ERCB Energy Resources Conservation Board

COMMERCIAL SCHEME
Approval No. 11393

MADE at the City of Calgary, in the Province of Alberta, on 23rd day of March 2010.	 ENERGY RESOURCES CONSERVATION BOARD

IN THE MATTER of a commercial scheme of Value Creation Inc. (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 project area outlined in Appendix A to this approval.

WHEREAS the Energy Resources Conservation Board (ERCB) is prepared to approve an application by the Operator for a new scheme;

WHEREAS the Lieutenant Governor in Council, by Order in Council Number O.C. 63/2010 dated March 11, 2010, hereto attached as Appendix B, has authorized the granting of this approval.

The ERCB, pursuant to Section 10 of the Oil Sands Conservation Act, chapter O-7 of the Revised Statutes of Alberta, 2000, orders as follows:

1) The Operator's scheme is described in

   a) Application No. 1552842,

   is approved, subject to the Oil Sands Conservation Regulation 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 ERCB 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 ERCB.

5) Unless otherwise stipulated by the ERCB, the production of bitumen from the project area outlined in Appendix A shall not exceed 1590 cubic metres per day (m^3/d) on an annual average basis.

6) The Operator shall conduct all operations to the satisfaction of the ERCB and in a manner that under normal operating conditions will permit:

   a) the recovery of the practical maximum amount of crude bitumen within the project area outlined in Appendix A,

b) the conservation of the practical maximum volume of produced gas at the well pads and central facilities,

c) the minimization of flaring to non-routine operations such as start-up, shutdown, emergencies, infrequent upsets, and maintenance depressuring, and

d) the practical maximum reuse of produced water, with the minimum recycle rate being 90 per cent on an annual basis, unless otherwise stipulated by the ERCB.

7) Unless otherwise stipulated by the ERCB, the Operator shall:

a) provide the ERCB 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 Wabiskaw-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 ERCB's request

i) analyze portions of such cores, and

ii) provide suitable photographs of the clean-cut surface of each core slabbed.

8) Unless otherwise permitted by the ERCB, steam injection operations, having commenced at a well pad, shall continue until the well pad has produced a minimum of 50 per cent of the in-place volume of crude bitumen assigned to that well pad by the ERCB.

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 ERCB's consent therefore is sought, the Operator shall advise the ERCB as to the following:

a) the reason for proposing to cease SAGD operations,

b) details of individual well workovers and recompletions attempted,

c) detailed economics of continuing operations,

d) the effect of ceasing SAGD operations on the bitumen recovery ultimately achievable from that part of the reservoir associated with the pad and immediately offsetting pads, and

e) future plans for the well pad with reference to possible follow-up recovery techniques that could be applied and other zones that could be exploited.

10) The Operator shall ensure that sulphur recovery will be operational at the facilities before total sulphur emissions from flaring and combustion of gas containing hydrogen sulphide (H_2S) reach one tonne/day on a calendar quarter-year average basis, unless otherwise stipulated by the ERCB. The calendar quarter-year sulphur recovery shall not be less than set out in Table 1 of ERCB *Interim Directive (ID) 2001-03: Sulphur Recovery Guidelines for the Province of Alberta* on the basis of the calendar quarter-year daily average sulphur content of produced gas streams flared and used as fuel at each central processing facility.

11) The Operator shall notify the ERCB of any proposed material alteration or modification of the SAGD scheme or to any equipment proposed for use therein prior to effecting the alteration or modification.

12) (1) Where, in the opinion of the ERCB, any alteration or modification referred to in Clause 11 to the scheme or to any equipment proposed for use therein:

a) is not of a minor nature,

b) is not consistent with the scheme approved herein, or

c) may not result in an improved or more efficient scheme or operation,

the alteration or modification shall not be proceeded with or effected without the further authorization of the ERCB. The Operator must provide evidence that this major alteration or modification to the scheme or to any equipment will result in a benefit to the scheme or operation and be in the public interest.

(2) Should the ERCB consider the alteration or modification to be major, it may request additional information as it deems appropriate.

13) Any plans for operations or development outside the approved development area shall be applied for to the ERCB for review. Such applications must:

a) describe the facility and infrastructure locations and the operation of the surface facilities. Justify any changes from those described in the original application and associated amendments. Evaluate the potential environmental impacts in the context of these changes and contrast with impacts predicted in the original application,

b) verify predictions and evaluate the performance of the environmental mitigation strategies proposed by the operator in the original application and associated amendments. Discuss how the approach to various mitigation strategies might be altered based on the findings of the evaluation and incorporated into future operations,

c) provide a summary of the information submitted for the Environmental Protection and Enhancement Act (EPEA), as well as any other environmental information related to the scheme and its amendment that may be required by an agency other than the ERCB,

d) 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,

e) describe the Operator's participation in regional environmental initiatives. Discuss recommendations that have been generated from these regional initiatives and how these recommendations have been incorporated into the project,

f) provide a detailed description of the proposed amendment, including subsurface drainage pad design, such as the number of horizontal wells per drainage pad, 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 cross-section profiles for each horizontal well to demonstrate that the location and design have been optimized to conserve bitumen,

g) 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 operating 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.

h) provide a discussion on modeling results, including the input data, modeling runs carried out, and the latest model predictions of bitumen recovery and pad production profiles based on history matching the field performance data. This information shall include:

   i) a description of the model used,

   ii) the input data files for the model cases run,

   iii) for each case run, cross-sections perpendicular to the wellbore showing the changing fluid saturations and temperature with time to illustrate the growth of the steam chamber to abandonment,

   iv) a discussion of the history match and parameters adjusted to achieve the match obtained, and

   v) a discussion of the prediction cases run, plots of the results for key performance predictions (i. e., rates, steam oil ratio), and how the results were used in operation of the existing scheme, in the design and operation of the proposed new area, and in the scheduling of future development of the scheme.

14) The Operator must provide the following submissions before June 30, 2011 for ERCB review and approval:

   a) The results of the minifrac tests conducted on both the caprock and reservoir within one of the observation wells in the development area outlined in Appendix A.

   b) A maximum operating pressure (MOP) study for the development area. The study must include a comparison of the reservoir fracture gradient determined by the minifrac tests to the data determined by geomechanical modelling, the technical basis for the proposed MOP, and the operational procedures for ensuring the MOP is not exceeded.

15) Notwithstanding any date by which any work, act, matter, or thing is by this approval required to be done, performed, or completed, the ERCB, if it considers it proper to do so, may by stipulation alter the dates specified.

16) The ERCB may,

a) upon its own motion, or

b) upon the application of an interested person,

rescind or amend this approval at any time.

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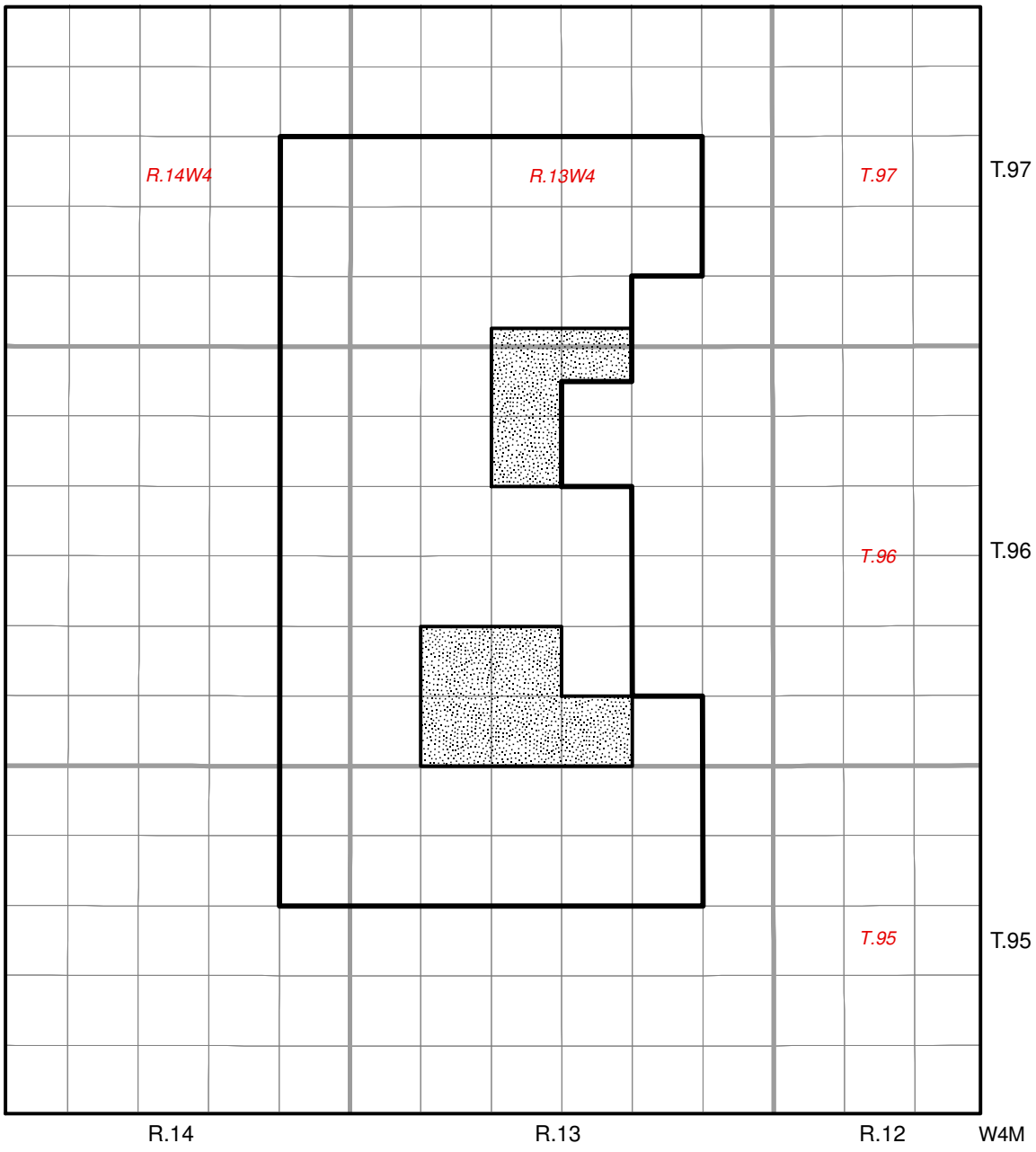

ATHABASCA OIL SANDS AREA
APPENDIX A TO APPROVAL NO. 11393

Legend

Project Area

Development Area

Appendix B
to
Approval No. 11393

O.C.- 63/2010

MAR 1 1 2010

Province of Alberta
Order in Council

ORDER IN COUNCIL

Approved and ordered:

Administrator

The Lieutenant Governor in Council authorizes the Energy Resources Conservation Board to grant Approval No. 11393 to Value Creation Inc. in the form attached.

CHAIR

Alberta

For Information only

Recommended by: Minister of Energy

Authority: Oil Sands Conservation Act (section 10)