions presented in the NQCL. The minister of justice and the attorney general of Alberta, and the attorney general of Canada (who were served with the NQCL), indicated they did not intend to participate in the NQCL process. Shell filed a response to the NQCL, and Mr. Judd filed a reply to Shell's response. The Board issued a decision dated March 5, 2013, and written reasons dated March 11, 2013. It ruled that the structure and/or scope of the hearing to be conducted by it to consider the applications, as set out in the notice of hearing issued by the Board on November 19, 2012, and in a scoping decision letter from the Board dated February 4, 2013, did not violate Mr. Judd's rights guaranteed by section 7 of the *Charter*. As a result of that ruling, the Board did not need to consider Mr. Judd's second question of constitutional law, relating to the application of section 1 of the *Charter*.

[12] The Board sent a letter to both parties, dated March 4, 2013, stating that it intended to have Mr. Colin Duncan participate in the hearing as an independent witness. Mr. Duncan appeared at a previous hearing about the WT68 well as an expert for an intervening party.

Hearing

[13] The Board held a public hearing in Pincher Creek, Alberta, that started March 12, 2013, and ended March 15, 2013, before Board Members T. L. Watson, P.Eng., (Presiding Member); A. Bolton, P.Geo.; and Acting Board Member J. Gilmour, B.A., LL.B. A site visit was held on the afternoon of March 14, 2013. Those who appeared at the hearing are listed in appendix 1.

BACKGROUND FROM DECISION 2011-007

[14] The applications that are the subject of this hearing are resubmissions of applications that were denied without prejudice in *Decision 2011 ABERCB 007: Shell Canada Limited, Applications for Well, Facility, and Pipelines Licences, Waterton Field (Decision 2011-007)*. As such, an understanding of *Decision 2011-007* and the conditions and recommendations from that hearing will help the reader to understand the history of the area and Shell's operations.

[15] The Board held a public hearing in October 2010 to consider applications for the WT68 well, related infrastructure at the well site, two pipelines, and an amendment to add a fuel gas compressor at the 6-12-6-3W5M facility. Following that hearing, the Board issued *Decision 2011-007*. That decision approved the WT68 well and the fuel gas compressor and denied the other applications. It also contained a number of commitments, conditions, and recommendations.

[16] Commitments are arrangements between the parties and do not constitute conditions to the ERCB's approval of the applications. Recommendations are courses of action strongly encouraged by the Board. Conditions are requirements in addition to or otherwise expanding upon existing regulations and guidelines. An applicant must comply with conditions or it is in breach of its approval and subject to enforcement action by the ERCB.

[17] The conditions in *Decision 2011-007* were tracked by the Board and were considered complete by staff on March 7, 2012 (appendix 4). The conditions in *Decision 2011-007* and the follow-up measures completed by Shell are summarized in table 1.

Table 1. Conditions from *Decision 2011-007*

Condition	Follow-up
The Board, as a condition of its approval, requires Shell to conduct a drilling and completions ERP (emergency response plan) exercise prior to spudding the WT68 well and to involve interested stakeholders in the development and implementation of and follow-up to that exercise.	Shell completed an emergency response plan (ERP) exercise on June 25, 2011, and involved the community in the development and implementation of the exercise. It also provided to the ERCB a summary document that included feedback from the exercise participants.
The Board, as a condition of its approval, requires Shell to control dust on the Seven Gates Road by watering the road as required based on the weather, road use, and road conditions during drilling and completion of the well.	Shell provided quarterly updates to the Waterton Advisory Group (WAG) in 2011 outlining the number of complaints received and the dust control measures that were implemented.
The Board, as a condition of its approval, also requires Shell to have a traffic monitor close to the junction of Seven Gates Road and Highway 507 during drilling and completions of the well.	Shell installed a traffic monitor at the junction in May 2011. Traffic monitoring was closed out in December 2011 when drilling of WT68 was complete.

Condition	Follow-up
The Board, as a condition of its approval, directs that if Shell needs to test the well, the operational plans for this test, either in-line or by flaring, must be submitted to the ERCB for approval.	Shell met with the ERCB to discuss well testing on April 11, 2011. Shell said that it did not intend to flare test the well at that time and that it would submit operational plans to the ERCB for approval if it was later determined that flare testing was necessary.

[18] The recommendations from appendix 2 of *Decision 2011-007* are reproduced in table 2 along with the follow-up measures completed by Shell.

Table 2. Recommendations from *Decision 2011-007*

Recommendations about the location:	Follow-up
<p>The Board recommends that Shell monitor the effectiveness of its rare plant transplanting program and make this information publicly available.</p> <p>The Board expects Shell to minimize the environmental effects at the 10-1 site and to offset those that are ecologically significant.</p>	<p>Shell provided updates to WAG on the rare plant transplanting program. In addition to transplanting three mature limber pines from the WT68 site to a local greenhouse, limber pine seedlings from the local area have been successfully propagated. 150 limber pine seedlings have been transplanted to the area, and two more plantings of 150 are planned. Shell committed to monitoring seedling growth for five years and to monitoring the mature limber pines for three years.</p> <p>To minimize environmental effects at the lease site, Shell made efforts to remove and transplant native plants and trees before construction of the 10-1-6-3W5 lease. Information was submitted that outlined how the native plants were extracted and transported to the local greenhouse for safe keeping. The plants will be used in the eventual reclamation of this lease site, as well for the propagation of other plants to be used in Shell's other local reclamation efforts.</p> <p>The 2012 environmental assessment (EA) addendum indicates that construction during autumn would have less impact on grizzly bears because grizzly use is higher in the spring and summer. It further indicates that impacts to nesting birds are expected to be low, with any effects mitigated by reclamation of the site. The 2012 addendum affirms the conclusion of the 2006 EA that no significant environmental effects are predicted to result from the proposed project.</p>
Recommendations about emergency response:	Follow-up
<p>The Board recommends that additional measures must be developed to effectively respond to potential pipeline and production incidents.</p> <p>The Board recommends that Shell conduct an ERP exercise addressing a pipeline/production scenario and involve interested stakeholders in its development and implementation, as well as in the follow-up to the exercise.</p>	<p>Shell submitted a modified core ERP twice in 2011. One version was as a result of lessons learned from the mock exercise held before spudding the WT68 well, and one version was submitted after the well was spudded. The core ERP forms the basis for all of Shell's site-specific ERPs.</p> <p>Shell held a pipeline ERP exercise on November 19, 2011. The two major exercises conducted in 2011 revealed areas for improvement. Shell involved interested stakeholders in all parts of the exercise as per the Board's recommendation.</p>

The Board suggests that Shell consider redesigning its public information package to respond to the residents' feedback and to make the information easy to recognize as important and understand.

Shell provided a simplified public information handout that was used during its ERP public involvement program. The new document was deemed by ERCB Emergency Preparedness and Audit (EPA) personnel to meet *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* public consultation requirements.

The Board urges all stakeholders to cooperate with Shell when it conducts ERP exercises or tests other systems, such as its emergency notification system, that are designed to protect the public.

In the report that followed the 2011 ERP exercise, Shell indicated that many stakeholders participated, including local residents and regional emergency responders.

Other recommendations:

Follow-up

The Board recommends that Shell report all odour complaints it receives in the area to the Board. Positive outcomes with respect to the control of off-lease emissions will allow Shell to better demonstrate its ability to safely conduct its operations in the area.

Shell reported odour complaints to WAG and the ERCB quarterly throughout 2011 and 2012.

The Board recommends that Shell report, on a quarterly basis, any complaints it receives about dust and traffic to WAG and the ERCB.

Shell reported dust and traffic complaints to WAG and the ERCB quarterly throughout 2011 and 2012.

The Board recommends that air monitors be installed at locations agreed upon by Shell and the ERCB and in consultation with Mr. Judd, the Barberos, and the Sheppards.

Shell hired RWDI Air Inc. (RWDI) to work toward the completion of this recommendation. The recommendation was not met and became a subject of the March 2013 proceeding.

The Board recommends the formation of a technical subcommittee reporting to WAG that would meet as issues arise to provide timely review and input regarding technical issues. The group would consist of representatives from the public, Shell, and the ERCB who are able to provide competent technical input and, on the part of Shell and the ERCB, who have adequate authority.

Shell created two technical subcommittees as a result of this recommendation: an air monitoring subcommittee and a pipeline subcommittee. The terms of reference for the subcommittees were developed in conjunction with the ERCB and provided to WAG.

The Board suggests that one of the items that a technical subcommittee could assist with would be the implementation of the Board's recommendation to install air monitors, as well as the review of the monitoring data and the preparation of monitoring reports.

The Air Monitoring Technical Subcommittee, comprising Shell and the ERCB, retained RWDI to do a technical review and develop recommendations for an air monitoring program. The timeline on this recommendation was lengthened because the consultant initially hired to do this work stepped down after the initial stages.

The Board recommends that WAG employ an expert, such as Mr. Duncan, paid for by Shell, to assist in a review of Shell's operations in the area and make the information from this review available to interested persons through WAG.

Shell established the Pipeline Technical Subcommittee, which included independent expert Mr. Colin Duncan. Mr. Duncan's report was provided to WAG participants on March 21, 2012, and evidence of his findings was presented at the March 2013 hearing. Shell indicated that the subcommittee will be given the opportunity to review Shell's response to Mr. Duncan's report.

ISSUES

[19] The Board considers the applications' issues to be

- need,
- safe operation,
- emergency response planning,
- environment,
- ambient air monitoring, and
- engagement,

[20] In reaching the determinations contained in this decision, the Board has considered all relevant materials constituting the record of this proceeding, including the evidence and argument provided by each party. Accordingly, references in this decision to specific parts of the record are intended to help the reader understand the Board's reasoning on a particular matter and should not be taken to indicate that the Board did not consider all relevant parts of the record with respect to that matter.

Need

Evidence

[21] Shell submitted that these applications are required in order to produce the WT68 well. Shell referenced *Decision 2011-007*, in which the Board had determined that the pipelines would be needed to allow production from the well.

[22] Mr. Judd questioned the amount of reserves Shell will be able to produce from the WT68 well. He questioned the economic viability of Shell's natural gas wells in the area given the current market price of natural gas.

[23] Shell indicated it had tested the well during the drilling phase and determined that it was economically viable. The production from the WT68 well will enable Shell to develop new wells and lengthen economic production from other wells in the Waterton field because this incremental production will extend the life of the Shell Waterton Plant. Shell provided a production and resources recovery chart to illustrate how incremental reserves are necessary to ensure that maximum resource recovery is achieved.

[24] Mr. Judd said the previous decision indicated that the pipeline was not needed in order to test the WT68 well, and Shell indicated that further testing will be done once the pipeline is operational. Mr. Judd submitted that Shell did not actually know whether the well was capable of economic production.

[25] Shell stated that the approval of this project has positive direct and indirect benefits to neighbouring communities through an increase in local economic activity, employment, and municipal taxes. Shell indicated it is a major local employer in the Waterton region and invests directly in community projects. Shell said that bringing on incremental reserves, such as those from the WT68 well, extends the timeframe over which these socioeconomic benefits continue.

Analysis and Findings

[26] The Board finds that Shell has provided adequate information to indicate the WT68 well is capable of production, and it finds that all three of the applications currently before the Board are necessary to produce the WT68 well. The Board understands that, from time to time, wells need to be tested during the production phase and that this testing will be conducted through the pipeline.

[27] The Board found the production and resources recovery chart presented by Shell to be very useful in explaining the role that incremental reserves play in extending the economic and operational life of gas production facilities. The Board agrees that Shell will be able to extend the life of its production infrastructure, such as the regional gas processing plant, and increase ultimate recovery by adding more reserves over time. The Board is of the opinion that it is important to maximize the recovery of reserves in areas with existing oil and gas infrastructure. The Board also believes that as long as the WT68 well and pipelines can be constructed and operated in a manner that meets regulatory requirements, is environmentally responsible, and ensures that the safety of the public is protected, Shell should have a reasonable opportunity to recover some or all of the investments it made in drilling the WT68 well.

[28] The Board finds that there is a need for the facilities proposed in the applications.

Safe Operation

Evidence

[29] Shell reported that it has been using the Russell See Snake In-Line Inspection tool (the Russell tool) for its Carbondale pipeline system once every six months since the 2010 hearing, and it is pleased with the capabilities of the Russell tool. According to Shell's witness, Mr. Shatat of Russell NDE Systems Inc., the Russell tool uses a remote field technology that applies an electromagnetic field to the steel pipe and detects metal wall loss behind the liner. Mr. Shatat said that remote field technology has been deployed in pipeline applications since the 1980s. It detects wall loss (whether it be internal or external) in lined pipelines by measuring how long it takes for the electromagnetic energy to travel from the device's exciter to its detectors.

[30] Mr. Shatat said that the Russell tool was developed to an optimized design based on a series of software modelling and is specifically constructed for thick high-density polyethylene (HDPE) lined pipelines such as the proposed natural gas pipeline. The Russell tool also measures the linear location and clock position of corrosion along the pipe, and subsequent inspections have shown excellent reproducibility of results in HDPE-lined pipes. Based on test results of 8-inch and 6-inch calibration pipes, the respective thresholds of detection limits were found to be a wall loss of 20 per cent deep by one-inch diameter, and 35 per cent deep by three-quarter inch diameter. The sizing accuracy at or above the threshold of detection is comparable to other in-line inspection technologies, and the accuracy increases as the volumetric corrosion loss increases in size. According to Mr. Shatat, a test run of the Russell tool was also done on a section of pipe that had been removed from the Screwdriver Creek line and that had a corroded area, and the results clearly demonstrated the Russell tool's ability to find that corrosion.

[31] Mr. Shatat said that the Russell tool is capable of detecting corrosion effectively in the natural gas pipeline proposed by Shell. He believed that had the Russell tool been used earlier on

the Carbondale pipeline system, it would have been capable of finding the corrosion defects that led to previous failures.

[32] Shell submitted that it implemented changes to the way it operates its facilities and to the design and operation of new pipelines to reduce risk and incidents in its pipeline system. Shell stated that since *Decision 2011-007* was released almost two years ago, it has not experienced any pipeline failures in the Carbondale natural gas system. It also implemented an annual flame ionization survey for leak detection on the lined pipelines and increased its accountability through quarterly operational reporting to the ERCB and to stakeholders through WAG.

[33] By increasing the operating temperature of the pipelines, Shell significantly reduced the use of methanol for hydrate control and for annulus maintenance activities. Shell indicated it still uses corrosion inhibitor containing small quantities of methanol on the carrier pipe but maintained that this level of methanol in the corrosion inhibitor does not contribute to corrosion behind the liner.

[34] Shell explained its real-time monitoring system (SCADA) and continuous venting system was designed to limit the annulus pressure to within 1000 kilopascals (kPa) above internal pressure to prevent liner collapse.

[35] Shell submitted that if it had any concerns about safety, it would shut in the pipeline and do a defect assessment based on industry guidelines such as Canadian Standards Association *CSA Z662: Oil and Gas Pipeline Systems* to determine appropriate follow-up actions. Shell submitted in its evidence that it will continue to use verification digs and ultrasonic inspection methods to verify and supplement results from the Russell tool and that it will conduct vent sampling to check for the presence of liquids and solids and their effects on corrosion. Shell also indicated it will continue to monitor fluid compositions on well site piping, mitigate corrosion with inhibitor injection, and monitor pipeline operating conditions to ensure that the operating temperatures do not exceed the design limits of the HDPE liner and the external coating systems.

[36] Shell indicated for bare pipe that its continuous inhibitor program, as well as a weekly batch program with wire brush pigging, mitigates corrosion. Shell stated it also conducts other monitoring activities, such as bell-hole inspections, ultrasonics, radiography, annual smart pig inspection, and liquid sampling and analysis for various constituents. Because the fluid composition of the WT68 well lies within the operating envelope of the fluids that are already being transported in the downstream bare pipeline, Shell did not anticipate the need to implement any additional mitigation or monitoring activities. Shell indicated it would follow its management of change procedure to identify any additional measures that result from its ongoing monitoring and testing activities for bare pipeline.

[37] Mr. Duncan, a third-party consultant retained by WAG, conducted an operation and integrity study on the Carbondale pipeline system that included a review of the Russell tool inspection program. Mr. Duncan's involvement was a direct result of one of the Board's recommendations in *Decision 2011-007*. He was satisfied with the Russell tool's effectiveness and its ability to detect corrosion in lined pipelines. Mr. Duncan expressed confidence that the frequency of Shell's Russell tool testing regime was adequate to detect corrosion in a timely manner.

[38] Mr. Duncan considered the HDPE liner to be superior to the Rilsan nylon liner, which had been in use in other areas of the Carbondale pipeline system and had failed. Mr. Duncan found that the corrosion rates in the Carbondale system are now lower than before, and in his opinion the Carbondale system is reliable and safe.

[39] Mr. Judd pointed out that Mr. Duncan's review of the operation and integrity of the Carbondale pipeline system did not include field work but relied on information provided by Shell. Mr. Judd said that Mr. Duncan was not an independent expert, based on his effusive praise of the Russell tool and the fact that he was paid by Shell. He also questioned Mr. Duncan's professional credentials and asserted that Mr. Duncan's opinion was based on incomplete research. Mr. Judd did not feel that the Russell tool would be able to resolve all the problems on the pipeline. Mr. Judd said he has no confidence that the Carbondale pipeline system is as safe as the experts say it is. Given the history of pipeline failures in the Screwdriver Creek Valley, Mr. Judd was reluctant to accept the risk associated with more pipelines.

Analysis and Findings

[40] The Board accepts the evidence presented by Russell NDE Systems Inc. regarding the Russell tool's ability to detect corrosion using remote field technology. The Board also accepts that the HDPE liner is an appropriate means of mitigating the effects of internal corrosion in the proposed pipeline. The Board is encouraged by the test run results of the Russell tool using the calibration pipe and the Screwdriver Creek pipe samples; the results indicate the Russell tool can accurately detect corrosion in HDPE-lined pipelines. The Board finds that the information on the usefulness of the Russell tool is compelling, and this is supported by the independent expert, Mr. Duncan. The Board understands that the Russell tool does not prevent corrosion but is a monitoring tool to identify where additional inspection or monitoring needs to occur. The Russell tool is part of a corrosion mitigation package, which includes other corrosion mitigation efforts such as ultrasonic and visual inspections.

[41] The Board is very aware of the history of the Carbondale pipeline system and of safety concerns expressed by area residents in past hearings and as outlined in previous Board decisions. The Board believes it is imperative for Shell to continue to improve its understanding of corrosion in both lined and bare pipelines and requires Shell to continue with its ongoing corrosion monitoring and mitigation program. The Board requires Shell to continue to conduct internal inspection of the Carbondale pipeline system once every six months using the Russell tool. Shell must also continue to verify corrosion indications using verification digs and/or ultrasonic thickness measurements, assess for defects based on *CSA Z662* or other equivalent criteria, and repair or replace any pipe for which corrosion defects are detected. In the event that Shell can demonstrate that corrosion remains under control, it may, following consultation with WAG, apply to the ERCB to reduce the inspection frequency.

[42] The Board notes that Mr. Duncan appeared as an expert for interveners in a previous Board hearing to consider Shell applications for the Carbondale system and was highly critical of Shell's understanding and management of pipeline corrosion issues on this system. In *Decision 2011-007*, the Board recommended that Mr. Duncan be involved in a review of Shell's operations in the region. The Board appreciates Mr. Duncan's participation at this hearing and accepts him as an independent, qualified, expert witness. The Board understands that Mr. Duncan now supports Shell's pipeline design and inspection systems, including use of the HDPE

liner system, and this increases the Board's confidence that this design, along with the outlined inspection procedures, is appropriate for the production that flows through the Carbondale system.

[43] The Board understands Mr. Judd's concern about pipeline safety near his home. The Board notes that the proposed natural gas pipeline is farther from his home than the existing pipelines and that the H₂S content is no higher than in the existing pipelines. Mr. Judd presented no testimony regarding the design, operation, and monitoring of the proposed pipelines and no technical evidence to address whether Shell can or cannot operate this pipeline safely. The Board further notes that the proposed pipelines will be incorporated into Shell's operation and integrity management plan and will be subject to the same monitoring, inspection, and mitigation as the rest of the pipelines in the area. In addition, both the metal pipe and the HDPE liner that constitute these pipelines will be new installations. The natural gas pipeline will not have a Rilsan liner, which was implicated in the previous pipeline failures in the Carbondale system. Therefore, the Board is of the view that these pipelines entail acceptable risk and add negligible incremental risk to Mr. Judd's safety compared with existing pipelines in the area.

Emergency Response Planning

Evidence

[44] Mr. Judd submitted that Shell's emergency response plan (ERP) is inadequate to ensure his safety in the event of an emergency. He said that he uses his property, his tent camp, and the backcountry extensively and that conditions in the area, such as mountainous terrain, lack of road access, or hostile weather, would make an effective emergency response difficult or impossible. He said that Shell understated the time that would be required to deploy helicopters and other responders in an emergency. He also expressed concern that the June 25, 2011, exercise that included search and rescue was based on a best-case scenario with response personnel and equipment that were staged in advance. Mr. Judd submitted that Shell's mock ERP exercises should be based on a worst-case scenario in order to more effectively test its response plan.

[45] Mr. Judd said that he does not believe that sheltering-in-place is an adequate public safety measure to protect him during an emergency. He indicated that his home is drafty and would not provide protection from a sour gas release.

[46] Shell stated that it has adequate means to protect the public from a sour gas release. It stated that sheltering-in-place is an effective means of protection until evacuation can safely take place or until the release is over. Shell further stated that it relied on studies done by the University of Alberta when developing its sheltering-in-place program. Shell also indicated that in 2012 it conducted air tightness and air exchange tests on some homes in the Screwdriver Creek valley and that it would offer the same testing for Mr. Judd's home. Shell stated that any dwelling built for winter use in a northern climate would be suitable for sheltering-in-place.

[47] Shell believed that the two major exercises conducted in 2011 were successful but also revealed areas for improvement, including radio communications and search and rescue. As a result of these exercises, Shell improved its radio communication systems and developed a written mutual aid agreement with Pincher Creek Search and Rescue to enhance its search and rescue capabilities. Shell also provided a list of the various additional emergency response exercises that have been conducted since 2011. It asserted that the modifications to its ERP

address the recommendations about emergency response arising from *Decision 2011-007* in that Shell developed additional response measures, conducted an exercise based on a pipeline scenario, and redesigned its information package.

[48] Shell initially indicated that it had written agreements with regional emergency groups that would be needed to assist in case of ERP implementation. However, under cross-examination it became clear that, with the exception of Pincher Creek Search and Rescue, Shell had no written agreements or contracts with other emergency responders such as the RCMP, local fire departments, Alberta Health, etc. Shell confirmed it had conversations with these responders about their roles in the event of an emergency.

[49] During questioning, Mr. Judd brought attention to some areas that he thought Shell needed to significantly improve on to be more than just adequate with its ERP. He questioned Shell about its agreements with mutual-aid partners, the level of participation of third-party agencies, how rigorously the ERP protocol was followed, how extensively participants were briefed, the appropriate modelling of response times, whether it is appropriate to model a best-case scenario, the restrictions on response time and capabilities due to weather conditions, and advance notice to the third-party responders.

Analysis and Findings

[50] The Board recognizes that a major benefit of shelter-in-place is that people indoors, even in a building that is not entirely airtight, are protected from large momentary outdoor peak concentrations of a toxic gas. The Board supports the use of shelter-in-place as the appropriate default emergency response for a short duration emergency or for situations in which people cannot be safely evacuated.

[51] The Board notes that *Directive 071* identifies sheltering indoors as

“a viable public protection measure in circumstances when

- there is insufficient time or warning to safely evacuate the public that may be at risk,
- residents are waiting for evacuation assistance,
- the release will be of limited size and/or duration,
- the location of a release has not been identified, or
- the public would be at higher risk if evacuated.”

[52] In the case of the proposed applications, the Board believes that sheltering-in-place would provide adequate protection to Mr. Judd and encourages Mr. Judd to accept Shell’s offer to test his home to enhance confidence that it would provide for his safety in case of emergency. The Board also strongly encourages Mr. Judd to discuss his other safety concerns with Shell, as well as provide the approximate locations of his various activities on his land and in the backcountry so Shell can develop procedures in its ERP to address his specific needs.

[53] The Board found that Mr. Judd’s questions to Shell helped the panel better understand potential deficiencies in Shell’s ERP and identified areas where Shell needs to improve its response capabilities.

[54] The Board is disappointed that Shell did not have the proper expert sitting on its witness panel to speak knowledgeably about emergency response matters. The Board found that Shell's need to repeatedly confer with support staff was not an effective use of hearing time.

[55] The Board recognizes that Shell conducted two major ERP exercises in 2011 and a number of table-top exercises after 2011. The exercises were useful in that they identified several areas for improvement. However, it appeared that issues identified as areas needing improvement during the first exercise, such as radio communications, were not completely corrected for the next exercise. This is a concern for the Board as it speaks to the importance and priority Shell places on these events. Also, the Board believes these exercises may not have been a realistic test of Shell's ability to respond due to the advance notice that was provided to the various groups involved. For these reasons, Shell needs to continue to work on its emergency response capability and continue to conduct a variety of exercises.

[56] According to *Directive 071*, a major exercise is "an exercise involving emergency response agencies and the licensee that entails the deployment of all resources required to test the licensee's ERP. It is intended to provide a realistic simulation of an emergency response." The Board is concerned that it does not appear Shell has fully involved the Municipal District (MD) of Pincher Creek and other responders and that past ERP exercises have modelled a best-case scenario instead of a worst-case scenario. The Board expects Shell to engage the MD of Pincher Creek, and other parties who would have a role in emergency response, in discussions about specific roles and responsibilities during an emergency. The Board further expects that the agreed-upon roles and responsibilities of all parties will be documented in Shell's ERP in accordance with Section 4.2(6) of *Directive 071*, which states, "this is to ensure that there is no confusion or misunderstanding of the roles and responsibilities in the event of an incident requiring activation of the ERP." The Board directs Shell to submit a revised ERP before the start-up of the pipelines and facility.

[57] The Board is aware of the steps Shell took to implement the recommendations contained in *Decision 2011-007*. However, the Board is not convinced that Shell has fully demonstrated that it can respond quickly and effectively in the event of a pipeline incident. Therefore, as a condition of its approval, the Board requires Shell to conduct a blind major exercise in accordance with *Directive 071*, section 14.10 – Exercise Requirements, before the pipelines become operational. This exercise must involve a pipeline release scenario and must test the use of shelter-in-place as a means of protecting residents in the area. Area residents should be contacted and asked to shelter so that Shell can test their knowledge of how to shelter-in-place. The exercise should be designed and developed by an independent consultant in consultation with a limited number of senior Shell personnel who would not have a role in responding, as well as with ERCB staff.

[58] Shell's operations staff, mutual aid partners, and other responders that Shell would rely on to respond to an actual incident should not have any prior knowledge of the specific timing or scenario of the exercise to help ensure that it is as much of a realistic simulation as possible. Shell can provide notice to these parties of its intent to conduct a major exercise within a general time frame so that it can get a commitment from the parties as to their intended level of participation in the exercise. In accordance with *Directive 071*, section 14.10 – Exercise Requirements, Shell is expected to invite the MD of Pincher Creek, Alberta Health Services, and any other government departments or agencies that would have a role in an actual emergency, and the Board strongly encourages their participation in this exercise. Having responsible

agencies participate in ERP exercises is vital to ensuring that all parties understand their roles and responsibilities and can respond more effectively in case of an emergency. Participation in an exercise is mutually beneficial for Shell and for stakeholders such as residents, government and nongovernment responders, and government and nongovernment agencies in ensuring public safety.

Environment

Evidence

[59] Shell clarified that the proposed pipelines will be constructed within the Castle River Sub-Regional Integrated Resource Plan area. It indicated that a regional advisory council was established under the *Alberta Land Stewardship Act* by the provincial government to develop a land use framework plan for the region.

[60] Mr. Judd said that forestry operations in the Castle River area have been terminated until the regional land use plan is finalized, and suggested that other industries follow suit. He asked that the ERCB deny the pipeline licences until the South Saskatchewan Regional Plan (SSRP) is in place. Mr. Judd expressed concern about the pipelines' impacts on native plant communities.

[61] Shell submitted that the pipelines would be built within the existing, disturbed road right-of-way along Seven Gates Road. It indicated plans to use a narrow trenching tool called a rock saw to limit construction and bell hole disturbance to the shoulder and ditch of the road, which are already disturbed. Shell indicated that its plant survey did not identify any existing native plant communities, including rough fescue, within the pipelines' 10 metre (m) right-of-way.

Analysis and Findings

[62] The Board finds that although the Government of Alberta has put the final two phases of regional logging on hold until the SSRP is implemented, the pipelines do not have a comparable ecological impact. The pipelines are to be constructed in the northeast-side ditch of the existing Seven Gates Road within a 10 m pipeline right-of-way. There will be no additional surface disturbance on previously undisturbed lands, and therefore no incremental environmental impact.

[63] The SSRP is in its third consultation phase, and a draft regional plan is in the process of being developed. Once a plan is presented to the government, the cabinet will need to approve it in order for it to become law. The Board finds that the current land use guidelines apply, and it is not convinced that it should defer a decision on the applications until the government approves the SSRP.

Ambient Air Monitoring

Evidence

[64] Mr. Judd said he had concerns about health effects due to chronic exposure to low levels and acute exposure to high levels of H₂S and sulphur dioxide (SO₂). However, he admitted that he had not been diagnosed with any specific medical condition and was unable to provide evidence to support his concern. Mr. Judd expressed his reticence about submitting any health information as it would be placed on the public record.

[65] Mr. Judd raised concerns about the impact that Shell has had on local air quality. Mr. Judd has requested that Shell install air-quality monitoring equipment on his property. Mr. Judd stated that he was invited to participate in the Air Monitoring Technical Subcommittee. However, Shell had already selected the consultant with whom Mr. Judd did not agree, and he felt that he should be compensated for his time. Mr. Judd indicated it was for these reasons that he declined to participate. Mr. Judd indicated his desire for the data on air monitoring in the Screwdriver Creek Valley to be publicly available.

[66] Shell stated that it does not believe this project will have any discernible impact on local air quality and that there would be no continuous H₂S or SO₂ emissions associated with the proposed pipelines or facility.

[67] Shell provided evidence that it has taken steps to address the air quality concerns presented at the previous hearing in 2010. Shell stated that the passive air monitoring data contained in the RWDI Ambient Air Monitoring Program Design Screwdriver Creek Valley Final Report dated December 5, 2012 (RWDI report), show that values for H₂S and SO₂ are well below Alberta Ambient Air Quality Objectives and are similar to what would be expected in a rural area.

[68] As a result of *Decision 2011-007*, Shell commissioned an independent study to design its air monitoring program for the Screwdriver Creek Valley. The RWDI report was created by an independent third party in order to review what has been done in the past in terms of ambient air quality and meteorological monitoring and to provide recommendations for the design of the air monitoring program. *Decision 2011-007* recommended three items to specifically address air quality concerns in the Screwdriver Creek Valley.

- “The Board recommends that air monitors be installed at locations agreed upon by Shell and the ERCB and in consultation with Mr. Judd, the Barberos, and the Sheppards.
- “The Board recommends the formation of a technical subcommittee reporting to WAG that would meet as issues arise to provide timely review and input regarding technical issues. The group would consist of representatives from the public, Shell, and the ERCB who are able to provide competent technical input and, on the part of Shell and the ERCB, who have adequate authority.
- “The Board suggests that one of the items that a technical subcommittee could assist with would be the implementation of the Board’s recommendation to install air monitors, as well as the review of the monitoring data and the preparation of monitoring reports.”

[69] The RWDI report contained nine recommendations for the Screwdriver Creek Valley ambient air monitoring program to be considered by the Air Monitoring Technical Subcommittee (see appendix 3). Shell presented and reviewed the findings of the RWDI report with WAG, local stakeholders, and the ERCB.

[70] Shell submitted that there are three passive air monitors in the Screwdriver Creek Valley, with one of the monitors located on the fence at the edge of Mr. Judd’s property at NE of 6-6-2W5M. Dr. Davies, a toxicology expert for Shell, concluded that the H₂S and SO₂ levels from the passive monitors were considerably below the levels that would be associated with adverse health outcomes.

Analysis and Findings

[71] The Board finds that air monitoring is an important concern for the Screwdriver Creek Valley and recognizes the work Shell has done to engage area stakeholders and implement the recommendations in *Decision 2011-007*. However, the Board believes that more work needs to be done. The Board is particularly concerned that the location of the ambient monitoring station in the Screwdriver Creek Valley has not yet been finalized and the monitoring station has not been deployed. Consequently, as a condition of its approval, the Board directs Shell to implement the nine recommendations outlined in the RWDI report before producing the WT68 well with the following exception. During the hearing the Board heard that Shell plans to phase-in the fence line monitors identified in recommendation number three in order to allow Shell to properly assess the chosen technology. The Board agrees that this is reasonable and accepts Shell's plan to phase-in the fence-line monitors. However, the Board directs Shell to install the first perimeter H₂S monitor at WT68 before producing the WT68 well. The other perimeter H₂S monitors can be installed after production and testing of the perimeter system begins. Shell stated that it will continue to provide updates to WAG on the progress it makes on the RWDI report recommendations. The Board expects these updates to be provided regularly and that Shell will continue its involvement with the Air Monitoring Technical Subcommittee.

[72] The Board notes that Shell invited Mr. Judd to participate in the air monitoring review that has been ongoing since 2011 but that because of concerns Mr. Judd had about the expert who was initially chosen to complete the air monitoring recommendation in the Screwdriver Creek Valley, Mr. Judd declined to participate. The Board believes that Shell's efforts to engage with Mr. Judd so that he could be involved in the development of the air quality monitoring program were reasonable in the circumstances and that Mr. Judd's participation, although desirable, is not required to successfully implement this recommendation. Given that Shell is currently working with a consultant that is not the one Mr. Judd originally expressed concern about, the panel believes Mr. Judd has an opportunity to become engaged in this work should he want to do so.

[73] The Board notes that because Mr. Judd did not retain technical experts, it was difficult for him to support his concerns about impacts to air quality and health.

[74] The Board also notes Mr. Judd said that he was uncomfortable providing his confidential information as part of the hearing process because it would become part of the public record. The Board points out that, as noted in the Board's May 24, 2012, letter to Mr. Judd and the November 19, 2012, notice of hearing, any party may apply for confidentiality of information under Section 13(2) of the *Energy Resources Conservation Board Rules of Practice*, and Mr. Judd did not do so.

Engagement

Evidence

[75] Shell stated that public consultation plays a key role in this project's development process, and meaningful public consultation is a central focus of Shell's activity in the Waterton area. Shell submitted that it has tried through written correspondence, telephone calls, and face-to-face meetings to engage with Mr. Judd at various times on projects in the Waterton area. Shell stated that consultation with Mr. Judd often did not resolve his issues. Shell indicated that Mr.

Judd was invited to WAG meetings and to participate in the Air Monitoring Technical Subcommittee and that he chose not to attend.

[76] Mr. Judd said he does not consider Shell's efforts to be effective consultation. Mr. Judd said that in his opinion, Shell does what it wants and does not consider his input. Mr. Judd submitted that he thinks consultation should be when two parties talk about the potential issues and approaches, and then try to come up with the best solution together. Mr. Judd also indicated that he was not compensated for the considerable demands on his time imposed by Shell's consultation programs.

Analysis and Findings

[77] The Board understands that Shell's operations in the local area have taken up much of Mr. Judd's time and that Shell made significant efforts to engage Mr. Judd. The Board realizes that Shell has paid employees to be engaged in its consultation process for any amount of time required. The Board notes that an engagement process can be a major imposition on Mr. Judd's time and that it is completely up to Mr. Judd whether he chooses to participate or not. However, the Board expects Mr. Judd to provide basic information to Shell so that Shell can work to address any concerns he may have.

[78] The Board is of the view that people have a responsibility for their own safety. Since Mr. Judd has stated that he is concerned about his personal safety, the Board expects Mr. Judd to engage with Shell about his concerns and indicate how he believes his safety can best be assured. If Mr. Judd is not willing to indicate where he might be found on his land and the activities engaged in, it is unreasonable to criticize Shell for not doing enough to ensure his safety.

CONCLUSION

[79] The Board finds that Shell has demonstrated marked improvement in its operations in the Screwdriver Creek Valley and Waterton area. This is evident in the efforts to improve stakeholder relations, upgrade and ensure the integrity of the Carbondale pipeline system, and in the work Shell has completed in response to the conditions, commitments, and recommendations contained in *Decision 2011-007*.

[80] The Board acknowledges that Mr. Judd provided valuable insights about the adequacy of Shell's ERP for residents of the Screwdriver Creek Valley. As a result of the ERP discussion at the hearing and the results of the ERP exercises conducted, the Board has included approval conditions in this decision that will require Shell to keep improving its ERP.

[81] The Board finds that air monitoring in the Screwdriver Creek Valley continues to be an ongoing concern for Mr. Judd. The Board expects that the implementation of the RWDI recommendations will help to improve air quality information and alleviate his concerns.

[82] The Board finds that Shell's efforts and improvements have been satisfactory and demonstrate a renewed ability and commitment to operate the approved pipelines and facility safely. Nevertheless, the Board directs that Shell continue to engage with stakeholders and constantly improve its consultation process.

[83] The Board hereby approves the applied-for applications, subject to the conditions contained in the report and summarized in appendix 2.

Dated in Calgary, Alberta, on May 28, 2013.

ENERGY RESOURCES CONSERVATION BOARD

T. L. Watson, P.Eng.
Presiding Member

A. Bolton, P.Geo.
Board Member

J. Gilmour, B.A., LL.B.
Acting Board Member

APPENDIX 1 HEARING PARTICIPANTS

Principals and Representatives (Abbreviations used in report)

Witnesses

Shell Canada Limited
Counsel:
B. S. Gilmour
D. A. McGillivray

D. Schneider, P.Eng.
J. Little
K. Goertz, P.Eng.
L. Zilm
A. MacInnis
R. Person, P.Eng.
D. Davies, Ph.D.
A. Shatat

M. Judd
Representative:
M. Sawyer

M. Judd

C. Duncan, P.Eng.

C. Duncan, P.Eng.

Energy Resources Conservation Board staff

T. Grimoldby, Board Counsel
G. Perkins, Board Counsel
J. Stewardson
J. Koppe
R. Ruddell
M. Lemon
M. Craig
S. Lee, P.Eng.

APPENDIX 2 SUMMARY OF CONDITIONS AND COMMITMENTS

Conditions generally are requirements in addition to or otherwise expanding upon existing regulations and guidelines. An applicant must comply with conditions or it is in breach of its approval and subject to enforcement action by the ERCB. Enforcement of an approval includes enforcement of the conditions attached to that licence. Sanctions imposed for the breach of such conditions may include the suspension of the approval, resulting in the shut-in of a facility. The conditions imposed on the licence are summarized below.

The Board notes that Shell has made certain undertakings, promises, and commitments (collectively referred to as commitments), to parties involving activities or operations, that are not strictly required under ERCB requirements. These commitments are separate arrangements between the parties and are not conditions of the ERCB's approval of the applications. The commitments that have been given some weight by the Board are summarized below.

The Board expects the applicant to comply with commitments made to all parties. However, while the Board has considered these commitments in arriving at its decision, the Board cannot enforce them. If the applicant does not comply with commitments made, affected parties may request a review of the original approval. At that time, the ERCB will assess whether the circumstances regarding any failed commitment warrant a review of the original approval.

Conditions of Approval

- 1) The Board believes it is imperative for Shell to continue to improve its understanding of corrosion in both lined and bare pipelines. The Board requires Shell to continue to conduct internal inspection of the Carbondale pipeline system once every six months using the Russell tool. In the event that Shell can demonstrate that corrosion remains under control it may, following consultation with WAG, apply to the ERCB to reduce the inspection frequency.
- 2) The Board directs Shell to submit a revised ERP before the start-up of the pipelines and facility.
- 3) The Board requires Shell to conduct a blind major exercise in accordance with *Directive 071*, section 14.10 – Exercise Requirements, before the pipelines become operational. This exercise must involve a pipeline release scenario and must test the use of shelter-in-place as a means of protecting residents in the area. Area residents should be contacted and asked to shelter so that Shell can test their knowledge of how to shelter-in-place. The exercise should be designed and developed by an independent consultant in consultation with a limited number of senior Shell personnel who would not have a role in responding, as well as with ERCB staff. Shell's operations staff, mutual aid partners, and other responders that Shell would rely on to respond to an actual incident should not have any prior knowledge of the specific timing or scenario of the exercise to help ensure that it is as much of a realistic simulation as possible. Shell can provide general advance notice to these parties of its intent to conduct a major exercise within a general time frame so that it can obtain a commitment from the parties regarding their intended level of participation in the exercise. In accordance with *Directive 071*, section 14.10 – Exercise Requirements, Shell is expected to invite the MD of Pincher Creek, Alberta Health Services, and any other government departments or

agencies that would have a role in an actual emergency and strongly encourage their participation in this exercise.

- 4) The Board directs Shell to implement the nine recommendations outlined in the RWDI report before producing the WT68 well with the following exception. During the hearing, the Board heard that Shell plans to phase-in the fence line monitors identified in recommendation number three in order to allow Shell to properly assess the chosen technology. The Board agrees that this is reasonable and accepts Shell's plan to phase-in the fence-line monitors. However, the Board directs Shell to install the first perimeter H₂S monitor at WT68 before producing the WT68 well. The other perimeter H₂S monitors can be installed after the start of production and testing of the perimeter system. Shell stated that it will continue to provide updates to WAG on the progress it makes on the recommendations from the RWDI report. The Board expects these updates to be provided regularly and that Shell will continue its involvement with the Air Monitoring Technical Subcommittee.

Commitments by Shell

- 1) Shell will conduct a tabletop or field exercise and invite third-party responders to participate.
- 2) Shell will pay to conduct an air exchange rate test on Mr. Judd's residence and assess the suitability for sheltering-in-place.
- 3) Shell will continue to welcome further discussion with Mr. Judd about the recommendations in the RWDI report and the participation of Mr. Judd in the siting of the proposed air quality monitoring and meteorological station should he contact Shell and discuss a willingness to participate.
- 4) Shell will contact Mr. Judd for an ERP update and include Mr. Judd's tent camp in the ERP.
- 5) Shell is willing to meet with Mr. Judd outside the hearing process to discuss concern about the horses that he noted he had lost in 2007.
- 6) Shell will review the integrity reference plan for the Waterton 68 pipeline with the Pipeline Technical Subcommittee at the next technical committee meeting.

APPENDIX 3 RWDI REPORT RECOMMENDATIONS FOR IMPROVEMENTS

- 1) A new meteorological station, properly sited with respect to fetch and exposure, is recommended for the Screwdriver Creek Valley. This information will be helpful in determining sources of odours from public complaints and elevated measured air quality readings. This information will also provide assistance for flaring and maintenance decision-making. The utility of this station should be evaluated after one year. This station could be part of the continuous ambient air quality monitoring station in Recommendation #2.
- 2) Install a permanent continuous ambient station that monitors H₂S and SO₂ and meets all ERCB/AESRD Air Monitoring Directive (AMD) measurement and reporting requirements. Select a site for the station based on resident's input, dispersion modelling of emissions from flaring and compressor emissions and which also meets AMD requirements for exposure and fetch. The utility of this station should be evaluated after one year. This station could include the meteorological station in Recommendation #1.
- 3) Monitoring should be expanded to provide additional information for operational decision-making and public safety. Specifically, four perimeter H₂S monitors should be installed at each of the following six well sites and pipeline junctions that include pigging or a flare. See figure a-1.

Shell System Identifier	Legal Descriptor
WAT junction	6-16-6-2W5M
TX-5-20	5-20-6-2W5M
TX-6-17	6-17-6-2W5M
WT-61	10-7-6-2W5M
WT-68	NE-1-6-3W5M
CA 6-12	6-12-6-3W5M



Figure a-1. Locations of proposed perimeter H₂S monitors at six wells and facilities (as indicated by the red stars)

Monitors should be installed on four main cardinal directions, with low and high alarm set-points such as 10 and 20 ppm, respectively. The recommended site locations are closest to residents in the Screwdriver Creek Valley. These perimeter monitors should be connected to the existing PLC system and form part of the plant and field monitoring system.

- 4) Diagnostic Air Patrol (DAP) monitoring units are suitable for detecting elevated H₂S or SO₂ readings from well drilling, completions, pigging, or flaring activities, or for emergency response purposes. A DAP unit is currently positioned in a local resident's yard. Consider relocating the existing DAP unit to locations in the Screwdriver Creek Valley that are downwind of sites where flaring activities are taking place in order to self-monitor and evaluate the downwind concentrations from these activities, or not use the units at all.
- 5) Shell's participation in any future regional ambient air and environmental monitoring networks is recommended.
- 6) Post any new continuous H₂S, SO₂, and meteorological measurements from the Screwdriver Creek Valley to a shared website for public internet access based on averaging periods of 15-minutes, 1-hour and 24-hours and have the ability to generate summary reports.
- 7) Summarise and make public the results of historical ambient monitoring readings in the Screwdriver Creek Valley area, including meteorological and continuous air quality data from 2008 onwards.
- 8) Provide a public tour of the Shell Waterton Complex ambient station(s) and Control Room with demonstration of monitoring and alarm systems.

- 9) Undertake a one-time ambient survey of common VOCs, such as BTEX compounds at the Texaco 5-20, Texaco 6-17 and WT-61 well sites in the Screwdriver Creek Valley, at upwind and downwind locations on the lease boundaries, and compare the measured levels to their respective AAAQO and typical published levels.

APPENDIX 4 ACTION PLAN FOR ERCB DECISION 2011-007

ACTION PLAN FOR ERCB DECISION 2011-007

SHELL CANADA INC.

APPLICATIONS FOR WELL, FACILITY, AND PIPELINE LICENCES, WATERTON FIELD

ACTION ITEM	REQUIRED ACTION/COMMENTS	DECISION: 2011-007	ERCB PROCESS TO ENSURE FOLLOW-UP	STATUS & EVIDENCE
1 Drilling and Completions ERP Exercise	The Board, as a condition of its approval, requires Shell to conduct a drilling and completions ERP exercise prior to spudding the WT68 well and to involve interested stakeholders in the development and implementation of and follow-up to that exercise.	Section: 5.2 Paragraph 40 P. 8	Shell will submit its exercise plan to the Emergency Planning and Assessment Group (EPA) with sufficient time for EPA to review it and provide feedback prior to the commencement of the exercise. Shell should contact EPA to determine details of timing for the pre-exercise review. Upon completion of the exercise the documentation and reports generated shall be submitted to EPA for a post-exercise review. Shell will provide the Nonroutine Group a summary of the exercise, which should include a summary of stakeholder involvement in the development, implementation of and follow-up to, the exercise.	Completed - March 5, 2012 Shell submitted the final report for its pipeline ERP exercise that was conducted on November 29, 2011. -September 8, 2011: Shell submitted a summary of the progress toward incorporating recommendations into its ERP exercise to the Nonroutine group -July 14, 2011: Shell submitted report on exercise to Nonroutine group -June 25, 2011: ERP Exercise held -May 30, 2011: Shell invited stakeholders to participate in ERP exercise -May 25, 2011: Shell submitted its plan for the ERP exercise to the ERCB -May 19, 2011: Shell invited stakeholders to and held a second pre-exercise planning meeting and workshop -May 12, 2011: Shell invited stakeholders to and held a pre-exercise planning meeting and workshop -April 20, 2011 WAG meeting: Shell put forth proposal for community involvement in ERP exercise.
2 Dust Control	The Board, as a condition of its approval, requires Shell to control dust on the Seven Gates Road by watering the road as required based on the weather, road use, and road condition during drilling and completion of the well.	Section: 5.5 Paragraph 88 P. 17	The ERCB will notify Shell and the Midnapore Field Office that any complaints relating to dust on the Seven Gates Road are to be forwarded to the Nonroutine Group for tracking purposes.	Completed - December 20, 2011 - Shell reported on 2011 dust issues at the December 14, 2011 WAG meeting -Shell reported on 2011 dust issues at the October 5, 2011 WAG meeting -Shell reported on 2011 dust issues at the April 20, 2011 WAG meeting -January and February 2011: Shell met with stakeholders -Shell reported on 2010 dust issues at the December 6, 2010 WAG meeting

ACTION ITEM	REQUIRED ACTION/COMMENTS	DECISION: 2011-007	ERCB PROCESS TO ENSURE FOLLOW-UP	STATUS & EVIDENCE
3 Traffic Monitor	The Board, as a condition of its approval, also requires Shell to have a traffic monitor close to the junction of Seven Gates Road and Highway 507 during drilling and completions of the well.	Section: 5.5 Paragraph 88 P. 17	Shell will notify the Nonroutine Group upon the implementation and closure of its traffic monitoring program.	Completed - December 19, 2011 -Traffic monitoring closed-out on December 19, 2011 -Shell reported on 2011 traffic issues at the October 5, 2011 WAG meeting -May, 2011: Shell installed traffic monitoring at the junction of Highway 507 and Seven Gates Road
4 Well Testing Plan	The Board, as a condition of its approval, directs that if Shell needs to test the well, the operational plans for this test, either in-line or by flaring, must be submitted to the ERCB for approval.	Section: 6.5 Paragraph 138 P. 28	The ERCB will review the operational plan for any well testing and copy the results of the review to the Nonroutine Group.	Completed - October 13, 2011 ERCB completed its review of the proposed operational plans to test the well -April 11, 2011: Shell met with ERCB to discuss well testing -Shell has stated it is not intending to flare test the well at this time and will submit operation plans to the ERCB for approval if it later determines that it needs to test the well by flaring.

The conditions imposed in approvals/licence(s) are monitored by the Alberta Energy Resources Conservation Board (ERCB). The ERCB has developed a process whereby an action plan is developed internally to ensure that ERCB staff monitor conditions arising from decision reports for compliance. The conditions are managed in an action plan that is updated quarterly with statuses of conditions. The action plan defines the action required, timeframes for completion, and a summary of the evidence provided to confirm a condition was met. For more information, please contact the Action Plan Administrator at (403) 476-4783.

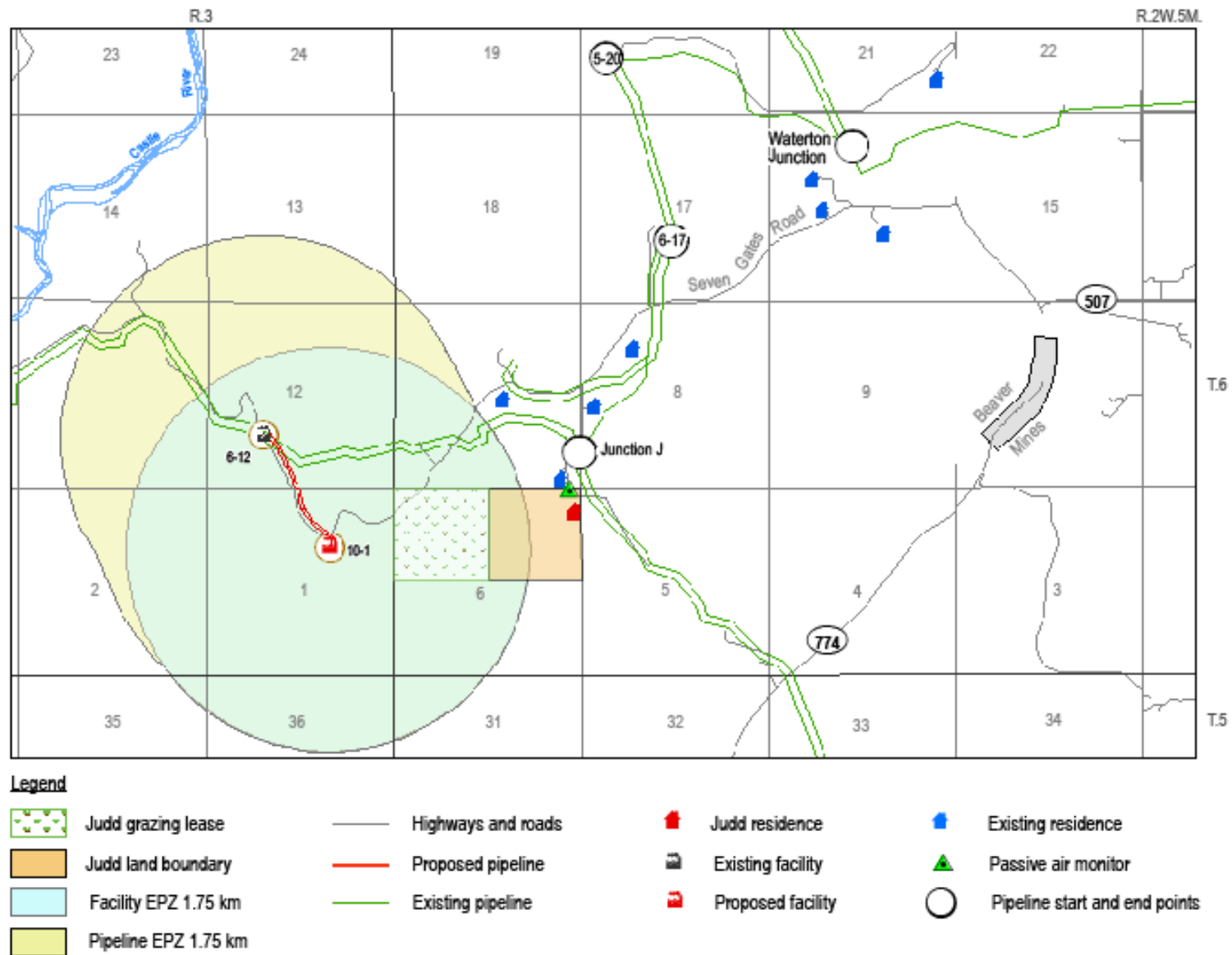


Figure 1. Map of area