2010 Reclamation Criteria for Wellsites and Associated Facilities

Application Guidelines

May 2011
# TABLE OF CONTENTS

## OVERVIEW

- PURPOSE OF THIS GUIDE .................................................................................. 1
- HOW TO USE THIS GUIDE ............................................................................. 1
- APPLICATION REVIEW PROCESS AND REVIEW TYPES .............................. 1
- COVER LETTERS .............................................................................................. 2

## 1.0 GENERAL INFORMATION ........................................................................... 3
- 1.1 COMPANY INFORMATION ........................................................................ 3
- 1.2 ERCB INFORMATION .................................................................................. 3
- 1.3 SITE IDENTIFICATION AND PHYSICAL LOCATION ................................. 3
- 1.4 SITE JURISDICTIONS ............................................................................... 3
- 1.5 ACTIVITY TYPE ....................................................................................... 4
- 1.6 ASSOCIATED FACILITIES AND INFRASTRUCTURE ............................... 5
- 1.7 STAKEHOLDERS ...................................................................................... 7
- 1.8 CRITERIA CATEGORY USED ...................................................................... 8

## 2.0 SITE INFORMATION .................................................................................... 9
- 2.1 OVERLAPPING EXEMPTIONS ................................................................... 9
- 2.2 END LAND USE CHANGE ......................................................................... 10
- 2.3 ADDITIONAL CERTIFICATES .................................................................... 12
- 2.4 NON-OILFIELD WASTE ............................................................................ 12
- 2.5 FACILITIES/FEATURES TO REMAIN IN PLACE ..................................... 13

## 3.0 PARTIAL RECLAMATION (PUBLIC LANDS ONLY) .................................... 14

## 4.0 CONTAMINATION INFORMATION ............................................................. 15
- 4.1 ENVIRONMENTAL SITE ASSESSMENT .................................................... 15

## 5.0 ROUTINE VS. NON-ROUTINE APPLICATIONS ........................................... 18

## 6.0 PROFESSIONAL ASSURANCE .................................................................... 21

## 7.0 APPLICATION DECLARATION .................................................................... 21

## 8.0 APPLICATION SUBMISSION ....................................................................... 21

## 9.0 SCHEDULE ONE - ATTACHMENTS ............................................................. 22

## 10.0 SCHEDULE TWO – PHASE 1 ENVIRONMENTAL SITE ASSESSMENT .......... 23
- 10.1 PREVIOUSLY REFUSED APPLICATIONS AND CANCELLED CERTIFICATES ................................................................. 24
- 10.2 DRILLING INFORMATION ....................................................................... 25
- 10.3 PRODUCTION, STORAGE AND ENVIRONMENTAL INFORMATION .................................................................................. 27
- 10.4 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT SITE VISIT .. 30
- 10.5 AERIAL AND SATELLITE IMAGERY REVIEW ....................................... 32
- 10.6 INTERVIEWS – PHASE 1 ENVIRONMENTAL SITE ASSESSMENT .................................................................................. 33
- 10.7 CONCLUSION AND RECOMMENDATIONS ......................................... 34
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>SCHEDULE THREE – DRILLING WASTE</td>
<td>34</td>
</tr>
<tr>
<td>12.0</td>
<td>SCHEDULE FOUR– PHASE 2 ENVIRONMENTAL SITE ASSESSMENT</td>
<td>35</td>
</tr>
<tr>
<td>13.0</td>
<td>SCHEDULE FIVE – RECLAMATION INFORMATION</td>
<td>36</td>
</tr>
<tr>
<td>13.1</td>
<td>RECLAMATION SITE INFORMATION</td>
<td>37</td>
</tr>
<tr>
<td>13.2</td>
<td>INTERVIEWS</td>
<td>40</td>
</tr>
<tr>
<td>13.3</td>
<td>ADDITIONAL SITE HISTORY/COMMENTS/CLARIFICATION</td>
<td>40</td>
</tr>
<tr>
<td>APPENDIX A – CONTACT INFORMATION</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>14.0</td>
<td>APPENDIX B – REGIONAL OFFICE LIST</td>
<td>44</td>
</tr>
<tr>
<td>15.0</td>
<td>APPENDIX C – REFERENCE DOCUMENTS</td>
<td>45</td>
</tr>
<tr>
<td>16.0</td>
<td>FORMS</td>
<td>49</td>
</tr>
<tr>
<td>17.0</td>
<td>APPENDIX C - EXAMPLE SITE DIAGRAM SKETCHES</td>
<td>50</td>
</tr>
<tr>
<td>18.0</td>
<td>APPENDIX D - EXAMPLE SITE SUMMARY DIAGRAMS</td>
<td>51</td>
</tr>
</tbody>
</table>
OVERVIEW

The Government of Alberta protects the province’s land resources by ensuring land used for industrial activities is reclaimed in an environmentally sound manner. This is directed through the Environmental Protection and Enhancement Act (EPEA), and the Conservation and Reclamation Regulation. Under EPEA, after an upstream oil and gas facility has been decommissioned, operators must apply for a reclamation certificate. Reclamation certificates are managed through the Alberta Upstream Oil and Gas Reclamation and Remediation Program. The program includes specific requirements for the assessment and remediation of contaminated land and the reclamation of soil disturbance and vegetative productivity. The program currently applies to all upstream oil and gas facilities including wellsites, batteries, pipelines and other associated facilities on private and public land.

Purpose of this guide

This guide provides reclamation certificate application information to oil and gas operators. Information in this guide has been compiled from conservation and reclamation information letters, remediation and reclamation fact sheets, and the 2010 Reclamation Criteria for Wellsites and Associated Facilities (Alberta Environment 2010). It is intended to be updated regularly in order to answer questions and provide explanations to clarify Alberta Environment’s expectations.

How to use this guide

This document has multiple sections, which follow the same order as the 2010 Wellsite Reclamation Certificate Application Form – May 2011 (the 2010 application form). The guide’s Contents can be used to cross reference the 2010 application form. Reference material is included in appendices. Operators may also refer to Alberta Environment’s publication webpage for the most up to date versions of documents referenced in this Guide. www.environment.alberta.ca

Application Form

The 2010 Reclamation Certificate Application form was developed in Adobe Livecycle as an interactive and dynamic PDF form. The forms will display and hide information based on user input. The completed form can be protected to prevent changes to the data.

Application review process and review types

Applications for reclamation certificates are submitted through Alberta Environment’s Regulatory Approvals Centre for private land. Applications for public land are submitted electronically to Sustainable Resource Development. Applications will be considered incomplete if any additional information, documentation or clarification is required and will be refused. Following a refusal, the operator will be required to re-submit using the 2010 application form with all required documentation attached and a new application fee.
All reclamation certificate applications will be reviewed for completeness and may be subject to other reviews or audits before or after the certificate is issued.

- **Completeness review** - The completeness review ensures the application is complete and complies with administrative requirements. At the time of the review, Alberta Environment's database will be reviewed for complaints or other incidents that may have occurred after the application was sent to Alberta Environment. If minor deficiencies are found in applications submitted to Alberta Environment, the operator will be given 30 days to submit a corrected application. Incomplete or non-compliant applications will be refused. Where unresolved complaints are identified, the application will be classified as non-routine and reviewed as such.

- **Regulatory review** - A regulatory review may be conducted to determine if the application demonstrates that the soil and groundwater connected to the specified land is compliant with legislation, criteria, guidelines and policy. Applications can be refused if they are incomplete, contain inconsistent information, were not assessed for contamination where required, or are not compliant with the remediation guidelines or reclamation criteria without justification.

- **Audit** - Audits will be designed and conducted to verify compliance with legislation, criteria, guidelines and policy. Audit types include:
  1. **Surface Reclamation Field Audits** - includes a full file review and site visit to assess if the site is compliant with the 2010 *Wellsite Reclamation Certificate Criteria for Wellsites and Associated Facilities (2010)*. The assessment includes vegetation quality and quantity, soil quality and quantity, site topography/landscape, evidence of erosion, rocks, remaining facilities, visual indicators of contamination, and other parameters.
  2. **Sub-Surface Contamination Field Audits** – includes a full file review and site visit to conduct an electromagnetic survey and collect soil samples for laboratory analyses. At some sites, groundwater sampling may also be included.

**Cover letters**
The well name, ERCB licence number, public land disposition numbers (if applicable), and the status of the application (routine or non-routine) must be provided in the covering letter of the application. Any supplementary, additional information submitted should be indicated in the cover letter. This allows for an efficient review and direction of the application.
1.0 GENERAL INFORMATION

1.1 Company Information
The full, legal registered name of the company must be provided and will appear on the reclamation certificate.

1.2 ERCB Information
Energy Resources Conservation Board (ERCB) information must be complete.

1.3 Site Identification and Physical Location

1.3.1 Location of Site
Identify the site location including County, Municipal District, Improvement District, and Special Areas.

1.3.2 Complete Surface Legal Land Description(s)
The complete surface legal land description for the site must be provided. Include the surface location for the wellsite; access roads, remote sumps, landfarms, and any other associated facilities that are being certified as well as the downhole location, if applicable.

1.4 Site Jurisdictions
There are several jurisdictions within the province. Ensure the appropriate site jurisdiction box(es) are checked off on the application form. Types of jurisdictions and their application requirements are specified below.

Public land – Alberta Sustainable Resource Development

- Check public land box
- Provide disposition numbers
- Copies of applications to be given to occupant (grazing reserve or grazing lease holder)

**Note:** Do not send Public Lands and Forests district offices copies of the application package unless they are listed as the managers of the grazing reserve.

Private Land – Alberta Environment

- Check private land box
- Copy of the application given to landowner, designate, and occupant
- If site is located on Métis Settlement, the applicant must complete a registry search and maintain a record of contact and discussion with owners and occupants, as well as provide a copy of the application to the settlement office and the landowner/occupant.
Special Areas 2, 3 or 4 – Special Areas Board

- Public land
  - Check Special Areas box
  - Check public land box
  - Copies of applications given to Special Areas Board, and on public land to the occupant/community pasture

- Private land
  - Check Special Areas box
  - Check private land box
  - Copies of applications given to the landowner or designate.

Parks and protected areas – Alberta Tourism, Parks and Recreation

- Check parks and protected areas box

- To identify which category of protected area, check the Land Reference Manual at http://www.tpr.alberta.ca/parks/landreferencemanual/default.aspx

- Landowner copy of application provided to Alberta Tourism, Parks and Recreation, Parks and Protected Areas Division. Send application to: Parks Program Coordination Branch, 2nd Floor, Oxbridge Place, 9820-106 Street, Edmonton, AB T5K 2J6

If the site or some of the associated facilities are located on both public and private land, both public land and private land boxes must be checked and an explanation attached (e.g. wellsite on public land, but access road on private land). The access road will not be certified until the other department has certified the wellsite. This ensures legal access to the site is maintained until the site has been certified in case further work is required.

1.5 Activity Type

Activities covered under the upstream oil and gas program can fall under several categories, including:

- Prepared wellsite (not drilled) – These are wellsites where soil salvage and preparation for drilling is complete, but drilling at the site did not occur.

- D&A wellsite – Site which was drilled and abandoned (never put into production).

- Oil wellsite – Well which produces primarily liquid hydrocarbons from a pool or portion of a pool.¹

- Sweet gas wellsite – well producing natural gas that does not need to be purified to remove sulphur-bearing compounds such as hydrogen sulphide.

- Sour gas wellsite - well producing natural gas that contains measurable amounts of hydrogen sulphide (H₂S).

¹ Partial definition from the Oil and Gas Conservation Regulations
• Coal exploration program – a site used for coal exploration activities on public lands and are regulated under Alberta Environment code of practice “Code of Practice for Exploration Operations.”

• Oilsands exploration program – a site used for oilsands exploration activities on public lands and are regulated under Alberta Environment code of practice “Code of Practice for Exploration Operations.”

• Disposal well – Injection of fluids for purposes other than enhanced recovery or gas storage.

• Battery site – system or arrangement of tanks or other surface equipment, together with associated infrastructure, for receiving or holding the effluent of one or more wells.

It is possible that a well originally produced for one resource type may switch to production of another resource during its life (e.g. producing oil well from 1981 to 1986, producing gas well 1986 to 1988, injection well from 1988 to 1991). All the applicable activity types during the life of the well must be identified in the application form. If production on a well changes, all activity types conducted on the lease during the history of the well must be identified and a more detailed history should be provided in the Phase 1 section (attach additional pages as necessary).

For wellsites with no surface disturbance (surveyed only), a reclamation certificate is not required.

• “No surface disturbance” means the land has not been used in any way for “construction, operation or reclamation of a wellsites” as defined in the Conservation and Reclamation Regulation (i.e. the land has not been cleared or the soil has not been stripped, compacted, damaged or contaminated).

• If surface disturbance has not occurred, the site is not considered to be specified land and does not require a reclamation certificate.

Document the total area of land that is to be certified, in acres. The total area must include all associated facilities that are being certified in conjunction with the application. The acreage reported in this section should match the area outlined in yellow on the application form. On public lands, this acreage must be the acreage shown on the associated Mineral Surface leases (MSL) and Licenses of Occupation (LOC) where applicable.

1.6 Associated Facilities and Infrastructure

Any facilities and infrastructure associated with a wellsites require a reclamation certificate. These facilities and infrastructure must be included with the reclamation certificate application for the wellsites. Associated facilities and infrastructure may include, but are not limited to things such as:

2 ERCB Directive 65
3 Definition from the Conservation and Reclamation Regulation
Access roads
Temporary access roads
Temporary work space
Borrow site
Campsite
Remote sump
Remote cement returns pit
Log deck/storage area(s)
Land treatment area(s)

All associated facilities and infrastructure must be included in the application if the Reclamation Certificate is to include these areas. Single remote sumps and land treatment areas must be included in the application for the affiliated wellsite. Multi-well sumps must be tied to one of the wellsites that generated the drilling waste. Where an associated facility or infrastructure is being applied for, it is important to complete all applicable assessments at the associated facility. For example, a land treatment facility or a remote sump will require the same information and level of detail as a wellsite, including a Phase 1 Environmental Site Assessment (ESA) or Compliance Option checklist for drilling waste disposal, a detailed site assessment completed in accordance with the reclamation criteria, and a Phase 2 Environmental Site Assessment, where applicable. If imagery of the wellsite does not capture the associated facility, a separate image of the associated facility must be provided (e.g. aerial, satellite, etc. and site photos). See section 10.5, aerial or satellite imagery, for further information.

If the associated facility or infrastructure is located away from the wellsite and is not covered on the survey plan, a separate survey plan of the associated facility must be submitted. If a survey plan for the associated facility or infrastructure is not available, the following must be provided:

- A detailed and accurate drawing including facility or infrastructure dimensions;
- Distances in relation to the quarter section or legal boundaries, and other features such as roads, buildings, waterbodies, etc.; and,
- GPS co-ordinates (NAD 83 with latitude and longitude in full decimal degrees) of the facility or infrastructure to help locate the facility during assessments or audits. (Note: the GPS coordinates should be obtained at the time of the Phase 1 ESA site visit, or during the DSA if no Phase 1 ESA is required. Where the location is known, statements indicating the GPS co-ordinates are not available will not be accepted.)

**On public land**, all facilities or infrastructure approved through the Enhanced Approval Process and documented in Schedule D or historically documented in
the Environmental Field Report must be acknowledged in the application and assessed as required. Documentation indicating if the facilities or infrastructure were used and reclaimed, prepared but not drilled, or not used at all must be submitted in the application package.

To ensure operators have all available historical information about a site and its associated facilities and infrastructure, Alberta Sustainable Resource Development offers a search service of its files. **Note:** a fee may be charged for this service and it is strongly encouraged to request information well in advance. If you would like further information, refer to the following:

- **Sustainable Resource Development - Lands Forms**
  - [ID 2007-02 - Routine Disclosure of information Required to Obtain Reclamation Certificates for Upstream Oil & Gas Holdings](#)
  - [Request for Information Required to Reclaim Public Lands Form](#)

### 1.7 Stakeholders

#### 1.7.1 Applicant

The applicant’s name (operator) listed in the application must be the Registered Corporate Legal name and the registered holder of the public land disposition, if applicable. **Do not** use any abbreviations in the applicant’s name unless registered with the abbreviation. Ensure the contact information for direct correspondence is provided.

#### 1.7.2 Application Prepared By (Consultant)

The legal registered name of the consulting company must be provided. The consultant listed in this section does not necessarily have to be the same individual as the environmental professional that signs the Professional Declaration.

#### 1.7.3 Landowner(s)

On private land[^4], “landowner” refers to all parties listed on the registered land title. Operators must ensure the current landowner name(s), addresses and phone number(s) are provided. Land titles should be dated within the last 60 days at the time of submission to the Regulatory Approvals Centre. In some cases, a landowner may legally designate another party to act on their behalf. In the case where a life estate or absentee landowner is involved, documentation must demonstrate the relevant parties were contacted and the application package was sent to them. Should the operator be made aware of any changes to the land title after the application is submitted and prior to the reclamation certificate being issued, they must forward the new information to the Regulatory Approvals Centre.

[^4]: Private land means deeded or patented land, Special Areas Board land, Metis Settlements and provincial parks.
On public lands\(^5\) within Special Areas 2, 3, or 4, the landowner is considered the Special Areas Board and all other parties are considered the occupant.

On public land outside of the Special Areas, the landowner is the Crown, with the exception of sites located within a provincial park, wildland park, provincial recreational area, natural area or ecological reserve. In these cases, Alberta Tourism, Parks and Recreation Parks and Protected Areas Division, must be listed as the landowner and a copy of the application package must be forwarded to their office.

If the site is located on a Métis settlement, the applicant must complete a registry search and maintain a record of contact and discussion with owners and occupants, and provide a copy of the application to the settlement office and the landowner/occupant.

1.7.4 **Occupants**

On private land, the “occupant” typically refers to the person who is renting or working the land if they are not registered on title. On public land, “occupant” typically refers to the grazing leaseholder or grazing reserve. Forest Management Agreement holders and trappers are **not** considered occupants by public lands. On lands that are within the Special Areas 2, 3, or 4, the landowner is considered the Special Area Board and all other parties are considered the occupant. (An exception would be Parks and Protected Areas, for which Alberta Tourism, Parks and Recreation is the landowner.)

Operators should ensure the landowner (or a designate) or the occupant is interviewed, their concerns are addressed, and they have been sent a copy of the application package 30 days prior to submitting the application for certification. The current occupant’s name(s), address and phone number(s) must be provided in the application. If the operator is made aware of a change in occupant after the application is submitted and before the reclamation certificate is issued, the information must be submitted to the Regulatory Approvals Centre. On public land, **do not** send Public Lands and Forests district offices copies of the application package unless they are listed as the managers of the grazing reserve.

1.8 **Criteria Category Used**

Identify the reclamation criteria category used to assess the site (e.g. cultivated lands, native grasslands, forested lands, or peat lands). This does not refer to a change in end land use, just to the reclamation criteria by which the site was assessed or compared.

In some cases, operators may consider requesting a change from one reclamation criteria to another (e.g. from forested lands to cultivated lands.) Requests for changing the criteria by which the site is assessed or compared

---

\(^5\) Public land means land of the Crown in right of Alberta to which the Public Lands Act applies. This may include beds and shore of waterbodies anywhere in the province.
must be approved in advance by the regional inspector or public lands officer prior to submitting the reclamation certificate application. A copy of the written approval must be submitted with the application.

Operators must provide the following information to support the selection of an alternate land use criteria:

- Topography – relative to adjacent developed land
- Current forest type
- Adjacent land use – distance to cultivation, grassland, green area boundary
- Access – distance, topography, water issues
- Soil – A horizon, subsoil, texture, stoniness
- Climate class
- Agricultural capability class

Documentation demonstrating discussions with the landowner have taken place and the implications of this criteria use change have been explained to them must be included, along with signed acceptance of the criteria changes by the landowner/occupant. Such a change in criteria will require sign-off from the current landowner, parks officer, or public lands officer.

2.0 SITE INFORMATION

2.1 Overlapping Exemptions

Overlapping exemptions may be used in situations where there are two or more specified land activities on an area of land. For example:

- A pipeline through a wellsites or access road,
- Re-entry well where the lease area is slightly different; or,
- Overlapping wellsites leases.

An Overlapping Exemption Form is only required with an application for reclamation certificate when a portion of a lease is be excluded for a different operator's specified land activity. Do not submit the overlapping exemption form when the exempted area is being retained by the same operator. The applicant must clearly demonstrate the reason for retaining the area.

Applications for overlapping exemption from the same operator will be accepted by Alberta Environment for complete overlap situations. This is for the purpose of the Licensee Liability Rating program. The well being exempted must be surface abandoned and no application for reclamation certificate is required.

In most cases, activities of one operator should not adversely affect another operator. If no adverse impact has occurred, both operators may apply for a reclamation certificate after their respective sites have been assessed for
contamination, and if required, all contamination has been remediated, and sites meet the reclamation criteria.

Where overlapping activities have caused impacts that prevent the first operator from successfully reclaiming the site, the operator whose site has been impacted can apply for a reclamation certificate, which excludes the area impacted by the second operator. When the second operator abandons their well, they are responsible for obtaining a reclamation certificate on their site and the overlapping area.

The **Overlap Exemption Form** must be completed by both operators and accompany the reclamation certificate application for the remainder of the site. The form must include three copies of the survey plan that clearly shows the area excluded from the reclamation certificate application highlighted in yellow. When submitting the reclamation certificate application for the remainder of the site, ensure the survey plan accompanying the application outlines only the area to be certified in yellow. **DO NOT** include the area(s) exempted.

Please refer to the following information letters:

- **C&R/IL/97-4 Third Party Impact on Reclamation**
- **C&R/IL/97-6 Reclamation Certificates for Overlapping Activities**
- **C&R/IL/01-09 Certificate of Wellsite Reductions, Additions, Overlaps, Multi-Well Facilities and Forced Lease Boundary Changes**

**On public land**

Overlapping exemptions are primarily used when one company still holds a well licence on a public land disposition but has transferred the surface holding to another company. The second company must have its own well licence on the same surface holding. Because reclamation certificates are issued against the surface of the land, only the holder of the surface disposition can apply for the reclamation certificate. The first company holding the abandoned well licence has the option of either having its well licence added to the reclamation certificate application (if they know when or that it is being applied for) or they can use the overlapping exemption form to have the requirements for a reclamation certificate waived for their well licence.

On public land, every disposition is issued with a Letter of Authority allowing legal access to the land. Companies overlapping another activity already occurring on the land, such as a road or pipeline, are expected to obtain permission from the first company undertaking the activity. When a pipeline is crossing a wellsite, for example, Letters of Authority for each are also overlapping for the areas they share. So if a reclamation certificate is issued for the wellsite and the disposition is cancelled under the *Public Lands Act*, the overlapping activity (pipeline) will remain with its own legal access still in place.

### 2.2 End Land Use Change

Changes to the land use intended for a site after reclamation may occasionally occur. In some cases this may affect the amount and extent of reclamation
required. A detailed description of the change and the reasons for it should be included in the application. Although portions of the criteria may be relaxed, or exempted, it does not negate the initial responsibility to conserve during construction or operation of the site.

**Change in type of agricultural use:**

- Examples: Crop land to bale storage, corrals, barns etc.

- These types of changes must have occurred, prior to submission of application.

- Written release from the current landowner is required.

- Contamination must be remediated meet Alberta Environment’s remediation requirements to be compliant with the next or most stringent potential end land use.

**Change from agriculture to residential/commercial/industrial/natural areas**

- Contamination must be remediated to meet Alberta Environment’s remediation requirements with the next or most stringent potential end land use. Operators should check with the municipality if the site is in an area where zoning may change.

- Where a municipal zoning decision incorporates more than one land use scenario, the most conservative land use must be applied. In cases where a site is adjacent to a site with a more sensitive land use (for instance, a commercial site adjacent to a residential property), the more sensitive land use applies within 30 m of the boundary of the two sites for vapour inhalation and groundwater ecocontact pathways. See the Alberta Tier 1 guidelines for further information.

- Provide proof of zoning and bylaw changes

- A written release from the landowner will be required. Where the landowner intends to develop the site, items such as setback distances from well centre must be clearly explained to the landowner and accurately documented.

- Reclamation Certificates, or releases for end land use changes, do not absolve the last ERCB licensee (operator) from liability for contamination discovered at a later date, buried debris, or other issues associated with the operator’s or its predecessors activity on the specified land.

**On public land,** sometimes the use of specified land that would otherwise require a reclamation certificate under Alberta’s *Environmental Protection and Enforcement Act* can be assigned to another industrial user for which the reclamation requirements are set out under the *Public Lands Act*. This transfer of land is referred to as going from “specified land” to “non-specified” land. Once final reclamation has been completed, the new holder of the disposition receives a Letter of Clearance under the *Public Lands Act*.

The most common example of this is a road being transferred from an operator to a forestry company, usually the Forest Management Agreement (FMA) holder.
In these cases, the road is generally not reclaimed; a reclamation certificate is issued on the basis of “equivalent capability” with the understanding that the assignee will be responsible for final reclamation. The assignor submits an application for the reclamation certificate under the regular process. The application must include survey plans and the fee, the assignment documents, and an authorization from the appropriate Alberta Sustainable Resource Development district office allowing the reclamation certificate to be issued with improvements still in place or reclamation incomplete.

The assignment documents are processed and once the assignment is in place, the reclamation certificate is released to the operator. In rare circumstances, where the road is reclaimed, the company can waive the requirement for authorization from the field office. However, they must request the public land holding not be cancelled (as per the application) and state this in the covering letter as well.

2.3 Additional Certificates

There is the potential that other certificates (e.g., reclamation or remediation) may have been issued for the wellsite or associated facilities. Where this is the case, provide the certificate number and date in the application package. Alberta Environment’s Environmental Site Assessment Repository can be searched to determine whether Alberta Environment has previously issued a reclamation certificate for the site. For public land, inquiries can be made to Alberta Energy at CrownLandDataSupport@gov.ab.ca.

In the case where a previous reclamation certificate has been issued, the application should provide all required documentation and information for the area disturbed by the new activity. Any cumulative reclamation or remediation impacts due to the overlapping activities must be addressed in this application.

2.4 Non-oilfield Waste

Companies are encouraged to use existing facilities, such as municipal landfills, for disposal of non-oilfield waste; this includes things such as garbage and domestic wastes, cellulose material (e.g. trees, vegetation, etc) and inert debris such as concrete. Volume minimization, including reuse, recycling, and recover strategies should be used whenever possible.

Landowners and occupants must be contacted and a signed agreement (written approval) provided for burial of any material on lease.

Any known burial of non-oilfield material should be noted. C&R/IL/ 97-5 Burial of Material On Lease includes reference to other Alberta Environment and Alberta Energy Resources Conservation Board documents which must be complied with, prior to a reclamation certificate being issued.

Burial of brush and trees – Buried brush and trees may lead to decomposition, subsidence and generation of methane gas. On May 1, 1980 (Minimum Reclamation Standards for Patented Lands) and again in May 1982 (Minimum Reclamation Requirements for Public and Private Lands in Alberta) Alberta
Environment implemented requirements that all trees be salvaged or removed and disposed of by burning or other approved disposal methods. An exception will be made for remnants of burn piles. If there is a disagreement between parties as to whether or not trees or brush were buried onsite, the operator will be asked to provide a written declaration that brush and trees were not buried onsite.

**Storage of topsoil in pits** – Alberta Environment does not permit this method of storage, as it can affect the quality of topsoil and makes it difficult to track storage locations if the property is sold.

### 2.5 Facilities/Features to Remain in Place

Applications where facilities or features are remaining in place must be accompanied by a release signed by the appropriate parties. Releases are a form of written acknowledgement that the operator and landowner/occupant/land manager have agreed to leave an improvement on site. Inspectors, forest officers, public lands officers and parks staff may accept this agreement if the “improvements” are legitimate and logical. If the improvements are not legitimate or logical, or if they pose a potential environmental risk, the agreement will not be accepted and the site will not be certified. As noted in the [2010 Reclamation Criteria for Wellsites and Associated Facilities](#), access roads or pads left in place must be stable, non-hazardous and non-erosive. Refer to the most current criteria document for further information.

Landowner releases are intended for facilities/features remaining in place as improvements for landowner use (e.g., road grade not being reclaimed to allow continued access). It is important to note that a release cannot be used for:

- a) contaminated soil and groundwater that are not remediated or,
- b) areas that are not reclaimed and are not improvements for landowner use.

Applications submitted with these types of releases will be refused.

On private land, applications with facilities or features remaining in place must be accompanied by a release signed by **all** parties listed/registered on the land title. The survey plan attached to the release must indicate in red which portion is being released by the landowner(s). If a landowner/land manager or occupant does not want the facilities or features left in place, the site must be completely reclaimed. This also applies to situations prior to reclamation certification, where an operator has reclaimed the site and has a signed release from a landowner for facilities and features left in place and then the land is sold and the new landowner does not agree to sign the release.

On public land, there are different requirements depending on the type of remaining facility/feature. On public land, well pads, access roads and other permanent or semi-permanent features left in place must have a release from the local public lands officer as well as the occupant, if there is one. For land owned by the Special Areas Board, a release from the Board is required. Fences left in place need a release from the occupant only. Requirements for reclamation or
what can be left in place may vary between White and Green public land and cultivated vs. forested vs. peat areas. For land located with a provincial park, wildland park, provincial recreational area, natural area or ecological reserve, staff from Alberta Tourism Parks and Recreation, Parks and Protected Areas Division, must agree to the feature/facility remaining and sign the release.

**Release examples**

**Power lines** – Power lines are considered an associated facility and must be removed prior to certification. Where the line is required for other uses (e.g. another wellsite, another industrial activity, landowner, etc.) another party must obtain a surface lease/disposition for the line prior to certification. If the other activity involves specified land, an overlapping exemption form should be used. Operators should discuss responsibility for removal and reclamation of the lines with the electric utility company prior to applying for a reclamation certificate.

**Fences** – Fences in grazing areas are often left in place to allow vegetation establish. Applications where fences will be left in place must be accompanied by a signed release or agreement to remove the fence following certification of the site or they will be treated as incomplete and refused. Where fences are left in place until the reclamation certificate is issued, it is important for the operator to be aware that sustainability of the vegetation within a fenced area is always a concern. Though not a requirement, it is beneficial to ensure onsite vegetation can withstand the same grazing pressure as offsite controls. Once the fence is removed, if the vegetation growth does not sustain, the reclamation certificate will be cancelled.

**Note:** Special Areas Board – Occupants can release fences, however the Special Areas Board must release roads. This is similar to the process on public lands.

### 3.0 PARTIAL RECLAMATION (PUBLIC LANDS ONLY)

**On public land,** wellsites cannot be left without access, and accesses cannot be left “dead-ending” or no longer accessing a site. If access is still required, for example, to continue through a reclaimed wellsites and provide access to another wellsites, the road must be amended under the *Public Lands Act* to overlap the wellsites and show the access on a map, continuing to the new site. If the amendment has not been done at the time an application for certification on the wellsites is submitted, the reclamation certificate issued will be deemed a “partial” – issued on the two halves or portions of the wellsites excluding the area required for road access. The public land disposition will then remain active until the amendment that includes the remainder of the wellsites under the access road is completed.

There may also be cases where a wellsites is ready for certification but a portion of the access road is still in use or required by another company. If only a portion of the access road is required to remain in use, an amendment must be made under the *Public Lands Act* to separate the reclaimed portion of the road from the
portion still in use, creating two separate road licenses of occupation (LOC) holdings. The reclaimed portion of the road, under the original LOC, can then be certified with the well and the portion in use will not lead to a dead end.

4.0 CONTAMINATION INFORMATION

Reclamation certificate applications for all sites except prepared not drilled must include a completed Phase 1 Environmental Site Assessment (ESA) form provided in Schedule Two of the application package. Refer to section 10.0 on Phase 1 ESAs for content requirements. A Phase 2 ESA may be required as described below.

4.1 Environmental Site Assessment

Prepared not drilled

A Phase 1 ESA is not required for sites that were prepared but not drilled, log decks and borrow pits. For these types of sites only, the Phase 1 ESA may be excluded.

Phase 1 ESA – contamination unlikely

If there is enough information to indicate contamination is unlikely, no additional contamination assessments are required.

Phase 1 ESA – contamination likely

If contamination is suspected, a Phase 2 ESA must be conducted to determine if contamination is present, and if so, identify the substance(s), concentration, and horizontal and vertical extent of contamination. A brief description of what follow-up work was done on the site must be included (e.g. type of investigation, date of completion, remediation work completed, etc.). Detailed information should be provided in the Phase 2 ESA report submitted with the application. Phase 2 ESA guidance information has been provided in section 12 of this guide.

Phase 1 ESA – insufficient information

If there is insufficient information to conclude whether contamination is present or not, a Phase 2 ESA is required. In addition, if there are questions in the Phase 1 ESA form which cannot be answered, a Phase 2 ESA is required. Further record reviews may also be necessary to locate missing information. All potential information sources investigated must be identified and listed in the application.

Phase 2 ESA – contamination not present or compliant with Alberta Environment’s remediation requirements

If a Phase 2 ESA has been completed and the results indicate that contamination is not present, or the released substance(s) is compliant with Alberta Environment’s remediation requirements, remediation is not required. Ensure a Phase 2 ESA report with lab analytical data, borehole logs, and a map of sampling points is submitted with the application.
Phase 2 ESA – contamination present and remediation completed

If the results of a Phase 2 ESA indicate contamination is present above Alberta Environment's remediation guidelines, remediation is required. Refer to section 12 for additional information. When the application is submitted, you must ensure a Phase 2 ESA report with all required data is provided with a description of the remedial measures and confirmatory lab analytical data.

4.1.1 Confirmatory Sampling

Confirmatory sampling must be undertaken after remediation to show that the remediated area is compliant with Alberta Tier 1 and/or Tier 2 Guidelines. This data, if applicable, must be included in the application package, showing where the samples were taken from, and the associated lab data.

Where contaminated soil has been excavated, the floor and walls of the excavation site must be sampled prior to filling the excavation with clean soil. Samples must be collected from areas with the highest concentration of a substance. Separate samples must be taken from the floor and each wall and of the excavation. Samples must not be composited or combined. For large excavations, more than one sample from the floor and each wall may be required for adequate representation.

If it is determined the receiving soils are of a texture that may have allowed deeper penetration of contaminants, vertical sampling should be extended. Samples must be analyzed for all potential contaminants. Common contaminants include petroleum hydrocarbons (Fractions 1 to 4, benzene, toluene, ethyl benzene, xylenes (BTEX)), metals, salinity, and any other parameters that may have been released or disposed of at the site. Copies of the analytical laboratory data reports and a table of the analytical results must be provided to confirm remediation success.

Alberta Tier 1 Guidelines

The Alberta Tier 1 Soil and Groundwater Remediation Guidelines provide generic remediation objectives for five land uses: natural areas, agricultural, residential/parkland, commercial, and industrial. These guidelines can be applied at all sites except those that meet the conditions documented in Section 5.1.6 of the Tier 1 guidelines document. Guidance for choosing the appropriate Tier 1 guideline for a site is provided in the Tier 1 document.

Sites that were assessed prior to December 1, 2007 using the Alberta Soil and Water Quality Guidelines for Hydrocarbons at Upstream Oil and Gas Facilities (Volumes 1-3) (Alberta Environment 2001) are also eligible for a reclamation certificate.

Assessing Drilling Waste Disposa Areas: Compliance Options for Reclamation Certification (Alberta Environment 2009) include Tier 1 guidelines specifically developed for drilling waste disposal areas.
The Alberta Tier 1 Soil and Groundwater Remediation Guidelines include subsoil guidelines for petroleum hydrocarbon and BTEX. Directions for their application are found in Section 5.2.3 of the Tier 1 guidelines document.

**Alberta Tier 2 Guidelines**

Alberta’s framework for the management of contaminated sites allows operators whose sites do not meet Tier 1 guidelines to develop site-specific guidelines. Site specific conditions may allow for modification of Tier 1 guidelines, as described in the Alberta Tier 2 Soil and Groundwater Remediation Guidelines (Alberta Environment 2009, as amended) (Alberta Tier 2 guidelines). Three options can be applied under the Tier 2 approach:

a) Exclusion of an exposure pathway or exposure pathway-receptor that is not operating at a site.

Excluding an exposure pathway or exposure pathway-receptor must not lead to a requirement for land or water use restrictions. The pathways for potable groundwater protection, surface water supporting an aquatic ecosystem, groundwater used for irrigation water, and surface water for wildlife watering can be removed if they are not applicable. However, potential use of an aquifer for domestic use must always be considered regardless of the current use.

b) Adjustment of the Tier 1 guideline values using site-specific values.

The Tier 1 guideline that are derived from fate and transport modeling may be modified by substituting site-specific parameters for certain measurable and stable parameters. This option is only available for vapour inhalation and groundwater protection pathways. Adequate site data must be obtained to justify the adjusted parameters, and be representative of the requirements imposed by the model. In some instances, such as if petroleum hydrocarbons are released to a gravel floodplain, the site specific value may be more protective than Tier 1 generic values and, where this is the case, the lower value must be used.

c) Development of Tier 2 guidelines through a site-specific risk assessment.

Site-specific risk assessments are beyond the scope of the Alberta Tier 2 guidelines and should be conducted in consultation with Alberta Environment or Alberta Sustainable Resource Development.

d) Subsoil Salinity Tool

The Subsoil Salinity Tool (SST) is a software program for developing Tier 2 soil remediation guidelines for chloride-based salt contamination below the root zone. The SST can be used to define two levels of “generic” Tier 2 subsoil salinity guidelines (Tier 2A and Tier 2B) for application at salt contaminated sites. Minimum investigation requirements are associated with each level of Tier 2 guideline. Tier 2A requires a lower level of site characterization than Tier 2B and consequently is associated with the application of more conservative assumptions in the SST to address a lower level of knowledge regarding impacts and conditions at a site.
All SST Tier 2 guideline submissions must be accompanied by the name and certificate number of the person who prepared the submission, showing successful completion of the SST training course.

**Exposure management**

Wellsites and other upstream sites with ongoing exposure control (risk management) are not eligible for a reclamation certificate even with landowner consent.

### 4.1.2 Subsoil Guidelines

Surface soil guidelines for petroleum hydrocarbon fractions F1 to F4, benzene, toluene, ethylbenzene, and xylenes must be applied to a depth of 1.5 m. Subsoil guidelines for these substances may be used as follows:

- below 1.5 metre depth within 15 metres of the wellhead until June 30, 2007
- below 1.5 metre depth within 5 metres of the wellhead after July 1, 2007.

Further information is available in Section 5.2.3 of the Tier 1 guidelines document.

### 5.0 ROUTINE VS. NON-ROUTINE APPLICATIONS

**Routine applications:**

Routine applications will be reviewed to ensure they are complete, signed by the appropriate party and all required documents are attached to the appropriate schedule. This review includes a check for landowner complaints. There may be cases where a complaint is received after an application is submitted, but prior to being reviewed. These applications will become non-routine, and the applicant will be contacted. Routine applications will receive a reclamation certificate after passing a review for completeness. If minor deficiencies are found in applications submitted to Alberta Environment, the operator will be given 30 days to submit a corrected application. Applications that do not pass the completeness review will be refused.

**Non-routine applications:**

Non-routine applications will first be reviewed for completeness then undergo a regulatory review. The regulatory review will ensure the site is in compliance with all applicable remediation guidelines and reclamation criteria. The inspector will ensure all complaints related to the application are resolved to the satisfaction of the relevant department. Applications that pass both the completeness and regulatory review will receive a reclamation certificate. Applications will be refused if they do not pass the completeness or regulatory reviews because they are incomplete, inconsistent, or do not meet the reclamation criteria or remediation guidelines. There may be instances where a complaint is received after an application is submitted, but prior to being
reviewed. In these cases the applicant will be contacted. If some parameters do not pass, an application may still be submitted if it is accompanied by a defensible rationale, or justification, of why the site is eligible for certification.

**Application Flags:** If any of the questions in section 5 of the application are answered “yes”, the application will be processed as non-routine, and a regulatory review will be conducted prior to the issuance or refusal of the reclamation certificate.

1. Unresolved landowner complaint or complaint form submitted with the application. In responding to a complaint, a complete investigation will be undertaken to confirm the extent or degree of compliance with legislation, criteria, guidelines and policy. Operators are expected to make every necessary effort to resolve complaints. Where unresolved complaints are identified in relation to an application, the operator will be contacted and an assessment of the scope and nature of the complaint and actions required resolving the complaint will be undertaken. If the complaint is substantiated, and within Alberta Environment's or Alberta Sustainable Resource Development's jurisdiction, the application will be refused. The applicant will be required to complete the work to resolve the issue, and re-apply with the application fee.

2. Activity or associated facility meets appropriate reclamation criteria based on land use for landscape, soils and vegetation criteria with justification. If some parameters do not pass, an application may still be submitted if it is accompanied by a defensible rationale or justification, for why the site is eligible for certification. Justifications must be discussed with the regional inspector prior to conducting the assessment. Justifications and documentation of regional inspector communication(s) must be included in the application.

3. Any activity within the Parks and Protected Areas network as identified on the Land Reference Manual.

4. A Management Plan for sites constructed before 1983 was developed for this activity or facility.

Wellsite applications accompanied by a Management Plan will be considered non-routine and will be subject to a regulatory review by an inspector.

Management Plans are intended to be used for sites built prior to 1983 on cultivated lands or forested lands in the white area, where topsoil was not salvaged or where there is not currently enough topsoil to meet the depth requirement. Due to construction methods prior to the 1983 legislative requirement to conserve topsoil, a large number of wellsites were built to the standards of the time and now have very little or no salvaged surface soil for replacement. This does not relieve the operator from the responsibility to reclaim the wellsites.
The disturbed area should be reclaimed to a sustainable, manageable condition. This involves creating a plough zone or Ap horizon in cultivated lands, or a suitable surface soil zone for forested lands in the white area. A sustainable condition means the landowner/occupant can work the site, seed it and harvest it at the same time as the rest of the field using the same equipment. Essentially, the site will be left in such a condition that it is not an obstacle to normal farming methods practiced. Crop yields may not be equivalent to the rest of the field, however the site should have enough vegetation to ensure erosion is not a concern.

The established reclamation criteria should be followed by applying applicable components. If surface soil is available it must be used. The physical aspects of the landscape criteria must be met. Every reasonable attempt must be made to reach the minimum soil quality and quantity criteria required for the site. Vegetation must be sustainable.

The operator must ensure the landowner/occupant agrees with the Management Plan that has been developed. Inspector approval is not required for the Management Plan prior to the submission of a reclamation certificate application.

The operator must include a copy of the site Management Plan submitted as part of the certificate application package. Operators are encouraged to maintain records of all the steps taken during the development and implementation of the Management Plan to support the application.

5. Subsoil criteria for hydrocarbon contamination was used to address hydrocarbon contamination left in place on site; below three metre depth or as follows:
   - below 1.5 metre depth within 15 metres of the wellhead until June 30, 2007
   - below 1.5 metre depth within 5 metres of the wellhead after July 1, 2007.

Stratified remediation using subsoil criteria for petroleum hydrocarbons can be used at 1.5 metres below ground surface within a 15 metre radius of the wellhead for sites remediated up to June 30, 2007. After July 1, 2007, stratified remediation can be used below 1.5 metres depth within 5.0 metres from the wellhead. Stratified remediation can be used 3.0 metres below ground surface anywhere on the site. If stratified remediation is used, the appropriate box on the application form must be checked. Use of stratified remediation will be documented on the reclamation certificate. Stratified remediation can only be used with petroleum hydrocarbons (Fractions 1 to 4 and BTEX).

6. Coal exploration wells are drilled to investigate a coal resource.

7. Oilsands exploration wells are drilled to investigate the an oilsands resource.
8. A reclamation certificate for this site was previously refused.
9. A reclamation certificate was issued for the site and then cancelled.

6.0 PROFESSIONAL ASSURANCE
Provide the required information for each of the assessments conducted on the site. Any work completed after January 1, 2008, must be signed off by a member of one of the professional regulatory organizations outlined in the professional declaration requirements fact sheet (R&R/10-01). Failure to meet the requirements specified in the fact sheet will result in refusal of the application. A separate Professional Declaration form must be used for each report. Separate Professional Declaration forms are also required for landscape, vegetation and soil assessments.

7.0 APPLICATION DECLARATION
Ensure all blanks in the declaration have been filled in and a representative of the operator has signed the declaration. The agent/consultant cannot sign on the company’s behalf. Operators are ultimately responsible for their sites and, as such, are expected to review applications made on their behalf.

8.0 APPLICATION SUBMISSION
A complete application package must be submitted and include the following, in order:
- Cover letter
- Application form
- Schedules One through Five as applicable to the site location (see the following sections for the contents of each schedule).

In addition to the reclamation certificate application form, there are a number of additional documents that must be submitted with the application package. These documents must be in the same email as the application and attached as separate documents. The naming convention of these documents must be reflective of the appropriate schedule the document is a requirement of (i.e. Schedule 1, Schedule 2, Schedule 3, Schedule 4 and Schedule 5).

Attachments must be submitted as PDF files, no security applied to the file, electronic signature(s) and last modification(s) are in the file and use the option Reduce File Size.

Incomplete applications may be returned and a new application form and fee will be required.

Unless otherwise stated, the requirements for submission are the same for both public and private land.
Submission on Private Lands: The application must be submitted by email to RAC.environment@gov.ab.ca, please indicate “Reclamation Application” in the subject of the e-mail.

A payment must be submitted. Methods of application fee submission are by cheque (made payable to the Minister of Finance), Visa or MasterCard.

Submissions on Public Lands: On-line application submissions on public lands through their existing online Electronic Disposition System are mandatory unless pre-approval from the Alberta Sustainable Resources and Development (ASRD) Reclamation Unit is received prior to submission. Clients will need to obtain a Government of Alberta account and password in order to access this system. More information on this system is available at: http://srd.alberta.ca/MapsFormsPublications/Forms/LandsForms/Default.aspx

Landowner Contact

Operators must ensure all affected parties (landowners or designates on private land and occupants on public land) have been sent an identical copy of the application package submitted to Alberta Environment or Alberta Sustainable Resource Development, prior to its submission. Operators must also ensure Alberta Environment’s Acknowledgement of Information Disclosure Form and Upstream Oil and Gas Facility Complaint Form is provided to the landowner and occupant (if applicable) with the above information. An application is considered incomplete if there is no indication the landowner/occupant was contacted prior to the application or if they do not receive a copy of the application.

The material can be either hand delivered or mailed to the affected parties. Alberta Environment strongly encourages operators to meet with landowners/occupants in person to explain the entire package contents. This process improves communications between operators and landowners and allows landowners to better understand the work done on their land.

9.0 SCHEDULE ONE - ATTACHMENTS

Schedule One must include the following information:

- Land titles (private land only)
- Special Areas Board searches
- Survey plan
- Acknowledgement of Information Disclosure (if voluntarily signed by the landowner or occupant) or proof that the application package was sent to the landowner(s)
- Complaint form
- Releases and agreements
- Overlapping exemptions (if applicable)
Other certificate information, for those issued on the land that is the subject of the application

Criteria change authorization

Land use change documentation

Survey Plans

**Private land** – In addition to the copy of the survey plan listed above, provide a minimum of four additional copies of the survey plans with the area to be certified outlined in yellow. Ensure enough copies of the survey plans are provided to allow one copy for each registered owner and occupant. Attach additional copies as necessary.

**Public land** – one copy of the survey plan is needed per disposition (i.e. one survey showing the mineral surface lease (MSL) in yellow and another survey showing the licenses of occupation (LOC) in yellow, if the road is under a separate disposition. However, if the MSL includes both the wellsite and access road, then only one survey plan is required.

Acknowledgement of Information Disclosure Form

An [Acknowledgement of Information Disclosure Form](#) can be voluntarily signed by all affected parties (registered landowner(s) or designate or occupant), and be submitted with the reclamation certificate application. If the landowner or occupant does not sign the form, or if the form was not returned to the operator within 30 days of receipt, the operator should document this in the file. If the landowner or occupant does not sign the Acknowledgement of Information Disclosure Form, the applicant must provide proof (e.g. delivery receipt) that the application was provided to them.

**NOTE:** On public land, the form can be signed by the grazing reserve or grazing leaseholder. Do not send it to Alberta Sustainable Resource Development district offices. In some cases, such as Special Areas land or public land, occupants must also be notified.

**Releases and Agreements**

A release is required for a land use change and for any facilities or features that will remain in place. A signed agreement is required for the burial of material on the lease.

**10.0 SCHEDULE TWO – PHASE 1 ENVIRONMENTAL SITE ASSESSMENT**

A Phase 1 Environmental Site Assessment (ESA) is mandatory for all sites. The goal of the Phase 1 ESA is to gather a sufficient amount of information to estimate the likelihood that contamination may be present and whether a Phase 2 ESA is required. If there is insufficient information to complete the Phase 1 ESA and determine if contamination is present, a Phase 2 ESA is required.

A complete and adequate Phase 1 ESA should either:
• Provide reassurance the application is complete without a Phase 2 ESA because contamination is unlikely; or
• Provide information that can direct a Phase 2 ESA or remedial activities at the site.

It is important the information required to complete a Phase 1 ESA be gathered at appropriate times in the life cycle of the site to ensure the ability to provide complete and adequate site information. During the life of a lease site, several milestone events occur that may inhibit assessment of indicators such as surface staining from hydrocarbon spills, crusting from salts, etc. When activities such as soil replacement and building removal are occurring, documentation of the condition of the surface prior to completion of the activity is highly recommended. This is to ensure the information regarding the presence or absence of contamination on the site is available.

For sites that were constructed using minimum disturbance practices on grasslands and native prairie, and there was no drilling waste was disposed on site, a Phase 1 ESA should be conducted following abandonment prior to final reclamation. If the Phase 1 ESA is not undertaken until after final reclamation, the Phase 1 ESA site visit can be completed at the same time as the detailed site assessment.

An Operations Phase Site Sketch is required with all applications and a Construction Phase Site Sketch is required for all sites built since 1994. If accurate sketches cannot be created from company records, Phase 1 ESA site visits or aerial photos, efforts should be made to indicate the possible location of onsite facilities for the purposes of the Phase 2 ESA. Sketches must illustrate the features, facilities, infrastructure and any spill locations on the site.

A Professional Declaration Form must be signed and attached for work completed after January 1, 2008. Alberta Environment will refuse any reclamation certificate applications that do not strictly adhere to Alberta Environments’ professional declaration requirements, as outlined in R&R/10-01 Professional Declaration Requirements.

10.1 Previously Refused Applications and Cancelled Certificates

List all applications that were refused and any cancelled reclamation certificates. Operators must provide detailed information in the new application, on how the deficiencies noted in the previous application were corrected. The application must provide detailed information on the work conducted at the site, results of site assessments or any further documentation sources reviewed.

Operators must exercise due diligence in finding the appropriate files and checking with all available information sources. Alberta Environment’s Environmental Site Assessment Repository can be searched to determine whether Alberta Environment has previously issued a reclamation certificate for the site. For public land, inquiries can be made to Alberta Energy at CrownLandDataSupport@gov.ab.ca.
If a previously submitted application was deficient or contained contradictory information, the operator must ensure these issues are addressed in the new application. If deficiencies are found in the new application, or contradictory information between the current and previous applications is noted, the new application may be refused.

10.2 Drilling information

Company well files should be consulted for drilling information. Tour reports are another source of information on drilling activities and products and can be obtained from the ERCB’s Core Research Centre. (See Appendix A for contact information.)

10.2.1 Re-entry of a Well or Site Re-drilled

If an application is for a previously certified site, provide the reclamation certificate number and the date certified.

Whether or not a reclamation certificate has been issued, the current ERCB licensee on a re-entered well is responsible for remediation and reclamation of the lease, including impacts from previous activities such as drilling waste disposal, flare pits, spills, etc. Please note that this liability extends to off-lease impacts associated with the operation of the re-entered well. Where a second well is drilled on the same site by a different operator, the operator applying for a reclamation certificate must show that the entire site included in the application, including any areas impacted from the previous well, have been assessed and remediated, if necessary. Consequently, it is strongly recommended that an operator conduct an environmental site assessment prior to re-entering a well or re-drilling a site to determine if contamination is present from previous operations. All environmental site assessments should be listed in the Phase 1 ESA.

10.2.2 Drilling Waste Disposal Information

Drilling waste disposal method(s) and location: Disposal methods and locations for all drilling wastes associated with the drilling of the site must be provided. It is recognized that on older sites, where legislation was not in place for recording drilling waste disposal, the location of drilling waste disposal may be unknown. Operators are expected to exhaust all reasonable avenues to locate the disposal area. Where more than one disposal method or location was used, ensure detailed information is provided for each. All on-lease waste disposal locations should be shown on the appropriate construction or production phase site sketches.

A Phase 2 ESA is required under the following scenarios:

- if the drilling waste disposal method or location cannot be determined, and the Compliance Option Checklist cannot be completed, OR
• the Compliance Option Checklist indicates a Phase 2 ESA is required.

Phase 2 ESA information must be included in the application.

**On-lease sump:** Provide information regarding the location of the sump area on the lease using GPS co-ordinates, if available, and the sump dimensions, including sump depth and cover depth. This information must be provided in cases where off-lease methods were used, but other drilling waste materials (e.g. shale, cuttings, cement returns) in excess of 50 m³ were disposed of on the lease. All on-lease disposal locations must be shown on lease diagrams. If this information cannot be obtained and the Compliance Option Checklist cannot be completed or indicates a Phase 2 ESA is required, the Phase 2 ESA must be included in the application.

**Remote sump:** Provide all information as for an on-lease sump. If the sump has been previously certified with another wellsite, provide the certificate number and date of certification. On public land, provide only the disposition number (MSL) that the sump was certified under. If the remote sump is not being applied for at this time, provide the legal land location, ERCB licence number, and disposition number for the wellsite that the sump will be certified with. On public land, authorization from the public lands or forest officer is required to attach an associated facility (e.g. remote sump), to an unrelated well.

**No drilling waste disposed on site:** There may be cases where the drilling waste was not disposed on site, for example, a sump was constructed but not used, the waste was completely disposed by landspraying, landspray while drilling, pump-off, or at an approved waste management facility. If this was the case, provide detailed information on the disposal method or evidence that the waste was tanked and disposed of at a waste management facility. For example, list the waste manifest numbers in the Reference Document section of the Compliance Option checklist.

**Drilling mud (type, volume):** Ensure the volumes and types of all waste are provided, and the information is consistent with the ERCB’s Directive 50 Notification of Drilling Waste Disposal form or other documents. Ensure any conflicting information is explained.

**Drilling waste disposal method(s) and location:** Disposal methods and locations for all drilling waste associated with drilling of the site must be provided. If more than one disposal method or location was used, ensure detailed information is provided for each, (e.g. landspray fluids while drilling, solids, shale cuttings and cement returns disposed of on-lease land in the sump via mix-bury-cover (MBC)). All on-lease waste disposal locations should be shown on the appropriate construction or production phase site sketches. If the Compliance Option Checklist cannot be completed or indicates that a Phase 2 ESA is required and the waste disposal location is unknown, all reasonable efforts must be made to assess potential disposal locations on the lease.
Drilling waste disposal options

As per Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification, (AENV 2009), ensure all required information is provided with the application.

When completing this section you will also need to complete and submit the following forms:

FORM: Assessing Drilling Waste Disposal Areas - Checklist for Compliance Options 1 and 2
FORM: Assessing Drilling Waste Disposal Areas - Calculation Tables for Compliance Options 1 and 2

Clarification - Compliance checklists

The information below is provided in an effort to prevent common application errors that Alberta Environment has observed while reviewing previous application checklists.

- Directive 50 Equivalent Salinity Guidelines in the Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification (Alberta Environment 2009) document is restricted to drilling waste disposal areas. The rest of the site must meet the Alberta Tier 1 and 2 guidelines. Other contaminants in the drilling waste disposal areas, such as hydrocarbons and metals, must meet the Alberta Tier 1 and 2 guidelines

- Landspray While Drilling (LWD) – For sites using Compliance Option 1, if drilling waste has been disposed by landspray-while-drilling, and greater than 50 m$^3$ cuttings have been disposed of on site, the Compliance Option One Checklist must be completed. If drilling waste material has been disposed off-lease and less than 50 m$^3$ cuttings have been disposed of on site, only Sections 1.0 to 1.3 of the Compliance Option Checklist should be completed.

10.3 Production, Storage and Environmental Information

10.3.1 Current and/or Historical Infrastructure

List all infrastructure associated with the facility since the initial disturbance. Guidance on potential sources of contamination and possible contaminants that may be associated with specific infrastructure is contained in the Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites. The list is comprehensive for most sites; however, some sources and types of contamination may not be listed.

Ensure associated facilities are indicated on a site sketch. Note any infrastructure remaining (e.g. access roads) along with appropriate releases.
10.3.2 Flare Pits

Indicate if a drilling or production flare pit was used on the site. This information should also be shown on the construction or operations phase site sketch where locations are known. If a flare pit was built but not used, confirmatory sampling from the flare pit area is not required. If flare tanks were used, confirmatory sampling is not required, unless spillage from the tank is known to have occurred.

10.3.3 Storage Tanks

Indicate if above or below ground storage tanks were used on the site and their contents. The location of the tank(s), if known, must be documented on the applicable construction or operation phase site sketch.

Above ground storage tanks that contained hydrocarbons require a Phase 2 ESA if surficial staining is present. If the tank stored produced water a Phase 2 ESA is required.

If a consultant was present during the removal of an underground storage tank that contained only hydrocarbons and there was no evidence of staining, this information should be submitted with the reclamation certificate application. If staining or other indicators of a release were observed, a Phase 2 ESA is required in the tank area.

If the underground storage tank contained produced water, a Phase 2 ESA is required, even if a consultant was present during the tank removal.

If an environmental consultant was not present when the underground storage tank was removed, a Phase 2 ESA is required to determine if spills or releases occurred.

10.3.4 Fluid disposal

The fluid disposal method used, if applicable, must be stated. If fluid was piped or trucked to or from the site, spills or releases may have occurred. Pipeline releases associated with the wellsite lease must be remediated and confirmatory sampling analyses data included in the application. (Refer to section 10.3.6 for additional information.)

10.3.5 Other facilities or Infrastructure

Any other facilities or infrastructure remaining onsite, such as waste storage, handling, chemical storage, buried pits, landfills, etc., must be included in the application. Indicate the location of these facilities on the Construction/Operation Phase site sketch.

10.3.6 Spills and Releases

This section is intended to provide a complete history of spills and releases associated with the site. Onsite and offsite spills and releases associated with the area being applied for must be remediated and reclaimed. This includes
spills and releases from associated facilities such as remote sumps, pipelines, etc. Releases that have migrated offsite from the lease or an associated facility must be remediated. Complete documentation must be provided to show spills and releases have been remediated to meet the Alberta Tier 1 or 2 guidelines. Searches of company files and Energy Resources Conservation Board spills and releases database must be conducted.

For each spill or release, the following must be documented and submitted:

- **Date (d/m/y):** Provide the date of the spill or release. If unknown, or where historical or cumulative contamination was identified, provide the date it was identified.

- **Reference or incident numbers:** Where applicable, the Alberta Environment reference number (typically six digits), and/or the Energy Resources Conservation Board incident number (e.g. 20041956), should be provided along with copies of all related correspondence and documentation. Alberta Environment and/or Energy Resources Conservation Board incident numbers are provided to the party reporting the spill or release, at the time a spill is reported. Although it is preferable to have these numbers, applications will not be refused if they are unavailable. It is not necessary to contact Alberta Environment or the Energy Resources Conservation Board for these numbers. Company records will be the best source. The most important information is clear detail on the spill or release.

- **Type:** Provide information on the type of spill or release that occurred, e.g. release from above ground storage tank or pipeline release, pipeline depth 1.2 metres, etc.

- **Product and volume (spilled and recovered):** Ensure the product type, and volume of material spilled and recovered is provided, e.g. 100 m$^3$ release of crude oil, 98 m$^3$ free product recovered.

- **Diagram:** Where spills and releases have been identified, a schematic diagram, showing all spill or release locations must be provided. The diagram should include:
  - exact location(s) of spill or release with legal land description and GPS coordinates, if possible, showing the size and extent of the spill
  - locations where soil and water sampling was completed
  - survey for lease showing lease boundaries, facilities, pipelines, etc.
  - location and distance of surface and groundwater receptors from spill or release

Where information is not available, it is expected a reasonable level of assessment will be conducted to ensure spills or releases meet Alberta Environment’s remediation requirements.
10.3.7 Previous Environmental Site Assessments

Any previous site assessments of a property should be documented in this section. If there have been any previous environmental site assessments conducted on the site, provide the consulting company and consultant’s name, report title, report date, and a summary of the report findings.

In some cases, company files may not be available. However, due diligence must be exercised in searching for the appropriate files and checking all available information sources.

10.4 Phase 1 Environmental Site Assessment Site Visit

The Phase 1 ESA involves the collection of information about past activities or events that may have resulted in contamination on a property. This includes a site visit to identify visible evidence of contamination sources or actual contamination and establishing the need for a Phase 2 ESA. This site visit must be conducted prior to soil replacement during reclamation. No intrusive sampling of soil or water is conducted during the Phase 1 ESA.

For additional information on conducting a Phase 1 ESA refer to the Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites.

- **Date (d/m/y):** The date on which the Phase 1 ESA site visit was conducted
- **Assessor:** The person who conducted the site visit and their employer’s name.
- **Surrounding land use:** State the land use surrounding the site in all four directions.
- **Topography:** Describe the topography across the site. Include any topographical changes that may occur and the relation to off lease areas.
- **Vegetation:** List the type of vegetation and plant species on the site and the surrounding area.
- **Proximity to neighbouring features:** Features such as residences, water wells, surface waterbodies (ponds, streams, rivers) must be listed with distances from the lease provided. The Groundwater Information Centre website has a list of water wells registered in Alberta (see Appendix A for contact information).
- **Visual indicators:** Document the type of facility present, its size and location on the operations phase site sketch. Onsite equipment or tanks, along with visual signs of former facilities, or open or buried earthen pits may indicate potential contamination sources.
- **Evidence of past spills:** Provide information on any visual indicators of contamination identified during the Phase 1 ESA site visit. Indicators may include staining, presence of crusted soils (indicating salt spills), changes in soil characteristics, slumping, depression areas, etc. Areas where contamination is suspected require a Phase 2 ESA.
• **Adjacent land affected by operations on the site:** Any operational off lease impacts originating from the site must be noted in this section. This may include spills that extended off lease, off lease vegetation impacts, rutting, and water ponding. Detailed information should be recorded during the site visit identifying the type of impact, the potential cause, area affected, etc. If any offsite impacts are identified, details of the remedial measures must be provided. All available, relevant information including incident reporting, seven day letters, etc., must be included with the application.

• **Vegetation stress:** Provide the location of any stressed vegetation and size of the impacted area. Visual indicators of vegetation stress include bare soil or indicator plant species such as kochia or fox tail barley, which are typically associated with saline soils. A Phase 2 ESA must be conducted in these areas if contamination is suspected.

• **Noxious or restricted weeds:** If weeds are present on the site, document the species, location, and number. Assessors must be familiar with the species of concern in the municipality they are working in. Some local authorities have raised individual species from one category to another. Assessors are encouraged to talk to the local weed inspector. All restricted weeds must be eliminated and noxious or nuisance weeds must be controlled at or below the density in the control fields.

Public land managers may also have specific restrictions on species (e.g. downy brome and crested wheat grass on native prairie). Operators are encouraged to contact the public land manager regarding weed management and legislated requirements under the Weed Act, Public Lands Act and Special Areas conditions (Special Areas Act). Refer to R&R/03-4 Weeds on Industrial Sites for additional information.

• **Conflicting information:** The site visit should confirm/validate the findings from the file or imagery review. If conflicting information is found, it must be indicated and clearly explained. If conflicting information is not explained, or the conflict may have the potential to affect equivalent capability, the application may be refused.

• **Photographs:** Photographs taken during the Phase 1 ESA site visit must be included in the application. The Phase 1 ESA site visit must be conducted prior to reclamation.

  A brief description of the image at the bottom of each photograph must include the following:

  • Date of photograph
  • Where it was taken from
  • Orientation of image (northwest, southeast, etc.) and
  • Description of image.
10.5 Aerial and Satellite Imagery Review

Review of aerial or satellite imagery can provide a visual chronological history of activities that occurred at a site when viewed at an appropriate scale. Imagery can provide valuable information about a site, especially when the company documentation is not available or incomplete. Information about the site such as location of facilities and features, sumps and flare pits, spills and clean up can be obtained. If the results of the Phase 1 ESA indicate contamination is likely, imagery can be used to develop a soil sampling plan.

Submissions of aerial photographs or satellite photographs that provide sufficient detail are required with the reclamation certificate application. Ensure all information is provided on the application form including the date the imagery was reviewed, the name of the reviewer, photo identification, year, scale and observations.

Where to obtain imagery

There are several sources of imagery that should be reviewed for information. Alberta Sustainable Resource Development includes Air Photo Distribution, which has aerial photographs of the province from 1949. Areas throughout the province have been photographed at various frequencies since that time and are held in the collection. The photographs are catalogued and can be viewed at the Air Photo Distribution Centre. For more information on products, costs or to order aerial photographs contact Air Photo Distribution Centre. Contact information can be found in Appendix A.

In cases where aerial photographs are not available, other imagery sources such as satellite imagery or overview photographs taken from an elevated height may be acceptable.

Size required

Imagery must be obtained at a scale of 1:5000 or 1:7500 to show details of the site. Aerial photographs obtained from Air Photo Distribution are generally taken at a scale of 1:30,000. However, Air Photo Distribution can make enlargements from contact prints to provide site detail.

Imagery required

- **Producing wells and batteries:** The chronological history of the site from pre-disturbance to post-abandonment is required. In order to show changes to the site, images taken every two to three years while the site was producing are required. Review of imagery taken during the producing phase of a wellsite allows features that may be associated with contamination to be identified, even if they were not included in the file review e.g. above ground storage tanks. One pre-disturbance and one post-abandonment image are also required.

- **Drilled and abandoned wells:** One image of the site while it was being drilled is required, if available. If images of the active site are not available, pre-disturbance and post-abandonment images are required.
• **Batteries, satellites, and other associated facilities:** Images of the site prior to disturbance, during operations and post-abandonment are required.

**Imagery information**

Original or high quality scanned imagery must be provided. Applications with poor quality imagery will be refused. The submitted imagery must have the following information documented directly on the image or on clear overlay:

- Lease location
- Identification of all visible features, and
- Areas of potential contamination e.g. possible sump, flare pit, etc.

**10.6 Interviews – Phase 1 Environmental Site Assessment**

All persons who may have knowledge about the operating site must be contacted during the interview stage as part of the applicant’s due diligence. This includes the operator, landowner, and occupant. Absentee landowners or their designate should be also contacted. Information regarding site history, location of facilities/structures, site spills, etc. can often be obtained only through interviews. In some cases, a landowner/occupant is the only knowledgeable source of events that occurred on the site or where facilities were located. An application is considered incomplete if there is no indication the landowner was contacted during the Phase 1 ESA.

Several attempts should be made to contact the landowner, their designate or an occupant, and each attempt should be documented. A single unanswered phone call is not sufficient. If the landowner or occupant cannot be contacted after several attempts, proof of reasonable attempts by the operator including the dates, time and method(s) used (phone, email, letter, in person, etc.) must be provided. **Note:** On public land, the local Alberta Sustainable Resource Development office is considered the landowner and its files can be accessed by using the Request for Information Form. This form must be submitted to Alberta Sustainable Resource Development head office for review prior to contacting the local district office. Within the Special Areas, the Special Areas Board is the landowner with the exception of provincial park, wildland park, provincial recreational area, natural area or ecological reserve, for which Alberta Tourism, Parks and Recreation is the landowner.

If a landowner/occupant has a concern or complaint regarding the site, it must be investigated and addressed prior to submission of the application. The concern or complaint and the operator’s response must be documented in the application. Applications that do not indicate the landowner’s or occupant’s concerns or complaints were addressed will be refused. Please also see section 5.0 regarding unresolved complaints.
10.7 Conclusion and Recommendations

Indicate if the Phase 1 ESA information is sufficient to provide a conclusion about the presence of contamination and if Phase 2 ESA or remediation is required as follow-up work.

11.0 SCHEDULE THREE – DRILLING WASTE

Schedule Three must include the following information:

- Drilling waste disposal documentation e.g. Directive 50 Notification, tour reports or daily drilling records
- Assessing Drilling Waste Disposal Compliance Option Checklist
- Assessing Drilling Waste Disposal Compliance Option Calculations
- Professional Declaration Form for all work completed after January 1, 2008.

Drilling waste disposal areas must be assessed as described in Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification and the appropriate Compliance Option Checklist and documentation provided in the application. Ensure all documentation is legible and the reports are for the correct well location.

Assessing drilling waste disposal areas

A Compliance Option Checklist must be completed for all wellsites except those that were prepared but not drilled. If all drilling waste was managed at an Alberta Environment or Energy Resources Conservation Board approved waste management facility, or by landspraying or landspray-while-drilling as indicated in the Notification of Drilling Waste Disposal form at a specified location, complete sections 1.0 to 1.3 of the Compliance Option 1 checklist.

If the drilling waste was disposed in a remote sump or land treatment area offsite, completion of a Compliance Option Checklist is required if the remote sump or land treatment area is part of the application. Remote sumps and land treatment areas are specified land and require a reclamation certificate.

A Phase 2 ESA of the drilling waste disposal area may be needed if there is insufficient information to complete the Compliance Option Checklists or the response to a checklist question indicates a Phase 2 ESA is required.

The appropriate calculation table must be submitted in the application. The calculations required are dependent on the types of additives listed in the Directive 50 notification, daily drilling, or tour reports. There are calculation tables for salts and additives such as barite, zinc carbonate, chromium-based thinners, and hydrocarbons. A separate calculation table has been developed for drill stem test (DST) returns.

Refer to section 10.2 and Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification (Alberta Environment 2009) for further information.
12.0 SCHEDULE FOUR– PHASE 2 ENVIRONMENTAL SITE ASSESSMENT

This information provides general guidance on Phase 2 Environmental Site Assessment (ESA) requirements for wellsites and associated facilities. Alberta Environment defines a Phase 2 ESA report as a document that provides information on the initial intrusive site investigation through to confirmatory data analysis. General guidance on conducting a Phase 2 ESA is available from the Canadian Standards Association (Publication No. Z769-00). Remediation closure reports may also be included as confirmatory data analysis as a separate document from the Phase 2 ESA report.

A Phase 2 ESA requires knowledge of oil and gas operations, an understanding of what contaminants may be present, their fate and transport, and experience in undertaking soil and groundwater contamination assessments. Site assessments must be carried out under the supervision of a professional. It is expected operators will comply with current regulatory requirements and the Alberta Tier 1 and 2 guidelines.

A completed Phase 2 ESA meets three objectives:

- Determines if contamination is present,
- Identifies the degree and horizontal and vertical extent of contamination prior to remediation and,
- Provides post-remediation confirmation of soil and groundwater quality.

When to provide a Phase 2 ESA

A Phase 2 ESA report must be provided if any of the following applies:

- There was insufficient information to determine the likelihood of contamination from the results of the Phase 1 ESA, e.g. “unknowns” or unanswered questions, etc.
- The Phase 1 ESA indicated there was a likelihood of contamination at the site.
- There was known contamination at the site.

If a Phase 2 ESA is not completed when required, the application will be refused.

Phase 2 Environmental Site Assessment information

This section provides information on the minimal requirements to be included in a Phase 2 ESA. Before undertaking the assessment, check for updated Phase 2 ESA information on Alberta Environment’s publication webpage as reclamation certificate applications must be compliant with current requirements.

A Phase 2 ESA and/or Remediation Closure Report must be compliant with Alberta’s remediation requirements as described in the Alberta Tier 1 guidelines or Alberta Tier 2 guidelines and must include:
Site information including drainage (surficial and internal), slope and slope position.

Site facilities or spill areas that may be contaminated. It must address all areas identified in the Phase 1 ESA, and any spill areas associated with the area covered by the application, both on and off lease.

Details of the investigation of the site, including exact locations from which samples were collected.

Sampling increments.

Borehole logs.

The lateral and vertical extent of the contamination, if present.

A site map or aerial photograph of the site indicating borehole locations and possible sumps, pits, wellbore location(s) and other facilities.

Depth to water table.

A table of lab analytical data highlighting concentrations that exceed Alberta Tier 1 guidelines, and referenced to the borehole location on the map. Laboratory data sheets must be provided in the report.

A detailed description of remediation activities conducted at the site, if applicable.

An estimate of the volume of soil remediated/excavated, if applicable.

A diagram or description of the confirmatory sampling locations, if applicable.

If applicable, a table of confirmatory analytical data indicating Alberta Tier 1 or Tier 2 guidelines have been met (laboratory analytical data sheets must be provided). Provide all supporting documentation for sites remediated to Alberta Tier 2 guideline values.

Analytical results and copies of the analytical laboratory data must also be included.

**Record of Site Condition Form**

A *Record of Site Condition* form must accompany every Phase 2 environmental site assessment (ESA), remediation report and risk management plan submitted to Alberta Environment. The *Record of Site Condition* form, guideline, and fact sheet are available at:

[http://environment.alberta.ca/01065.html](http://environment.alberta.ca/01065.html)

**13.0 SCHEDULE FIVE – RECLAMATION INFORMATION**

Schedule Five must include the following information, where applicable;

- Reclamation Information Section Completed
13.1 Reclamation Site Information

13.1.1 Dates – survey, construction

13.1.2 Global Positioning System (GPS) Coordinates

Submissions of GPS latitude and longitude coordinates for the wellbore(s) are required to ensure accurate location of the well site. Co-ordinates for other features, such as lease corners, may also be included. GPS coordinates must be provided in NAD 83 format and must be complete, i.e. with all decimal places, in order to aid in locating the wellbore. If NAD 27 is used, ensure the coordinates are converted to NAD 83.

Provide the dates on which the site was surveyed and the date of construction.

13.1.3 Pre-construction Assessment

Pre-construction site assessments are beneficial for the planning, construction and reclamation phases and are strongly recommended on private land. A pre-construction assessment report must be dated and include the name of the company and the person who completed the report.

In some cases, it may be beneficial to submit the pre-construction site assessment with the application form as additional information, to help the inspector make an informed decision. This may be especially important if the historical Environmental Field Report (EFR) or pre-construction assessment showed anomalies or variations within the lease area that were not equivalent to the immediately adjacent controls (e.g., pre-existing trails, pre-existing disturbance, topsoil depth or texture variability, etc.). Presence of weeds,
regardless of their classification under the *Weed Act*, must be noted on the EFR or pre-construction assessment, as well as any proposed weed control measures.

On public land, **do not** submit a copy of the EFR with your application for reclamation certification.

### 13.1.4 Access Roads and Trails

Operators must provide information on the type(s) of access built or used in order to access the site. Ensure all applicable boxes have been checked that describe the access road. On public land, if an existing trail was used, this must be documented in the Enhanced Approval Process Schedule D or the historical EFR.

**Undisturbed portions of site and access roads**

Operators must indicate clearly what portions of the site have not been disturbed, or if disturbed, which have not been affected or impacted by the operations activities. Trails or roads where soil has not been actively moved from one location to another may still be impacted by traffic, causing compaction.

**Existing trails**

If a trail existed prior to the operator entering the land and if the operator’s activities have not caused further impacts, the trail does not need to be reclaimed. The operator must provide evidence that the trail existed prior to development (e.g. landowner statement, original survey plan, aerial photo or satellite imagery prior to drilling). The landowner must indicate acceptance of the trail in writing. Any rutting, erosion, or compaction caused by the operation must be reclaimed to meet criteria, using a pre-site assessment or representative control on a portion of the trail not associated with wellsite operations. If the land adjacent to the original trail has been disturbed (e.g. trail has been widened at corners), the disturbed area must be reclaimed and assessed or the landowner must provide a release for the wider trail. If the trail has been upgraded to a road that is being left in place, the landowner must sign a release for the road which must be included with the application.

### 13.1.5 Seeding

Provide the date on which the site was seeded. For sites that have been seeded back to pasture or grassland vegetation, attach a copy of the species mix list and the date seeded, if available. If this information is unavailable, provide a listing of the species composition found on site. If the site is being farmed by the landowner or occupant and is in annual vegetation, indicate “annual crop.” However, if the site has been seeded back to pasture or grassland vegetation, provide the date on which it was seeded along with the list of seeded species.

Refer to [R&R 03-5 Problem Introduced Forages on Prairie and Parkland Reclamation Sites: Guidance for Non-Cultivated Lands](#), for guidance on allowable cut-off dates for sites seeded on prairie or parkland areas. Each
jurisdiction may have different cut-off dates for which non-native species may be accepted. Ensure the landowner or public land manager has been consulted prior to submitting an application to ensure the plant species present on site are acceptable.

13.1.6 Fertilizer

If fertilizer was applied to the site, provide the date of application, type of fertilizer and application rate. If fertilizer is applied on forage or non-cultivated sites and the controls are not similarly amended, the vegetation assessment must be completed a minimum of two years after the last fertilizer application. If an application is submitted in less than two years after fertilizer was applied, it will be refused.

On public land, native species must not be fertilized unless the inspector, forest officer, public lands officer or Parks staff provides approval.

13.1.7 Herbicide and Sterilant Use

Operators must provide all information related to herbicide and sterilant use on site prior to site construction, during production, and post reclamation. Company files must be checked for sterilant and herbicide use during site construction and during operations. All applicable details must be provided including:

- Herbicide or sterilant used,
- Date(s) of use,
- Rates of application, and
- Any remedial measures undertaken

13.1.8 Soil Amendments and Additions

Soil additions and amendments such as manure gypsum, straw, and peat can provide physical, biological and nutrient improvements to soils. However, manure and other organic amendments are not topsoil replacements. These improvements are more beneficial in the short-term rather than the long term. In some cases, the amendment may have an impact on the site’s soil chemical properties, such as electrical conductivity. If the amendment impacts the site so that it no longer meets applicable guidelines or criteria, do not apply for reclamation certificate application. An application for a certificate on these sites should be delayed until all applicable guidelines and criteria have been met.

If amendments or topsoil or subsoil additions are made to the site, the following detailed information is required:

- Type of amendment
- Volume of amendment
- Rate of application
- Date of application
Method of incorporation

These practices may have been undertaken in the past and must be documented.

If manure and other amendments are applied simultaneously to the site and control locations at the same rates, conduct an amendment sampling assessment to compare the site and controls. This will provide assurance that the lease has not been assessed at a time where amendment levels on lease are artificially high, potentially skewing the actual ability of the land to sustain growth. Operators must obtain landowner agreement prior to applying an amendment on private land, and an agreement or approval from the land manager or occupant on public land. Land managers for public land sites may have additional requirements. For example, manure is not allowed on White Area public land sites.

According to vegetation criteria in the 2010 Reclamation Criteria for Wellsites and Associated Facilities, the site and control must be under similar management practices. The following information is required:

- Where amendments are added to improve soil quality (and controls are not similarly amended), physical and chemical properties of the amendments should be assessed prior to placement. Soil quality deficiencies and amendment properties must be reported in the application.

- Complete the vegetation assessment a minimum of two years after the last amendment application. This coincides with the two-year waiting period for fertilizer inputs to forage, grasslands, and forested areas.

If topsoil is added to the site, it should be described (e.g. source, texture, volume, weed seeds, etc.) and should be similar to the control topsoil. Date and method of application and incorporation, and documentation showing landowner acceptance are required.

13.2 Interviews

All persons who may have knowledge about the reclaimed site should be contacted during the interview stage as part of the applicant’s due diligence. This includes the operator, landowner, and occupant. The purpose of the interviews is to provide an opportunity for comments regarding the degree of satisfaction with the remediation and reclamation work and identify any problem areas that may have been missed.

13.3 Additional Site History/Comments/Clarification

The comment section should provide further history of the site (e.g., what was done to address landowner/occupant concerns or previous failures, justifications or explanation of failures, etc.) Anomalies, contradictory comments and any other relevant information should be listed and clearly explained in this section. Operators are encouraged to include all site history information in the application.
Assessment Tools and Record of Observations (RoO) Data Sheets

Landscape, vegetation, and soil assessments must be completed and recorded in the Assessment Tools and Record of Observations (RoO) Data Sheets. For more information on the data requirements, please see the 2010 Reclamation Criteria for Wellsites and Associated Facilities.

The completed form can be protected to prevent changes to the data. Once protected, it cannot be unprotected, so the user should ensure that the form is ready for submission before protecting it.
APPENDIX A – CONTACT INFORMATION

Freedom of Information and Protection of Privacy Office
Environment
6th Floor South Petroleum Plaza, 9915 - 108 Street
Edmonton, AB T5K 2G8
Phone: (780) 427-4429
Fax: (780) 427-9838
Email: bonnie.nelson@gov.ab.ca

Freedom of Information and Protection of Privacy Office
Sustainable Resource Development
5th Floor, Great West Life Building, 9920 -108 Street
Edmonton, AB T5K 2M4
Phone: (780) 427-6929
Fax: (780) 644-4682
Email: andrea.hare@gov.ab.ca

Alberta Energy
Crown Land Data Support
Phone: 780-422-1395
Email: CrownLandDataSupport@gov.ab.ca

Energy Resources Conservation Board
Head Office:
Suite 1000, 250 - 5 Street SW
Calgary, Alberta T2P 0R4
Phone: 403-297-8311
Email: infoservices@gov.ab.ca

Alberta Environment Groundwater Information Centre
Phone: (780) 427-2770
Fax: (780) 427-1214
Email: gwinfo@gov.ab.ca

Air Photo Distribution Centre
Main Floor, 9920 - 108 Street
Edmonton AB T5K 2M4
Phone: (780) 427-3520
Email: Air.Photo@gov.ab.ca
Web:
http://www.srd.alberta.ca/MapsFormsPublications/AirPhotoDistribution/OrderingProducts.aspx
Alberta Tourism, Parks and Recreation
2<sup>rd</sup> Floor, Oxbridge Place
9820 -106 Street
Edmonton, AB T5K 2J6
(780) 427-3582
Fax: (780) 427-5980
14.0 APPENDIX B – REGIONAL OFFICE LIST

**Alberta Environment - SOUTHERN REGION**
303, Deerfoot Square
2938 - 11 Street NE
Calgary, AB T2E 7L7
Telephone: (403) 297-7602
Fax: (403) 297-6069

**Alberta Environment - CENTRAL REGION**
304, Provincial Building
4920 - 51 Street
Red Deer, AB T4N 6K8
Telephone: (403) 340-7052
Fax: (403) 340-5022

**Alberta Environment - NORTHERN REGION**
111 Twin Atria Building
4999 - 98 Avenue
Edmonton, AB T6B 2X3
Telephone: (780) 427-7617
Fax: (780) 427-7824

**Alberta Sustainable Resource Development District Offices**
For a complete list of all Alberta Sustainable Resources Development offices and contact information, visit
15.0 APPENDIX C – REFERENCE DOCUMENTS

Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification - 2009

Alberta Tier 1 Soil and Groundwater Remediation Guidelines

Alberta Tier 2 Soil and Groundwater Remediation Guidelines

C&R/IL/93-1 Conventional Oil and Gas Wellsite Reclamation
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6818&searchtype=asset&txtsearch=93-1

C&R/IL/94-3 Certification Requirements for Wellsites with No Surface Disturbance (surveyed only)

C&R/IL/97-1 Conservation and Reclamation Guidelines
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6895&searchtype=asset&txtsearch=97-1

C&R/IL/97-4 Third Party Impact on Reclamation
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6871&searchtype=asset&txtsearch=97-4

C&R/IL/97-5 Burial of Material On-lease

C&R/IL/97-6 Reclamation Certificates for Overlapping Activities

C&R/IL/98-6 Wellsite Reclamation Historical Search Services

C&R/IL/00-01 Sample Abandonment Letter for Wellsites
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6841&searchtype=asset&txtsearch=00-01
C&R/IL/00-02 Guideline for Wetland Establishment on Reclaimed Oil Sands Leases  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6868&searchtype=asset &txtsearch=00-02

C&R/IL/00-08 Pre-Construction Assessment Report for Wellsites  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6889&searchtype=asset &txtsearch=00-08

C&R/IL/00-09 Public Complaint Process for Oil and Gas Environmental Concerns  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6888&searchtype=asset &txtsearch=00-09

C&R/IL/01-08 Liability for Contamination on Upstream Oil and Gas Sites  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6820&searchtype=asset &txtsearch=01-08

C&R/IL/01-09 Certificate of Wellsite Reductions, Additions, Overlaps, Multi-Well Facilities and Forced Lease Boundary Changes  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6844&searchtype=asset &txtsearch=01-09

Competencies for Reclamation and Remediation Recommendations Report  

D&R/IL/01-1 Guidance for Use of the Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6822&searchtype=asset &txtsearch=Phase%201

D&R/IL/02-1 Frequently Asked Questions on Conducting Phase 1 Environmental Site Assessments and Changes to the Phase 1 ESA Form  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6826&searchtype=asset &txtsearch=phase%201

Frequently Asked Questions on the Remediation and Reclamation of Soil and Groundwater - 2002  
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5860&searchtype=asset &txtsearch=phase%201

Glossary of Reclamation and Remediation Terms Used in Alberta: 7th Edition - 2002  
ID 2007-02 Routine Disclosure of Information Required to Obtain Reclamation Certificates for Oil & Gas Holdings

Phase 1 Environmental Site Assessment Guideline for Upstream Oil and Gas Sites - 2001
http://www.environment.gov.ab.ca/info/posting.asp?assetid=6821&searchtype=asset &txtsearch=phase%201

R&R/03-02 Siting an Upstream Oil and Gas Site in an Environmentally Sensitive Area on Private Land: Guidance for Private Land – September 2003 - ENV-23-OP
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5940&searchtype=asset &txtsearch=03-02

R&R/03-04 Weeds on Industrial Development Sites

http://www.environment.gov.ab.ca/info/posting.asp?assetid=5928&searchtype=asset &txtsearch=03-05

R&R/03-06 Sites Reclaimed Using Natural Recovery Methods: Guidance on Site Assessment
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5936&searchtype=asset &txtsearch=03-06

R&R/03-07 Wellsite Construction: Guidelines for No-Strip and Reduced Disturbance
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5930&searchtype=asset &txtsearch=03-07

R&R/06-01 Upstream Oil & Gas Reclamation & Remediation Program: Detailed Program Changes: The Application Process

R&R/09-02 Record of Site Condition Fact Sheet

R&R/10-01 Professional Declaration Requirements
R&R/10-02 Reclamation of Specified Land Fact Sheet

Record of Site Condition Frequently Asked Questions
http://environment.alberta.ca/documents/Record-of-Site-Condition-FAQ.pdf

Record of site Condition User Guide

2010 Reclamation Criteria for Wellsites and Associated Facilities
http://environment.alberta.ca/01884.html

Salt Contamination Assessment and Remediation Guidelines

16.0 FORMS

FORMS: 2010 Assessment Tool and Record of Observations Data Sheets
http://environment.alberta.ca/01884.html

FORMS: Acknowledgement of Information Disclosure for Upstream Oil and Gas Facilities
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5925&searchtype=asset &txtsearch=Acknowledgement%20of%20Information

http://environment.gov.ab.ca/info/library/6355.xls

http://environment.gov.ab.ca/info/library/6352.doc

FORMS: Environmental Site Assessment Checklist

FORMS: Overlap Exemption from Obtaining a Reclamation Certificate Form
http://www.environment.gov.ab.ca/info/library/6815.doc

FORMS: Professional Declaration for Reclamation Certificate Applications

FORMS: Record of Site Condition

FORMS: Request for Information Required to Reclaim Public Lands Form

FORMS: Upstream Oil and Gas Facility Complaint Form
http://www.environment.gov.ab.ca/info/posting.asp?assetid=5934&searchtype=asset &txtsearch=Facility%20Complaint%20Form
17.0 APPENDIX C - EXAMPLE SITE DIAGRAM SKETCHES

CONSTRUCTION PHASE – Mandatory for any site constructed since 1994

OPERATIONS PHASE

At a minimum, indicate all of the following applicable information on both sketches:

- Drainage/direction
- Wellhead (W/H)
- Berms
- Cut/fill
- Spoil (sp)
- Spills (spill)
- Trenches (tr)
- Access (ac)
- Topsoil Pile (tsp)
- Subsoil Pile (ssp)
- Sump (S)
- Flare Pit (fp)
- Tank Storage
- Teardrop
18.0 APPENDIX D - EXAMPLE SITE SUMMARY DIAGRAMS

ATTACHMENTS: SITE INFORMATION - LEASE SKETCH

<table>
<thead>
<tr>
<th>NAME(S): Operator</th>
<th>Soil Assessor</th>
<th>Vegetation Assessor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator - Gas Co</td>
<td>Mary Assessor</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISPOSITION #</th>
<th>Location</th>
<th>Well Center</th>
<th>Surface</th>
<th>Vegetation</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity Date</th>
<th>Survey</th>
<th>Construction</th>
<th>Abandonment</th>
<th>Reclamation</th>
<th>Soil</th>
<th>Vegetation</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Natural Sub-region</th>
<th>Ecology</th>
<th>Soil Zone</th>
<th>Soil Series</th>
<th>Construction Practice</th>
<th>Reclamation Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Central Parkland</th>
<th>N/A</th>
<th>Elevated Black Chern.</th>
<th>Mali</th>
<th>2 LP</th>
<th>Full Disturbance</th>
</tr>
</thead>
</table>

Environmental Setting

Legend:

- **Drainage:** Access Road Boundary: Former Wellhead: Trees / Brush: Step Out: Control Point: Site Point:...
- **Legend:** Control Point: Site Point:...

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Landscape Criteria</th>
<th>Vegetation</th>
<th>Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>E - Erosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C - Contour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST - Stability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D - Debris</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Crop On-date:**
- **On-site:** Wheat
- **North:** Wheat
- **East:** Wheat
- **South:** Wheat
- **West:** Wheat
- **Topography:** Gently Undulating
- **Typical Slopes:** 1-2%
- **Usual Soil Moisture:** Dry, 150-200 mm during growing season
- **Soil Assessment Date:** September 15, 2006
- **Vegetation Assessment Date:** August 20, 2007
- **Lease Area:**
  - 32.5 m x 32.5 m
  - 110 m x 110 m

Notes:

---

May 2011 Page 51
Upstream Oil and Gas Reclamation Certificate Application Guidelines

**ATTACHMENTS: SITE INFORMATION - LEASE SKETCH**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Soil Assessor</th>
<th>Vegetation Assessor</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERCB Unique Well / facility identifier(s):</td>
<td>Disposition:</td>
<td></td>
</tr>
<tr>
<td>08-13-Q24-07 WWM</td>
<td>Location:</td>
<td>Surface:</td>
</tr>
<tr>
<td>Activity Date (mm/dd/yy):</td>
<td>Reclamation:</td>
<td>Denshield:</td>
</tr>
<tr>
<td>20-Jul-99</td>
<td>Survey:</td>
<td>North: Wheat</td>
</tr>
<tr>
<td>20-Aug-99</td>
<td>Construction:</td>
<td>West: Wheat</td>
</tr>
<tr>
<td>15-Jul-05</td>
<td>Abandonment:</td>
<td>South: Wheat</td>
</tr>
<tr>
<td>17-Aug-06</td>
<td>Vegetation:</td>
<td>East: Wheat</td>
</tr>
<tr>
<td>15-Sep-06</td>
<td>Site:</td>
<td></td>
</tr>
<tr>
<td>20-Aug-07</td>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Vegetation 2: July 15, 2008</td>
<td>Natural Sub-region:</td>
<td></td>
</tr>
<tr>
<td>Soil Zone:</td>
<td>Soil Series:</td>
<td>Construction Practice:</td>
</tr>
<tr>
<td>N/A</td>
<td>Eluviated Black Chern.</td>
<td>Reclamation Practice:</td>
</tr>
</tbody>
</table>

**Environmental Setting**

- **Landscape Criteria**
  - **Vegetation:**
    - Site Vegetation Assessment Point
    - Site Soil Assessment Point
  - **Soil:**
    - Site Vegetation Control Point
    - Soil Control Point
    - Gravel / Rock

- **Crop on-site:**
  - Wheat

- **Topography:**
  - Gently Undulating

- **Usual Soil Moisture:**
  - 1-2%

- **Soil Assessment Date:**
  - September 15, 2006

- **Vegetation Assessment Date:**
  - August 20, 2007

- **Soil Analysis:**
  - 1.3' Hw
  - 3.2' Sf

- **Access Road Boundary:**
  - Former Wellhead

- **Inspection Spacing:**
  - 110 m X 110 m

- **Notes:**
  - Measurements shown are for topsoil depth.

---

**May 2011**

Page 52