Exploration Directive

Alberta

The Exploration Directive

Published by Alberta Environment and Parks, Lands Division, Lands Policy and Programs Branch

January 22, 2021

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Revision History

Version Date	Author, Organization	Description
November 8, 2006	Alberta Sustainable Resource Development	26 Exploration Directives created
December 1, 2013	Alberta Environment and Sustainable Resource Development, Alberta Energy Regulator	Updated to reflect changes with introduction of REDA and the Alberta Energy Regulator
January 22, 2021	Alberta Environment and Parks, Alberta Energy Regulator	Consolidation of the 26 Exploration Directives and technical, operational and procedural provisions transferred from the Exploration Regulation into consolidated Exploration Directive.

1.0 Introduction

This Exploration Directive (the Directive) sets out geophysical (seismic) exploration and monitoring requirements when conducting geophysical surveys in the Province of Alberta. This Directive is authorized under Part 8 of the *Mines and Minerals Act* and forms part of the Exploration Regulations (AR 284/2006) (the Regulation) as published by the Department of Alberta Environment and Parks.

In addition to Alberta Environment and Parks, the Alberta Energy Regulator (the AER) also has regulatory responsibilities under the Directive. As used in the Directive, "relevant Department authority" means

(a) the AER, regarding the exploration of energy resources (as defined in *Responsible Energy Development Act*) and other activities being conducted in respect of an energy resource activity (as determined by the *Responsible Energy Development Act*), and

(b) the Lands Policy and Programs Branch of Lands Division within Alberta Environment and Parks (AEP), for all other exploration activities, in which case, a reference to relevant Department authority also includes the Minister of Environment and Parks.

Contact information for the relevant Department authorities are:

Alberta Environment and Parks
Lands Division, Lands Policy and Programs Branch
Public Land Policy Section
2nd Floor, 9915 108 Street
Edmonton, Alberta T5K 2G8
Email: AEP.Info-Centre@gov.ab.ca
Phone: 310-000

And

Alberta Energy Regulator
Attention: Geophysical Exploration Authorizations
Calgary (Head Office)
Suite 1000, 250 – 5th Street SW
Calgary, Alberta T2P 0R4
Email: Exploration@aer.ca
Phone: 780-427-2876

2.0 Restricted Exploration Areas

2.1 Background

As per section 11 of the Regulation, no person shall conduct exploration, operate a type of energy source, conduct a method of exploration, etc., in any area of Alberta in which exploration is prohibited or restricted except in accordance with the conditions of this Directive.

2.2 Requirements

The program licensee or the program permittee as defined in sections 1(ee) and 1(ff) of the Regulation shall comply with the requirements, prohibitions and restrictions for areas of Alberta delineated and described at alberta.ca and search for “Exploration Restricted Areas”.

2.3 Procedure

Numerous areas of Alberta have been identified as having specified requirements, prohibitions and restrictions. These exploration-restricted areas, along with the specified requirements, prohibitions and restrictions, are described at alberta.ca and search for “Exploration Restricted Areas.” As the exploration restricted areas will be updated and revised continuously, the exploration restricted areas will display a revision date.

The exploration approval that is issued by the AER under section 23 of the Regulation will identify the exploration restricted area(s) by number. The program licensee or the program permittee is to ensure these areas are identified and they are in compliance with the specified requirements, prohibitions or restrictions. It is the responsibility of the program licensee and program permittee to ensure they are using the current version (found on Alberta Environment and Parks web page) of the specified area.

Additions or changes to any Exploration Restricted area by AEP will be communicated to persons or Associations that represent such persons who will be directly affected by the proposed directives prior to implementation as per this Directive.

2.4 Other

If any discrepancy exists between the written description of the Exploration Restricted Area and the area shown on a map, the written description of the area prevails.

3.0 Review of Program Approvals and Conditions

3.1 Background

As per section 12 of the Regulation the AER may, on application by a program licensee or program permittee as defined in sections 1(ee) and 1(ff) of the Regulation or a person authorized by the program licensee or program permittee, review a decision of the AER in respect of a program of exploration if the decision relates to a matter that is specified within this Directive.

3.2 Requirements

The program licensee must attempt to mitigate outstanding issues (e.g., geophysical field report form, wildlife concerns, environmental concerns, etc.) to the satisfaction of the AER prior to initiating a review of a decision. If mitigative measures were not discussed prior to a request for a review, the application for review submitted under section 12 of the Regulation may be denied.

The program licensee or program permittee or a person authorized by the program licensee or program permittee (hereafter referred to as the applicant), may make application to review the AER's decision regarding:

- Non-approval of an application that was made under section 23 of the Regulation, for an exploration program to be conducted on Public Lands in Alberta.
- An operating condition or site-specific operating constraint contained in an exploration approval of an approved program to be conducted on Public Lands in Alberta.

3.3 Non-Approval of an Exploration Program

If there is no resolution through mitigative action regarding outstanding operational issues, the application for an approval applied for under section 23 of the Regulation will be denied and the program licensee will be notified in writing forthwith.

Upon the program licensee's receipt of written confirmation of non approval, the applicant has the ability to request a review of the AER's decision.

3.4 Condition(s) of an Exploration Approval

If the applicant believes that an operating condition(s) or site-specific operating constraint(s) contained in an exploration approval is unreasonable, the applicant has the ability to request a review of the AER's decision.

3.5 Procedure

To initiate a review, the applicant must submit a written request to the AER. In its request the applicant must state the reasons for the request and the expected resolution.

Provided the AER has all relevant information for the request for review they will respond to the applicant with an acknowledgement of receipt of the request within five (5) business days.

Upon completion of the review of all materials submitted by the applicant, the AER will decide if the review is rejected or if it is upheld (resolved to the satisfaction of the applicant). A copy of the decision will be communicated to the applicant in writing.

3.6 Other

There are no fees associated with the review of a geophysical program approval or conditions under section 12 of the Regulation.

4.0 Release of Program Information

4.1 Background

Under section 13 of the Regulation, subject to the *Freedom of Information and Protection of Privacy Act*, as it relates to personal information, and this Directive, information collected in relation to an approved exploration program may be released.

4.2 Requirements

(1) Subject to the *Freedom of Information and Protection of Privacy Act* as it relates to the release of personal information, on the request in writing made by any person to the relevant Department authority, the Minister may release and make available to that person information that is held in the records of the Department in relation to an approved exploration program in accordance with the following:

(2) A release of information described in subsection 1 may be made

i. at any time after 2 years following the date of completion, or

ii. at any time during that 2-year period if the relevant Department Authority is satisfied that the licensee has consented to the release.

(3) At any time after the approval by the relevant Department authority of a final plan for a program of exploration, information as to the location of lines in the final plan may be released by the relevant Department authority to a branch or division of the Department designated for the purpose of identifying the location of those lines on access maps to which persons involved in the conduct of exploration in Alberta will have access.

The written request must indicate the approved exploration program and the program information being requested, and the phone number and the address of the requester must be provided with the written request. The request is to be submitted to the AER at InformationRequest@aer.ca.

4.3 Procedure

The following information is considered program information:

- The preliminary plan application.
- The approval that was issued for the particular exploration program.
- All other approvals associated with that exploration program (e.g., temporary field authorization).
- The geophysical field report that was submitted and approved.
- Any and all parameters of the program design and execution.
- The final plans and maps related to the exploration program that are contained in the relevant Department authority's records.

Written requests for program information must be submitted to the AER at InformationRequest@aer.ca .

1. The program licensee as identified in section 1(ee) of the Regulation must agree to the release of any program document that fall within two years of the completion date of a program of exploration conducted in Alberta.
2. Program documents that are two years or older (i.e., two years after the completion date of a program of exploration conducted in Alberta) may be released without the program licensee's consent on requests submitted to the AER.
3. Program information will be provided in hard copy or printed copy only.

4.4 Other

Program information does not include information or correspondence between the program licensee, program permittee as defined in section 1(ff) of the Regulation or any other person authorized by the program licensee or program permittee to communicate or consult with First Nations and the First Nations, or any details of a First Nations Consultation plan or program.

5.0 Application for License or Permit

5.1 Background

An exploration license is required to apply for approval to conduct a geophysical program and an exploration permit is required to conduct the approved geophysical program in the Province of Alberta. An application for an exploration license or exploration permit may be made under section 16(2) of the Regulation.

5.2 Requirements

For an exploration license, the applicant must:

1. Complete the “Application for Exploration License or Permit Form” which can be viewed or downloaded from the AER website at www.aer.ca
2. Prove to the satisfaction of the AER that the applicant is a corporation and entitled to carry on business in Alberta.
3. Pay an application fee of $100.00 by attaching the fee to the form. Payment may be:
    a. cash, or
    b. a certified cheque made payable to the Alberta Energy Regulator, or
    c. a money order made payable to the Alberta Energy Regulator.
4. Pay a security deposit of $10,000.00 by attaching the deposit to the form. Payment may be:
    a. cash, or
    b. a certified cheque made payable to the Alberta Energy Regulator, or
    c. a money order made payable to the Alberta Energy Regulator.

It is the AER’s expectation that two separate cheques, one for the exploration license application fee and one for exploration license deposit are attached to the application. The security deposit must not be combined with any other payment required by the AER.

For an exploration permit, the applicant must:

1. Complete the “Application for Exploration License or Permit Form” which can be viewed or downloaded from the AER website at aer.ca.
2. Prove to the satisfaction of the AER that the applicant is a corporation and entitled to carry on business in Alberta.
3. Pay an application fee of $100.00 by attaching the fee to the form. Payment may be:
    a. cash, or
    b. a certified cheque made payable to the Alberta Energy Regulator, or
    c. a money order made payable to the Alberta Energy Regulator.
4. Pay a security deposit of $5,000.00 by attaching the deposit to the form. Payment may be:
    a. cash, or
    b. a certified cheque made payable to the Alberta Energy Regulator, or
    c. a money order made payable to the Alberta Energy Regulator.

It is the AER’s expectation that two separate cheques one for the exploration license application fee and one for exploration license deposit are attached to the application. The security deposit must not be combined with any other payment required by the AER.

5.3 Procedure

The application for an exploration license or permit, which includes the completed form, the application fee and appropriate deposit, must be sent to the AER.

6.0 Application for Exploration Approval

6.1 Background

Under section 23 of the Regulation, a licensee as defined in section 106 (g) of the *Mines and Minerals Act* or a person authorized by the licensee may apply to the AER in writing (a geophysical application) for an exploration approval. The AER may refuse to grant an exploration approval until the applicant has complied with all procedures and requirements set forth in the exploration directives that relate to the application for exploration approval.

6.2 Requirements

1. A geophysical application for an exploration approval must be submitted electronically as per the Digital Geophysical Submissions Specifications. These specifications can be viewed or downloaded from the AER website at aer.ca.
2. An application fee of $350 or an amendment fee of $175 applies to a geophysical application for an exploration approval. The fee may be paid by cash, certified cheque or money order made payable to the Alberta Minister of Finance.
3. A completed geophysical field report must be submitted with the geophysical application for a geophysical program that is being proposed on public lands. A geophysical application remains incomplete until the geophysical field report form is approved at the field level.
4. The geophysical field report form and the "Policy and Procedures Document for Submitting the Geophysical Field Report Form" can be viewed or downloaded from the AER website at aer.ca.
5. When a geophysical program is **proposed** to be conducted in whole or in part in a Municipality or Special Area, the Municipality or Special Areas Board must:
   - Be notified of the intent to conduct a geophysical operation through the "Notice of Intent for a Geophysical Program" form that is can be viewed or downloaded from the AER website at aer.ca.
   - A signed copy or documentation showing the "Notice of Intent of a Geophysical Program" was delivered must be included as part of the geophysical application for an exploration approval.
6. Application for time lapse seismic programs approval must have "Time Lapse" or "TL" within the prospect name to identify the program as a time lapse seismic program.
7. An application for a Vertical Seismic Profile (VSP) must be submitted digitally.
8. Application must be accompanied by the "Preliminary Geophysical Application Information Cover Sheet" that can be viewed or downloaded from the AER website at aer.ca.
9. Maps are preferred to be on a 1:50,000 scale. A larger scale may be used for larger programs. Information that is required on the map by the "Preliminary Geophysical Application Information Cover Sheet" must be clearly depicted.
10. If the program licensee, as defined in Section 1(ee) of the Regulation, is planning to exceed the maximum charge size (20 kg) or the maximum shot hole depth (20 m) described in section 17 of this Directive of the Regulation, the program licensee must:

- Provide the AER with written justification for exceeding the maximum charge size or hole depth, and
- Submit a written justification for exceeding the maximum charge size (20 kg) or the maximum shot hole depth (20 m) with the geophysical application.

11. An explosive charge cannot be loaded into the hole or the hole drilled beyond the permitted depth until written approval is obtained from the AER.

6.3 Procedure

The Application Disposition Process and Tracking (ADEPT) automated system provides to the geophysical industry the window for application submissions. Digital submission requirements are described in the "Digital Geophysical Submissions Specifications" document. To access the ADEPT system and view these specifications search "Systems and Tools" on the AER website at aer.ca. Exploration program application submissions must be sent GeoSub@aer.ca.

7.0 Geophysical Amendments and Temporary Field Authorization

7.1 Background

Under section 30 and 31 of the Regulation , the program licensee or the program permittee as defined in sections 1(ee) and 1(ff) of the Regulation may move a seismic line for an approved exploration program being conducted on private land, road allowances and public lands in accordance with this Directive.

7.2 Requirements

7.2.1 Private Land and Road Allowance Amendments

For minor changes or amendments to programs on private land a program licensee must first obtain consent from a private landowner to gain access to private land for any geophysical operations. To provide industry with flexibility to address landowner concerns relating to the location of buildings, wells, corrals, etc. without the need to amend an approved exploration program, the program licensee may move a seismic line in an approved exploration program being conducted on private lands without obtaining an amendment to the exploration approval if the line is moved: :

(a) Within the quarter section in which it is located as shown on the preliminary plan approved for the program, or
(b) To an adjoining quarter section if the location of a line in that quarter section is shown on the preliminary plan approved for the program or in an amendment to the exploration approval.

Program licensees are required to obtain an amendment to an approved exploration program on private land if:

(a) any line movement changes the orientation of the line,
(b) additional lines are added,
(c) the approved lines of a program are extended, or
(d) lines are moved from private land to road allowances or road allowances to private land.

7.2.2 Public Lands Geophysical Temporary Field Authorizations (TFA)

For minor exploration program changes on public lands, a Temporary Field Authorization (TFA) for additional land use may be applied for once a preliminary application has been approved up to the date of completion which is the date on which the recording phase of an approved exploration program is completed.

The AER **may approve** minor changes via TFA, to programs on public land for the addition of lines up to the following limits per program:

Table 7.2.3 TFA Criteria

Amendment	Land Use Officers	Geophysical Inspectors
New cutline and/or extension	**10 km**	**3 km**
Existing line and/or extension	**30 km**	**5 km**
Shift lines	**Within the same row of quarter sections only.**	**Within the same row of quarter sections only.**

For exploration program changes that fall outside of table 7.2.3 criteria, an amendment to the approved exploration program is required.

7.3 Procedure

A detailed land standing report is required to be completed to assess ownership or adjacency issues for any new quarter section that is affected by the addition of lines. To request the land standing report, email your land description(s) to crownlanddatasupport@gov.ab.ca or call 780-644-2300. The geophysical field report form must be adjusted accordingly if so requested by the AER.

The requirements for consents and notifications that applied to the original program approval also apply to the amended lines. In addition, these amended lines must be recorded on the line measurement and summary forms as well as on the final plans.

7.4 Other

There are no fees associated with requests for TFA's.

8.0 Extension to an Exploration Approval

8.1 Background

Section 33(3) of the Regulation, provides for extending the terms of an exploration approval. This alleviates the need for the program licensee as defined in section 1(ee) of the Regulation to resubmit an application for approval, and allows the existing program to continue without disruption.

8.2 Requirements

The term of an exploration approval may be extended if the program licensee or a person authorized by the program licensee makes a written request to the AER. An extension to an exploration approval must be approved by the AER and the AER will review and make adjustments for seasonal operating conditions.

8.3 Procedure

To request an extension to an exploration approval, the program licensee or a person authorized by the program licensee must make a written request to the AER at the address listed under contact information.

The request for an extension to the terms of a previously issued exploration approval will result in a review of the geophysical field report form (if public lands are involved) and also the conditions of the previous exploration approval.

If the geophysical field report form or the conditions of the exploration approval are no longer applicable, they will be modified accordingly through amending the geophysical field report form and issuing an amendment to the exploration approval.

The program licensee or a person authorized by the program licensee will receive written confirmation from the AER stating whether their request for an extension to the terms of the exploration approval has been approved or rejected. If the request is granted and there are changes or additions to the operating conditions, these will be attached to the written confirmation as an amendment to the exploration approval.

8.4 Other

There are no fees associated with a request for an extension to the terms of an exploration approval.

9.0 Final Plan Submission

9.1 Background

Under Section 34 of the Regulation, a program licensee as defined in section 1(ee) of the Regulation is required to file a final plan for an approved program of exploration with the AER. The final plan must be submitted within 90 days following the date of program completion, which is the date on which the recording phase of an approved program is completed.

9.2 Requirements

A final plan submission is required for **all** approved geophysical programs that have been completed in the Province of Alberta as described below:

1. The Application Disposition Process and Tracking (ADEPT) automated system provides to the geophysical industry the window for final plan submissions for all approved geophysical programs that have been conducted in the Province of Alberta. To access search “ADEPT” on the AER website at aer.ca

2. Final plans must be digitally submitted as described under Procedures. To access the procedures search “Guides for Forms Completion” on the AER website at aer.ca

3. Digital submission requirements are described in the “Digital Geophysical Submissions Specifications” document. To view these specifications search “Guides for Forms Completion” on the AER website at aer.ca

4. Final Plan submission must be accompanied by the “Final Geophysical Program Information Cover Sheet” to access the form search “Exploration Forms” at aer.ca

5. Maps are preferred to be on a 1:50,000 scale map. A larger scale may be used for larger programs if information that is required by the “Final Geophysical Program Information Cover Sheet” cannot be clearly depicted.

6. In the case of a program that was conducted on public land that is within the location of, or subject to, a Forest Management Agreement or timber licence, a copy of the final plan must be provided to the holder of the Forest Management Agreement or timber licence.

7. If the program did not commence, a letter of cancellation must be submitted to the AER at the address below prior to or within 30 days of the expiry date of the program approval.

8. There are no fees associated with a cancellation or final plan submission.

9.3 Procedure

9.3.1 Final Plans

The final plan submission must be digitally submitted through: Application Disposition Processing and Tracking (ADEPT) at: geosub@aer.ca

9.3.2 “Interim” Final Plans

“Interim” final plans are required of all Time Lapse (TL) geophysical programs conducted within the Province of Alberta within 90 days of completion of the first recording event and by July 31 of each year subsequent recording events occur until the Approval expires as described below:

- Copies of all interim final plans must be submitted to the AER at geosub@aer.ca.

If no activity occurred on the program a declaration stating such must be submitted by July 31 of each year until the program expires.

10.0 Commencement, Temporary Cessations, and Completion Notifications

10.1 Background

Under sections 37 and 39 of the Regulation, the program licensee or program permittee as defined in sections 1(ee) and 1(ff) of the Regulation have requirements and processes that must be followed at commencement, temporary cessation, and completion of an approved exploration program.

10.2 Requirements

10.2.1 Program Commencement Notifications

Program commencement is the date on which entry to land to conduct exploration first occurs following the approval of a program of exploration. Not more than five (5) business days prior to this date, or if the relevant Department authority has agreed in writing to a different time or period of time, at or before that time or within that period of time, the program licensee or program permittee shall notify and provide the following information to the relevant Department authority:

- The geophysical approval number
- Prospect name
- Program permittee and permit number
- Program commencement date
- The energy source to be used in conducting the approved exploration program

10.2.2 Program Completion Notifications

Program completion is the date on which the recording phase of an approved exploration program is completed. Not more than 5 business days after the date of completion, the program licensee or program permittee shall notify and provide the following information to the relevant Department authority:

- The geophysical approval number
- Prospect name
- Program permittee and permit number
- Date of program completion

10.2.3 Notice of Temporary Cessation of Operations

(1) If, before the date of completion, the crew and equipment conducting a program of exploration are to be removed from the location of the program as shown in the preliminary plan, the program licensee and program permittee shall, before the removal, ensure that the relevant Department authority and any relevant land authority are provided with notice in writing of the date on which exploration field operations under the program are to cease and of the approximate date on which those operations are to be resumed.

(2) The program licensee and program permittee shall ensure that the relevant Department authority and any relevant land authority are provided with notice in writing of any change in the date on which exploration field operations under the program are to be resumed.

(3) The exploration approval granted in respect of the program of exploration is deemed to have expired and the conduct of exploration under the program is deemed to have been completed

- on the date on which the crew and equipment are removed from the location of the program, in a case where no removal notice is given under (1) above, or
- on the date on which exploration field operations under the program were to be resumed, in a case where a resumption notice is given under (1) or (2) and operations are not resumed on the date set out in the notice.

(4) In the case of a program of exploration conducted in whole or in part on land that is within the location of or subject to a forest management agreement or timber licence, temporary cessation notifications apply, with necessary modifications, as if the holder of the forest management agreement or timber licence were a relevant land authority.

10.3 Procedure

The AER can be notified of program commencement, temporary cessations and completion by one of the following the methods:

- Telephone: 780-427-2876 or toll free 1-855-297-8311
- A copy of the “Notice of Commencement for Geophysical Operations Form and Notice of Completion of Geophysical Operation Form” can be downloaded from the AER website at aer.ca and emailed to Exploration@aer.ca

When the required information for program commencement is received by the AER, a confirmation number for commencement will be given to the program licensee or program permittee. This confirmation number should be recorded by the program licensee or program

permittee as verification that the AER has been notified of commencement. Once the program licensee or program permittee receives the confirmation number for commencement, the exploration program can begin.

When the required information for program completion is received by the AER a confirmation number for completion will be given to the program licensee or program permittee. This confirmation number should be recorded by the program licensee or program permittee as verification that the AER has been notified of program completion.

When the required information for program temporary cessations are received by the AER, the information will be recorded; however, a confirmation number will not be given.

11.0 Notice to Relevant Land Authorities and Holders of Forest Management Agreements and Timber Licenses

11.1 Background

Under sections 37, 38 and 39 of the Regulation, the program licensee or program permittee as defined in sections 1(ee) and 1(ff) of the Regulation is responsible to provide written notification to the Relevant Land Authorities and holders of forest management agreements and timber licenses upon the commencement, temporary cessation, and completion of an approved exploration program. The manner and format of that notification is set forth in the requirements and procedure of this directive.

11.2 Requirements

(1) Not less than 2 business days nor more than 15 business days prior to the date of commencement, or if the relevant land authority has agreed in writing to a different time or period of time for the purpose of this subsection, at or before that time or within that period of time, the program licensee and program permittee shall ensure that the relevant land authority is provided with

(a) written notice of the date of commencement in the form required by this Directive, and

(b) a copy of the exploration approval and of the approved preliminary plan for the program of exploration.

(2) If the relevant Department authority approves an amendment to the exploration approval for an approved exploration program at any time after the earlier of

(a) compliance by the program licensee or program permittee with the requirements in (1) (a) and (b) above, and
(b) the time or period of time specified for compliance by the program licensee or program permittee pursuant to the requirements in (1) (a) and (b) above,

and the relevant land authority is the Special Areas Board or the council of a municipality, the program licensee and program permittee shall, not more than 2 business days after the approval of the amendment, ensure that written notice of the amendment is provided to the relevant land authority.

(3) Not more than one business day after the date of completion of an approved exploration program that was conducted in whole or in part in a municipality or special area or on a highway referred to in subsection (1)(b)(iii), the program licensee and program permittee shall ensure that written notice of the date of completion is provided to the relevant land authority.

(4) In the case of a program of exploration conducted in whole or in part on land that is within the location of or subject to a forest management agreement or timber licence,

(a) the program licensee and program permittee shall ensure that, not less than 2 business days nor more than 15 business days prior to the date of commencement, the holder of the forest management agreement or timber licence is provided with
    i. written notice of the date of commencement in the form required by this Directive, and
    ii. a copy of the approved preliminary plan for the program of exploration.

(5) Written notification must be provided to Relevant Land Authorities for the area(s) in which an approved exploration program occurs. This requirement applies to program commencement, the temporary cessation of operations, and program completion. In section 38(1) (b) of the Exploration Regulation the Relevant Land Authority is described as being Alberta Infrastructure and Transportation, Municipal Council, and/or the Special Areas Board if an approved program is to be conducted wholly or partially within their administrative areas. The notification must be provided to:

(a) Operations manager for the Minister of Infrastructure and Transportation in relation to a program of exploration that is to be conducted, or is being conducted, in whole or in part

on highways that are subject to the direction, control and management of the Minister of Infrastructure and Transportation.

(b) Municipal Council for the municipality in which all or part of the program occurs.

(c) Special Areas Board for the Special Area in which all or part of the program occurs.

Program cessation must be given prior to the removal of the crew and equipment from the location of the program as shown in the approved preliminary plan.

11.3 Procedure

Written notifications to Relevant Land Authorities and holders of forest management agreements and timber licenses must use the following forms which can be viewed or downloaded from the AER website at aer.ca:

- Notice of Commencement for Geophysical Operations
- Notice to Temporarily Cease or Resume Operations for Geophysical Operations
- Notice of Completion for Geophysical Operations

11.4 Other

If an approved program is amended the program licensee and program permittee shall ensure the Relevant Land Authority, the holder of the forest management agreement or the holder of a timber licence is notified of the amendment in writing.

12.0 Change in Designated Program Permittee

12.1 Background

Under section 40 of the Regulation, the designated program permittee as defined in section 1(ff) of the Regulation may be changed by giving written notification to the AER.

12.2 Requirements

Program Permittee

The designated program permittee will:

- Manage the approved exploration program as well as who operates or authorizes the operation of the exploration equipment used in the conduct of the exploration program.
- Be responsible for all field operations for the approved exploration program for which he/she has been designated.

The program permittee's permit number must appear on the following:

- Commencement **and** completion notification to the AER for the approved exploration program (sections 37 and 38 of the Regulation).
- Commencement **and** completion notification to the appropriate Relevant Land Authority and the holder of a forest management agreement or timber license for the approved exploration program (sections 37 and 38 of the Regulation).
- Program tags that are used in the approved exploration program (section 55 of the Regulation).
- Approved hole plugs used on the approved exploration program (sections 42, 50 and 51 of the Regulation).
- Final plan submission of the approved exploration program (section 34 of the Regulation).

12.3 Procedure

Changing the Designated Program Permittee

If any of the following has occurred, the designated program permittee may be changed **after** the date of commencement, but this must occur **before** shot holes are drilled:

- The parameters of the program have changed and the designated program permittee does not have the capabilities to meet those requirements (e.g., energy source has been changed); or
- The program permittee has had their permit revoked, suspended, cancelled, or it is no longer valid; or other reasons that can be justified and agreed to by the AER. If the program licensee wants the designated program permittee to be changed at any time, the licensee or his/her agent working on behalf of the licensee must submit a written request to AER and identify the reasons for the change.

13.0 Operation of Exploration Equipment

13.1 Background

Under sections 41 and 55 of the Regulation, a program licensee, program permittee as defined in sections 1(ee) and 1(ff) of the Regulation and their subcontractors are required to display their license number, permit number, unique identification number, and program number as indicated below.

13.2 Requirements

13.2.1 Operator Identification on Units or Vehicles

The program licensee and permittee shall ensure that exploration equipment and vehicles used by or on behalf of the licensee and permittee on a more-or-less continuous basis for an activity related to the conduct of an exploration program, clearly displays an appropriate identification number on exploration equipment or vehicles. The requirements for displaying identification numbers and the method of applying for a unique identification number are outlined under “Procedures” below.

13.2.2 Program Tags

In accordance with section 55 of the Regulation, the program licensee and program permittee shall, to the extent possible, ensure that an approved program tag is displayed in the location of a program of exploration as indicated in the Procedure below.

13.3 Procedure

13.3.1 Display of License Number

The program supervisor for the program licensee who owns or has leased the unit(s) or vehicle(s) used in connection with the exploration program, or under whose authority the unit(s) or vehicle(s) is being used for the exploration program on a regular or continuous basis, **must display the license number** of the program licensee as described below:

- The words “LIC. NO.”, followed by the license number of the program licensee.
- The words “LIC. NO.” and the actual number must be at least 10 cm high and located on both sides of the unit or vehicle.

13.3.2 Display of Permit Number

The program permittee, who owns or has leased the exploration equipment (excluding quads) that is being used in connection with the exploration program, **must display their permit number** as described below.

A permittee who owns or has leased the exploration equipment (excluding quads) that is being used in connection with the exploration program and being operated under the authority of the program permittee, must display either the program permittee's permit number or their own permit number as described below:

- The words "PERMIT NO." followed by the permit number.
- The words "PERMIT NO." and the actual number must be at least 10 cm high and located on both sides of the unit or vehicle.
- Specific exploration equipment that must display a permit number is as follows:
    - Survey vehicles that are used in surveying the exploration program.
    - Mechanical line cutting equipment used in construction and development of a seismic line (e.g., cats and mulchers).
    - Wheeled or tracked drilling equipment used in the program.
    - Wheeled or tracked vehicles used in producing surface energy for the program.
    - Vehicles used in recording operations.
    - Vehicles used in line cleanup.
    - Supervisory vehicles used on-site on a regular or continuous basis.

13.3.3 Display of Unique Identification Number

If the operator does not have a unique identification number, the operator must display the program permittee's permit number as described above.

An operator (i.e. a drilling company, survey company, etc.), may apply for a unique identification number (UIN) under section 41(4) of the Regulation and display that number on their equipment that is being used in connection with the exploration program instead of displaying the program licensee's or permittee's number. Having a unique identification number eliminates the need for an operator to change the program licensee's or permittee's number on the equipment as an operator moves from program to program.

The requirements for displaying the unique identification number are described below:

- The letter "U" followed by the unique identification number.
- The letter "U" and the number must be at least 10 cm high and located on both sides of the equipment.

- Specific equipment that must display a unique identification number (or permit number—see above) is as follows:
    - Survey vehicles that are used in surveying the exploration program.
    - Mechanical line cutting equipment used in construction and development of a seismic line (e.g., cats and mulchers).
    - Wheeled or tracked drilling equipment used in the program.
    - Wheeled or tracked vehicles used in producing surface energy for the program.
    - Vehicles used in the recording operations.
    - Vehicles used in line cleanup.
    - Supervisory vehicles used on-site on a regular or continuous basis.

An operator may obtain a unique identification number through application to the Minister. For a unique identification number the applicant must:

1. Complete the attached form.
2. Pay an application fee of $100.00 by attaching the fee to the form. Payment may be:
    a. cash, or
    b. a certified cheque made payable to the Alberta Energy Regulator, or
    c. a money order made payable to the Alberta Energy Regulator.

The application for a unique identification number must be sent to the AER.

13.3.4 Display of Program Tags

(1) If an explosive energy source is used in the conduct of a program of exploration, the program licensee and program permittee shall, to the extent possible, ensure that, before the drilling rig is initially removed from the location of the last of the shot holes drilled to obtain data from a centre source point, an approved program tag that contains the number of the exploration approval for the program and the permit number of the program permittee clearly and conspicuously impressed or engraved on it is securely affixed in a location that is readily visible and is:

a) facing the centre source point and on the same side of the highway or public road as the centre source point, and

b) not more than 10 metres from each centre source point.

(2) If a non-explosive energy source is used in the conduct of a program of exploration, the program licensee and program permittee shall, to the extent possible, ensure that, before the equipment used for recording the program is initially removed from the site or location of the program, an approved program tag that contains the number of the exploration approval for the program and the permit number of the program permittee clearly and conspicuously impressed or engraved on it is securely affixed in a location that is readily visible and is

a) facing the centre source point and on the same side of any highway or public road as the centre source point, and

b) not more than 10 metres from each centre source point or, with the written approval of the Minister, not more than that distance from each second such centre source point.

14.0 Authorizing for Testing and Use of Products in Exploration

14.1 Background

Under section 42 of the Regulation, the program licensee and the program permittee as defined in sections 1(ee) and 1(ff) of the Regulation shall use only products approved by the AER. The requirements and procedures for research, testing and obtaining product approval are described in this Directive.

14.2 Requirements

For the purposes of Section 42 of the Regulation a “product” means

(a) a program tag,
(b) a hole plug,
(c) a sealing product, and
(d) any other thing specified in this Directive.

Approval from the AER is required for research and testing of any product to be used as part of an approved exploration program. Products include survey markers, program tags, shot hole plugs and sealing products. The research and testing of a new product can occur as part of an approved exploration program providing the AER has issued written approval for the research and testing of a proposed product within the conduct of an approved exploration program.

14.3 Procedure

14.3.1 Authorization for Research and Testing

A written request for authorization to research and/or test a product as part of an approved exploration program must be submitted to the AER before conducting any product research or testing in a program of exploration. The request must include:

1. Detailed description of what is being tested.
2. Detailed description of how the proposed product will be used in the field.
3. Details of the exact location within the exploration program in which the proposed product will be tested.
4. Methodology to be used for testing.

14.3.2 Authorization for Continuous Use

A written request for authorization must be submitted to the AER to obtain approval for the product to be used on a continuous basis. This request must include an example of the product, applicable Material Safety Data Sheets for the product, a copy of the information/data, and the conclusions drawn by the proponent from testing the product. If the product is determined by the AER to be acceptable, an authorization to use the product on an ongoing and continuous base will be issued to the proponent for a specified period of time.

Upon expiry of the authorization for the product, the proponent must re-apply to the AER to have the authorization reinstated.

The AER may:

- Re-authorize use of the product,
- Request that further information be provided before reinstating the authorization, or
- Not reinstate the product authorization.

See appendix 1, 2, 3 and 4 of this Directive for a list of approved products.

- Appendix 1 – approved program tags
- Appendix 2 – approved hole plugs
- Appendix 3 – approved sealing products
- Appendix 4 – survey markers

15.0 Distance Requirements

15.1 Background

Pursuant to section 44 of the Regulation, setback distances from specified structures are required for various energy sources used in an approved exploration program.

15.2 Requirements

15.2.1 Explosive Energy Source

An explosive energy source uses dynamite or other explosives in a drilled shot hole to produce a signal for acquiring exploration data. All charges or accumulated charges at each energy source that are larger than 20 kg must be approved for each program (section 49 of the Regulation). The setback distance for an explosive energy source is set forth in the “Table of Required Setback Distance to Specified Structures”. With the consent of the owner this distance can be reduced as per the “Table of Reduced Setback Distances to Specified Structures”. All distances are measured from the shot point(s) to the structures.

15.2.2 Non-explosive Energy Source

A non-explosive energy source includes, but is not limited to, vibroseis or air gun. This is a mechanically generated energy source at the ground surface that produces a signal for acquiring exploration data. The setback distance for a non-explosive energy source is set forth in the “Table of Required Setback Distance to Specified Structures”. With the consent of the owner this distance can be reduced as per the “Table of Reduced Setback Distances to Specified Structures”. If the individual source points cannot be determined all distances are measured from the centre of the source line to the structures.

15.2.3 Other Energy Sources

Other energy sources are devices used at the ground surface level to produce a signal for acquiring exploration data. This includes but is not limited to the elastic wave generator (EWG).

See Tables 15.3 and 15.4 of this Directive for required setback distances.

15.3 Table of Required Setback Distances to Specified Structures

Table of Required Setback Distances to Specified Structures			
	Explosive		Non-Explosive/Other
Specified Structures	**Charge Size**	**Distance**	**Distance**
Residence, barn, or any building(s) with a concrete base, concrete irrigation structures (e.g., drop structures, head works), concrete lined irrigation canals, and concrete water pipelines.	Up to and including 12 kg	180 m	50 m
	>12 kg <=20	200 m	
Water wells, developed spring,* observation well, or peizometer.	Up to and including 12 kg	180 m	100 m
	>12 kg <=20	200 m	
High - pressure Pipelines High - pressure pipelines are pipelines that operate at, or are intended to operate at a pressure in excess of 700 kilopascals. **Note:** All distances are measured from the centre of the pipeline.	<=2 kg	32 m	15 m
	>2 & <4 kg	45 m	
	>=4 & <6 kg	55 m	
	>= 6 & <8 kg	64 m	
	>=8 & <10 kg	70 m	
	>=10 & <12 kg	78 m	
	>=12 kg <=20	100 m	
Low - pressure Pipelines Low-pressure pipelines are pipelines that operate at, or are intended to operate at a pressure of 700 kilopascals or less. **Note:** All distances are measured from the centre of the pipeline.	Up to and including 20 kg	3 m	3 m

Table of Required Setback Distances to Specified Structures			
	Explosive		Non-Explosive/Other
Specified Structures	**Charge Size**	**Distance**	**Distance**
Dugouts* Measured from the inside edge of high water mark	Up to and including 20 kg	50 m	25 m
Irrigation Canal (other than concrete lined) Irrigation canals that are more than 4 m wide		10 m	10 m
Buried Water Pipelines (other than concrete lined)		3 m	3 m
Dams Dam means a barrier constructed and having a storage reservoir capacity of at least 30,000 m3, and which is at least 2.5 m in height when measured vertically to the top of the barrier.		180 m	50 m
Cemetery Distance to the energy source is measured to the surveyed boundary of the cemetery.		100 m	50 m
Buried Lines and Survey Monuments Telephone lines and telecommunication lines.		2 m	2 m
Domestic Septic Tank or Mound A septic tank is defined as a tank that is used as a septic storage device. A mound is a septic storage device that is located above ground surface.		15 m	15 m

* A developed spring is an area of local groundwater discharge that has had human intervention to make the water usable or attainable for domestic and/or non-domestic purposes, and is intended for long - term use.

* Dugouts are earthen excavations designed to collect runoff and store it for use during drier times. Typically, dugout capacity ranges from a few hundred cubic meters to thousands of cubic meters

15.4 Table of Reduced Setback Distance to Specified Structures with Written Consent of the Owner of the Structures

Table of Reduced Setback Distances to Specified Structures with Written Consent of the Owner of the Structures			
	Explosive		Non-Explosive/Other
Specified Structures	**Charge Size**	**Distance**	**Distance**
Residence, barn, or any building(s) with a concrete base, concrete irrigation structures (e.g., drop structures, head works), concrete - lined irrigation canals, and concrete water pipelines. Water wells, developed spring*, observation well, or peizometer	<=2 kg	64 m	50 m
	>2 & <4kg	90 m	
	>=4 & <6kg	110 m	
	>=6 & <8kg	128 m	
	>=8 & <10kg	142 m	
	>=10 & <12kg	156 m	

* A developed spring is an area of local groundwater discharge that has had human intervention to make the water usable or attainable for domestic and/or non-domestic purposes, and is intended for long - term use.

15.5 Other

If **written consent of the owner of the specified structure** is obtained, then reduced setback distances to the specified structures for explosive energy can be implemented, as can a reduced distance to specified structures for non-explosive energy sources.

16.0 Flowing Holes and Encountering Gas

16.1 Background

Occasionally an aquifer or stratum releases water that comes to the ground surface or flows. This may occur during or after a shot hole or test hole is drilled (i.e., flowing holes). The program licensee and program permittee, under sections 46(1) and 47 of the Regulation as defined in sections 1(ee) and 1(ff) of the Regulation, must follow pre-established procedures when this occurs.

16.2 Requirements

1. When water is released from a stratum or aquifer and rises to the surface of a shot hole or test hole while drilling, the program licensee or program permittee for the approved exploration program must immediately discontinue the drilling and ensure no explosive charge is loaded in the shot hole.

2. When aquifer or stratum releases water that comes to the ground surface or flows from a shot hole or test hole, the water must be contained to the aquifer or stratum of origin as described in the procedures section of this Directive.

3. For commenced operations, when water is released from a shot hole or test hole, step drilling procedures must be implemented before successive shot holes or test hole drilling is continued.

4. When a shot hole becomes a flowing hole before a charge is detonated, the charge is to be shot. This is due to the danger of detonating the charge while attempting to confine the flow to the aquifer or stratum of origin.

5. The program licensee or program permittee must immediately submit a flowing hole report, which can be viewed or downloaded from the AER website at aer.ca, for each flowing shot hole or test hole that is encountered for any approved exploration programs. The report can be e-mailed to exploration@aer.ca,

6. The program licensee or program permittee must immediately submit a flowing hole report, which can be viewed or downloaded from the AER website at aer.ca, for each

shot hole or test hole that encounters gas for any approved exploration programs. The report can be e-mailed to exploration@aer.ca,

16.3 Procedure

16.3.1 Containment of Released Water or Water Rises to the Ground Surface

1. For commenced programs, immediately discontinue drilling the shot hole or test hole.
2. For commenced or completed programs, contain the water from the shot hole or test hole to the aquifer of origin as quickly as possible using one of the following methods:
    a. Use of inflatable plugging device and bentonite:
        - Remove bentonite and approved hole plug (plastic) from hole.
        - Sound shot hole or test hole to bottom to establish the depth and check for bridging of hole (sand and gravel).
        - Insert inflatable plugging device to the bottom (total depth) of the hole.
        - Inflate and check for effect on flow rate of water.
        - If flow rate does not cease, deflate plugging device and raise it 1 m up the shot hole or test hole and re-inflate.
        - Continue process in this manner until flow is stopped.
        - Remove the inflation pipe form the hole.
        - Install bentonite chips or pellets from the top of the inflatable plug to within 1 m of the surface.
        - Install approved hole plug (plastic) and abandon the shot hole or test hole as per section 19 of this Directive.
        - Record the GPS location of the shot hole or hole and any information (if available) from a permit tag next to the hole.
        - Remove all equipment, surplus materials and waste from the site.
    b. Pressure cement the shot hole or test hole from bottom to within 1 meter of the surface and abandon as per section 19 of this Directive; or
    c. Reverse auger bentonite into the shot hole or test hole from bottom to top; or
    d. Contact the AER for approval to use any other method to contain water that is released or comes to the surface of a shot hole or test hole.

Note: The method, material and equipment used to contain the flow of water or gas to the aquifer or stratum from which it was released depends on variables such as (but not limited to) geology, flow rate, hole and ground surface condition.

16.4 Step Drilling / Commenced Programs

Drilling must be discontinued immediately if water is observed and/or the shot hole or test hole starts to flow at the surface. The water must then be confined to the aquifer or stratum of origin using the above procedure (Containment of Released Water or Water Rises to the Ground Surface). The "step up–step down" process described below **must** then be implemented.

1. Regardless of whether the next shot hole or test hole to be drilled in the program is part of a multi-hole pattern or the next hole in a sequence, the following steps must be taken:
    - If the depth at which the water was encountered in the flowing hole is known, the maximum depth of the next shot hole or test hole must be 3 m **less** than that point of encounter; **or**
    - The maximum depth of the next shot hole or test hole must be 3 m **less** than the drilled depth of the flowing hole.
2. If water is again observed, the water must be confined to the aquifer or stratum of origin using the procedure identified above (Containment of Released Water or Water Rises to the Ground Surface). As well, the drilling depth of the subsequent shot hole or test hole in the program must be "stepped up" by 3 m. Continue this process as long as water is observed.
3. Once water is no longer observed, the same drilling depth must be maintained for the next shot holes or test holes in the sequence for a minimum of 200 m. Beyond this distance, the drilling can be "stepped down" by 3 m at the next hole. If no water is observed, the following shot hole or test hole can be "stepped down" by another 3 m. This pattern must be followed until the original proposed drilling depth is reached.
4. If water is observed at any point, the drilling must again be "stepped up" by 3 m, as described above.

16.5 Flowing Hole Report

The flowing hole report, which can be viewed or downloaded from the AER website at aer.ca, is to be used to report any/all releases of water and/or gas from a commenced or complete program. The form must be submitted to the AER at Exploration@aer.ca

16.6 Other

16.6.1 Converting Flowing Hole to Water Well

A flowing shot hole or flowing test hole remains a shot hole or test hole as defined in the Regulation until the flow of water in the hole is confined and contained in accordance with the above procedure. The above procedure does not apply if the flow of water from a shot hole or test hole is confined and contained by the completion and operation of the flowing hole (shot hole or test hole) as a water well in accordance with the *Water (Ministerial) Regulation* (AR 205/98). If a flowing hole is to be converted to a water well, contact AEP.

16.6.2 Damage by a Third Party

If the shot hole(s) or test hole(s) complies with section 46 and/or section 47 of the Regulation, and the plugging is intentionally damaged or destroyed (unless through construction or upgrading of a highway or public road), the **responsible party** must repair the damage or replug the hole. This is in accordance with directions from the AER, as per section 53 of the Regulation.

17.0 Charges in Shot Holes and Depth of Shot and Test Holes that Exceed Maximum Levels

17.1 Background

Pursuant to section 49 of the Regulation, the maximum allowable depth of a shot hole or test hole in a program of exploration is 20 m. The maximum allowable explosive energy source that can be used in a shot hole is 20 kg. In some cases, the program permittee or program licensee as defined in sections 1(ee) and 1(ff) of the Regulation may propose to drill shot holes and/or test holes deeper than 20 m, or use an explosive energy source within a shot hole that is greater than 20 kg allowed by the AER. The requirements and procedures for exceeding the maximum depth of a shot hole, test hole, or the maximum charge size are set forth in this Directive.

17.2 Requirements

17.2.1 Explosive Charges

If the size of the explosive charge proposed to be detonated in a shot hole drilled in the conduct of a program of exploration is greater than 20 kg, the program licensee or permittee must:

- provide the AER with justification for exceeding the maximum charge size; this must accompany the submission for application for approval under section 23 of the Regulation ,

- obtain written approval from the AER to exceed the maximum size; and
- ensure the explosive charge is not loaded in the shot hole before written approval is given by the AER.

17.2.2 Depth of Shot Hole

If the depth of a shot hole drilled in the conduct of a program of exploration is proposed to be drilled at a depth deeper than 20 m, which is the maximum allowable depth, the program licensee or program permittee must:

- provide the AER with written justification for exceeding the maximum allowable depth; this must accompany the submission for application for approval under section 23 of the Regulation,
- provide the AER with the proposed temporary and permanent shot hole abandonment procedures, and
- ensure the shot hole is **not drilled** beyond the maximum allowable depth **before** written approval is received.

17.2.3 Depth of a Test Hole

If a depth of a test hole drilled in the conduct of a program of exploration is proposed to be deeper than 20 m, which is the maximum allowable depth, the program licensee or program permittee must:

- provide the AER with written justification for exceeding the maximum allowable depth; this must accompany the submission for application for approval under section 23 of the Regulation,
- provide the AER with the proposed test hole temporary and permanent abandonment procedures, and,
- ensure the test hole is not drilled beyond the maximum allowable depth before written approval by the AER.

17.3 Procedure

The program licensee or program permittee must apply for written permission from the AER listed below to exceed the maximum charge size or the maximum allowable depths of shot holes or test holes. This must accompany the submission for application for approval under section 23 of the Regulation.

18.0 Temporary Abandonment of Shot Holes and Test Holes

18.1 Background

Under section 50 of Regulation, shot holes and test holes drilled in the conduct of an approved exploration program must not be left unattended until they are temporarily abandoned as indicated below.

18.2 Requirements

The program licensee and program permittee as defined in sections 1(ee) and 1 (ff) of the Regulation must ensure that each shot hole or test hole drilled in a program of exploration, drilled to a depth of 20 metres or less, that has not been permanently abandoned, is not left unattended until it is temporarily abandoned by complying with the "Procedures" section of this Directive or, is temporarily abandoned in a manner, if any, prescribed by the Minister under section 52 of the Regulation.

18.3 Procedure

18.3.1 Requirements for temporary abandonment of all shot holes:

- The charge in the shot must be securely affixed to a winged sandpoint container.
- Drill cuttings or other approval materials must be placed in the hole to secure the charge at the depth at which it was loaded.
- The wire attached to the charge is pulled tight to the surface of the ground.
- The number of the program permittee is clearly marked on the approved shot hole plug.
- All drill cuttings not required to fill the hole are spread evenly over the ground surrounding the hole.
- Excess wire above the ground must be wrapped around the approved survey marker.

18.3.2 Requirements for temporary abandonment of shot holes for specified locations:

1. Requirements for temporary abandonment of shot holes drilled within the **White Area of the province** (excluding surveyed road allowances):

    - An approved plug must be placed in the shot hole at a depth of not less than 1 m below the surface of the ground.

- Not less than 40 cm of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the shot hole, and thoroughly tamped.

2. Requirements for temporary abandonment of shot holes drilled within a **surveyed road allowance**:

   - An approved plug must be placed in the shot hole at a depth of not less than 4 m below the surface of the ground.
   - Not less than 3.4 m of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the shot hole, and thoroughly tamped.

3. Requirements for temporary abandonment of shot holes drilled within the **Green Area of the province**:

   - An approved plug must be placed in the hole at a depth of not less than 1 m below the surface of the ground.
   - Not less than 20 cm of approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 80 cm of an approved sealing product, drill cuttings or other material obtained from the shot hole, and thoroughly tamped.

4. Requirements for temporary abandonment of shot holes drilled at **heli-portable sites of a heli-portable operations**:

   - An approved plug must be placed in the shot hole at a depth of not less than 1 m below the surface of the ground.
   - Approved sealing product, drill cuttings or other material obtained from the shot hole must be used to fill from the approved plug to the ground surface and thoroughly tamped.

18.3.3 Requirements for temporary abandonment of all test holes:

- The number of the program permittee must be clearly marked on the plug.
- All drill cuttings not required to fill the hole must be spread evenly over the ground surrounding the hole.

18.3.4 Requirements for temporary abandonment of test holes for specified locations:

1. Requirements for temporary abandonment of test holes within the **White Area** of the province (excluding surveyed road allowances):

    - An approved plug must be placed in the hole at a depth of not less than 1 m below the surface of the ground.

    - Not less than 40 cm of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the hole, and thoroughly tamped.

2. Requirements for temporary abandonment of test holes within a **surveyed road allowance**:

    - An approved plug must be placed in the hole at a depth of not less than 1 m below the surface of the ground.

    - Not less than 40 cm of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the hole, and thoroughly tamped.

Temporary abandonment of test holes on road allowances requires a 1 m plug. Using the 3.4 m plug required for permanent abandonment on road allowances, as per section 51 of the Regulation, creates difficulties when the test hole is to be re-entered. If re-entry is not an issue, the test hole should be permanently abandoned as per section 51 of the Regulation and section 19 of this Directive.

3. Requirements for temporary abandonment of test holes within the **Green Area of the province**:

    - An approved plug must be placed in the hole at a depth of not less than 1 m below the surface of the ground.

    - Not less than 20 cm of approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 80 cm of an approved sealing product, drill cuttings or other material obtained from the hole, and thoroughly tamped.

4. Requirements for temporary abandonment of test holes and test holes drilled at heli-portable sites of a heli-portable operations:

    - An approved plug must be placed in the hole at a depth of not less than 1 m below the surface of the ground.

- Approved sealing product, drill cuttings or other material obtained from the hole must be used to fill from the approved plug to the surface and thoroughly tamped

18.4 Other

White and Green areas of the province are defined on the Environment and Parks Green/ White Area map dated September 13, 2012 Information Branch Base Map Data provided by the Government of Alberta under the Alberta Open Government License.

If shot holes and test holes are to be drilled to a depth of more than 20 m, temporary abandonment will be described and approved within the application for an approval to conduct exploration as per section 17.2.3 of this Directive.

19.0 Permanent Abandonment of Shot Holes and Test Holes and Alternate Shot Hole Abandonment

19.1 Background

Pursuant to sections 51 and 52 of the Regulation all shot holes and test holes drilled in the conduct of an approved exploration program are to be permanently abandoned immediately after detonation.

19.2 Requirements

19.2.1 Permanent Abandonment of Shot Holes

(1) The program licensee and program permittee as defined in sections 1(ee) and 1 (ff) of the Regulation shall ensure that a shot hole drilled in a program of exploration to a depth of 20 metres or less is permanently abandoned

(a) immediately after the detonation of the charge in the hole in accordance with the procedures of this Directive

(b) in a manner that is in accordance with the procedures of this Directive for each shot hole drilled in the operations, under the conditions, within the area or at or within the location in which or at or under which each shot hole was drilled, and

(c) in a manner, if any, prescribed by the AER under section 52.

(2) The program licensee and program permittee shall ensure that a test hole drilled in a program of exploration to a depth of 20 metres or less is permanently abandoned

(a) within 30 days after the day on which the drilling of the hole is completed,

(b) in a manner that is in accordance with the procedures of this Directive for test holes drilled in the operations, under the conditions, within the area or at or within the location in which or at or under which the test hole was drilled, and

(c) in a manner, if any, prescribed by the AER under section 52.

(3) If a shot hole is drilled in a program of exploration to a depth of more than 20 metres, the program licensee and program permittee shall ensure that

(a) before permanently abandoning the shot hole, the AER is advised of the proposed abandonment and of the proposed procedure for abandonment and that the AER's approval for that proposed procedure for abandonment is obtained, and

(b) the procedure for abandonment of the shot hole approved by the AER under clause (a) is followed.

(4) The program licensee and program permittee shall ensure that a test hole drilled in a program of exploration to a depth greater than 20 metres is abandoned in accordance with the procedures of this Directive that apply to such test holes.

19.2.2 Alternative Shot Hole Abandonment

(1) The AER may extend the time periods under section 19.2.1 (1) or (2) and may prescribe directions, instructions or provisions with respect to the temporary or permanent abandonment of shot holes or test holes that differ or vary from the requirements of this Directive or of the exploration approval for the program.

19.3 Procedure

19.3.1 Requirements for permanent abandonment of all shot holes:

- The excess wire attached to the charge must be pulled tight and cut level with the surface of the ground.
- The number of the program permittee must be clearly marked on the approved shot hole plug.

- All drill cuttings not required to fill the hole must be spread evenly over the ground surrounding the hole.

19.3.2 Requirements for permanent abandonment of shot holes for specified locations are described below:

1. Requirements for permanent abandonment of shot holes drilled within the **White Area of the province** (excluding surveyed road allowances):
    - An approved plug must be placed in the shot hole at a depth of not less than 1 m below the surface of the ground.
    - Not less than 40 cm of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the shot hole, and thoroughly tamped.
2. Requirements for permanent abandonment of shot holes drilled within a **surveyed road allowance**:
    - An approved plug must be placed in the shot hole at a depth of not less than 4 m below the surface of the ground.
    - Not less than 3.4 m of an approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 60 cm of drill cuttings or other material obtained from the shot hole, and thoroughly tamped.
3. Requirements for permanent abandonment of shot holes drilled within the **Green Area of the province**:
    - An approved plug must be placed in the shot hole at a depth of not less than 1 m below the surface of the ground.
    - Not less than 20 cm of approved sealing product (e.g., bentonite) must be placed on top of the approved plug, followed by not less than 80 cm of an approved sealing product, drill cuttings or other material obtained from the shot hole, and thoroughly tamped.
4. Requirements for permanent abandonment of shot holes drilled at **heli-portable sites of a heli- portable operations**:
    - An approved plug must be placed in the shot hole at a depth of not less than 1 m below the surface of the ground.

- Approved sealing product, drill cuttings or other material obtained from the shot hole must be used to fill from the approved plug to the ground surface and thoroughly tamped.

Note: Heli-portable operations and heli-portable sites are drill locations **that exclude all ground access except by foot**. Any form of access, including using mechanical equipment, vehicles or ATVs, is not permitted.

19.4 Other

White and Green areas of the province are defined on the Environment and Parks Green/ White Area map dated September 13, 2012 Information Branch Base Map Data provided by the Government of Alberta under the Alberta Open Government License.

If shot holes and test holes are to be drilled to a depth of more than 20 m, permanent abandonment will be described and approved within the application for an approval to conduct exploration as per section 19.2.1 of this Directive.

20.0 Clearing of Vegetation on Road Allowances

20.1 Background

In some cases, vegetation may need to be cleared on surveyed road allowances as part of conducting an approved exploration program. As per section 56 of the Regulation, the requirements and procedures for clearing of vegetation on road allowances are set forth in this Directive.

20.2 Requirements

In addition to section 56(b) and (c) of the Regulation, the procedure for clearing vegetation on a surveyed road allowance is outlined below.

20.3 Procedure

Before clearing vegetation on a surveyed road allowance as part of an approved exploration program, the program licensee or program permittee as defined in sections 1(ee) and 1(ff) of the Regulation shall contact the Municipal District or Special Areas Board representative for the area

in which the proposed vegetation clearing is to occur. The Municipal District or Special Areas Board representative may provide direction to the program licensee or program permittee on the method(s) to be used in clearing and disposing of vegetation.

If the Municipal District or Special Areas Board does not provide input or direction to the program licensee or the program permittee on the method of clearing and disposing of vegetation, the program licensee or the program permittee shall contact the AER for direction.

Section 7 of the *Forests Act*, states: “The Minister shall administer and manage timber on public land under the Minister’s administration and standing and cut timber on all road allowances.” Timber is described within the *Forests Act* as: “all trees living or dead, of any size or species and whether standing, fallen, cut or extracted."

If timber is required to be harvested on a surveyed road allowance, the program licensee or program permittee must contact the Relevant Land Authority for approval prior to the harvesting and the transportation of that timber.

21.0 Cleanup of Debris, Refuse and Other Material

21.1 Background

Pursuant to and in accordance with section 57 of the Regulation , all debris, refuse and other material resulting from the conduct of an approved exploration program shall be cleaned up and disposed of in accordance with this Directive.

21.2 Requirements

The program licensee or program permittee as defined in sections 1(ee) and 1(ff) of the Regulation is required to clean up and dispose of debris and refuse, which includes material associated with marking of access, survey materials, pipeline locates associated with the approved exploration program, cap wire and any other material that was utilized in the conduct of an approved exploration program.

21.3 Procedure

21.3.1 Under Favourable Conditions

Immediately after the completion date of an approved exploration program, all lines must be completely cleared of all survey materials, material associated with marking of access, pipeline

locates associated with the approved exploration program, cap wire and any other material that was utilized in the conduct of an approved exploration program.

21.3.2 Under Unfavourable Winter Conditions

If the exploration program is conducted in the winter, and field conditions are not acceptable for complete and final cleanup, the program licensee or program permittee must:

- Conduct cleanup to the **extent possible immediately following** the completion date of an approved exploration program.
- Complete final cleanup of the approved exploration program by the following spring (May 31), or as per agreement with the AER or the private landowner as applicable.

21.4 Other

All shot holes, including shot holes that blow out, must be permanently abandoned in accordance with section 19 of this Directive.

22.0 Request for Transfer of Licence

22.1 Background

Pursuant to section 65 of the Regulation, the AER can transfer a program of exploration from one licence to another licence if both the current program licensee and the prospective program licensee agree.

22.2 Requirements

A program licensee as defined in section 1(ee) of the Regulation may apply for and receive an exploration approval from the AER as per section 23 of the Regulation. Where confidentiality is of concern, the program licensee may not be the licensee who initially commissioned the program. In these instances, the program may be transferred to another license.

To transfer the program license of an exploration program to another license, the transferee and the recipient of the transfer must agree to the transfer in writing. The recipient of the transfer must hold a valid license.

22.3 Procedure

To transfer a program to another license, the program licensee has to apply in writing to the AER identifying the exploration program and who will be the “new” program licensee.

To complete the transfer, the “new” program licensee must apply in writing to the AER and confirm agreement to accept the transfer.

Once the AER verifies the new program licensee holds a valid license, the applicant will be notified in writing that the transfer has been accepted and the AER records will reflect the change.

22.4 Other

There are no fees associated with transference of an approved exploration program from one licensee to another licensee

23.0 Cancellation of Licence or Permit

23.1 Background

Pursuant to section 66(2) of the Regulation, if the permit of the program permittee as defined in section 1(ff) of the Regulation is cancelled or suspended after a program of exploration has commenced and before a program of exploration is completed, no person shall operate exploration equipment from the time of the cancellation or suspension of the permit until a permittee with a valid and subsisting permit has been designated as program permittee.

23.2 Requirements

If the permit issued under section 16 of the Regulation of a program permittee is cancelled or suspended, exploration equipment that is being used on that program under the authority of that program permittee must immediately cease operations. Before exploration operations can proceed, the program licensee as defined in section 1(ee) of the Regulation of an approved program has to designate to the AER, who is the “new” program permittee for that approved exploration program. The “new” program permittee must be a holder of a valid permit. The procedure to notify the AER is described in this Directive.

23.3 Procedure

The program licensee must notify the AER in writing as to who the “new” program permittee for the program of exploration will be. The new program permittee must comply with section 38 of the Regulation by submitting the commencement notification to the AER and to the holder of a forest management agreement or a timber license, as described in section 11 of this Directive.

24.0 Letter of Clearance

24.1 Background

Pursuant to section 58 of the Regulation, the program licensee as defined in section (ee) of the Regulation must make an application to the AER for a Letter of Clearance for programs of exploration conducted on public lands within 2 years of the date of program completion. Also in accordance with this section of the Regulation, the program licensee may make application to the AER for a Letter of Clearance for exploration conducted within a surveyed road allowance within two (2) years of program completion.

24.2 Requirements

24.2.1 Letter of Clearance for Programs Conducted on Public Lands

- Public lands as defined in section 1(gg) of the Regulation means land that is owned by the Crown in the Right of Alberta, but does not include mines and minerals or land within a road allowance.
- Application for Letter of Clearance for programs conducted on public lands must be made within two (2) years of the date of program completion as defined in section 1(h) of the Regulation.
- Application for letter of clearance for programs conducted on public lands must consist of a completed Geophysical Site Condition Report which can be viewed or downloaded from the AER website at aer.ca.
- If a program is conducted on public lands and a surveyed road allowance, the letter of clearance applied for will include both the public land portion as well as the surveyed road allowance.
- The completed Geophysical Site Condition Report must be emailed to exploration@aer.ca.
- The completed Geophysical Site Condition Report for Programs Conducted on Public Lands can either be signed electronically by importing a signature or be left unsigned but accompanied by a statement indicating the original report was signed and is available if required.
- If a signed copy is required, the program licensee as defined in section 1(ee) of the Regulation will be contacted.

24.2.2 No Entry on Public Lands

If there was no commencement of an approved exploration program as defined in section 1(g) of the Regulation , a letter must be submitted to the AER listed below within 30 days of the expiry

date of the program approval (as per section 34 of the Regulation) indicating “no entry” and the file will be closed.

24.2.3 Letter of Clearance for Program Conducted Within a Surveyed Road Allowance

- After completion of an exploration program on a surveyed road allowance, a company may submit a request for a Letter of Clearance by completing the Geophysical Site Condition Report for Programs Conducted within a Surveyed Road Allowance.
- This program must not contain public lands, as only one letter of clearance will be issued per program.

24.2.4 Extension request for a Letter of Clearance on Public Lands

- In some cases, a geophysical program may require additional time to meet the requirements for a Letter of Clearance. Where this occurs, a written request to AER to extend the requirement of applying for a Letter of Clearance must be submitted within 2 years of the date of program completion.
- Written request for an extension to a Letter of Clearance can be emailed to exploration@aer.ca.

24.2.5 Rejection of Application

In some cases, an application for a Letter of Clearance may be rejected by the AER. Where this occurs, the applicant will be advised in writing by the AER reason(s) for rejection, which may be one or more of the following:

- The application was incomplete or contained wrong information (i.e., wrong licensee name or number).
- Application was submitted on the wrong form.
- The site did not meet the reclamation criteria.
- The application was not submitted electronically.

24.3 Procedure

When a Letter of Clearance is applied for, the program licensee must have:

1. Submitted a final plan to the AER within 90 days from the date of program completion, as per section 34 of the Regulation. The final plan is not to be submitted with the application for Letter of Clearance.
2. A fully completed Geophysical Site Condition Report for Programs Conducted on Public Lands or the Geophysical Site Condition Report for Programs Conducted within a Surveyed Road Allowance. These documents can either be signed electronically by importing a signature, or be

left unsigned but accompanied by a statement saying the original report was signed and is available if required.

3. If a signed copy is required, the program licensee will be contacted.
4. The application is to be submitted by email to: exploration@aer.ca.
5. There is no fee associated with an application or letter requesting a Letter of Clearance.
6. The following items accompanying submissions are optional:
    - covering letter
    - photographs documenting reclamation of the site

24.4 Other

Note: Only one Letter of Clearance will be issued per program.

If a program is conducted on public lands and within a surveyed road allowance, the applicant must apply for a letter of clearance using the Geophysical Site Condition Report for Programs Conducted on public land.

If a program is conducted within a surveyed road allowance and does not include public lands, a letter of clearance may be requested for that part of the program that falls within the surveyed road allowance using the Geophysical Site Condition Report for Programs Conducted within a Surveyed Road Allowance.

Directive Approval:

Original Signed by

Bev Yee, Deputy Minister
Alberta Environment and Parks

January 22, 2021

Date Approved

Appendix

Appendix 1

Approved Seismic Permit Tag

Product Name:

Metal Permit Tag (Gauge 11)

Effective date of product approval:

November 8, 2006

Approval Holder:

Allied Supplies & Services

Ltd. 5501 – 1A Street SW

Calgary, Alberta T2H 0E6

Product was approved for use in geophysical operations within the province of Alberta under section 42 of the Regulation.

Appendix 2

Approved Shot Hole and Test Hole Plug

Product Name:

Cling II plug

Effective date of product approval:

September 15, 1998

Approval Holder:

ACE Explosives

206 - 1935-32 Ave. NE

Calgary, Alberta

T2E 7C8

(bottom side view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

Approved Shot Hole and Test Hole Plug

Product Name:

Tiger Hole Plug

Effective date of product approval:

November 30, 1998

Approval Holder:

Lorries Shot Hole Supplies Ltd.

28 Gordon Cres.

St. Albert, Alberta T8N-0V6

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(bottom view)

Approved Shot Hole and Test Hole Plug

Product Name:

Energy Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Anchortek

2340 – 24 Ave. NE

Calgary, Alberta T2E 7N9

(side view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(top view)

Approved Shot Hole and Test Hole Plug

Product Name:

King Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Almecon Industries LTD.

2671 – 96 St.

Edmonton, Alberta

T6H 4N9

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(side view)

Approved Shot Hole and Test Hole Plug

Product Name:

Lock Twist Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Anchortek

2340 – 24 Ave. NE

Calgary, Alberta

T2E 7N9

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(side view)

Approved Shot Hole and Test Hole Plug

Product Name:

Neutron Perma Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

North American Nutron

4318 – 76 Ave.

Edmonton, Alberta

T6B 2H8

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(side view)

Approved Shot Hole and Test Hole Plug

Product Name:

Prince Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Almecon Industries LTD.

2671- 96 St.

Edmonton, Alberta

T6H-4N9

(side view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(bottom view)

Approved Shot Hole and Test Hole Plug

Product Name:

Queen Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Almecon Industries LTD.

2671- 96 St.

Edmonton, Alberta

T6H 4N9

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

(bottom view)

Approved Shot Hole and Test Hole Plug

Product Name:

Seis Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

ACE Explosives

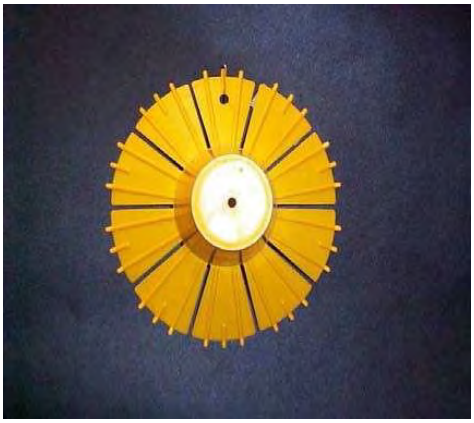
206, 1935 – 32 Ave. NE

Calgary, Alberta

T2E 7C8

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.



(bottom view)

Approved Shot Hole and Test Hole Plug

Product Name:

Spider Plu

Effective date of product approval:

September 15, 1998

Approval Holder:

Anchortek

2340 – 24 Ave. NE

Calgary, Alberta

T2E 7N9

(top view)

Product was approved for use in geophysical operations within the Province of Alberta under section 34 of the Regulation 214/98.

Appendix 3

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Swell Plug Product

Effective date of product approval:

November 18, 1998

Approval Holder:

D.N.S Consulting Ltd.

4 Midpark Close SE

Calgary, Alberta

T2X 1S4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Rigid Foam Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Ace Explosives ETI

206 – 1935 32 Ave NE

Calgary, Alberta

T2J 5V9

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

ABI, INC. Bentonite Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Marquis Fluids Inc.

2810 – 715 5 Avenue SW

Calgary, Alberta

T2P 2X6

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

CETCO Bentonite Product

Effective date of product approval:

September 15, 1998

Approval Holder:

Rice Engineering & Operation Ltd.

8505 Argyll Road

Edmonton, Alberta

T6C 4B2

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Bentonite Mesh Plug

Effective date of product approval:

December 31, 2002

Approval Holder:

Clair Dow

14235 Deer Ridge Drive SE

Calgary, Alberta

T2J 5V9

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Foam Stem Plug

Effective date of product approval:

September 15, 1998

Approval Holder:

Clair Dow

14235 Deer Ridge Drive SE

Calgary, Alberta

T2J 5V9

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Baroid Industrial Drilling Products

Effective date of product approval:

September 15, 1998

Approval Holder:

Falcon GDP Inc.

10217 Crystal Drive

Chilliwack, British Columbia

V2P 7B8

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Black Hills Bentonite, LLC – Bentonite Plug Product

Effective date of product approval:

September 17, 1998

Approval Holder:

Falcon GDP Inc.

10217 Crystal Drive

Chilliwack, British Columbia

V2P 7B8

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Liquid Tamp

Effective date of product approval:

September 15, 1998

Approval Holder:

Thermo Star Products Ltd.

800 – 605 5 Avenue SW

Calgary, Alberta

T2P 3H5

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Swell Plug Products

Effective date of product approval:

September 17, 1998

Approval Holder:

Taurus Salt Company Ltd.

P.O. Box 298

Cardston, Alberta

T0K 0K0

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Seismic Shot Hole and Test Hole Sealing Product

Product Name:

Econoplug Bentonite Product

Effective date of product approval:

September 15, 1998

Approval Holder:

Austin Powder Ltd.

3810 7 Street SE

Calgary, Alberta

T2G 2Y8

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Appendix 4

Approved Seismic Survey Marker

Product Name:

Ramin I Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

D.N.S Consultants Ltd.

4 Midpark Close SE

Calgary, Alberta

T2X 1S4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Step-in Flag

Effective date of product approval:

February 1, 1998

Approval Holder:

Anchortek Ltd.

2320 24 Avenue NE

Calgary, Alberta

T2E 7N9

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Greenstik Pin Flag

Effective date of product approval:

December 14, 1998

Approval Holder:

Bryco Manufacturing Ltd.

11 – 6230 3rd St SE

Calgary, Alberta

T2H 1K4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Plastic Staff

Effective date of product approval:

October 2, 1998

Approval Holder:

Bryco Manufacturing Ltd.

11 – 6230 3rd St SE

Calgary, Alberta

T2H 1K4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Wire Pin Flag

Effective date of product approval:

November 18, 1998

Approval Holder:

Bryco Manufacturing Ltd.

11 – 6230 3rd St SE

Calgary, Alberta

T2H 1K4

Product was approved for use under section 42 of the Regulation for geophysical operations within the White Area of the Province of Alberta only with **consent of the landowner**. This product is not approved for use within surveyed road allowances of Alberta.

Approved Seismic Survey Marker

Product Name:

F & W Seismic Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

F & W Industries

17850 106A Ave

Edmonton, Alberta

T5S 1V3

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation

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Approved Seismic Survey Marker

Product Name:

Enviro Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

Principle Geophysical Services and Products Inc.

5105 42 Street

Ponoka, Alberta

T4J 1C4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Mark I Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

D.N.S. Consultants Ltd.

4 Midpark Close SE

Calgary, Alberta

T2X 1S4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Mark II Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

D.N.S. Consultants Ltd.

4 Midpark Close SE

Calgary, Alberta

T2X 1S4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Mark V Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

D.N.S. Consultants Ltd.

4 Midpark Close SE

Calgary, Alberta

T2X 1S4

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.

Approved Seismic Survey Marker

Product Name:

Coroplast Pin Flag

Effective date of product approval:

September 15, 1998

Approval Holder:

Prairie Land Services Ltd.

747 Whiston Court

Edmonton, Alberta

T6M 2H6

Product was approved for use in geophysical operations within the Province of Alberta under section 42 of the Regulation.