



CANADIAN ASSOCIATION
OF PETROLEUM PRODUCERS

GUIDE

Geophysical Vehicle Pipeline Crossing Approval Process

September 2007

2007-0014

2100, 350 – 7th Ave. S.W.
Calgary, Alberta
Canada T2P 3N9
Tel (403) 267-1100
Fax (403) 261-4622

403, 235 Water Street
St. John's, Newfoundland
Canada A1C 1B6
Tel (709) 724-4200
Fax (709) 724-4225

Email: communication@capp.ca Website: www.capp.ca

The Canadian Association of Petroleum Producers (CAPP) represents 150 companies that explore for, develop and produce natural gas, natural gas liquids, crude oil, oil sands, and elemental sulphur throughout Canada. CAPP member companies produce more than 98 per cent of Canada's natural gas and crude oil. CAPP also has 125 associate members that provide a wide range of services that support the upstream crude oil and natural gas industry. Together, these members and associate members are an important part of a \$75-billion-a-year national industry that affects the livelihoods of more than half a million Canadians.

Review by September 2011

Disclaimer

This publication was prepared for the Canadian Association of Petroleum Producers (CAPP). While it is believed that the information contained herein is reliable under the conditions and subject to the limitations set out, CAPP does not guarantee its accuracy. The use of this report or any information contained will be at the user's sole risk, regardless of any fault or negligence of CAPP or its co-funders.

2100, 350 – 7th Ave. S.W.
Calgary, Alberta
Canada T2P 3N9
Tel (403) 267-1100
Fax (403) 261-4622

403, 235 Water Street
St. John's, Newfoundland
Canada A1C 1B6
Tel (709) 724-4200
Fax (709) 724-4225

Email: communication@capp.ca Website: www.capp.ca

Overview

This Guide to Geophysical Vehicle Pipeline Crossing Approval Process contains standardized guidance and forms for approving pipeline crossings of geophysical vehicles. It also recommends expedited approvals for:

- wheeled vehicles with a gross weight of 4,000 kg (8,800 lb.) or less, and
- tracked vehicles with a gross weight of 7,250 kg (16,000 lb.) or less.

This Guide supplements the two government regulations governing pipeline crossings during geophysical exploration activities, including the Alberta Energy and Utilities Board Pipeline Act and Regulation (Part 5, Section 66) and the Alberta Exploration Regulation 284/2006 (Section 43).

Contents

1.	Background	3
2.	CAPP Gross Vehicle Weight Limitation	3
3.	Approval Process	3
4.	Approval Timelines	3
5.	Geophysical Vehicle Pipeline Crossing Approval Form	4
6.	Utilizing Existing Pipeline Right-of-Ways	4
7.	Special Considerations	4
8.	Ground Disturbance	4
9.	Comments or Changes	5

Figures

Figure 1: GVW Pipeline Crossing Approval Process	iii
--	-----

Tables

Table 1: Typical Geophysical Equipment	ii
--	----

1. Background

Section 22.1 of Alberta Regulation 122/87 (the Pipeline Regulation) was revised in 1999 to increase the safety of pipeline vehicular crossings by stipulating that all parties except agricultural operations must obtain approval to cross pipelines regulated by the Alberta Energy and Utilities Board (EUB). The Pipeline Regulation was further revised in 2005 to add that vehicles larger than a $\frac{3}{4}$ -ton truck must gain approval before crossing a pipeline. The Alberta Exploration Regulation AR284/2006 (Section 43) also requires that approval be sought from the pipeline owner prior to crossing a pipeline with heavy equipment.

This Guide supplements the two regulations governing pipeline crossings during geophysical exploration activities.

Geophysical contractors crossing pipelines are encouraged to do so at existing high-grade road crossings and to use low ground-pressure equipment whenever possible to minimize impact on pipelines.

2. CAPP Gross Vehicle Weight Limitation

In order to expedite pipeline vehicular crossing approvals, a multi-industry task force reviewed pipeline crossing safety considerations and recommended that wheeled vehicles with a gross vehicle weight (GVW) of 4,000 kg (8,800 lb.) or less, and tracked vehicles with a gross vehicle weight of 7,250 kg (16,000 lb.) or less qualify for expedited crossing approval.

The GVW limits mentioned above were chosen based on the calculated vehicle stress exerted by a loaded, $\frac{3}{4}$ -ton pickup truck. Calculations predict that given a typical burial depth of 0.8 m and normal soil conditions, the vehicle stress involved would have little impact on a typical pipeline. Vehicle stress is a complex calculation that considers a number of factors including vehicle weight, ground pressure, and length of and distance between tracks or wheels.

Examples of typical geophysical vehicles and their associated weights appear in Table 1, Appendix A. This is by no means an exhaustive list, and it is important to note that the equipment listed is unmodified.

3. Approval Process

A standardized approval process for geophysical contractors (Grantees) wishing to cross a pipeline is outlined in Appendix A.

Owner companies may determine that a formal crossing agreement is needed to cover situations where heavy equipment is to cross the pipeline and some form of protection is warranted (i.e. scenarios 2, 3 Appendix A)

4. Approval Timelines

As outlined in Appendix A, if the geophysical equipment crossing a pipeline does not exceed the CAPP GVW limitation defined above, crossing approval should be received within five (5) business days of the original request. All involved parties

should strive to expedite the approval process to less than five (5) business days whenever possible.

Should some of the crossing equipment exceed the CAPP GVW limitation, the Grantor must indicate within five (5) business days that either special conditions apply, or that an engineering assessment is required. If an engineering assessment is required, an additional ten (10) business days should be allowed for the analysis and may cause a maximum delay of fifteen (15) business days for the Grantee. All involved parties should strive to expedite the approval process to less than ten business days whenever possible, as timing is critical during this phase of geophysical exploration.

5. Geophysical Pipeline Crossing Approval Form

To expedite the pipeline crossing approval process, a Geophysical Pipeline Crossing Approval (GPC) form is available which, when filled out completely, contains all of the information necessary for the Grantor to evaluate the crossing request. It is good practice to submit the GPC form to the Grantor well in advance of the program start date. The GPC form appears in Appendix B.

As a further note, if the Expected Date of Crossing on the GPC form differs from the Actual Date of Crossing, the Grantor shall be notified not less than 48 hours prior to the Actual Date of Crossing so that they can resolve conflicts with scheduled pipeline maintenance, notify pipeline air surveillance crews of the approved activity, and inspect the crossing if necessary.

6. Utilizing Existing Pipeline Right-of-Ways

Increasingly, geophysical contractors use existing pipeline Right-of-Ways (ROW's) as access roads during seismic programs to save time and reduce the environmental impact that otherwise results from extra cut lines. This practice can damage a pipeline if the geophysical equipment inadvertently travels over the pipeline. The Grantee shall notify the Grantor of any plans to use existing ROW's for access so procedures can be developed to avoid pipeline damage.

7. Special Considerations

Depending on depth of soil cover, wall thickness, condition of pipe, soil type, seasonal soil conditions, and so on, the Grantor may believe that any pressure caused by vehicle traffic is unacceptable without bridging or other precautions. Such cases are not covered by this recommended practice. Pipeline companies are encouraged to create their own internal list of pipelines that may warrant special consideration. Grantors are responsible for identifying and managing any unusual risks associated with their pipelines. The Grantee is responsible for following any instructions or procedures stipulated by the Grantor.

8. Ground Disturbance

Crossing a pipeline does not generally constitute a ground disturbance, but weather and ground conditions may result in rutting of a sufficient depth (30 cm or greater) to be classified as a ground disturbance. Activities such as drilling and

digging for road construction material are also ground disturbances and are governed by The Pipeline Regulation.

9. Comments or Changes

Submit any comments or suggested changes for this Guide to the Canadian Association of Petroleum Producers (CAPP), Pipelines Division, 2100, 350-7th Ave S.W. Calgary T2P 3N9

Appendix A Geophysical Vehicle Pipeline Crossing Process

A minimum of five (5) business days before starting a geophysical program that involves crossing a pipeline, the Grantee is required submit a GPC form to the Grantor to expedite the crossing approval process. The Grantor may delay the approval process until a fully-completed GPC form is received. Although the minimum notification is five (5) days, Grantees are encouraged to submit the GPC form as soon as possible.

A.1 Section 1

This section provides basic information about who is planning the crossing, where it will take place, and when the work is planned.

A.2 Section 2

This section lists the equipment that will cross the pipeline, and identifies which of it exceeds the CAPP GVW limitation. Table 1 below lists some typical equipment used during geophysical programs. It is very important that this section of the GPC form is filled out accurately, and that the Grantor is notified immediately of equipment changes.

Table 1: Typical Geophysical Equipment

Vehicle Type	GVW (kg)	Tracked or Wheeled (W/T)	Approx. Ground Pressure (kPa)	Subject to Expedited Approval (Yes/No)
Quad, Snowmobile, etc.	negligible	n/a	n/a	Yes
Bombardier Muskeg Diesel	7,250	T	11.65	Yes
Comtrac 2000	5,201	T	20.34	Yes
¾-ton pickup truck, loaded	4,000	W	48.5	Yes
1-ton truck loaded	5,000	W	54.4	No
4 x 4 Ardco	13,864	W	74.34	No
6 x 6 Ardco	22,500	W	65.70	No
Bombardier Muskeg Carrier	9,988	T	28.55	No
Foremost Nodwell 110	22,270	T	26.40	No
IVI	17,273	W	103.40	No

Vehicle Type	GVW (kg)	Tracked or Wheeled (W/T)	Approx. Ground Pressure (kPa)	Subject to Expedited Approval (Yes/No)
Foremost Delta 2	20,000	W	124.60	No
Vibroseis	20,843	W	174.90	No

A.3 Section 3

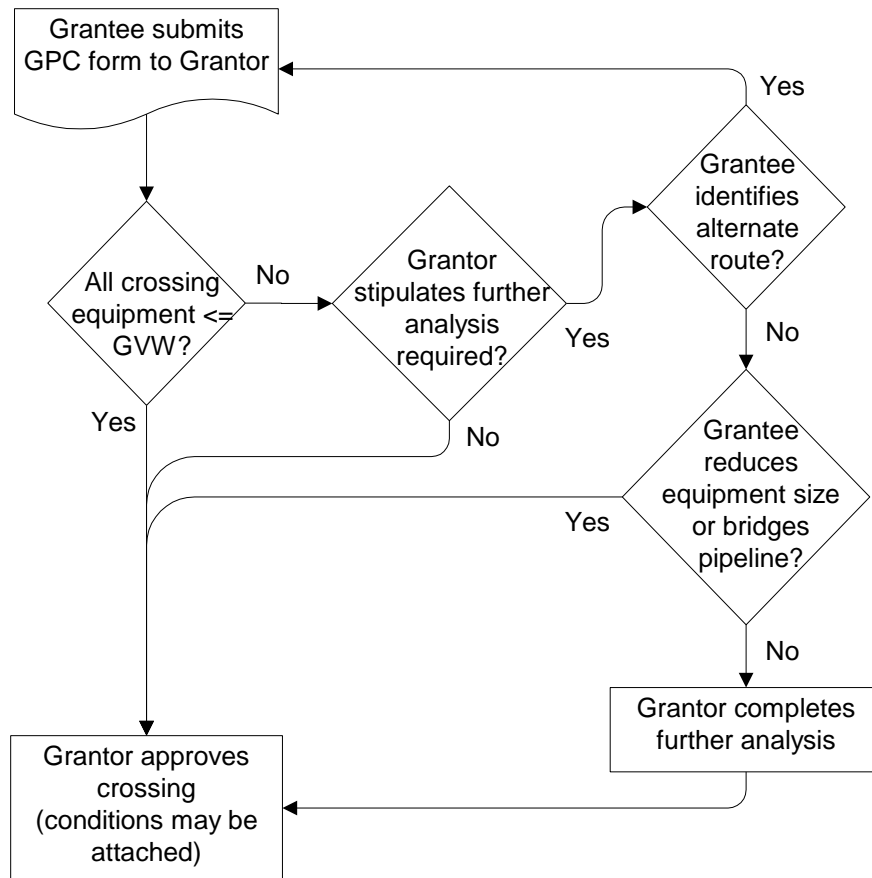
Upon receiving the GPC form, the Grantor must review the information and approve or reject the application based on the following four scenarios:

- **Scenario 1** - If the equipment crossing the pipeline weighs less than the CAPP GVW limit, in most cases automatic approval should be granted. The Grantor should respond within five (5) business days.
- **Scenario 2** - If the equipment crossing the pipeline exceeds the CAPP GVW limit, the Grantor has a maximum of five (5) business days to notify the Grantee that special conditions apply, but that no further analysis is required. Special conditions determined by the Grantor may include field inspection, or earthen ramps, rig mats, or other bridging devices over the pipeline. All involved parties should strive to expedite the approval process to less than five (5) business days whenever possible.
- **Scenario 3** - If the equipment crossing the pipeline exceeds the CAPP GVW limit, the Grantor has a maximum of five (5) business days to notify the Grantee of the need for further analysis and the Grantor has a further ten (10) additional business days to perform the analysis. The whole approval process in this case must not exceed fifteen (15) business days after the GPC form is received. All involved parties should strive to expedite the approval process time to less than ten business days whenever possible, as timing is critical during this phase of geophysical exploration.

Alternatively, upon being notified that further analysis is required, the Grantee has the option of finding an alternate crossing, reducing equipment size, or bridging the pipeline to the satisfaction of the Grantor.

- **Scenario 4** – Other. In rare instances where unforeseen circumstances prevent the Grantor from granting approval during the allowed timeframe, such as pipeline condition, conflicts with other work crews, pressure testing, and other integrity work that could pose a safety hazard to the geophysical contractor, the Grantee should contact the Grantor to make other suitable arrangements.

Figure 1: GVW Pipeline Crossing Approval Process



Appendix B Geophysical Vehicle Pipeline Crossing Form

Geophysical Vehicle Pipeline Crossing Approval Form

Section 1: to be completed by the Permittee/Geophysical Contractor (Grantee):

Date _____

Pipeline Company _____

Address _____

Field Contact Rep _____

Phone _____ Cell _____

Please be advised that the Grantee described below shall be conducting the following geophysical operations within the vicinity of (or across) your company's pipeline on (or about) the dates specified. Any crossings of the pipeline right-of-way have been identified on the attached program map or plot.

Geophysical Operations -

Source Type: (Circle)

Vibroseis

Dynamite Charge

Other

Size kg: _____

Location(s)

1/4	Section	Twp	Rge	Meridian
1				
2				
3				

Expected Date of Crossing: Day____ Month____ Year____

Please note the proposed geophysical operation **will not cause** a ground disturbance within the pipeline right-of-way as provided under the Pipeline Act of Alberta. Any geophysical operations conducted in the vicinity of the pipeline will be conducted in accordance with the Exploration Regulations of the Mines and Minerals Act of Alberta.

If there are any questions, please contact the representatives noted below.

Grantor	_____	Grantee	_____
Address	_____	Permit No.	_____
Phone	_____	Address	_____
Contact Rep	_____	Phone	_____

Section 2: - to be completed by the Grantee:

Please refer to the CAPP Guide to Geophysical Pipeline Crossings, Table 1, Appendix A to complete the following:

List of Geophysical Equipment Ground Pressures Expected

List the Type of Equipment to be used	Tracked or Wheeled Vehicle (W/T)	Equipment Weight GVW (kg)

Section 3: to be filled out by the Pipeline Owner (Grantor):

Receipt of this notice is acknowledged this ___ day of _____ 20__

Scenario	Indicate by check mark
1 Crossing Approved equipment is less than 4,000 kg (8,800 lb.) GVW – wheeled vehicles, or 7,250 kg (16,000 lb.) GVW – tracked vehicles	
2 Crossing Approved equipment is over the CAPP GVW limitation for wheeled or tracked vehicles special conditions may apply (see attached).	
3 Crossing Denied equipment is over the CAPP GVW limitation for wheeled or tracked vehicles and further engineering assessment is needed (see attached).	
4 Crossing Denied at this time (see attached).	