



Province of Alberta
Order in Council

O.C. 159/2019

SEP 09 2019

ORDER IN COUNCIL

Approved and ordered:

Lieutenant Governor
or
Administrator

The Lieutenant Governor in Council authorizes the Alberta Energy Regulator to grant Approval No. 12824 to MEG Energy Corp. in the form attached.

CHAIR

For Information only

Recommended by: Minister of Energy

Authority: Oil Sands Conservation Act
(section 10)

MADE at the City of Calgary, in the
Province of Alberta, on

ALBERTA ENERGY REGULATOR

IN THE MATTER of a commercial scheme of MEG Energy Corp. (hereinafter called “the Operator”) for the recovery of crude bitumen from the **Wabiskaw-McMurray Deposit in the Athabasca Oil Sands Area** from wells located in the Surmont project area outlined in Appendix A to this approval.

WHEREAS the Alberta Energy Regulator (AER) is prepared to approve an application by the Operator for a new scheme;

WHEREAS the Lieutenant Governor in Council, by Order in Council O.C. # dated #, hereto attached as Appendix B, has authorized the granting of this approval;

Pursuant to Section 10 of the *Oil Sands Conservation Act*, chapter O-7 of the Revised Statutes of Alberta, 2000, the AER orders as follows:

- 1) The Operator’s scheme as described in
 - a) Application No. 1739105,

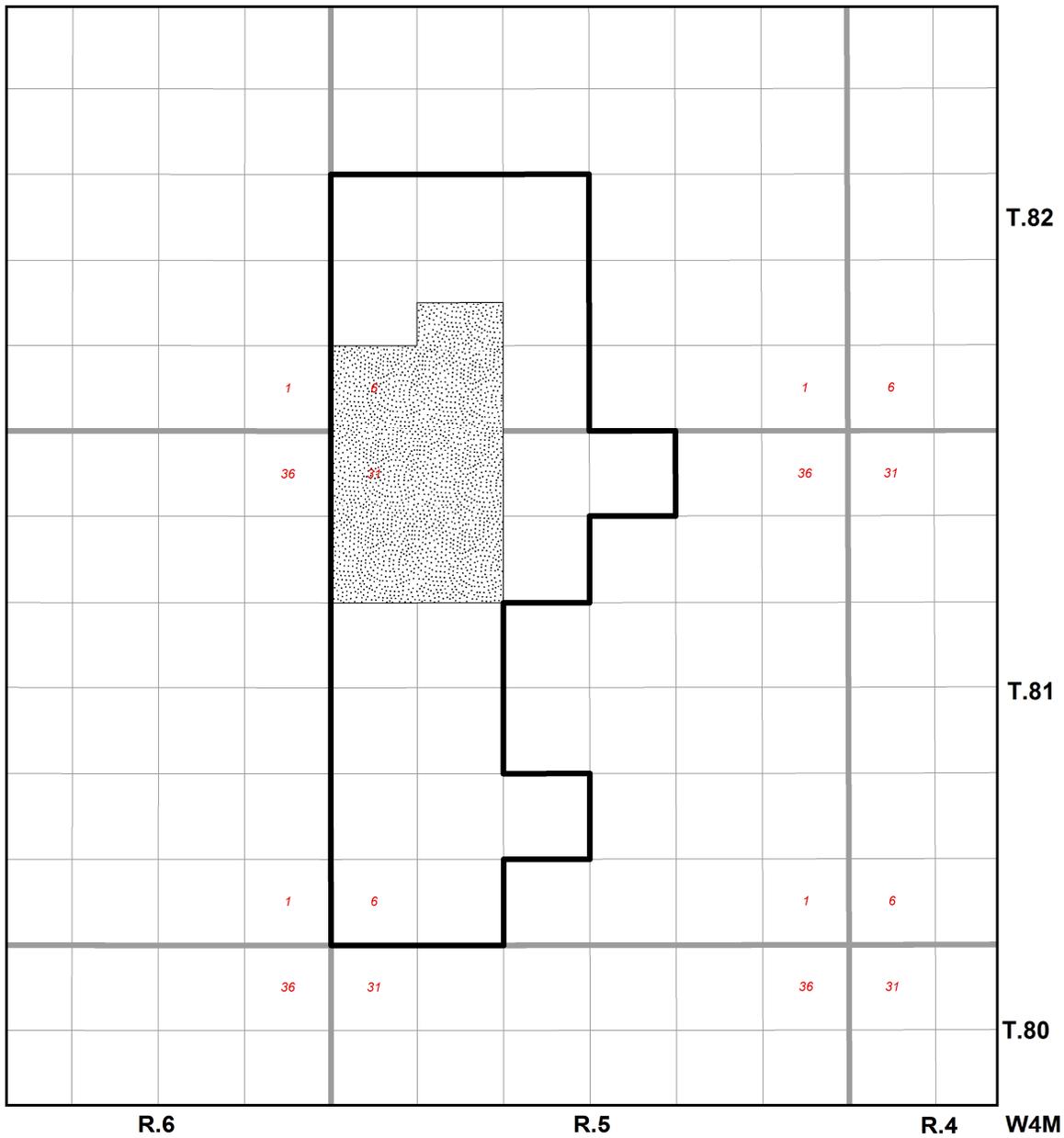
is approved, subject to the *Oil Sands Conservation Rules* and the terms and conditions herein contained.
- 2) The recovery of crude bitumen from wells located in the development area outlined in Appendix A is approved.
- 3) Clauses 1 and 2 do not preclude alterations in design and equipment, provided that the AER is satisfied that the alterations are compatible with the outline of the scheme, are made for the better operation of the scheme, and do not result in unacceptable adverse impacts.
- 4) The recovery process approved for the project is Steam-Assisted Gravity Drainage (SAGD) utilizing only steam as the injection fluid unless otherwise stipulated by the AER.
- 5) Unless otherwise stipulated by the AER, the production of bitumen from the project area outlined in Appendix A shall not exceed 19 544 cubic metres per day (m³/d) on an annual average basis.
- 6) The bottomhole injection pressure for the approved drainage patterns within the development area outlined in Appendix A must not exceed 3175 kPa (gauge) during normal SAGD operations.
- 7) Prior to drilling SAGD wells in an area, all wells that could be impacted by thermal operations must be completed or abandoned in a manner that is compatible with the thermal

operations. The Operator must contact the AER for discussion of and obtain approval for the manner in which to complete or abandon wells not considered to be compatible with the thermal operations.

- 8) Unless otherwise stipulated by the AER, the Operator shall:
 - a) provide the AER with gamma ray spontaneous potential resistivity and gamma ray neutron density logs from total depth to surface casing for all vertical wells, and
 - b) take full diameter cores of the entire bitumen-bearing interval of the McMurray Formation from not less than four evenly spaced vertical wells per section, and take full-diameter cores of bitumen-bearing intervals of other zones in the Mannville Group, if any, from at least one well per section, and at the AER 's request
 - i) analyze portions of such cores and
 - ii) provide suitable photographs of the clean-cut surface of each core slabbed.
- 9) Where the Operator proposes to cease SAGD operations at a well pad that has produced less than 50 per cent of the in-place volume of crude bitumen and the AER's consent therefore is sought, the Operator shall advise the AER as to the reason for proposing to cease SAGD operations.
- 10) The Operator shall ensure that sulphur recovery will be operational prior to the daily average sulphur inlet rate reaching one tonne/day on a calendar quarter-year. The calendar quarter-year sulphur recovery shall not be less than set out in AER *Interim Directive 2001-03, Sulphur Recovery Guidelines for the Province of Alberta*, for the specified sulphur inlet rate.
- 11) Any plans for operations or development outside the approved development area shall be applied for to the AER for review. Such applications must:
 - a) Provide geological and reservoir data that demonstrate that the reservoir in the proposed development area has been fully evaluated, including evaluation wells and seismic interpretation to fully understand where well pads and wells will be located. Submit updated bitumen, gas, and water mapping, reservoir properties, and reserves estimates for the existing development area, the proposed additional area, and the overall development area.
 - b) Provide a detailed description of the proposed amendment, including subsurface drainage pattern design, such as the number of horizontal wells per drainage pattern, the lateral spacing between horizontal wells, the length and trajectory of each horizontal well, the horizontal well elevations, and the subsurface drainage area corresponding to each horizontal well. Provide an annotated log cross section for one representative well pair per pattern to demonstrate that the well locations and pattern design have been optimized to conserve bitumen.
 - c) Provide a detailed discussion of the scheme performance to date, with specific emphasis on key factors affecting the success of the scheme, and how this experience has been incorporated into the operation of the existing scheme and the design and operation of the scheme within the proposed additional area, including but not limited to:
 - i) the impact of top gas,

- ii) the impact of top water,
 - iii) the impact of bottom water,
 - iv) the effectiveness of the cap rocks, and
 - v) the state of the steam chamber.
- d) Provide a discussion on bitumen recovery and pad production profiles for the well pads within the proposed additional development area. The information must include key performance predictions (e.g., injection and production rates, steam oil ratio), including the methodology utilized and supporting information.
- 12) Notwithstanding any date by which any work, act, matter, or thing is by this approval required to be done, performed, or completed, the AER, if it considers it proper to do so, may by stipulation alter the dates specified.

END OF DOCUMENT



**ATHABASCA OIL SANDS AREA
APPENDIX A TO APPROVAL NO. 12824**

The AER does not warrant the accuracy or completeness of the information contained in this map and is not responsible for any errors or omissions in its content and accepts no liability for the use of this information.

Base Data Provided by Spatial Data Warehouse Ltd., 2003

Legend

-  Project Area
-  Development Area

Area(s) of Change

-  Added
-  Deleted