



Grizzly Resources Ltd.

Section 39 and 40 Review of Well Licences No. 0404964
and 0404965
Pembina Field

July 13, 2010

ENERGY RESOURCES CONSERVATION BOARD

Decision 2010-028: Grizzly Resources Ltd., Section 39 and 40 Review of Well Licences No. 0404964 and 0404965, Pembina Field

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ENERGY RESOURCES CONSERVATION BOARD

Calgary Alberta

**GRIZZLY RESOURCES LTD.
SECTION 39 AND 40 REVIEW OF WELL LICENCES
NO. 0404964 AND 0404965
PEMBINA FIELD**

**Decision 2010-028
Proceeding No. 1632087**

1 DECISION

The Energy Resources Conservation Board (ERCB/Board) has carefully considered the submissions, argument, and evidence and finds that Well Licences No. 0404964 and 0404965, issued to Grizzly Resources Ltd. (Grizzly), remain in good standing.

2 INTRODUCTION

2.1 Background

On June 27, 2008, Grizzly applied to the ERCB to obtain licences to drill two oil wells from a surface location of Legal Subdivision (LSD) 7, Section 5, Township 50, Range 6, West of the 5th Meridian, to bottomhole locations of LSD 9-5-50-6W5M and LSD 14-5-50-6W5M. The wells would target production from the Nisku Formation and would contain hydrogen sulphide (H₂S).

Ms. L. Duperron, Ms. S. Kelly, and Ms. L. McGinn filed objections to Grizzly's applications. The Board decided that these parties were not entitled to the participatory rights set out in Section 26(2) of the *Energy Resources Conservation Act (ERCA)* and therefore dismissed their objections. On November 28, 2008, the Board issued Well Licences No. 0404964 and 0404965 to Grizzly.

Ms. Duperron, Ms. Kelly, and Ms. McGinn subsequently filed review applications requesting that the Board reconsider its decision to dismiss their objections and direct that a hearing be held. The Board denied their review applications on the basis that they had not established how or why their rights may be directly and adversely affected by the ERCB's approval of the Grizzly applications.

Grizzly drilled the wells during January and February 2009.

Figure 1 shows the Grizzly well locations.

2.2 Court of Appeal Decision

Subsequent to the drilling of the wells, Ms. Duperron, Ms. Kelly, and Ms. McGinn applied to the Court of Appeal of Alberta for leave to appeal the Board's decision denying a hearing.

The Court of Appeal of Alberta granted leave to Ms. Duperron, Ms. Kelly, and Ms. McGinn (hereinafter referred to as the Review Applicants). The Review Applicants' appeal was successful. The Court of Appeal directed that the Board's decision to deny a hearing be vacated.

The Court remitted the matter to the Board for reconsideration and redetermination with certain directions, including that the Review Applicants

...be accorded standing to be heard on the merits...under the provisions of each of ss. 39 and 40 of the [*Energy Resources Conservation Act*]

Further, the Court directed that

...the fact that the wells have now been drilled shall not be treated as a limit on ultimately concluding that Grizzly should not be permitted to operate them, or if in operation at the time of the rehearing, that it cannot be required to shut them down or that the right to operate cannot be made subject to appropriate conditions to be devised by the ERCB based on the evidence heard during the rehearing.

Given the direction from the Court of Appeal, the ERCB convened a review hearing, which is the subject of this decision.

Subsequent to the Court of Appeal decision, the ERCB also made certain corrections to *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* and to the ERCBH2S: Model for Calculating Emergency Response and Planning Zones for Sour Gas Facilities.

2.3 Hearing

The Board held a public hearing in Drayton Valley, Alberta, on April 13 and 14, 2010, before Board Members M. J. Bruni, Q.C. (Presiding Member), J. D. Dilay, P.Eng., and G. Eynon, P.Geol. Those who appeared at the hearing are listed in Appendix 1.

The Board's normal practice for a review hearing is to confine participation to the licensee and the review applicant(s). However, the Board in this case granted full participatory rights, as set out in Section 26(2) of the *ERCA*, to Ms. C. Kerpan and Dr. T. Losey. The Board allowed them these privileges to ensure a full hearing on the merits, notwithstanding that they would not necessarily trigger these obligations under the section.

Since the wells had already been drilled, both Grizzly and the Review Applicants submitted that the focus of the hearing should be on issues that may arise during the production and servicing of the wells.

As part of the proceeding, the Board conducted a site viewing (site visit; the route is shown in Figure 2) of the wells and the properties of the Review Applicants and Ms. Kerpan and Dr. Losey. All participants and attendees at the hearing had the opportunity to participate, and the Board extends its appreciation to those who were involved. The Board found the site visit particularly useful in that it was conducted after the hearing commenced and therefore became an integral part of the evidence. This proved to be valuable to the Board as it allowed the parties to conduct the evaluation of impacts from a common perspective.

Ms. Duperron and Ms. Kelly filed a request under the provisions of the *Energy Resources Conservation Board Rules of Practice* to have some of their medical evidence treated as confidential by the Board. The Board granted that request, and at the hearing Ms. Duperron and Ms. Kelly provided evidence in an in camera session regarding their medical health concerns.

In reaching the determinations contained in this decision, the Board considered all relevant materials constituting the record of this proceeding, including the evidence and argument provided by each party. References in this decision to specific parts of the record are intended to assist the reader in understanding the Board's reasoning related to a particular matter and should not be taken as an indication that the Board did not consider all relevant portions of the record with respect to that matter.

3 CONSIDERATION OF THE APPLICATIONS

3.1 Views of Grizzly

Grizzly is the licensee of the wells, with Ironhorse Oil and Gas Inc. and Daylight Energy as partners with an 18.75 and a 25 per cent stake, respectively. Grizzly contended that the wells are in the public interest of the province and the Drayton Valley area and that the well licences should remain active. It submitted that it drilled, completed, and tested the wells in 2009 without incident and that they can be produced in a safe and efficient manner. Furthermore, Grizzly stated that it is competent and willing to comply with all regulations and requirements as operator of the wells.

Grizzly stated that between June 2008 and the present it expended extensive resources consulting with the Review Applicants regarding their concerns in the form of letters, faxes, telephone conversations, meetings, and discussions. It stated that it went the extra mile to address their concerns.

Grizzly noted that Ms. Kerpan and Dr. Losey initially elected not to engage in the review process of these well applications and did not come forward with their concerns until 2010.

Grizzly stated that some people choose to object regardless of the issues relevant to a specific application and are unlikely to ever remove their objections. Grizzly recognized that two of the interveners had health issues, but noted that one of the interveners with health issues was also a smoker.

Grizzly calculated the production emergency planning zone (EPZ) for the wells to be 0.49 kilometres (km). In determining the production EPZ for the wells, Grizzly used the updated ERCBH2S 1.20 Beta model. In preparing the site-specific emergency response plan (ERP) for the production phase, Grizzly used actual H₂S concentrations and flow rates obtained from the testing of the wells; thus, its calculated production response zones are actual rather than theoretical. Grizzly noted that the ERCB's corrected modelling and calculation places the protective action zones entirely within the boundaries of the EPZ.

Grizzly noted that none of the interveners reside within the EPZs for any of the drilling, completion, servicing, suspended, or production phases of the wells.

Grizzly noted that it is a member of the Pembina Area Operators Group (PAOG) and indicated that it would use the Incident Command System adopted by this group, as recommended by the ERCB and Emergency Management Alberta. Grizzly stated that PAOG is designed as a multicompany and multiagency responder that functions as one body in an emergency situation. Grizzly noted further that PAOG has four areas in the greater Pembina area from which

responders could be drawn so that, in the event of an emergency, the closest response team can be deployed.

Grizzly also testified that the wells would have safety equipment, including a subsurface safety valve downhole and surface monitoring devices at the wellhead to determine the presence of H₂S. The H₂S monitors would be set to alarm at 10 parts per million (ppm) H₂S and, in accordance with company policy, activate the well to shut in at 20 ppm. Grizzly would also install emergency shutdown (ESD) valves in the pipeline proposed to service the wells.

Grizzly confirmed that flaring occurred in April and May 2009 during well testing to determine the wells' productive capability and gas properties. It stated that during the testing, the gas was flared and the produced oil was trucked out for sale. Grizzly stated that during the test flaring, it was able to measure the actual concentration of H₂S in the fluids produced.

Grizzly anticipated the need for two flare stacks during the production phase and said that each would be equipped with an automatic igniter or pilot light. Grizzly stated that future flaring would occur only with servicing and maintenance operations of the wells and in emergency situations. Grizzly stated that flaring to date has met, and any future flaring would continue to meet, all ERCB requirements.

Grizzly stated that it notified the interveners of all the flaring activities conducted at the site to date, and further stated its commitment to continue notifying all parties identified as having special needs or interests regarding any future flaring.

Grizzly stated that, although the interveners identified health concerns with respect to sulphur dioxide (SO₂), emissions from future flaring would be significantly lower than during well testing. Grizzly also estimated that future flaring events would be for shorter periods of time, as they would be associated with depressuring the equipment during servicing. Grizzly estimated that these planned flaring events could occur once every three to four years over the anticipated 10-year life span of the wells.

Grizzly stated that it would need to drill two water injection wells and a water source well as part of its scheme to maintain the reservoir pressure and increase the ultimate oil recovery of the pool.

Grizzly identified three options for processing the fluids from the wells:

- 1) processing at a facility located at LSD 13-2-50-6W5M—Grizzly said that it was in ongoing discussions with West Energy Ltd., now Daylight Energy (Daylight);
- 2) processing at an existing Daylight facility in the Easyford area, west of the wells; and
- 3) on-site processing, which would require acid gas injection to sweeten the oil prior to shipping.

3.2 Views of Ms. Duperron, Ms. Kelly, and Ms. McGinn

The Review Applicants acknowledged their appreciation of the site visit with the hearing participants and requested that the Board take note of certain elevation changes and topography in the area. They also noted that the locations of their respective residences were confirmed, as

indicated on Figure 2. Ms. Duperron's residence is about 5.0 km from the wells, Ms. Kelly's about 6.0 km from the wells, and Ms. McGinn's about 3.0 km from the wells.

The Review Applicants acknowledged that there had been no problems during the drilling or testing of the wells.

The Review Applicants stated that these two wells still posed significant risk to their health and safety, and indicated that they did not believe that Grizzly was always forthcoming with answers to their questions. They stated that they had expected to have all their questions and concerns addressed honestly and completely, so that they could truly understand the impact the entire project would have on their lifestyle, health, safety, and land.

The Review Applicants noted that Grizzly has limited experience with sour gas and has no employees who reside in Drayton Valley. They stated concerns regarding the operator of the wells, whether it is Grizzly or some other company, as well as the ownership of the wells during production. The Review Applicants concerns related to changes in facility ownership and the impact that change might have on the honouring of commitments by a new operator.

The Review Applicants expressed concern about Grizzly's emergency planning, particularly the notification of residents outside the EPZ during an emergency, with respect to known parties with special interests. The Review Applicants stated they feared that emissions might reach beyond the EPZ and potentially affect their health as they live outside of the EPZ. They also expressed concern about the time that may be required for responders to react to an emergency situation, as well as the roles of PAOG and Brazeau County.

The Review Applicants noted that other area operators have ESD valves on their facilities that are set to shut in at a reading of 15 ppm H₂S, and also indicated concern with the location of monitors for air quality and meteorological conditions.

They expressed particular concern that the H₂S content identified during the drilling of these wells was different from the expected level.

The Review Applicants asked that Grizzly be required to conduct a full-scale ERP exercise, particularly in light of the fact that Grizzly had not conducted one to date.

In regard to flaring, the Review Applicants questioned how the well test flaring was handled. Ms. McGinn said that she resides within the flaring notification area and was concerned with all the chemicals emitted during flaring, not just SO₂. Both Ms. Duperron and Ms. Kelly noted that health conditions make them sensitive to SO₂ and H₂S emissions, which could permanently affect their health. Ms. Duperron also noted that her residence was near a maximum elevation point, and that SO₂ reaching the ground was more likely to occur at higher elevations.

Proliferation of flaring and oil and gas facilities, including pipelines, in the area was also a concern of the Review Applicants, who stated that residents are being exposed to increased danger from future development and that the risk to residents is unacceptable as their safety can never be guaranteed.

Ms. McGinn stated that "no one will ever convince me of a safe sour gas well," and confirmed that she has opposed many applications for development near her home. Ms. Kelly stated that

she has opposed most of the applications for sour oil and gas development in the general vicinity of her home since 2004, and that she has not withdrawn any of her objections.

The Review Applicants also submitted that they felt uninformed regarding Grizzly's plan for drilling water injection wells and water source wells at this location as part of the site development.

3.3 Views of Ms. Kerpan and Dr. Losey

Ms. Kerpan and Dr. Losey were appreciative of being allowed the opportunity to state their concerns and to participate in the hearing. They noted their continued confusion and frustration as to exactly what rights they had been granted regarding participation at the hearing.

Ms. Kerpan and Dr. Losey reside about 7.0 km from the wells, outside the EPZ. They stated continued concerns regarding their safety and requested that Grizzly be required to conduct a full-scale ERP exercise because of its lack of experience in such matters.

They stated concerns regarding flaring, and submitted that Grizzly should not be allowed to conduct any future flaring at these wells. They suggested that, rather than flaring these wells, future operations could be conducted in-line. Ms. Kerpan and Dr. Losey requested that they be notified of flaring activities at the well site.

3.4 Findings of the Board

Having considered all the evidence before it, the Board is satisfied that the approval of these two wells is in the public interest, and finds that the licences for these wells remain in good standing.

In coming to this conclusion, the Board notes that none of the Review Applicants reside or have land within the EPZs; indeed, their residences are 2.5 to 5.5 km—a significant distance—outside the boundary of the EPZs. Notwithstanding where they reside, an operator is required to deal with the safety of people both within and outside the EPZ.

The Board understands that the well fluids contain H₂S, a substance that can have adverse effects on human health. However, the evidence before the Board does not demonstrate that any of the interveners are at risk from these wells. The Board notes that Grizzly is adhering to the ERCB's requirements for mitigating the risks of potential harm to public safety and the environment.

The Board also notes that, in order to produce from these wells, Grizzly will have to apply for the associated facilities, such as pipelines, batteries, and any water production and injection wells. Such future applications will be the subject of further consideration by the ERCB.

The Board is satisfied that the drilling, completion, and testing of these wells were conducted safely and without incident and were in compliance with the ERCB requirements; facts that were acknowledged by the Review Applicants.

The Board notes the Review Applicants' contention that Grizzly had not adequately prepared for the drilling of these wells because the levels of predicted H₂S were exceeded by those actually encountered during drilling and testing. The Board notes that the applied-for H₂S levels were based on the data available at the time of drilling. It is the Board's view that Grizzly used best

practices in its calculations. That the H₂S levels encountered were higher than predicted does not, in the Board's view, demonstrate anything other than the inexact nature of the science of geology, and tells the Board nothing about the ongoing operation of these wells. In fact, having established the actual H₂S content of the wells, Grizzly properly used those data to develop its ERP for the completion, production, and servicing phases of operations. In addition, the Board notes that the Review Applicants' concern is further mitigated since the flow rate actually achievable by the wells is lower than that used in the determination of the EPZ sizes prior to drilling.

Ms. Kelly and Ms. Duperron provided evidence in camera regarding their pre-existing health conditions; however, they did not establish a connection between their pre-existing health conditions and these wells. The only expert evidence tendered by the Review Applicants was documented medical confirmation of their pre-existing problems. It did not relate those conditions to these wells, to oil and gas development in general, or to H₂S or SO₂ emissions specifically.

The Board notes Ms. Kelly's and Ms. McGinn's comments regarding their objection to most or all sour gas development in the area. Ms. McGinn stated that "no one will ever convince me of a safe sour gas well," and both she and Ms. Kelly confirmed that they have opposed most, if not all, applications for sour oil and gas development in the general area. The Board finds that they have failed to demonstrate any effects on them from these wells, including during flaring, or from any other oil and gas development.

Similarly, Ms. Kerpan and Dr. Losey did not provide the Board with any evidence regarding the effects on them from these wells or other oil and gas development.

The Board notes that Grizzly's emergency response planning for both the drilling and production phases meets the ERCB's requirements. The Board is satisfied such planning adequately takes into account the safety of individuals in the area of the wells in the event of an incident.

While the interveners suggested a full-scale emergency response exercise should be conducted by Grizzly, the Board views the current regulatory training and exercise requirement of annual tabletop or communication exercises, combined with the triannual major exercise requirement, to be sufficient.

The Board encourages Grizzly to continue its communication with the people in the area, particularly with respect to its future activities, and its ERPs and associated processes.

The Board further notes Grizzly's involvement in PAOG and encourages industry's participation in such mutual aid groups for the pooling of emergency response resources.

The Board is satisfied that Grizzly has no flaring planned for the future and that it will endeavour to keep flaring to a minimum. Further, the Board notes that Grizzly has committed to notifying all the interveners who participated in the hearing of any planned flaring that may occur.

The Board has carefully considered the submissions, argument, and evidence and finds that Well Licences No. 0404964 and 0404965, issued to Grizzly, remain in good standing. Finally, the Board sees no need for additional conditions as its regulatory regime is fully sufficient in dealing with this matter.

Dated in Calgary, Alberta, on July 13, 2010.

ENERGY RESOURCES CONSERVATION BOARD

<original signed by>

M. J. Bruni, Q.C.
Presiding Member

<original signed by>

J. D. Dilay, P.Eng.
Board Member

<original signed by>

G. Eynon, P.Geol.
Board Member

APPENDIX 1 HEARING PARTICIPANTS

Principals and Representatives (Abbreviations used in report)

Witnesses

Grizzly Resources Ltd. (Grizzly)
L. Sali, Q.C.

J. Green, R.E.T.
C. Weston, P.Land
G. Hegel, P.Eng.
R. Brown, of
Bissett Resources Consultants Limited

J. Klimek

S. Kelly
L. Duperron
L. McGinn

C. Kerpan
Dr. T. Losey

Energy Resources Conservation Board staff

M. LaCasse, Board Counsel
J. Fulford
M. Alboiu
M. Brown, P.Eng.

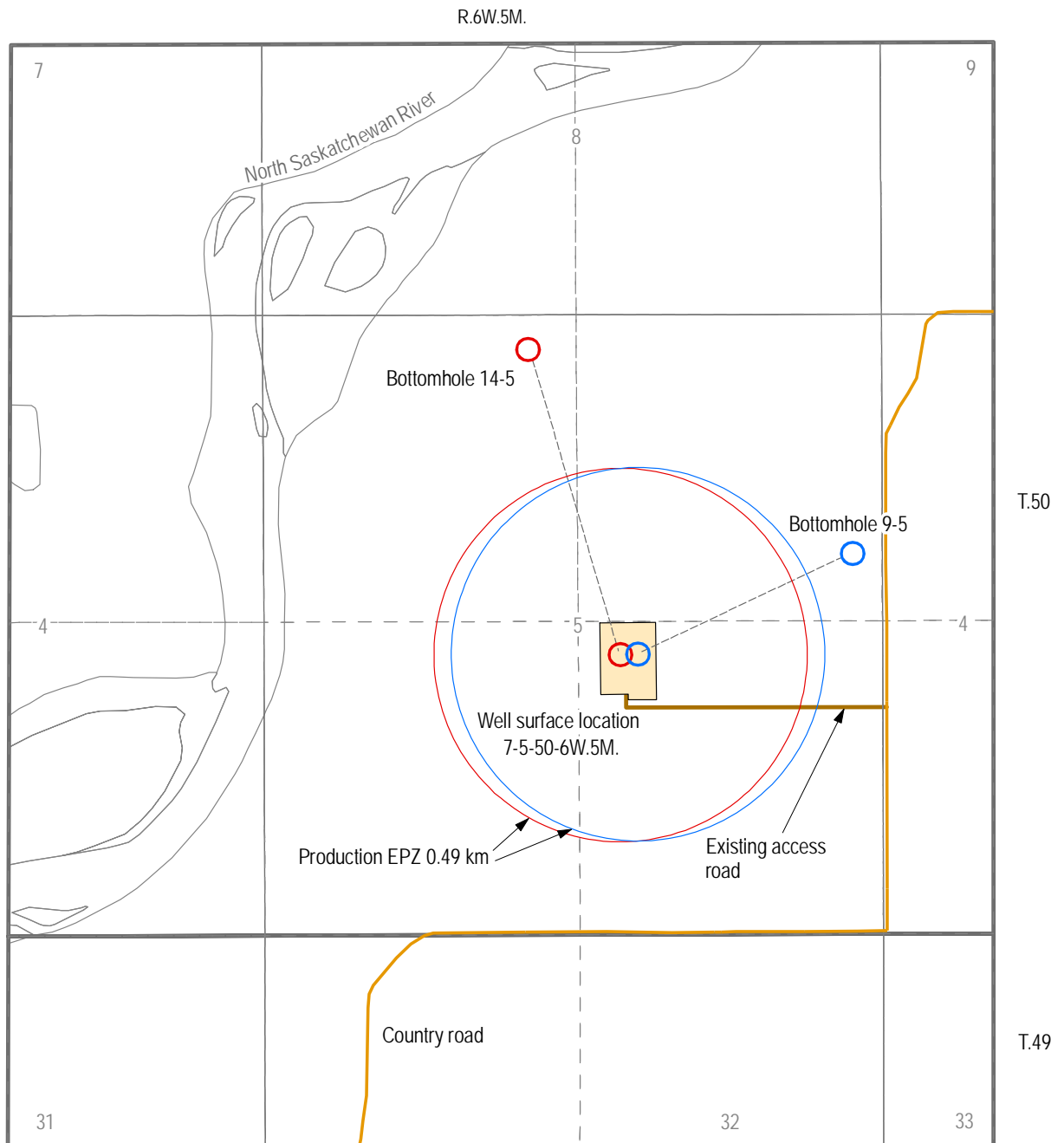
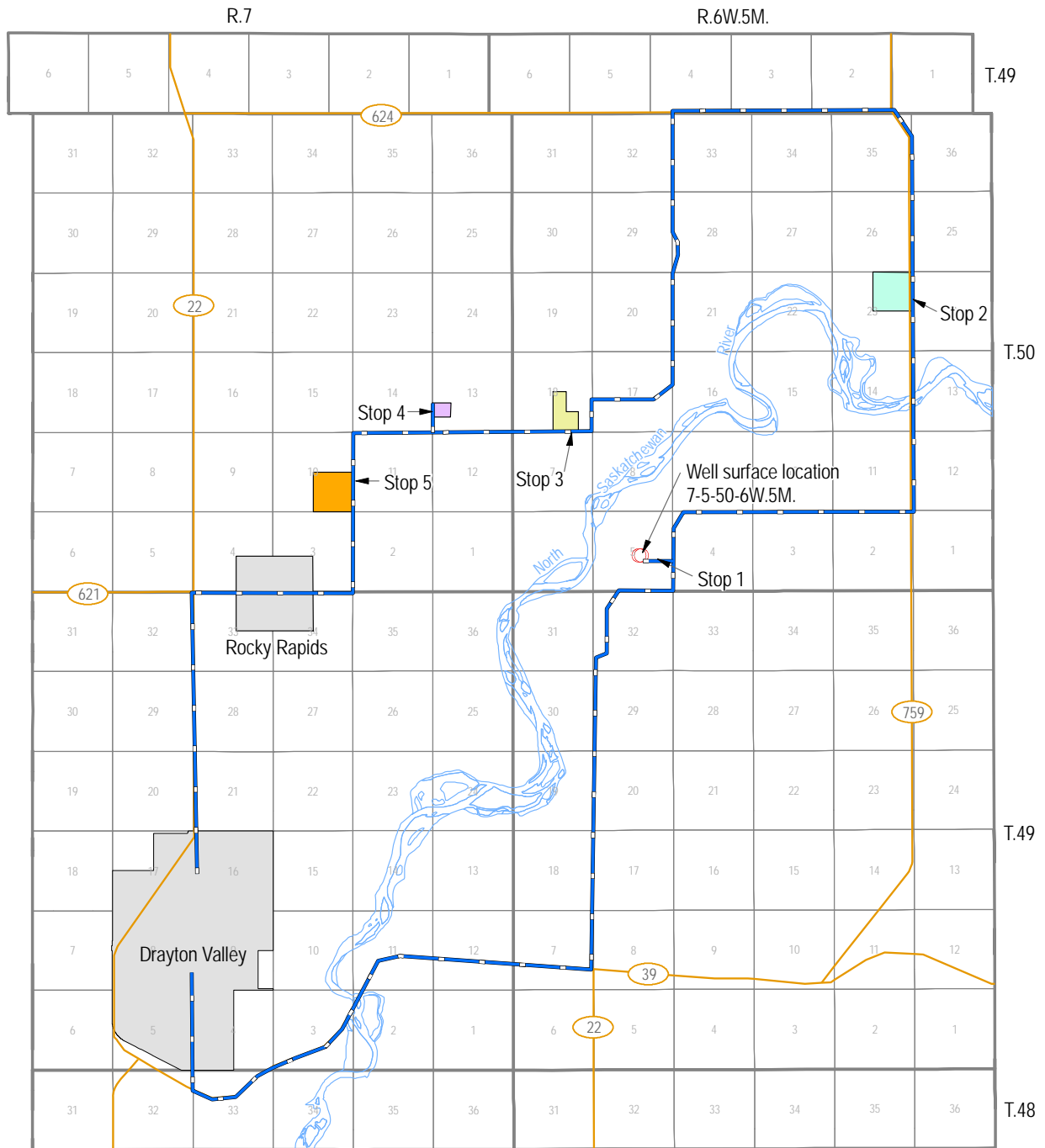


Figure 1. Grizzly well locations



Legend

- | | |
|-----------------------|--------------------------|
| Highway | Resident and land |
| Site viewing route | Duperron |
| Well surface location | Kelly |
| | Kerpan and Losey |
| | McGinn |

Figure 2. Area and site viewing route