

Chapter 4

Evaluating Leases and Permits

The Rationale

The process of evaluation gathers technical data—geological, geophysical, engineering and production information—about the oil sands zone or zones included in oil sands agreements.

Evaluation data is descriptive: it provides valuable information about the nature and characteristics of the resource. Evaluation data helps to identify oil sands areas which have high potential for development. Similarly, it identifies areas in which development potential is lower, and contributes to the knowledge base about Alberta's oil sands resources.

Oil Sands Tenure Regulation, section 3

Evaluation is an important part of oil sands tenure. Applications for lease selection or lease continuation must be supported by technical data that meets a minimum level of evaluation (MLE). MLE criteria must be met before the next stage of tenure is approved.

To select leases from permits or to continue leases, holders of oil sands agreements make application to the department.

See [Applying for Lease Continuation](#) and [Applying for Lease Selection](#) for details.

MLE defines minimum level of evaluation requirements. Oil sands developers are encouraged to undertake evaluation programs which exceed these minimums.

Oil Sands Tenure Regulation, section 14

Second- and third-term leases which are subject to approved development plans, and which are meeting the milestones specified in these plans, are considered to be continued producing leases.

Meeting a Minimum Level of Evaluation (MLE)

A minimum level of evaluation must be conducted on all lands for which lease selection or lease continuation is requested.

- If an agreement holder wishes to retain all lands in an agreement, MLE criteria apply to the entire agreement.
- If an agreement holder wishes to retain only a portion of the land specified in an agreement for which continuation has been requested, MLE criteria apply only to the lands for which retention is requested.

Sections of land for which MLE requirements have not been met are excluded from lease selection or lease continuation requests.

More-than-minimum evaluation work on one section cannot be used to qualify another section which does not meet MLE criteria.

When agreement holders request continuation for a portion, not all, of their lands, they may configure the lands in a manner that best suits their ability to meet MLE criteria. However, all the lands should be contiguous. That is, on a map, the lands must lie next to one another or be in contact at their corners, with no spaces or corridors between. Non-contiguous configurations may not be approved.

MLE criteria are similar for both permits and leases. MLE data for each permit or lease must be submitted separately. Drilling or seismic work must be completed **on each section** covered by the permit or lease.

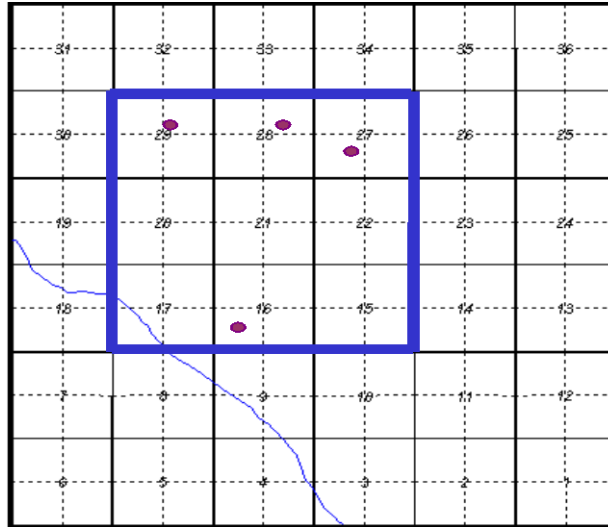


Figure 2: The agreement includes nine sections. Only the four sections which contain evaluation wells are eligible for lease selection or lease continuation. Since the eligible sections are not contiguous, the agreement holder must choose an appropriate configuration. The options are shown in the next figure. For Lease selection, two leases will have to be issued.

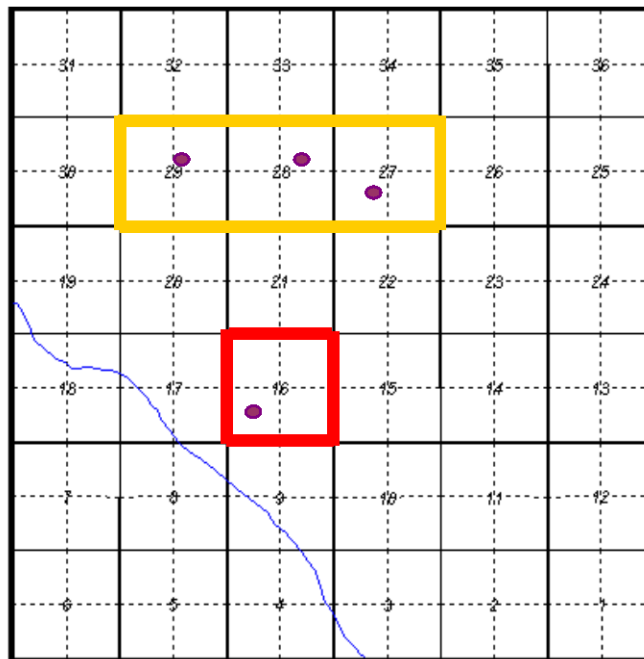


Figure 3: Two options are available to the agreement holder mentioned in the previous figure. The agreement holder may select or continue one or both of the leases shown here. The selection that stands alone may have to be surrendered.

MLE data for permits must be obtained during the term of the permit. The following conditions apply:

- Well data supporting an application for lease selection must come from wells drilled during the term of the permit.

Data obtained from wells drilled prior to the effective date of the permit will not be accepted.

- Seismic data must be acquired during the term of the permit.

Any seismic data which predates the permit must be reprocessed during the term of the permit.

MLE data for lease continuations may predate the effective date of the primary lease.

See [Types of Evaluation Data](#) for details.

The Process

Oil Sands Tenure Regulation, section 3

Evaluation to support applications for lease selection or lease continuation requires the drilling of evaluation wells for the purpose of assessing oil sands zones. A minimum level of evaluation can be achieved in two ways:

- Option 1 complies with section 3(2) of the regulation. This option requires evaluation wells on each section included in an agreement. See Option 1 for details.
- Option 2 complies with section 3(3) of the regulation. This option requires evaluation wells on at least 60% of the sections included in an agreement, and appropriate seismic data for the remaining sections. See [Option 2 - seismic](#) for details.

Wells drilled to evaluate petroleum and natural gas agreements in the location covered by an oil sands agreement may be used to satisfy MLE requirements.

For both options each section or partial section included in the agreement must be evaluated.

Option 1: Evaluation Wells on Each Section

Section 3(2) of the regulation outlines the requirements for this option.

1. An evaluation well must be drilled on each section or part of a section for which lease selection or lease continuation is requested.
2. Evaluation wells must be positioned in a sufficiently even and uniform pattern.

The department prefers a pattern which demonstrates 100% coverage, with evenly interspaced wells on every section or subsection covered by the oil sands agreement.

Patterns for less than 100% coverage should display reasonably uniform placement of wells.

Wells should be drilled throughout the area included in the agreement. Patterns which show clusters of wells in one area and no wells in other areas should be avoided.

3. **Well data** must be provided for each evaluation well used to obtain MLE.
4. **Core data** must be provided for at least 25% of the evaluation wells. This data may be obtained by

 coring through the hydrocarbon-bearing portions of the relevant oil sands zones,

 or

 coring through the hydrocarbon-bearing portions of the oil sands zones of at least 15% of the evaluation wells and using downhole tools to obtain coring-equivalent data for the remaining evaluation wells.

For example

Assume that 12 evaluation wells have been drilled – one in each of the 12 sections. Core samples must be provided for 25% of the wells. In this case, 25% is three wells.

Core data can be provided for each of these three wells,

or

Core data can be provided for two of the evaluation wells (15% of the total drilled) and downhole data can be provided for the third well. The result is coring or coring-equivalent data for the required 25% of evaluation wells.

See [Well Data](#) and [Coring and Coring Equivalent Data](#) for details.

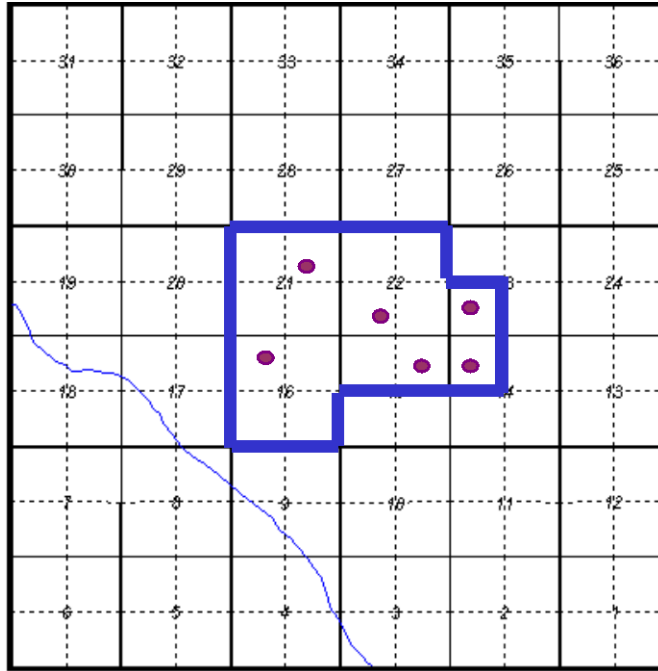


Figure 4: This agreement includes six sections or partial sections—that is, sections 14, 15, 16, 21, 22, and 23. To meet MLE criteria under Option 1, evaluation wells must be drilled on all six sections.

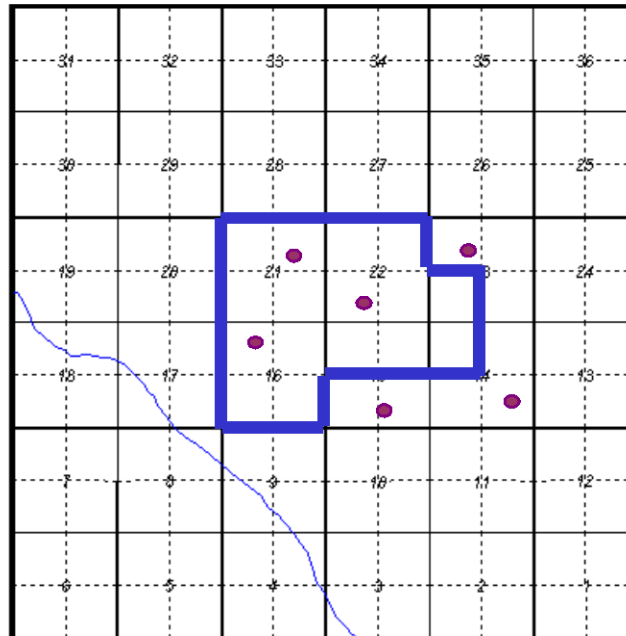


Figure 5: Six evaluation wells are required to meet MLE criteria under Option 1. The wells drilled on sections 14, 15, and 23 are not eligible because they are located outside the boundaries of the agreement area.

Option 2: Evaluation Wells on 60% of Sections

Section 3(3) of the regulation outlines the requirements for this option.

1. An evaluation well must be drilled on at least 60% of the sections or parts of sections for which lease selection or lease continuation is requested.
2. Evaluation wells must be positioned in a sufficiently even and uniform pattern.

The department prefers a pattern which demonstrates 100% coverage, with evenly interspaced wells on every section or subsection covered by the oil sands agreement.

Patterns for less than 100% coverage should display reasonably uniform placement of wells.

Wells should be drilled throughout the area included in the agreement. Patterns which show clusters of wells in one area and no wells in other areas should be avoided.

3. **Well data** must be provided for each evaluation well.
4. **Core data** must be provided for at least 25% of the evaluation wells.

This data must be obtained by coring through the hydrocarbon-bearing portions of the relevant oil sands zones.

Downhole data is not acceptable under Option 2.

5. **Seismic or electromagnetic data** from each undrilled section or part of a section must be submitted.

There must be 3.2 kilometres of seismic data line from each full section.

The length of the seismic data line from each partial section must be proportional to the length of the section.

See [Seismic Data](#) for details.

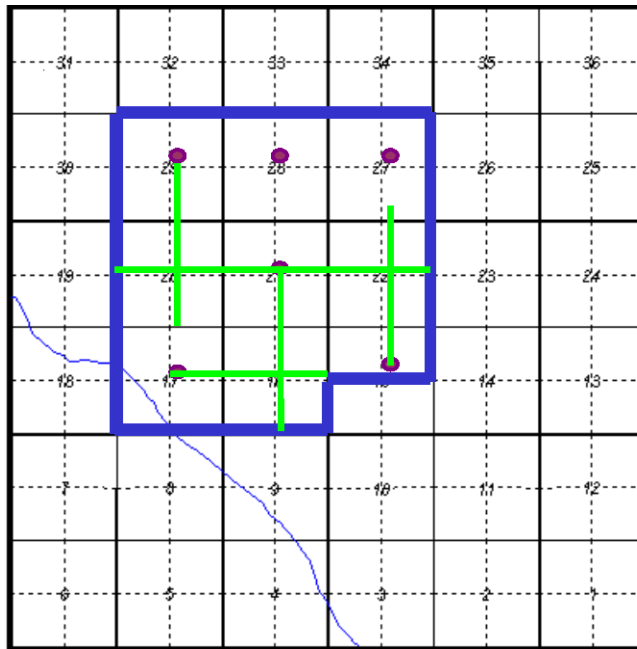


Figure 6: This agreement includes nine sections or partial sections. To meet MLE criteria under Option 2, evaluation wells must be drilled on at least 60% of the sections—that is, on six of the nine. (60% of 9 is 5.4, which is rounded up to 6.) Seismic or electromagnetic data must be provided for the remaining three sections. 3.2 km of seismic data line is required on each of these three sections.

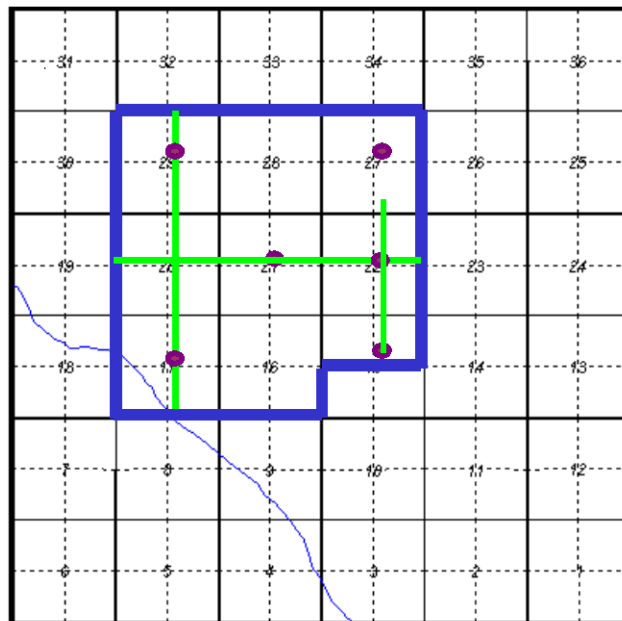


Figure 7: This agreement requires 9.6 km of seismic line (3.2 on each of the three undrilled sections) to meet MLE criteria under Option 2. Two of the three undrilled sections have no seismic data lines at all. Although there are 12 km of seismic data line over the whole agreement, the “extra” seismic (8.8 km) on the evaluation well sections cannot be used to qualify the two sections that do not have any seismic data.

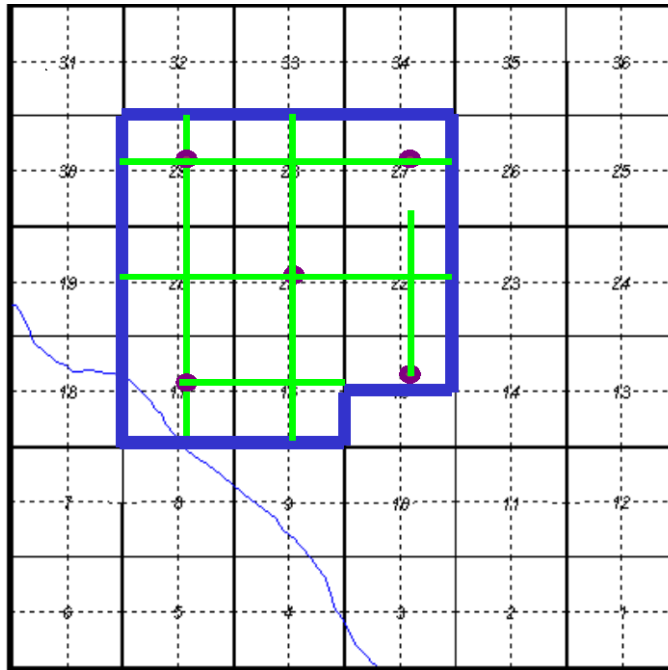


Figure 8: As there are only five evaluation wells drilled, MLE under section 3(3) is not an option: fewer than 60% of the sections include evaluation wells. Although seismic data lines have been obtained for every section, these cannot be considered under section 3(3) unless additional evaluation wells are drilled.

Special Circumstances

Oil Sands Tenure Regulation, section 3(6)

MLE requirements apply to each section for which lease selection or lease continuation has been requested. This makes it possible for the department to obtain consistent data for all disposed oil sands rights. Nonetheless, the Minister may consider and approve, on a case-by-case basis, applications in which MLE requirements have not been met.

Lessees who face unique, exceptional circumstances may request special consideration. The Minister may waive some requirements or impose different MLE requirements. In most cases, these revised requirements will provide information equivalent to what is specified in the regulation.

When the Minister grants special allowances, applicants are required to submit a comprehensive technical report. The report must provide the details specified in [Applying for Lease Continuation](#) and [Applying for Lease Selection](#).

Agreement holders who have questions about the MLE requirements for particular agreements should contact the department as early as possible. The department will provide an advance ruling on the evaluation work that has been done or proposed. See [Advance Rulings](#) for details.

The department cannot provide assurance that requests for special consideration will be approved.

Types of Evaluation Data

Well Data

For oil sands evaluation purposes, the department currently accepts well data regardless of the ownership or original intention of a drilled well. The department also accepts data from currently producing wells which have not been cored.

Note

The period during which well data is collected is an important factor for lease selection.

For Lease Selection

Well data supporting an application for lease selection must come from wells drilled during the term of the permit.

Data from wells which have been re-entered during the term of a permit *may* meet MLE criteria. The eligibility of data from such wells is at the department's discretion. In most cases, if re-entry produced additional data, the well is considered to have met the MLE requirement.

Re-evaluation of well logs which predate the issuance of a permit does not meet MLE criteria. It does not provide the required new data.

For Lease Continuation

Well data supporting an application for lease continuation may predate the effective date of the primary lease.

Although leaseholders are encouraged to obtain new data during the term of the lease, there is considerable latitude regarding the type of well data that is eligible for meeting MLE criteria. At present, the department accepts purchased well data, as well as data from

- historical wells,
- wells drilled on a shared basis,
- horizontal wells, and
- wells owned by parties other than the agreement holders (once the status of these wells is no longer confidential).

Coring and Coring Equivalent Data

Coring produces a continuous cylinder of rock cut from a wellbore. We require coring to be obtained using full diameter core barrels. Core samples provide information about the characteristics of an underground formation.

▮ The department does not consider the downhole tool requirements specified in current ERCB regulations to be equivalent to coring.

Seismic Data

Oil Sands Tenure Regulation, section 3(4)

Seismic data can be used in place of data from evaluation wells. To ensure that the data is comparable to what would have been available from drilling; the seismic data must originate from the section where an evaluation well would otherwise have been drilled.

Note:

For Lease selection, seismic data must be acquired during the term of the permit, and any seismic data, which predates a permit, must be re-processed during the term of the permit.

Required Length of Line

3.2 kilometres of seismic data line must be obtained on each undrilled section for which lease selection or continuation is requested.

For each partial section included in a lease or permit, the length of the seismic data line must be proportional to the length of the partial section. That is, the ratio of “partial” seismic data line to 3.2 km must be the same as the ratio of partial section to full section.

For example:

A section contains 256 hectares. If an oil sands agreement comprises 128 hectares, the ratio is 256 to 128, or two to one. The same ratio applies to the required length of seismic data line. This means that 1.6 km of line are required. (3.2 km to 1.6 km is a two to one ratio.)

Seismic Requirements

The fold, station, and group interval of the seismic program must be adequate to image both the bitumen reservoir and the Devonian subcrop.

Seismic shooting parameters should be at least 15 fold, with a maximum group interval of 10 metres.

Note:

Peace River Oil Sands Area – Lessees who hold agreements in this area should contact the department regarding seismic requirements for MLE purposes. In some cases, it may not be necessary to image the Devonian subcrop.

Seismic data lines must tie to evaluation wells in a manner and to an extent that the Minister considers adequate.

Seismic data lines along a road allowance may be used for evaluation purposes. Such data will be considered for only one of the sections adjacent to the road allowance. The agreement holder may choose the applicable section.

Arithmetic averages based on the total number of sections may not be used to fulfill MLE requirements.

For example:

Consider a lease selection request for 29 sections. Evaluation wells have been drilled on 17 sections (slightly less than 60%). Twelve sections are undrilled. Seismic testing has been conducted for 29 miles (46.4 km), on both the drilled and undrilled sections of the land.

To meet MLE requirements, the lessee must drill an additional well: this will bring the well count to 18—slightly more than 60%. Each of the 11 undrilled sections must have 3.2 kilometres of seismic data lines. This means that 35.2 km (3.2 km x 11 sections) are required.

For additional examples of how seismic requirements are calculated - See [Figure 6](#), [Figure 7](#), and [Figure 8](#).

Electromagnetic Data

Oil Sands Tenure Regulation, section 3(5)

Electromagnetic data can be substituted for seismic data.

- Electromagnetic data may only be used as evaluation data for areas where the ERCB has determined that surface mining is possible.
- For evaluation purposes, electromagnetic data must be provided for the base of the deepest oil sands zone for each section or partial section.

Note

Electromagnetic data to support lease selection must be obtained during the term of the permit.