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May 4, 2009

Via electronic filing

Attention: Kirsten Walli, Board Secretary
Ontario Energy Board
PO Box 2319
2300 Yonge St.
Toronto, ON M4P 1E4

Dear Madam Secretary:

RE: GAPLO-Union (Dawn Gateway) / CAEPLA
Pre-filed Evidence
Union Gas Application for Leave to Sell Natural Gas Pipeline
EB-2008-0411

Further to the Board's Procedural Order No. 1, please find enclosed the pre-filed evidence of GAPLO-Union (Dawn Gateway), CAEPLA and directly affected landowners.

Yours very truly,

COHEN HIGHLEY LLP

John D. Goudy
email: goudy@cohenhighley.com

Encl.

EB 2008-0411

ONTARIO ENERGY BOARD

IN THE MATTER OF The Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B, and in particular, s.43(1) thereof;

AND IN THE MATTER OF an Application by Union Gas Limited ("Union") for an Order granting leave to sell 11.7 kilometres of 24 inch diameter steel natural gas pipeline running between the St. Clair Valve Site and Bickford Compressor Site in the Township of St. Clair.

CAEPLA Written Evidence Statement
May 4, 2009

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1. The Canadian Association of Energy and Pipeline Landowners Associations (**"CAEPLA"**), formerly known as CAPLA, has intervened jointly with GAPLO-Union (Dawn Gateway) in this proceeding.

2. CAEPLA is, in part, an umbrella organization made up of regional pipeline landowner groups from across Canada, including member organizations in New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia.

3. Formed as the Canadian Alliance of Pipeline Landowners' Associations (**"CAPLA"**) in 2000, our objective with respect to pipeline landowners is to assist them to address more effectively the impacts of energy pipeline construction and operations which affect

landowners' interests, including soil preservation, environmental liability, land use restrictions, safety, repair and maintenance issues and compensation. We are a catalyst for organization of pipeline landowner associations by providing organizational advice and assistance.

4. CAEPLA has also been active in assisting landowners in dealing with the National Energy Board (**"NEB"**). On the basis of this experience, we are able to provide the following statement to the Ontario Energy Board (**"OEB"**) with respect to the disadvantages for landowners that come with NEB jurisdiction.

Jurisdiction and the role of the regulator

5. First, CAEPLA can speak to the experience of Alberta landowners in the TransCanada Alberta System who have recently been transferred into the NEB jurisdiction. Landowners in Alberta are now facing the same types of negative impacts of federal jurisdiction as Ontario landowners will face if Union's application is approved. And yet, in its application to the NEB for approval of the transfer of jurisdiction, TransCanada refused to carry out advance public consultation with landowners that would inform them about the proposed change and allow them to participate in the NEB process.

6. The NEB, rather than holding TransCanada to its responsibilities to inform landowners and enabling landowners to become involved in the regulatory process, approved the transfer application in spite of the failure to consult and then went out itself and told landowners that they had nothing to worry about.

7. Alberta landowners are not happy with this situation. They are not happy about being left in the dark with respect to the TransCanada application for the transfer of jurisdiction. They are not happy about the increased land use restrictions that now apply to their lands simply as the result of a business decision by a multi-billion dollar multi-national pipeline company.

8. What pipeline landowners want and need is respect. They own lands that have been chosen by pipeline companies as the route for their pipelines. They are not pipeline landowners by choice, and they and their farming operations cannot afford to bear the costs that result from business decisions that are based on the best interests of the pipeline company.

9. That is where the regulator must step in. The regulator, acting in the public interest, must ensure that landowners are not helplessly victimized by the presence of pipelines on their lands. The regulator allows a pipeline to be built because it is in the public interest, and it must not lose sight of the public interest when it comes to considering applications for changes in the operation or management of the pipeline. In our opinion, and in the opinion of the Alberta landowners we have spoken to, the NEB failed landowners in the TransCanada Alberta System.

Cost recovery for regulatory proceedings

10. Second, CAEPLA can speak to the way in which the NEB has failed pipeline landowners and the public interest in its lack of meaningful response to the need for cost awards to allow directly affected pipeline landowners to participate in NEB regulatory proceedings.

11. Partly as a response to CAEPLA's complaints to the NEB about the inability of landowners to participate fully and meaningfully in the federal regulatory process as a result of cost constraints, the NEB began its Land Matters Consultation Initiative ("LMCI"). CAEPLA submitted papers responding to the NEB's LMCI Stream 1 Discussion Paper on Company Interactions with Landowners (**Attachment 1**) and to the NEB's LMCI Stream 2 Discussion Paper on Improving the Accessibility of NEB Processes (**Attachment 2**).

12. Ironically, CAEPLA and its landowner and association members have had to participate in the LMCI process without any funding support or possibility for cost recovery. To date, although the LMCI process was launched in October, 2007, no progress has been made with respect to introducing cost recovery for directly affected landowners in NEB regulatory proceedings. In this respect, the LMCI process has been a complete failure.

13. NEB-regulated pipeline landowners faced with pipeline company regulatory applications are still left with the difficult choice between investing their own time and money into participating in the process (including the costs of legal and expert representation) and doing nothing. Not surprisingly, few landowners are in a position to respond to applications that may have serious consequences for their land and their farming operations.

14. CAEPLA and the Alberta Association of Pipeline Landowners (**"AAPL"**) intervened jointly in the TransCanada Alberta System proceeding in 2008. We did so at our cost to give a voice to the thousands of Alberta System landowners who weren't even notified of their opportunity to raise concerns with the NEB. If the sale by Union of the St. Clair pipeline is approved, directly affected landowners will, like the Alberta landowners, lose

their ability to seek recovery of costs for regulatory proceedings. Such a loss results directly in a loss of access to justice for landowners.

Loss of Jurisdiction on Pipeline Abandonment

15. Third, CAEPLA can speak to the concerns of pipeline landowners all across Canada about the uncertainty they face when pipelines are eventually abandoned. CAEPLA, again at its own cost, participated in the NEB's LMCI Stream 3 hearing on the Financial Aspects of Pipeline Abandonment. CAEPLA presented expert evidence regarding the potential liabilities that landowners face, in particular in the NEB context where the regulator has said it loses authority over the pipeline when it makes an abandonment order.

16. In response to the NEB's LMCI Stream 4 Discussion Paper on the Physical Issues of Pipeline Abandonment (**Attachment 3**), CAEPLA filed a paper describing the need for a landowner option for pipeline removal on abandonment to deal with the loss of NEB jurisdiction on abandonment and the uncertainty surrounding the financial capacity of a pipeline company at the time when its pipelines are no longer economically and/or physically viable (**Attachment 4**).

17. This evidence was prepared under the direction of David Core, President of the Canadian Association of Energy and Pipeline Landowners Associations.

ATTACHMENT 1

Canadian Alliance of Pipeline Landowners' Associations (CAPLA)

CAPLA Response to NEB LMCI Discussion Papers

Stream 1: Company Interactions with Landowners

March 18, 2008

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Introduction

This is a blueprint for change.

The NEB's current processes and company process expectations and requirements have not facilitated the resolution of longstanding landowner issues. Whatever progress landowner associations have achieved in addressing these issues in negotiations with the companies has been achieved despite the NEB's regulation and not as a result of it. However, the NEB has the statutory jurisdiction to establish the regulatory context in which landowners believe their longstanding issues can be resolved. CAPLA's responses to the NEB's LMCI Streams 1 and 2 provide CAPLA's proposal with respect to how this objective can be achieved.

LMCI Topic 1 – Landowner Notification and Company Consultation Programs

CAPLA's position is that:

- The NEB's current expectations for company notification and consultation as outlined in the Filing Manual do not achieve the Board's objective of ensuring "that the rights and interests of those impacted by regulated facilities are respected";

- Filing Manual requirements limited to landowner notification and consultation without mandating issue resolution prior to certificate issuance do not result in landowner issues being satisfactorily addressed;

- Regulatory minimum requirements for easement agreements and Filing Manual "performance measures" should include provisions to ensure the satisfactory resolution of landowner issues. The proposed easement agreement and company fulfillment of "performance measures" should be subject to Board review and approval at the certificate hearing;

- Companies should either be required to negotiate resolution of landowner issues before proceeding with certificate applications, or these issues must be determined by the Board before approval of issuance of a Certificate of Public Convenience and Necessity;

- To achieve such issue resolution, the Board must include in its notification and consultation requirements an obligation for the companies to fund reasonable landowner legal, consultant and negotiating costs to resolve their issues by agreement or to pursue these issues at the certificate hearing;

- All Certificates of Public Convenience and Necessity should include provision for the establishment of a Joint Committee with company and landowner representatives to address issues arising during both construction and pipeline operations through to abandonment. These Committees should be funded by the company annually with

reasonable provision for the costs of independent legal and consultant advice for landowners and arbitration of issues not capable of negotiated resolution.

Key Questions A/B – Why do the NEB's expectations for company notification and consultation as outlined in the Filing Manual fail to ensure "that the rights and interests of those impacted by regulated facilities are respected"?

With the issue of a Certificate of Public Convenience and Necessity, a company has the statutory power to enter upon the land of any person to construct, lay, carry or place its pipeline (*NEB Act* Section 73(c)). Failing voluntary surrender of easement land rights, the company may obtain an immediate right of entry by Board order (*NEB Act* Section 104). While the *Act* stipulates minimum requirements for a land acquisition agreement (Section 86(2)), the *Act* requires only that such agreements provide for compensation for land rights and damages – it does not require these or any other issues to have been resolved by agreement prior to company entry. Although the Board has jurisdiction to prescribe by regulation other matters which must be addressed in land acquisition agreements (*NEB Act* Section 86(f) and Section 107(a)), no such additional minimum requirements have been prescribed.

It is in this expropriation context that companies are enabled to carry out the NEB's Filing Manual expectations for notification and consultation with landowners. There is no requirement under the *Act* or these Filing Manual requirements that landowner issues be resolved either by agreement with the company or as determined by the Board before the company is issued its certificate and empowered to appropriate the necessary land rights for the construction and operation of its pipeline. In short, the Board's process expectations with respect to "communicating project details and negotiating land use agreements" do not result in landowners who "contact companies with any complaints or concerns they may have during construction or operation activities on the right-of-way" being enabled to "participate in processes **to resolve** the concern."

More specifically with respect to the Board's Filing Manual expectations for company notification and consultation, the Filing Manual leaves to the discretion of the company when consultation is initiated; what information is communicated; how the company

responds (or fails to respond) to identified issues; whether (or not) these concerns are addressed; how this "input" affects project design, construction or operation; how consultation outcomes are reported; and what environmental and socio-economic effects are assessed. These expectations "leave the fox in charge of the hen house" and, not surprisingly, the results are:

- Despite notification of landowner concerns early in the planning process, companies are refusing to undertake meaningful negotiations with landowner associations until after the certificate application is filed and generally not until the evidentiary record is complete and a hearing is imminent;

- Information provided by newsletter and open houses is, at best, very simplistic and limited with respect to project routing, design, construction, easement agreement and compensation issues. Detailed information required for resolution of landowner issues is generally not made available until the application is actually filed and often not until well into the hearing process;

- While expressing willingness to meet with representatives of landowner associations, companies typically refuse to fund the legal, consultant and negotiating costs necessary for the satisfactory resolution of landowner issues forcing landowner associations to incur these costs to participate in the certificate hearing process with no assurance of cost recovery;

- In its consideration of Filing Manual expectations for company notification and consultation with landowners, the Board is adopting company identification and assessment of landowner issues and relying upon company assurances that post-certificate consultations will resolve these issues;

- In their assessment of project specific and cumulative environmental and socio-economic effects, companies are being permitted by the Board to ignore the increasing impacts of ever expanding pipeline utility corridors on whole farm productivity; agricultural and cropping practices; agricultural and non-agricultural

development; abandonment implications; and landowner safety, liability and quality of life;

- Having narrowly defined and limited the landowner issues to be assessed, companies are not required to demonstrate that these issues have been resolved but only that they have been considered in the consultation process and have been assessed not to be significant or as amenable to "compensation" even though none of the form, period and amount of compensation is considered by the Board prior to certificate issue;

- After certificate issue, apart from the company's own post-construction monitoring reports identifying, assessing and reporting on the remediation of adverse impacts, there is no independent identification and assessment of residual construction impacts and whether resolution of landowner concerns has been successfully implemented;

- There is similarly no forum or mechanism for the identification and resolution of ongoing impacts of pipeline operations up to and including abandonment.

Key Questions C/D – What expectations or requirements should the NEB have for company notification and consultation programs to ensure satisfactory resolution of landowner issues?

To achieve satisfactory resolution of landowner issues, the Board's expectation and requirement should be that companies must resolve landowner issues by negotiated agreement or as determined by the Board at the certificate hearing before issue of a Certificate of Public Convenience and Necessity. To ensure appropriate identification and assessment of these issues and to permit their satisfactory resolution, the Board should require the companies to fund the reasonable legal, consultant and negotiating costs of landowners required to resolve their issues by agreement or to pursue these issues at the certificate hearing. In this context, with sufficient funding, the relevant measure of landowner satisfaction would be either a settlement agreement or Board endorsement of resolutions proposed by landowners. In addition, pre and post-construction landowner

surveys administered by qualified, independent consultants might be used by the Board to ensure that landowner issues are being identified, assessed and satisfactorily resolved.

With respect to current statutory and Filing Manual requirements related to company notification and consultation requirements, CAPLA proposes the following:

- Exercising its jurisdiction under Section 86(2)(f) and Section 107(a) of the *NEB Act*, the Board should amend the current minimum requirements for land acquisition agreements to require that these agreements include provisions to resolve many of the generic landowner issues which have been identified. The Board should then develop a standard form easement agreement reflecting these minimum requirements. For example, such mandated minimum requirements should include a requirement for pipeline removal on abandonment unless otherwise agreed by landowners at the time of abandonment; no surrender or assignment by the company without landowner consent; no restrictions on agricultural use; indemnity for costs to accommodate future development; and construction period compensation for land rights and damages with provision for an annual reviewable payment thereafter;

- In addition, the Filing Manual requirements for landowner notification and consultation should be amended to include "performance measures" which ensure the satisfactory resolution of these same (and other) generic issues. For example, Filing Manual expectations should be amended to require companies to establish upon certificate applications that financial provision is in place to fund pipeline removal and to protect landowners from potential liability from deteriorating abandoned pipe or operator insolvency; that blanket crossing permission for all agricultural equipment and practices has been provided with provision requiring mitigation or compensation for any future restrictions; that project design (routing, depth, pipe thickness etc.) will accommodate current and potential future agricultural and non-agricultural development; and that the compensation package provides construction period compensation to include minimum market value land rights, a linear disturbance bonus, multiple year declining crop loss and a wet soil shutdown damage premium, with an annual payment thereafter reviewable every 5 years;

- Attached as Schedule 1 to this CAPLA LMCI Response is a summary chart providing examples of these and other generic landowner issues with CAPLA's proposed regulatory minimum easement requirements and Filing Manual "performance measures" derived from recent pipeline project settlements to address these issues. As part of the Board's LMCI initiative, CAPLA is prepared to work with the Board and industry to identify further generic landowner issues and provisions required for their resolution which should be mandated as minimum easement agreement provisions and Filing Manual notification and consultation requirements.

Key Questions E/F – How should the Board monitor and evaluate company fulfillment of minimum easement requirement and "performance measure" expectations?

Having established minimum easement agreement requirements and filing manual "performance measure" expectations, the Board should then monitor and evaluate company fulfillment of these requirements from the filing of the preliminary information package through the certificate hearing process, at hearing, during construction and post-construction during pipeline operations up to and including abandonment. This monitoring and evaluation should include:

- Inclusion in the preliminary information package of a methodology, timetable and costs budget for landowner consultation including negotiations with representatives of a landowner association;

- Filing Manual requirements for certificate applications to include a pre-filing independent landowner survey (developed and implemented in conjunction with the landowner association) identifying landowner issues and concerns with respect to both current pipelines and proposed construction; a consultation report to the date of filing identifying issue resolution, outstanding issues and the process, timetable and costs budget for continuing negotiations; and a pre-hearing update of this consultation report identifying issue resolution, issues to proceed to hearing and related costs budget;

- Board review and approval at hearing of easement agreements and determination of unresolved issues as a pre-condition to application approval and certificate issue;

- Certificate conditions to include establishment of Joint Committees and independent landowner construction monitors;

- Post-construction independent landowner survey (developed and administered in conjunction with the landowner association) with respect to implementation of resolution of landowner issues; and identification, assessment and remediation of construction impacts and continuing impacts;

- Mandatory filing of independent landowner construction monitor and Joint Committee reports with respect to construction and continuing impacts;

- Mandatory filing of annual Joint Committee reports with respect to identification and assessment of continuing and new issues, negotiated issue resolutions and arbitrations with annual budget reporting.

Key Question G/H – How can the Board ensure compliance with minimum easement agreement requirements and amended Filing Manual "performance measure" expectations?

The Board's monitoring of a company's notification and consultation from the preliminary information package through to the hearing is to ensure the appropriate identification and assessment of landowner issues and a reasonably funded process for their resolution either by negotiated agreement or by Board determination. To accomplish this objective, as a pre-condition to the issue of any Certificate of Public Convenience and Necessity, the Board must be satisfied with this consultation process and its results. In addition to requiring and reviewing progress reports and landowner surveys, the Board should implement mandatory Board staff supervised mediation funded by company applicants before proceeding with oral hearings. Mediation reports should record the respective positions of the parties, the extent to which issues have been resolved and the issues remaining for Board determination.

The independent monitor and Joint Committee reports filed with the Board during and following construction, and subsequently during operations of the pipeline up to and including abandonment, together with post-construction landowner surveys will identify for the Board continuing issues. Included in Joint Committee costs budgets should be provision for the parties to return to the Board for arbitration of issues not capable of negotiated resolution.

LMCI Topic 2 – Process of Acquiring Access to Right-of-Way

CAPLA's position is that:

- Landowners who are unable to negotiate a satisfactory land acquisition agreement are subject to expropriation. Accordingly, landowners are not in a position to "negotiate with the companies to obtain satisfactory terms in exchange for the land rights";

- The NEB's statutory power enabling it to "approve a project prior to any land use agreements being in place between the company and landowners" is inconsistent with its expressed expectation "that a legal agreement be signed for the rights". Companies do not need to fulfill this expectation by coming to a negotiated resolution of landowner issues before being permitted to proceed with their projects;

- As above (see Topic 1), with respect to the process of land rights acquisition, regulatory minimum easement agreement requirements and Filing Manual "performance criteria" should include the provisions required to address satisfactorily generic landowner issues. Reasonably funded landowner consultation/NEB mediation with resolution of landowner issues by negotiated agreement or Board determination should then be a pre-condition to certificate issue;

- Similarly, with respect to entry access for integrity and maintenance digs on any existing or new pipeline, regulatory minimum easement agreement requirements and Filing Manual "performance criteria" should provide that, apart from emergencies, post-construction easement access will require landowner agreement in the standard form of an "integrity dig agreement".

Key Questions I/J/K – What is required to ensure that landowners' rights are respected and the NEB's expectation "that a legal agreement be signed for the rights" be fulfilled both with respect to land acquisition and a company's need to access the lands?

The current regulatory context for negotiation of land rights or land access does not respect the rights of landowners or ensure fulfillment of the NEB's expectation "that a legal agreement be signed for the rights". Since companies are not required to come to a negotiated resolution of landowner issues before appropriating the land rights necessary to proceed with their projects, and the Board does not require resolution of these issues before approving applications and issuing certificates, landowners have little bargaining leverage to achieve satisfactory resolution of their concerns.

To resolve this inequity in the bargaining position of the parties and to promote implementation of easement agreements which satisfactorily address landowner issues, CAPLA proposes:

- With respect to land acquisition, regulatory amendment of current minimum requirements for land acquisition agreements and amendment of Filing Manual requirements to include "performance criteria" to ensure satisfactory resolution of generic landowner issues (see Topic 1 above). Having mandated minimum easement agreement requirements and established Filing Manual "performance criteria" to achieve satisfactory resolution of landowner issues, provision for reasonably funded landowner consultation/NEB mediation will facilitate satisfactory resolution of landowner issues by negotiated agreement. For issues not resolved by agreement, the Board will then be empowered at the certificate hearing to evaluate the consultation process relative to Filing Manual "performance measures", assess the proposed easement agreement relative to regulatory minimum requirements, and determine the resolution of outstanding issues before approval of applications and certificate issuance;

- Similarly, with respect to easement access for maintenance and repair work, the minimum requirements for land acquisition agreements beyond those in Section

86(2) should be prescribed to include a provision restricting off easement access to emergencies or subject to an "integrity dig agreement". Filing Manual "performance criteria" should be amended to require that companies include for Board review and approval on certificate applications the form of "integrity dig agreement" to be made available to landowners during operation of the pipeline with specified minimum requirements.

Key Questions L/M – Currently, what differences are there in company specific land acquisition agreements which should be reflected in regulatory minimum easement agreement requirements and Filing Manual "performance measures"?

Land acquisition for pipeline construction and subsequent access demands for maintenance and integrity dig operations raise common issues for landowners which are not project specific but are generic to all pipelines. These issues include abandonment costs and liability, regulatory restrictions on agricultural operations and future land development, interference with agricultural and cropping practices, loss of soil productivity and related loss of profits and opportunity costs, and mitigation of or compensation for these impacts.

Since there are no regulatory or Filing Manual requirements that these issues be addressed and resolved in land acquisition agreements or as determined by the Board, they are considered only superficially, if at all, as part of company consultations or before the Board. As a result, current easement agreements (and related landowner agreements) reflect only the limited success which landowner associations have been able to achieve on these issues in negotiations conducted under the severe restrictions of the present regulatory context. Nevertheless, despite current NEB process limitations, recent company specific land acquisition and related landowner agreements do suggest at least partial answers to the satisfactory resolution of some of these issues. Attached as Schedule 2 to this CAPLA LMCI Response is a summary chart recording the resolution of generic landowner issues in recent pipeline settlements (the settlement documents referenced have been filed previously with the Board in other proceedings). CAPLA has included the provisions in bold type in this Schedule 2 in its proposed regulatory minimum requirements for easement agreements and Filing Manual "performance measures" set out in Schedule 1.

CAPLA's specific proposal for the satisfactory resolution of landowner issues as summarized in Schedules 1 and 2 is:

- To address abandonment issues: mandatory minimum easement agreement provisions requiring pipeline removal at the landowner's option (as per Union Gas); restoration standards to previous productivity or fertility except as compensated (as per Union Gas); company surrender and release only with landowner consent (as per Union Gas, Enbridge); and company assignment only with prior notice (Union Gas) and continuing liability (Union Gas). Filing Manual "performance measures" requiring financial provision to fund removal and no assignment unless assignee has equivalent credit rating or continuing liability (Enbridge);

- To address pipeline crossing issues: mandatory minimum easement agreement provisions requiring increase of pipeline depth to accommodate agricultural facilities and processes (Union Gas) and no restrictions on agricultural use. Filing Manual "performance measures" requiring depth of cover survey (Enbridge); maintain pipeline at greater of design depth or 3 ft. (Union Gas) by restoring topsoil or lowering pipe, or compensate (Union Gas, Enbridge); blanket crossing approval for all agricultural equipment except as specified (Enbridge); restrictions to be specified, then mitigated or compensated (Enbridge);

- To address off easement access issues: mandatory minimum easement agreement provisions limiting off easement access to emergencies with a follow-up report or with an Integrity Dig Agreement (Union Gas, Enbridge). Filing Manual "performance measures" specifying minimum requirements for the form of Integrity Dig Agreement, including stipulation of the agreed construction period; identification of access and dig site lands; advance compensation with top up rights paid on a minimum 0.5 acres; and a 150% compensation premium for construction outside the agreed period, extending longer than 45 days or in wet soil conditions (Union Gas, Enbridge);

- To address future use issues: mandatory minimum easement agreement provisions requiring reasonable efforts by the company to accommodate changes in future use

at the company's expense (Union Gas). Filing Manual "performance measures" requiring that project design accommodate current and potential future agricultural and non-agricultural use;

- To address surface facility issues: mandatory minimum easement agreement provisions requiring location of surface facilities at lot lines or road allowances (Union Gas, Enbridge). Filing Manual "performance measures" requiring that surface facilities not interfere with current and potential future agricultural and non-agricultural use;

- To address soil impacts/construction issues: mandatory minimum easement agreement provisions requiring restoration to previous productivity and fertility or compensation (Union Gas); and pipeline not to obstruct drainage or cultivation (Union Gas, Enbridge). Filing Manual "performance measures" requiring independent construction monitors and Joint Committee (Union Gas, Enbridge); drainage guaranty and responsibility for increased costs (Union Gas, Enbridge);

- To address compensation issues: mandatory minimum easement agreement provisions requiring construction period compensation for land rights and damages (Union Gas, Enbridge) with provision for an annual reviewable payment thereafter. Filing manual "performance measures" requiring that construction period compensation include minimum market value land rights, a linear disturbance bonus, multiple year declining crop loss and a wet soil shutdown damage premium (Union Gas, Enbridge), with an annual payment thereafter reviewable every 5 years.

Key Questions N/O – What expectations or requirements should the NEB have for company land acquisition agreements and access needs to ensure satisfactory resolution of landowner issues?

Implementation by the NEB of the regulatory minimum easement agreement requirements and Filing Manual "performance measures" proposed by CAPLA in Schedule 1, which are derived from the recent pipeline settlements summarized in Schedule 2, will establish the Board's expectations or requirements for company land acquisition agreements and access

needs. Requiring a reasonably funded landowner consultation/NEB mediation process and Board review and approval of the proposed easement agreement and consultation process at the certificate hearing, and Board monitoring of company notification and consultation programs with Integrity Dig Agreements and post-certificate NEB arbitration to address post-certificate issues as above (see Topic 1), will then ameliorate some of the inequity in current negotiations and facilitate the satisfactory resolution of landowner issues.

LMCI Topic 3 – Vehicles Crossing the Right-of-Way

CAPLA's position is that:

- The reason why "the crossing of vehicles over a pipeline imposes additional stress on the pipeline and therefore risk to its integrity" is because existing pipelines have been constructed at depths and with design specifications insufficient to accommodate surface agricultural activity in the environment in which they co-exist;

- Current regulatory restrictions protect pipeline integrity at the cost of agricultural landowners;

- Regulatory minimum easement agreement requirements and Filing Manual "performance measures" should limit pipeline interference with agricultural use and require any such restrictions to be specified, mitigated or compensated.

Key Questions P/Q – Why do the NEB's current regulatory restrictions on agricultural activities on and adjacent to pipeline easements fail to ensure "that the rights and interests of those impacted by regulated facilities are respected"?

The depth and design of existing pipelines was determined by the pipelines with regulatory approval from the National Energy Board (or its predecessor). Accordingly, responsibility for risk to pipeline integrity resulting from inadequate depth or design deficiencies rests solely with the companies and the Board. Landowners should not be burdened with the costs related to these regulatory restrictions when it is the companies who primarily benefit from this regulatory protection of the integrity of their pipelines.

Landowners do not just "have concerns over the time it takes to get approvals, the inconvenience and disruption to farming practices, the inconsistency of the approval process between companies, and the lack of a blanket crossing approval for certain vehicle types." Current regulatory restrictions under Section 112 of the *NEB Act* and

pipeline crossing regulations, both on easement and on the adjacent 60 metre control zone, include:

- Company consent and notice requirements for cultivation or other agricultural activities on easement or in the control zone (off-easement) at depths more than 30 centimetres (12 inches) or which reduce cover over the pipeline;

- Company consent requirement for the operation of farm equipment across the pipeline easement;

- Company consent and/or notice requirements for control zone (off-easement) construction and/or repair of "facilities" such as fencing, irrigation and drainage systems;

- Freezes on "excavation" which may extend to the whole of a landowner's property for up to three working days;

- Operational delays associated with obtaining consents or providing notice;

- Regulatory obligations to comply with company requirements for construction, maintenance and abandonment of on easement and control zone (off-easement) facilities with resulting land use limitations; and

- Risk of criminal prosecution and penalty (with fines of up to $1 million and/or imprisonment up to 5 years) and civil liability for regulatory contraventions.

The "current mechanisms and approaches" noted by the Board in its LMCI discussion paper have not been effective in relieving landowners of the burden of these regulatory restrictions. "Specially constructed crossings" are simply not feasible to accommodate the thousands of crossings along the whole pipeline length undertaken by farmers every year to complete cultivation, fertilizing, planting, spraying and harvest operations. For the same reason, requesting "approval for every vehicle crossing each time a landowner needs to cross the right-of-way" is simply unworkable. While "blanket approval for vehicles within a certain range of specifications" might seem to be the answer, the "blanket approvals"

provided to date by the companies for "normal" farm equipment and practices exclude many "normal" equipment and practices (e.g. transport trucks and excavation more than 12" or 18") and continue to leave the risk with the landowner as to whether he or she has complied with regulatory consent requirements.

Agricultural operations are time sensitive – failure to complete these operations within a narrow time window (often hours) can result in subsequent weather delays, reduction in whole crop quantity and quality, and additional costs for rescheduling labour and equipment use. Faced with the prospect of time delays to obtain necessary regulatory consents, landowners are forced either to change their agricultural practices to avoid the need for regulatory consent, or to proceed without consent and thereby risk regulatory contravention. However, even those who attempt to avoid regulatory compliance by changing their agricultural practices (e.g. creating headlands rather than crossing control zone and pipelines; reducing cultivation depth to less than 12", etc.) suffer the increased time and financial costs associated with these changes as well as environmental impacts (e.g. increased compaction) and related production losses.

As a result, whether landowners comply with regulatory consent requirements, change their agricultural practices to avoid regulatory requirements, or risk regulatory contravention, they incur loss of income, increased costs, development limitations and diminished property value arising from:

- Inability to make use of modern cultivation technologies and large scale farm equipment;
- Facility construction and expansion restrictions or forced location on alternate sites;
- Operational time delays which may extend up to 18 calendar days (or indefinitely for crossing permissions for which there is no required response time);
- Operational disruptions and interference with management flexibility;
- The restriction or limitation of control zone or easement activities to limit criminal and civil liability exposure; and/or

- Limited land rental and sharecropping opportunities and decreased rental value.

There can be no issue that it is "the rights and interests of those impacted by regulated facilities" (i.e. landowners) which are prejudiced by the NEB's current regulatory restrictions on agricultural activities on and adjacent to pipeline easements. To address landowner impacts and resolve issues arising from these regulatory restrictions will require recognition that the need for restrictions is the responsibility of the companies and the Board; the benefit of restrictions is principally realized by the companies; and landowners should not be required to bear the costs arising from these restrictions. New pipelines should be constructed so as not to interfere with agricultural operations and, insofar as possible, existing pipelines should be adapted to accommodate agricultural facilities and processes. To the extent that restrictions on agricultural activities cannot be avoided or mitigated, landowners should be compensated.

Key Questions R/S – What is required to ensure that landowners' rights are respected and that landowners are not required to bear the costs of regulatory restrictions intended to protect pipeline integrity?

To place the burden of the costs of regulatory restrictions to protect pipeline integrity on the companies where they properly belong, regulatory minimum easement agreement requirements and Filing Manual "performance measures" should limit pipeline interference with agricultural use and require any such restrictions to be specified, mitigated or compensated. CAPLA proposes:

- With respect to new pipelines, the Board should amend current regulatory minimum easement agreement requirements to include a provision requiring companies to design and construct pipelines so as not to restrict agricultural use and to accommodate agricultural facilities and processes;

- Filing Manual "performance measures" should include an initial depth of cover survey following construction and regular depth of cover surveys thereafter with the company required to maintain the pipeline at design depth (or at least 3 ft., whichever is greater) or to lower the pipe or compensate landowners for any

restrictions on their agricultural activities. In addition, companies should be required to include on certificate applications a blanket crossing approval for all agricultural equipment and processes except as specified, again with any restrictions to be mitigated or compensated. These same "performance measures" should apply to both new and existing pipelines.

Key Questions T/U – What expectations or requirements should the NEB have for companies to accept responsibility for regulatory restrictions on agricultural operations?

The regulatory minimum easement agreement requirements and Filing Manual "performance measure" provisions proposed by CAPLA to address landowner concerns with respect to regulatory restrictions on agricultural operations are summarized in Schedule 1. As mentioned previously, most of these provisions are derived from recent pipeline settlements and reflect provisions to which at least some pipeline companies have already agreed. In at least some measure, these provisions shift the costs of regulatory restrictions from landowners to the companies. Implementation by the NEB of such requirements would promote resolution of landowner concerns.

ATTACHMENT 2

Canadian Alliance of Pipeline Landowners' Associations (CAPLA)

CAPLA Response to NEB LMCI Discussion Papers

Stream 2: Improving the Accessibility of NEB Processes

March 18, 2008

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Introduction

Current NEB hearing processes do not promote fulfillment of the NEB's stated goals to "respect the rights of those affected" by NEB regulated facilities or to "fulfill its mandate with the benefit of effective public engagement".

As proposed by CAPLA in its response to the NEB's LMCI Stream 1 Discussion Paper "Company Interactions with Landowners", satisfactory resolution of landowner issues can only be achieved by mandating minimum easement agreement requirements and Filing Manual "performance measures" which address landowner concerns; including reasonable provision for legal, consultant and negotiating costs in company notification and consultation requirements; monitoring company consultations up to the certificate hearing, including mandatory funded NEB mediation; Board review of the proposed easement agreement and consultation process at the certificate hearing with reference to amended minimum requirements and "performance measures"; and determination by the Board of unresolved landowner issues prior to approval and issuance of the Certificate of Public Convenience and Necessity. This paper addresses the deficiencies in the current NEB hearing process which preclude achievement of its expressed goals and advances CAPLA's proposal to "create an environment to more effectively engage participants" and "to improve access to and understanding of NEB processes".

LMCI Issue 1 – Capacity (non-financial) to participate in NEB hearings

CAPLA's position is that:

- The NEB's current hearing process does not achieve for landowners "a full and fair hearing" of their issues. The process is difficult to access, does not require timely disclosure of information, is expensive to undertake and provides no assurance that landowners' issues will be resolved;

- A "full and fair hearing" can be achieved only by facilitating landowner engagement with the process through all phases of the project life cycle from pre-application and the certificate hearing through construction, operations and abandonment. Such engagement must include funded company consultation, NEB mediation, certificate hearing participation, construction and post-certificate reporting (independent construction monitors and Joint Committee) and NEB arbitration (see CAPLA LMCI Stream 1 response);

- The NEB's certificate hearing process should then result in resolution of landowner issues by negotiated agreement or Board determination prior to certificate issuance with reference to mandated regulatory minimum easement agreement requirements and Filing Manual "performance measures". Post-certificate issues should be resolved by agreement (e.g. Integrity Dig Agreement) or by NEB arbitration.

Key Questions A/B/C/D – How can the NEB engage landowners in its hearing process to accomplish resolution of landowner issues?

Landowners participating in the NEB certificate hearing process want resolution of the generic landowner issues identified in CAPLA's LMCI Stream 1 response. Access restrictions to the process do not result from lack of information about "the NEB's role, mandate, and responsibilities". They result from lack of timely disclosure of sufficient project information to assess landowner concerns; refusal of companies to undertake meaningful negotiations; and lack

of funding for legal, consultant, negotiating and hearing attendance costs required for the effective resolution of landowner issues.

While landowner associations, despite these restrictions, have organized and engaged the process, landowner association intervenors in the Board's certificate hearing process are frustrated by the apparent reluctance of both companies and the Board to recognize, validate, evaluate and resolve their issues. These issues are a product of the impacts of ever expanding pipeline utility corridors on whole farm productivity; agricultural and cropping practices; agricultural and non-agricultural development; abandonment implications; and landowner safety, liability and quality of life.

As identified in CAPLA's LMCI Stream 1 response, the Board has the jurisdiction under the *NEB Act* Sections 86(2)(f) and 107(a) to establish by regulation minimum easement agreement requirements which, together with Filing Manual "performance measures", would contribute to the resolution of these generic landowner issues. To date, the Board has taken the position that its review of easement agreements at certificate hearings will be limited to the current minimum requirements under Section 86(2) and all other matters are subject to negotiations between landowners and the company in which the Board is not involved. The result of the Board declining to exercise its jurisdiction under Sections 86(2)(f) and 107(a) is that the generic landowner issues which have been identified are not being included and assessed in the ESR's filed by companies and these issues are not being considered and resolved by the Board at certificate hearings.

The starting point for the NEB to engage landowners effectively in its hearing process is for companies and the NEB to acknowledge their utility corridor impacts on landowners and their agricultural operations. The NEB must then mandate regulatory minimum easement agreement requirements and Filing Manual "performance measures" to address these issues and institute a reasonably funded consultation/NEB mediation and hearing participation process which ensures resolution of these issues either by negotiated agreement or Board determination.

Key Questions D/E/F – What resources do landowner intervenors require to participate effectively in the NEB's hearing process?

While the NEB represents to landowners that "the Board does not require intervenors to obtain legal or expert assistance to participate in its hearing process", their "decisions are made based on the evidence provided to them in the hearing process". With respect to evidentiary onus on intervenors, the Board has stated:

> **" … The burden of proof in a proceeding before the Board rests initially with the applicant, who must establish, on the balance of probabilities, that the relief sought in the application should be granted. The burden on intervenors to submit evidence and establish their position only arises when the applicant establishes a *prima facie* case, at which point the evidentiary burden shifts to those parties who oppose the applicant's position. This initial burden of proof, once satisfied, also allows the Board to examine the merits of an application before it in the absence of any opposing intervenors …**
>
> **In the Board's view, mere statements of fact or allegations without supporting evidence or justifications to substantiate those facts and allegations do not meet the requirements of natural justice …"**
>
> **(MH-2-2005, Board Decision on Motions filed by Canadian Association of Petroleum Producers and Teroso Canada Supply and Distribution Inc., 27 May 2005)**

The result of the low threshold *prima facie* burden of proof on the applicant, and, once met, the shift of evidentiary onus to landowner intervenors requires landowner intervenors to develop and present evidence at certificate hearings sufficient to rebut the applicant's *prima facie* case and to support issue resolutions advanced on behalf of landowners. The *prima facie* case presented by the companies is supported by the expert evidence of engineers, economists, soil scientists, and environmental consultants developed over many months and even years leading up to the filing of an application. This expert evidence is assembled and presented by experienced legal counsel. Not surprisingly, landowners have learned to their chagrin that they are unlikely to discharge their evidentiary onus in proceedings before the Board without access to similar technical and legal expertise.

Accordingly, in order for intervenors to participate effectively in the NEB's hearing process, they must have sufficient financial resources available to them to be able to retain and instruct

legal counsel and consultants to advance their issues. In the same way the companies do, landowners require the expertise of engineers, economists, soil scientists and environmental consultants to address the generic landowner issues which have been identified. They require access to these resources to assist in issue identification and assessment; to develop resolutions; to support them in negotiations and/or mediation; and to present their case at the certificate hearing.

Key Questions G/H/I – How can the NEB assist landowner intervenors to obtain access to such resources both in the certificate hearing and other Board processes?

Landowners are concerned that the NEB is promoting its stated purpose of "economic efficiency in the Canadian public interests" to the exclusion of its stated goals of "respecting the rights of those affected" and facilitating "effective public engagement". To assist landowners in obtaining the resources which they require to participate effectively in the Board's certificate hearing and other processes, CAPLA proposes that Filing Manual "performance measures" include the following requirements:

- Inclusion in the preliminary information package of a methodology, timetable and costs budget for landowner consultation including negotiations with representatives of a landowner association;
- A consultation report to the date of application filing identifying issue resolution, outstanding issues and the process, timetable and costs budget for continuing negotiations;
- A pre-hearing update of this consultation report identifying issue resolution, issues to proceed to hearing and related costs budget;
- Mandatory funded NEB mediation with respect to unresolved issues;
- Post-certificate annual Joint Committee budget and reporting;
- Post-certificate funded NEB arbitration.

LMCI Issue 2 – Hearing process design and logistics
LMCI Issue 3 – Transparency of decision making process

CAPLA's position is that:

- NEB oral hearings should proceed only after completion of mandatory funded NEB arbitration of issues not resolved by negotiated agreement;
- The NEB should not schedule oral hearings during planting and harvest seasons and should consult with the parties before setting hearing dates;
- In issuing Reasons for Decision, the Board should specifically consider and address amended regulatory minimum easement agreement requirements and Filing Manual "performance measures" before approving an application and issuing a certificate.

Key Questions J/K – How can the NEB adjust its process to respect seasonal business demands of agricultural landowners and adapt its processes to facilitate resolution of their concerns?

Agricultural landowners are not in the pipeline business. They are farmers who have their own seasonal business demands which include spring planting and fall harvesting. For landowners to attend NEB hearings during these periods is costly in terms of the time required, interference with their operations and crop production and quality impacts. CAPLA proposes that hearings not be scheduled during these periods of the year and that, before setting hearing dates, the NEB consult with the parties.

For issues not resolved by negotiated agreement or mandatory NEB mediation, landowners look to the Board for "a full and fair hearing" and satisfactory resolution of their issues. Both to increase the transparency of the Board's decisions and to permit landowners to assess the fairness of these resolutions, CAPLA has proposed amended regulatory minimum easement agreement requirements and Filing Manual "performance measures" which are to be considered by the Board in the evaluation of every certificate application. Determination by the Board that these requirements have been satisfied prior to approval of applications and certificate issuance will contribute to resolution of landowner issues.

LMCI Issue 4 – Funding for NEB Processes

CAPLA's position is that:

- Filing Manual "performance measures" requiring company consultation programs which include provision for reasonable funding of legal, consultant, and negotiating costs for landowner negotiations; mandatory NEB mediation of unresolved issues; certificate hearing participation; and post-certificate Joint Committee operations and NEB arbitration are essential for effective participation by landowners in NEB processes and satisfactory resolution of their issues;

- Landowner associations representing the interests of affected landowners should be entitled to such funding;

- Without such funding mandated as a requirement for company consultation programs, the NEB will not be able to engage landowners effectively in its processes and landowners will not achieve satisfactory resolution of their issues.

CAPLA and its member associations have been attempting to engage pipeline regulation processes effectively for 20 years. The culmination of this experience is CAPLA's conclusion that effective engagement cannot be accomplished and satisfactory resolution of landowner issues cannot be achieved without mandatory provision for funding of landowner costs to participate in the process.

In 1996, the NEB first recognized the necessity of intervenor funding to allow the effective engagement of landowners in its processes. In responding to the NEB's request for submissions at that time concerning development of an intervenor funding program, the Ontario Pipeline Landowners Association (OPLA), a CAPLA member association, stated:

> **"The present absence of an intervenor funding program, coupled with the Board's lack of a cost jurisdiction, operate as a significant disincentive to parties that might otherwise wish to participate in proceedings before the Board. These factors point to a need for the immediate implementation of an effective intervenor funding program …**

"Since neither intervenor funding nor cost awards at the end of the hearing have been available in proceedings before this Board, participation by intervenors without sufficient funds of their own has been restricted or non-existent …

"OPLA submits that eligible expenses should be broadly defined to include all disbursements reasonably incurred by an intervenor's legal counsel and consultants in preparing for and attending a public hearing. Such expenses obviously would include, but should not be limited to, photocopying, telephone and facsimile, courier and, where necessary, travel costs, accommodation and meals. OPLA further submits that an intervenor, or an employee or officer thereof, also should be entitled to funding for reasonable disbursements directly incurred as a result of participation in a Board hearing …

"OPLA submits that … funding should be made available where the intervenor or those it represents will be beneficially or adversely affected by the outcome of a proceeding before the Board. The adoption of this or a similar test … will best ensure that meritorious interventions are funded and intervenors are allowed to represent their interests on a par with the project proponents …

"OPLA submits that the purpose of intervenor funding is to "level the playing fields" and allow intervenors the opportunity to participate in public hearings on an equal footing with project proponents who, as the Board acknowledges in its report, possess substantial financial and human resources. In many if not most cases, realizing this goal will require that an intervenor have access to legal counsel and expert consultants to properly prepare for and represent its interests at hearings before the Board …

"In supporting the implementation of intervenor funding, landowners are seeking nothing more than an opportunity to develop evidence of equivalent expertise with respect to issues of direct concern to them. The perpetuation of the existing process, with its lack of funding, will effectively deny landowners and other significantly affected parties access to the hearing forum for these purposes. Surely no one would suggest that such an outcome is in the public interest …

"In OPLA's submission, because landowners are unlikely to have the resources necessary to advance their interests at a hearing, companies have limited incentive to address landowner concerns during the pre-hearing process. As experience has shown, the result can be an expensive and time consuming hearing that might otherwise have been avoided. For example, during discussions prior to GH-4-93, OPLA raised with the proponent numerous concerns regarding the project and proposed changes that would address these concerns. The proponent declined to accept these changes, leaving landowners with no choice but to raise these matters before the

> **Board at significant personal expense. After a lengthy and costly hearing, the Board accepted the positions advanced throughout by landowners with respect to many of the issues in dispute."**

It is now 12 years later. The NEB has still made no provision for funding for landowner participation in company consultations and the certificate hearing process. OPLA's prediction has been realized in the experience of landowners attempting to engage these processes – the exclusion of landowners and the failure of the NEB to resolve landowner issues satisfactorily continue to prevent the fair balancing of the public interest. Reflecting the same process concerns as OPLA in 1996, CAPLA advances its funding proposal as a necessary pre-condition to the NEB effectively engaging landowners in its processes.

LMCI Issue 5 – Regulatory Development Process
<u>LMCI Issue 6 – Other Questions to Consider</u>

CAPLA's position is that:

- Both statutory and regulatory amendments have been effected by the NEB to the prejudice of landowner interests without landowner consultation;
- Funded landowner consultation should be mandatory for all NEB processes which may impact landowner interests, including regulation development, facilities approvals and toll hearings.

Key Questions S/T/U/V – When and how should the NEB engage landowners in its processes with respect to the development or change of NEB regulations?

In the conduct of NEB processes to date, the NEB has either completely ignored landowners or obtained only a superficial, non-representative sampling of their views before proceeding with implementation of statutory and regulatory amendments adversely impacting landowner interests. Both the chronology of the development of the O*nshore Pipeline Regulations* related to abandonment, and the enactment of amendments to Section 112 of the *NEB Act* and related *Pipeline Crossing Regulations* are good examples of the Board's failure to consult with landowners to the prejudice of landowner interests.

With respect to the NEB's enactment of the control zone through the 1991 amendment of Section 112 of the *NEB Act*, counsel for the standing Joint Committee advised the NEB in 1993 that the control zone and crossing consent constituted ownership rights restrictions:

> **"The position advanced in [the NEB's] letter that the provisions of the regulations in question do not constitute a prohibition, since once the pipeline is located and staked excavation can take place, seems extremely tenuous. Surely the same argument could be used with respect to Section 112(1) of the *Act*, which would then be said to not truly "prohibit" excavations within 30 metres of a pipeline, but merely impose the condition that leave of the Board first be obtained. Whether temporary, conditional or absolute, both Section 112(1) of the *Act* and the provisions of the regulations in question are prohibitions nonetheless."**

Similarly with respect to the most recent 1999 amendment of Section 112 adding subsection 5.1 which permits "prohibiting of excavations in an area situated in the vicinity of a pipeline, which area may extend beyond 30 metres of the pipeline" during the three day notice period prior to commencement of work, the NEB not only did not conduct any landowner consultation but also permitted enactment of this amendment as part of a Miscellaneous Statute Law Amendment Bill without parliamentary debate. As a senator on the Constitutional Affairs Committee of the Senate of Canada commented considering this proposed amendment:

> **"This particular process that we have here is as close as Parliament could come, I think, to amending laws without debate, and I am sure everyone would be aware that it would be an abuse of the process if what were to occur here was to pass a regulation which, because of the way it is done, ends up, in fact, being an amendment to legislation which affects the rights of property owners, if I may use that term".**

The goal of landowners participating in the development or changing of NEB regulations is to ensure that amendments which adversely impact landowner interests are not enacted without landowner consultation and that past abuses are not repeated to the prejudice of landowners. In order to participate effectively in Board processes related to developing or changing NEB regulations, landowners require access to legal and technical expertise to understand how their interests may be affected and to assist in the development of resolutions for their concerns. Accordingly, for the same reasons as landowners require reasonable funding of legal, consultant and negotiating costs in the certificate hearing process, landowners require reasonable funding to participate effectively in the NEB's regulatory development process.

Key Question W/X – When and how should the NEB allow landowners to participate in other NEB processes?

NEB consultation with landowners should be triggered whenever landowner interests may be impacted by NEB processes. Such processes are not limited to certificate hearings with respect to new pipeline facilities or a regulatory development process which may adversely impact their interests. For example, landowners have a vital interest in ensuring that financial provision has been made for eventual pipeline abandonments. To the extent that this issue or other issues impacting landowner interests may be addressed at toll hearings, landowners must be entitled to

participate in these processes. Again, as explained above, they will require access to legal and technical expertise and reasonable funding for this purpose.

Canada

ATTACHMENT 3

Land Matters Consultation Initiative

Stream 4: Physical Issues of Retirement and Reclamation

Discussion Paper

28 February 2008

National Energy Board

Office national de l'énergie

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Introduction

As part of the Land Matters Consultation Initiative (LMCI), the National Energy Board (the Board) provides this discussion paper as the first step in the approach laid out under Stream 4, "Pipeline Abandonment – Physical Issues". A description of the LMCI Approach can be found by clicking on the LMCI link on the homepage of the Board's website (www.neb-one.gc.ca). Under Stream 4, the Board identifies the following potential outcomes:

- *Principles are established for defining the end-state of land post-abandonment*;
- *Needs are identified with respect to standard development, research gaps and multi-jurisdictional collaboration; and*
- *An action plan is developed to move forward on physical issues.*

This paper summarizes the multi-stakeholder and Board work done on physical retirement and reclamation issues in the past and is intended to initiate discussion on possible principles to provide more clarity and certainty with respect to the Board's expectations of stakeholders on future retirement applications.

The key questions at the end of this paper will form the basis of discussion for a workshop, which will be held in April 2008. Details of the workshop will be posted on the Board's website. The Board invites feedback on this discussion paper at any time after its release leading up to the Physical Issues of Retirement and Reclamation Workshop. Comments will be used to inform the discussions at the workshop.

If required, a second workshop may be held to formalize an action plan for addressing physical issues of retirement and reclamation.

Definitions

The following terms are provided for clarification:

"abandon" means to permanently cease operation such that the cessation results in the discontinuance of service.

"decommission" means to permanently cease operation such that the cessation does not result in the discontinuance of service.

"retirement and reclamation" used for the purposes of this paper and refers to both abandonment and decommissioning of NEB facilities.

Part I: Summary of Existing and Proposed Principles

A survey of existing principles has been completed by the Board and the detailed results can be found in Table 1 below. This survey is not intended to represent a comprehensive review but instead highlights several jurisdictions where principles have been developed to guide retirement or reclamation activity. The sources of these principles are each referenced and come from statutes, regulations, codes, guidelines or policy documents.

Summary of the Survey

Several themes or core concepts can be derived from an assessment of the principles in Table 1. These concepts are:

1. Safety of retired sites and facilities

The focus of most principles is to reduce or mitigate the danger or risk to public safety posed by reclaimed or retired facilities to an acceptable level consistent with the potential use of the land.

2. Long-term protection of the environment

With respect to the appearance and functionality of the land post-retirement, three approaches can be identified. The land can be reclaimed to:

a. be similar to its surroundings;
b. the condition that existed when the project commenced; or,
c. a condition suitable for current or probably future uses.

Any of these concepts would necessitate a site-specific approach to determining an appropriate retirement and reclamation methodology, where the effects of the project could be identified and addressed.

3. Consideration of the needs of people and society

Most Canadian authorities identified in Table 1 have indicated that land use and the landowner's perspective with respect to aesthetics and convenience are the most important considerations in the choice of retirement and reclamation methodologies. Agencies have also indicated that those affected should be notified; rights should be respected and protected; and liability should not rest with the landowner.

4. Incorporation of risk principles

The concept of a risk-based approach was identified in both the nuclear industry in Canada as well as the UK and European approach to oil and gas regulation as essential to managing the impact of development post-retirement. This approach suggests that reclamation should be commensurate with likely adverse effects and their potential significance. Related to this concept is the recognition of uncertainty inherent in assessments of future impacts, which may infer that impact to the environment be as low as reasonably achievable.

5. Performance measurement

The concept of performance measurement has been adopted by many regulatory agencies across the globe in the work they do. The Canadian Nuclear Safety Commission identified this concept explicitly in retirement and reclamation principles. The concept includes the requirement that indicators and targets should be based on sound science.

6. Consideration of the principle of sustainable development

The principle of sustainable development as used in UK and Europe oil and gas regulation states that development must meet the needs of the present while taking into account the needs of future generations. Considerations of safety and mitigation of impacts on the environment, people and society lead to an integrated and sustainable approach to decision-making with respect to energy development. Consideration of the needs of future generations is of primary importance when deciding on an appropriate retirement and reclamation methodology.

Table 1: Survey of Existing Principles Guiding Retirement and Reclamation

National Energy Board	
Goal 1	▪ The facilities and activities are safe and secure and perceived to be so
Goal 2	▪ The facilities are built and operated in a manner that protects the environment ▪ The facilities are built and operated in a manner that… respects the rights of those affected
Onshore Pipeline Regulations, 1999	▪ After a pipeline is constructed, the right-of-way and temporary work areas of the pipeline shall be restored to a condition similar to the surrounding environment and consistent with the current land use.
Filing Manual – Guide B (Goal)	▪ The proposed abandonment will be carried out in a technically safe manner ▪ Potential environmental, socio-economic, economic and financial effects are identified and addressed ▪ All landowners and other persons potentially affected are sufficiently notified and have their rights protected

Filing Manual – Guide B – reference to CCME – National Guidelines for Decommissioning Industrial Sites (1991)	▪ Not a risk to human health and safety ▪ Not the cause of unacceptable effects on the environment ▪ Not a liability to current and future owners ▪ Suitable for the proposed new land use ▪ Aesthetically acceptable ▪ Be cleaned up to a level which will provide long-term environmental protection and that will be safe for its intended future use
MH-3-96 Reasons for Decision	▪ Not likely to cause significant adverse environmental effects
MH-1-96 Reasons for Decision	▪ The Board is of the view that the potentially adverse effects to existing land uses would be insignificant ▪ Parties which could reasonably be expected to have an interest in the proposed abandonment…should be contacted as early as possible to ensure that public concerns are adequately addressed within the planning stage of the abandonment. ▪ Should the pipeline company decide to revert its easement rights back to the landowners, the Board expects the pipeline company to contact all landowners to request voluntary consent to quit-claim or surrender the easement rights ▪ The Board expects the pipeline company to notify the owners of all facilities crossed by pipeline between Blackfoot and Dulwich to discuss the proposed abandonment and to resolve all issues raised
OH-1-2003 Reasons for Decision, Certificate OC-48, Condition 24	▪ Prior to abandonment… TNPI shall file confirmation with the Board that all detected contamination related to the pipeline being abandoned has been cleaned up to meet federal and provincial regulatory criteria for the present land use.
COGOA s. 25(3)	▪ Every person shall…take all reasonable measures consistent with safety and the protection of the environment to prevent any further spill, to repair or remedy any condition resulting from the spill and to reduce or mitigate any danger to life, health, property or the environment
Canadian Multi-stakeholder Discussion Papers[1]	
Pipeline Abandonment Steering Committee, *Pipeline Abandonment: A Discussion Paper on Technical and Environmental Issues (1996)*	▪ The goal of an abandonment plan is to put the abandoned line into a condition where the risk to public safety and the environment in the years to come is at an acceptable level ▪ Any specific abandonment plan should be developed on the basis of comprehensive site-specific assessments, company specifics and an understanding of the technical environmental factors related to pipeline abandonment ▪ Existing and future land use is the most important factor to consider when determining whether pipe should be removed or abandoned in place

[1] A collaboration of the NEB, Alberta Energy Utilities Board (EUB), Canadian Energy Pipeline Association (CEPA) and Canadian Association of Petroleum Producers (CAPP)

Pipeline Abandonment Legal Working Group, *Legal Issues Relating to Pipeline Abandonment: A Discussion Paper (1997)*	▪ The principal consideration should be the convenience of the land owner ▪ For easements, the most common land right, the decision about how to abandon is principally determined by the easement agreement and to a lesser degree, the NEB Act and current land use. ▪ If the preferred abandonment option is not clearly stated in the easement agreement, then the principal consideration should be the convenience of the owner
Canada Newfoundland and Labrador Offshore Petroleum Board	
Development Plan Guidelines (3.12)	▪ A description of the measures that would have to be taken to leave the site in a fishable and navigable state should be included.
British Columbia Oil and Gas Commission	
Drilling and Production Regulation (48(1))	▪ …the operator must ensure that the surface is returned, as nearly as is reasonable, to the surface condition as it was when the operations were commenced.
Alberta Environment	
Conservation and Reclamation Regulation (s.2)	▪ The objective of conservation and reclamation of specified land is to return the specified land to an equivalent land capability.
Ontario Energy Board	
Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (5.13 Restoration Plans)	▪ Restoration procedures should be implemented promptly during and following construction to limit damage. ▪ The easement must be rehabilitated to the reasonable satisfaction of the landowner and the agencies concerned.
UK Department for Business Enterprise and Regulatory Reform (BERR)	
Guidance Notes for Industry (1.1 & 6.2)	▪ Government will seek to achieve effective and balanced decommissioning solutions, which are consistent with international obligations and have a proper regard for safety, the environment, other legitimate uses of the sea, economic considerations and social considerations. The Government will act in line with the principles of sustainable development.[2] ▪ Waste Hierarchy[3]
Canadian Nuclear Safety Commission	

[2] The concept of Sustainable Development, as adopted by BERR, "requires environment and development issues to be addressed in an integrated manner in order to meet the various needs of the present, and to take into account the needs of future generations." Other key concepts that have been recognized as having an impact on environmental legislation in the future are: Precautionary Principle; Integrated Pollution Control (IPC), Integrated Pollution Prevention Control (IPPC) and Best Practicable Environmental Option (BPEO); Best Available Techniques (BAT) and Best Environmental Practice (BEP); Strategic Environmental Assessment (SEA); and Polluter Pays Principle. (Oil & Gas UK Environmental Legislation Website)

[3] "The waste hierarchy is a conceptual framework which ranks the options for dealing with waste in terms of their sustainability. The waste hierarchy suggests that the most effective solution may often be to reduce the generation of waste. Failing that, re-use either for the same or a different purpose should be considered ahead of recovering value from the waste through recycling. Only if none of these offers an acceptable solution should disposal be considered." Guidance Notes, 6.2

Regulatory Policy Statement Protection of the Environment	▪ The measures taken by CNSC licensees to protect the environment should: ~ be commensurate with the likelihood and significance of adverse environmental effects; ~ recognize that variability exists in potentially adverse environmental effects as a consequence of differences in regulated activities, substances, equipment, facilities, the environment and its human components; ~ recognize that uncertainty exists in science, and therefore prevent unreasonable risk by keeping all releases to the environment as low as reasonably achievable, social and economic factors taken into account; ~ be judged against performance indicators and targets which are based on sound science.
BC Ministry of Energy, Mines and Petroleum Resources	
BC Mineral and Exploration Code – Part 10	▪ The mine plan and reclamation program shall ~ be prepared taking into consideration the health and safety of the public and persons involved in the work, ~ be designed so as to make it as practicable as possible in the future to mine zones affected by the plan, ~ be designed to protect the land and watercourses, and ~ when required by the chief inspector, be prepared by licensed professionals, or persons who in the opinion of the chief inspector are qualified to perform the work. ▪ The land surface shall be reclaimed to an end land use approved by the chief inspector that considers previous and potential uses. ▪ Excluding lands that are not to be reclaimed, the average land capability to be achieved on the remaining lands shall not be less than the average that existed prior to mining, unless the land capability is not consistent with the approved end land use. ▪ Land, watercourses and access roads shall be left in a manner that ensures long-term stability. ▪ Where practicable, land and watercourses shall be reclaimed in a manner that is consistent with the adjacent landforms.

Proposed Principles for Retirement Planning and the End-State of Land Post-Retirement

Several core concepts have been identified that arise out of a survey of regulatory agencies in multiple industries. These concepts parallel very closely with the Board's stated goals and regulatory program approaches.[4] From this analysis, the following principles are proposed that could be used to guide stakeholders in the development of retirement and reclamation methodologies and plans.

Please note that these proposed principles are meant for discussion purposes only. Feedback, suggestions and debate as to the merits of these or other such principles is encouraged. The implications of these principles in the broader context of the lifecycle of a project should be noted and feedback is encouraged in that context throughout the LMCI process.

Responsibility and Liability

i) Facility owners and operators are responsible for the retirement and reclamation of the facilities and any liabilities arising from those facilities in the post-retirement phase

End-State of Land

ii) The goal of successful reclamation is to return the right-of-way to a state which is compatible with the surrounding environment as well as current and probable future land use.

iii) The goal of retirement and reclamation plan is to deal with the retired facility in such a manner that the risk to public safety and the environment in the years to come is at a level that is acceptable to all affected parties.

iv) All reasonable measures to reduce the risk posed to the health and safety of people, society and the environment are taken.

Retirement and Reclamation Planning

v) Specific retirement and reclamation plans are developed on the basis of comprehensive site-specific assessments, company specifics, consideration of existing easement agreements and an understanding of the technical and environmental factors related to pipeline retirement.

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[4] The Board's goals can be found in the NEB Strategic Plan located on our website at www.neb-one.gc.ca. The Board has also identified the desire to develop a comprehensive approach to incorporating considerations of impacts of development on people and society as well as adopt a risk-based approach for all regulatory programs throughout the life of the project.

vi) Existing and future land use, in addition to the convenience of landowners, is the most important factor to consider when determining whether facilities should be removed or abandoned in place.

vii) In those areas where the preferred land use is based on natural ecosystems, reclamation will focus on restoring the right-of-way to a functional ecosystem by restoring habitat affected by right-of-way development.

viii) People and institutions affected by the retirement and reclamation of facilities are invited to be involved in the development of retirement and reclamation plans.

ix) Consideration is given to reuse and recycling of facilities where possible in identifying retirement options.

Performance Measurement

x) Measuring the performance of retirement and reclamation plans is an essential component of retirement and reclamation plans, which will facilitate continual improvement and assessment of effectiveness.

Part II: Pipeline Retirement and Reclamation: Summary of Physical & Technical Issues

This summary is based on three previous studies undertaken in 1985[5], 1996[6], and 1997[7] respectively. In 1985, NEB staff reviewed technical, environmental and financial issues associated with pipeline abandonment (the 1985 NEB Staff Paper). In 1996 the Pipeline Abandonment Steering Committee, a collaboration of the NEB, Alberta Energy Utilities Board (EUB), Canadian Energy Pipeline Association (CEPA) and Canadian Association of Petroleum Producers (CAPP), developed a discussion paper (the 1996 Discussion Paper) which examined the physical and technical issues associated with abandonment. In particular, this latter paper provides a template for abandonment planning and implementation. In 1997, the same collaboration examined legal issues relating to abandonment (the 1997 Legal Paper).

In addition, as part of the process of developing the 1996 Discussion Paper, the Pipeline Abandonment Steering Committee commissioned four reviews of specific technical issues. These examine trace pipeline contaminants, corrosion, pipeline related subsidence and environmental issues respectively and are also referenced herein.

Physical and technical issues of retirement and reclamation can be organized into six principal sections:

1. Retirement options;
2. Engineering issues;
3. Land use considerations;
4. Environmental issues;
5. Post-abandonment; and
6. Principles for pipeline abandonment.

1. Retirement Options

Three approaches to pipeline retirement are possible:

a) Removal
b) Abandonment in-place
c) Reuse of facilities

Pipeline Retirement Option Matrix - a key factor influencing the choice of retirement options is present and future land use. This is reflected in Table 2, below, which provides a matrix adapted from the 1985 paper.

[5] National Energy Board (1985), Background Paper on Negative Salvage Value, September 1985.
[6] Pipeline Abandonment Steering Committee (1996), Pipeline Abandonment: A Discussion Paper on Technical and Environmental Issues, November 1996.
[7] Pipeline Abandonment Legal Working Group (1997), Legal Issues Relating to Pipeline Abandonment: A Discussion Paper, May 1997.

Table 2: Retirement Option Matrix[8]

Land Use		Pipeline Diameter			
		60.3 to 203 mm (2” – 8”)	**273 to 550 mm (10” to14”)**	**406 to 550 mm (16” – 20”)**	**610 to 1219 mm (24” to 48”)**
Agricultural	Crop	A	R	R	R
	Crop (with depth of cover considerations)	R	R	R	R
	Pasture (inc. native prairie & rangeland)	A	R	R	R
Non-Agricultural	Rock	A	A	A	A+
	Till	A	A	A	A+
	Cohesive Soil	A	A	A	A+
	Granular Soil	A	A	A	A+
	Wetlands	A+	A+	A+	A+
Urban	Suburban	A	A	A+	A+
	Park	A	A	A+	A+
	Urban	A	A+	S	S
	Industrial	A	A+	S	S
Crossings	River	A	A+	A+	A+
	River Approaches	A	S	S	S
	Rail	A	A+	A+	A+
	Road	A	A+	A+	A+
	Secondary Road	A	A	A+	A+
	Pipeline	A	S	S	S
	Sewer	A	A	A+	A+
	Cable	A	A	A+	A+

Source: Modified from the 1985 NEB Staff paper.

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Option	Description
A	Abandon in-place recommended
A+	Abandon in-place with special treatment to prevent ground subsidence.
R	Remove pipe
S	Site-specific evaluation recommended

2. Engineering Issues

a) Corrosion[9]
The 1996 Discussion Paper and an associated corrosion study[10] examined the causes and timing of corrosion associated with abandoned pipelines. The Corrosion Study suggested that while insulation defects affect less than one percent of the length of most pipelines, corrosion will eventually result in random perforations throughout the length of the pipeline.

b) Pipeline collapse
As the pipe becomes pitted with corrosion it will eventually collapse. Collapse may have few consequences for small-diameter pipes (6”/168 mm or less). However, collapse of large diameter pipes can lead to subsidence, which in environmentally or geo-technically sensitive areas would require back-filling and restoration. Given the non-uniform nature of the corrosion process, it is unlikely that significant lengths of pipeline will collapse at any one time.

The 1985 NEB Staff Paper suggests options for managing concerns for large-diameter pipeline collapse that includes developing a tool to collapse a line prior to abandonment and/or filling a line, or at least critical sections of it (e.g. stream crossings, under railways), with a liquid that can solidify (e.g. cement).

3. Land Use Considerations

As the previously referred to reviews have concluded, land use is the most important factor to consider when determining whether to remove a pipeline section or abandon it in place. Of particular concern are sensitive areas, including:

- native prairie;
- parks and ecological reserves;
- unstable or highly erodible slopes;
- water crossings
- areas susceptible to wind erosion;
- irrigated land; and,
- road, railway and other utility crossings.

[9] Corrosion is an electro-chemical process requiring a metallic connection between two electrodes, the anode and the cathode, which are immersed in an electrolyte. These components form a reaction cell. Reaction cells are often created between buried steel pipe and ground water. Metal loss during corrosion is always from the anode zone

[10] Webster, R.D., Pipeline Corrosion Evaluation, Topical Report, Corrpro Canada Inc., 1995. Copies of this and other studies that were commissioned by the Pipeline Abandonment Steering Committee are available from the NEB, CAPP, CEPA and the ERCB.

The pipeline industry must manage these issues and land use in general within three types of land rights: easement; fee simple; and leasehold lands.

4. Environmental Issues

Both the 1985 NEB Staff Paper and the 1996 Discussion Paper examine the environmental issues associated with pipeline retirement. The 1996 report is based, in part, on a review[11] of environmental issues for pipeline retirement commissioned by the Pipeline Abandonment Steering Committee.

a) Soil and groundwater contamination
The Committee also commissioned a study[12] to examine the types and quantities of contaminants that could be released from pipelines abandoned in-place. Potential sources of contamination that were identified include;

- Substances in the hydrocarbon stream;
- Pipe treatment chemicals;
- Pipeline coatings and their degradation products;
- Historical leaks and spills of product not cleaned up to current standards;
- Pump and compressor lubricants, including past use of PCB's.

Contamination risks are arguably greatest for pipelines abandoned in-place. The pipe will eventually be perforated by corrosion and freeze-thawing of infiltrated water, allowing contaminants to migrate into the surrounding environment. Potential also exists for corroded pipe to act as a water conduit, transporting any contaminants present to other points along the pipeline.

The cleanliness of the pipe is an important factor relating to potential soil and/or groundwater contamination from abandoned pipe. The 1996 Discussion Paper indicates that the question of "how clean is clean" remains to be answered.

b) Soil resources
Where pipe is to be removed, the erosion issues will be similar to those associated with installation. In addition, over its life the pipeline may have become a structural support on certain slopes and integral to slope integrity.

Abandonment in-place can lead to erosion in two ways. Corrosion perforated pipe can conduct water along the right-of-way to exit the pipeline in new locations. Later, as pipelines collapse, resultant soil subsidence can create water

[11] H.R. Heffler Consulting Ltd. and Tera Environmental Consultants (Alta.) Ltd. (1995), Environmental Issues Concerning Pipeline Abandonment, Topical Report.
[12] Roberts-Thorne, Wendy E., Basso, Anne C. And Sukhvinder, K. Dhol (1996), Identification and Assessment of Trace Contaminants Associated with Oil and Gas Pipelines Abandoned in Place. Topical Report, Biophilia Inc.

conduits able to intercept and channel drainage along rights-of-way, potentially, at much greater velocities than natural drainage patterns would allow.

To examine ground subsidence risks for abandoned pipelines the Pipeline Abandonment Steering Committee commissioned both a geotechnical study[13] and a survey of pipeline companies. Neither the industry survey nor follow-up discussions identified any instances of observed subsidence. However, the Committee recommended that a field observation program be put into place that would allow tolerance criteria to be developed. This remains to be done.

c) Creation of water conduits
The potential for pipelines to create water conduits as a result of abandonment creates risks of unnatural drainage and unwanted transport of materials that can include eroded soils and contaminants. Some potential exists for water movement in un-compacted, back-filled trench material that may remain after pipe has been removed. However, the greatest concern relates to pipelines abandoned in place.

The 1996 Discussion Paper discusses measures such as pipeline plugs and trench breakers[14] for managing the risk of undue water mobility. The material suggests that this issue is understood and manageable.

d) Pipeline water crossings
Even at retirement, water crossings remain a key environmentally sensitive location on pipeline rights-of-way. While the water quality, fisheries and geomorphology issues associated with pipeline water crossings are well documented, most work is primarily from the point of view of pipeline installation.

Pipes abandoned in-place at water-crossings could contaminate surrounding water as corroded pipe fails and/or the pipe could be exposed. Pipe can be exposed in streams by stream bank erosion and migration, scouring of the stream channel and by other similar erosion mechanisms. Pipes may be exposed in still waters and wetlands because of pipe buoyancy if control mechanisms (e.g. concrete saddle weights) fail.

5. Post-Retirement

The 1996 Discussion Paper provides a concise template for retirement planning together with information on addressing the principal technical and environmental

[13] Suanders, R. (1995), Preliminary Geotechnical Assessment of Pipeline Subsidence Phenomena, Topical Report, Geo-Engineering Ltd.
[14] Trench breakers are plugs installed in the pipeline trench, consisting of impermeable earth or similar materials that act to break up the flow of water along unconsolidated fills or even the air space against the pipe. Trench breakers force water to the surface or into surrounding soils, slowing the speed of flow or stopping it altogether so that the risk of deleterious erosion is reduced.

issues. A major issue identified was the responsibility for monitoring and maintenance.

The 1997 Legal Paper examines legal issues associated with retirement and focuses much of its attention on the issue of ongoing responsibility for the retired pipeline right-of-way. The Legal Working Group concluded that in "*the absence of an express provision to impose conditions which would continue after the abandonment order comes into effect, [*the NEB concluded*] that it has no authority to attach conditions subsequent to an abandonment order"*. In response, to the extent that it has had to address the retirement, the Board has adopted an approach that requires regulated pipelines to satisfy conditions precedent before a retirement can take effect.

6. Summary of Outstanding Issues

a) How clean is clean?

The 1996 Discussion Paper identifies the lack of allowable threshold criteria for contaminants as a gap.

b) Corrosion and its effects

A better understanding of the rate of corrosion in various soil types and the effects of corrosion on surrounding soil is required. Also, the actual collapse mechanism of a retired pipeline failing due to corrosion is not known hence its effect on subsidence remains unknown.

c) Practical experience with pipeline related soil subsidence.

While the Pipeline Abandonment Committee undertook an industry survey in 1996, looking for examples of pipeline related soil subsidence, the responses provided little information. In response, the Paper recommended that a field investigation program be undertaken that could lead to the development of tolerance criteria for pipeline related soil subsidence.

d) Retirement of facilities at water crossings

Knowledge surrounding the impact of corrosion on water surrounding an abandoned-in-place pipeline as well as the impacts of pipe exposure in a water crossing need to be assessed.

e) The exact nature of the Board's jurisdiction and approach to retirement going forward.

Responsibility for enforcing response to problems that may occur on retired pipeline rights-of-way that was previously federally regulated appear uncertain. There may be steps that can be taken to clarify this gap.

Part III Key Questions

Principles

1) Does the provision of principles provide clarity and certainty for stakeholders?

2) Are these proposed principles appropriate or should different or additional principles be considered?

Physical and Technical Issues

3) Are there additional physical retirement and reclamation issues left unidentified?

4) How can the existing body of knowledge with respect to the physical issues of retirement and reclamation be broadened to incorporate practical information based on actual experience and sound research?

Action Plan Development

5) Who should pay for the development of research and standards?

6) What collaboration models exist that could be used to facilitate the development of research and standards needed on physical issues of retirement and reclamation?

7) How should the technical and physical issues be prioritized?

8) What performance measures and monitoring programs need to be put in place to ensure that practical experience is brought into the decision-making loop?

Landowner Involvement

9) What is the role of landowners with respect to the development of a retirement and reclamation plan on their land?

ATTACHMENT 4

Canadian Alliance of Pipeline Landowners' Associations (CAPLA)

CAPLA Response
to
NEB LMCI Discussion Papers

Stream 3: Pipeline Abandonment - Financial Issues
Stream 4: Pipeline Abandonment - Physical Issues

May 20, 2008

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Introduction

In the Board's letter of January 17, 2008 concerning its approach to the Land Matters Consultation Initiative (see **Appendix 1**), the Board established "two key principles the Board believes are fundamental to its future decisions with respect to the financial matters related to pipeline abandonment." These two principles are:

1. Abandonment costs are a legitimate cost of providing service and are recoverable upon Board approval from users of the system.

2. Landowners will not be liable for costs of pipeline abandonment.

The Board defined the key issue in Stream 3 to be: "What is the optimal way to ensure that funds are available when abandonment costs are incurred?" The purpose of Stream 4 is to define "the desired end-state of land post-abandonment" and to determine "the optimal way of ensuring the desired end-state is achieved". However, the Board reiterated that "a potential starting point for determining the desired end-state after a pipeline is abandoned is that NEB's goals 1 and 2 continue to be met … ".

In its 1985 "Background Paper on Negative Salvage Value", the Board concluded:

> "For large diameter pipeline between 406 mm (16") and 1200 mm (48") the environmental implications of abandoning in place would likely be severe. It is anticipated that <u>eventually it would be necessary to restore large portions of the right-of-way. The uncertainty of when this will occur and of who will be responsible for the restoration of the right-of-way after its occurrence, are arguments in favour of either removal or of inducing the early and controlled collapse of the pipeline</u>. […]
>
> Table 3.4.2 sets out the type of pipeline abandonment procedures that may be generally appropriate for the range of pipe diameters, land uses and crossings considered. The unproven techniques of solid fill and controlled pipe collapse have not been included in the procedures set out in this table."

In fact, at least in 1985 and prior to regulatory amendment (as noted by the Board in its Background Paper), companies were required by regulation to remove abandoned pipelines upon surrender of the right-of-way and remained responsible for such pipelines until their removal. In

Table 3.4.2 in the 1985 Background Paper (see **Appendix 2**), Table 1 in the Board's LMCI Stream 3 Discussion Paper (see **Appendix 3**), and Table 2 in the Board's LMCI Stream 4 Discussion Paper (see **Appendix 4**), the Board has continued to endorse removal of large diameter pipelines (273 mm (10") or more) from agricultural land as the preferred "default option" on abandonment.

For the same reasons identified by the Board in 1985 and underlying regulatory abandonment requirements at that time, the default abandonment option for large diameter pipelines in agricultural lands must be removal to ensure fulfillment of the Board's second principle that "landowners will not be liable for costs of pipeline abandonment". CAPLA's position is that the proposed abandonment principles and issues for investigation determined in LMCI Stream 4 and the issues established for Board consideration in LMCI Stream 3 must include provision for this default option.

In its letter of March 28, 2008 to the Board (see **Appendix 5**), CAPLA has outlined its concerns with respect to limitations of the LMCI Streams 3 and 4 processes to date which do not appear to include provision for this default option. Instead, in both the 1985 Background Paper and its current Stream 3 discussion paper, the Board suggests financial provision for removal on abandonment of only 20-30% of large diameter pipelines based on prospective land development, with the remainder of pipelines to be maintained in perpetuity. However, at least where all pipelines in a common corridor on agricultural property have been abandoned, perpetual maintenance is not a satisfactory alternative to removal.

In such circumstances, perpetual maintenance of abandoned pipelines will continue to impose upon landowners restrictions on agricultural practices, land use limitations and ongoing interference and costs related to maintenance operations equivalent to operating pipelines. Landowners, of course, can have no assurance of the company's continued existence to answer for this ongoing financial loss or that reserved funds will in fact be sufficient for maintenance in perpetuity and/or related landowner losses. If landowners are not to be subject to these continuing post-abandonment liabilities and costs, the default option for abandonment of large diameter pipelines in agricultural lands must be removal.

As requested by the Board, CAPLA is providing in this response document its comments on the principles and issues proposed in the Board's Stream 4 Discussion Paper and the implications that these comments present for Stream 3 issues. This response identifies abandonment issues

from the landowner perspective and explains why the limited approach adopted by the Board to date and as presented in the current discussion papers is not sufficient to promote fulfillment of the Board's key principle that landowners not bear the costs of pipeline abandonment.

LMCI Stream 4: Pipeline Abandonment – Physical Issues

Attached as **Appendix 6** to this CAPLA Response is an expert report commissioned by CAPLA from Broadsword Corrosion Engineering Ltd. with respect to long-term consequences associated with pipelines following their abandonment. Patrick Teevens, the author of the report, is a chemical engineer and an active member of the National Association of Corrosion Engineers International (NACE). A copy of his current CV is included at **Appendix 6A**. He has advanced technical certifications as a NACE International Corrosion Specialist and as a NACE International Cathodic Protection Specialist. Mr. Teevens has been involved with oil and gas production and gas transmission operations for the past 30+ years and is a principal of Broadsword Corrosion Engineering. He is a NACE International technical representative to the Pipelines Standards Developing Organizations – Coordinating Council (PSDOCC) which technically reviews and makes recommendations to the Office of Public Safety (OPS) in Washington, D.C. for the adoption of new pipeline standards for incorporation into the U.S. Federal Rulemaking for Gas Transmission Pipelines. In addition to being a member of the University of Calgary's Schulich School of Engineering Industry Advisory Committee – Pipeline Engineering Centre, he is a Lead Instructor for the relatively new NACE International Internal Corrosion for Pipelines course, having taught the course 27 times in the past 4 years throughout the United States, Canada, and in Kuwait, the United Arab Emirates, Venezuela and Ecuador. Broadsword Corrosion Engineering conducts advanced engineering assessments and coordinates forensic failure investigations and testing of materials and/or corrosion inhibitors for carbon steel pipelines, gas sweetening plants, refineries and petrochemical facilities.

The Broadsword Report establishes that the inevitable corrosion which results if abandoned pipelines are not maintained not only raises the significant environmental and safety concerns previously identified by the Board (i.e. soil and water contamination, soil erosion and flooding, pipe collapse and subsidence, water crossing issues) but, of increasing importance, constitutes direct and indirect pollution activity contrary to the *Canadian Environmental Assessment Act* and the Board's own statutory mandate. Based on the analysis contained in this report, Broadsword concludes and recommends:

- "Upon the abandonment of large diameter pipelines in a single pipeline ROW or all pipelines in a common corridor, the pipelines should be removed unless there is a reasonable prospect for their future use approved by affected landowners and there are no technical or financial issues with respect to their continued maintenance";

- Until removal, CP must be maintained to minimize external corrosion and interference with other operating pipelines and environmentally friendly "green" corrosion inhibitors must be applied to minimize internal corrosion; and

- Future liability concerns of landowners must be removed through establishment of a "legacy fund" sufficient not only to ensure perpetual maintenance but also pipeline removal should maintenance be terminated.

Reflecting Broadsword's expert conclusions and recommendations, CAPLA's LMCI Stream 4 position with respect to "the desired end-state of land post-abandonment" and "the optimal way of ensuring the desired end-state is achieved" is that:

- As noted by the Pipeline Abandonment Legal Working Group in its 1997 "Legal Issues Relating to Pipeline Abandonment: A Discussion Paper", the Board "has no authority to attach conditions subsequent to an abandonment order". To ensure fulfilment of the Board's second principle that "landowners will not be liable for the costs of pipeline abandonment", abandonment options must eliminate at the time of abandonment any risk of future abandonment liabilities and costs;

- Accordingly, the Board's "Proposed Principles for Retirement Planning and the End-State of Land Post-Retirement" must recognize the Board's lack of jurisdiction to address post-abandonment liabilities and costs and provide a default option which ensures that this risk is borne by facility owners and operators and not by landowners;

- With respect to the abandonment of large diameter pipelines in agricultural lands, this can only be accomplished by establishing provision for the default option of removal where all pipelines in a common corridor have been abandoned. Where one or more pipelines continue to be operated adjacent to abandoned pipelines that have not been removed, those adjacent abandoned pipelines must be maintained as though operating until removal is triggered by the cessation of operation of all pipelines in the corridor;

- This default option is necessary to protect landowners from future liability and costs, is required for the long term protection of the environment, and is in the Canadian public interest.

Key Questions 1/2 – Principles – How should the Board's proposed principles be revised to identify clearly the removal of large diameter pipelines from agricultural lands as the default option on abandonment?

As identified above, in both its 1985 Background Paper and current LMCI Streams 3 and 4 Discussion Papers, the Board has endorsed pipeline removal as the preferred "default option" for abandonment of large diameter pipelines in agricultural lands. The Broadsword Report confirms the validity and necessity of this conclusion. To incorporate this default option into the Board's "Proposed Principles for Retirement Planning and the End-State of Land Post-Retirement", CAPLA suggests revision of the Board's proposed principles as follows:

Responsibility and Liability

(i) *Facilities owners and operators are responsible for the retirement and reclamation of the facilities and, at the time of abandonment, must eliminate any risk for landowners of liabilities and costs arising from those facilities in the post-retirement phase;*

(ii) *To achieve elimination of any such risk upon abandonment of large diameter pipelines from agricultural lands, provision must be established for pipeline removal where all pipelines in a common corridor have been abandoned. Where one or more pipelines continue to be operated adjacent to abandoned pipelines that have not been removed, those adjacent abandoned pipelines must be maintained as though operating until removal is triggered by the cessation of operation of all pipelines in the corridor;*

End-State of Land

(iii) *The goal of successful reclamation is to return the right-of-way to a state as close as possible to its original condition prior to pipeline construction (with appropriate compensation to landowners for any difference) and compatible with the surrounding environment as well as current and potential future land use;*

(iv) *The goal of the retirement and reclamation plan is to deal with the retired facility in such a matter that any risk that a landowner will incur future liabilities or costs is*

eliminated and the risk to public safety and the environment in the years to come is at a level that is acceptable to all affected parties;

(v) All feasible measures are taken to eliminate for landowners the risk of future costs and liabilities and to reduce the risk posed to the health and safety of people, society and the environment;

Retirement and Reclamation Planning

(vi) Subject to the default option of requiring removal of large diameter pipelines from agricultural lands, specific retirement and reclamation plans are developed on the basis of comprehensive site specific assessments, company specifics, consideration of existing easement agreements and an understanding of the technical and environmental factors related to pipeline retirement;

(vii) Elimination of the risk that landowners will incur future liabilities and costs, in priority to existing and future land use, is the most important factor to consider when determining whether facilities should be removed or abandoned in place;

(viii) In those areas where the preferred land use is based on natural ecosystems, reclamation will focus on restoring the right-of-way to a functional ecosystem by restoring habitat affected by right-of-way development;

(ix) People and institutions affected by the retirement and reclamation of facilities must be engaged in the development of retirement and reclamation plans;

(x) Subject to landowner approval, consideration is given to reuse and recycling facilities where possible in identifying retirement options.

Performance Measurement

(xi) Measuring the performance of retirement and reclamation plans based upon end-state land restoration and elimination of the risk of future landowner liabilities and costs is an essential component of retirement and reclamation plans, which will facilitate continual improvement and assessment of effectiveness.

Key Questions 3/4 – Physical and Technical Issues – How should identified physical retirement and reclamation issues be modified to eliminate risk of future liabilities and costs for landowners?

The Broadsword Report identifies a number of critical issues with respect to perpetual maintenance (until pipeline removal is required), which must be addressed to achieve fulfilment of the Board's second principle that "landowners will not be liable for costs of pipeline abandonment". For landowners not be burdened with potential future environmental liabilities and costs arising from pipeline abandonment, CAPLA suggests the following revisions to the Board's Summary of Outstanding Issues:

a) What are the design, construction, inspection and maintenance implications of providing for maintenance in perpetuity of abandoned pipelines adjacent to operating pipelines? Upon abandonment of all adjacent pipelines, will pipeline removal ensure remediation of historical contamination and elimination of the risk of future environmental contamination?

b/c) Will such perpetual maintenance and pipeline removal requirements ensure elimination of the risk of subsidence related to pipeline corrosion?

d) Will such perpetual maintenance and pipeline removal requirements ensure elimination of the risk of corrosion of pipelines surrounded by water or in a water crossing?

e) Will such perpetual maintenance and pipeline removal requirements ensure that landowners will not be responsible for future liabilities and costs arising from abandonment?

Key Questions 5/6/7/8 – Action Plan Development – What funding and collaboration are required to ensure appropriate identification and prioritization of technical and physical issues and implementation of performance measures and monitoring programs to ensure that landowners do not bear the costs of pipeline abandonment?

CAPLA believes that it is critical that the voice of landowners be heard as a part of the Board's LMCI consideration and determination of abandonment issues. At the end of the day, it is clearly landowners who will bear the risks and costs of abandonment not appropriately identified or funded by LMCI resolutions. The same measures adopted by the Board to address these risks will also promote long term protection of the environment and the Canadian public interest.

However, in view of the complexity of technical and financial issues related to pipeline abandonment as demonstrated by the attached expert reports, for CAPLA's contribution to be informed and constructive CAPLA will require access to independent expert consultant expertise to respond to the issue identification, analysis and resolution proposed by the Board and industry participants. To this end:

- CAPLA is prepared to participate in the round table committee or council proposed by the Board and to provide recommendations for the group's structure and terms of reference;

- To facilitate CAPLA's participation, CAPLA will require funding from the Board/NRC/and/or industry for the time and expenses of CAPLA representatives and for independent legal and expert consultant advice with respect to the identification and prioritization of technical and physical issues to be investigated and the development and implementation of performance measures and monitoring programs required to ensure that "landowners will not be liable for costs of pipeline abandonment".

Key Question 9 – Landowner Involvement – Why should the default option on abandonment require removal of large diameter pipelines from agricultural lands?

In the absence of continuing NEB regulatory jurisdiction to address post-abandonment liabilities and costs, landowners are concerned that they and their successors in title will bear the costs of environmental contamination, land subsidence and related liabilities. To satisfy the Board's second principle, landowners must be assured that facility owners and operators will not be permitted either to dispose of these facilities to third parties without financial capability to address liabilities and costs or to abandon the facilities in place without continuing responsibility for maintenance and financial provision for these liabilities and costs.

The validity of such landowner concerns has been recognized in recent dealings between landowner associations and pipeline companies and reflected in recently concluded easement agreements. The Gas Pipeline Landowners of Ontario (GAPLO) has negotiated amendment to Union Gas' standard form easement agreement to include the following provisions (see **Appendix 7**):

- **Surrender only with consent:** Par. 1 – "… the rights, privileges and easement hereby granted shall continue in perpetuity or until the Transferee, with the express written consent of the Transferor, shall execute and deliver a surrender thereof";

- **Obligation to restore to original condition:** Par. 1 – "Prior to and following such surrender Transferee shall remove all debris as may have resulted from the Transferee's use of the Lands from the Lands and in all respects restore the lands to its previous productivity and fertility so far as is reasonably possible, save and except for items in which compensation is due under Clause 2 hereof."

- **Maintain in perpetuity or removal at landowner option:** Par.1 – "As part of the Transferee's obligation to restore the lands upon surrender of its easement, the Transferee agrees at the option of the transferor to remove the Pipeline from the lands. The Transferee and the Transferor shall surrender the easement and the Transferee shall remove the Pipeline at the Transferor's option where the Pipeline has been abandoned. The Pipeline shall be deemed to be abandoned where: a) corrosion protection is no longer applied to the pipeline, or, b) the Pipeline becomes unfit for service in accordance with Ontario standards. The Transferee shall, within 60 days of either of these events occurring, provide the Transferor with notice of the event. Upon removal of the Pipeline and restoration of the Lands as required by this agreement, the Transferor shall release the Transferee from further obligations in respect of the restoration. This provision shall apply with respect to all pipelines in the Dawn-Trafalgar system on the Transferor's lands."

- **Post-assignment liability:** Par.15 – "The Transferee shall not assign this agreement without prior written notice to the Transferor and, despite any such assignment, the

Transferee shall remain liable to the Transferor for the performance of its responsibilities and obligations hereunder."

The recent settlement agreement between the Manitoba Pipeline Landowners Association (MPLA) and Saskatchewan Association of Pipeline Landowners (SAPL) and Enbridge Pipelines Inc. with respect to the Southern Lights and Alberta Clipper pipelines (see **Appendix 8**, Section 9) provides for similar easement agreement language limiting Enbridge's assignment rights and establishing post-abandonment liability as follows:

- **Assignment limitations:** Par. 11 - "… Enbridge Pipelines Inc. shall have the right to assign this Agreement in whole or in part:

  (a) to an assignee that meets a minimum threshold credit rating of not less than BBB (low) by Dominion Bond Rating Service Limited or BBB- by Standard & Poors Corporation or Baa3 by Moody's Investor Services Inc. assigned to the unsecured and senior unsubordinated long-term debt obligations (not supported by third party credit enhancement) by the respective rating agency (a "Rated Assignee"). For greater certainty, where the assignee is rated by more than one agency, the lowest credit rating will apply. Enbridge Pipelines Inc. shall provide written notice thereof within ten (10) days;

  (b) to any third party not a Rated Assignee, provided Enbridge Pipelines Inc. remains liable to the owner for any abandonment obligations. Enbridge Pipelines Inc. shall provide written notice thereof to the Owner within ten (10) days; or

  (c) to any third party not a Rated Assignee, provided Enbridge Pipelines Inc. demonstrates to the Owner's satisfaction (acting reasonably) that such assignee is financially sound in which case Owner shall provide its prior written consent to the assignment."

- **Maintain in perpetuity or removal / surrender only with consent:** Par. 9 – "Upon the abandonment of the pipeline, Enbridge will, at its option:

  (a) remove the pipeline from the lands;

  (b) maintain the pipeline including the application of cathodic protection for as long as Enbridge exercises its rights under the easement; or

  (c) surrender the easement with the landowner's consent.

  These abandonment provisions shall apply to all Enbridge pipelines on the landowner's lands."

Easement agreement amendments resulting from these recent negotiations demonstrate a recognition by the pipeline companies that to relieve landowners of the risks of abandonment liabilities and costs requires limitations on both the company's assignment and surrender rights and an obligation by the company on abandonment either to maintain the pipeline in perpetuity

or to remove it. For this reason, CAPLA has proposed in its LMCI Stream 1 response (March18, 2008- p.16) to the Board's Discussion Paper:

- "To address abandonment issues: mandatory minimum easement agreement provisions requiring pipeline removal at the landowner's option (as per Union Gas); restoration standards to previous productivity or fertility except as compensated (as per Union Gas); company surrender and release only with landowner consent (as per Union Gas, Enbridge); and company assignment only with prior notice (Union Gas) and continuing liability (Union Gas). Filing Manual "performance measures" requiring financial provision to fund removal and no assignment unless assignee has equivalent credit rating or continuing liability (Enbridge)".

However, enforceability of these commitments depends upon the financial status of the company at the time of abandonment and thereafter forever. To address this continuing significant financial risk even for landowners who have the benefit of these easement amendments, the Board must re-establish by regulation the default option on abandonment of removal of large diameter pipelines from agricultural lands and implement measures to provide the funding necessary to achieve this result and perpetual maintenance until removal. Only in this way can the Board ensure fulfillment of its second principle that "landowners will not be liable for costs of pipeline abandonment."

LMCI Stream 3: Pipeline Abandonment – Financial Issues

Attached as **Appendix 9** to this CAPLA Response is an expert report commissioned by CAPLA with respect to the regulatory feasibility of recovering the costs of future perpetual maintenance and pipeline removal through current tolls. As established by the Broadsword Report, these are the costs for which reasonable provision must be made now to eliminate for landowners the risk of post-abandonment liabilities and costs. The author of this report, Aggie Cheung, is a chemical engineer and was employed by TransCanada Pipelines Limited from 1981 to 1999 as a Senior Manager, Transportation Planning and Development and eventually as Director, Health, Safety and Environment. A copy of her current CV is included at **Appendix 9A**. She designed and developed the cost of service and toll forecast model that TransCanada has used for its regulated business in connection with planning and NEB filings. She directed and developed the regulatory justification for the construction of over $2 billion in new pipeline and compression facilities on the TransCanada system.

Based on the analysis contained in her report, Ms. Cheung has concluded:

- "The Board not only has jurisdiction over the abandonment of pipeline facilities but it also has the discretion to implement regulations that govern the abandonment of pipeline facilities for the protection of the landowners from both safety and financial perspectives. This discretion encompasses the recovery of future abandonment costs in the pipeline's cost of service if necessary. As the Board noted in its 2008 Paper, negative salvage is the responsibility of the pipeline company and it is "*part of the full life-cycle cost of providing the service of transmitting hydrocarbons*". In that regard, one could conclude that the pipeline would be allowed to recover such costs from its shippers through the transportation tolls. However, even in the absence of such collection, the pipeline company and not the landowners must remain financially responsible for all abandonment costs."

Reflecting Ms. Cheung's expert conclusions, CAPLA's Stream 3 position with respect to "the optimal way to ensure that funds are available when abandonment costs are incurred" is that:

- To ensure fulfillment of the Board's second principle, "the desired end-state of lands post-abandonment" is that they be restored as closely as possible to their original condition before pipeline construction (with appropriate compensation to landowners for any difference) and that the risk of post-abandonment liabilities and costs be eliminated

by requiring removal with perpetual maintenance until that time as the default option for large diameter pipelines in agricultural lands;

- For this purpose, "the optimal way of ensuring that funds are available when abandonment costs are incurred" is to implement a funding mechanism sufficient to provide for the default option of removal of large diameter pipelines in agricultural lands where all pipelines have been abandoned, and until that time, maintenance in perpetuity of adjacent abandoned pipelines.

Stream 3 Issues

In its Stream 3 Discussion Paper, the Board has affirmed that "a significant concern of all parties is that financial reserves are available … to cover the costs of the necessary work." Included in the potential outcomes of Stream 3 is "identification of technical abandonment assumptions to be used to estimate abandonment costs." CAPLA is concerned that the technical abandonment assumptions identified by the Board in Stream 3 to estimate abandonment costs for the purpose of establishing sufficient reserves include provision for the default option of removal of large diameter pipelines in agricultural lands where all pipelines have been abandoned, and until that time, maintenance in perpetuity of adjacent abandoned pipelines. For this purpose, with respect to the Stream 3 List of Issues (in Appendix I of Ruling Number 1, Hearing Order RH-2-2008 – see **Appendix 10**), CAPLA proposes the following revisions:

2. If companies are required to set aside funds, what information and assumptions are necessary to create preliminary estimates for future abandonment costs? For example:

    a. What technical and financial assumptions should be used to create preliminary cost estimates?

    b. <u>What technical and financial assumptions should be used to ensure the establishment of sufficient reserves to provide for the default option of removal of large diameter pipelines in agricultural lands where all pipelines have been abandoned, and until that time, maintenance in perpetuity of adjacent abandoned pipelines?</u>

    c. …

5. If companies are required to set aside funds, how should the funds be governed? For example:

a. Should the funds be maintained in a separate trust account, commingled with a company's general corporate revenue, maintained and administered by a third party or maintained in another manner?

b. Contemplating possible corporate dissolution or insolvency, to ensure sufficient reserves to provide for the default option of removal of large diameter pipelines in agricultural lands where all pipelines have been abandoned, and until that time, maintenance in perpetuity of adjacent abandoned pipelines, should funds be maintained and administered by a third party?

c. …

6. How best should the risks and uncertainties inherent in determining future abandonment costs and revenues be managed or mitigated?

   a. Who should bear the risk/reward of trust account performance?

   b. Who should bear the risk/reward of under/over collection of funds?

   c. How must funds be collected and administered so that landowners are assured that they will not bear any portion of these risks and uncertainties?

Conclusion

"Landowners will not be liable for costs of pipeline abandonment."

The Board has no jurisdiction to address post-abandonment liabilities and costs.

Accordingly, to assure fulfillment of the second principle established by the Board as the foundation for LMCI Streams 3 and 4, all risks of post-abandonment liabilities and costs must be addressed at the time of abandonment. Such risks can only be eliminated by the default option of removal of large diameter pipelines in agricultural lands where all pipelines in a common corridor have been abandoned. Where one or more pipelines continue to be operated adjacent to abandoned pipelines that have not been removed, those adjacent abandoned pipelines must be maintained as though operating until removal is triggered by the cessation of operation of all pipelines in the corridor. In this response paper, CAPLA has proposed necessary revisions to the Board's Stream 4 "Proposed Principles for Retirement Planning and the End-State of Land Post-Retirement" and "Summary of Outstanding Issues" and to the Board's Stream 3 "List of Issues" to require identification and consideration of these technical abandonment assumptions in Stream 4 as the basis for estimating abandonment costs and establishing sufficient reserves in Stream 3. These proposed revisions reflect the expert conclusions provided in the attached reports commissioned by CAPLA.

At the Stream 3 workshop held on April 3, 2008, CAPLA's position as reported in the Board's Conference Report of April 15, 2008 was that:

> "Issue 2 in the Board's proposed List of Issues (i.e. technical and financial assumptions to be used to create preliminary estimates of future abandonment costs) overlaps considerably the issues in Stream 4. It is CAPLA's position that Stream 4 must be completed before the commencement of the Stream 3 proceeding."

In Stream 3, Ruling 1, the Board reiterates the purpose of Stream 3 as the "development of a set of principles which will guide the Board in future decisions with respect to financial decisions related to pipeline abandonment, [and] identification of technical abandonment assumptions to be used to estimate abandonment costs", but then concludes that, "it is not necessary for Stream 4 to be completed, or detailed estimates for abandonment costs [to] be ascertained prior to the hearing." With respect to this conclusion, CAPLA respectfully continues to disagree. It is the incorporation of the default option of removal as the "desired end-state" (with perpetual maintenance until abandonment of all adjacent pipelines) in Stream 4 principles and issues to be

addressed which will then provide the technical abandonment assumptions in Stream 3 which are the basis for the estimated abandonment costs to be funded. Only in this way can the Board address the concern of all parties "that financial reserves are available … to cover the costs of the necessary work" and ensure that landowners do not bear the risks of post-abandonment liabilities and costs.

CAPLA is ready, willing and able to continue its participation in LMCI Streams 3 and 4 to provide the Board and industry with the landowner perspective on these abandonment issues. From the landowner perspective, financial provision for future pipeline abandonment must be addressed now so that landowners do not continue to bear the risk of post-abandonment liabilities and costs. However, as CAPLA has advised the Board, its continued participation is dependent on the provision of reasonable funding for the time and expenses of CAPLA representatives and independent legal and consultant advice which CAPLA requires to address theses issues. Again, it is CAPLA's earnest hope that, through this participation, the Board's LMCI process will effect a satisfactory resolution of these longstanding landowner concerns.

An Assessment of the Application by Union Gas to Sell the St. Clair Line to Dawn Gateway LP

Report by George L. Brinkman

Qualifications of George L. Brinkman

1. I am a Professor Emeritus and former Chair of the Department of Agricultural Economics and Business, University of Guelph. I hold a Ph.D. in Agricultural Economics, a Masters degree in Agricultural Extension, and a B.Sc. degree in General Agriculture. I retired from the University of Guelph on January 1, 2005.

2. My undergraduate degree in General Agriculture involved courseware and training in all aspects of farm production, ranging from crop and livestock production to soils, nutrition, and farm management. My Masters degree in Agricultural Extension provided courses and training in behavioural aspects of farm and rural life, including social change, psychological and emotional aspects, and how people learn. My Ph. D. degree in Agricultural Economics provided me with training in the economic aspects of farming and rural businesses, as well as training in research and analytical methods.

3. Over the last 36 years I have worked at the University of Guelph and in consulting in Canada specializing in agriculture price and income policy, farm viability, impacts of international trade, farm structure, agricultural program evaluation, and rural development. Prior to working at the University of Guelph I worked for 4 years at Kansas State University.

4. I am a Fellow, past President, and past Councillor of the Canadian Agricultural Economics Association, and have served as a past National Director of the Agricultural Institute of Canada. I currently serve or have served on a number of provincial and national advisory committees. I have served as the Chair of the Statistics Canada Advisory Committee on Agriculture for 24 years since its inception in 1985, on the National Statistics Council, and on the Ontario Agricultural Economics Expert Committees on Agricultural Policy, Social Impact, and Rural Development.

5. I have been actively involved in hands-on agricultural industry research and issues on an on-going basis. I have served on several task forces and as an economic expert on numerous occasions, including the 1989 Farm Finance Task Force of the National Growing Together assessment of the agricultural sector by the Mulroney government, the Dairy Policy Review, and the rBST Task Force. I served as the economic expert on behalf of the Ontario government in the 1997 *Dunsmore* v. *Ontario (Attorney General)* [2001], 3 S.C.R. 1016 case regarding the repeal of the *Agricultural Labour Relations Act*, and again in 2004-2005 in the case of *Frazier* v.

Ontario (Attorney General) [2004] 04-cv-266277CM2. I also served in 2005-06 as an economic expert on behalf of the Attorney General of Canada in their defence of requiring foreign migrant agricultural workers to pay Employment Insurance premiums.

6. I have served as the economic expert on behalf of pipeline landowners in three court cases. The first case involved the case of CAPLA et. al. v. TransCanada Pipelines Limited and Enbridge Pipelines Inc. regarding the introduction of pipeline crossing regulations and the introduction of the additional control zone restrictions by the National Energy Board. I also served as the economic expert for pipeline landowners in Ontario Energy Board matter EB-2005-0550 regarding Union's application to construct the Strathroy-Lobo section of its NPS 48 Dawn-Trafalgar pipeline in Ontario. Finally, I served as the economic expert on behalf of the Manitoba Pipeline Landowners Association and the Saskatchewan Association of Pipeline Landowners regarding Enbridge Pipelines" application for the construction of the Southern Lights and Alberta Clipper pipelines.

7. In addition, I have twice served as the economic expert for Dairy Farmers of Canada in their defence of the World Trade Organization ("WTO") challenges on dairy exports. Over the years, I have made numerous assessments of farm viability, farm management impacts and best management practices, trade issues, and research policy for the Ontario Horticulture Coalition, Pork Producers of Ontario (Ontario Pork), Chicken Farmers of Ontario, Dairy Farmers of Ontario, and numerous other commodity groups. In 2005 I was selected by the newly formed Canadian Agri-Food Policy Institute to prepare reports on comparisons of US and Canadian farm incomes. Overall, I have served as an economic expert in 35 legal cases.

8. I have published widely on farm management performance and the viability of the Canadian agricultural sector, and provide numerous public presentations at farm and policy conferences each year. I have often spoken in two to five provinces each year and am actively involved in policy discussions with representatives of the agricultural industry, government officials, and academics across Canada on a continuous basis. I spend a considerable amount of time working directly with the agriculture industry and individual farmers on farm policy, viability and structural issues. I have received the University of Guelph Alumni Outstanding Extension Award for industry outreach and the University of Guelph Alumni Outstanding Teaching Award. A copy of my curriculum vitae is attached to my report as **Attachment 1**.

1.0 Introduction

9. Union Gas Limited ("Union") has applied to the Ontario Energy Board pursuant to section 43(1)(b) of the *Ontario Energy Board Act* for an order granting Union leave to sell 11.7 km of NPS 24 pipeline running from Union's St. Clair Valve site to the Bickford Compressor site, referred to here as the St. Clair line, to a limited partnership referred to here as Dawn Gateway LP. One of the consequences of this sale is that the jurisdiction and regulation of the pipeline also would be transferred

subsequently from provincial jurisdiction and regulation under the Ontario Energy Board to federal jurisdiction and regulation under the National Energy Board. The change in jurisdiction and regulation in turn could impose additional restrictions and costs on landowners who have the St. Clair pipeline on their property, as there are a number of differences in regulations under the two jurisdictions. To date, however, no documentation of the differences in regulations and their impact on the operations of landowners has been undertaken, nor has any consultation regarding the differences in regulation been undertaken with landowners.

10. It also should be noted that if the sale is approved, Union advises that a related entity, Dawn Gateway LP will proceed to construct a new section of pipeline from the Bickford Compressor site to the Dawn Hub, which will also be under federal NEB jurisdiction. Landowners affected by that section of pipe may also face the additional restrictions and costs that otherwise would be avoided if the line were provincially regulated.

11. The purpose of this report is to provide an assessment of the implications of the sale of the St. Clair Line to Dawn Gateway LP and the transfer of jurisdiction of the pipeline from provincial jurisdiction and regulation under the Ontario Energy Board to federal jurisdiction and regulation under the National Energy Board. The report will document a number of differences in provincial and federal regulations that could adversely affect pipeline landowners and will identify the additional costs and requirements that landowners will face in operating under the jurisdiction of the National Energy Board. Should the sale of the St. Clair line be approved, the report recommends that proper mitigation measures be implemented to avoid the possible negative implications or to compensate for the additional costs and burdens in order not to disadvantage landowners as a result of the transfer of jurisdiction.

2.0 Summary of Differences in Provincial and Federal Regulations

12. The primary source of differences in regulations and restrictions between provincial OEB and federal NEB jurisdiction that affect landowners was introduced in 1990 with section 112 of the *NEB Act*. This amendment to the *NEB Act* imposed a new additional 30 meter control zone on each side of a pipeline easement or right-of-way, pipeline crossing regulations, associated approval procedures for excavation, pipeline crossing regulations and increased liability for non compliance. Subsection 112(1) of the *NEB Act* specifies that “no person shall, unless leave is first obtained from the Board, construct a facility across, on, along or under a pipeline or excavate using power-operated equipment or explosives within 30 metres of a pipeline.” Subsection 112(2) of the *NEB Act* provides that “no person shall operate a vehicle or mobile equipment across a pipeline unless leave is first obtained from the company or the vehicle or mobile equipment is operated within the travelled portion of a highway or public road.”

13. Overall, Section 112 and associated regulations provide additional restrictions not found in provincial regulations in Ontario which create

1. An additional 30 meter control zone on each side of the original easement with a) restrictions on construction, expansion, development, and ditching, and b) prohibitions on depth of tillage and depth of soil over the pipeline,

2. Crossing regulations, which can include weight restrictions and require leave of the pipeline company.

3. Regulations for obtaining permission to cross the pipeline and undertake other normal farming practices which allow pipeline companies up to 10 working days to respond to landowner notification as well as the right to refuse to approve activities.

4. Loss of time and flexibility in dealing with additional restrictions,

5. Increased liability of up to $1 million per day and 5 years in jail for violations of compliance orders, and

6. Control of land use by landowners without easement agreements and pipelines on their property where the additional control zone extends onto their property.

14. Further amendments to the *NEB Act* were made in 1999 by granting pipeline companies the additional right not found in provincial regulations to prohibit excavation in an area situated in the vicinity of the pipeline, which may even extend beyond thirty meters of the pipeline (to the whole farm if necessary) for a period of 3 days following approval of the farmer's request in order to locate the pipeline. These regulations now provide for a 10 day working response time plus an additional 3 working days prohibition period even when permission is granted, allowing pipeline companies to restrict necessary work for a period of up to 18 days when holidays and weekends are considered.

15. Additional concerns over the change from provincial to federal jurisdiction arise from

1. The loss of jurisdiction by the NEB over pipelines after an abandonment order has been signed, thereby effectively creating a regulatory vacuum without a regulatory remedy to address future abandonment liabilities and costs, and

2. The loss of cost recovery for landowners for involvement in NEB certificate and other hearings now provided under OEB provincial jurisdiction.

16. The changes in jurisdiction summarized above have the potential to impose considerable restrictions and costs on landowners in the normal operation of their

farming activities. The impacts of these additional restrictions are discussed in the following section.

3.0 Assessment of Impacts on Farm Landowners from Changes in Jurisdiction and Regulations

3.1 Control Zone Restrictions on Facility Construction, Expansion, Development, and Ditching

17. The additional restrictions on facility construction in the control zone not imposed under OEB provincial jurisdiction can limit the farmer's right to expand his operation. In some cases, the organization of the farm and current location of buildings will only allow expansion of buildings and the construction of additional facilities outside the provincial easement but within the new control zone. Restricting the building of new facilities on the control zone could effectively prevent farmers from expanding as a necessary prerequisite for their economic survival. Municipalities may refuse building permits in the control zone thereby imposing a complete embargo on construction (see **Attachment 2**, a by-law enacted by the Town of Laurentian Hills in Renfrew County, Ontario which prohibits construction of any dwelling within the control zone). In addition, the expansion of the control zone encroaches in some cases on land that previously could have been used for development, severely restricting the farmer's right to sell his land for development and reducing both the value of the land and the farmer's equity.

3.2 Depth of Tillage Restrictions

18. Under section 112 of the *NEB Act,* new excavation restrictions were extended to land contained both within existing NEB-regulated easements and within the control zone. Restrictions on depth of tillage restrict normal farming practices by limiting tillage to only those practices requiring less than 1 foot of disturbance. Under provincial jurisdiction, there are no restrictions on depth of tillage, so that the NEB tillage restrictions could have the ability to restrict the farmer's use of new and existing technology, thereby reducing the farmer's yields, his efficiency, and his overall profitability. In addition, the restrictions on maintaining the depth of soil over the pipeline means that farmers cannot practice land leveling or even use a leveling plank in front of the cultivator. It should be noted that land leveling has been an ordinary cultivation practice for many decades, before the enactment of s.112 or the construction of the St. Clair line, and is not restricted by OEB provincial regulations.

19. Union's easement agreement with St. Clair line landowners preserves for the landowner the right to carry out the ordinary cultivation of the land. In its original leave to construct application to the OEB for the St. Clair line, Union confirmed that under the easement agreement, "the landowner is free to farm the easement". Long before the signing of easement agreements for the St. Clair line there already were tillage practices, such as deep ploughing and dragging heavy weights through the

ground to facilitate drainage, that operated at depths of greater than 1 foot. Under NEB regulation, however, these practices will be severely restricted.

20. Today there are even more widely used technologies that operate at depths greater than 1 foot that can be prevented by this restriction. In many cases ploughing is undertaken to a depth of 16 inches. Para tillage is a relatively new technology that effectively lifts the soil at depths of 12 to 16 inches and lets it resettle to break up compaction and thereby allowing quicker drainage, earlier seeding, and higher yields. This technology cannot be set precisely at a given depth since soil texture etc. will determine the depth at different locations in a field. As a result, the NEB restrictions prevent use of para tillage at depths greater than an average of 10 inches (to allow for deeper cuts in places). This severely restricts the farming operation on some farms. Additional deep tillage operations include ripping (to 18 inches) and sub-soiling (to 30 inches), especially in the heavy clay soils of Lambton County. With new developments in technology in the future, it is likely that new 16-20 inch tillage practices will be widely available.

21. The amount of land taken up by the easement and control zone is often 10 to 15 acres on medium sized farms, and may represent 40 or more acres on larger farms. These restrictions, therefore, can affect a significant amount of acreage on a farm and generate losses in reduced production and increased costs of tillage.

3.3 Crossing Regulations

22. Prior to the 1989 s.112 NEB regulations, there were no Ontario or Federal regulations on crossing pipelines for farm vehicles and equipment. The new regulations give the pipeline companies under NEB jurisdiction the right to require notification of any crossing by vehicle or mobile equipment and the right to impose weight restrictions on equipment. This can be a very serious restriction for farmers and can represent a serious loss of rights that can lead to substantial injury.

23. First, this requirement allows pipeline companies to restrict the weight of equipment rather than increasing the strength or depth of their pipelines, thereby preventing agricultural landowners from using equipment that may exceed the weight restrictions. In many cases large scale equipment has become necessary to farm efficiently and to stay in business. Currently it is not uncommon for farmers to operate tractors, combines, large trucks, and manure hauling equipment weighing in excess of 15 tonnes, with some loaded equipment weighing in excess of 30 tonnes. In the future, even larger scale equipment likely will be developed and will be necessary for farm survival. Restricting the use of the most efficient equipment available may doom these farmers to failure.

24. Secondly, crossing regulations can essentially cut the fields into two parts, creating tremendous burdens and expenses for farming separately on both sides of the pipeline. In many cases this would require tillage and other operations in a

different pattern, can require the creation of additional headlands and increased soil compaction, and could prevent access to certain sections or cause irregular and very small parcels in awkward corners that are difficult or impossible to service with modern equipment.

25. It should be noted that attempts by farmers to get specific information on permitted weights of equipment, pounds per square foot of tire contact, tire pressure requirements, etc. from pipelines under NEB jurisdiction have been unsuccessful. As a case in point, St. Clair line landowner Rick Kraayenbrink of Port Lambton, Ontario, spent numerous hours requesting specific information from Trans Canada Pipeline on permissible equipment for crossing the pipeline for ordinary cultivation. No specific information was provided, particularly in legally binding written form. This lack of specific information with binding commitments restricts the farmer's ability to plan ahead for ordinary cultivation, to use and purchase new equipment, and to schedule his activities efficiently. Furthermore, the lack of specific information increases the farmer's risk and shifts the burden of liability to the farmer. As a consequence, the additional pipeline crossing regulations pose significant limitations on the rights of agricultural landowners now and in the future from restrictions on normal farming practices, restrictions on purchases of the most efficient equipment, increased exposure to liability, and increased disruptions and nuisance responses.

3.4 Delays Caused in Getting Permission and Delays in Construction

26. Under the terms of s.112 of the *NEB Act* and associated regulations, farmers under NEB jurisdiction now face up to 10 working days allowance for pipeline companies to respond to requests for construction in the control zone and the possibility of a 3 working-day period for preventing excavation/construction even beyond the control zone. These restrictions can represent serious limitations on a farmer's ability to farm and manage properly. In many cases drains have been constructed in accordance with the easement agreement outside and parallel to the easement but now in the control zone. Farmers cannot access these drains without the possibility of delays up to 18 calendar days or even not receiving permission. These drains are often underground tile drains that get clogged by muskrats and debris, requiring immediate attention to avoid flooding or prolonged wet conditions and crop damage. Furthermore, when a fence line has been broken and the cattle are running loose, the repairs need to be made immediately and not after up to nearly 2.5 weeks. The delays in being able to correct drainage problems, etc., quickly can cause serious losses for landowners, and are restrictions not faced by other farmers, including those with OEB provincially-regulated pipelines.

27. Section 112(2) of the *NEB Act* also requires that farmers under NEB jurisdiction obtain permission every time they cross the pipeline, even using equipment with acceptable weight. However, in contrast with the NEB enactment of regulations governing the time in which companies must respond to requests to locate pipelines for excavation and other land uses, there is nothing in place to govern the time a company can take to respond to a request for permission to cross

a pipeline with vehicles or mobile equipment. As it stands, there is no requirement under NEB regulations that a company respond at all (see the Kraayenbrink example above in paragraph 25).

28. Even assuming that pipeline companies would be required to respond within 10 working days, this means that farmers effectively must anticipate at least 10 working days in advance every time they wish to cross the pipeline (except at designated roads, etc). No one in agriculture can anticipate 10 working days (up to 2 weeks) in advance of when they will need to cross the pipeline, and delays of even a day or two can be extremely costly. In many cases farmers must take advantage of very narrow windows of opportunity in the weather for land preparation, harvesting, and manure disposal, etc. In some cases a one or two day delay can result in much longer delays due to approaching rain or other weather problems, and can even result in major crop losses. As a consequence, full compliance with these requirements would essentially prohibit successful farming under current farming conditions. To avoid financial failure and bankruptcy, farmers are forced to undertake practices that may be in violation of the s.112 regulations but are not restricted under the original easement agreements under provincial jurisdiction.

3.5 Loss of Time and Flexibility in Dealing with Increased NEB Restrictions

29. Farmers under NEB jurisdiction are now being forced to incur additional time and restrictions on their farming practices to deal with NEB regulations which are not incurred under Ontario provincial jurisdiction. Requesting and getting permission takes time and effort by the farmer and thereby restricts the available time that could otherwise have been spent on active farming. Furthermore, when the pipeline worker comes to the farm and spends 3 or 4 hours discussing an issue, he gets paid for his effort whereas the farmer does not. In addition, under NEB jurisdiction, the farmer now faces the requirement to receive approval from the pipeline company to undertake activities within the control zone which was never before regulated. The landowner also faces consent requirements for work on the easement under NEB regulations, whereas there is only a notice requirement under the St. Clair easement agreement. With growing sophistication of technology and managerial requirements, the time and flexibility of the manager has become much more valuable and critical to the success of the operation. In many cases the value of the farmer's time can be measured in $100s per hour for work on critical time- sensitive activities (getting planting or harvesting done on time). Disruptions and loss of operating time in order to deal with the additional regulations and the loss of flexibility in farming operations can cost farmers thousands of dollars. In addition, the uncompensated loss of full control over farming activities in the control zone represents an economic loss to the farmer in the pursuit of his right to use and enjoy his land.

3.6 Increased Liability

30. The regulations under s.112 NEB further restrict the farmer's right fully to use and enjoy his land beyond provincial regulation by imposing restrictions that subject

the farmer to increased liability in following normal farming practices. First, the *NEB Act* specifies liability levels of a maximum of $1 million in fines per day or 5 years in jail if the farmer continues with practices which have been ordered stopped by a NEB inspector. Secondly, the farmer now faces the risk of civil lawsuits if he is forced to operate without permission for depth of tillage, repair of drains and other practices now restricted within the control zone. The issue of civil liability is a very serious restriction on the farmer's ability to enjoy his lands (as protected in the original easement agreements) without the threat of serious financial loss, public embarrassment, and even imprisonment. Finally, the *NEB Act* is a Federal Act so charges under this act fall under the Criminal Code, with much more severe consequences than provincial regulations and a greater associated stigma.

31. The issue of liability is particularly important for farmers since the exact location of the pipeline within a field is not precisely known. Pipelines are marked where they enter and leave a farmer's property, but they are not marked within the field. In many cases the pipelines are not even laid in a straight line, so that the farmer must guess where the pipeline easement and the control zone are located. On some fields representing a section of land, the pipeline indicators may be over a mile apart. As a consequence, it is virtually impossible to know exactly when approaching the pipeline, especially when cultivating perpendicularly across the pipeline. The added liability therefore can force farmers to take added precautions and follow additional self imposed restrictions in order to reduce the risk of incurring a lawsuit that would destroy both their occupation and their family. This further reduces the farmer's ability to farm in the most competitive fashion, reducing his profitability and income. In addition, the increased liability and farming restrictions also reduce the value of farm property, thereby reducing the farmer's equity and net worth.

32. The maximum $1 million fine/day or 5 years in jail imposed by the *NEB Act* is not currently applicable to the St. Clair line under provincial jurisdiction, but it would apply to activities within the easement as well as in the control zone if the St. Clair line changes to federal jurisdiction. In addition, as stated in paragraph 25 above, the unwillingness of some pipeline companies under NEB jurisdiction to specify characteristics for permissible equipment for crossing the pipelines and to allow fully for ordinary cultivation (as preserved for landowners in the St. Clair easement agreement) in effect directs the liability to the farmer. As discussed under the section on control zone restrictions, this increased liability exposure is a substantial risk for farming on properties containing pipelines that other farmers do not face. The impact of this added liability by farmers may be felt in increased stress and restricted farming practices in order to reduce exposure, as well as in lower profitability and in reduced land values. The added liability therefore represents an additional economic cost through increased risk exposure and physical and mental stress from facing a huge liability that could be disastrous for the farm business and family.

3.7 Control of Land Use for Landowners Without Pipelines on Their Property and No Easement Agreements, But Affected by the Extended Control Zone

33. With the expansion of restrictions to 30 meters each side in the control zone, some land owners without pipelines on their property may now find themselves affected by the control zone restrictions. I personally have walked across several properties where the control zone from the pipeline on another person's property now extends to the new property. As a consequence, the second landowners now have restrictions on the use of their land even though they do not have a pipeline on their property, have never signed an easement agreement, and have never received compensation for the restrictions. It is an important economic loss when you cannot expand or undertake construction on your property or must seek permission and experience extended delays, even when the pipeline company has no legal agreement with the landowner. Also of note, some provincially-regulated pipeline easements in the vicinity of the St. Clair line may fall within the 30 metre control zone if the St. Clair line is transferred to federal jurisdiction, thereby increasing the restriction of land use over those pipelines as well (see Union Gas response to GAPLO interrogatory 7).

3.8 Pipeline Abandonment

34. All pipelines deteriorate in quality over time, leading to their eventual abandonment. One of the problems with NEB regulations is that when the NEB signs an abandonment order for a pipeline, the NEB loses its jurisdiction over the pipeline altogether. In other words, once an abandonment order is signed, landowners have no regulatory support under NEB jurisdiction for proper abandonment procedures and eventual removal of the abandoned pipeline if necessary. As a result, the pipeline company could at its discretion simply allow the pipeline to deteriorate in place, creating an increasing hazard for farmers undertaking farming activities over the pipeline. Since Union has stated in its response to GAPLO IR 5 that the expected remaining economic life of the St. Clair line could be between 10 and 32 years, abandonment issues for this pipeline could occur as early as 10 years into the future.

35. There are a number of adverse impacts associated with decommissioning or abandoning a pipeline in place, none of which have been addressed by Union to date:

- Deterioration of the abandoned pipeline;
- Pipeline crossing restrictions imposed to protect the deteriorating pipeline that cause tremendous problems for farming and landowners;
- Soil and ground water contamination;
- Collapse of the pipeline causing injury to farm operators and requiring filling in collapsed sections;

- Creation of water conduits, leading to unnatural drainage and potential transfer of contaminants;
- Impacts on farming operations, such as interference in the installation of new drains;
- Impacts on the location of new buildings;
- Restrictions on future non-farm developments and use;
- Difficulties in selling the land and/or significant price discounts; and,
- Transfer of liability to the landowner.

These impacts have been recognized by the pipeline industry and the NEB in various publications including: the NEB's 1985 Background Paper on Negative Salvage Value (**Attachment 3**); the Pipeline Abandonment Steering Committee (PASC)'s 1997 Discussion Paper on Legal Issues Related to Pipeline Abandonment (**Attachment 4**); and PASC's 1996 Discussion Paper on Technical and Environmental Issues (**Attachment 5**).

36. The concern of landowners about abandonment of pipelines in place is that the landowners could be forced to absorb costs for the future impacts of pipeline abandonment. This means that any potential costs savings by the pipeline company by leaving a pipeline abandoned in place or improperly cared for would translate into a cost to be borne by the landowner. With no jurisdiction over pipeline abandonment under the NEB once an abandonment order is signed, landowners are very concerned that they will incur a significant portion of the costs of pipeline abandonment through no fault of their own.

3.9 Loss of Cost Reimbursement for Regulatory Proceedings

37. Under Ontario jurisdiction and Ontario Energy Board regulations, landowners are able to seek cost recovery for participating in pipeline hearings affecting them. Under NEB jurisdiction, however, no provision is made for cost recovery for landowner participation except for detailed route hearings. This is an important difference between NEB and OEB provincial jurisdiction affecting landowners, as few landowners can afford the expense on their own of providing adequate legal and expert representation to balance the well funded positions of pipeline companies.

38. The difficulty facing landowners is that most of the big decisions affecting NEB-regulated pipelines are made at certificate hearings, such as the decision to proceed with a pipeline, its general location, thickness of pipe and safety issues, and many other important considerations. At the federal level, these hearings are held before the detailed route hearings, so landowners must present their case at this hearing if they are to have much impact on the general issues of the pipeline. At the Ontario provincial level, the equivalent of certificate hearings and detailed route hearings are held together (the leave to construct hearing), so that landowners can apply for cost reimbursement under OEB jurisdiction in order to cover the costs of

their participation. Under the NEB, certificate hearings are held separately and before detailed route hearings, so that landowners must provide their own funding to participate at this level. Landowners can apply under NEB jurisdiction for cost reimbursement to participate in detailed route hearings, but this participation typically only involves site specific issues such as the specific location of the pipeline on a landowner's property, and does not provide an opportunity to address many of the other significant issues.

39. For landowners, it is very important that issues of cost reimbursement be dealt with before the approval to sell is granted. Once approval is granted, landowners will have no right to costs or funding if it is necessary to go back to the NEB to complain or seek remedy if landowner concerns are not properly addressed. The lack of cost reimbursement for participation in NEB hearings means that landowners will either have to pay these costs themselves, or will be prevented from participating on the basis of cost considerations. These participation costs can be substantial for individual landowners and well beyond their financial capabilities. Not being able to participate in hearings in turn could easily lead to additional restrictions on land use (such as those contained in section 112 of the *NEB Act*), which could increase the cost of farming operations. These costs become additional economic costs of agricultural operations not faced by pipeline landowners under OEB jurisdiction, and therefore represent additional costs of doing business attributable to the NEB regulated pipeline.

4.0 Recommendations

40. The evidence provided by Union clearly indicates the issues affecting landowners discussed above that arise from a transfer in jurisdiction and regulation from the OEB to the NEB have not been adequately addressed and mitigated. As a consequence, it is recommended that the approval to sell the St. Clair line not be granted unless and/or until these issues are properly addressed and mitigated.

41. All of the existing landowner easements for the St. Clair line were signed and accepted under OEB provincial jurisdiction with all of the protections and provisions of the *OEB Act* and Ontario regulations. The landowners did not sign and agree to any of the changes that a transfer to NEB jurisdiction would impose, and therefore should not be forced to be disadvantaged by NEB regulations without mitigation and/or compensation. As a consequence, any approval of the sale of the St. Clair Line should be conditional on landowners being made just as well off under NEB jurisdiction as provided under OEB jurisdiction. Conditions of approval would include

1. Written pre-approval for the construction of facilities and right for excavation on land within the control zone for both existing easement holders and landowners without easement who may be affected by the new control zone regulations,
2. Written exemption from depth of tillage restrictions for normal farming practices,

3. Written exemption from crossing regulations for normal farming practices,
4. Written exemption for the additional permission requirements for crossing the pipelines under normal farming practices and construction activities that are in excess of provincial requirements,
5. Written exemption from the increased liability regulations in excess of provincial requirements,
6. Written approval for landowners to have the option of requiring the pipeline company to remove the pipeline upon decommissioning or abandonment, and
7. Written approval granting cost recovery for participation in all hearings and landowner involvement with the NEB now provided under OEB jurisdiction.

42. A number of these mitigation measures have been implemented already for federally-regulated Enbridge Pipelines Inc. landowners in a recent settlement agreement (**Attachment 6**) filed with the NEB. Likewise, Union Gas has granted landowners an option for removal of a pipeline on abandonment in its agreement with GAPLO-Union (Strathroy-Lobo) landowners on the Dawn-Trafalgar system (**Attachment 7**).

George L Brinkman

George L. Brinkman
May 4, 2009

April 2009

RESUME

NAME: George L. Brinkman

Summary of Resumé

Dr. George L. Brinkman is Professor Emeritus of the University of Guelph. He is a retired professor and former Chair in the Department of Agricultural Economics and Business (now renamed the Department of Food, Agricultural and Resource Economics). He has a B.Sc. in general agriculture, a Master's degree in agricultural extension, and a Ph.D. degree in agricultural economics. His areas of specialization are farm viability, agricultural and trade policy, farm structure, rural development, and evaluation of public programs. He has 33 years of experience working with agricultural policy issues in Canada and 4 years of experience in the U.S. He is a Past President and a Fellow of the Canadian Agricultural Economics and Farm Management Society, and is considered one of the leading experts on farm viability in Canada. In retirement he continues to be professionally active and is widely asked to speak to governmental and farm groups about agricultural policy and farm viability. He is often asked to speak on farm issues and typically has made presentations in four to five provinces a year. He is also actively involved in expert committees and task forces, and is a frequent consultant to government, farm organizations, and individual farmers. Currently he serves as the Chairman of the Statistics Canada Advisory Committee on Agriculture, and was a member of the 1990 Government of Canada National Task Force on Farm Finance and Management. During 2000 to 2002 he served as an economic expert for Dairy Farmers of Canada in their defense of the U.S. and New Zealand challenge under the World Trade Organization to Canada's milk export contract program. He has published widely, and is the author of 3 books on agricultural policy and rural development. He also has received the Ontario Agricultural College Alumni Association Distinguished Teaching and Distinguished Extension Awards. He has served as the curriculum advisor for the Ontario Advanced Agricultural Leadership Program and is actively involved as an economic expert on behalf of farmers in legal court cases. He may be reached at gbrinkma@uoguelph.ca.

RESUME

George L. Brinkman

PROFESSION: Professor Emeritus, Agricultural Economics
University of Guelph
Retired January 1, 2005

Specialization in Agricultural Policy, Farm Structure, Agricultural Productivity, Evaluation of Public Programs, and Rural Development

PERSONAL DATA:

Citizenship: Canadian and United States of America

Birth: Minneapolis, Minnesota, October 3, 1942

Marital Status: Married, 3 daughters

Permanent Residence: 14 Hickory Street, Guelph, Ontario, Canada N1G 2X3

UNIVERSITY EDUCATION

1960-61	Exchange Student to Germany
1961-64	B. S. General Agriculture, Washington State University, (Graduated with Highest Honours).
1964-65	Ex.M. (Agriculture Extension), Washington State University.
1965-69	Ph.D. Agricultural Economics, Michigan State University (Fields of Agricultural Policy, Economic Development, Economic Analysis, International Trade and Public Administration)

EMPLOYMENT RECORD

2005-	Principal Partner, Intercambio Agricultural Consulting Services
2004-2007	Curriculum Advisor, Ontario Advanced Leadership Program
1997-2004	Professor, Department of Agricultural Economics and Business
1996-1997	Administrative leave and Visiting Professor, Department of Agricultural Economics, University of Saskatchewan (Sept. and Oct. 1996) and Department of Agricultural Economics, Texas A&M University (Nov. 1996 - April 1997)
1991-1996	Chair, Department of Agricultural Economics and Business, University of Guelph
1990-1991	Acting Chair, Department of Agricultural Economics and Business, University of Guelph
1981-1990	Professor, Department of Agricultural Economics and Business, University of Guelph
1980-1981	Sabbatical leave and Visiting Professor, Food and Resource Economics Department, University of Florida
1973-1981	Associate Professor, School of Agricultural Economics and Extension Education, University of Guelph
1969-1973	Assistant Professor, Department of Economics, Kansas State University

PROFESSIONAL EXPERIENCE

Administration and Advisory Responsibilities

Chair and Acting Chair, Department of Agricultural Economics and Business, University of Guelph, 1990 - 1996. Responsible for leadership and administration of department of 22 faculty and $2.5 million budget.

Dean's Council, Ontario Agricultural College (OAC), University of Guelph, 1990 - 1996.

Business Studies Council, University of Guelph, 1990 - 1996.

Program Leader for University of Guelph - Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) contract Agrifood Systems Research Program 1993 - 1999. Responsible for the reorganization of all agricultural research at the University of Guelph and development, selection and administration of Agricultural Economics and Integrated Agrifood research.

University of Guelph-OMAFRA Liaison Committee, 1993-1999. Responsible for administering the $35 million U of G-OMAFRA contract.

University of Guelph - OMAFRA Restructuring Committee, 1995 -1996. Responsible for reducing $22 million from $76 million OMAFRA Research and Education Division budget, including $35 million U of Guelph-OMAFRA contract.

Research Coordinator for University of Guelph-OMAF contract Program 50, Rural Living, 1974-1979. Responsible for administration of University of Guelph rural development research.

Ontario Agricultural Economic Research Coordinating Committee (OAERCC), 1979-1983 Chairman, 1991-1995. Responsible for setting research priorities for Ontario

OAERCC Rural Development Sub Committee, Chairman, 1979-1983, Member 1984-1988

OAERCC Social Impact Sub Committee, 1988-2004

Canada Committee on Socio-Economic Services (CCSES), 1980-1983. Responsible for establishing research priorities for Canada

CCSES Expert Committee on Rural Development, Chairman 1980-1983, Member 1984-1988

Chairman, Statistics Canada National Advisory Committee on Agricultural Statistics, 1985-present

National Statistics Council, Statistics Canada, 1993-1995. Responsible for advice on all statistics programs of Statistics Canada

National Farm Finance and Management Task Force, Member and Research Director, 1990-91

Technical Advisor, Canada Interdepartmental Dairy Policy Review Committee, 1982

Technical Advisor, North Atlantic Fisheries Task Force, 1981-1982

President, Canadian Agricultural Economics and Farm Management Society, 1982

Councillor, Canadian Agricultural Economics and Farm Management Society, 1978-1980

National Councillor, Agricultural Institute of Canada, 1984-86

American Agricultural Economic Association Advisory Committee for Choices magazine, 1984-1988

Farm Income and Policy Analyses

Comparison of Farm to Non-Farm Relative Rates of Returns for Commercial Farms in Ontario, OMAF, 1974-1976

Identification and Evaluation of Human and Economic Factors Facilitating or Impeding Adjustments of Limited Resource Farmers, Agriculture Canada, 1975-1979

Farm Incomes in Canada, Economic Council of Canada, 1980-1981

Federal Interdepartmental Dairy Policy Review, Ministry of State for Economic and Regional Development, 1982

Capitalization of Agricultural Land, Agriculture Canada, 1983-1985

Farm Family Incomes in Ontario, OMAF, 1985

The Competitive Position of Canadian Agriculture, Agriculture Canada, 1986

The Agricultural Finance Problem in Perspective, OMAF, 1986

Factors Affecting Dairy Quota Prices, Ontario Milk Marketing Board (OMMB), 1986-1987

Assessment of the Canadian Farm Income Situation Through the 1980's, Agriculture Canada, 1988

National Agrifood Policy Review Task Force on Farm Finance and Management Member and Research Director, Agriculture Canada, 1989-1990

Comparison of the Canadian and U.S. Dairy Industries, Technical Advisor to Agriculture Canada and Canadian Dairy Commission (CDC), 1990
GATT, NAFTA, and CUSTA Implications for Canadian Agriculture, OMAFRA ,1990-present
Factors Affecting Competitiveness of the Canadian Dairy Industry, CDC, 1992
Factors Determining Differences in Income Between Farmers in Canada, Canadian Farm Business Management Council, 1993-1994
Annual Assessments of the Viability of the Canadian Farm Sector (considering farm incomes, market conditions, government policy, trade negotiations and technological change), 1985-present
Expert Witness in Defense of the Ontario Government's Repeal of the Agricultural Labour Relations Act, Attorney General of Ontario, 1997
Comprehensive Risk Management for Canadian Agriculture, Canadian Farm Business Management Council, 1998
Class 5 and Optional Export Program Milk Pricing in the Canadian Dairy Industry, 1998
Assessment of Factors Affecting Movement of Dairy Quota between Provinces, Canadian Dairy Commission, 1998-1999
Assessment of How Much Farmers Can Afford Profitably to Pay for Milk Quota, 2000
Advisor to Dairy Farmers of Canada for Canada's defense of the U.S. and New Zealand W.T.O. challenge to Canada's milk export program, 1999-2002
Relative Profitability of Producing Milk for the Canadian Domestic and Export Milk Markets, 2001
Assessment of Factors Adversely Affecting the Competitive Position of the Ontario Horticulture Industry, 2001
Assessment of the Performance of Prairie Agriculture, 2002
Challenges and Opportunities Facing the Ontario Poinsettia Industry
Assessment of the Distribution of Injury in Canada From Excess Pricing Through the Lysine Cartel, 2002
Policy Issues Affecting the Viability of Ontario Agriculture, 2002-2004
Assessment of Farm Labour Issues for the Ontario Dairy Sector, 2003-2004
Contribution of the Horseman Component of the Harness Horse Industry to the Ontario Economy, 2003-2004
Expert Witness for the Government of Ontario in support of no agricultural labour unionization, Attorney General of Ontario, 2004-2005
A U.S.-Canada Comparison of Aggregate Farm Income from the Market and Government Assistance, 2005

Program Evaluation and Analysis Studies

Analysis on the Ontario Food and Beverage Processing Industry, Agriculture Canada, 1984
Benefit-Cost Assessment of Beef and Pork Grading, Agriculture Canada, 1984-1985
Benefit-Cost Assessment of Apple and Potato Grading, Agriculture Canada, 1984-1985
Benefit-Cost Assessment of Agriculture Canada's Meat Hygiene Program, Agriculture Canada, 1985-1986
Benefit-Cost Assessment to Agriculture Canada's Livestock Research for Beef Cattle, Dairy Cattle, Hogs, Sheep, Broilers, and Egg Layers, Agriculture Canada, 1986-1987
Benefit-Cost Assessment of Agriculture Canada's Seed Assurance, Seed Potato, and Pesticide

Registration Programs, Agriculture Canada, 1988-1989
Assessment of Factors Affecting Benefit-Cost Analyses of Public Programs in Agriculture, Agriculture Canada, 1989
Assessment of the Southern Ontario Tomato Cooperative, Agriculture Canada, 1990
Benefit-Cost Assessment of the Canadian Hydrographic Service Nautical Charts, Fisheries and Oceans, 1992
Technical Assessment of Program Evaluations for APCMA, PGAPA, APCA and CFEP, Agriculture Canada, 1992
Assessment of Farm Support and Adjustment Measures Program, Technical Advisor to Agriculture Canada, 1993
Assessment of the Protein and Oilseed Processing Pilot Plant, Agriculture Canada, 1994
Conceptual Framework and International Literature Review for Assessment of Adjustment and Adaptation Measures, Agriculture Canada, 1994-95
Cost-Benefit Assessment of the Advanced Agricultural Leadership Program, OMAFRA, 1996
The Brinkman Building Block Approach to Measuring Program Performance, Agriculture and Agrifood Canada, 2000

Returns to Research, Productivity, and Technology Assessment Studies

Returns to Ontario Agricultural Research, OMAF, 1980-1982
Multifactor Productivity in Agriculture, Agriculture Canada, 1982-1983
Benefit-Cost Assessment of University of Guelph Crop and Livestock Research Projects, 1982-1985
Review of Public Investment for Agricultural Productivity, Agriculture Canada, 1982
Multifactor Productivity in the Ontario Dairy Sector, OMMB, 1983
Returns to Biotechnical Research in Agriculture, Science Council of Canada, 1983
Benefit-Cost Assessment of Agriculture Canada's Agriculture Research for Sheep, Swine, Beef, Dairy, Egg Layers, and Broilers, Agriculture Canada, 1986-1988
University of Guelph Agrifood Systems Program Leader, 1993-present
Impact of rBST on U.S. Consumption of Milk, Federal rBST Task Force, Expert Member 1995
Update on 1995-96 U.S. Consumption of Milk, Agriculture Canada, 1996
Comparison of Suggested Opinion Poll, U.S. Consumer Reaction to the Introduction of rBST in Milk with Actual Consumption Patterns, Agriculture Canada, 1997
The Economic Benefits of Canadian Swine Research, Agriculture and Agri-food Canada, 1998
Strategic Alternatives for Research Funding for the Ontario Pork Marketing Board, 1999
Assessment of Resources Committed to Agricultural Research in Canada, 2000
Strategic Plan for Research Funding for the Poultry Institute of Canada, 2000
Strategic Policy Issues for Agricultural Research in Canada, 2000
Resources Committed in 1999 to Agri-food Research and Technology Transfer in Canada, 2001
The Impact of Technology on the Marketing of Agricultural Products, 2001
Implications of the Introduction of GMO Wheat and White Hilum Food Grade Soybeans, 2001-2002
Managerial Evaluation on the Perception of Supply Management in the Canadian Chicken Industry, 2002
Assessment of the Returns to Soybean Breeding Research at the University of Guelph, 2002
Agri-food Research and Innovation Strategy, 2003-2004

Development of a Framework for Benchmarking Research and Innovation Resources in Canada, 2004
Benchmarking Canadian Agriculture – Related Science Capacity, 2005-2006.

Farm Structure Analysis

Structure Change in Canadian Agriculture, Agriculture Canada, 1982-1983
Structure Change in Canadian Agriculture in the 1980's, Agriculture Canada, 1989
Structure Change in Canadian, U.S. and European Agriculture, OMAFRA, 1990

Other Analyses

Planning and Management Capabilities of Small Communities, Technical Advisor to Ministry of State for Urban Affairs, 1978-1980
North Atlantic Fisheries Task Force Consultant, Ministry of Finance, 1981-1982
Assessment of the Marketing and Economics Branch of Agriculture Canada, Auditor General, 1985
Technical Advisor, Agriculture and Agrifood Canada Task Force on Performance Indicators, 1997

Legal Cases

Date	*No. Cases*	*Nature of Case*
1996-99	2	Economic expert for Dairy Farmers of Canada in defense of the World Trade Organization export milk dumping cases.
1997	1	Economic expert in defense of the Ontario Government's repeal of the Agricultural Labour Relations Act, Ontario Attorney General.
1999-06	4	Economic expert in farm family civil cases.
2001-09	14	Economic expert in farm family personal injury and death cases.
2002	1	Economic distribution of compensation to Canadian farmers from lysine price fixing case.
2002-07	4	Economic expert in class action suit involving federal and provincial pipelines crossing farm properties.
2003	1	Economic expert in appropriation of farm for township dump.
2003-04	1	Economic expert in displacement of a produce vender from

		the Ontario Food Terminal.
2004-05	1	Economic expert in defense of Ontario Government's position not allowing unionization of farm labour.
2006	1	Economic expert for Government of Canada's employment insurance requirements for seasonal off-shore workers, Attorney General of Canada.
2007	1	Economic expert for Town of Oakville for assessment of normal farm practices and taxation at farm rates
2008-09	1	Economic expert for Dairy Farmers of Ontario for analysis of farmers' claim against quota transfer rules
2009	1	Economic expert in farmer livestock licensing case

Teaching Responsibilities

Graduate, undergraduate, and diploma courses in Agricultural Policy. Previous experience in graduate and undergraduate courses in Rural Development. Development and teaching of a distance MBA course in agricultural policy since 1998.

Consulting

Agriculture and Agri-Food Canada
Auditor General of Canada
Canadian Dairy Commission
Finance Canada
Fisheries and Oceans Canada
Canadian Agricultural Policy Institute
Canadian Ministry of State for Economic and Regional Development
Canadian Ministry of Urban Affairs
Statistics Canada
Attorney General of Ontario
Attorney General of Canada
Ontario Ministry of Agriculture and Food
Saskatchewan Ministry of Agriculture
Ad Culture Group, Inc.
Agricultural Council of Ontario
Agricultural Research Institute of Ontario
Canadian Farm Business Management Council
Canadian Federation of Municipalities
Dairy Farmers of Canada
Dairy Farmers of Ontario
Economic Council of Canada
Flowers Canada, Ontario

Marketing Communications Group Inc., London
North Atlantic Fisheries Task Force
Ontario Harness Horse Association
Ontario Horticulture Coalition
Ontario Pork
Poultry Industry Council
Science Council of Canada
USAID
Barristers and Solicitors
    Fireman Lofranco, Toronto
    Monteith, Baker and Johnson, Newmarket
    Shibley, Righton, Toronto
    Legate and Associates, London
    Devry, Smith and Frank, LLP, Toronto
    O'Donnell, Robertson and Sanfilippo, Toronto
    Harrison Pensa, London
    Cohen Highley, LLP, London
    Siskind, Cromarty, Ivey and Dowler, LLP, London
    Neeb, Billo, Harper, Aldred, LLP , Kitchener
    McCarty, Rustin and Kerr, Midland
    Randall K. Thompson, New Hamburg
    Howie, Sacks & Henry, Toronto
    Richie Kitcherson Hart and Biggart, Toronto
    Anderson Wilson, Toronto

PROFESSIONAL ORGANIZATIONS:

American Agricultural Economics Society
Canadian Agricultural Economics and Farm Management Society
(Councillor 1978-80, President 1982)
Community Development Society
Agricultural Institute of Canada
(National Councillor, 1984-1986)

HONORARY SOCIETIES:

Omicron Delta Epsilon
Phi Kappa Phi
Alpha Zeta

BIOGRAPHICAL LISTINGS:

Who's Who in the East
Men of Achievement

Contemporary Authors
The International Authors and Writers Who's Who
Dictionary of International Biography

SPECIAL AWARDS:

Canadian Journal of Agricultural Economics Best Article Award, 1978
Stewart Lane Commemorative Award, 1984
University of Guelph Alumni Association Outstanding Extension Award, 1991
Fellow, Canadian Agricultural Economics and Farm Management Society, 1996
University of Guelph Alumni Association Outstanding Teaching Award, 2001
University of Guelph Professor Emeritus, 2005

PUBLICATIONS:

See Attached.

PUBLICATIONS:

Books

Brinkman, G.L., ed., The Development of Rural America, Lawrence: University Press of Kansas, March 1974. (7-chapter edited book including editor's chapter, "The Condition and Problems of Nonmetropolitan America").

Tweeten, L. and G. L. Brinkman. Micropolitan Development: Theory and Practice of Greater-Rural Economic Development, Iowa State University Press, 1976. 456-page book on rural development co-authored with Luther Tweeten.

Brinkman, G.L. Canadian Agricultural Policy Handbook, University of Guelph, 1998. First textbook ever written on Canadian agricultural policy. Updated for 1999-2004.

Chapters in Books

Blackburn, D.J., G.L. Brinkman, and H.C. Driver. "Understanding Behaviour and Economic Characteristics in Working with Operators of Small Farms: A Case Study in Ontario," in Progress in Rural Extension and Community Development, C.E. Jones and M.J. Rolls, eds., London: John Wiley and Sons, 1982.

Brinkman, G.L. "Returns to a Provincial Economy from Investments in Agricultural Research: The Case of Ontario", in Kurt Klein, ed., The Economics of Agricultural Research in Canada, University of Calgary Press, 1985.

McEwen, F. and G.L. Brinkman. "Role of Education and Research" in Tony Fuller, ed., Farming and the Rural Community in Ontario: An Introduction, Foundation for Rural Living, Toronto, 1985.

Howard, Wayne H. and George L. Brinkman. "Concepts from Economics" in Foundations and Changing Practices in Extension, Donald J. Blackburn, ed., Office of Educational Practice, University of Guelph, 1988.

Brinkman, George L. "Structural Change in Canadian, United States and European Agriculture," in Michelmann, Stabler and Storey, eds., The Political Economy of Agricultural Trade & Policy, Westview Press, Inc., 1990.

Refereed Publications

Articles in Refereed Journals

Brinkman,G.L. "Small Community Industrialization," Journal of the Community Development Society, Fall Issue, 1972.

Brinkman, G.L. "Implications of Zero Population Growth on the Spatial Distribution of

Economic Activity," American Journal of Agricultural Economics, December 1972.

Brinkman, G.L. "The Effects of Industrializing Small Communities," Journal of Community Development Society, Spring Issue, 1973.

Brinkman, G.L. "Issues in Micropolitan (Greater Rural) Development, Canadian Journal of Agricultural Economics, Proceedings, July 1976.

Brinkman, G.L. and J.A. Gellner. "Relative Rates of Resource Returns for Ontario Commercial Farms -- A Farm to Nonfarm Comparison, 1971-1974, Canadian Journal of Agricultural Economics, July 1977.

Brinkman, G.L. and M.J. Trant. "A Classification of Limited Resource Farmers," Canadian Farm Economics, Feb.-April 1979.

Blackburn, D.J., G.L. Brinkman, H.C. Driver and T.D. Wilson. "Behavioural and Economic Comparisons of Commercial and Limited Resource Farmers, Canadian Journal of Agricultural Economics, Proceedings, August 1979.

Brinkman, G.L. "Resource, Regional and Rural Development Issues", Canadian Journal of Agricultural Economics, Proceedings, August 1979.

Brinkman, G.L. "Reflections on Farm Income in the 1970's," Canadian Journal of Agricultural Economics, Proceedings, August 1980.

Menzie, E.L. and G.L. Brinkman. "Canada's Agrifood-Food Strategy: An Appraisal," Canadian Journal of Agricultural Economics, July 1982.

Brinkman, G.L. "Agricultural Economists and Long Run Challenges Facing Canadian Agriculture," Canadian Journal of Agricultural Economics, March 1983.

Brinkman, G.L. "Fair Returns to Farmers and the Price of Food," Canadian Journal of Agricultural Economics, Annual Meeting Proceedings, July 1983.

Brinkman, G.L. "Development Strategies and the Role of Agricultural Economists: Workshop Summary," Canadian Journal of Agricultural Economics, Workshop Proceedings, December 1983.

Brinkman, G. L. "The Search for Common Ground in Agricultural Policy: How Far Have We Come," Workshop Proceedings, Canadian Journal of Agricultural Economics, 1986.

Brinkman, G. L. "The Competitive Position of Canadian Agriculture", Canadian Journal of Agricultural Economics, July 1987.

Widmer, Lorne, G. C. Fox and George L. Brinkman. "The Rate of Return to Agricultural Research in a Small Country: The Case of Beef Cattle Research in Canada", Canadian Journal of Agricultural Economics, Vol. 36, No. 1, March 1988.

Horbasz, Chris, Glenn Fox and George L. Brinkman. "Comparison of Ex Post and Ex Ante measures of Producers' Surplus in Estimating the Returns to Canadian Federal Sheep Research", Canadian Journal of Agricultural Economics, November 1988.

Zachariah, O.E.R., G. Fox and G. L. Brinkman. "Product Market Distortions and the Returns to Broiler Chicken Research in Canada", Journal of Agricultural Economics, January, 1989, forthcoming.

Haque, A.K. Enamul, Glenn Fox, and George L. Brinkman. "Product Market Distortions and The Return to Federal Laying-Hens Research in Canada", Canadian Journal of Agricultural Economics, Vol.37, No.1, March, 1989.

Huot, Marie France, Glenn Fox and George Brinkman. "Returns to Swine Research in Canada", North Central Journal of Agricultural Economics, Vol.11, No.2, July 1989.

Howard, W.H., K.A. McEwan, G.L. Brinkman and J.M. Christensen. "Human Resources Management on the Farm: Attracting, Keeping and Motivating Labour," Agribusiness, Vol. 6, 1990.

Fox, G., A.K.E. Haque and G.L. Brinkman. "Product Market Distortions and the Returns to Federal Laying-Hen Research in Canada: Reply and Further Results", Canadian Journal of Agricultural Economics, 1990, 38(2).

Fox, G., B. Roberts and G.L. Brinkman. "Canadian Dairy Policy and Returns to Federal Dairy Cattle Research", Agricultural Economics, 6: 267-285, 1992.

Howard, Wayne H., George L. Brinkman, and Remy Lambert. "Thinking Styles and Financial Characteristics of Selected Canadian Farm Managers", Canadian Journal of Agricultural Economics, Vol. 45, No. 1, March 1997, pp. 39-49.

Thomas, G., G. Fox, G. Brinkman, J. Oxley, R. Gill and B. Junkins. "An Economic Analysis of the Returns to Canadian Swine Research – 1974-1997", Canadian Journal of Agricultural Economics, Vol. 49, No. 2, July 2001.

Brinkman, G.L. "Report Card on Prairie Agriculture". Canadian Journal of Agricultural Economics, Vol. 50, No. 3, Nov. 2002.

Brinkman, G.L. and J. Heigh. "Implications for Identity Preserved Systems: The Introduction of Genetically Modified White Hilum Soybeans", Journal of Current Agriculture, Food and Resource Issues, November, 2002.

Brinkman, G.L. "The Building Block Approach to Program Assessment: The Case of Agriculture Canada's Meat Hygiene Program, 1970-1984", Journal of Current Agriculture, Food and Resource Issues, November, 2003.

Brinkman, G.L. "Strategic Policy Issues for Agricultural Research in Canada", Journal of Current Agriculture, Food, and Resource Issues, May, 2004.

Refereed School or Departmental Publications

Brinkman, G.L. "Stabilization of What? Why? for Whom? in Proceedings, Stabilization for Agriculture, Extension Bulletin AEEE/72/2, University of Guelph, January 1976.
Gellner, J.A. and G.L. Brinkman. Relative Rates of Resource Returns on Ontario Commercial Farms from 1971 to 1974. A Comparison with Nonfarm Businesses, AEEE/77/5, September 1977, 45 pp.

Brinkman, G.L. "Questions and Issues in the Food Policy Debate", in Proceedings, A National Food Policy, AEEE/77/1, January 1977.

Brinkman, G.L., H.C. Driver and D.J. Blackburn, A Classification of Limited Resource Farmers Based on Behavioural and Economic Characteristics, AEEE 77/3, May 1977, 96 pp.

Blackburn, D.J., G.L. Brinkman and H.C. Driver, Farm Business, Behavioural, and Participation Characteristics of Limited Resource Farmers, AEEE/78/4, April 1978, 131 pp.

Driver, H.C., G.L. Brinkman, D.J. Blackburn, and J. Houghton, A Realistic Assessment of Policy Instruments Designed to Aid Limited Resource Farmers in Making Major Farm Improvements, AEEE/79/3, March 1979, 129 pp.

Blackburn, D.J., G.L. Brinkman, H.C. Driver and T.D. Wilson. A Comparison of Behavioural and Economic Characteristics of Selected Commercial and Limited Resource Farmers, AEEE/79/2, April 1979, 91 pp.

Prentice, B.E. and G.L. Brinkman. The Value of Agricultural Research in Ontario: Research Methodology, Data Sources, and Principal Findings, AEEE/82/9, July 1982, 140 pp. single-spaced.

Farrell, C., T. Funk and G.L. Brinkman. An Evaluation of the Economic Potential of Biotechnology in the Process of Crop Improvement, AEEE 84/10, October 1984, 150 pp.

Brinkman, G. L. The Agricultural Finance Problems in Perspective, AEB/86/8, August 1986.

D. P. Stonehouse, G. L. Brinkman, M. A. MacGregor, and J. Tabi. A Methodology for Evaluating Maximum Profitability Bids for Quota in the Ontario Dairy Industry. AEB 92/1, Department of Agricultural Economics and Business, University of Guelph, March, 1992.

Other Refereed Research Bulletins

Wellar, B.E., G.L. Brinkman, and Woods Gordon, Inc. Management and Planning Capabilities in Small Communities. Federation of Canadian Municipalities. Ottawa, April 1982, 143 pp. (This study also involved the review and editing of ten Background Papers.)

Brinkman, G.L. Farm Incomes in Canada. Economic Council of Canada and the Institute for Research on Public Policy, Ottawa: Canadian Government Publishing Centre, 1981, 80 pp.

Brinkman, G.L., and B.E. Prentice. Multifactor Productivity in Canadian Agriculture, An Analysis of Methodology and Performance 1961- 1980. Agriculture Canada Publication, Regional Development Branch, Production Development Policy Directorate, February 1983, 130 pp.

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EXTENSION AND PUBLIC SERVICE ACTIVITIES

Dr. Brinkman is an active speaker and policy analyst on a wide variety of issues affecting Canadian agriculture. In recent years he has addressed the farm financial crisis, agricultural productivity and incomes, impacts of international trade negotiations, international competitiveness of Canadian agriculture, and returns to and strategies for agricultural research. He has been involved for about 20% of his time in policy sessions with government officials (federal and provincial) and producer organizations, and in talks, radio and TV presentations throughout Canada on issues facing the Canadian agri-food industry. He is typically asked to speak in 3-5 provinces each year. In addition, Dr. Brinkman has been requested to provide advice to the Canadian and Ontario Ministers of Agriculture on policy developments, and has presented material to a number of OMAF officials and groups and commodity organizations.

ATTACHMENT 2
Excerpt Town Laurentian Hills Zoning By-Law

TOWN OF LAURENTIAN HILLS

Zoning By-Law 11-05

Tunnock Consulting Ltd.

Tunnock Consulting Ltd.
137 Shallot Cres.
North Bay ON P1A 3V7
Tel. (705) 472-7110
Fax (705) 472-0067
e-mail: gtunnock@ efni.com
File P-1022

April 13, 2005

(c) TransCanada Pipeline

No dwelling shall be erected within 30 m (98.4 ft.) of the TransCanada Pipeline right-of-way limit. All other setbacks shall be a minimum of 10 m (32.8 ft.).

(d) Rail Line

No dwelling shall be erected within 15 m (1076.6 ft.) of the limit of the CP Rail right-of way.

4.24 Mobile Homes

No person shall construct or install a Mobile Home on an individual lot within the Town unless it is located in a Mobile Home Park.

4.25 Non-Conforming and Non-Complying Uses

(i) Continuance of Existing Uses

Nothing in this By-law shall apply to prevent the use of any land, building or structure for any purpose prohibited by the By-law if such land, building or structure was lawfully used for such purpose on the day of the passing of the By-law so long as it continues to be used for that purpose. The non-conforming use of any land, building or structure shall not be changed except to a use which is in conformity with the provisions of the zone in which the land, building or structure is located, without permission from the Committee of Adjustment pursuant to the *Planning Act*.

(j) Prior Building Permits

Nothing in this By-law shall prevent the erection or use of any building or structure for which a building permit has been issued under the *Building Code Act* prior to the passing of this By-law, so long as the building or structure when erected is used and continues to be used for the purpose for which it was erected and provided the permit has not been revoked under the *Building Code Act.*

(k) Accessory Buildings

Nothing in this By-law shall prevent the use of any land, building or structure accessory to an existing legal non-conforming use provided that such accessory building or structure complies with all other relevant provisions of this By-law.

ATTACHMENT 3
Negative Salvage Value Report
September 1985

CANADA

BACKGROUND PAPER

ON

NEGATIVE SALVAGE VALUE

Prepared by: National Energy Board Staff

September 1985

BACKGROUND PAPER

ON

NEGATIVE SALVAGE VALUE

Prepared by: National Energy Board Staff

September 1985

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Appendices

Chapter 1
Summary and Conclusions

1. Summary and Conclusions

Eventually, all pipelines in Canada will reach the end of their useful life. At that time the acceptable manner of abandoning the pipeline facilities may be to remove them. Given the nature of pipeline facilities, it is reasonable to assume that, in most cases, the cost of removal will exceed the salvage revenue generated from the sale of the removed material for scrap or use by others. This paper addresses the problems associated with the net negative salvage costs which will be incurred if removal costs exceed the salvage revenues.

The concept of net negative salvage value was perhaps first raised as an issue by the utilities operating nuclear power stations. Recently, pipeline companies have been arguing that this issue also applies to their industry.

The pipeline companies under the Board's jurisdiction are required to comply with the NEB Pipeline Regulations. On the subject of pipeline abandonment these regulations currently require a company to remove abandoned pipelines unless the Board approves an alternative course of action.

Some segments of a pipeline company's facilities may be abandoned prior to the end of the complete system's operating life. In this instance, revenues can probably be raised through the company's tolls to pay any net negative salvage associated with such abandonments. However, when an entire pipeline's useful economic life is exhausted and it is incapable of generating further operating revenues, the opportunity for adjusting the tolls to pay for the abandonment will have lapsed. It is probably with this concern in mind that companies are now seeking adjustments in their tolls to provide for the collection of negative salvage funds prior to the exhaustion of the useful economic life of the pipelines. This approach presumes that net negative salvage costs are just as appropriately elements of cost of service as installation costs. It also presumes that the criteria with which to decide how best to abandon pipelines and the future cost of such abandonments can be roughly predetermined.

There are three basic pipeline abandonment options available. These are: removal, abandonment in place with continuing maintenance, and outright abandonment in place. The main problem associated with the latter option is that it can be expected that an abandoned pipeline that is not maintained will eventually collapse due to the effects of corrosion. The surface soil depression that subsequently develops may become a safety hazard and present a host of environmental and land use problems. The magnitude of these problems is a function of site specific considerations such as pipe diameter and soil and terrain characteristics. The option of maintaining abandoned pipelines cannot eliminate the pipe collapse problem entirely, but it can be expected to significantly retard the corrosion process. The effect of utilizing heavy equipment on the right of way to remove pipelines can also introduce environmental and land use concerns. However, certain easement agreements may require the removal of facilities upon abandonment.

This background paper examines each of the available options as a function of pipe diameter and local soil and terrain conditions. Not surprisingly, the analysis leads to the general conclusion that the best course of action is to either remove or maintain large and medium diameter abandoned pipelines, while small diameter pipelines could be abandoned in place.

Other abandonment options that are discussed include the controlled pipe collapse and solid fill techniques. Neither of these have been demonstrated to be technologically feasible on a large scale. Another possibility is to permit the companies to return the right-of-way and pipelines to the landowners. Presumably this would include a negotiated settlement to permit the landowners to implement appropriate measures to ensure that long-term safety standards would be respected and to accept responsibility for the line.

Both abandonment in place with maintenance and abandonment by removal can involve substantial costs. Cost estimates submitted by the companies to date cover a wide range, but some convergence, for unit net negative salvage costs, in the $30,000 to

$40,000/km range, has been observed. These estimates have tended not to include provision for the outright abandonment or abandonment with maintenance options. Another potential concern is that the difference between the cost estimates to remove pipelines and to install them seems greater than one might expect.

To illustrate the effect that negative salvage could have on tolls, an assessment of the cost of negative salvage (in the first year) versus the total current cost of service was approximated. Under the assumption that some sections of a pipeline would not have to be removed, this demonstrated that the first year negative salvage costs (calculated on a straight line basis) could amount to a very small part of the current cost of service for the companies examined (i.e. for TCPL, less than one percent of cost of service).

Financially there are many regulatory precedents which govern the collection of removal or maintenance costs, well in advance of the work being performed. While delaying the collection of negative salvage funds appears to remain a viable option, escalation of the annual negative salvage funds required in the future must be taken into account. Alternatives to the straight line method of recovering negative salvage costs would provide a degree of tariff levelling that may be desirable.

The paper explores five methods of providing for negative salvage costs. The external trust, in general, is most favoured as it provides the greatest level of assurance that the funds will be available. The risk of an over or under collection of funds should be mitigated to an acceptable level by allowing for the periodic recalculation of a pipeline's negative salvage value. The problems arising from income tax legislation that are examined in the paper may ultimately be overcome depending on the Government's rulings on applications for changes.

In general the issues which negative salvage value raises are:

(i) whether to allow for the (approximate) predetermination of which pipeline facilities will have to be removed or abandoned with maintenance.

If so, then

(ii) whether to accept the premise that the net salvage value in these instances will prove to be negative.

If so, then

(iii) whether to accept in principle, where negative salvage costs are anticipated, that they be provided for in the revenues of the companies prior to abandonment.

If so, then

(iv) whether to commence providing for negative salvage costs at this time or in this decade (or to defer indefinitely the collection of funds to cover negative salvage costs).

If now, then

(v) what amount of negative salvage costs should be provided for (in individual cases).

And

(vi) what collection method should be provided in a company's tolls including: the time of start up, the time distribution of cost recovery, and the management scheme for the funds collected.

These decisions require an appreciation of both the minimum standards of safety that will be acceptable in future and the financial impact that the prepayment of funds would impose on the current users of the pipelines.

In conclusion, as long as the Pipeline Regulations require the companies to remove their facilities after abandonment, "unless otherwise approved by the Board", then the companies can be expected to continue to seek the Board's view on what will need to be removed so that funds can be set aside. Today, it is evident that it will be necessary to remove many facilities but the annual cost to be set aside is generally still small, relative to cost of service.

Chapter 2
Background

2.1 Introduction

The accounting profession generally accepts that depreciation should reflect the systematic allocation, over the useful life of an asset, of its capital costs net of any (positive or negative) salvage. However, regulatory authorities have generally been slow to recognize the negative salvage costs associated with the removal of a utility's assets in the calculation of depreciation rates, probably as a result of some or all of the following reasons:

(i) estimates of negative salvage amounts involve substantial uncertainty,

(ii) the allowance in a company's tolls of an amount for negative salvage would involve revenues being collected before costs were incurred,

(iii) negative salvage costs are not perceived as being necessary for a generation or more, hence little or no urgency is associated with the problem, and

(iv) there is concern that the negative salvage fund, to be financed by the tollpayers, must be reliably managed.

Gradual acceptance by regulatory agencies of negative salvage costs is now being achieved. Largely this can be attributed to the efforts of the American utilities operating nuclear power plants. Consideration of how to dispose of some of the nuclear plants that have now exhausted their useful life has demonstrated technical problems, costs, and public pressure which may be largely unique to that industry. Nevertheless, some regulatory agencies have recognized the negative salvage costs sought by certain pipeline companies under their jurisdictions. In achieving this recognition, regulated utilities have put forward several arguments addressing the problems listed above. Among these arguments are the following:

(i) the uncertainty associated with negative salvage amounts is not inconsistent with the uncertainty associated with estimating the other elements of depreciation, namely: the useful life and positive salvage,

(ii) the cost for negative salvage is accepted by the utility when the facility is constructed even though the funds are not spent until the useful life is exhausted,

(iii) substantial negative salvage costs are incurred throughout both the useful life of a pipeline and during the period when the pipeline's (or any of its components') activities are being 'wound up'. Currently such incurred negative salvage costs are charged against depreciation even though depreciation revenue does not provide for these costs, and

(iv) solutions related to how to manage negative salvage funds which are acceptable to the public, the users, and the utilities are being found and range from 'no-cost capital' for the utility to external low-risk annuity funds.

A number of pipeline companies under the Board's jurisdiction have expressed interest in pursuing the subject of negative salvage. This has culminated in addressing, in principle, arguments for negative salvage at the 1984 Westcoast toll methodology hearing.

The foregoing described the background and environment against which the Board must address the issue of negative salvage costs. The purpose of the balance of the paper is to look at the precedents related to negative salvage, their application to the Board, and to examine the physical and financial aspects of the subject in detail.

2.2 American Precedents

Of the 19 cases which were reviewed, five concerned gas pipelines and 14 dealt with nuclear power generating facilities. The decisions reviewed support the concept of recovering negative salvage costs from the current customers who benefit from use of the assets. In some cases it was held that the magnitude of the decommissioning allowance should increase over time so that inflation will not reduce the burden on future customers at the expense of existing customers (for example, a graduated charge, based upon a five percent inflation rate, was used). Since

negative salvage values and decommissioning charges are usually based on estimates, periodic reviews and revisions have been advocated. Generally, the following criteria have been considered in the decisions:

(1) assurance of availability of funds;

(2) cost to ratepayers;

(3) flexibility to adapt to changing costs;

(4) equity to ratepayers.

Although the majority of these cases relate to the decommissioning costs of nuclear power plants, the principles should be applicable to pipelines as well. The question of funding is particularly interesting. The amounts collected from customers could be accumulated in various funds. Funding methods mentioned were:

(A) An *internal funded reserve* which restricts usage of the funds;

(B) An *external funded reserve* through the use of a trust or other fund; and

(C) An *internal unfunded reserve* which allows the Company to use the funds for general corporate purposes.

(D) *Prepayment* at the time of initial plant operation based on estimated future costs.

Method (D) might not be generally considered for pipelines, but was discussed especially in cases of the relatively more risky nuclear power plants.

Several other funding methods are possible. Frequently, the safer funding methods, e.g. an external one, tend to be more costly. Cost differentials between funding methods, however, may be rather small when viewed in the context of consumers' total utility bills.

A more detailed examination of the American precedents is included in Appendix I.

2.3 Canadian Precedents

The Ontario Hydro and New Brunswick Electric Power Commission (NBEPC) precedents concern nuclear power plants; however, they are relevant to our discussion. They are Canadian precedents involving large liabilities[1] for estimated future costs of disposing of irradiated nuclear fuel and decommissioning nuclear generating stations. The external auditors of both utilities reported that their financial statements present fairly their financial position, etc. This indicates the auditors' acceptance of the "nuclear unit decommissioning" concept and the way the utilities have provided for it.

Ontario Hydro, in its *1983 Annual Report*, showed an item called "accrued irradiated fuel disposal and fixed asset removal costs" under "other liabilities". Studies have been carried out to estimate the costs of decommissioning Ontario Hydro's nuclear generating stations after the end of their service lives. Certain assumptions used in estimating decommissioning costs have also been stated in the above-mentioned report, and when discussing depreciation, Ontario Hydro added:

> "Net removal costs amortized to operations include the estimated costs of decommissioning nuclear stations and, commencing in 1983, the estimated costs of removing certain nuclear reactor fuel channels. Estimates of net removal costs, interest rates, and the amortization periods are subject to periodic review. Changes in estimated costs are implemented on a remaining service life basis from the year the changes can be first reflected in electricity rates."

NBEPC presented evidence in a hearing before the NEB in Fredericton, N.B. (24 Nov. to 2 Dec. 1981), concerning its application for orders and licences to export power to the U.S. Decommissioning costs of the Lepreau power station are briefly mentioned in the NEB Reasons for Decision of March 1982. NBEPC stated its intention to charge all its customers, including export customers, an amount necessary to cover decommissioning costs; however, the Decision does not specifically address this issue. The respective amount in the export price was proposed to be the same as the charge to Canadian customers, and the Canadian rates are not under the jurisdiction of the NEB. The small charge levied in respect of eventual Lepreau station decommissioning was expected to be 0.04 cents/KWh, and the charge in respect of long-term waste management was estimated at 0.10 cents/KWh. However, from recent billings it appears that these charges are now slightly different.

In its *Annual Report 1982/83*, NBEPC said:

> "The Commission, to be assured of having adequate funds available in the future, has adopted a policy of charging income annually, with amounts considered adequate along with investment income to cover the cost for the permanent disposal of irradiated nuclear fuel and decom-

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1 Ontario Hydro at 31 December 1983:

Accrued irradiated fuel disposal costs	$110,229,000
Accrued fixed asset removal costs	37,419,000
Total	**$147,648,000**

NBEPC at 31 March 1984:

Irradiated fuel management and nuclear unit decommissioning	$ 79,460,930

missioning the station to return the site to a state of unrestricted use. The charges to income are based on estimates determined through studies of these future costs. Periodic reviews will be carried out to evaluate the accuracy of these cost estimates and any changes will be implemented on a prospective basis."

2.4 Applications to the Board

The Board has received four applications from companies under its jurisdiction for the provision of negative salvage funds, as follows:

2.4.1 Trans-Northern Pipe Lines (TNPL)

As part of its 1981 toll application, TNPL filed a depreciation study which included a provision of approximately $2 million (1981 dollars) for negative salvage. Parts of this study were heard during the hearing, but TNPL indicated that although it supported the concept of negative salvage it had neither the experience nor the evidence to support the amount and consequently decided to exclude the negative salvage provision.

2.4.2 Trans Québec & Maritimes Pipeline Inc. (TQM)

With its toll application of August 1983, TQM filed a depreciation study prepared by Stone & Webster (and the related direct evidence of R. Bird). The depreciation rates calculated in the study took into account negative salvage for certain assets. Negative salvage totalled about $60 million (1982 dollars).

Before the matter came up for discussion in the hearing, however, TQM withdrew those aspects of its application which related to negative salvage.

2.4.3 TransCanada PipeLines (TCPL)

TCPL filed, for the approval of the Board, a depreciation study which took into account negative salvage of approximately $447 million (1982 dollars). In its toll application of January 1984, however, TCPL did not apply for a change in depreciation rates to reflect negative salvage. The Hearing Order stated that the negative salvage aspects of the depreciation study would not be considered in the hearing since time did not permit adequate consideration of this issue.

2.4.4 Westcoast Transmission Company Limited (WTCL)

Pursuant to the Board's Decision of August 1983, WTCL submitted a depreciation study to be considered during the Methodology Hearing. The study includes a provision of $268 million (1984 dollars) for negative salvage. It is discussed in more detail below.

2.5 The Westcoast Methodology Hearing

The Westcoast Methodology Hearing was unique in that it was the first (and to date, only) instance in which the Board has examined in some detail the principle of negative salvage, during a Hearing. This occurred as a result of the Hearing Panel's decision that it would be an appropriate time to examine the depreciation study filed by Westcoast in March 1984. This depreciation study suggested new depreciation rates and gave details on the derivation of those rates, but Westcoast did not apply for a change in the rates currently used. The Company had included provision for negative salvage in its derivation of the new depreciation rates. In response to concerns from some of the Interested Parties to the Hearing, the Panel agreed to limit the discussion of the negative salvage component of the depreciation study to the relevant principles only. This had the effect of limiting the scope of cross examination on the details employed by Westcoast to derive the negative salvage cost estimates. However Westcoast provided working papers utilized on negative salvage cost estimates for each of its pipelines, compressor stations, and processing plants. These working papers provide valuable insight into cost estimating for negative salvage.

Initially Westcoast estimated that the entire cost of negative salvage in 1984 dollars was $268 million. This estimate provided for the removal of all pipe, compressor stations and processing plants. Subsequently, in response to an information request, Westcoast indicated that under the constraint of minimizing costs, negative salvage on their system could be reduced to $119 million (or $133 million after providing for perpetual maintenance costs at 3 percent real interest*). Its second estimate provided for the removal of compressor stations, processing plants, and aerial pipeline crossings but anticipated the abandonment in place (with perpetual annual maintenance costs of $577,000), of all pipelines. Finally, Westcoast was requested to provide a negative salvage cost estimate under the constraints of least cost, land use, environmental, and safety criteria. In response to this request the Company submitted an estimate of $127 million (or $141 million after providing for perpetual maintenance costs at 3 percent real interest*). Its third estimate was arrived at in an essentially identical manner as the $119 million estimate discussed above, except that all above ground facilities were to be removed including valves, pig traps, and other above ground pipe assemblies. It should be noted that Westcoast submitted the latter two estimates under the assumption that the Board would

* See also section 4.2 of this report

relieve the Company from the pipeline removal obligations included in the gas pipeline regulations. During the course of the Hearing the Company did not put forward any one of its three cost estimates as being a 'base case'. Neither did it submit any studies to demonstrate the viability of abandoning all of the pipelines in the ground with perpetual maintenance.

With regard to the financial issues, the Company stated that it was prepared to seek a favourable ruling from the Department of National Revenue for the income tax treatment afforded to the negative salvage funds collected. Furthermore, Westcoast was not opposed, in principle, to the use of an external trust fund for the management of the negative salvage revenues.

In general the Interested Parties seemed to be opposed to the commencement of the collection of negative salvage funds at this time. It should be noted, however, that the Interested Parties did not include representatives of the general public such as municipalities, farm associations, or individual land owners, to whom the marginal incremental costs, represented by the inclusion of negative salvage in Westcoast's cost of service, may be more than offset by the security offered by a preconceived abandonment plan for Westcoast's facilities.

In its decision of April 1985, the Board's conclusions relating to the provision of negative salvage revenues were that "... because of the complexity of this subject, further study and assessment is required."

Chapter 3
Physical Aspects

3.1 Requirements of the NEB Pipeline Regulations

The NEB Oil Pipeline Regulations and Gas Pipeline Regulations are currently under review. The revised document is called the Onshore Pipeline Regulations. A new document, the Offshore Pipeline Regulations, is also being written. Drafts of these documents are being reviewed by industry. Their comments will be considered when the Board adopts the regulations.

The requirements of the existing and proposed regulations relating to pipeline abandonments, (See Appendix II) appear to assume the continued existence of the company after the abandonment, therefore the applicability of these regulations in the event of the termination of a company following abandonment of all of its facilities in place, merits further consideration. Indeed, because the current regulations respecting abandoned pipelines are so central to the whole issue of negative salvage, there may be merit in providing for changes in the regulations as the perception of the technical, environmental, land title, and cost aspects of abandonment continues to evolve.

3.2 Overview of the Pipeline Facilities under Board Jurisdiction

As of January 1985, over 27,500 km of gas and oil pipelines, ranging in diameter from 50 mm to 1220 mm, fall under the Board's jurisdiction (See Appendix III). The pipelines are operated by thirty-nine companies. All lines are underground except for the 146 km of 114.3 mm diameter pipeline operated by Yukon Pipelines Ltd.

The Board also regulates above ground facilities including approximately 192 compressor/pump stations, 4 gas or oil processing plants, 15 miscellaneous storage and terminal facilities, and over 200 meter stations (See Appendix IV).

3.3 Engineering Considerations

3.3.1 Below Ground Facilities

Controlling Pipe Corrosion

Corrosion is an electrochemical process requiring a metallic connection between two electrodes which are immersed in an electrolyte. These components form a reaction cell. Reaction cells are often created between buried steel pipe and ground water. Strong electrolites associated with acid soils can produce highly corrosive situations.

In order to prevent corrosion of steel, the electrochemical reaction cell must be broken. For pipelines the application of a layer of insulating material on the pipe surface is used to prevent physical and electrical contact between the steel and the electrolyte. Many different materials may be used including fusion bonded epoxy, extruded polyethylene, polyethylene tape, and coal tar enamel. Insulating barriers provide a high degree of protection, however due to the likelihood of mechanical damage, and defects in application, they are not perfect. Electrical methods are also used to prevent corrosion. Since metal loss during corrosion always occurs in the anodic zone, protection can be achieved by attaching sacrificial anodes to the pipe, or by externally applying a voltage to the pipe making it cathodic with respect to its surroundings. These electrical methods for corrosion prevention are known as "cathodic protection".

A correctly applied and undamaged pipe coating, along with a properly designed and operated cathodic protection system, ensures that the serviceable life of a buried pipeline is not limited by the effects of corrosion.

Abandonment Considerations

Three basic options are available for the ultimate disposition of buried pipeline facilities, abandonment in place, abandonment with the maintenance of cathodic protection and inert fill, or removal.

Pipelines abandoned in place without the maintenance of cathodic protection will corrode at a rate dependent on site conditions. This rate is impossible to predict. A thick walled pipe coated with epoxy and in a mildly corrosive location may last for decades, while a poorly coated, thin walled pipeline in a highly corrosive environment may corrode and collapse in less than a decade.

The consequence of pipe collapse in the case of small diameter pipelines (10" or less) would be mini-

mal since the amount of surface subsidence would be small. Collapse of a large diameter pipeline, particularly in an environmentally sensitive area, would require that the resulting surface depression be backfilled and restored.

Monitoring abandoned large diameter pipelines for collapse over a long-term time period would likely be unattractive to most companies. A possible solution would be the development of a tool that could be used to collapse the line upon abandonment. It may be possible to develop such a device by combining proven technologies such as internal crawlers, pigging, and automatic cutting instruments. It therefore may be feasible to use a tool to induce pipe collapse by crawling through the buried pipeline while making three or more circumferentially spaced longitudinal cuts. (It is assumed that if this concept was ever seriously pursued, reasonable safety precautions governing its use would also be developed.) Right-of-way restoration could then proceed immediately and once completed, the company could be absolved of the requirement for long term monitoring. (In order to effect a satisfactory restoration of the right-of-way topsoil separation prior to pipe collapse and compaction of the remaining soil over the pipe after its collapse, may be desirable.)

A second possible solution to simplify the abandonment procedure and prevent pipe and soil collapse would be to fill the pipelines with a fluid mixture that would solidify. This approach might be applicable in situations such as large diameter crossings where it would be less expensive to fill the pipeline with a solid, to prevent soil settlement under the crossing, than to remove the pipeline. The solid fill procedure would also be desirable for extended lengths of pipe if it could be done less expensively than pipe removal. The technical feasibility and cost of the solid fill abandonment procedure should be addressed whenever the removal of below ground pipelines is proposed. Although the cost advantages of solid fill versus removal may be most significant for long lengths of pipe, it is here, with the probable elevation variations and injection power requirements, that the feasibility is most in doubt. It would be desirable to monitor the results of any research on the filling of pipelines with solids, to ensure that less expensive alternatives to pipe removal are provided for, as they are developed, in the negative salvage cost estimates.

Maintaining cathodic protection on pipeline systems that have been abandoned in place may be appropriate in certain circumstances. The principle advantage of this would be to indefinitely delay the collapse of the pipe. This would extend the time period during which an alternative use could be sought for the pipeline. Before the abandoned pipeline was placed into an alternative use however its integrity would probably have to be re-established by strength testing. Nevertheless, any possibility of extending the life of a pipeline by finding a future alternative use would be an argument for continuing to protect the integrity of the line.

In recent years only one pipeline removal operation has taken place under the Board's jurisdiction. In October 1980, Interprovincial Pipe Line removed a 3.2 km section of 864 mm O.D. pipeline from the right of way on an experimental basis. IPL concluded that such removal was technically feasible, even when the line to be removed shares the right of way with one or more "hot" pipelines. The methods used for removal were analagous to those used for construction although there is a different magnitude of sophistication involved. IPL concluded that the costs involved make abandonment in place (with maintenance) preferable to pipe removal in the majority of circumstances.

3.3.2 Above Ground Facilities

Above ground facilities such as meter stations, pump or compressor stations, storage facilities, and processing plants, require specific disposal consideration following abandonment of a pipeline. Furthermore, specific types of above ground facilities would require separate analysis since the salvage value of each type of equipment as well as the removal costs would be unique.

Generally, removal costs for above ground piping and equipment would tend to be much lower than those for buried pipe (on a ton of steel versus ton of steel basis). Consequently, negative salvage costs could be low and indeed positive salvage value may be possible in certain cases. Buildings may be sold if they remain structurally sound and if they are suitable for alternative uses.

The decommissioning and removal of above ground pipeline facilities should be similar in many aspects to that of other kinds of petrochemical plants. One ongoing example is the 'removal' of the Petrocan (formerly British Petroleum) refinery in Montreal.

3.4 Environmental Considerations

The overall environmental consideration for any project is to properly assess both its positive and negative impacts. Procedures may then be devised to capitalize on the positive aspects and mitigate negative impacts. In addition any residual negative impacts which remain, after the mitigative measures have been implemented, must be considered in the decision to allow a project to proceed. This rationale,

which the Board already uses in its consideration of pipeline construction projects, should also be used in the consideration of abandonment of facilities.

One environmental comment that applies to all pipeline facilities abandoned in place, is that preventative measures should be taken to ensure that they are cleared and purged prior to abandonment. This will have the dual effect of preventing the possible contamination of soil, ground water, or surface water regimes and reduce the possibility of gas formation within the pipe.

3.4.1 Below Ground Facilities

With respect to short-term impacts, removal of facilities would likely have a greater environmental impact than abandonment in place. However, the long-term effects of the collapse of large diameter pipe, left in place, are likely to be significant.

Pipe Removal

The removal of pipelines will likely involve many tasks similar to those for pipeline construction in the same area. Environmental considerations for the removal operation will also be similar to those for the original construction if land use and environmental factors of adjacent areas have not changed considerably during the operational life of the pipeline. In considering the effects of abandonment, the environmental impact statement submitted with the original application to construct the facilities should be a starting point. Potential environmental concerns would include:

(a) topsoil preservation,

(b) soil compaction,

(c) drainage, disruption, diversion and erosion

(d) water crossings - stability, scheduling, and siltation

(e) backfill requirements,

(f) stabilization, and

(g) restoration.

A major environmental and engineering issue would be the source of materials for the backfilling of the trench once the pipe has been removed. As the volume of material required for fill increases as a function of the square of the pipe diameter, the fill costs associated with the removal of large diameter pipe may be considerable.

Inground Abandonment

Consideration must be given to the outright abandonment of pipelines in the ground due to the high cost of removal. Assuming that cathodic protection of the pipeline is not maintained, its collapse at some undetermined time can be anticipated. If the pipeline has not been filled with solids prior to its collapse, then ground settlement will follow.

Depending on the diameter of pipe, depressions would form along the right-of-way as the abandoned pipe collapses. Pipe collapse could in certain types of terrain lead to:

(a) top-soil erosion,

(b) flooding of adjacent areas,

(c) diversion of surface waters along the right-of-way,

(d) disruption of agricultural activities,

(e) terrain disturbances in sensitive areas, e.g. permafrost, stream crossings,

(f) danger and disruption to wildlife and their habitat, and

(g) disruption of other facilities at crossings.

Pipelines of 168 mm (6") diameter or less, even if completely collapsed, would likely not result in any detectable depression along the right-of-way.

Medium size pipelines 219 mm (8") and 355 mm (14") would likely create some disturbance upon collapse, mainly in environmentally sensitive sections of the line. It would likely be necessary to backfill and seed some sections of the line.

For large diameter pipeline between 406 mm (16") and 1200 mm (48") the environmental implications of abandoning in place would likely be severe. It is anticipated that eventually it would be necessary to restore large portions of the right-of-way. The uncertainty of when this will occur and of who will be responsible for the restoration of the right of way after its occurrence, are arguments in favour of either removal or of inducing the early and controlled collapse of the pipeline.

Table 3.4.1 summarizes the generally expected environmental impact associated with the removal and outright abandonment of pipelines as a function of different terrain and hydrogeological conditions.

Table 3.4.2 sets out the type of pipeline abandonment procedures that may be generally appropriate for the range of pipe diameters, land uses and crossings considered. The unproven techniques of solid fill and controlled pipe collapse have not been included in the procedures set out in this Table.

Table 3.4.1
Impact of Abandonment Techniques on Various Terrain Types

Land use or terrain type	Impact of removal	Impact of pipe collapse if pipe left inground	Comments
Agricultural Land	High Impact - similar to construction. Mitigative measures the same or similar to construction.	Depression so formed may cause ponding of surface water, redirection of drainage and increased soil erosion; these effects will vary with soil type and according to slope and soil stratigraphy. For example ponding may be a problem on heavy clay loams while erosion is more likely to be a problem with sandy soils.	Induced collapse may be desirable for the landowner, pipeline company and the regulator as the possible problems are dealt with early and in a controlled manner. Additional impacts such as in filling depressions where required can also be dealt with expeditiously. Note, the depth and extent of the depressions is a function of pipe diameter vs depth of cover and soil type. (Shear strength and cohesion are the principal considerations in determining the soil behaviour in this situation.)
Wetlands, Muskeg, Marsh and Swamp, etc.	Requirement to remove low and cost high. Operations best done in winter when terrain is frozen. Impacts similar to construction.	Initially the pipe may float. This could be avoided by injection with H_2O. Impact of corroding and collapsed pipe probably very low.	Leave in ground, clean internally and inject with H_2O or flood pipe by drilling holes. Prevent pipe floatation.
River Crossings	High impact, and high cost. Removal probably not necessary. Impacts similar to construction.	When the pipe collapses, the trench will fill gradually and naturally with bottom sediment. Impact of collapse is very low. Erosion of the river banks and bottom may expose the pipe.	Prevent pipe floatation, leave inground, flood with H_2O as for Wetlands above.
Rock and Thin Veneers of Soil over Rock	Low terrain impact; however, interrupted and redirected drainage may produce high impact on adjacent terrain. Cost high.	Collapsed trench will collect surface water. The ditch is relatively impermeable. On flat terrain ponding will occur. On steep terrain intercepted drainage will be directed along trench; velocity of water may be extreme.	Energy dissipators in the collapsed trench may be required. Water exiting from trench on to erodable terrain may cause serious erosion. Erosion potential of ditch itself is low.
Fine Grained Soils (Silts and Clays)	Variable - but similar to construction.	Impermeability of soils is a controlling factor. On steep slopes terrain instability is a major consideration.	Impact is dependent on slopes, ground and surface water regimes, type of clay and associated substrata. Terrain may be unstable and subject to erosion. On flat lying terrain ponding of water is a major consideration.
Coarse Grained Soils, (Sand and Gravel and Sandy Soils)	Variable but similar to construction.	Probability of erosion ranges from medium to high for sands. Erosion is also dependent on slope.	On easily erodable soils flowing water is likely to be a major problem. Soil permeability may vary widely.

Table 3.4.2
Negative Salvage Options

	Rural lands						Urban lands				
	Agricultural		Non-Agricultural								
Pipeline Size	Crop	Pasture	Rock	Till	Cohesive Soil	Granular Soil	Wetlands	Suburban	Park	Urban	Industrial
102 mm (4")	A	A	A	A	A	A	A+	A	A	A	A
153 mm (6")	A	A	A	A	A	A	A+	A	A	A	A
203 mm (8")	A	A	A	A	A	A	A+	A	A	A	A
273 mm (10")	R	A	A	A	A	A	A+	A	A	A+	A+
323 mm (12")	R	A	A	A	A	A	A+	A	A	A+	A+
356 (14")	R	R	A	A	A	A	A+	A	A	A+	A+
406 (16")	R	R	A	A	A	A	A+	A	A	S	S
550 (20")	R	R	A+	A+	A+	A+	A+	A+	A+	S	S
610 (24")	R	R	A+	A+	A+	A+	A+	A+	A+	S	S
762 (30")	R	R	A+	A+	A+	A+	A+	A+	A+	S	S
914 (36")	R	R	A+	A+	A+	A+	A+	A+	A+	S	S

LEGEND:
A Abandonment recommended
A+ Abandonment with additional treatment recommended
R Removal recommended
Special considerations - site-specific evaluation required

Table 3.4.2 (Cont'd)
Negative Salvage Options

Pipeline Size	River	River Approaches	Rail	Crossings: Road	Crossings: Sec. Road	Crossings: Pipeline	Crossings: Sewer	Crossings: Cable
102 mm (4")	A	A	A	A	A	A	A	A
153 mm (6")	A	A	A	A	A	A	A	A
203 mm (8")	A	A	A	A	A	A	A	A
273 mm (10")	A	S	A+	A+	A	S	A	A
323 (12")	A+	S	A+	A+	A	S	A	A
356 (14")	A+	S	A+	A+	A+	S	A+	A
406 (16")	A+	S	A+	A+	A+	S	A+	A+
550 (20")	A+	S	A+	A+	A+	S	A+	A+
610 (24")	A+	S	A+	A+	A+	S	A+	A+
762 (30")	A+	S	A+	A+	A+	S	A+	A+
914 (36")	A+	S	A+	A+	A+	S	A+	A+

LEGEND:
A Abandonment recommended
A+ Abandonment with additional treatment recommended
R Removal recommended
Special considerations - site-specific evaluation required

3.4.2 Above Ground Facilities

To the general environmental considerations which apply to both above and below ground pipeline abandonments the following comments with respect to above ground facilities can be added.

The remaining in place abandoned facilities may compromise future land use development of these areas. In order to avoid long-term environmental, aesthetic, land use, and regulatory problems it would be generally considered a good practice to remove all above ground facilities and restore the abandoned sites.

3.5 Land Title Considerations

Land rights obtained by the company for above-ground facilities include: fee simple (lands purchased outright); leasehold lands (land rights held for a specified period of time); and easements (certain land *rights* held in perpetuity and subject to relinquishment). Facilities like compressor and pump stations, gas plants, tankage and storage, and certain meter stations are normally located on either fee simple or leasehold lands. Lines of pipe, sales taps and safety valves are usually located within the limits of acquired easements. Certain easement agreements however, may provide specific allowance for above ground structures.

3.5.1 Below Ground Facilities

Easements

Companies normally secure easements across private and crown lands for the location of their buried pipelines and certain above ground structures. Easements have generally included provisions for - the laying down, construction, operation, maintenance, inspection, alteration, removal, replacement, reconstruction and/or repair of the facilities. Further, provision has been made for the abandonment and release of the rights provided that the grantee (the company), if it so elects, leave the pipe or any part thereof in place. Provision has also been made for the restora-

tion of and compensation for any damages resulting from the activities of a company.

Prior to 1 March 1983, the proclamation date of Bill C-60, the retirement of a general plant would have been relatively straightforward. Easement agreements were secured by lump sum payment. Facility retirement, therefore, would only incur the future legal costs associated with relinquishing easement rights, and the further expenses resulting from damage and restoration regardless of whether the line of pipe was being removed or abandoned. The assumption is made that a company would still be responsible for any pipelines abandoned-in-place, where the easement rights had been surrendered. On the other hand, it is possible that the Board could allow a company to sell the pipeline to the respective landowner, thereby alleviating any responsibility for future damages and restoration.

Subsequent to 1 March 1983, amendments to the NEB Act require that an owner of lands granting an easement be presented with the option to receive a lump sum, annual or periodic payment for the land rights granted. Settlements agreed to under the latter two categories will be reviewed every five years. No company yet has entered into such easement agreements, so it is difficult to determine their future plant retirement policies that will be included in them. Similarly, it is not possible to determine whether new easement agreements would include any specific provisions for premature plant retirement.

Certain easement agreements do not allow abandonment-in-place, but require removal. An example is the case of an early easement agreement held by Petroleum Transmission Company. In those situations, therefore, funding provisions for future plant retirement would have to consider only removal. Similarly, the provision of Westcoast's crown easement requires that the lands be left in a "safe condition satisfactory to the grantor". Certain costs may be involved in meeting that condition.

3.5.2 Above Ground Facilities

Fee Simple Lands

Facilities located on fee simple lands were approved originally by either a certificate of public convenience and necessity or an order. That approval allowed a company to locate its above ground facilities, which could be considered as an industrial land use, within other land use areas, e.g. agricultural, forest or residential. In many instances, this usurped to a degree the normal planning process which provides for the orderly planned location of similar land uses.

The determination of whether to remove or abandon above ground facilities located on fee simple lands must include a decision on whether it is desirable to attempt to reverse the land use intrusion caused by the facility, by removing it and attempting to restore the land to its original condition. If land use reversal is not considered necessary then consideration should be given to the market which exists for buildings located on the fee lands, prior to deciding to remove them.

Leasehold Lands

Leasehold lands are generally located within crown lands. Crown lands, while not normally subject to stringent land use designations, may be influenced by federal/provincial policies and programs for land uses such as agriculture, recreation, forestry or mining. Facilities located within areas that are governed by compatible federal/provincial policies may also have conversion potential.

Any provision for abandoned property becoming part of crown assets, similar to the previously cited Crown - Westcoast Transmission Company Limited easement, may influence retirement costs as the leaseholder has the option of removing any plant facilities or leaving them in place. In the latter situation, those facilities may then become the property of the crown. In any event the lessee must leave its lands in a "safe" condition satisfactory to the lessor. The Board may wish to consider the lessor's opinion at the time of salvage and at the time that negative salvage costs are considered.

Easement Lands

In the case of easements, the decision to remove above ground structures would be governed in part by the NEB Act, in part by the current land use and, above all, by the easement agreement. The principal land use consideration when dealing with the removal or abandonment of small scale above ground structures should be the convenience of the landowner. Common sense would suggest that in areas that involve a lot of surface activity, such as agricultural lands, the removal of above ground facilities would appear to be appropriate. However the same may not hold true for forested land or lands that are remote from human activity. All other implications related to easement agreements are covered in section 3.5.1.

3.6 Possible Future Alternative Uses for Abandoned Facilities

Several potential uses for abandoned pipelines can be envisaged including transporting water, grain, mineral slurries, and future fuels, as well as providing sleeves for fiber optic telecommunication lines. Cer-

tain above ground facilities such as buildings also may have potential future uses. No future alternative uses have yet been proposed however, this possibility should continue to be investigated from time to time in the future.

If an alternative use is eventually found for a pipeline it is appropriate to consider what would happen to the funds already collected for negative salvage. This scenario raises the possibility of a positive salvage value for the pipeline, relative to its current purpose, if it is sold to serve another function. If one accepts the premise that ultimately negative salvage for pipelines will be necessary, no matter how long their useful life is extended by alternative uses, then if the collected funds are controlled by a third party (i.e. external trust), these funds could be held until the useful life is finally truly exhausted. Therefore, the potential for future alternative uses for pipelines does not imply that it is premature to commence the collection of negative salvage at an early date.

Chapter 4
Cost Estimating

The purpose of this section is to summarize cost information relating to above and below ground facility abandonments and to draw some conclusions from the information. This may be of some assistance in assessing future abandonment cost estimates.

4.1 Actual Historical Abandonment Costs

4.1.1 Abandonment Costs for Removal

One well documented example of a pipeline abandonment by removal, under the Board's jurisdiction, is the 1980 IPL abandonment project. This project involved the abandonment of 23.8 km of 864 mm x 7.14 mm pipe. On an experimental basis IPL removed 3.2 km of this pipe in an attempt to learn more about removal procedures and costs.

The removal costs for this project were approximately $180,000 for the contractor and $20,000 for oil removal and the survey crew (all amounts are in 1980 $). The total of $200,000 is equivalent to about $62,300/km.

The salvage prices which the Company negotiated for the used pipe were between $100 and $200 per ton (or 17 to 34 percent of the replacement value). This reflects the fact that the purchaser intended to reuse the pipe. IPL estimated that if the pipe had been sold for scrap to a steel mill then the salvage value would have dropped to between $70 and $80 per ton (or 13% of the replacement value). These figures are based on a weight for this type of pipe of 166 tons/km.

The net negative salvage for this project is estimated to be $120,000, or $37,600/km. However if IPL had been forced to sell the pipe for scrap then the net negative salvage would have been about $50,000/km. While it is reasonable to expect that a removal project of a larger magnitude could achieve, through economies of scale, lower unit removal costs, some of this saving would be offset by the likelihood of having to sell the pipe for scrap instead of for use.

The best example involving the abandonment by removal of above ground facilities, under the Board's jurisdiction, is the 1983 Trans Mountain pump stations abandonment. This project, heard by the Board during the 1983 Toll Hearing, anticipated the removal of 11 pump stations for a total of $540,000 (1983 $) or $50,000/pump station. The Company indicated that the pump stations were redundant, unattended and were responsible for significant routine maintenance and vandalism costs.

4.1.2 Abandonment Costs for Facilities Left in Place

Numerous sections of underground pipelines have been abandoned in place by pipeline companies under the Board's jurisdiction. All of these cases are thought to have provided for continuing maintenance (i.e.: seal, fill with inert gas, cap, continue cathodic protection and include in annual pipeline surveys).

Although not generally required by the Board in the past, the historical costs associated with these abandonments could probably be provided by companies. Evidence given in the recent Westcoast methodology

Table 4.1.2

WTCL Unit Cost Estimates for Filling Abandoned Gas Pipelines with Nitrogen

Pipe Diameter (mm)	Cost/Km (1984 $)
101.6	40
114.3	70
168.3	85
219.1	114
273.1	189
323.9	234
406.4	304
457	345
508	385
610**	540
660	599
762*	657
914*	1,004

* For comparison, as part of its 1980 pipeline abandonment project, IPL experienced costs of $3,400/km (1980 $) to remove the oil and fill the 864 mm section with nitrogen.

** For comparison, TCPL estimated costs of $4,661/km to do the same thing in their 1982 Niagara abandonment application.

hearing provided the unit cost estimates for filling abandoned pipelines with nitrogen, these are shown in Table 4.1.2. In addition, Westcoast estimated a continuing maintenance cost of $130/annum/ km*. The latter cost is equivalent to a lump sum of $4,333/km (1984 $) assuming 3% *real* interest in perpetuity.

The cost to abandon underground facilities in place without maintenance would probably amount only to the cost to remove dangerous fluids from the pipe and to fill it with nitrogen. An additional allowance of funds to provide warning signs might be desirable.

4.2 Cost Estimates Included in Submissions to the Board

Six companies have made submissions to the Board respecting cost estimates for the negative salvage of facilities. Details of these submissions follow and they are summarized in Table 4.2.

4.2.1 IPL

On the basis of its experience with the removal of 3.2 km of pipe in 1980, IPL submitted an estimate of the cost to remove a minimum of 50 km of 864 mm x 7.14 mm pipe. Their results (in 1980 $) provided unit negative salvage values for this type of pipe of $25,000/km. This was computed from an estimate of $37,000/km to remove the pipe and a salvage value of $12,000/km for the pipe assuming it is sold for scrap. The latter utilizes a scrap value of about $75/ton.

4.2.2 TNPL

During the Company's 1981 Toll Hearing a study was prepared by Stone and Webster which recommended the collection of 2 million dollars for the negative salvage of the pipeline. Given that the Company has 894 km of pipeline, this estimate works out to a unit value of only $2,250/km. No further information or background documents were provided and the issue was dropped during the hearing. Therefore this estimate is totally unreliable as it is not even known whether it referred to abandonment in place or by removal.

4.2.3 TMPL

During the 1983 TransMountain toll hearing the company applied to remove and abandon eleven of its pump stations. The cost for this work was estimated to be $540,000 or about $50,000/pump station. This cost was intended to include the removal of the facilities as well as site restoration but details about the size of the facilities to be removed are unknown at this time.

4.2.4 TQM

In its toll application leading up to the 1984 toll hearing the Company provided for $60,900,000 of negative salvage in arriving at new depreciation rates. This was totally imbedded in the mains account and amounts to approximately $180,000/km.

In a response to a request from CPA to indicate how this amount was arrived at, the Company provided its calculation procedures and assumptions. These involved detailed estimates of the crew requirements, wages (Decree rates and N.P.A. rates), contractor move-in and move-out costs, fill costs, contractors' overhead and profit, additional temporary land costs, land damages, meter station and hot tap removals, and an eight per cent contingency. The total removal costs of between 80 and 100 million dollars (under various assumptions) did not agree with the 61 million dollar estimate provided in the application and is substantially greater, on a unit cost basis than the estimates provided by WTCL, TCPL and IPL. (Note: IPL's estimates were based on actual removal experience). Furthermore, TQM's estimate did not allow for any scrap or resale value for the pipe.

This issue was dropped prior to the commencement of the hearing and thus none of the inconsistencies in TQM's estimate were questioned.

4.2.5 TCPL

In its 1984 toll hearing TCPL provided an allowance of 447 million dollars of negative salvage, in seeking new depreciation rates. In response to a question from the NEB it was explained that this amount was based on a previous 1982 TransCanada study and then escalated to account for the subsequent growth in rate base.

The previous 1982 TransCanada study, referred to above, arrived at a total negative salvage estimate of 321 million dollars (1982). This estimate included pipeline removal costs of 660 million dollars ($62,000/km) and a pipe salvage value of 351 million dollars ($33,000/km) for various sizes of large diameter pipe. The latter was based on a scrap value of about 136 $/ton. (This seems high compared to the IPL experience discussed in section 3.1.) TCPL also estimated unit removal costs and salvage values for the compressor stations of $400,000/station and

* For comparison, TCPL estimated annual maintenance costs not including leak detection and repairs, of $187/annum/km for 610 mm pipe, in their 1982 Niagara line abandonment application. This, despite the fact that they would continue to operate parallel lines for many years.

$160,000/station respectively. It is interesting to note that they utilized salvage values of $107/ton and $117/ton for reciprocating stations and turbine stations respectively but $270/ton for electric stations.

Once again this matter was dropped prior to the hearing, thereby eliminating the opportunity for clarification of these matters.

4.2.6 WTCL

Negative salvage estimates provided by Westcoast were discussed during the Company's recent methodology hearing. These estimates were provided by the Company, as follows:

(i) The first estimate included in Westcoast's March 1984 depreciation study amounted to 268 million dollars (1984). This can be broken down into 82, 22, and 164 million dollars for process plants, compressor stations, and removal of all pipelines, respectively. Working papers were submitted to support these estimates.

In arriving at the unit pipeline negative salvage costs of $37,000/km Westcoast appears to have taken into account all of the removal considerations addressed by TQM. As well, Westcoast made an allowance of generally $40/ton, for freight costs for the salvaged pipe. The Company has utilized relatively conservative salvage values for the steel of $40/ton, delivered. For the gathering lines, however, Westcoast assumed zero salvage value probably on the expectation that sulphur-contaminated steel would not be marketable. Therefore, the average salvage value is only $29/ton. The average removal cost is $35,000/km.

Similar procedures were used by Westcoast for compressor stations and processing plants. However, in the calculation of salvage costs for the compressor stations, Westcoast assumed zero salvage value for the equipment, and no explanation was given for this. Westcoast's estimates show a wide variation in salvage costs on a station by station basis, probably as a function of relative size. Their costs for compressor station removal range from $375,000 to $1,750,000. A salvage value of $10/ton (after shipping) was assumed for the value of steel from the processing plants.

(ii) The second estimate provided by Westcoast was identical to the first except that only the aerial crossing portions of the pipeline were to be removed. The balance was to be capped, filled with inert gas and perpetually maintained. After converting perpetual expenditures to current dollars at 3% *real* interest this amounts to a unit cost of $6,400/km.

(iii) The third estimate provided by Westcoast was the same as the second except that, for safety considerations, removal of above ground fabricated assemblies was assumed. This increased the unit cost to $8,300/km.

Table 4.2
Summary of Plant Abandonment by Removal Unit Cost Estimates

Company	Year of Dollars	Unit Costs		
		Pipeline ($/km)	Stations ($/Station)	Processing Plant ($/Plant)
I.P.L	1980	25,000		
TNPL	1981	2,250		
TMPL	1983		50,000	
TQM	1982	180,000		
TCPL	1982	29,000	245,000	
WTCL (i)	1984	37,000	760,000	27,300,000
(ii)	1984	6,400	760,000	27,300,000
(iii)	1984	8,300	760,000	27,300,000

A comparison of the estimates for removal to cost estimates for construction (generally over a million dollars per kilometre for large diameter pipe), demonstrates a difference of more than one order of magnitude. Some difference is obviously expected due to the reduced standards and levels of complexity associated with pipe removal versus construction. However, many of the construction techniques (i.e.: ditching for example) are also utilized for pipe removal. Therefore, notwithstanding IPL's actual pipe removal experience, there is a concern that the removal costs being estimated may be somewhat low.

4.3 Consistent Criteria for Assessing Abandonment Cost Estimates

The wide range in estimates evident for the abandonment of pipelines in place and abandonment by removal suggests that the approach used by companies to prepare the estimates are generally inconsistent.

For estimates of the cost of abandonment-in-place, the range that cannot be explained may be fairly small. Company-held historical records may shed light on the reasons for the discrepancies that do exist. However, the range in cost estimates for abandonment by removal is far greater, less easily explained, and there is little historical information. Unit cost estimates for the removal of above ground pumping or compressor stations range from $50,000/sta-

tion to $760,000/station. Some parts of this variation can be explained by size, but size alone does not contribute to this magnitude of difference. For below ground facilities removal cost estimates range from $2,250/km to $180,000/km, although three separate estimates seem to converge in the $30,000-$40,000/km range (1984$).

A complete set of consistent criteria with which to measure cost estimates may evolve over time. The following points are a start.

i) Pipe Salvage Value: Five-year average market scrap steel prices could be used for removed pipeline. This would help ensure consistency and will also dampen the large fluctuations in scrap steel prices. Estimates could also be obtained for sulphur contaminated steel and investigations begun to determine whether this product can be made more marketable.

ii) Compressor Station and Process Plant Salvage Values: Similar procedures to estimate salvage value could be utilized for these facilities. It should be remembered that in some instances part of the plants or stations considered may have sulphur contaminated steel (i.e. Westcoast). Explanations for the high salvage value of electric engines should be sought.

iii) Industry consensus on labour requirements: It might be useful to seek an industry consensus on the labour requirements and costs for the removal of typical compressor stations and pipelines.

iv) Land Value: The value of land owned by a company should be estimated and credited against negative salvage costs.

v) Buildings: Above ground facilities should be checked to see whether the buildings have long-term alternative uses. If so, the value should be estimated and credited against negative salvage costs.

4.4 Differences in Above and Below Ground Facilities Abandonment Cost Estimates

Estimates submitted to the Board demonstrate substantially lower total costs to remove above ground facilities than to remove below ground facilities. An example of this is the TransCanada system where one estimate for the removal of their compressor stations amounted to $12 million as opposed to $309 million for below ground facilities. Generally this situation is expected to be representative of the industry as a whole. One exception is Westcoast, where estimates for above ground negative salvage are $104 million versus $164 million for below ground. This is due to the presence of three very large processing plants on the Westcoast system and high unit negative salvage estimates for compressor station removals.

A second difference is the degree of consensus over the necessity for the removal of above and below ground facilities. While consensus may be readily available regarding the necessity for the removal of above ground facilities, it is expected that it will be more difficult to achieve consensus regarding below ground facilities. Furthermore, decisions relating to below ground facilities are more likely to be subject to change in the future as a result of further research, population encroachment, land development, cost of service, or other considerations. The possibility for major changes in the scope of pipeline removal will make it difficult to have a high degree of confidence in estimates of final costs.

4.5 The Magnitude of Negative Salvage Estimates Relative to Cost of Service

Table 4.4.1 demonstrates the magnitude of three companies' negative salvage estimates relative to currently approved cost of service. This has been done for the first year assuming 100 percent of their above and below ground removal costs were accepted by the Board and permitted to be recovered over a 30-year period on a straight line basis.

Table 4.4.1
The Cost of Providing Negative Salvage Funds in the First Year Relative to the Current Cost of Service (100 percent of removal costs accepted) $000,000

	Negative Salvage Estimate			
Company	Total	First Year* (A)	Approximate 1984 Cost of Service (B)	A/B%**
TCPL	447	15	1,021	1.5
TQ&M	61	2	38	5.3
WTCL	268	9	274	3.1

A more probable scenario is one in which the Board authorizes removal of all above ground facilities but only about 20 percent of below ground pipe, with an allowance for perpetual maintenance for the remainder. Table 4.4.2 demonstrates this scenario using 30 percent of below ground removal cost estimates.

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* This 'ball park' estimate does not make provision for the effects of inflation, interest, or tax in the calculations.

** Results for more fully depreciated pipeline companies will be higher.

Table 4.4.2
The Cost of Providing Negative Salvage Funds in the First Year Relative to the Current Cost of Service (30 percent of below ground and all above ground removal costs) $000,000 Negative Salvage Estimate

Company	Total	First Year* (A)	Approximate 1984 Cost of Service (B)	A/B %**
TCPL	146	4.9	1,021	0.5
TQ&M	18	0.6	38	1.6
WTCL	153	5.1	274	1.7

* This 'ball park' estimate does not make provision for the effects of inflation, interest or tax in the calculations.

** Results for more fully depreciated pipeline companies will be higher.

It should be noted that TQM's unit cost estimates were substantially higher than those of the other two companies for similar work. Presumably this anomaly would be addressed prior to Board approval. Westcoast's unit cost estimates for compressor station removal were also quite high. However, their high negative salvage relative to cost of service shown in Table 4.4.2 is to be expected as a result of their three large processing plants.

Nevertheless, these tables demonstrate that the funds to be collected by negative salvage are potentially a very minor component of cost of service at this time (particularly if alternatives to straight line recovery are employed, see section 5.4).

Chapter 5
Financial Aspects

5.1 Accounting Profession's View of Negative Salvage

The Canadian Institute of Chartered Accountants (CICA) Handbook does not contain any specific directives on negative salvage. However, accountants accept the principle of recognizing salvage in depreciation accounting. To date, negative salvage has not presented any problems in industrial accounting as costs of abandonment have not been significant and were classified as period costs, when incurred.

If negative salvage is not provided for, either through depreciation or by other funding methods, then the loss resulting from negative salvage would be classified as an extraordinary item on the income statement. Section 3480 of the CICA handbook reads as follows:

"Extraordinary items should include only gains, losses and provisions for losses which, by their nature, are not typical of the normal business activities of the enterprise, are not expected to occur regularly over a period of years and are not considered as recurring factors in any evaluation of the ordinary operations of the enterprise." An example given of an extraordinary item was - "the discontinuance of, or substantial change in, a business programme or policy such as sale or abandonment of a plant or significant segment of the enterprise or sale of investments not acquired for resale."

5.2 Current Procedures for Negative Salvage under Uniform Accounting Regulations

The Board has had a rather limited exposure to abandonments that involve negative salvage. To date, the Board has not adopted a set uniform policy for dealing with negative salvage costs. Rather the Board has decided the appropriate course of action based on the individual circumstances of each case. Recent decisions by the Board, on applications by Trans Mountain and Interprovincial, to recover losses resulting from negative salvage that were not provided for during the service life of the plant, provide insight into the range of regulatory treatments that the Board has deemed to be appropriate in the past.

In the case of Trans Mountain, the Company took 11 pump stations out of service in 1978 but continued to maintain them until 1983. In 1983 the stations were dismantled, removed and salvaged for an approximate net cost of $540,000. The Board ordered that the abandonment be treated as an extraordinary retirement and the net salvage value was charged to account 171 (Extraordinary Plant Losses). The extraordinary loss was recovered by amortization over a two-year period to cost of service and the unamortized amounts were included in rate base.

In the case of Interprovincial, the Company replaced 45.7 miles of pipeline near Edmonton in 1980 and classified the retirement as ordinary retirement. The pipe had been in service for a relatively short period of ten or eleven years. Dismantling costs were $648,700 and proceeds from salvage were $147,400. The loss on retirement was $2,582,664 (including $2,081,364 undepreciated balance of retired pipe). The Board ruled that the retirement was an extraordinary retirement; allowed the Company to amortize the loss over a five-year period; and excluded the average unamortized loss balance from rate base.

Under the Board's Uniform Accounting Regulations, neither a gain nor a loss on an ordinary retirment of a utility asset is recognized in the year. When a pipeline asset is taken out of service both the asset account and the accumulated depreciation account are reduced by the original cost. Therefore, a loss on an ordinary retirement remains in the rate base. Any proceeds received on disposal of the asset are added to the accumulated depreciation account thus reducing rate base. On an extraordinary retirement, the loss would be transferred from accumulated depreciation to the extraordinary plant losses account, and the Board would determine or approve the disposition of the loss.

It appears that during the development of the depreciation sections of the Board's Uniform Accounting Regulations, which emanated from the accounting regulations for railroads, an assumption may have been made that salvage proceeds would exceed costs of removal. However, the definitions for "netsal-

vage value" and "service value" do not preclude negative salvage. Appendix VI of this report contains specific definitions and sections from the Uniform Accounting Regulations that relate to net salvage value.

If negative salvage is provided for as a component of depreciation then the regulations as they are now written may suffice. If the provision for negative salvage is not provided for through depreciation, then amendments to the regulations may be required.

5.3 When Should the Collection of Funds for Negative Salvage Commence?

In recovering costs through utility rates, a basic regulatory and financial principle is that the customers who benefit from a required expenditure should bear the costs. In other words, there should be a fair allocation of costs among customer generations. Although regulators strive to attain this principle, the conflicting variables required to be accounted for in cost of service calculations tend to prevent its full achievement (see comments at 5.4.1 and 5.4.2).

This principle of matching costs to benefits has been brought out in a number of cases in the United States, predominantly regarding nuclear power plants but also some in the petroleum industry.[1]

As can be seen from these cases, the regulatory precedent is that current customers should pay for any benefits they receive rather than deferring the collection of funds until the facilities are near the end of their service life and hence only collecting from future ratepayers.

However, in order to determine whether the collection of funds could be deferred, three different cost recovery methods have been examined under three different scenarios. Figure 5.3 illustrates the effects of delaying collection of $10 million of negative salvage costs in current dollars. With annual inflation at five percent, this amount would grow up to $43.2 million in 30 years.

The Future Cost Net Negative Salvage Method (Method 1), involves estimating the total future decommissioning costs and dividing by the number of years from the current year to the last year of the plant's service life to arrive at the annual charge. In this example it is assumed that the funds would be maintained internally, within the Company. Instead of earning interest, the total of the funds collected would be deducted from rate base in calculating the company's cost of service. (If an annual 12 percent rate of return on rate base was assumed then the savings in the company's cost of service would exceed the annual negative salvage contributions required in the eighth year of collection.) Under this method, if we defer the collection of the annual charge for 10 years, the annual charge will increase 50 percent from $1.44 million/year to $2.16 million/year. Alternatively, if we defer the collection for 20 years, the annual charge will increase 200 percent from $1.44 million/year to $4.32 million/year.

The Sinking Fund with Equal Annual Charges Method (Method 2) involves collecting the same amount every year during the service life of the plant so that the accumulated annual charges plus the earned compound interest will equal the total decommissioning costs at the end of the plant's service life. Under this method, if we defer the collection of the annual charge for 10 years, the annual charge will increase 147 percent from $0.38 million/year to $0.94 million/year. Alternatively, if we defer collection for 20 years, the annual charge will increase 684 percent from $0.38 million/year to $2.98 million/year.

The Method of Changing Estimated Costs Annually (Method 3) involves updating the estimated decommissioning costs on a yearly basis so that the annual amount collected will vary each year as changes in costs and inflation are incorporated. Interest is compounded annually on the funds precollected under this method. Thus, if we defer the collection for 10 years, the annual charge will increase from $0.30 million to $0.36 million in year 11. If we defer collection for 20 years, the annual charge will increase from $0.93 million to $1.83 million in the 21st year. For other years refer to the graph.

As shown by the graphs, a deferral of 10 or 20 years will result in future ratepayers bearing a much greater increase in annual charge for either one of the straight-line methods (1 and 2) whereas for Method 3, the increased burden on future ratepayers will not be as pronounced. However, under method 3, the annual charge for future ratepayers will be much greater than it will be for the other two methods since its annual charge is increasing every year.

5.4 How Should Negative Salvage be Collected?

5.4.1 Straight Line

Although the straight line method is the most common method used for recording depreciation it does not

1 Some particular cases dealing with this principle are:
- Alabama Public Service Commission re: Alabama Gas Corporation
- Connecticut Dept. of Public Utility Control re: Connecticut Light and Power
- New York Public Service Commission re: Consolidated Edison Company
- Maine Public Utilities Commission re: Maine Public Service Company

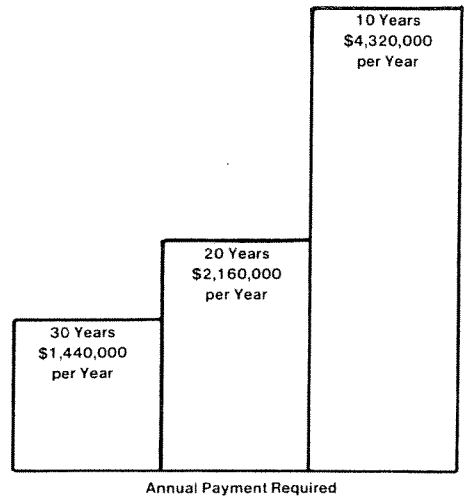
Figure 5.3

Change to Annual Payment if Funding Period Shortened

Method 1 Future Cost Method With Internal Reserve

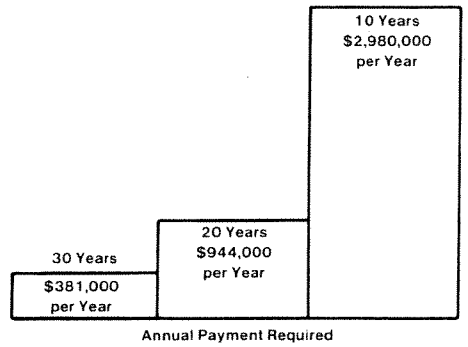
Assumes equal annual charges over the funding period to provide $10 million (1985 dollars) inflated at 5% per year for 30 years to $43.2 million.

The negative salvage funds collected would be deducted from rate base. No interest is paid on the funds provided, however, users benefit through a reduction in cost of service.



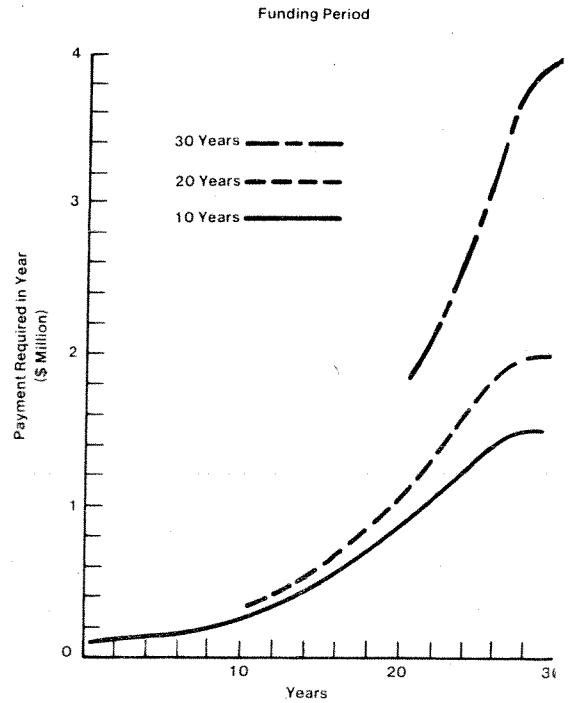
Method 2 Sinking Fund

Assumes equal annual charges over the funding period to provide $10 million (1985 dollars) inflated at 5% per year for 30 years to $43.2 million with interest earned on contributions compounding annually at 8%.



Method 3 Changing Cost Estimate Annually

Assumes changing annual charge each year to account for inflation as it occurs. To provide $10 million (1985 dollars) inflated at 5% per year for 30 years to $43.2 million with interest earned on contributions compounding at 8%.



follow that it is the most suitable method for providing for negative salvage. In fact, as it will be necessary to recalculate the required negative salvage provision from time to time to reflect the impact of inflation and changing technology, it is likely that the provision for negative salvage will change over time.

One of the main reasons for the popularity of the straight line depreciation method amongst utilities is the insistence by the financial community, that debt be repaid at a rate equal to, or greater than, the rate the assets being depreciated are actually used up in the production process. As no debt financing is involved in providing for negative salvage, the companies will not be restricted by the requirements of the financial community.

5.4.2 Tariff Levelling Possibilities

Existing tariffs providing for straight line depreciation are, to some extent, inequitable in that early users of a system pay the rate of return on the original cost of the rate base whereas later users obtain the advantage of paying the rate of return on a depreciated rate base. The later users also have the advantage of paying in cheaper dollars, if inflation continues. As an offset against these advantages, it may be argued that the later users could bear a larger share of providing for negative salvage revenues.

5.4.3 Periodic Recalculation of Required Reserve

Unlike traditional depreciation provisions where the amount to be depreciated is relatively fixed, a provision for negative salvage will be subject to fluctuations due to changes in inflation rates, decommissioning technology, estimated service life, regulatory requirements, interest rates and other unanticipated changes. It will, therefore, be necessary to periodically recalculate the provision for negative salvage to accommodate these changes.

5.4.4 Alternatives to Straight Line

In the alternatives that follow it should be kept in mind that the annual charge could be an annual annuity payment required to fund the estimated negative salvage requirement.

Alternative 1

Estimate, in advance, the total future negative salvage costs in inflated dollars and provide for this on a straight line basis. Annual amounts would fluctuate to some extent as the total estimate is periodically updated.

$$\text{Annual Charge} = \frac{\text{Remaining Future Dollar Costs to be Collected}}{\text{Remaining Years}}$$

The problem with this method is that it requires early users to pay for future inflation costs.

Alternative 2

Estimate decommissioning costs in current dollars and divide remaining balance to be collected by remaining years. Each year remaining costs may be increased by inflation.

$$\text{Annual Charge} = \frac{\text{Remaining Current Dollar Costs to be Collected}}{\text{Remaining Years}}$$

The problem with this method is that is shifts the burden of inflation to the later users and could result in excessively high charges in the last few years of service.

Alternative 3

The same as Alternative 2 plus a charge each year for the loss of purchasing power of the funds previously collected.

$$\text{Annual Charge} = (\text{Previous Year's Inflation Rate}) \times (\text{Accumulated Funds}) + \frac{\text{Remaining Current Dollar Costs}}{\text{Remaining Years}}$$

This method deals directly with inflation on an annual basis. Although the cost of adjusting the fund balance for inflation every year increases as the system gets older, this increasing charge counter-balances the decreasing return on rate base charge to late users of a pipeline system.

5.4.5 Actual Expenses versus Authorized Negative Salvage Provision

Through the process of adjusting the negative salvage charges periodicially to reflect changes in estimated costs due to changes in inflation, technology and estimates of service life, it is expected that reasonable cost estimates can be developed. Any discrepancy between the actual decommissioning costs and the authorized negative salvage provision should be minimal. The possibility of retaining any cost savings and the risk of having to absorb cost overruns would serve as an incentive to the Company to complete the work within budget.

5.5 Financial Management Options Available

5.5.1 Funding at Start Up

At start up of the facility, or as soon after as possible, cash or other liquid assets are deposited in a fund, to be managed by the Company, a trust or some other public body. The amount of the initial deposit is calculated by taking into account the estimated net salvage costs, predicted interest and inflation rates, taxes, and the remaining life of the asset. The funding costs are added to the rate base and amortized over the life of the pipeline.

The method provides a high degree of assurance that funds will be available for decommissioning. However, errors in predicting interest and inflation rates may require additional funding at future dates. Funding at start up is the most costly funding alternative as rate payers must pay a rate of return on the unamortized cost of the prepayment. Some form of levelling would be required to ensure that early users do not pay more than their share of return on and amortization of the prepayment.

5.5.2 External Sinking Fund

An annual amount is set aside in an external fund such that the annual payments combined with the investment income earned would be sufficient to provide for the estimated negative salvage costs. The fund would be administered separately from the utility's assets, possibly by an independent manager or trust company.

This type of funding is less expensive than prepayment and still offers a high degree of assurance that the funds will be available when needed. Annual contributions can be changed, as suggested in section 5.4, to adjust for changes in estimated interest, inflation and negative salvage costs. Such funds would be non-accessible to creditors even if the operation should go out of business.

5.5.3 Internal Reserve

The net negative salvage costs are added to the original cost of the assets (but not rate base), to form the basis for depreciation. The cost is recovered through higher annual depreciation charges included in the cost of service. The funds collected are not held in a separate sinking fund but rather may be invested in utility assets against which bonds could be issued when the funds are required. As the rate base is reduced by the extra depreciation collected, the rate payers would receive a benefit in the form of a lower return on rate base.

This method is subject to the greatest risk as the Company might mismanage the funds. If the Company were to become insolvent, creditors might have a claim on these funds. An internal unfunded reserve of this nature shifts the greatest costs to the early users as they would pay the depreciation but receive less benefit than later users from the rate base reduction.

5.5.4 Industry Self Insurance

An industry-administered insurance fund could be established to collect premiums for decommissioning from all pipeline companies and pay all pipeline decommissioning costs. Premiums could be based on independently determined estimates of decommissioning costs for each company. If legitimate status as an insurance company could be established then reserves for future claims could, perhaps, eliminate any taxation problems on investment income thereby allowing faster fund growth rates and lower decommissioning premiums. The pooling of risks in such an insurance company could eliminate problems that might occur if a company's actual negative salvage costs exceeded the reserve funds provided.

The concept of an industry administered insurance company is just an idea, and no research has been done by Board staff to determine its feasibility.

5.5.5 Negative Salvage or Decommissioning Tax

Negative salvage costs may occur for many Canadian pipeline companies at a time when their activities are winding up. If sufficient funds were not available for decommissioning the financial burden might fall upon the taxpayer. This being the case we might consider a tax for decommissioning with the government assuming all eventual responsibility for the costs. This alternative might be practical if facilities are to be abandoned in place with perpetual maintenance.

5.6 Income Tax Implications

Recent applications made by pipeline companies under the Board's jurisdiction have indicated that the inclusion of negative salvage costs in the depreciable base of the utility would result in a higher depreciation charge collected in the cost of service.

5.6.1 Current Income Tax Provisions

Under the current income tax laws, revenues and expenses related to negative salvage would be treated as follows:

1. Depreciation charges on account of negative salvage, to the extent that they are collected before they are spent, are taxable in the year collected.
2. Income earned on funds pre-collected on account of negative salvage is taxable in the year earned.
3. Plant removal costs are deductible for income tax purposes in the year(s) those costs are actually incurred.

5.6.2 Impact on the Cost of Service

For toll purposes, the inclusion of negative salvage costs in the depreciable base of the utility would have the following effects on the cost of service:

1. On a normalized basis, the income tax component of the cost of service would not be affected due to the collection of depreciation on account of negative salvage in the cost of service. However, the deferred income taxes would be decreased by half the amount of depreciation so collected assuming a 50 percent tax rate[1].
2. On a flow-through basis, the income tax component of the cost of service would be increased by an amount equal to the depreciation collected on account of negative salvage assuming a 50 percent tax rate. When the negative salvage costs are actually incurred and deducted for income tax purposes, the income tax provision would be decreased by an amount equal to the income tax deduction assuming a 50 percent tax rate. However, theoretically there would be no ratepayers to receive these benefits at the time that the negative salvage costs are actually incurred[1].
3. Income earned on funds precollected on account of negative salvage is considered non-utility income, and consequently such income would have no impact on the cost of service.

5.6.3 Alternatives to Alleviate the Impact on the Cost of Service

In order to alleviate the income tax impact of negative salvage on the cost of service, the following alternative arrangements may be considered:

1. In Westcoast's recent Hearing (RH-5-83), the Company proposed the following procedures:
   i) Negative salvage amounts would be collected on account of services to be rendered to the ratepayers. Reserves respecting the services to be rendered would offset the amount included in income currently. When the negative salvage costs are actually incurred, the accumulated reserves brought into income at that time would be offset by these actual costs which are deductible for tax purposes. A review of that proposal indicated that negative salvage collections might not be considered by Revenue Canada as payment on account of services to be rendered, and consequently, the offsetting reserve(s) would not apply.
   ii) Negative salvage amounts would be remitted to a trust fund as capital contributions to the fund and thus would not be taxable at the time of remittance. The investment income earned on the negative salvage amounts so remitted would be taxed in the trust. When the Company withdraws the funds (capital contributions plus net investment income) from the trust to finance the removal costs, the withdrawals would be included in the Company's income and offset by the income tax deductions in respect of the actual negative salvage costs incurred at that time. A review of that proposal indicated that the Company may be able to obtain a favourable income tax advance ruling in respect of that arrangement.
2. Informal discussions with speciality rulings officers of Revenue Canada Taxation have identified the following alternatives which would require changes in the existing laws:
   i) The creation of a tax-exempt government organization to handle the negative salvage funds would alleviate any income tax impact on the cost of service.
   ii) The creation of a prescribed income tax reserve in respect of negative salvage collections similar to those in paragraph 20(1)(o) and subsection 26(2) of the Income Tax Act would be supportive of Westcoast's proposal discussed under alternative 1.i) above.
   iii) The creation of a tax levied by the government to finance the costs of plant removal for all pipelines when the obligation to do so materializes. This would alleviate any

1. For simplicity, the impact on the rate base, and consequently on the return on equity and the income tax provision, arising from the deduction of accumulated depreciation and deferred income tax credits in the calculation of the rate base has been ignored in this analysis. This impact on the income tax provision would be downwards and relatively immaterial.

income tax impact on the cost of service. However, the NEB Regulations would have to be changed so that the responsibility for removing the plant would be shifted from the utilities to the government.

3. A regulatory alternative could be the exclusion of the depreciation charges precollected on account of future negative salvage costs from all related items in the calculations of the income tax component of the cost of service. In this case, the income tax payable on the precollected negative salvage costs will be borne by the utility which will also receive the income tax benefits when it removes its plant and actually incurs the negative salvage costs. In theory, there would be no ratepayers to receive these income tax benefits at that time.

Appendix I

U.S. Precedents re Negative Salvage

1. **Alabama Public Service Commission**
   - re Alabama Gas Corporation
   (v. 43, Public Utilities Reports, 4th Series (43 PUR 4th), p. 710; Alabama Gas Corp. Docket No. 18046, July 2, 1981)

The Commission ruled that prospective negative salvage should not be considered in determining accrued depreciation because it does not represent a part of original cost. However, the Commission did not dispute the fact that negative salvage is a proper element of utility cost, but it would not allow the company to collect the cost of negative salvage until it is incurred. An appeal by Alabama Gas Corporation to the Supreme Court of Alabama was heard during the October term 1982-1983, and the Court held that a fundamental objective in utility ratemaking is that customers who benefit from a service should bear the costs of providing that service. "To recognize net salvage (positive or negative) only when it is actually experienced instead of distributing the amounts over the service life of the related property violates this basic principle." However, the Court's resolution beyond this point is vague.

2. **Colorado Public Utilities Commission**
   - re Public Service Company of Colorado
   (41 PUR 4th, p. 225 ff; Docket No. 1425, Decision No. C80-2346, December 12, 1980)

The Commission allowed negative salvage in depreciation rates but ordered that provision for negative salvage recovered through rates be segregated in a funded reserve to be controlled by an independent trustee. The particularized methodology of how Public Service Co. shall do this shall be up to the company, subject to the approval of the Commission.

3. **New York Public Service Commission**
   - re Rochester Gas and Electric Corporation
   (38 PUR 4th, pp. 143, 154-5; Cases 27606 et al. Opinion No. 80-28, July 18, 1980)

The Commission allowed accrual of revenues for negative salvage and did not require a segregated fund. The reserve fund method was held to be more costly than the accrual method which was expected to provide the public adequate protection. The nuclear plant decommissioning expense allowance which was approved uses a 29-year accrual schedule with the present value of future decommissioning costs discounted at a 5 per cent annual rate.

4. **Connecticut Department of Public Utility Control**
   - re Connecticut Light and Power Company
   (41 PUR 4th, pp. 1, 57-59; Docket No. 800403, October 9, 1980; Supplemental Decision, October 17, 1980)

Allowed to include negative salvage in depreciation. The ultimate cost of decommissioning nuclear generating facilities should be borne by customers who benefit from them.

5. **Federal Energy Regulatory Commission**
   - re Connecticut Light & Power (case No. ER 76-320), and
   - re Connecticut Yankee Atomic Power (case No. ER 78-360) (Reported in Inside F.E.R.C., November 24, 1980)

The Commission for the first time decided to allow electric utilities to begin collecting from current ratepayers the cost of eventually decommissioning nuclear generating units. After struggling with the issue for several months, the Commission in cases involving Connecticut Light & Power and Connecticut Yankee Atomic Power authorized the companies to include negative salvage value in their current rates to reflect the cost of putting the nuclear units out of service. The Commission used the cost of mothballing the plants in developing the appropriate negative salvage values.

The struggle over decommissioning centred on methods considered by the Commission for decommissioning plants, with administrative law judges (ALJs) and staff supporting relatively low-cost mothballing while the companies favoured more costly partial entombment of the nuclear facilities. The Commission accepted opinions of ALJs and staff that it was best to accept the "most conservative approach" (the

least expensive method). The Commission also echoed the ALJs and staff in assuring utilities that the negative salvage value can always be adjusted in future rate cases to cover any increased costs of decommissioning.

The Commission adopted ALJ Benkin's conclusion in the Connecticut Yankee Atomic case that the company should not be required to establish a separate escrow account for negative salvage revenues. The Commission added that its decision in the pending cases does not preclude it from requiring separate accounts in future decommissioning cases.

6. Connecticut Division of Public Utility Control - re Connecticut Natural Gas Corporation
(37 PUR 4th, pp. 287, 302, 303; Docket No. 791202, June 25, 1980)

The net negative salvage value of distribution and transmission mains and services was increased to reflect the effect of recent federal regulations on main retirement.

7. New York Public Service Commission - re Consolidated Edison Company of New York, Inc.
(29 PUR 4th, pp. 327, 332-335; Case 27353, Opinion No. 79, April 6, 1979)

An important statement made by the Commission in this case was:
"We should allow some revenue to meet decommissioning expense because it is a legitimate cost of service which should be paid by those customers using the nuclear plant. Decommissioning is a necessary expense associated with an investment that no party contends is imprudent or unjustified. Under these circumstances, the most equitable choice is to allow the utility to recover the cost from customers. Moreover, the company should begin to provide for these costs now, collecting them from the customers deriving benefit from the plant rather than from those who are taking service at the time the plant is decommissioned."

The Commission considered the cost of mothballing and later dismantling (which had been advocated by a judge) as being more expensive than immediate dismantling of a nuclear plant at the end of its service life. The Commission calculated the decommissioning allowance on the basis of immediate dismantling, but it stated that it can readily change this allowance in response to changed technological, environmental and other conditions.

The company advocated accumulation of funds for decommissioning expense through direct charges to current customers on the basis of an ordinary annuity formula, segregation of the funds collected, and investment of them in securities. The method that their staff employed incorporated depreciation with annual accruals. The funds collected could be invested in other Con Edison utility plant; therefore, the accumulated amount of these funds would be deducted from the rate base. All agreed that the segregated fund proposal was more expensive to consumers.

The Commission held that the less costly alternative will provide adequate protection for the company and the public. Furthermore, the Commission implemented a judge's suggestion, to which Con Edison acquiesced, to have the magnitude of the decommissioning allowance increase over time. This will prevent inflation from reducing the burden on future customers at the expense of existing customers. After further, detailed explanations, the Commission decided that a constant decommissioning charge be used in the first few years, and a graduated charge, based upon a 5 per cent inflation rate, in the remaining years.

8. New York Public Service Commission - re Consolidated Edison Company of New York, Inc.
(35 PUR 4th, p. 643; Case 27544, Opinion No. 80-8, March 7, 1980

The Commission permitted a 40 per cent negative salvage rate for a gas utility's Mains.

9. Indiana Public Service Commission - re Indiana and Michigan Electric Company
(52 PUR 4th, pp. 340-348; Cause No. 36760-S1, March 23, 1983)

The Commission found that it was not possible currently to determine an annual provision for nuclear plant decommissioning expense that would be for all times appropriate, since seemingly minimal variances in actual inflation or net rates of return could, over the period of collection, materially change the amount of the annual provision necessary to assure that adequate funds were available when needed. The Commission adopted as the annual provision for decommissioning expense an amount found reasonable and appropriate under the evidence presented and in view of the ongoing review and revision procedure that it instituted.

The annual nuclear plant decommissioning expense provision authorized by the Commission carried with it the collection of the cost of decommissioning associated with earlier periods of the operation of the

company's plant to recognize that failure to provide for recovery associated with prior periods might defeat the purpose of recognizing future decommissioning costs, i.e., to assure the availability of sufficient funds for the purpose of decommissioning the plant at the end of its useful life.

The Commission instituted a procedure whereby the annual nuclear plant decommissioning expense provision would be reviewed as an element of cost of service in each of the company's subsequent rate cases, finding that such a time period would be long enough to provide a basis for intelligent adjustment while not unduly prolonging any unfair impact on ratepayers. If three years elapsed between rate cases, the company would then file a separate review and report on the adequacy of the then existing annual provision.

The Commission determined that the company's annual provision relating to nuclear plant decommissioning costs should be accumulated in an external trust fund devoted to holding and investing the decommissioning funds. The company should enter into a trust agreement that (1) recognized the limited purpose for which the funds could be used, (2) provided reasonable safeguards as to the nature of the investments in which such funds might be made by the trustee, and (3) reflected that the trustee should make no investments in securities issued by the company or any of its affiliates.

This paragraph is not strictly dealing with decommissioning of a nuclear facility, but it is probably of sufficient interest so that it should be added here: Pursuant to the requirements of the Nuclear Waste Policy Act of 1982, which created a nuclear waste fund for the disposal of spent nuclear fuel consisting of fees by the nuclear utilities, the Commission directed the company to include in its estimated costs incorporated in the fuel cost adjustment proceedings the charge of one mill per kilowatt-hour for electricity generated at its nuclear facility and sold on or after 7 April 1983 (the date established by the Act).

10. Florida Public Service Commission - re Decommissioning Costs of Nuclear Power Generators

(47 PUR 4th, pp. 357-362; Docket No. 810100-EU(CI), Order No. 10987, July 3, 1982)

The following is a summary of a discussion by the Commission of proper accounting and rate-making methods for decommissioning costs.

Nuclear power plants - Decommissioning methods

According to Nuclear Regulatory Commission policy and the general regulatory atmosphere, only immediate or delayed dismantlement appeared to the Commission to be acceptable nuclear power plant decommissioning methods.

Power plant decommissioning expense

The Commission held that a current accounting treatment of costs associated with nuclear power plant decommissioning, by including it as part of the depreciation expense pertaining to the plants, was insufficient to monitor properly the expense being charged to customers.

Segregation of expenses - Accumulated fund

A better approach to accounting for decommissioning costs would be to segregate the portion of the accumulated provision from the depreciation rate.

Accounting - Accumulated depreciation reserve - Exclusion from rate base

The Commission continued the practice of subtracting the accumulated decommissioning reserve from rate base, resulting in a lower current revenue requirement to the ratepayer.

Apportionment - Decommissioning costs - Allocation between present and future customers

An internally funded reserve was the appropriate method to account for decommissioning costs since the proper allocation of the costs of decommissioning should be between present and future customers.

Accounting - Decommissioning costs - Funding methods

Discussion of four funding methods currently available to utilities to pay for the costs of decommissioning nuclear power plants:

1. *Prepayment* at the time of initial plant operation based on estimated future costs;
2. An *internally funded reserve* which restricts usage of the funds;
3. An *externally funded reserve*, through the use of a trust or other fund; and
4. An *internally unfunded reserve* which allows the company to use the funds for general corporate purposes.

11. Illinois Commerce Commission - re Commonwealth Edison Company

(35 PUR 4th, pp. 49, 50, 71-73; No. 79-0214, February 6, 1980)

The Commission required the company to set up an account to accumulate amounts collected from ratepayers to provide for the cleaning and decommissioning of nuclear power plants.

12. The Public Utilities Commission of Ohio - re The Dayton Power and Light Company (DP & L)
(Case No. 79-372-GA-AIR; Opinion and Order, May 7, 1980)

The company applied for an increase in the rates to be charged for gas service. The Commission allowed negative salvage values for mains, measuring and regulating station equipment, and other fixed assets at various rates. In part, these negative salvage rates were based on statewide averages rather than on the limited retirement experience of DP&L.

13. Massachusetts Department of Public Utilities - re Western Massachusetts Electric Company
(37 PUR 4th, pp. 219, 220, 227-229; D.P.U. 20279, May 30, 1980)

Estimated future nuclear plant decommissioning expenses were allowed for ratemaking purposes only to the extent that such costs were reasonably certain to occur. A contingency factor was not permitted to be considered in arriving at a reasonable ratemaking allowance for future nuclear plant decommissioning expenses. A ratemaking allowance for future nuclear plant decommissioning expenses was computed using a partial dismantlement/delayed removal method with a 30-year dormancy period and local property tax escalations excluded.

14. Oregon Public Utility Commissioner - re Portland General Electric Co.
(37 PUR 4th, p. 656; UF 3592, Order No. 80-612, August 18, 1980)

The commissioner authorized the company to adopt a sinking fund method to account for the estimated cost of decommissioning its nuclear power plant and the cost of permanent storage of nuclear fuel waste.

15. Maine Public Utilities Commission - re Central Maine Power Co.
(38 PUR 4th, p. 573; Docket Nos. 80-25, 80-66, October 31, 1980)

The Commission approved the decommissioning fund for the company's nuclear power plant and approved the company's request for a 25 percent contingency allowance.

16. Maine Public Utilities Commission - re Maine Public Service Company
(44 PUR 4th, pp. 104-106; Docket No. 80-180, June 1, 1981)

The company was permitted to include as a current expense its estimated annual cost associated with the future decommissioning of a nuclear generating station for, although the expense had not been incurred and would not be known until decommissioning was concluded, the Commission believed that those costs, being reasonably associated with the provision of service, should not be underwritten by ratepayers taking service after the plant's usefulness had expired.

17. Iowa State Commerce Commission - re Peoples Natural Gas Company
(44 PUR 4th, pp. 62, 63, 75, 76; Docket No. RPU-79-30, August 14, 1981)

A net negative salvage rate should be applied to the gas distribution utility's principal plant accounts where it can be shown that the cost of removal exceeds the value of the asset removed.

18. Wisconsin PSC Approves Accounting Method for Nuclear Plant Decommissioning Costs
(NARUC No. 2-1983, January 10, 1983, p. 12)

The Public Service Commission of Wisconsin has approved a straight line negative salvage method to provide funds for nuclear power plant decommissioning. The necessary funds would be invested internally by the utilities to meet decommissioning costs at the end of a nuclear plant's life as well as for premature decommissioning after five years.

Three nuclear power plants in Wisconsin are covered by the new rules, two reactors at Point Beach and one at Kewaunee. The Point Beach plants are owned by Wisconsin Electric Power Company, and the Kewaunee plant is owned jointly by Wisconsin Public Service Corporation, Madison Gas and Electric Company, and Wisconsin Power and Light Company.

The accounting method approved by the Commission is the same as that currently in use by the utilities except that decommissioning costs are expressed in terms of future dollars estimated at the time of decommissioning. Under this method the depreciation reserve is accumulated in equal annual increments over the service life of the plant.

No insurance against premature or unexpectedly costly decommissioning exists at this time. However, the Public Service Commission has ordered the operating owners of the Wisconsin nuclear plants to seek proposals and bids for this insurance within the next 18 months.

19. California Public Utilities Commission - re Nuclear Facility Decommissioning Costs
(52 PUR 4th, pp. 618-643, Decision No. 83-04-013, OII 86, April 6, 1983)

The following is a summary of a Commission discussion and selection of methods of financing nuclear plant decommissioning costs.

Financing - Criteria

In assessing the various alternatives for financing decommissioning costs, the four criteria that the Commission used were: (1) assurance of availability of funds; (2) cost to ratepayers; (3) flexibility; and (4) equity to ratepayers.

External Sinking Fund

The mechanism that best satisfied the four criteria for financing nuclear decommissioning costs was an externally funded sinking fund managed by a third-party trustee.

Financing

Cost as a criterion of selecting a decommissioning method was held to be of minor concern where none of the alternative financing mechanisms would have added as much as one per cent to ratepayers' total electric utility bills.

Financing Mechanism - Periodic Reevaluation

In order that the adopted decommissioning financing mechanism be "flexible", the Commission will reevaluate the annual assessment for decommissioning in each operating utility's general rate case.

Tax Considerations

To spread equitably the costs of decommissioning over time, and to avoid a "windfall" tax write-off at the time of decommissioning, the Commission directed utilities to design their funds in anticipation that tax-exempt treatment would ultimately be obtained.

Financing Methods - External Fund

An external sinking-fund mechanism was adopted as the proper decommissioning finance method based on the four criteria of assurance, cost, flexibility, and equity.

Appendix II

Pertinent Sections of the NEB Pipeline Regulations

1. Oil Pipeline Regulations

Abandonment and Deactivation

119. A company that proposes to take a pipeline or any part thereof out of service for a period of twelve months or more shall apply to the Board for approval to deactivate such pipeline or part thereof for such period.

120. A company shall remove all abandoned pipeline facilities unless the Board has granted permission to leave such pipeline facilities in place.

121. A company abandoning or deactivating a pipeline or any part thereof shall take measures to protect the public, company personnel and the environment and shall

(a) disconnect all facilities to be abandoned or deactivated from any pipeline facilities that continue to operate;

(b) seal-off abandoned or deactivated parts of the piping by such means as blind flanges, blanks or weld caps;

(c) fill the piping with a medium approved by the Board, which, if inert gas, shall be maintained at a gauge pressure between 30 and 150 kilopascals;

(d) clean out storage tanks and purge them of hazardous vapours;

(e) maintain accurate records of the location of all buried piping and other facilities until they are removed;

(f) maintain warning signs and fences on pipeline facilities that have been abandoned but have not been removed; and

(g) maintain cathodic protection when requested by the Board.

122. A pipeline facility that has been deactivated for a period of twelve months or more shall not be reconnected or reactivated before

(a) the Board has approved the reconnection or reactivation; and

(b) the facility has been retested in accordance with these Regulations.

123. When a company ceases to be the owner of its pipeline right-of-way or is no longer responsible for the land tenure of its pipeline right-of-way, it shall, as soon as possible thereafter, remove its abandoned pipeline from the right-of-way unless the Board has granted the company permission to leave the abandoned pipeline in place.

124. A company that abandons a pipeline is responsible for that pipeline until such time as it is removed.

125. A company shall return a right-of-way from which a pipeline has been removed to a condition satisfactory to the Board.

2. Gas Pipeline Regulations

Inactivation and Abandonment

84. (1) A company that owns its pipeline right-of-way or is responsible for the land tenure of its pipeline right-of-way shall, in the specifications established by it under subsection 65(1), provide for the inactivation of its pipeline.

(2) A company referred to in subsection (1) shall

(a) physically disconnect from the remainder of its pipeline system all dormant pipeline facilities that have been shut down for a period of 12 months of more;

(b) seal, cap and fill with nitrogen or other inert gas under pressure all open ends of dormant facilities; and

(c) take and record periodic pressure readings of sealed and capped dormant facilities.

(3) A pipeline facility that has been dormant for a period of 12 months or more shall not be reconnected or put back into use by the company unless

(a) the Board has approved the reconnection or use; and

(b) the facility has been retested in accordance with these Regulations.

(4) When a company ceases to be the owner of its pipeline right-of-way or is no longer responsible for the land tenure of its pipeline right-of-way, it shall, as soon as possible thereafter, remove its abandoned pipeline from the right-of-way unless the Board has granted the company permission to leave the abandoned pipeline in place.

3. Proposed Onshore Pipeline Regulations 16 April 1985

Abandonment and Deactivation

91. A company that proposes to take a pipeline or any portion thereof out of service for a period of twelve months or more shall apply to the Board for approval thereof.

92. A company shall remove all abandoned pipeline facilities unless the Board is satisfied that for engineering, financial or environmental considerations it would be preferable to leave such pipeline facilities in place.

93. Where the Board has granted permission to leave the abandoned facilities in place, the company shall take measures to protect the public, company personnel and the environment and shall

(a) disconnect all facilities to be abandoned or deactivated from any pipeline facilities that continue to operate;

(b) seal off abandoned or deactivated parts of the piping by such means as blind flanges, blanks or weld caps;

(c) clean out storage tanks and purge them of hazardous vapours;

(d) maintain accurate records of the location of all buried piping and other facilities until they are removed;

(e) maintain warning signs and fences on pipeline facilities that have been abandoned but have not been removed; and

(f) maintain cathodic protection, unless otherwise authorized by the Board.

94. A pipeline facility that has been deactivated for a period of twelve months or more shall not be reconnected or reactivated before

(a) the Board has approved the reconnection or reactivation; and

(b) the facility has been retested in accordance with these Regulations.

95. A company that abandons a pipeline is responsible for that pipeline until such time as it is removed.

96. A right-of-way from which a pipeline has been removed shall be restored to its original condition or to a condition satisfactory to the Board.

4. Proposed Offshore Pipeline Regulations - 17 Dec 1984 Draft

Abandonment and Deactivation

99. A company that proposes to take a pipeline or any part thereof out of service for a period of twelve months or more shall apply to the Board for approval to deactivate such pipeline or part thereof for such period.

100. A company shall remove all abandoned pipeline facilities unless the Board is satisfied that for engineering, financial or environmental considerations, it would be preferable to leave such pipeline facilities in place.

101. Where the Board has granted approval to deactivate or abandon a pipeline or any part thereof, the company shall take measures to protect the public, company personnel and the environment and shall

(a) disconnect all facilities to be abandoned or deactivated from any pipeline facilities that will continue to operate;

(b) seal off abandoned or deactivated parts of the piping by such means as blind flanges, blanks or weld caps;

(c) fill the piping with an approved medium which, if inert gas, shall be maintained at a gauge pressure between 30 and 150 kilopascals;

(d) maintain accurate records of the location of all piping and other facilities until they are removed; and

(e) maintain corrosion control, unless otherwise authorized by the Board.

102. A pipeline facility that has been deactivated for a period of twelve months or more shall not be reconnected or reactivated before

(a) the Board has approved the reconnection or reactivation; and

(b) the facility has been retested in accordance with these Regulations.

103. A company that abandons a pipeline is responsible for that pipeline until such time at it is removed.

Appendix III

Buried Pipelines Under NEB Jurisdiction

Company	Diameter (mm)	Length (km)	Fluid Transported	To	From	Maximum Age on 1-1-85 (Approximate)
Alberta Natural Gas Company	914.	176	gas	U.S. Border at Kingsgate, B.C.	Crowsnest, Alta.	23 yrs.
Amoco Canada Petroleum Company Ltd.	60.3 to 457.	23	gas	WTCL Pipeline	Beaver Ridge, Yukon	13 yrs.
Aurora Pipe Line Co.	219. 323.9	0.8 0.8	crude oil condensate & NGL	U.S. Border	Alberta	24 yrs. 18 yrs.
Canadian-Montana Pipeline Co.	406.4 406.4 114.3	29.6 6.3 1.4	gas gas gas	U.S. Border U.S. Border U.S. Border	Alberta Alberta Alberta	25 yrs. 26 yrs. 6 yrs.
Champion Pipe Line Corp. Ltd.	219.1 219.1	97. 1.9	gas gas	Noranda, Qué. Temiscaming, Qué.	Earlton, Ont. Thorne, Ont.	20 yrs. 5 yrs.
Cochin Pipeline Company	323.9 323.9 273.1	982 136 7.4	propane, butane ethane, ethylene	U.S. Border at Alameda, Sask. Sarnia, Ont.	Fort Saskatchewan, Alta. U.S. Border at Windsor, Ont.	6 yrs.
Consolidated Pipe Lines Co.	406.4	218.	gas	Herbert, Sask.	U.S./Sask. Border	13 yrs.
Dome-Kerrobert Pipeline Ltd.	273.1	154	NGL	Kerrobert, Sask.	Empress, Alta.	15 yrs.
Dome NGL Pipeline Ltd.	273.1 219.1	138 12	NGL NGL	U.S. Border at Windsor, Ont. Sarnia Pump Stn.	Sarnia Pump Stn. U.S. Border at Sarnia, Ont.	11 yrs.
Dome NGL/ Amoco Canada	219.1 219.1 168.3	11.85 11.3 8.5	Condensate LPG Condensate	U.S. Border at Sarnia, Ont. U.S. Border at Sarnia, Ont. Lateral to the Petrosar Plant	Sarnia Fractionation Plant Sarnia Fractionation Plant	15 yrs.
Dome Petroleum Ltd.	219.1	3.2	ethane	Burstall, Sask.	Empress, Alta.	14 yrs.
Esso Resources Canada Ltd.	273.1	11.3	crude oil	Trans Prairie Pipeline (B.C.)	Boundary Lake field, (Alta.)	15 yrs.
Foothills	914 1067	855 637	gas gas	Kingsgate, B.C. Monchy, Sask.	Caroline, Alta. Caroline, Alta.	3 yrs.
ICG Transmission Holdings Ltd.	114 to 323	190	gas	Fort Frances, Ont.	Manitoba (TCPL) via the U.S.	15 yrs.

Buried Pipelines Under NEB Jurisdiction

Company	Diameter (mm)	Length (km)	Fluid Transported	To	From	Maximum Age on 1-1-85 (Approximate)
Interprovincial Pipe Line Ltd.	400	1182	refined products and NGL	Gretna, Man.	Edmonton, Alta.	34 yrs.
	450	1182	crude oil	Gretna, Man.	Edmonton, Alta.	34 yrs.
	500	1182	crude oil	Gretna, Man.	Edmonton, Alta.	34 yrs.
	400	50	crude oil	Edmonton, Alta.	Redwater	34 yrs.
	600	216	crude oil	Gretna, Man.	Regina, Sask.	31 yrs.
	500	251	crude oil	Toronto, Ont.	Sarnia, Ont.	27 yrs.
	600	132	crude oil	Regina, Sask.	Edmonton, Alta.	26 yrs.
	300	148	crude oil	Fort Erie, Ont.	Sarnia, Ont.	21 yrs.
	850	541	crude oil	Misc. Looping	Misc. Looping	18 yrs.
	500	148	crude oil	Fort Erie, Ont.	Sarnia, Ont.	12 yrs.
	1200	160	crude oil	Gretna (Loop), Man.	Edmonton, Alta.	12 yrs.
	750	821	crude oil	Montreal, Que.	Sarnia, Ont.	8 yrs.
	400	42	crude oil	Nanticoke, Ont.	Mt. Hope, Ont.	7 yrs.
Interprovincial Pipe Line (NW) Ltd.	323.9	868	crude oil	Zama, Alta.	Norman Wells, NWT	0 yrs.
Manito Pipelines Ltd.	273.1	184	crude oil and condensate	Kerrobert, Sask.	Blackfoot, Alta.	8 yrs.
	168.3	184				
	114.3	184				
Many Islands Pipe Lines (Canada) Ltd.	406.4	65	gas	Unity, Sask.	Nova, (Alta.)	19 yrs.
	219.1	31.5	gas	Smiley, Sask.	Esther, Alta.	7 yrs.
	273.1	28.3	gas	Beacon Hill, Sask.	Cold Lake, Alta.	7 yrs.
Mid-Continent Pipelines Ltd.	406.4	1.36	gas	Sask.	Alta.	
	610	1.36	gas			22 yrs.
Minell Pipeline Ltd.	168.3	69.7	gas	Russell, Man.	Sask.	20 yrs.
Montreal Pipe Line Limited	323.9	113.2	line deactivated	Montreal, Que.	U.S. Border at Highwater, Que.	44 yrs.
	457	113.2	crude oil			35 yrs.
	610	113.2	crude oil			20 yrs.
Mont Resources Ltd.	50.8	0.2	crude oil	U.S. Border	Alberta	25 yrs.
Murphy Oil Company Ltd.	88.9	0.76	crude oil	U.S. Border	Red Coulee, Alta.	19 yrs.
	88.9	0.76	inactive			
	168.3	18	crude oil	U.S. Border	Milk River, Alta.	17 yrs.
Niagara Gas Transmission Ltd.	323.9	14.4	gas	U.S. Border	St. Andrew, Ont.	25 yrs.
	406.4	0.83	gas	Pointe Gatineau, Qué.	Rockliffe, Ont.	29 yrs.
	305	0.31	gas	Ottawa, Ont.	Hull, Québec	26 yrs.
Northwest Transmission Co.	114.3	1.6	crude oil	B.C. (Trans Prairie)	Alberta	16 yrs.
Peace River Transmission Co.	114.3	16	gas	Dawson Creek, B.C.	Alberta	25 yrs.
Petroleum Transmission Co.	168	933	LPG	Winnipeg	Alberta/Sask.	20 yrs.
Saskatchewan Power Corp.	219.1	18.5	gas	Alberta	Hoosier, Sask.	21 yrs.
Sun Pipe Line Company	219.1	3.57	crude oil	Sarnia, Ont.	U.S. Border	34 yrs.

Buried Pipelines Under NEB Jurisdiction

Company	Diameter (mm)	Length (km)	Fluid Transported	To	From	Maximum Age on 1-1-85 (Approximate)
TransCanada PipeLines Ltd.	864 to 1219	4247	gas	Winnipeg, Man.	Sask. Border at Emerson, Alta.	27 yrs.
	762 to 914	163	gas	U.S. Border at Emerson, Man.	Winnipeg, Man.	25 yrs.
	273 to 324	21	gas	Sault Ste. Marie, Ont.	U.S. Border at Sault Ste. Marie, Ont.	17 yrs.
	914	24	gas	Dawn, Ont.	U.S. Border at St. Clair, Ont.	18 yrs.
	762 to 1067	4174	gas	Toronto, Ont.	Winnipeg, Man.	27 yrs.
	168	40	gas	Thorne, Ont.	North Bay, Ont.	5 yrs.
	914	428	gas	Morrisburg, Ont.	North Bay, Ont.	3 yrs.
	508 to 914	255	gas	U.S. Border at Niagara, Ont.	Toronto, Ont.	31 yrs.
	508 to 914	1015	gas	Montréal, Que.	Toronto, Ont.	28 yrs.
	323 to 406	117	gas	Ottawa, Ont.	Morrisburg, Ont.	28 yrs.
	219 to 508	147	gas	U.S. Border at Philipsburg, Que.	St-Lazare, Que.	19 yrs.
Trans Mountain Pipe Line Co.	610	1250	crude oil	Vancouver, B.C.	Edmonton, Alta.	31 yrs.
	762	162		Loops		27 yrs.
Trans-Northern Pipelines Inc.	273.1	616.2	refined products	Hamilton	Montreal	32 yrs.
	323.9	21.27	refined products	Mirabel	St. Rose	12 yrs.
	323.9	16.03	refined products	Dorval	St. Rose	15 yrs.
	323.9	68.1	refined products	Ottawa	Farran's Pt.	21 yrs.
	406	58.9	refined products	Nanticoke	Hamilton	6 yrs.
	406	16.82	refined products	Clarkson Jct.	Oakville	
	508	21.4	refined products	Tor. Airport Jct.	Clarkson Jct.	
	273.1	2.25	refined products	Clarkson	Lateral	
	273.1	2.79	refined products	Prescott	Lateral	
	273.1	18.3	refined products	Toronto	Lateral	
	219.1	5.3	refined products	Toronto Airport	Lateral	13 yrs.
Trans Québec & Maritimes Pipeline Inc.	762	39	gas	Boisbriand, Qué.	St. Lazare, Qué.	3 yrs.
	610	254	gas	Québec, Qué.	Boisbriand, Qué.	2 yrs.
Union Gas Ltd.	323.9	1.4	gas	Windsor, Ont.	U.S. Border	39 yrs.
Wascana Pipe Line Ltd.	323.9	175	crude oil & condensate	U.S. Border	Regina, Sask.	13 yrs.
Westcoast Transmission Co. Ltd.	406 to 914	2331	sales gas	B.C./U.S. Border	Alta. & Northern B.C.	27 yrs.
	up to660	2104	raw gas	Misc. gathering lines in Northern B.C., Yukon & N.W.T.		
Westspur Pipe Line Company	323.9	177	crude oil & NGL	Cromer, Man.	Midale, Sask.	30 yrs.
	406.4	121	crude oil	Cromer, Man.	Steelman, Sask.	29 yrs.
	219.1	8.4	inactive since 1981	U.S. Border	Pinto, Sask.	30 yrs.
Yukon Pipelines Ltd.	114.3	145.6	refined products	Whitehorse, Yukon	White Pass, B.C.	43 yrs. installed above ground

Appendix IV

Above Ground Pipeline Facilities Under NEB Jurisdiction

Company	Meter Stations	Pump/Compressor Stations	Processing Plants	Other Facilities
Alberta Natural Gas Company	8	3		
Amoco Canada Petroleum Company Ltd.				
Canadian-Montana Pipeline Co.	3			
Champion Pipe Line Corp. Ltd.	4			
Cochin Pipeline Company		12		
Consolidated Pipe Lines Co.	1	1		
Dome-Kerrobert Pipeline Ltd.	1	1		1 Storage Facility
Dome-NGL Pipeline Ltd.	2	2		
Dome Petroleum Ltd.	1			
Esso Resources Ltd.				1 Oil Separating & Treatment Facility
Foothills	2	3		
Interprovincial Pipe Line Ltd.		74		
Interprovincial Pipe Line (NW) Ltd.	1	3		
Many Islands Pipe Lines (Canada) Limited	2			
Minell Pipeline Ltd.	1			
Montreal Pipe Line Limited		2		1 Terminal Manifold
Niagara Gas Transmission Ltd.	3			
Peace River Transmission Co.	1			

Above Ground Pipeline Facilities Under NEB Jurisdiction

Company	Meter Stations	Pump/Compressor Stations	Processing Plants	Other Facilities
Petroleum Transmission Co.		6		1 Storage Facility
TransCanada PipeLines Ltd.	144	49		
Trans Mountain Pipe Line Co.		7		5 Storage Facilities
Trans-Northern Pipeline Inc.	18	15		
Trans Québec & Maritimes Pipeline Inc.	10			
Union Gas Ltd.	1			
Wascana Pipe Line Ltd.		1		1 Terminal with Storage Facilities
Westcoast Transmission Co. Ltd.	75	31	4	
Westspur Pipe Line Company	4	3		3 Storage Facilities
Yukon Pipelines Ltd.		1		2 Storage Facilities

Appendix V

Pertinent Sections of the Uniform Accounting Regulations

Definitions:

salvage value means the amount received, including insurance proceeds and including any amount received for material salvaged from plant retired where the material is sold.

net salvage value means salvage value minus any removal costs.

Pertinent sections:

36(1) Where a plant unit, whether replaced or not, is retired from pipeline operations, the book cost of the plant unit shall be credited to the appropriate plant account.

36(2) The book cost and the costs of removal of a depreciable plant unit retired and not replaced shall be debited to account 105 (accumulated depreciation - Gas Plant or Account 106).

36(3) The net salvage value of a plant unit retired shall be credited to the accumulated depreciation account.

Salvage Value

38(1) Where salvaged material is retained for use by a company, the original cost, estimated if not known, of the material, less a fair allowance for depreciation, shall be debited to account 150 (Plant Materials and Operating Supplies).

38(2) The salvage value of depreciable plant or salvaged material therefrom shall be credited to account 105 (Accumulated Depreciation - Gas Plant) or account 106 (Accumulated Amortization - Gas Plant), as applicable.

38(3) The removal costs incurred in dismantling or demolishing retired depreciable plant and in recovering salvage therefrom shall be debited to account 105 (Accumulated Depreciation - Gas Plant) or account 106 (Accumulated Amortization - Gas Plant), as applicable, except that the current cost of removing and replacing a minor item of plant in maintenance operations shall be included in the appropriate expense account.

Ordinary Retirement

39(1) In respect of depreciable plant, "ordinary retirement" means a retirement of depreciable plant that results from causes reasonably assumed to have been anticipated or contemplated in prior depreciation or amortization provisions.

39(2) There shall be no debit or credit to income or to retained earnings for an ordinary retirement.

Extraordinary Retirement

40(1) In respect of depreciable plant, "extraordinary retirement" means a retirement of depreciable plant that results from causes not reasonably assumed to have been anticipated or contemplated in prior depreciation or amortization provisions, including such causes as fire, storm, flood, premature obsolescence or unexpected and permanent shutdown of an entire operating assembly for reasons other than ordinary wear and tear.

40(2) Where the gain or loss on an extraordinary retirement is material, the company shall inform the Board and, unless otherwise directed by the Board, shall transfer the amount of the gain or loss from account 105 (Accumulated Depreciation - Gas Plant) or account 106 (Accumulated Amortization - Gas Plant) to account 331 (Extraordinary Income) or account 341 (Extraordinary Income Deductions), as applicable.

40(3) Notwithstanding subsection (2), a company may, with the approval of the Board, transfer all or part of the amount of a material gain or loss on an extraordinary retirement to 279 (Other Deferred Credits) or account 171 (Extraordinary Plant Losses), as applicable, for amortization at a rate approved by the Board.

40(4) Immaterial gains or losses resulting from extraordinary retirements shall be accounted for in the same way as ordinary retirements.

48 In sections 49 to 57:

"group system" means a system by which a weighted average rate of depreciation is calculated for a particular group of plant accounts, a plant account, or a group of assets within a

plant account, and established in recognition of the fact that some part of the investment in a group of assets may be recovered through salvage realization and that there will be variations in the service lives of the assets constituting the group, even among assets of the same class;

"service value" means the book cost of plant minus the estimated net salvage value of that plant.

49(1) Under the group system, in the case of an ordinary retirement of an individual asset in a group of assets, the accumulated depreciation attributable to the asset shall, for the purposes of these Regulations, be considered to be equal to the cost of the asset minus any amount that may reasonably be recovered through salvage realization, whether or not the actual service life of the asset is shorter or longer than the anticipated average service life for the group.

49(2) Assets, within a group of assets, remaining in use after reaching their average service life expectancy shall not be regarded as fully depreciated until actual retirement or until the group is fully depreciated, whichever is earlier.

52(1) There shall be debited each month to expenses or other appropriate accounts and credited to the accounts for accumulated depreciation amounts that will allocate, in a systematic and rational manner, the service value of the plant over its estimated service life.

54(2) The rates referred to in subsection (1) (depreciation rates filed) shall be based on the service value and the estimated life of the plant, as developed by a study of the company's history and experience and such engineering and other information as may be available with respect to future operating conditions.

Amortization

58 For the purposes of sections 59 and 60, "amortization" means the gradual recovery of an amount included in account 100 (Gas Plant in Service), account 101 (Gas Plant Leased to Others), account 102 (Gas Plant Held for Future Use) or account 110 (Other Plant) by distributing such amount over a fixed period or over the estimated remaining life of the plant.

59 Where it is anticipated by a company that plant will be abandoned owing to the exhaustion of a particular source of traffic, obsolescence or any other cause, the company shall not change from depreciation accounting to amortization accounting without first obtaining the authorization of the Board.

60(2) Amortization on assets included in account 110 (Other Plant) shall be debited to account 311 (Expense of Other Plant).

Note: The Board may have anticipated that negative salvage costs could be incurred on decommissioning and retirements but visualized those costs being recovered through self-insurance. For example, under section 61 - Insurance the following subsections are pertinent:

61(5) Where a company elects to create and maintain reserves for self-insurance, account 723 (Insurance) shall be debited with estimated amounts in lieu of commercial insurance premiums and account 290 (Insurance Appropriations) shall be credited with the estimated amounts.

61(6) A Schedule of risks covered by self-insurance shall be kept showing the character of risk and the rates used to compute the estimated amounts referred to in subsection (5).

61(7) The rates referred in subsection (6) shall not exceed commercial rates for the same protection.

61(9) Where the self-insurance schedule referred to in subsection (6) covers the retirement of plant, the accounting for the retirement shall be as outlined in section 36 and the self-insurance applicable to the retired item shall be transferred from account 290 (Insurance Appropriations) to account 105 (Accumulated Depreciation - Gas Plant) or account 106 (Accumulated Amortization - Gas Plant), as applicable.

Deferred Debit

171 Extraordinary Plant Losses

(1) This account shall include material losses authorized by the Board to be transferred from accumulated depreciation or accumulated amortization accounts to this account, in accordance with subsection 40(3).

(2) Before an amount is transferred to this account, a company shall provide the Board with full details of the calculation thereof together with the future accounting treatment proposed by the Company.

(3) Amounts recorded in this account shall be amortized by systematic debits to account 304 (Amortization), or otherwise disposed of as the Board may approve or direct.

The foregoing have been selected from U.A.R. - Gas Pipelines. Similar provisions are contained in the U.A.R. - Oil Pipelines.

Appendix VI

NEB Staff Participating in This Background Paper

Steering Committee

K.W. Vollman, Director General Pipeline Regulation (Chairman)

P.A. Carr, Acting Director, Environment and Right-of-Way Branch

E.L.M. Gordon, Acting Director, Pipeline Engineering - Operations Branch

H. Pau, Director, Financial Regulatory Branch

S. Richardson, Project Coordinator

Technical Working Committee

Environment and Right-of-Way Branch	Financial Regulatory Branch	Pipeline Engineering - Operations Branch
T. Lawrence	M. Yeates	R. White
W. Ostafichuk	G. Johnson	F. Jeglic
G. Augusta	D. Craib	Z. Lewycky
	N. El-Gabalawy	S. Richardson
	H. Bubeck	G. Jones
	W. Bigelow	

Support Staff

C. Allen, M. Gross, R. Gagné

ATTACHMENT 4
PASC Legal Issues Paper

Pipeline Abandonment Legal Working Group

Legal Issues Relating to Pipeline Abandonment: A Discussion Paper

May 1997

Disclaimer

This Discussion Paper was prepared under the auspices of the Pipeline Abandonment Steering Committee, a Committee comprised of representatives and employees of the Canadian Association of Petroleum Producers (CAPP), the Canadian Energy Pipeline Association (CEPA), the Alberta Energy and Utilities Board (EUB), the Alberta Department of Energy (ADOE), and the National Energy Board (NEB). While it is believed that the information contained herein is reliable, CAPP, CEPA, the EUB, the ADOE, and the NEB do not guarantee its accuracy. Nor does this paper constitute the provision of legal advice. This paper does not necessarily reflect the views or opinions of CAPP, CEPA, the EUB, the ADOE, or the NEB, or any of the member companies of CAPP and CEPA. In particular, the paper cannot be taken to represent the regulatory policy of the EUB or the NEB and may not be relied on for such purpose. 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, CEPA, the EUB, the ADOE, or the NEB or of any individual, consultant, or law firm involved in the preparation of this paper.

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Section 1 - Introduction

In April 1994, representatives from Canadian Association of Petroleum Producers (CAPP), Canadian Energy Pipeline Association (CEPA), Alberta Energy and Utilities Board (AEUB), and the National Energy Board (NEB) met to establish to establish a Pipeline Abandonment Steering Committee. It was also decided at that time that separate sub-committees be struck to address the technical, environmental, legal, and financial aspects of pipeline abandonment. The technical and environmental sub-committees were the first to be formed and, together with the Steering Committee, produced, in November 1996, a

discussion paper on technical and environmental issues related to pipeline abandonment. The technical and environmental paper reviews abandonment options, outlines regulatory requirements, discusses the technical and environmental issues related to abandonment, and concludes with a discussion of post-abandonment responsibilities. This work led to the identification of a number of questions. As a result, in early October 1996, the Steering Committee struck a Pipeline Abandonment Legal Working Group for the purpose of identifying and examining the legal liability issues related to the discontinuation and abandonment of pipelines and associated facilities related to the oil and gas industry. The working group was requested to provide a discussion paper of the legal issues related to pipeline abandonment. Membership was to include CAPP, CEPA, the EUB, Alberta Energy and the NEB. The Steering Committee identified a number of legal issues which it wished the working group to consider, recognizing that this was not exhaustive. A copy of the Terms of Reference of the Pipeline Abandonment Legal Working Group, including issues identified for consideration by the working group, is attached as Appendix 1.

The working group held its inaugural meeting on October 29, 1996 and continued to meet regularly thereafter for the purpose of completing this discussion paper. The Terms of Reference of the working group contemplated close liaison with other stakeholders. Invitations to participate in the discussions of the working group were extended to the provinces of British Columbia, Saskatchewan, Manitoba, Ontario, and Quebec. Each of the provinces expressed interest and decided to be observers.

The members of the working group are as follows:

Greg Cartwright - Canadian Energy Pipeline Association
Ron Girvitz (Oct/96-Jan/97); Tania Donnelly (Feb/97 to date) - Alberta Energy and Utilities Board
Peter Noonan and Claire McKinnon - National Energy Board
Jill Page - Alberta Department of Energy
Nick Schultz - Canadian Association of Petroleum Producers (chairman)

Observers:

Jim Colgan - British Columbia Ministry of Employment and Investment
Bob Dubreuil - Manitoba Energy & Mines
Thomson Irvine - Saskatchewan Department of Justice
Lise Proulx - Ministre des Ressources Naturelles
John Turchin - Ontario Ministry of Environment & Energy

The outline of Alberta legislation which is contained in Appendix 2 is the work of Tania Donnelly and Jill Page. The outline of the NEB Act contained in Appendix 3 is the work of Peter Noonan and Claire McKinnon. The discussion of liability and land registration issues contained in Appendix 4 was produced at the request of Greg Cartwright, at the expense of Interprovincial Pipe Line Inc., by Bernard J. Roth of Milner Fenerty. In addition, Greg Cartwright surveyed CEPA member companies and land registry offices to determine whether land registry offices maintained pipelines plans in an accessible form.

At the outset, the working group recognized that none of the participants could bind their employers to any particular course of action and, particularly those employed by regulatory agencies, could not tie the hands of the regulator. The purpose of this paper, therefore, is to

identify and discuss various legal issues related to pipeline abandonment. Where, having regard to relevant legislation and regulatory or judicial precedents, the answer to a particular issue is clear, then this is identified in the discussion paper. Likewise, any area in which the law is unclear, or the subject of differing views, or simply non-existent, is also identified. The goal of the discussion paper is to share information and insights with a view to providing practical information to the Steering Committee and, ultimately, perhaps for the benefit of those who will shape or make decisions related to pipeline abandonment.

Section 2 - The Central Issues

Pipelines are typically constructed and operated pursuant to legislation especially designed for the purpose of ensuring the protection of public safety and the environment, among other things. During the life of a pipeline, there is a company with active and effective control over the operations of the pipeline and those operations are subject to oversight by a regulatory body exercising powers under the specialized legislative scheme. This is the case with pipelines both in Alberta and, federally, under NEB jurisdiction. Other provinces also have specialized legislative regimes applicable to pipelines.

The specialized legislative regime takes precedence over other laws of more general application. Where an issue is covered by the special legislation, general legislation which is inconsistent with the special legislation will cease to apply. However, specialized pipeline legislation does not address all the issues that may arise during the operating life of a pipeline. Nor are general laws always inconsistent with special laws. Oil spills, for example, will attract both the attention of the specialized pipeline regulator and also the attention of those responsible for enforcing more general environmental protection legislation. In addition, the spill may attract liability under common law principles both in tort, negligence or nuisance, and also contract where, for example, the pipeline has acquired a right-of-way from a landowner and has undertaken contractually to be responsible for any damage.

As noted above, specialized legislation takes precedence over general legislation to the extent of inconsistency but can also operate harmoniously with general legislation. Whether the special takes precedence over the general or the two can operate harmoniously is a question of interpretation. Where the question is the application of provincial legislation in relation to federal legislation, the constitutional doctrine of "paramountcy" also applies. Stated simply, in a case of conflict, federal law takes precedence over provincial law. For example, if a federally regulated railway were specifically required, under federal law, to burn weeds on its right-of-way, then provincial law prohibiting the burning of weeds would not apply. Federal laws governing railways do not specifically require burning of weeds but require only that weeds be controlled. This requirement can co-exist with provincial laws prohibiting burning.[1]

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[1]See e.g. Ontario v. Canadian Pacific Railway Limited, [1995] 2 S.C.R. 1028 (Jan.24 1995).

Federal laws and provincial laws can, therefore, operate harmoniously where the provincial law does not conflict with the federal law. This is also a matter of interpretation. So, for example, an oil spill from a rupture of a federally regulated pipeline could also attract liability under provincial environmental protection legislation if, for example, prompt and proper steps were not taken to clean up the spill. Determining legal responsibility is one thing. The responsible party must also, as a matter of fact, be available and have the ability to act. In the case of an operating pipeline, the pipeline operator is there to do the cleanup and make good on the loss. This is reinforced by the presence of a specialized regulator with primary responsibility to ensure that the operator does what should be done in relation to the pipeline.

Federal laws and provincial laws can, therefore, operate harmoniously where the provincial law does not conflict with the federal law. This is also a matter of interpretation. So, for example, an oil spill from a rupture of a federally regulated pipeline could also attract liability under provincial environmental protection legislation if, for example, prompt and proper steps were not taken to clean up the spill. Determining legal responsibility is one thing. The responsible party must also, as a matter of fact, be available and have the ability to act. In the case of an operating pipeline, the pipeline operator is there to do the cleanup and make good on the loss. This is reinforced by the presence of a specialized regulator with primary responsibility to ensure that the operator does what should be done in relation to the pipeline.

There is, therefore, in the case of an operating pipeline, a clearly identifiable legal and factual locus of control and responsibility for the pipeline in the pipeline operator which is supported by effective oversight under the special legislative scheme. Abandonment can change the legal and factual locus of control and responsibility and may also involve the termination of special regulatory oversight.

The goal of a sound abandonment plan is, in essence, to put the abandoned line into a condition where, if the line is abandoned in place, the risk to public safety and the environment in the years to come is at an acceptable level. It follows, from a legal perspective, that the essence of the legal question is to determine whether the specialized laws that govern pipelines do or do not support the maintenance of effective control over the line by the pipeline operator in light of the risk of any undesirable future event related to a line abandoned in place from the perspective of public safety and environmental protection. There is also an issue as to how laws of general application, including common law, may apply should something unfortunate happen and damage result.

In that regard, several general areas require examination. Where abandonment leads to the pipeline company ceasing to have ownership or control of the line, there is an issue as to whether landowners are aware of and accept this consequence of abandonment. Where abandonment leads to the termination of a specialized regulatory regime, there is an issue as to whether those responsible for enforcing laws of general application are aware of this situation and are in a position to exercise their authority effectively. This is especially so where the specialized regulatory regime is federal such that the termination of federal oversight results in potentially increased responsibility at the provincial level in respect of laws of general application.

Section 3 - Overview

This section contains an overview of the information contained in the Appendices.

National Energy Board

A company authorized to operate a pipeline may not abandon the operation of the pipeline without leave of the NEB. The NEB is explicitly authorized under the NEB Act to make an abandonment order subject to the satisfaction of conditions precedent but has no explicit authority to attach conditions subsequent to an abandonment order. That is, the NEB can make the abandonment order come into effect at a future time where the various steps involved in abandoning the line have been completed. However, the absence of an express provision to impose conditions which would continue after the abandonment order comes into effect, has led the NEB to conclude that it has no authority to attach conditions subsequent to an abandonment order.[2]

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[2] NEB Reasons for Decision, MH-1-96, Manito Pipelines Lytd., July 1996. This decision is presently ythe subject of a leave to appeal application to the Federal Court of Appeal brought by an intervenor in the Manito proceeding.

The NEB has the power to make regulations governing the abandonment of a pipeline. The current regulations [3] are relatively brief in nature and are both procedural and technical in nature. The regulations are consistent with the NEB exercising a broad public interest discretion to deal with abandonment on the facts of the particular case. To the extent that the current regulations include technical provisions, such as the continuation of cathodic protection after the line is abandoned, there is a question as to the scope of these provisions in light of the interpretation of the NEB Act found in the Manito decision.

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[3] The regulations are currently under review and may be amended.

A company has the power, for the purposes of its pipeline undertaking, and subject to the NEB Act, to sell or dispose of any of its land or property that has become unnecessary for the purpose of the pipeline or may discontinue any of its pipeline works. The Manito case involved the abandonment of a line in place together with a decision by the pipeline company that the line and the related land was unnecessary for the purpose of the pipeline. The NEB determined that, upon the abandonment order coming into effect and the pipeline company declaring the property in which the abandoned pipeline is situated to be surplus to pipeline requirements, NEB jurisdiction over the abandoned pipeline would come to an end. As a result, the NEB has adopted a regulatory approach of requiring pipeline companies to satisfy conditions precedent before an abandonment order can take effect. The condition precedent regulatory approach was applied in 1996 in the Manito Pipeline Ltd.

abandonment application and in an application by Yukon Pipeline Limited for leave to abandon the Canadian portion of the Skagway, Alaska to Whitehorse, Yukon oil pipeline.

There does not appear to be a clear NEB precedent with respect to a situation where, although a section of line is permanently abandoned in place , the company retains the land for the purposes of an ongoing pipeline undertaking. This may occur where the company operates multiple lines in a common easement.

The operators of NEB pipelines almost universally are the owners or have an ownership interest in the pipeline. There are many practical reasons why this is the case. However, it is possible under the NEB Act that a non-owner could obtain authorization to construct and operate a pipeline. There may be perfectly good reasons why such an arrangement would be sensible and proper. There are also complexities, for example, land acquisition or financing, which make this unlikely in the case of any major pipeline. The distinction between ownership and operation is noted simply because, in a case where NEB jurisdiction comes to an end, ownership may become more significant in determining liability in respect of any event which may occur subsequent to the line being abandoned.

The question of notice of an abandonment application is a matter in the discretion of the NEB. The NEB determines, on a case by case basis, the persons to whom notice should be given. As a general matter, however, in cases where landowners may be affected, the NEB does seek information from an applicant with respect to the process followed by the company in dealing with landowners and landowner concerns.

The pipeline operator may hold the land rights necessary for the operation of its line by agreement with landowners or by a right of entry order issued by the NEB.

Alberta

In Alberta, a person authorized to operate a pipeline is granted a licence. The licensee may not abandon the line without approval from the EUB. The regulations require that an application for abandonment include information with respect to the ownership after abandonment, where it is abandoned in place, and information as to the notification given to landowners and occupants affected by the proposed abandonment.

If authority to abandon is granted, the regulations provide that the licensee continues to be responsible should anything further become necessary in respect of the abandoned line in the future. No time limit is specified. The licencee remains responsible in perpetuity.

The EUB presently has no express authority to order a licencee to abandon a pipeline but has ordered pipelines to be abandoned under its general power to make orders necessary to give effect to the purposes of the Energy Resources Conservation Act. The issue has been reviewed by the Orphan Facilities, Pipelines and Reclamation Sub-Committee.

A licensee will generally be the owner or have an ownership interest in the line but a licence can be granted to a non-owner.

The land rights required for the operation of a pipeline may be obtained by agreement with landowners or by a right of entry order issued by the Surface Rights Board.

Reclamation is governed under the Alberta Environmental Protection and Enhancement Act. This Act, together with the regulations, imposes an obligation on a pipeline operator to reclaim any land that is being or has been used or held in connection with the construction, operation, or reclamation of the pipeline. The definition of an operator under this Act is broader than that of a licencee under the Pipeline Act. At one time, the regulations were worded to include an explicit reference to "the construction, operation or reclamation of an extra-provincial undertaking". This language could have applied to a pipeline abandoned pursuant to NEB authority. However, the regulations have recently been amended to delete this reference to extra-provincial undertakings. This amendment may suggest that the regulations do not apply to pipelines abandoned pursuant to NEB authority, although the issue is not entirely clear.

The reclamation process leads to the issuance of a reclamation certificate. The regulations provide that further reclamation work may not be ordered after the date of the reclamation certificate. A right of entry order or an easement remain in effect until the reclamation certificate is issued. The obligations of the pipeline licencee under the Pipeline Act will, however, continue in perpetuity.

Contractual Liability

The contractual arrangements with landowners may provide for reclamation, payment of damages, indemnity and other liability. Such provisions would typically be included in a right-of-way agreement. The contractual obligations with respect to reclamation, damage, indemnity and liability may survive abandonment of the pipeline and the termination of the right-of-way. As a result, depending on the particular agreement, a landowner may have contractual rights which continue after the line has been abandoned and the right-of-way has terminated.

Tort Liability

The failure of a pipeline company to meet the relevant standard of care in abandoning the pipeline could result in liability to anyone suffering loss as a result although a pure economic loss may not be compensable. The landowner may, depending on the circumstances, also be responsible for any injury or damage caused by improper abandonment but could likely receive contribution and indemnity from the pipeline company.

NEB Act Liability

Section 75 of the NEB Act provides that a pipeline company make full compensation for all damages from its pipeline operations. Although it is unlikely that this provision continues to have application if, as a consequence of an abandonment, the NEB Act ceases to apply to that pipeline, it is also true that similar obligations may arise under common law principles.

Surface Rights Act Liability

Section 33 of the Alberta Surface Rights Act gives the Surface Rights Board authority to order a pipeline operator to pay compensation, not exceeding $5000, for damage caused by the operations of the operator.

Land Registration Issues

Under the land titles system, the registration of a discharge of a right-of-way agreement would rid the title of the registration. However, the cessation of a right-of-way does not lead to automatic registration of a discharge since someone must take the step of registering a discharge. To determine if there had been a pipeline right-of-way on the property after a discharge has been registered, it would be necessary to do an historical search in respect of that property. Historical searches are not commonly done in land titles jurisdictions so that the presence of an abandoned line on the property may not come to the attention of a purchaser through the land titles system. Knowledge of the presence of the line would likely depend on the purchaser's general knowledge of the area or upon disclosure by the vendor.

Where a right of entry order remains in effect then this will be reflected on the title.

The plans, profiles, and books of reference which NEB pipeline companies are required to file with land registrars are maintained as a permanent record by the various registry and land titles offices. A title search under a registry system would disclose the presence of these plans and the plans could then be reviewed. Given the paper burden at many registry offices, actually accessing such records may involve some delay and require some persistence. Under the land titles system, while these records would be maintained in perpetuity, the presence of the abandoned pipeline may not be evident on the title of the property in the absence of an historical search which, as noted, is not customarily done.

In Alberta, the EUB maintains maps of all pipelines under its jurisdiction, both the operational and abandoned lines, in a form which permits a search to be made in relation to a specific property. NEB regulated pipelines in Alberta are also shown on these maps.

Section 4 - Discussion and Observations

Response to Questions from the Steering Committee

1. Questions 1, 8 and 9:
   If a caveat is removed, does ownership of the pipeline revert to the landowner?
   Under what conditions would the land title caveat be released for an abandoned pipeline?
   Should someone be responsible to ensure a caveat is released, if appropriate?

   (Response to 1, 8, & 9) Termination of the right-of-way may result in ownership of the pipeline reverting to the landowner. This will be by virtue of the terms of the right-of-way agreement and the fact of abandonment. As with a mortgage which has been paid off but not formally discharged, the right-of-way agreement could remain registered against the title if no active step is taken to discharge the registration. However, under Alberta law, where there is no right-of-way agreement but a right of entry order instead, then it is doubtful that the owners of the land would have any ownership in the line after abandonment. In Alberta the pipeline licencee has a perpetual obligation in respect of a line abandoned in place. In addition, where the pipeline company owns the land outright then the issue does not arise.

2. Question 2:
   Should a landowner be obliged to accept ownership and understand liability before a caveat is removed?

   The landowner's rights will normally have been established at the time the right-of-way agreement has been entered into. Under Alberta law, if there is no agreement but a right of entry order instead, the landowner will not likely acquire any ownership. This is because, although the rights to the land will revert to the landowner, the pipeline licencee remains responsible for the pipeline under the Pipeline Act and has a right to enter the land if needed to carry out that responsibility. It may be, therefore, under the Alberta scheme that the landowner never acquires any ownership rights or liabilities in the pipe. At the federal level, the right of entry order would terminate with the termination of NEB jurisdiction. As discussed, NEB jurisdiction has been determined to come to an end with the coming into effect of an abandonment order and the declaration of the pipeline company that the land is surplus to pipeline requirements. At that time, the pipeline could appear to become a part of the land owned by the landowners although this could require the pipeline company to take a positive step in furtherance of its declaration that the land is surplus to pipeline requirements, for example, by registering a quit claim deed. The landowner's awareness of the abandonment taking place, together with the contractual and regulatory implications of abandonment, will be a function of the procedure followed during the abandonment process.

3. Questions 3, 4, and 5:
   Who is responsible for granting approval to cross abandoned pipelines?
   Is a crossing agreement necessary, if a pipeline is properly abandoned?
   Should a crossing agreement be required, if ownership is transferred to landowner and caveat removed?

   (Response to 3, 4, & 5) If at the federal level regulatory jurisdiction over the line ceases as a consequence of abandonment and a subsequent declaration of the pipeline company that the lands are surplus to pipeline requirements, then any federal regulatory requirements for crossings also cease. The line abandoned in place simply becomes a part of the land. In the absence of a declaration by the company that the lands are surplus to pipeline requirements, a crossing agreement would be required. In Alberta, a crossing agreement may be required since an abandoned pipeline remains subject to regulatory authority, however, this is not usually a matter of practical concern.

4. Question 6:
   Who is responsible for further abandonment requirements at a later date, such as when removal is necessitated by land development?

   In the absence of clear statutory authority, the land developer would be responsible for doing what is necessary in respect of the development. In this respect, the removal of pipe in the ground would be similar to the removal of trees and rocks or the foundations of a previous building on the site. In Alberta, there is statutory authority on this issue. The EUB retains jurisdiction to determine whether the pipeline licencee or the developer should bear the costs of removing the pipe.

5. Questions 7, 12 and 13:

What is the extent of corporate liability on abandoned in-place pipelines and how long should it continue?
What are the corporate liabilities (environmental damage, personal injury) for pipeline abandonment?
If a pipeline is left in the ground, can a pipeline company ever eliminate its long-term liability?

(Response to 7, 12, & 13) As noted above in the Overview, the liability of a pipeline company may continue, post abandonment, as a result of continuing contractual obligations or through the application of principles of tort liability. Environmental contaminants legislation also generally has the ability to reach back in the event there was a failure to follow proper abandonment procedures and contamination resulted. Under the Alberta pipeline abandonment regulations, there is the possibility for further orders to be made post-abandonment with the result that there is a perpetual liability in the licencee.

6. Question 10:
   Should procedures be developed to deal with orphan pipelines that are similar to those being developed for orphan wells?
   The question of orphan pipelines is an issue related to a factual problem. That is, the legally responsible party is no longer available, as a matter of fact, to make good on the legal obligation. This is, therefore, primarily a policy not a legal question. However, where regulations do not require that an unused line should, at some point, be abandoned, then the absence of such a legal requirement could contribute to the creation of orphans. In addition, the legal obligation on the part of a pipeline operator may exceed the life in fact of the operator. The degree of concern on this issue may also depend on the particular circumstances. As noted above, the goal of a sound abandonment plan is to put the abandoned line into a condition where, if abandoned in place, the risk to public safety and the environment in the years to come is at an acceptable level. Some lines may in fact pose no real risk following a proper abandonment. Also, as noted above, in Alberta the Orphan Facilities, Pipelines and Reclamation Sub-Committee is reviewing the concern regarding orphan production lines. The larger transmission lines are outside the scope of the sub-committee's work.

7. Question 11:
   Under what conditions would a licence or approval be cancelled after abandonment?

   Under the NEB process, the order granting abandonment has the effect of terminating the approvals given to operate the line. In Alberta, the status of the line changes with the granting of approval to abandon but the licence does not terminate and the licencee remains liable for further orders of the EUB. This applies regardless of whether the pipeline is abandoned in place.

8. Question 14:
   What, if any, are landowner obligations with respect to an abandoned pipeline?

   A landowner, as noted above in the Overview, may be liable in the event of loss or injury suffered as a consequence of improper abandonment, subject to a right of contribution and indemnity against the pipeline company. Environmental contaminants legislation might also impose obligations on a landowner in the event of

contamination resulting from improper abandonment. In Alberta, the pipeline licencee remains liable in perpetuity with the result that the landowner may not acquire any liability.

9. Question 15:
   Is signage required at locations of abandoned pipelines?

   Signage is a common regulatory requirement and, in Alberta, the signage obligation continues after abandonment. However, if regulatory jurisdiction ceases then the regulatory requirement for signage would also cease. Signage is, quite apart from regulatory requirements, a prudent practice in respect of an operating pipeline. If it were sound practice in respect of the particular circumstances of an abandonment to maintain signage, then the maintenance of signage would be supported by the potential liability which could be attracted if someone suffered damage which was contributed to by the lack of signage. In other words, principles of tort liability may reinforce a practice of signage if, as a matter of fact, signage were the prudent industry practice.

Post-Abandonment Regulatory Oversight

As seen in the Overview, above, there are differences between the federal and Alberta regulatory regimes. The Alberta regime provides for perpetual regulatory oversight of a line abandoned in place. The licencee is, therefore, subject to a perpetual responsibility for the line. At the federal level, the NEB has determined, in the case of a line abandoned in place coupled with a determination by the pipeline company that the line and the related land are unnecessary for the purpose of the pipeline, that NEB jurisdiction over the line comes to an end. Any continuing legal responsibility for the line would be determined under any applicable provincial legislation, contractual agreements, or principles of tort liability. There is, therefore, a significant difference between the regulatory regimes. The Alberta regime provides for continuing specialized regulatory oversight to address any future unforeseen event, no matter how remote. By contrast, at the federal level, regulatory jurisdiction has been determined to come to an end where the line is abandoned and the pipeline company has determined that the line and associated land are no longer required for the purposes of the pipeline.

As noted in the discussion of the Central Issues, above, the essence of the legal question in the case of abandonment is to determine whether the specialized laws that govern pipelines do or do not support the maintenance of effective control over the line by the pipeline operator until the point at which the risk of any undesirable future event related to a line abandoned in place is acceptable from the perspective of public safety and environmental protection. The policy question raised is whether it is acceptable to relieve the pipeline operator from such risk as may remain, and if so when. In Alberta, regulatory authority continues in perpetuity. Some facilities may be capable of being rendered acceptably safe at the time of abandonment so that there may be little or no concern post-abandonment. The question as to whether continued supervision should be perpetual, or something less, turns on the broader issue of whether, and if so when, it is acceptable to relieve pipeline operators from any residual risk. For example, in the case of many oil and gas facilities which have been abandoned and subject to the reclamation process, the responsibility for further reclamation continues for five years following the issuance of the reclamation certificate. In any review of abandonment procedures which may result from the work of the Steering

Committee, it may be desirable to distinguish between those situations which may warrant ongoing supervision, including the nature and duration of supervision, and those situations which may warrant a different approach. This could be reflected in any revised regulatory requirement. Common law obligations might also be taken into consideration in any such review of regulatory requirements. Consideration might also be given to establishing or authorizing entities whose objective is to provide the care which may be required after a line is abandoned and so assume the obligations and the liabilities.

Where federal regulatory oversight would end on the coming into effect of an abandonment order, the NEB approach is to require that all steps necessary to render the line acceptably safe be taken prior to the coming into effect of the abandonment order. If it were, for the sake of discussion, considered desirable in connection with the particular circumstances of any pipeline to be abandoned that some continuing regulatory oversight should be maintained, then this would occur only by virtue of the application of provincial legislation. It is not clear, in the case of Alberta, that the specialized legislation governing pipelines would have any application to such a situation. In addition, the pipeline operator would undoubtedly be concerned as to the application of conflicting federal and provincial approaches to abandonment. For example, if it were considered by the NEB to be appropriate to abandon a facility in place subject to the pipeline operator taking appropriate steps and incurring the costs associated with those steps, the pipeline operator would wish to be assured that the federal and provincial approaches to the situation were consistent and could operate harmoniously.

Pipeline operators, as well as other affected interests, seek certainty as to the application of the law. The common law carries with it some uncertainty although parties do have some freedom as to how to allocate or manage the risk of future liability. Both the federal and Alberta legislative regimes provide for certainty in some respects but uncertainty in others. The Alberta regime provides the certainty of perpetual regulatory authority but this implies the uncertainty associated with a perpetual, indefinite obligation. Some certainty with respect to the latter can, as noted, be achieved through the development of more comprehensive abandonment practices and requirements following the work of the Steering Committee. The NEB regime provides for certainty as to the termination of federal jurisdiction while leading to some uncertainty as to the application of provincial laws. One approach to this uncertainty may lie through federal/provincial co-operation. Another approach may involve an amendment to the NEB Act to at least provide an express power to impose conditions subsequent to permit the NEB to establish standards of care for a reasonable period of time in the post-abandonment period where circumstances warrant. It may also be desirable to consider amendments that would provide a specific power to prevent a pipeline operator from declaring abandoned pipelines, including pipeline right-of-way, to be surplus to pipeline requirements or to thereafter divest its property interests. Additional specific powers to provide for the mitigation of third party liability or environmental remediation might also be considered by policy-makers. Revisions to the statutory definition of "pipeline" in section 2 of the National Energy Board Act may also be necessary if such policy views were to be brought to fruition.

Landowner Concerns

As noted above, a landowner may be unaware of the presence of an abandoned pipeline on the land in the absence of an unusual historical search. This is the situation where land registration is under the land titles system. The EUB does maintain a registry which permits

a search to be made of the location and status of pipelines in Alberta both under EUB and NEB jurisdiction. This complements the land registration system. Under the Alberta regime, an abandoned line of pipe may never become the responsibility of the landowner. This may lead to a situation where a piece of long-abandoned pipe, which as a practical matter has long since ceased to be of any interest to the regulator or the licencee, may still be subject to the jurisdiction of the EUB.

Under the federal regime, where the NEB ceases to exercise jurisdiction over an abandoned line, the title to the land may be cleared of any right-of-way agreements, and the awareness of any subsequent landowner of the presence of the abandoned line may depend on undertaking an unusual historical search or upon actual notification from the prior owner. In addition, apart from Alberta, there is no mechanism in place for making provincial authorities aware of the presence of the abandoned line. As noted, the Alberta EUB does maintain a record of NEB pipelines in Alberta which will include the status of the line.

Power to Order a Line to be Abandoned

The Alberta regime does not contain an express provision authorizing the EUB to require a line to be abandoned. However, the EUB has exercised its general powers to order a line, the use of which has been discontinued, to be abandoned and an amendment to the legislation to provide a specific power is being considered. The federal regime also contains no express provision authorizing the NEB to direct that a line be abandoned although the regulations, as presently drafted and, similar to Alberta legislation, do provide that a line which has been inoperational for more than 12 months but which has not been abandoned cannot be reactivated without leave of the NEB. There may be circumstances where it is desirable to order that a line be abandoned. This may assist in preventing a line from becoming an "orphan".

Federal/Provincial Co-operation

In light of the circumstances noted above where the NEB may cease to exercise jurisdiction in respect of an abandoned line, there may be a need for increased federal/provincial co-operation in respect of such lines. This would ensure, among other things, that pipeline operators are not subject to conflicting requirements with respect to abandonment. This would also ensure that provincial authorities are in possession of the information they may need to exercise their appropriate jurisdiction. Amendments to provincial legislation may be required to ensure that provincial authorities can exercise jurisdiction over abandoned lines.

Appendix 1

PIPELINE ABANDONMENT LEGAL WORKING GROUP TERMS OF REFERENCE

Background

The issue of pipeline discontinuation and abandonment and the potential impact to the

environment is a concern to industry, regulators and the public. Over the next several years, abandonments will be prevalent as wells and reservoirs are depleted. The Canadian Association of Petroleum Producers (CAPP), the Canadian Energy Pipeline Association (CEPA), the Alberta Energy and Utilities Board (EUB) and the National Energy Board (NEB) have established a steering committee and a number of working groups to address the various issues related to pipeline abandonment.

Mission Statement of the Pipeline Abandonment Legal Working Group

The Pipeline Abandonment Legal Working Group (PAL) with input from the Steering Committee will identify and examine the legal liability issues related to the discontinuation and abandonment of pipelines and associated facilities related to the oil and gas industry and provide a discussion paper of the legal issues related to pipeline abandonment.

Scope

- All pipelines within the scope of the CSA Standard Z662-94 and as identified in the draft document **"Pipeline Abandonment- A Discussion Paper on Technical and Environmental Issues"**, dated July 1996.
- Facilities associated with the pipelines such as headers, above ground valve assemblies, drip pots, catholic protection beds and sinage, but not above ground facilities, i.e. meter stations, compressor stations, pump stations, etc.
- Identify potential legal liabilities associated with pipe removal or abandonment in place and suggest practical measures to deal with legal concerns. Specifically, review, but not be limited to, the issues identified in **Attachment #1**.
- Maintain close liaison with Steering Committee and other stakeholders to ensure broad input in evaluating the legal liabilities.

Membership

CAPP
CEPA
EUB
Alberta Energy
NEB

ATTACHMENT #1

LEGAL LIABILITIES

The following list of legal issues have been identified by the EUB and members of the Environmental and Technical Abandonment Working Groups. The list may not be exhaustive but should be used as a starting point for review of the legal issues associated with pipeline abandonment.

1. If a caveat is removed, does ownership of the pipeline revert to the landowner?
2. Should a landowner be obliged to accept ownership and understand liability before a caveat is removed?

3. Who is responsible for granting approval to cross abandoned pipelines?
4. Is a crossing agreement necessary, if a pipeline is properly abandoned?
5. Should a crossing agreement be required, if ownership is transferred to landowner and caveat removed?
6. Who is responsible for further abandonment requirements at a later date, such as when removal is necessitated by land development?
7. What is the extent of corporate liability on abandoned in-place pipelines and how long should it continue?
8. Under what conditions would the land title caveat be released for an abandoned pipeline?
9. Should someone be responsible to ensure a caveat is released, if appropriate?
10. Should procedures be developed to deal with orphan pipelines that are similar to those being developed for orphan wells?
11. Under what conditions would a licence or approval be cancelled after abandonment?
12. What are the corporate liabilities (environmental damage, personal injury) for pipeline abandonment?
13. If a pipeline is left in the ground, can a pipeline company ever eliminate its long-term liability?
14. What, if any, are landowner obligations with respect to an abandoned pipeline?
15. Is signage required at locations of abandoned pipelines?

Appendix 2A

ALBERTA ENERGY AND UTILITIES BOARD

PIPELINE ABANDONMENT PROVISIONS

PIPELINE ACT

SECTION 2

2. Except as otherwise provided in this Act, this Act applies to all pipelines in Alberta other than

(a) a pipeline situated wholly within the property of a refinery, processing plant, coal processing plant, marketing plant or manufacturing plant.

(b) a pipeline for which there is in force

(i) a certificate, or

(ii) an order exempting the pipeline from a certificate,

issued or made by the National Energy Board under the National Energy Board

Act (Canada).

(d) a pipe transmitting gas or oil for use as fuel from a tank that is situated wholly within the property of a consumer and the installations in connection with that pipe,

(f) a boiler, pressure vessel or pressure piping system within the meaning of the Boilers and Pressure Vessels Act.

RSA 1980 cP-8 s2;1984 c32 s3;1985 c46 s3;1991 cS-06 s70(10)

Commentary

The Alberta Energy and Utilities Board ("EUB") governs the construction, operation and abandonment of pipelines in Alberta pursuant to the *Pipeline Act*, R.S.A. 1980, c. P-8 ("*Pipeline Act*" or "Act"). The scope of application of the Act is set out in the above provision. Subsection (b) exempts pipelines regulated by the National Energy Board ("NEB") as long as there remains an NEB certificate in force in respect of the pipeline. Notwithstanding the Manito decision by the NEB, it is not clear whether pipelines which were regulated by the NEB at one time and which are now abandoned fall within the jurisdiction of the EUB and Alberta Environmental Protection once they have been abandoned.

The Act also defines the term "pipeline" in section 1(1)(s) in the following way:

(s) "pipeline" means a pipe used to convey a substance or combination of substances, including installations associated with the pipe, but does not include

(i) a pipe used to convey water other than water used in connection with a facility, scheme or other matter authorized under the Oil and Gas Conservation Act or the Oil Sands Conservation Act,

(ii) a pipe used to convey gas, if the pipe is operated at a maximum pressure of 700 kilopascals or less, and is not used to convey gas in connection with a facility, scheme or other matter authorized under the Oil and Gas Conservation Act or the Oil Sands Conservation Act, or

(iii) a pipe used to convey sewage;

The EUB maintains a pipeline mapping service which tracks all pipelines in Alberta, whether abandoned, suspended or in operation. The only exception to the detail of these records is that status (i.e. whether the pipeline is abandoned, suspended or in operation) updates are not currently available for NEB regulated pipelines. However, there is a harmonization initiative with the NEB to incorporate pipeline status information into EUB records in the near future. Members of the public can obtain pipeline mapping, by township, at the EUB's Information Services Department. More detailed mapping is maintained internally by the Board and may be obtained upon special request.

PIPELINE ACT

SECTION 3

3. The Board may make regulations

> *(e) as to the measures to be taken in the construction, operation, testing, maintenance, repair, discontinuation of operation, removal or abandonment of any pipeline for the protection of life, property and wildlife;*
>
> *(m) exempting a pipeline or class of pipeline from any provision of this Act or the regulations;*
>
> *(n) prescribing alternate provisions that may apply to a pipeline or class of pipeline exempted by a regulation made under clause (m);*

Commentary

The EUB's regulation-making powers in respect of pipelines are very broad, and pursuant to subsection (e) above, the Board may compel pipeline licensees to protect life, property and wildlife both during and after operations have ceased. The regulations currently promulgated pursuant to subsection (e) are discussed in more detail below.

A second point to make about the EUB's regulation-making powers is that the Board may, by regulation, exempt pipelines or classes of pipelines from application of certain of the Act's provisions. This allows the Board to tailor its pipeline operation and abandonment requirements depending on the circumstances of the particular application.

PIPELINE ACT

SECTIONS 7, 11, 19 and 20

7. (1) No person shall construct a pipeline or any part of a pipeline or undertake any operations preparatory or incidental to the construction of a pipeline unless he is the holder of a permit or unless he is acting pursuant to a direction of the Board under section 34 authorizing him to do so.

11. (1) A permit for a pipeline may be granted by the Board subject to any terms and conditions expressed in the permit or the Board may refuse to grant a permit.

19. (1) No person shall operate a pipeline for any purpose unless he is a licensee.

(2) No person shall operate a pipeline unless the pipeline has first been tested pursuant to the regulations or as otherwise approved by the Board, and been found to be satisfactory.

(3) A permittee is a licensee for the purposes of subsection (1) during the term of the permit and, subject to subsection 92), may operate a pipeline.

1975(2) c30 s19;1985 c46 s19

20. (1) The Board may grant a licence to an applicant subject to any terms and conditions expressed in the licence, or the Board may refuse to grant a licence.

1975(2) c30 s20;1983 c27 s7(1);1985 c46 s20

Commentary

The Act provides that a person/company wishing to construct a pipeline must first obtain a permit to construct which the Board may issue pursuant to section 11 on any terms and conditions it considers appropriate and within their jurisdiction to impose. Likewise, section 19 of the Act prohibits anyone from operating a pipeline without a licence to operate which the Board may issue pursuant to section 20 (which may also have terms and conditions attached).

The "permittee" or "licensee" of the pipeline is the party responsible for the workings and undertakings given, including abandonment, in respect of the pipeline under the *Pipeline Act*. Although several parties may have some ownership interest in a pipeline, the permittee/licensee is normally (also) an/the owner. However, ownership is not required and there are instances where the licensee has no ownership interest especially in older pipelines.

Because industry practice revealed that the pipeline permittees normally become pipeline licensees within a short time after the permit to construct was issued, and two separate applications to the Board appeared unnecessary and redundant, the Energy Resources Conservation Board (predecessor to the EUB) issued Interim Directive ("ID") 94-6 to consolidate the permit to construct and licence to operate. The key features of the revised permit/licence procedures as provided for in ID 94-6 are as follows:

- Applicants will receive a combined permit/licence which grants permission to construct, commission, and operate. The licence does not take effect until the permit expiry date indicated on the permit/licence, 6 months after the permit approval date.
- Computerized records kept by the Board indicating pipeline status will automatically change from permitting status to operating status 6 months after the permit approval date unless a permit amendment application or time extension request has been filed by the applicant before that time. The onus is therefore on the applicant to update its pipeline status with the Board. The Board will charge a $550 ($1100 for pipelines in excess of 5 kilometres) processing fee for record change requests after the permit has expired.

PIPELINE ACT

SECTIONS 32 and 33

32. A licensee shall not

(a) suspend the normal operation of a pipeline, except in an emergency or for

repairs or maintenance or in the ordinary course of operating the pipeline,

(b) discontinue the operation of a pipeline, or

(c) resume the operation of a pipeline previously discontinued,

without the consent in writing of the Board or in accordance with an order of the Board.

1975(2)c30 s32

33. (1) Except in the ordinary course of making repairs or of maintenance, no pipeline or part of a pipeline may be taken up, removed or abandoned without the consent of the Board and the consent of the Board may be given subject to any terms and conditions the Board prescribes.

(2) The Board may cancel the licence or amend the licence because of the taking up, removal or abandonment of the pipeline or any part of the pipeline.

1975(2) c30 s33

Commentary

The Board must be notified and their consent obtained before operations on a pipeline are discontinued or the pipeline is taken up, removed or abandoned. "Abandonment" is defined in section 1(2)(a) of the Regulation as "the permanent deactivation of a pipeline or part of a pipeline, whether or not it is removed". This definition may be contrasted with that of "discontinue" in the Regulation, section 1(2)(f), which means "the temporary deactivation of a pipeline or part of a pipeline where the licence remains in effect. The term "discontinue" is used interchangeably with the term "suspend" in the Act and the Regulation, and the two words have the same meaning.

The general information requirements for a discontinuance application are set out in section 60 of the Pipeline Regulation, which reads:

60. An application to the Board for consent to discontinue the operation of a pipeline or any part of a pipeline shall include

(a) 1 copy of the application form as set out in Schedule 3,

(b) 2 copies of the most recent Board Pipeline Base Map showing the pipeline or part of the pipeline proposed for discontinuance, coloured in green, and

(c) a statement concerning

(i) the reason for discontinuance, and

(ii) the proposed method for discontinuing operations.

(AR 316/87)

Further provisions of the regulations which relate to discontinuance of pipeline operations include the following:

61. On receipt by the applicant of the Board's consent to discontinue a pipeline or any part of a pipeline, the discontinued line or part of a pipeline shall be physically isolated or disconnected from any operating facility and left in a safe condition.

62. Corrosion control measures shall be maintained on a discontinued pipeline.

63. The Board shall be advised when work required for the discontinuation of the pipeline or any part of the pipeline has been completed.

The information which must be included in an application to the Board for consent for removal or abandonment of a pipeline is set out in section 66 of the Regulation, which reads:

66. An application to the Board for consent for removal or abandonment of a pipeline shall include

> *(a) 1 copy of the application form as set out in Schedule 3,*
>
> *(b) 2 copies of the most recent Board Pipeline Base Map showing the pipeline or part of the pipeline which is to be removed or abandoned, coloured in green, and*
>
> *(c) a statement regarding*
>
> > *(i) the reason for removal or abandonment,*
> >
> > *(ii) the method to be used for the removal or abandonment,*
> >
> > *(iii)ownership of the pipeline after abandonment if it is to be abandoned, and*
> >
> > *(iv) the notification of landowners and occupants affected by the proposed removal or abandonment.*

(AR 316/87)

Amongst the information required in the removal or abandonment application is notification to landowners and occupants affected by the proposed removal or abandonment. If a landowner or occupant objects to removal or abandonment or is concerned about ownership or liability for the pipeline after it has been abandoned in place, that person may raise these concerns with the Board at this time. Pursuant to section 31 of the Act, the Board may then give its consent to abandon subject to certain terms and conditions which will address the landowners'/occupants' concerns.

Section 66 of the Regulation also requires that the applicant furnish information to the Board concerning ownership of the abandoned pipeline. This requirement enables the Board to keep its records updated in the event it becomes necessary to track down the owner in the

future, for liability for damage or any other reasons. In this regard, section 69 of the Regulation is important to note, because it provides that the licensee continues to be responsible for any additional work which may be required on the pipeline, in perpetuity. It reads:

69. The Board's consent for an abandonment operation does not relieve the licensee or its assignee from the responsibility of further abandonment or other operations that may from time to time become necessary.

(AR 148/92)

Accordingly, although the Board has the power under section 33(2) of the Act to cancel a licence due to removal or abandonment of a pipeline, it has never done so because of section 69 of the Regulation. Once a licensee, always a licensee.

Specific requirements for abandonment and provision for notification to the Board of completion are also set out in the Regulation in section 67, which reads:

67. (1) On receipt by the applicant of Board consent to the abandonment of a pipeline or part of a pipeline, the pipeline or part of the pipeline to be abandoned shall be

(a) physically isolated or disconnected from any operating facility,

(b) cleaned if necessary and purged with fresh water, air or inert gas and left in a safe condition, and

(c) plugged or capped at all open ends.

(2) If a pipeline or part of a pipeline is removed or abandoned, the licensee shall advise the Board when all work is required to remove or abandon the pipeline or part of the pipeline has been completed.

(AR 148/92)

Other Post-Abandonment Considerations

Section 34 of the Act illustrates how far-reaching the Board's powers are over pipeline licensees. Even after a pipeline has been abandoned in place, the Board may direct the licensee to, *inter alia*, alter or relocate any part of the pipeline, and allocate costs of that work to be apportioned as the Board sees fit. That section reads:

34. (1) When in its opinion it would be in the public interest to do so, the Board may, on any terms and conditions it considers proper, direct a permittee or licensee

(a) to alter or relocate any part of his pipeline,

(b) to install additional or other equipment on his pipeline, or

(c) to erect permanent fencing on the right of way or provide any other

protective measures within the controlled area that the Board considers necessary.

(2) Where the Baord directs the alteration or relocation of a pipeline, the installation of additional or other equipment on a pipeline, the erection of fences or the provision of other protective measures within the controlled area, it may order by whom and to whom payment of the cost of the work and material, or either, shall be made.

(3) If a dispute arises as to the amount to be paid pursuant to an order under subsection (2), it shall be referred to the Board and the Board's decision is final.

RSA 1980 cP-8 s34; 1981 c30 s9

Crossing Agreements

Third parties wishing to cross pipelines (i.e. cause a ground disturbance near a pipeline) must normally obtain a crossing agreement from the pipeline licensee to do so, pursuant to the requirements set out in section 31.1 of the Act and sections 21 and 22 of the Regulation. No exception is made for abandoned pipelines in these provisions. However, in practice, crossing agreements are not normally obtained in respect of abandoned lines, especially if the licensee is defunct or cannot be located. In those instances, third parties who wish to create a ground disturbance where a pipeline is in place should seek guidance from EUB staff as to what precautions must be taken. The EUB's practice has been to issue a letter of permission to cross the pipeline in instances where the licensee is not available to give permission.

Signage Requirements

Section 23 of the Regulation sets out the requirements for pipeline warning signs, for example to be erected where a pipeline crosses a highway, road, railway or watercourse. These requirements continue after a pipeline has been abandoned in place, and so must be continuously maintained by the licensee despite abandonment.

PIPELINE ACT

SECTION 37

37. (1) When a substance escapes from a pipeline and it appears to the Board that the substance may not otherwise be contained and cleaned up forthwith, the Board may

> *(a) direct the pipeline operator or licensee, or those pipeline operators or licensees who in the opinion of the Board could be responsible for a pipeline from which the substance escaped, to take any steps that the Board considers necessary to contain and clean up, to the satisfaction of the Board and the Department of Environmental Protection, the substance that has escaped and to prevent further escape of the substance, or*

(b) enter on the area where the substance has escaped and conduct any operations it considers necessary to contain and clean up the substance that has escaped and to prevent further escape of the substance.

(2) When the Board enters on an area pursuant to subsection (1)(b),

(a) every person responsible for the escape of the substance, every pipeline operator or licensee who in the opinion of the Board could be responsible for a pipeline from which the substance escaped and every officer and employee of that person, operator or licensee shall, until the operations to be conducted by the Board are completed, obey the orders concerning those operations given by the Board or a person or persons the Board places in charge of those operations;

(b) the Board may recover, deal with and dispose of the escaped substance as if it were the property of the Board, and if any such substance is sold, apply the proceeds to pay the costs and expenses of the operations conducted by the Board;

(c) the Board may engage any persons it considers necessary to conduct any of the operations on its behalf.

(3) When any operations are conducted pursuant to this section

(a) by an operator, licensee or other person under subsection (1)(a) and the operator, licensee or person requests the Board to do so, or

(b) by or on behalf of the Board under subsection (1)(b),

the Board may determine the costs and expenses of the operations and direct by whom and to what extent they are to be paid.

(4) No action or proceeding may be brought against a person named in a direction issued pursuant to subsection (1)(a) in respect of any act or thing done pursuant to the direction

RSA 1980 cP-8 s37;1994 cG-8.5 s85

Commentary

When harmful substances escape from a pipeline, whether or not the pipeline is in a pre- or post- abandonment stage, the EUB has the specific authority under section 37 to order that the substance be cleaned up forthwith by the "operators or licensees who in the opinion of the Board could be responsible for a pipeline from which the substance escaped". Alternatively, the Board may enter onto the site and clean up the substance itself and collect the costs by way of civil enforcement from the parties responsible for the pipeline.

Pursuant to subsection (1)(a), any clean up of an escaped substance must be performed to a standard which satisfies both the EUB and the Alberta Department of Environmental

Protection ("AEP"). As the title implies, AEP has jurisdiction over all matters of the environment and the EUB works closely with AEP to ensure that provincial environmental standards are complied with by the energy industry sector it regulates.

To illustrate further how the EUB and AEP cooperate in pipeline matters: in the initial stages of a pipeline, applications for a permit to construct/licence to operate, once received by the EUB, must be referred to the Minister of Environmental Protection and the Minister responsible for the *Public Lands Act* for their approval of the application as it affects matters of the environment (section 8 of the *Pipeline Act*). AEP's jurisdiction is also triggered when undertaking construction and abandonment of pipelines because that Department regulates conservation and reclamation activities pursuant to the *Environmental Protection and Enhancement Act* ("EPEA") and its regulations, which are discussed in more detail elsewhere in this report.

In September of 1994, the EUB (then the ERCB) issued Informational Letter ("IL") 94-17 which advises industry participants to notify conservation and reclamation inspectors of AEP of pipeline projects early in the planning stages of the pipeline project. The EUB considers AEP, as the administrator of EPEA, to be a directly affected party in any pipeline application to the EUB. Therefore, an applicant is required to discuss conservation and reclamation procedures with the regional Conservation and Reclamation Inspector to avoid delay in the initial approval of the pipeline application.

PIPELINE ACT

SECTIONS 51 and 52

51. (2) A person who

> *(a) whether as a principal or otherwise, contravenes any provision of this Act or of the regulations or of any order, direction, permit or licence under this Act,*
>
> *(b) either alone or in conjunction or participation with others causes any holder of a permit or licence to contravene any of those provisions, or*
>
> *(c) instructs, orders, directs or causes any officer, agent or employee of any holder of an approval, permit or licence to contravene any of those provisions,*

is guilty of an offence.

1975(2) c30 s51

52. A prosecution for an offence under this Act may be commenced within 18 months from the time when the subject matter of the proceedings arose, but not afterwards.

1975(2) c30 S52

Commentary

The above sections provide a penal remedy to the EUB should a party disobey an abandonment or clean up order, or otherwise contravene any other provision of the Act or regulations. Therefore, in addition to civil liability for certain clean up costs, a responsible party could incur criminal liability under the Act. The fines for committing an offence under the Act are set out in section 53, which reads:

53. (1) Subject to subsection (2), a person who is guilty of an offence under this Act is liable,

(a) if a corporation, to a fine not more than $10 000, or

(b) if an individual, to a fine of more than $ 5 000.

(2) A person who is found guilty of an offence under this Act that is a continuing offence is liable

(a) if a corporation, to a fine of nor more than $10 000 for the first day on which the offence occurs and not more than $5 000 for each subsequent day during which the offence continues, or

(b) if an individual, to a fine of not more than $5 000 for the first day on which the offence occurs and not more than $2 500 for each subsequent day during which the offence continues.

(3) A person other than a corporation who defaults in payment of a fine imposed for a continuing offence is liable to imprisonment for a term not exceeding 6 months.

1975(2) c30 s53; 1981 c30 s12

ENERGY RESOURCES CONSERVATION ACT

SECTIONS 1 and 2

1. In this Act,

(d) "environment"means the components of the earth and includes

(i) air, land and water,

(ii) all layers of the atmosphere,

(iii) all organic and inorganic matter and living organisms, and

(iv) the interacting natural systems that include components referred to in subclauses (i) to (iii).

RSA 1980 cE-11 s1;1992 cE-13.3 s246(5)

2. The purposes of this Act are

> *(d) to control pollution and ensure environment conservation in the exploration for, processing, development and transportation of energy resources and energy;*

1971 c30 s2

Commentary

The statute which created the ERCB and which outlines many of the Board's powers and the scope of its jurisdiction is the *Energy Resources Conservation Act*, R.S.A. 1980, c. E-11 ("ERCA"). The EUB inherited that jurisdiction pursuant to the *Alberta Energy and Utilities Board Act*, S.A. 1995, c. A-19.5. The above sections of the ERCA give a mandate of conserving the environment (which word is defined very broadly) to the EUB "in the exploration for, processing, development and transportation of energy resources and energy". This phrase includes pipeline projects. The *Pipeline Act* does not contain any specific provisions or requirements that a pipeline be abandoned after a certain length of suspension, nor upon direction from the Board. However, the EUB has in the past, pursuant to its mandate and jurisdiction as set out in section 2 of the ERCA, ordered pipelines abandoned under section 21 of this same Act, which section provides:

21. The Board, with the approval of the Lieutenant Governor in council, may take any action and may make any orders and directions that the Board considers necessary to effect the purposes of this Act and that are not otherwise specifically authorized by this Act.

RSA 1980 cE-11 s21

ORPHAN FACILITIES, PIPELINES AND RECLAMATION SUBCOMMITTEE

In December of 1991, an Orphan Well Program Administration Subcommittee and a Well Transfer Criteria Subcommittee (now known as the Fund Advisory Committee) met to outline a formal procedure for dealing with orphan wells. In 1994, the Orphan Facilities, Pipelines and Reclamation Subcommittee ("Subcommittee") was created to incorporate orphan facilities, pipelines and reclamation into the procedure. [As it is used in this section, the word "reclamation" includes abandonment, decontamination and land reclamation concerning a well or facility.]

As directed by Fund Advisory Committee ("FAC"), the Subcommittee has developed a formal procedure known as the Orphan Program ("OP") through which the abandonment of orphan wells has been extended to include abandonment, decommissioning and land reclamation of certain oil and gas production and processing facilities and their associated pipelines. The goals and objectives of the OP will be accomplished through a co-ordinated effort involving the EUB, AEP, Alberta Agriculture, Food and Rural Development, a Program Superintendent, a technical advisory Working Group and the FAC. The costs associated with this program will primarily be funded by an annual levy paid by industry on

inactive wells and abandoned but uncertified wells, and multi-well facilities. (An uncertified well or facility is its state or status prior to the site being certified as acceptably reclaimed.) The annual levy collected from industry is put into an abandonment fund ("Fund") which finances the activities of the OP.

The objective of the OP is to minimize the risk of wells, facilities and pipelines being added to Alberta's current list of orphans, and to design and conduct a program to abandon existing orphans on an acceptable schedule. The Fund is intended to be used as a last resort, and industry participants involved with facilities in question will be called upon to fulfil their regulatory duties and obligations before any resort to the Fund is made. Finally, although the detailed recommendations of the Subcommittee have not yet received formal approval from the regulators, the regulators are committed to the outcomes.

The OP is intended only to apply to pipelines upstream of a producer's custody transfer point to a transporter or carrier, and does not include oil transmission pipelines and associated storage, pumping and measurement facilities, and gas transmission pipelines and associated compression and measurement facilities. The OP will not cover large diameter pipelines, which may be the pipelines that cause the most concern when abandoned.

The Subcommittee is of the view that the pipeline licensee has primary legal responsibility for the construction, operation and reclamation of a pipeline. If the pipeline licensee is defunct, a secondary reclamation responsibility for pipelines servicing a well lies with the well licensee/working interest owner ("WIO") if no other party assumes responsibility through transfer of the pipeline license. In these cases, the licensee /WIO of the well is responsible for reclamation of the pipeline from the well to the first point where the pipeline joins a group line. Secondary reclamation responsibility for pipelines into a multi-well facility lies with the multi-well facility licensee/WIO, if the pipeline licensee is defunct and if no other party assumes responsibility through transfer of the pipeline license. In such cases, the multi-well facility licensee/WIO is responsible for the reclamation of all pipelines feeding into the multi-well facility from the point where the well licensee/WIO's responsibility ceases. Before tapping into the Fund to cover abandonment costs for pipelines included in the OP, the administrators of the OP will first look to the above-noted parties.

The Subcommittee has also recommended that certain additional requirements be incorporated into the legislation administered by the EUB and AEP to further encourage operators to reclaim wells, multi-well facilities and infrastructure as soon as practical. The following requirements have been recommended by the Subcommittee and will likely be adopted by the regulators:

- Facilities and infrastructure must safely be suspended within six months of becoming inactive.
- Abandoning of facilities must be completed within 18 months of becoming inactive.
- Decontamination and land reclamation must be completed within three years of the facility becoming inactive, or land reclamation must be in progress according to a plan that provides details of the reclamation program and the reasons for not being able to complete the work within this specified period.
- Where abandonment has not occurred within 18 months, or where decontamination and land reclamation are not completed within three years, the EUB should require a refundable deposit to be calculated using the formula of $50,000 x Well Equivalency based on facility size as set out in the Subcommittee report, subsection 3.2.6.

SURFACE RIGHTS ACT

SECTIONS 12 AND 31

12. (1) No operator has a right of entry in respect of the surface of any land

(a) for the removal of minerals contained in or underlying the surface of that land or for or incidental to any mining or drilling operations,

(b) for the construction of tanks, stations and structures for or in connection with a mining or drilling operation, or the production of minerals, or for or incidental to the operation of those tanks, stations and structures,

(c) for or incidental to the construction, operation or removal of a pipeline,

(d) for or incidental to the construction, operation or removal of a power transmission line, or

(e) for or incidental to the construction, operation or removal of a telephone line,

until the operator has obtained the consent of the owner and the occupant of the surface of the land or has become entitled to right of entry by reason of an order of the Board pursuant to this Act.

1983cS-27.1 s12;1987 c2 s8

Commentary

The Surface Rights Board ("SRB") regulates surface rights to all land in Alberta, except land within the geographical area of a Metis settlement, pursuant to the *Surface Rights Act* ("SRA"). Parties wishing to construct and operate a pipeline will require a right of entry (defined as "the right of entry, user and taking of the surface of the land" in section 1(m) of the SRA) in respect of the land the pipeline will occupy. Consent for the right of entry must be obtained from the owner and occupant of the land (both terms are defined in section 1 of the SRA), or from the SRB by way of a right of entry order.

The term "operator" is defined in section 1(h) of the SRA as follows:

(h) "operator" means

(ii) with reference to a pipeline, power transmission line or telephone line, the person empowered to acquire an interest in land for the purpose of the pipeline, power transmission line or telephone line under the Pipeline Act, the Hydro and Electric Energy Act or the Water, Gas and Electric Companies Act, as the case may be.

The definition of "operator" in the SRA cross-references the permitee/licensee in the *Pipeline Act* as the party able to obtain a right of entry order.

Section 31 of the SRA provides that a right of entry order granted by the Board will continue in effect until such time as the land is reclaimed and a reclamation certificate is granted under the *Environmental Protection and Enhancement Act*.

31. (4) The Board shall not terminate the right of entry order as to the land or any part of it until a reclamation certificate has been issued for that land in any case to which Part 5 of the Environmental Protection and Enhancement Act applies.

(5) When a reclamation certificate has been issued under Part 5 of the Environmental Protection and Enhancement Act as to the land or any part of it held under the right of entry order, the Board may, without any inquiry, make an order terminating the right of entry order entirely or as to the part of the land to which the reclamation certificate relates, as the case may be.

1983 c2-27.1 s31;1992 cE-13.l3 s246(14)

SURFACE RIGHTS ACT

SECTION 33

33. (1) Subject to subsections (2) to (4), the Board may hold a hearing and make an order with respect to a dispute between the operator and an owner or occupant who are parties to a surface lease or the operator and an owner or occupant under a right of entry order as to the amount of compensation payable by the operator

> *(a) for damage caused by or arising out of the operations of the operator to any land of the owner or occupant other than the area granted to the operator,*
>
> *(b) for any loss or damage to livestock or other personal property of the owner or occupant arising out of the operations of the operator whether or not the land on which the loss or damage occurred is subject to the surface lease or right of entry order, or*
>
> *(c) for time spent or expense incurred by an owner or occupant in recovering any of his livestock that have strayed due to an act or omission of the operator whether or not the act or omission occurred on the land that is subject to the surface lease or right of entry order.*

(2) The Board has jurisdiction to hear and determine a dispute under this section only if

> *(a) the application is made in writing to the Board by a party to the dispute within 2 years of the last date on which damage is alleged to have occurred, and*
>
> *(b) the amount of compensation claimed by the owner or occupant does not*

exceed $5000.

(3) This section does not apply to a claim for compensation the amount of which may be determined by the Board under section 25.

(4) An order under this section may be appealed by the operator or the owner or occupant as though the order were a compensation order under section 23.

1983 cS-27.1 s33;1987 c2 s8

Commentary

In section 33, the SRA provides for a dispute resolution mechanism which an owner or occupant may engage where they suffer damage to livestock or property as a result of the operations of the operator where there is a right of entry order or easement in affect in respect of a pipeline. The provision furnishes aggrieved owners and occupants with a useful remedy where their damage claim does not exceed $5000. As long as the right of entry agreement or order is in effect, the operator will continue to be liable in respect of damage claims by owners and occupants under the SRA. Any claims exceeding $5000 are outside the scope of the SRA.

Appendix 2B

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT AND REGULATIONS

PIPELINE ABANDONMENT PROVISIONS

Introduction

Alberta's Department of Environmental Protection ("AEP") administers the *Environmental Protection and Enhancement Act*, S.A. 1992, c. E-13.3 ("EPEA") with a mandate to support and promote the protection, enhancement and wise use of the environment. Included in this task is regulation of environmental matters concerning pipeline construction, operation and reclamation. While suspension and abandonment of pipelines is regulated by the EUB, AEP is the governing body in respect of reclamation of the land servicing the pipeline once abandonment has taken place and conservation of that land during construction and operation of the pipeline.

A Conservation and Reclamation Approval ("C & R Approval") is required to address reclamation for Class I pipelines following construction. The requirements flow from the Activities Designation Regulation. The final obligation to reclaim the land following abandonment flows from section 122 of the act which requires an operator to reclaim

specified land.

The construction, operation and reclamation of a pipeline is designated by the Activities Designation Regulation (AR 110/93, as amended) as an activity for which an approval is required under EPEA (see section 2 of the Regulation and its Schedule, Division 3(c)). That approval is catagorized as a C & R Approval by AEP. The definition of "pipeline" in the Act and regulations exempts certain types of pipelines (Class II pipelines) from requiring a C & R Approval. All other pipelines (Class I pipelines) will require a C & R Approval before they are constructed, however, and the Director may issue that approval subject to any terms and conditions deemed appropriate under section 65 of EPEA. The definitions of "pipeline" are set out below:

EPEA

1 In this Act

(vv) "pipeline" means

(i) a pipe for the transmission of any substance and installations in connection with that pipe,

Activities Designation Regulation, AR 211/96

2(3) The following definitions apply for the purposes of Division 3 Schedule 1:

(h) "pipeline" means a pipeline as defined in the Act and any infrastructure in connection with that pipeline but does not include the following:

(i) a pipeline or part of a pipeline located in a city, town, specialized municipality, village or summer village;

(ii) a pipeline or part of a pipeline located in a plant site at which an activity that requires an approval under this Regulation is carried on;

(iii)a pipeline with a length in kilometres times diameter in millimetres resulting in an index number of less than 2690;

(iv) a pipeline regulated pursuant to the National Energy Board Act (Canada);

(v) a pipeline that is a rural gas utility as defined in the Rural Gas Act;

(vi) a pipeline that is part of a waterworks system, wastewater system or storm drainage system that has a

length in kilometres times diameter in millimetres resulting in an index number of less than 2690;

(vii)a pipeline or telecommunication line that is ploughed in;

(viii)a pipeline that is used solely for the purposes of an agricultural operation and is located wholly on land that is used for the purposes of an agricultural operation;

(ix) a pipeline that is abandoned in the ground;

Class II pipelines include those pipelines listed in section 2(3)(h) of the Regulation above. Although these pipelines do not require a C & R Approval under EPEA, they are subject to the Act's environmental enforcement provisions and must eventually obtain a reclamation certificate. (However, when "eventually" is for a pipeline which is abandoned in place is not clear.) The only pipeline projects which are exempt from requiring a reclamation certificate on or in respect of specified land are listed in section 15.1 of the Conservation and Reclamation Regulation as:

(i) a pipeline that is a rural gas utility as defined in the Rural Gas Act,

(ii) a pipeline that is less than 15cm in diameter and is ploughed into the ground,...

The Environmental Protection Guidelines published by AEP's Land Reclamation Division provide the necessary guidance to operators of Class II pipelines to achieve conservation and reclamation objectives. Class II pipelines which occupy public lands also require a surface disposition (pipeline agreement or easement) from the Land Administration Division of AEP. Conservation and reclamation guidelines for Class I pipelines will normally be outlined in their C & R Approval.

EPEA

1 In this Act

(ccc)"reclamation" means any or all of the following:

(i) the removal of equipment or buildings or other structures or appurtenances;

(ii) [Repealed 1996, c. 17, s. 2(e)];

(iii)the decontamination of buildings or other structures or other appurtenances, or land or water;

(iv) the stabilization, contouring, maintenance,

conditioning or reconstruction of the surface of land;

(v) any other procedure, operation or requirement specified in the regulations;

1994 c15 s2;cM-26.1 s642(22);cR-9.07 s25(11);1996 c17 s2;c30 s69(2)

Commentary

The objective of conservation and reclamation is to return disturbed land to an equivalent land capability, which means that the ability of the land to support various lands uses after conservation and reclamation is similar to the ability that existed prior to that activity being conducted on the land (Conservation and Reclamation Regulation, AR 115/93, as amended, section 1(e)). In the case of linear disturbances such as pipelines, where the landscape is not changed, the focus of capability is on the soil and vegetation. The Guide for Pipelines (published by AEP's Land Reclamation Division) lists what the concept of "conservation" includes:

1. minimizing the extent of disturbance, regardless of the ability to reclaim the land;
2. minimizing or mitigating the effects of development on land and soil resources;
3. salvaging soil resources for use in reclamation; and
4. controlling wind and water erosion.

Likewise, the Guide lists what is included in the concept of "reclamation" as all practical and desirable methods for:

1. designing and conducting an operation to enhance the potential for disturbed land to be reclaimed to equivalent land capability;
2. handling material to ensure reconstructed soils have an equivalent soil capability relative to the soils that existed prior to disturbance;
3. contouring the land surface to meet the land capability objective, as well as to ensure stability, to protect the surface against wind or water erosion, to provide for surface drainage, and to minimize hazards;
4. revegetating and managing the land to meet the land capability objective; and
5. re-establishing surface water resources to meet the land capability objective.

EPEA

122 (1) An operator must

(a) conserve and reclaim specified land, and

(b) unless exempted by the regulations, obtain a reclamation certificate in respect of the conservation and reclamation.

(2) Where this Act requires that specified land must be conserved and reclaimed, the conservation and reclamation must be carried out in accordance with

(a) the terms and conditions in any applicable approval,

(b) the terms and conditions of any environmental protection order regarding conservation and reclamation that is issued under this Part,

(c) the directions of an inspector or the Director, and

(d) this Act.

1994 c15 s43

119 In this part

(b)"operator" means

(i) an approval or registration holder who carries on or has carried on an activity on or in respect of specified land pursuant to an approval or registration.

(ii) any person who carries on or has carried on an activity on or in respect of specified land other than pursuant to an approval or registration.

(ii.2) the holder of a licence, approval or permit issued by the Energy Resources Conservation Board for purposes related to the carrying on of an activity on or in respect of specified land,

(ii.2) the holder of a surface lease for purposes related to the carrying on of an activity on or in respect of specified land,

(iii) a successor, assignee, executor, administrator, receiver, receiver-manager or trustee of a person referred to in any of subclauses (i) to (ii.2), and

(iv) a person who acts as principal or agent of a person referred to in any of subclauses (i) to (iii);

1994 c15 s42;1996 c17 s32

Conservation and Reclamation Regulation, AR 167/96

1 In this Regulation, and, in the case of clause (t), for the purposes of Part 5 of the Act,

(t) "specified land" means land that is being or has been used or held for or in connection with

> *(ii) the construction, operation or reclamation of a pipeline, telecommunication system or transmission line;*

Note: This definition repeals s. 1(w) of Alta. Reg. 115/93 and 245/93, which included:

> (viii) the construction, operation or reclamation of an extra provincial undertaking;

Commentary

Section 122 of EPEA sets out the duty of an operator to conserve and reclaim specified land. The land upon which a pipeline is constructed and operated falls within the definition of "specified land" in the regulations. The definition of "operator" in the Act includes persons undertaking an activity with or without an approval, so both Class I & II pipeline operators are included. Also, an "operator" includes, *inter alia*, a receiver, receiver-manager or trustee of the party which is licensed to operate the pipeline. Therefore, bankruptcy will not eliminate the obligation to conserve and reclaim the land which a pipeline occupies.

It is questionable whether the obligation to reclaim specified land would apply to land used for an NEB regulated pipeline. Principles of statutory interpretation would suggest that the repeal of the subsection referring to extra provincial undertakings may mean that the definition of specified land no longer applies to NEB regulated pipelines.

As noted in section 122(2)(b), an environmental protection order is one enforcement mechanism available to conservation and reclamation inspectors to ensure that conservation and reclamation of specified land is carried out. The powers to issue environmental protection orders in respect of conservation and reclamation are set out in sections 125 to 128 of EPEA and section 9 of the Conservation and Reclamation Regulation. An environmental protection order can issue at any time prior to a reclamation certificate being obtained in respect of a pipeline, but not after (section 15(1)(b) of the Conservation and Reclamation Regulation).

EPEA provides for a number of other enforcement mechanisms which may be resorted to where pipeline activity causes environmental damage. They include, *inter alia*:

- statutory prohibition of release of substances, outlined in Part 4 of EPEA;
- power to issue enforcement orders (an order not unlike an environmental protection order, but often more severe in nature) under section 200 of the Act;
- creation of a civil cause of action for offences committed under the Act, outlined in section 207;
- injunctions to prohibit the commission of an offence under the Act or from causing someone to suffer loss or damage as a result of an activity, set out in sections 209 and 211 of the Act;
- liability of directors and officers for participating in an offence committed by their corporation, provided for in section 218; and
- administrative penalties may be issued (much like a fine) in respect of a contravention of the Act (section 223).

EPEA

123 (1) An application for a reclamation certificate must be made by the operator to the Director in the form and manner provided for in the regulations.

(2) An inspector may issue a reclamation certificate to the operator if the inspector is satisfied that the conservation and reclamation have been completed in accordance with section 122(2).

(3) An inspector may issue a reclamation certificate with respect to all or only a part of the specified land, and in the latter case section 122 continues to apply with respect to the remaining specified land.

(3.2) An inspector may issue a reclamation certificate subject to any terms and conditions the inspector considers appropriate.

(4) An approval in respect of an activity on specified land expires on the date that the final reclamation certificate is issued under this Part unless the approval specifies a different expiry date.

1994 c15 s44

Commentary

Section 123 of EPEA gives the conservation and reclamation inspector authority to issue a reclamation certificate if he/she is satisfied that conservation and reclamation have been completed. The information required to be furnished in a reclamation certificate application is set out in section 12 of the Conservation and Reclamation Regulation. The C & R Approval which is in place in respect of the pipeline project expires on the date the final reclamation certificate is issued, unless otherwise specified in the Approval itself.

Appendix 3A

NATIONAL ENERGY BOARD

PIPELINE ABANDONMENT PROVISIONS

NATIONAL ENERGY BOARD ACT

SECTION 19. (1)

19. (1) Without limiting the generality of any provision of this Act that authorizes the Board to impose terms and conditions in respect of a certificate, licence or order issued by the

Board, the Board may direct in any certificate, licence or order that it or any portion or provision thereof shall come into force at a future time or on the happening of any contingency, event or condition specified in the certificate, licence or order or on the performance to the satisfaction of the Board of any conditions that the Board may impose in the certificate, licence or order, and the Board may direct that the whole or any portion of the certificate, licence or order shall have force for a limited time or until the happening of a specified event. insert subsection 19(1)

Commentary

This subsection is one of the general powers of the Board. It states that the Board may make an order which will not go into effect unless and until "the happening of any contingency, event or condition specified in the certificate, licence or order or on the performance to the satisfaction of the Board of any conditions that the Board may impose in the certificate, licence or order...". This provision is useful to the Board because it allows the Board to implement certain mitigation measures associated with an abandonment prior to the effective date of the abandonment.

This subsection of the NEBA is very similar to a provision in the former *National Transportation Act* R.S.C. 1970, c. N-17, which governed proceedings conducted before the Canadian Transport Commission. In one CTC case, *Re Canadian National Railway Company (Trent River Bridge)*, [1987] C.T.C.R. 3 (CTC Review Committee) the CTC allowed an abandonment but provided in its order that the abandonment order would not come into force until the railway company had removed a bridge over a river for safety reasons. The CTC panel relied on the equivalent of section 19(1) of the NEBA in making its conditional abandonment decision. A review of that order was conducted by the CTC Review Committee which upheld the right of the Commission to delay the coming into force of an order until the bridge had been removed.

NATIONAL ENERGY BOARD ACT

SECTION 24. (1)

24. (1) Subject to subsection (2), hearings before the Board with respect to the issuance, revocation or suspension of certificates or of licences for the exportation of gas or electricity or the importation of gas or for leave to abandon the operation of a pipeline shall be public.

Commentary

This provision requires that any hearing held by the Board with respect to the abandonment of a pipeline must be a public hearing.

NATIONAL ENERGY BOARD ACT

SECTION 73. (b), (g)

73. A company may, for the purposes of its undertaking, subject to this Act and to any Special Act applicable to it,

> *(b) purchase, take and hold of and from any person any land or other property necessary for the construction, maintenance and operation of its pipeline and alienate, sell or dispose of any of its land or property that for any reason has become unnecessary for the purpose of the pipeline;*
>
> *(g) alter, repair or discontinue the works mentioned in this section, or any of them, and substitute others in their stead;*

Commentary

These provisions provide a pipeline company with corporate authority to purchase lands that are required for pipeline purposes, or to dispose of lands which are no longer required for pipeline purposes. The importance of these provisions appear to be that subsequent to the authorization of an abandonment, a pipeline company appears to be able to exercise its corporate powers and separate lands no longer required in respect of the pipeline from the remaining pipeline lands. The effect of such a separation appears to be the removal of the surplus lands from the jurisdiction of the NEB.

The issue of whether lands are surplus to the statutory purposes of a railway work and undertaking have been examined in a number of court and tribunal cases. The judgment of the House of Lords (Scotland) in the early case of *MacFie v Callander and Oban Railway Company*, [1898] A.C. 270 (H.L.Sc.), as summarized in the headnote of the case, was "that whether the land had become superfluous or not was a question of mixed law and fact". In that case it was deemed to be a discretionary power of the Board of Directors of the company to determine if the lands had become surplus to the requirements of the railway company.

Although not specifically relying on the *Macfie* case, the Board of Railway Commissioners for Canada appears to have adopted the reasoning of the *Macfie* case in *Cairns Bros. v CNR*, [1937] 2 D.L.R. 537 (BRC) in which the BRC was asked to order the CNR to provide fencing along an abandoned right-of-way. The decision of the Board stated:

Where abandonment of operation has been authorized and has taken place, the right of way through which the railway is operated ceases to be used for railway purposes and is held by the company, not as part of its *railway* qua railway company, but in the same way as land is held by private individuals, subject to any provincial or municipal laws in respect of fencing which may be in force in the particular district.

The same issue arose again in the case of *Canadian Pacific Limited v Saskatchewan Heritage Property Review Board*, [1984] 6 W.W.R. 210 (Sask Q.B.). In that case, the CTC had authorized the removal of a station belonging to CP. When the railway moved to demolish the station house, the Provincial agency and the Town of Kerrobert attempted to protect the site under heritage legislation. CP contested the applicability of provincial legislation on the grounds that Provincial law could not apply to lands which were owned by CP and required by it for the conduct of its rail operations. In that instance, the Court, explicitly relying in the *Macfie* case, deferred to the opinion of the railway company stating:

> If it cannot be established that the property of a railway company which may be subject to provincial legislation is but a convenience and not an essential part of the transportation operation, a court should not interfere in a bona fide decision of a railway company that the property is required to maintain the operation of its railway system.

The principle of the *Saskatchewan Heritage Property Review Board* case was applied by the Canadian Transportation Commission in *Re CP Fife Lake Subdivision* (1985, unreported no. WDR 1985-03) in which an application was made to compel a re-opening of an abandoned railway line for the receipt of traffic. The Commission noted in that case that; "Canadian Pacific has not given any indication that the abandoned branch line segment between Coronach and Big Beaver has been declared to be surplus lands which are no longer required for railway purposes".

NATIONAL ENERGY BOARD ACT

SECTION 74

74. (1) A company shall not, without the leave of the Board,

> *(a) sell, convey or lease to any person its pipeline, in whole or in part;*
> *(b) purchase or lease any pipeline from any person;*
> *(c) enter into an agreement for amalgamation with any other company; or*
> *(d) abandon the operation of a pipeline.*

(2) For the purposes of paragraph (1)(b), "pipeline" includes a pipeline as defined in section 2 or any other pipeline, and, for the purposes of paragraph (1)(c), "company" includes a company as defined in section 2 or any other company.

(3) Notwithstanding paragraph (1)(a), leave shall only be required where a company sells, conveys or leases such part or parts of its pipeline as are capable of being operated as a line for the transmission of gas or oil. R.S., c. N-6, s. 63; R.S., c. 27(1st Supp.), s. 19.

Commentary

This provision authorizes the NEB to grant leave to a pipeline company to abandon the operation of a pipeline. The legal effect of an order issued under section 74(d) is to cancel the authority originally conferred upon a pipeline company by the Board through the issuance of a certificate of public convenience and necessity, or an exemption order made under section 58. Once an abandonment order takes effect, the company has no authority to resume the operation of a line unless it first seeks and obtains another certificate of public convenience and necessity to construct and/or operate the pipeline pursuant to section 52 together with a leave to open order issued pursuant to section 47, or an exemption order issued pursuant to section 58 of the Act.

The NEB appears to have a broad public interest discretion with respect to the exercise of its jurisdiction pursuant to section 74(d) of the NEBA. Parliament has not established any specific criteria for the Board to examine in connection with abandonment applications.

However, in authorizing an abandonment of a pipeline, the NEB has not been given authority by Parliament to impose any conditions on the abandonment. The authority to be exercised under section 74 (d) is purely an affirmative or negative decision.

NATIONAL ENERGY BOARD ACT

SECTION 111

111. Notwithstanding this Act or any other general or Special Act or law to the contrary, where the pipeline of a company or any part of that pipeline has been affixed to any real property in accordance with leave obtained from the appropriate authority as provided in subsection 108(2) or (6) or without leave pursuant to subsection 108(5),

> *(a) the pipeline or that part of it remains subject to the rights of the company and remains the property of the company as fully as it was before being so affixed and does not become part of the real property of any person other than the company unless otherwise agreed by the company in writing and unless notice of the agreement in writing has been filed with the Secretary; and*
>
> *(b) subject to the provisions of this Act, the company may create any lien, mortgage, charge or other security on the pipeline or on that part of it.*

Commentary

Section 111 provides that the pipeline owned by a company does not become a fixture of the real property of the Crown or any person where it crosses the property of the Crown or any person pursuant to a crossing order granted by an appropriate authority under subsections 108(2) or (6) or without leave of an appropriate authority if the work is done in accordance with general plans and specifications adopted by the appropriate authority or under circumstances and conditions prescribed by the NEB in the case of a utility.

The question which arises is whether or not this provision continues to apply subsequent to the effective date of an abandonment order. If the effect of the abandonment order is to cancel the pre-existing statutory authority to construct, operate and maintain a pipeline at the location of the crossing this section may no longer apply. In that case a property law issue arises with respect to a pipeline which is abandoned in place.

NATIONAL ENERGY BOARD ACT

SECTION 114

114. (1) It is hereby declared that nothing in this Act restricts or prohibits any of the following transactions:

> *(a) the sale under execution of any property of a company; or*

> *(b) the creation of any lien, mortgage, charge or other security on the property of the company, or the sale, pursuant to an order of a court, of any property of the company to endorse or realize on any such lien, mortgage, charge or other security.*

(2) It is hereby declared that a transaction mentioned in subsection (1) in respect of any property of a company is subject to the same laws to which it would be subject if the work and undertaking of the company were a local work or undertaking in the province in which that property is situated.

Commentary

Where a pipeline is constructed and operated pursuant to the National Energy Board Act this provision allows for the creation of a lien, mortgage, charge or other security on the property of the company and for the sale of any property of the pipeline company pursuant to those security interests.

The ability of the company's assets to be made the subject of a security interest while it is an extraprovincial work and undertaking as if it were a local work and undertaking, avoids the application of the constitutional principles of interjurisdictional immunity.

This provision may be of use for the purpose of obtaining a security interest in assets that could be used for reclamation purposes, regardless of the constitutional jurisdiction emanating from section 92(10) of the Constitution Act 1867.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 5(1)(b)

5. (1) An environmental assessment of a project is required before a federal authority exercises one of the following powers or performs one of the following duties or functions in respect of a project, namely, where a federal authority

> *(d) under a provision prescribed pursuant to paragraph 59(f), issues a permit or licence, grants an approval or takes any other action for the purpose of enabling the project to be carried out in whole or in part.*

Commentary

This provision requires an environmental assessment of any project that is named in the Law List Regulations. Section 74(1)(d) of the NEBA is named in Schedule I, Item 8 of the Law List Regulations. Therefore an environmental assessment of a pipeline abandonment is required.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 11

11. (1) Where an environmental assessment of a project is required, the federal authority referred to in section 5 in relation to the project shall ensure that the environmental assessment is conducted as early as is practicable in the planning stages of the project and before irrevocable decisions are made, and shall be referred to in this Act as the responsible authority in relation to the project.

(2) A responsible authority shall not exercise any power or perform any duty or function referred to in section 5 in relation to a project unless it takes a course of action pursuant to paragraph 20(1)(a) or 37(1)(a).

Commentary

This provision requires that an environmental assessment be performed in relation to a project described in the Law List Regulations before the responsible authority makes an environmental finding in respect of the project. The legal effect is to make the environmental assessment pursuant to the CEAA a condition precedent to the exercise of a regulatory discretion by the Board.

This provision also defines a federal authority captured by section 5 of the CEAA (for example, the NEB) as a "responsible authority".

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 15(1)(a) and (3)

15. (1) The scope of the project in relation to which an environmental assessment is to be conducted shall be determined by

> *(a) the responsible authority; or*
>
> **.....**

(3) Where a project is in relation to a physical work, an environmental assessment shall be conducted in respect of every construction, operation, modification, decommissioning, abandonment or other undertaking in relation to that physical work that is proposed by the proponent or that is, in the opinion of

> *(a) the responsible authority, or*
> *(b) where the project is referred to a mediator or a review panel, the Minister, after consulting with the responsible authority,*

likely to be carried out in relation to that physical work.

Commentary

This provision empowers the responsible authority to define the scope of the project and the scope of its environmental assessment but, pursuant to subsection (3), minimum factors for consideration by the responsible authority are stipulated for the purpose of scoping the assessment.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 16

16. (1) Every screening or comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:

> *(a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;*
>
> *(b) the significance of the effects referred to in paragraph (a);*
>
> *(c) comments from the public that are received in accordance with this Act and the regulations;*
>
> *(d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and*
>
> *(e) any other matter relevant to the screening, comprehensive study, mediation or assessment by a review panel, such as the need for the project and alternatives to the project, that the responsible authority or, except in the case of a screening, the Minister after consulting with the responsible authority, may require to be considered.*

Commentary

This provision establishes the minimum criteria that a responsible authority must examine as part of an environmental screening.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 18

18. (1) Where a project is not described in the comprehensive study list or the exclusion list, the responsible authority shall ensure that

> *(a) a screening of the project is conducted; and*

(b) a screening report is prepared.

(2) Any available information may be used in conducting the screening of a project, but where a responsible authority is of the opinion that the information available is not adequate to enable it to take a course of action pursuant to subsection 20(1), it shall ensure that any studies and information that it considers necessary for that purpose are undertaken or collected.

(3) Where the responsible authority is of the opinion that public participation in the screening of a project is appropriate in the circumstances, or where required by regulation, the responsible authority shall give the public notice and an opportunity to examine and comment on the screening report and on any record that has been filed in the public registry established in respect of the project pursuant to section 55 before taking a course of action under section 20.

Commentary

This section obligates a responsible authority to screen a project and to prepare a screening report. It also provides relief from the application of the legal rules of evidence applicable in the Courts by permitting "any available information" to be used in conducting the screening of a project. By subsection (3), the responsible authority must decide if public participation in the screening is "appropriate in the circumstances". If it is found to be appropriate, public notice and an opportunity to examine and comment on the screening report, together with any record filed pursuant to it in the public registry is required.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 20

20. (1) The responsible authority shall take one of the following courses of action in respect of a project after taking into consideration the screening report and any comments filed pursuant to subsection 18(3):

(a) subject to subparagraph (c)(iii), where, taking into account the implementation of any mitigation measures that the responsible authority considers appropriate, the project is not likely to cause significant adverse environmental effects, the responsible authority may exercise any power or perform any duty or function that would permit the project to be carried out and shall ensure that any mitigation measures that the responsible authority considers appropriate are implemented;

(b) where, taking into account the implementation of any mitigation measures that the responsible authority considers appropriate, the project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances, the responsible authority shall not exercise any power or perform any duty or function conferred on it by or under any Act of Parliament that would permit the project to be carried out in whole or in part; or

(c) where

(i) it is uncertain whether the project, taking into account the implementation of any mitigation measures that the responsible authority considers appropriate, is likely to cause significant adverse environmental effects,

(ii) the project, taking into account the implementation of any mitigation measures that the responsible authority considers appropriate, is likely to cause significant adverse environmental effects and paragraph (b) does not apply, or

(iii) public concerns warrant a reference to a mediator or a review panel,

the responsible authority shall refer the project to the Minister for a referral to a mediator or a review panel in accordance with section 29.

(2) Where a responsible authority takes a course of action referred to in paragraph (1)(a), it shall, notwithstanding any other Act of Parliament, in the exercise of its powers or the performance of its duties or functions under that other Act or any regulation made thereunder or in any other manner that the responsible authority considers necessary, ensure that any mitigation measures referred to in that paragraph in respect of the project are implemented.

(3) Where the responsible authority takes a course of action pursuant to paragraph (1)(b) in relation to a project,

(a) the responsible authority shall file a notice of that course of action in the public registry established in respect of the project pursuant to section 55; and

(b) notwithstanding any other Act of Parliament, no power, duty or function conferred by or under that Act or any regulation made thereunder shall be exercised or performed that would permit that project to be carried out in whole or in part.

Commentary

This provision provides for the environmental findings which are required to be made by the responsible authority as a result of its screening of the project, prior to its undertaking a regulatory function in relation to the project.

Where a responsible authority determines that a project may proceed with mitigation, subsection 20(2) requires the responsible authority to ensure that any necessary mitigation measures in connection with the project are implemented. This provision can have a bearing on the timing of the effective date of any abandonment order issued by the NEB, if the result of such an order might be to sunder Federal jurisdiction. In that case the NEB would lose the power to ensure that the necessary mitigation measures were undertaken.

CANADIAN ENVIRONMENTAL ASSESSMENT ACT

SECTION 59(b) - THE INCLUSION LIST REGULATIONS

59. The Governor in Council may make regulations

> *(b) prescribing, for the purpose of the definition "project" in subsection 2(1), any physical activity or class of physical activities;*

Commentary

This provision provides for regulations which expand on the definition of "project" by including related physical activities. The *Inclusion List Regulations* made pursuant to this provision provides in section 15 therein for the inclusion of:

> 15. Physical activities relating to the abandonment of the operation of a pipeline that requires leave under paragraph 74(1)(d) of the National Energy Board Act.

It is under this provision that related physical activities, such as the commencement of trucking as an alternative to the pipeline can be considered as part of the Board's environmental assessment.

Appendix 3B

NATIONAL ENERGY BOARD

SECTIONS RELATED TO THE CONSTRUCTION AND OPERATION OF PIPELINES

NATIONAL ENERGY BOARD ACT

"Pipeline" means a line that is used or to be used for the transmission of oil, gas or any other commodity and that connects a province with any other province or provinces or extends beyond the limits of a province or the offshore area as defined in section 123, and includes all branches, extensions, tanks, reservoirs, storage facilities, pumps, racks, compressors, loading facilities, interstation systems of communication by telephone, telegraph or radio and real and personal property and works connected therewith, but does not include a sewer or water pipeline that is used to proposed to be used solely for municipal purposes.

SECTION 29

29. (1) No person, other than a company, shall construct or operate a pipeline.

(2) Nothing in this section shall be construed to prohibit or prevent any person from operating or improving a pipeline constructed before October 1, 1953, but every such pipeline shall be operated in accordance with this Act.

(3) For the purposes of this Act,

> *(a) a liquidator, receiver or manager of the property of the company, appointed by a court of competent jurisdiction to carry on the business of the company,*
>
> *(b) a trustee for the holders of bonds, debentures, debenture stock or other evidence of indebtedness by the company, issued under a trust deed or other instrument and secured on or against the property of the company, if the trustee is authorized by the trust deed or other instrument to carry on the business of the company,*
>
> *and (c) a person, other than a company,*
>
> > *(i) operating a pipeline constructed before October 1, 1953, or*
> >
> > *(ii) constructing or operating a pipeline exempted from subsection (1) by an order of the Board made under subsection 58(1), is deemed to be a company.*

Commentary:

Pursuant to s. 29 of the NEB Act, only a "company" can construct and operate a pipeline. Exceptions to the requirement that a pipeline must be operated by a company are set out in subsections (2) and (3) of s. 29.

Section 2 defines "company" as follows:

> "company" includes
>
> (a) a person having authority under a Special Act to construct or operate a pipeline, and
>
> (b) a body corporate incorporated or continued under the *Canada Business Corporations Act* and not discontinued under that Act.

Since the *Interpretation Act*, R.S.C. 1985, provides in s. 33(2) that singular words include the plural, the reference in the NEB Act to "company" must include "companies" A group of companies would therefore be entitled to construct an operate a pipeline under the NEB Act.

NATIONAL ENERGY BOARD ACT

SECTION 30

30. (1) No company shall operate a pipeline unless

(a) there is a certificate in force with respect to that pipeline; and

(b) leave has been given under this Part to the company to open the pipeline.

(2) No company shall operate a pipeline otherwise than in accordance with the terms and conditions of the certificate issued with respect thereto.

Commentary

This provision states that no company shall operate a pipeline unless there is a certificate in force with respect to the pipeline and leave to open has been given. Subsection (2) provides that no company shall operate a pipeline other than in accordance with the conditions of the certificate issued in respect thereto.

NATIONAL ENERGY BOARD ACT

SECTION 31

31. Except as otherwise provided by this Act, no company shall begin the construction of a section or part of a pipeline unless

(a) the Board has by the issue of a certificate granted the company leave to construct the line;

(b) the company has complied with all applicable terms and conditions to which the certificate is subject;

(c) the plan, profile and book of reference of the section or part of the proposed line have been approved by the Board; and

(d) copies of the plan, profile and book of reference so approved, duly certified as such by the Secretary, have been deposited in the offices of the registrars of deeds for the districts or counties through which the section or part of the pipeline is to pass.

Commentary

Section 31 prohibits a company from commencing construction of a section or part of a pipeline unless the Board has issued a certificate authorizing the company to construct, the company has complied with all applicable terms and conditions on the certificate and the plan, profile and book of reference have been approved and copies duly filed with the registrars of deeds.

NATIONAL ENERGY BOARD ACT

SECTION 48

48. (2) The Board may, with the approval of the Governor in Council, make regulations governing the design, construction, operation and abandonment of a pipeline and providing for the protection of property and the environment and the safety of the public and of the company's employees in the construction, operation and abandonment of a pipeline.

Commentary

This section provides the NEB with authority to make regulations, subject to the approval of the Governor in Council, with respect to the abandonment of a pipeline. The same provision also applies to international power lines by virtue of section 58.27 of the Act. However, in the case of power lines created by permit rather than certificate, sections 58.19 and 58.2 provide for the application of provincial laws. Section 58.19 (e) specifically provides that provincial laws relating to the "procedure to be followed in abandoning" apply in lieu of section 48. The focus of that provision on provincial laws relating to abandonment procedures, as a substitute for section 48 regulations, may assist in resolving any ambiguities concerning the true scope and ambit of power under section 48(2) of the Act.

NATIONAL ENERGY BOARD ACT

SECTION 52

52. The Board may, subject to the approval of the Governor in Council, issue a certificate in respect of a pipeline if the Board is satisfied that the pipeline is and will be required by the present and future public convenience and necessity and, in considering the application for a certificate, the Board shall have regard to all considerations that appear to it to be relevant, and may have regard to the following:

(a) the availability of oil or gas to the pipeline;

(b) the existence of markets, actual or potential;

(c) the economic feasibility of the pipeline;

(d) the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity of participating in the financing, engineering and construction of the pipeline; and

(e) any public interest that in the Board's opinion may be affected by the granting or the refusing of the application.

Commentary

This section provides that the Board, with the approval of the Governor in Council, may issue a certificate in respect of a pipeline. The Board must be satisfied that the pipeline is and will be required by the present and future public convenience and necessity. In hearing an application, the Board shall have regard to all matters it considers to be relevant. In addition, it may have regard to the specific issues listed in the section.

Generally, the Act concentrates on the construction and operation of the pipeline and is silent with respect to ownership. However, one of the factors the Board may have regard to under paragraph (d) is the financial structure and financial responsibility of the applicant and the methods of financing the pipeline.

NATIONAL ENERGY BOARD ACT

SECTION 58

58. (1) The Board may make orders exempting

> *(a) pipelines or branches of or extensions to pipelines, not exceeding in any case forty kilometres in length, and*
>
> *(b) such tanks, reservoirs and storage facilities, pumps racks, compressors, loading facilities, interstation systems of communication by telephone, telegraph or radio, and real and personal property and works connected therewith as the Board considers proper,*

from any or all of the provisions of sections 29 to 33 and 47.

(2) Repealed

(3) In any order made under this section the Board may impose such terms and conditions as it considers proper.

Commentary

This provisions authorizes the Board to exempt smaller pipelines or branches of or extensions to existing pipelines from any or all of the provisions in sections 29 to 33 and section 47. These provisions relate to the requirement that only companies operate a pipeline (s. 29); operation of the pipeline only after there is a certificate in force, leave to open has been granted and there has been compliance with the terms and conditions of the certificate (s. 30); commencement of construction only with appropriate Board approval (s. 31); filing of map and plan, profile and book of reference (ss. 32 and 33); and requirement for leave of Board to open (s. 47).

Appendix 4

LIABILITY AND LAND REGISTRATION ISSUES RELATING TO PIPELINE ABANDONMENT

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I. INTRODUCTION

You have requested that we research certain liability issues and land registration issues which may arise upon the abandonment of a pipeline. As far as liability is concerned, this memorandum addresses contractual liability that arises out of the covenants and conditions which are contained within a typical easement agreement and common law liability which may exist under a number of tort causes of action. How certain provisions of the *National*

Energy Board Act ("NEB Act") potentially affect a pipeline company's property interest in an abandoned pipeline and its liability therefor is also examined.

As far as land registration issues are concerned, this memorandum addresses how pipeline easements are registered in Alberta, the manner in which discharges of registration are effected and the manner in which information regarding pipeline easements is recorded in Land Titles, both during the term of a registration and following a discharge of registration after abandonment.

II. ISSUES

A. Liability in Property and Contract

1. Do the covenants and conditions contained in an easement agreement survive the abandonment of the pipeline and the ensuing termination of the easement?
2. If the covenants and conditions in such an agreement survive abandonment and termination of the easement, do those terms and conditions run with the land or can they be assigned so as to accrue to the benefit of all subsequent owners of the land?

B. Liability in Tort

1. Will the pipeline company be strictly liable pursuant to the rule in *Rylands v. Fletcher* in respect of any damage caused as a result of pipeline abandonment?
2. Will the pipeline company be liable in nuisance in respect of any damage caused by pipeline abandonment?
3. Will the pipeline company be liable in negligence as a result of any damages caused as a result of pipeline abandonment?

C. Liability and Property Interest Under the NEB Act

1. Does section 75 of the NEB Act operate to affect the determination of a pipeline company's liability for damages arising from the abandonment of a pipeline?
2. What is the effect of abandonment on the preservation of a pipeline company's property interest in a pipeline under section 111 of the NEB Act?

D. Land Titles Registration Issues

1. How are pipeline easements registered in Alberta?
2. Upon abandonment, how are these registrations discharged?
3. Following discharge, what historical records does Land Titles maintain and how are those records accessed?

III. SUMMARY OF CONCLUSIONS

A. Liability in Property and Contract

1. In our opinion, a court would typically find that the covenants and conditions in an easement agreement regarding reclamation, damage, indemnity and liability would survive abandonment of the pipeline and termination of the easement. While a

pipeline easement ceases to exist as an interest in land upon the abandonment of the pipeline, the covenants in an agreement will, depending on their specific language, continue to be enforceable in contract.

2. In our opinion, the entitlement of a land owner to enforce proper reclamation, pursue damages and obtain indemnity for liability are benefits which will cease to run with the land upon abandonment. However, that entitlement may be assignable under the easement agreement. In most cases, for an assignment to be effective, it will have to comply with the *Judicature Act* provisions concerning assignment of contracts and, accordingly, it will have to be in writing and written notice of it must be provided to the pipeline company.

B. Liability in Tort

1. There is likely no strict liability under *Rylands v. Fletcher*. In this regard, strict liability only arises if the damage occurs as a result of escape of a dangerous thing from land at the time of occupation of the land. It is likely that the damage would not occur in the case of pipeline abandonment until after the pipeline company had completed abandonment leading to the termination of the easement and, therefore, it would no longer be in occupation so as to give rise to potential strict liability.
2. The issue of liability in nuisance may depend upon whether the damage occurs upon the parcel of land that was the subject of the easement or on other land. There is lower court authority that suggests that the nuisance complained of must have arisen elsewhere than on the land which is in the plaintiff's sole occupation. Accordingly, if the damage occurs to the parcel of land that was once subject to an easement after it was terminated, the then-holder of the easement cannot be made liable in nuisance. However, if the damage or interference relates to property adjoining that land, both the pipeline company and the land owner face potential liability in nuisance to both the owner of the adjoining property and third parties. To the extent that the land owner was held liable for any injury or damage caused by improper abandonment of the pipeline, the owner could likely claim contribution and indemnity from the pipeline company under joint tort feasors legislation.
3. If the pipeline were improperly abandoned and the court found that the pipeline company failed to meet the required standard of care in abandoning the pipeline, there would be possible liability for negligence. Accordingly, the establishment of technical and engineering standards is important as they will be persuasive evidence of the *prima facie* standard of care on abandonment. Insofar as any loss in value of the land is concerned due to improper reclamation, liability in negligence may raise an issue of pure economic loss. Recent case authority suggests that remediation of effects arising out of abandonment may only be required if the defects pose a potential hazard to health and safety. However, if any property damage or personal injury occurs as a result of improper abandonment, the pipeline company would be liable for all ensuing loss if it was proven that it had failed to meet the relevant standard of care in abandoning the pipeline.

C. Liability and Property Interests Under the NEB Act

1. While section 75 provides that a pipeline company is required to make full compensation for all damages arising from its pipeline operations, it specifies that such compensation be made in the manner provided in the NEB Act. Specific remedies, including arbitration, are set out in the NEB Act for determining

compensation for damages arising from pipeline operations where such compensation cannot be determined by agreement. However, those remedies are only available in relation to damages arising from certain activities, which arguably do not include abandonment and, further, they are not applicable to claims for loss of life or personal injury. Such claims fall to be determined according to principles of common law. In any event, the National Energy Board ("NEB" or "the Board") may cease to have jurisdiction over a pipeline upon the issuance of an abandonment order in respect thereof. It follows, therefore, that any person who makes a claim for damages arising after the abandonment of a pipeline may be restricted to his or her remedies at common law.

2. Under section 108 of the NEB Act, it is contemplated that a pipeline may be constructed on, over, under, or along certain Crown property or utilities. The purpose of section 111 is to preserve a pipeline company's interest in, and the statutory authority to construct, operate and maintain, a pipeline where it becomes affixed to such Crown property or utility. That property interest would otherwise be subject to uncertainty stemming from the property law principle that if a chattel becomes sufficiently attached to land, it is transformed into a fixture and thereby becomes part of the real property. The determination of whether a chattel becomes a fixture is a matter of objective intention. If it is accepted that the issuance of an abandonment order effects a termination of the NEB's jurisdiction over a pipeline, then section 111 arguably ceases to apply and the property interest in the pipeline is left to be determined according to principles of property law having regard to the facts of the particular case and any agreements which may be in place. There are several factors which weigh against a pipeline company's intention to maintain its property interest in an abandoned pipeline including the act of abandonment in place, the time which may pass between abandonment and, if applicable, the removal of the pipeline, and the degree of property damage required to effect the detachment of the pipeline from the land.

D. Land Registration Issues

1. There are a number of different ways a pipeline easement can be registered under the Alberta *Land Titles Act*. This includes a caveat, by easement or utility right-of-way agreement, by a registered right-of-way plan or, in presumably exceptional circumstances where fee simple title is taken to the lands within the right-of-way, through the issuance of a Certificate of Title.
2. Abandonment of a pipeline does not lead to automatic discharge of any type of registration. Generally speaking, the most common way for registrations to lapse is by a voluntary discharge by the pipeline company upon abandonment. Absent such a discharge, affirmative steps would have to be taken by the land owner in order to rid title of the registrations following abandonment. It should be noted, however, that registration does not create the interest in land. A pipeline easement may continue to be registered even though it has expired in accordance with its terms. In this regard, it is like a mortgage or encumbrance that continues to be registered even though the secured obligation is paid.
3. Land Titles maintains historical records in perpetuity. Upon discharge of a registration, a historical search may be performed in respect of specified property over which a pipeline once ran in order to obtain copies of the previously filed documents, including any registered plan that may have been filed. There is no way of searching Land Titles by the name of a pipeline company which has registered its interest. Thus,

> the general route of the pipeline must be known in order to ascertain the land which it crossed and which would form the basis for a search of historical information.

IV. ANALYSIS

A. Liability in Property and Contract

1. Survival of Terms and Conditions After Termination of Easement

There are a number of methods by which an easement may be brought into existence. Insofar as pipelines are concerned, easements are typically acquired either by express grant or by special rights conferred by statute.[1] Where such an easement is acquired by express grant, the duration of the easement, absent words of limitation, must be determined with regard to the surrounding circumstances. On the subject of termination of easements, the author of *Principles of Property Law* states the following:

> An easement may be expressly released by agreement, or impliedly released, through abandonment. As in the case of an abandonment of chattels, there must be an intention to abandon and a sufficient manifestation of relinquishment. This may be inferred by a change in the nature of the dominant tenement that renders the easement useless, or by virtue of a similar change in the servient lands to which the dominant owner does not object. Whether these circumstances can show a subjective intention to abandon is a question of fact and the onus of proof on a party alleging that a property right has been relinquished is a heavy one.[2] [Footnotes deleted.]

A typical description of the easement and the rights granted to a pipeline company and their respective durations is exemplified by the following granting clause in a typical easement agreement:

> DO HEREBY GRANT, CONVEY AND TRANSFER to [Pipeline Company] an easement _____ metres (_____ feet) in width (also referred to as the "right-of-way") in, on, over, under, across and through the land as shown on a plan of survey of record in the Land Titles Office for the North Alberta Land Registration District as Plan No. _____, for the construction, operation, maintenance, inspection (including aerial), alteration, removal, replacement, reconstruction and repair of one or more pipelines subject to Clause 18 herein and other facilities appurtenant or incidental thereto (the "Pipeline") for the transportation, storage and handling of oil, other liquid and gaseous hydrocarbons and products thereof together with the right of ingress and egress to and from the right-of-way for [Pipeline Company], its personnel, equipment, contractors and agents for all purposes necessary or incidental to the exercise and enjoyment of the rights herein granted.
>
> The rights and easement are granted as and from the date hereof and **for so long hereafter as [Pipeline Company] desires to exercise same** on the following terms and conditions which are hereby mutually agreed to:...

It seems apparent that, in the context of pipeline easements, a pipeline company's intention to abandon an easement will be clearly manifest inasmuch as the pipeline company is required to seek leave to abandon the operation of the pipeline from the appropriate regulatory board having jurisdiction.[3]

Having regard to the language of a typical easement agreement, the rights and easement are granted thereunder only for so long as the pipeline company desires to exercise them. The bringing of an application to abandon a pipeline and the issuance of an abandonment order in respect thereof should be sufficient evidence that the pipeline company no longer desires to do so. It should be noted however, that the wording of all easements is not the same with respect to the duration of an easement and must be carefully reviewed for words of limitation.

While it may seem clear that the abandonment of a pipeline effects the termination of a pipeline easement, an issue remains as to whether the terms and conditions contained therein survive the termination. To determine the scope of the respective rights and obligations under the easement, primary regard must be had to the specific wording of the easement agreement in issue. However, it is important to note that while an easement might originate in an agreement between two parties, it constitutes more than a mere contractual right and becomes a benefit annexed to the land so as to run with the land without express assignment. In this latter regard, the author of *Principles of Property Law* states the following with regard to easements: "Owing to this quality, they resemble the real covenants that run with the assignment of a leasehold interest... As with the study of real covenants in leases, the analysis here returns to the dividing line that separates contract and property." [4] The difficulty which therefore presents itself is whether the problem is to be resolved according to the law of property or the law of contract.

On the basis that the abandonment of a pipeline effects the termination of the pipeline easement, it follows that the covenants which are incidental thereto also cease to exist. This would suggest that the grantor of an easement can only recover for breaches of covenants to the date of the termination. However, that proposition is questionable on the basis of the Supreme Court of Canada decision in *Highway Properties Ltd. v. Kelly, Douglas & Co. Ltd.* [5] While that case dealt with a dispute as between a landlord and tenant, the principles it established are arguably relevant to the discussion of easements.

In that case, the plaintiff landlord owned a small shopping centre and the defendant tenant agreed to lease a large space within it for a supermarket. The lease required the tenant to carry on business continuously once possession was taken up. However, the store was not a success and the tenant abandoned the property before the end of the term of the lease. The landlord subsequently advised the tenant that it would retake the premises and hold the tenant liable for the damage resulting from the wrongful repudiation of the lease. The traditional rule in relation to the surrender of leases was that acceptance by the landlord ended the tenant's estate and, with it, the tenant's obligation to pay rent and the right to sue for ancillary future losses. [6]

However, Laskin, J., speaking for the Court, effectively overruled that principle and stated as follows:

> It is no longer sensible to pretend that a commercial lease, such as the one

> before this Court, is simply a conveyance and not also a contract. It is equally untenable to persist in denying resort to the full armoury of remedies ordinarily available to redress repudiation of covenants, merely because the covenants may be associated with an estate in land. [7]

Accordingly, the landlord could sue for prospective losses under the contract. Laskin, J. suggested that, in any event, even the traditional rule would have no application "where both parties evidenced their intention in the lease itself to recognize a right of action for prospective loss upon a repudiation of the lease, although it be followed by the termination of the estate." [8] While these latter remarks are arguably *obiter*, they remain instructive in the present context as an easement agreement may contain language which suggests that liability for breaches of its covenants is intended to survive the termination of the easement.

Extending the principles enunciated by Laskin, J. to pipeline easements, it follows that while the interest in land and the covenants ancillary thereto cease to exist on abandonment of the pipeline, the grantor of the easement may still have its remedies in contract. The following statement of Haddad, J.A. of the Alberta Court of Appeal in *Shelf Hldg. Ltd. v. Husky Oil Operations Ltd.*, a case concerning the nature of a pipeline easement, lends support to this proposition:

> The grant of easement must be recognized as a contract reflecting the terms of the agreement made by the contracting parties. It is elementary that any contract is the primary source of reference to determine a dispute involving the rights and obligations of those parties. [9]

Under a typical agreement, the land owner grants the above noted rights and easement, and covenants not to interfere therewith, in consideration for the payment of a sum of money by the pipeline company to the land owner and the pipeline company covenanting to perform and observe a number of terms and conditions. The terms and conditions of a typical easement agreement with respect to liability for damages suffered by the land owner and third parties, and the obligation to restore the land subject to the easement are set out below and discussed in turn.

a. Liability for Damages and Indemnity

> **[Pipeline Company] will compensate the Owner for all damages suffered as a result of its operation.**
>
> **[Pipeline Company] shall indemnify the Owner from all liabilities, damages, claims, suits and actions arising out of the operations of [Pipeline Company] other than liabilities, damages, claims, suits and actions resulting from the gross negligence or willful misconduct of the Owner.**

These provisions are required to be included in a land acquisition agreement for a pipeline under s. 86(2) of the NEB Act. [10] Insofar as a pipeline company's obligation to compensate a land owner for damages and liability to third parties arising out of its operations are concerned, there are no words of limitation. This raises the issue that a pipeline company may not only be liable for damages arising during the life of the easement, but also for damages which may arise prospectively after the termination of the easement.

These provisions, on their wording, are arguably intended to continue to have effect after the easement has come to an end. There is no indication that the damages or liability for which the land owner is to be compensated must arise during, or within the period of the pipeline company's active operations. [11] Furthermore, there is no suggestion in those provisions or elsewhere in a typical easement agreement that time is of the essence or that there is a certain defining event or act which effects the termination of the rights under the contract.

While liability for damages or liability will probably continue under an easement agreement after pipeline abandonment, the limitation periods in effect in the various common-law provinces may affect the pursuit of remedies under the agreement. We do not, however, think that an abstract discussion of possible limitation periods would be useful given the complexity and fact dependency as to when a cause of action arises.

b. Obligation to Restore Lands

Upon the discontinuance of the use of the said right-of-way and of the exercise of the rights hereby granted, [Pipeline Company] shall and will restore the said lands to the same condition, so far as it is practicable so to do, as the same were in prior to the entry thereon and the use thereof by [Pipeline Company].

On the basis that the obligation to restore the lands to their original condition only arises after the abandonment of the easement, it is apparent that the parties to a typical easement agreement do not intend it to end upon such abandonment. Under such an agreement, the pipeline company is required to restore the lands subject to the easement to their original condition after it ceases to use the easement and exercise the rights granted. The use of the word "upon" arguably denotes contemporaneity, which suggests that the pipeline company must undertake the restoration of the said lands within a reasonably short period of the abandonment of the easement. [12]

It is not clear on the wording of this provision what is captured by the term "lands". This raises the question of whether the lands are restricted to the mere surface of the area subject to the easement or if they include the soil underlying the surface so as to require the removal of the pipeline. [13] The qualification that the restoration be done "so far as it is practicable so to do" is of little assistance to the pipeline company in this regard. "Practicable" merely denotes that something is capable of being done, in contrast to what is practical, which is capable of being done usefully or not at too great a cost. [14] While industry custom and practice presumably favours leaving an abandoned pipeline in place, the wording of this particular provision is open to an interpretation requiring removal of the pipeline. It should be noted that, although not included in the "typical easement" which forms the basis for the analysis in this memorandum, there are a number of forms of easements that specifically provide that the pipeline may be left in place following surrender of the easement.

2. Assignment and Running of Covenants with Land

A typical easement agreement provides for its assignment by either the land owner or the pipeline company without the consent of the other. Further, it may provide that the easement is of the same force and effect as a covenant which runs with the land. In this regard, the agreement we reviewed provided as follows:

> Either party shall have the absolute right to assign this Agreement in whole or in part, and upon such assignment, shall give to the other party written notice thereof within ten (10) days, but [Pipeline Company] need not give such notice upon assignment in the course of its corporate financing by way of a deed of trust, mortgage, debenture or a floating charge or upon an assignment arising out of an amalgamation or merger.

This easement is, and shall be, of the same force and effect as a covenant running with the land and this Agreement shall extend to, be binding upon and enure to the benefit of the heirs, executors, administrators, successors and assigns of the Owner and [Pipeline Company], respectively.

The latter provision arguably merely reflects the law as it is set out in s. 72 of the *Land Titles Act* which overcomes the difficulty that a pipeline easement does not satisfy the characteristics of an easement at common law requiring, among other things, that it serve a dominant tenement.[15] However, the terms of an easement with respect to assignment and its effects raise more difficulties. The issue which arises is whether the terms and conditions which are ancillary to the grant of easement will be enforceable by the assignee as against the original grantor or grantee, as the case may be. This requires a review of the principles governing the running of covenants with land and the assignment of contracts.

a. Running of Covenants with the Land

The law of landlord and tenant is instructive with respect to the rules applicable to the running of benefits and burdens under a grant of easement with land. This is supported by the following passage from *Gale on Easements* with respect to an obligation to repair under a grant of easement:

> If such a provision were contained in a grant of an easement for a term of years, its benefit and burden would run, no doubt, in accordance with the rules applicable to covenants and leases. [16]

When there is an assignment of a landlord's or tenant's full interest under a lease, the assignee acquires the estate initially held by the original landlord or tenant as the case may be. However, whereas there is privity of contract as between the original landlord and tenant, there is no privity of contract as between the landlord or tenant, as the case may be, and the assignee. Nevertheless, there remains a relationship between the two which is explained as follows in Ziff's *Principles of Property Law*:

> [T]here is a direct tenurial relationship between the two - a *privity of estate* - and this governs the rights and obligations owed directly between the original landlord and the new tenant by assignment. Not all terms contained in the head lease will apply between these two parties: under the rule in *Spencer's case* [(1583), 77 E.R. 72], only those so called *real covenants* in the original lease will run with the transfer of the lease into the hands of the assignee. A comparable rule applies where the landlord assigns the reversionary interest in the property. If that occurs, the new landlord does not share privity of contract with the original tenant, but they are in privity of estate with one another. [17]

Real covenants are those that are said to "touch and concern" the land. There is very little in the way of Canadian authority on the application of this requirement, however, in *Merger Restaurants v. D.N.E. Foods Ltd.*, [18] Philp, J.A. held that such covenants must effect the nature, quality, or value of the land, or the type of use to which it is put. Accordingly, a covenant to repair will clearly run with the land. On the other hand, a covenant to indemnify one or the other party to the agreement against third party liability is arguably personal to the contracting parties and should not necessarily run. That said, the dividing line between those covenants which are considered personal and those which run with the land has not always been so clearly drawn by the case law. Of course, all of this depends on the existence of the easement and the covenants which are ancillary thereto. Effectively, these principles are only relevant to a transfer of land before the easement is terminated by the abandonment of the pipeline.

b. Assignment of Contracts

In any event, it is conceivable that the *Judicature Act*[19] carries the law a step further, and, whether the covenant runs with the land or not, the assignee of the reversion of term may sue or be sued on any covenant expressly assigned. However, where there is a dispute between assignees without an express assignment, contract principles are no longer relevant.

Assignment, in the contractual context, involves the transfer of rights arising under a contract to a person who was not originally a party to it. Historically, contractual rights were unassignable at common law in the sense that an assignee was unable to sue for recovery of a benefit under the contract in his own name. [20] However, the courts of equity were prepared to treat a benefit under a contract as a piece of property capable of being dealt with like any other property that could be assigned. [21] When the powers of the courts of equity and law were combined in a single court under the United Kingdom *Judicature Act* in 1873, a provision was included which dealt specifically with assignments. The essence of that provision was re-enacted in all of the Canadian provinces. In Alberta, it took the form of s. 21 of the *Judicature Act*:[22]

> 21(1) When a debt or other legal chose in action is assigned by an absolute assignment made in writing under the hand of the assignor and not purporting to be by way of charge only, if express notice in writing of the assignment has been given to the debtor, trustee or other person from whom the assignor would have been entitled to receive or claim the debt or chose in action, the absolute assignment is effectual in law to pass and transfer
>
> > (a) the legal right to the debt or chose in action from the date of the notice of the assignment,
> >
> > (b) all legal and other remedies for the debt or chose in action, and
> >
> > (c) power to give a good discharge for the debt or chose in action without concurrence of the assignor,
>
> and is subject to all equities that would have been entitled to priority over the right of the assignee if this section had not been enacted.

Thus, assignments are authorized by statute, provided that:

- the assignment is absolute (by which the entire interest of the assignor in the chose in action is transferred to the assignee),
- the assignment is made in writing, and
- written notice of the assignment is provided to the other party to the contract.[23]

No consideration is required for an assignment under the statute. Nevertheless, the statute has made no change in the requirement that the interest to be assigned must be one that can be assigned under the law. That is to say that a contract may exclude assignment by its terms. Furthermore, contracts involving personal relations, or personal skills, are not assignable. This limitation was articulated by O'Connor, C.J.A. in *Blanchette Neon Ltd. v. Charlie Jin*[24] in which he adopted the following statement from *Tolhurst v. Assoc. Portland Cement Co.*: "[T]here is a clear right to assign a contract where no services depending on individual skill or personal confidence are required." [25]

In the case of *Maloney v. Campbell*, the Supreme Court of Canada had to decide whether an obligation to indemnify the grantor of a mortgage in respect of his personal covenant to pay the sum mortgaged was assignable. King, J., speaking for the Court, stated:

> Agreements are said to be personal in this sense when they are based on confidences, or considerations applicable to special personal characteristics, and so cannot be usefully performed to or by another. An agreement to indemnify against payment of a possible money demand is no more personal in this sense than is one to indemnify against payment of a definite and mature liability or an agreement to pay a sum of money for another. [26]

Hence, an agreement to indemnify against payment of a possible money demand was assignable.

Applying these principles to the instant case, it appears likely that a court would determine that the provisions of a typical easement agreement, both with respect to the obligation to restore the lands and indemnification, would be assignable. However, it should be kept in mind that for such an assignment to be valid, it must comply with the requirements under the *Judicature Act* or, at a minimum, with the written notice requirement under the terms of the agreement.

B. Liability in Tort

1. Strict Liability

The elements of the tort of strict liability are as follows:

1. the defendant is in lawful occupation of property;
2. a dangerous agent is stored on the defendant's property which makes for a non-natural use of the land;
3. the agent escapes from the defendant's property;
4. the agent causes damage to the plaintiff.

The modern doctrine of strict liability derives from the rule in *Rylands v. Fletcher*, [27] which is a 19th century English case in which the defendant hired an independent contractor to construct a reservoir on his land. The contractor failed, in the construction of the reservoir, to take into account the existence of old mine shafts beneath the reservoir. When the reservoir was filled, the shafts gave way and water flowed through to the plaintiff's new mine works. In imposing liability, Blackburn, J. enunciated the following principle:

> [T]he person who, for his own purposes, brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and if he does not do so, he is *prima facie* answerable for all the damage which is the natural consequence of its escape. He can excuse himself by showing that the escape was owing to the plaintiff's default, or, perhaps, that the escape was the consequence of *vis major*, or the act of God ... .[28]

The House of Lords upheld Blackburn, J.'s decision, but in so doing, Lord Cairns drew a distinction between natural and non-natural uses of land, and limited liability to cases where damage resulted from the non-natural use of land. [29] The meaning of the phrase non-natural use was considered by the Privy Council in *Rickards v. Lothian* in which Moulton, L.J. stated:

> It is not every use to which land is put that brings into play that principle. It must be some special use bringing with it increased danger to others, and must not merely be the ordinary use of the land or such a use as is proper for the general benefit of the community. [30]

Liability under the rule in *Rylands v. Fletcher* is not confined to owners of land. If a defendant has a licence on or under the land of another, that defendant might be liable if the thing he or she brings onto the land, in accordance with the licence, escapes and causes damage to another. [31] What is essential is that the defendant should be in occupation of the land or have some right to use the land so as to entitle the defendant to bring onto the land that which, upon its escape, brings the doctrine into play.

Several cases have narrowed the definition of the defendant's property to expand upon the circumstances in which there can be said to have been an escape. Accordingly, electrical wires have been considered to be property such that a break in a wire was an escape, [32] and a water main was restricted to the actual pipe so that any leakage constituted an escape. [33]

It seems fairly clear that, in most circumstances, a pipeline operator will be held to be strictly liable for damage to property or injury to persons arising from a leak of a transmitted substance in the course of the operation of the pipeline. However, assuming that the effect of abandonment is to bring to an end any grant of easement for the pipeline and, accordingly, the pipeline operator's property interest in the pipeline, there would be a strong argument that the pipeline operator is no longer in occupation of the easement and, therefore, has no control over any substance that escapes from the pipeline. [34] While it follows that a pipeline operator is unlikely to be held strictly liable, the pipeline operator might nevertheless be held liable in negligence or nuisance.

Insofar as the owner of the land on which the abandoned pipeline is located is concerned, it

appears unlikely that the land owner would be held strictly liable for an escape from the pipeline. This is because the pipeline operator would not be considered an independent contractor for which the land owner, under the rule in *Rylands v. Fletcher*, could be held vicariously liable. [35]

2. Nuisance

The basic principle of private nuisance is that a defendant may not cause a substantial and unreasonable interference with the plaintiff's use and enjoyment of its land. Nuisance claims typically concern plaintiffs and defendants who are occupiers of neighbouring parcels of land. However, non-occupiers of land have also been held liable for creating a private nuisance. Generally speaking, a person is responsible for the unreasonable interference with a person's use and enjoyment of land where he or she has:

- Created the nuisance;
- Authorized the creation of the nuisance;
- Permitted the nuisance to continue, regardless of whether he or she has caused the nuisance; or
- Permitted others to create the nuisance by their foreseeable actions (i.e., vicarious liability for employees or contractors, which is not relevant to the relationship between a land owner and a pipeline company and is, therefore, not addressed here).

a. Creating the Nuisance

In *Jackson v. Drury Construction Co.* [36] the Court of Appeal of Ontario held the defendant contractor liable for the pollution of the plaintiff's well. During the course of reconstructing a county road, the defendant's blasting operations opened up fissures in the bedrock that allowed material from a piggery to escape into the underground water that fed into the plaintiff's well. The Court held that, even though the plaintiff's well was polluted by a source other than the defendant's property, the defendant would be liable in private nuisance because the plaintiff's well was polluted as a direct result of the defendant's blasting operations. The Court stated as follows:

> In an action for nuisance, liability attaches to anyone who either creates or causes a nuisance, and the cause of action is not dependent on the person being in occupation of the premises from which the nuisance emanates. [37]

In *Salmond on the Law of Torts* it is suggested that the liability of a non-occupier should depend on a positive act of misfeasance:

> Does a person who is in occupation of premises on which there is a nuisance, and who is liable for that nuisance by virtue of his occupation, cease to be liable when he ceases to occupy? Does a vendor of land, for example, put off his responsibility along with his ownership? Or does the liability of a tenant cease with the assignment, surrender, or determination of the lease? On this point, there is little authority, but it is submitted that (except in the case of nuisance by positive misfeasance) liability dependent on occupation lasts only so long as the occupation on which it is based. In the case of positive misfeasance however, this is not so. Liability of this kind is based not on occupancy but on the doing

> of the act which creates the nuisance; and its continuance, therefore, is independent of the ownership or occupation of the property on which the act is done.
>
> .....
>
> He who by himself or by his servants by a positive act of misfeasance (as opposed to a mere non-feasance, such as an omission to repair) creates a nuisance is always liable for it, and for any continuance of it, whether he be the owner, the occupier or a stranger, and notwithstanding the fact that it exists on land which is not in his occupation, and that he has therefore no power to put an end to it. [Footnotes deleted.] [38]

From the perspective of a pipeline operator, it is most likely that a nuisance caused by an abandoned pipeline would only arise after the pipeline had been abandoned for some time. Presumably, most problems would be the result of corrosion of the pipeline, loss of buoyancy control or loss of cover. Accordingly, a pipeline operator could argue that the nuisance was the result of an omission to repair which, being a non-feasance, is not actionable. However, it is still likely that the initial installation and abandonment of the pipeline would be construed as positive acts which led to the nuisance and were antecedent to the omission to repair. While the creation of an interference with a land owner's property interest is unlikely to be the immediate result of these acts, it is substantially certain to follow. [39]

However, regardless of whether or not a pipeline operator's liability in nuisance for an abandoned pipeline depends on an act of misfeasance, the traditional view remains that the nuisance must originate from property other than the plaintiff's property. This proposition is stated as follows in *Salmond on the Law of Torts*:

> As nuisance is a tort arising out of the duties owed by neighbouring occupiers, the plaintiff cannot succeed if the act or omission complained of is on premises in his sole occupation. The nuisance must have arisen elsewhere than in or on the plaintiff's premises, whether it is a common law or a statutory nuisance. A nuisance is therefore usually created by acts done on land in the occupation of the defendant, adjoining or in the neighbourhood of that plaintiff. [40]

Lower court authority for this proposition was provided by Locke, J. of the British Columbia Supreme Court in *Engemoen Hldg. Ltd. v. 100 Mile House*. [41] In that case, the plaintiff owners of a shopping centre sued the defendant village which had a licence to keep a water main underlying the plaintiff's property. Damages were claimed when a leak in the water main caused part of the shopping centre to settle. The defendant was held not to be liable in nuisance because the break which caused the damage occurred on the plaintiff's property. [42]

An issue arises as to whether some degree of occupation results from a pipeline easement, such that the plaintiff land owner is not in exclusive occupation of his or her lands. The Alberta Court of Appeal considered this issue in *Husky Oil Operations Ltd. and Alberta Inspector of Land Titles v. Shelf Holdings Ltd.*. [43] In that case, the Court held that a pipeline easement does give certain rights of exclusive possession to the holder of the easement

sufficient to establish occupation, but that it is not an interest in land yielding exclusive rights consistent with ownership. However, in the context of abandoned pipelines, a pipeline operator's occupation should be viewed as having come to an end with the termination of the easement and, accordingly, the pipeline operator would be viewed as a non-occupier.

b. Authorizing the Creation of a Nuisance

Liability for authorizing the creation of a nuisance has been restricted to the landlord/tenant relationship. [44] The rule has been stated as follows:

> In general, a landlord is not liable for nuisance committed by his tenant, but to this rule there is, so far as now in point, one recognized exception, namely, that the landlord is liable if he has authorized his tenant to commit the nuisance.
>
> ....
>
> But, this exception has, in the reported cases, been rigidly confined to circumstances in which the nuisance has either been expressly authorized or is certain to result from the purposes for which the property is let. [45]

A landlord's liability in private nuisance normally depends on whether a nuisance is certain to result from the purposes for which the property is let or, in other words, where the nuisance is the natural and necessary result of what the landlord authorized the tenant to do.

Based on the restriction of this rule to the landlord/tenant relationship, it is unlikely that it can be used to shift liability for a nuisance arising from an abandoned pipeline from the pipeline operator to the owner of the land upon which the abandoned pipeline is located. Furthermore, it may be difficult to show that the nuisance created was the natural and necessary result of what the land owner authorized the pipeline operator to do by grant of easement, particularly if it is assumed that the proper abandonment of the pipeline is an explicit or implied term of the grant.

c. Permitting a Nuisance to Continue

A person may, however, be held liable in private nuisance for allowing a nuisance, created by another person, to continue. The leading case on this point is *Sedleigh-Denfield v. O'Callaghan*. [46] In that case, the defendant occupier had a drain installed on his land in a man-made ditch. The critical fact was that the municipality that installed the drain did not have the defendant's consent and was found to be trespassing. The drain plugged up and flooded the plaintiff's land. The Privy Council found that the nuisance had been created by the trespassing municipality but, notwithstanding this, it held the defendant occupier liable. The Privy Council stated that an occupier of land subject to a nuisance which he did not create was still liable in nuisance if he adopted the nuisance or suffered its continuance. The occupier would be found to adopt the nuisance if he made use of it after taking occupation, and he would be seen to suffer its continuance if he allowed the nuisance to continue after he was aware of it or after it should have come to his attention. In that case, the defendant had made use of the nuisance to drain his own land and was thus found to have adopted it. [47]

In *Salmond on the Law of Torts*, it is stated: "... an occupier is liable even for a continuing nuisance which already existed on the premises when he first entered into possession of them." [48] This statement of law has been sustained by Lord Wilberforce in *Goldman v. Hargrave*. Quoting from *Salmond on the Law of Torts*, Lord Wilberforce stated:

> When a nuisance has been created by the act of a trespasser or otherwise [e.g. a predecessor in title] without the act, authority, or permission of the occupier, the occupier is not responsible for the nuisance unless, with the knowledge or means of knowledge of its existence he suffers it to continue without taking reasonably prompt and efficient means for its abatement. [49]

One of the most difficult problems Lord Wilberforce had to deal with was the scope of the duty involved. Lord Wilberforce considered it unjust to hold a person of modest means responsible to abate the nuisance that was created through no fault of his or her own and attempted to explain the duty of care an occupier would have in such circumstances. He stated:

> [T]he matter cannot be left there without some definition of the scope of his duty. How far does it go? What is the standard of the effort required? What is the position as regards expenditure? It is not enough to say merely that these must be "reasonable" since what is reasonable to one man may be very unreasonable, and indeed ruinous, to another: the law must take account of the fact that the occupier on whom the duty is cast, has, *ex hypothesi*, had this hazard thrust on him through no seeking or fault of his own. His interest, and his resources whether physical or material, may be of a very modest character either in relation to the magnitude of the hazard, or as compared with those of his neighbour. As a rule which required of him in such unsought circumstances in his neighbours interest a physical effort of which he is not capable, or an excessive expenditure of money, would be unenforceable or unjust. One may say in general terms that the existence of a duty must be based on knowledge of the hazard, ability to foresee the consequences of not checking or removing it, and the ability to abate it. [50]

In the present circumstances, it may be suggested that a land owner will be liable for a nuisance created by the grantee of an easement across his or her land even after that easement has been terminated. However, the duty is limited by the personal circumstances of the owner.

In any event, the land owner would probably be able to seek contribution and indemnity from the pipeline company, either under the conditions and covenants in the easement agreement or under joint tort feasor legislation. This of course is only possible if the pipeline company still exists and has sufficient assets to make good on an indemnity obligation.

3. Negligence

Negligence law is designed primarily to compensate victims of accidents. Its effect is to deter careless conduct and encourage prudent behaviour between those who stand in a relationship giving rise to a duty of care. To define acceptable forms of behaviour, the courts fix standards of care that are reasonable or conform to the practice or custom relating

to the activity under scrutiny. To maintain an action in negligence a plaintiff must establish that:

1. the defendant owed the plaintiff a duty of care;
2. the duty had to be met to a specified standard;
3. the defendant breached that duty; and
4. the breach caused the plaintiff actual loss.

Unlike nuisance and trespass actions, a negligence claim does not depend on interference with the use and enjoyment of land, nor is negligence restricted to occupiers of land.

a. Duty of Care

The existence and extent of a duty of care must be considered when determining whether an action in negligence can succeed. The duty of care has been described as an obligation to avoid behaviour that causes an unreasonable risk of damage to others. Atkin, L.J. defined the relationship that gives rise to a duty of care in the celebrated case of *Donoghue v. Stevenson* as persons who "are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question." [51]

Whether a duty arises depends upon the circumstances of the case. The duty of care is confined to that class of persons that falls within a foreseeable range of risk. The notion of foreseeability is essential to determining whether a duty of care exists. [52]

The Supreme Court of Canada recently defined the existence and scope of the duty of care in *Winnipeg Condominium Corp. No. 36 v. Bird Construction Co.* [53] In that case, the Supreme Court of Canada adopted the approach enunciated as follows in the English decision of *Anns v. Merton London Borough Council*: [54]

1. Is there a sufficiently close relationship between the parties so that, in the reasonable contemplation of the defendant, negligence on its part might cause damage to another?
2. Are there any factors that may limit or negate the scope of that duty, the class of persons to whom that duty is owed or the damages arising from the breach of the duty?

The second branch of the test apparently stems from an attempt by the courts to control the growth of negligence liability by taking into account other social needs, policies and objectives.

In the context of abandoned pipelines, establishing that a duty of care is owed by a pipeline operator to a particular party will depend on the particular facts of the case. However, it is probably safe to say that a duty of care will not be difficult to establish in most reasonably conceivable situations in which injury or damages might arise.

b. Standard of Care

To succeed in negligence, a plaintiff must demonstrate that the behaviour of the defendant

fell below a standard of reasonable care under the circumstances. In general terms, the standard of care is determined by examining what a reasonable person would have done under the circumstances. The reasonable person has been described as a person of normal intelligence who acts prudently in accordance with the prevailing and approved practices. [55] Where applicable, the courts may look to standards established by statute, regulation or bylaw in determining what is the appropriate standard of care. The court may consider the legislation's policy objectives and decide whether to give it effect as an applicable standard. However, it should be noted that the civil consequences of a breach of statute have been subsumed into the law of negligence, and proof of a statutory breach causing damages is considered evidence of negligence only. [56]

These principles are illustrated in *McGeek Enterprises Ltd. v. Shell Canada Ltd.* [57] The Court in that case rejected the criteria contained in certain regulations as a standard by which the defendant's conduct was to be measured in deciding civil liability. The defendant, which had used its property as a gas station, sold the property to a real estate board, which in turn sold the property to the plaintiff. The plaintiff discovered soil contamination in an area that formally contained an underground storage tank. The plaintiff brought an action against the defendant in negligence as there was no agreement of purchase and sale between those parties and based its claim upon a statutory breach of duty. The plaintiff asserted that the defendant was in breach of a regulation promulgated under the *Gasoline Handling Act* [58] which required an owner of an underground storage tank which was no longer expected to be used to, among other things, remove any contaminated soil which was around or under the tank. While the Court accepted the opinion of the defendant's expert who concluded that the contamination on the site was insufficient to pose an appreciable risk to health, safety or the environment, the Court was compelled to find that the defendant was in breach of the regulation because all traces of the contaminant were not removed. Nevertheless, the Court held that the breach was insufficient for the purposes of imposing civil liability. The regulations would have required excavating the entire lot, which was considered an enormously expensive, impractical and inconsequential exercise for the safe use of the property. As a matter of policy, the Judge did not see merit in imposing civil liability on a party who failed to meet a statutory standard that was, in practical terms, unattainable and unnecessary. The Court held that civil liability is only to be imposed in circumstances where it has been proven, on a balance of probabilities, that the defendant's actions have fallen short of a suitable standard of reasonable care established by the evidence.

The corollary to the proposition that a breach of a statute will not automatically give rise to a finding of civil liability in negligence is that compliance with statutory, regulatory, or industry standards will not necessarily suffice to avoid liability. Compliance with statutory provisions does not replace a defendant's common law duty of care. [59] Where abandoned pipelines are involved, a pipeline operator will probably be held to the standards established for abandoning pipelines under the applicable legislation and the accepted practice of industry. Accordingly, it will presumably be sufficient in most circumstances to follow the established industry practices for abandoning a pipeline and, where appropriate, to leave the pipeline in place. Establishment of technical and engineering standards is, therefore, important because they will be persuasive evidence of the *prima facie* standard of care required on abandonment.

c. Pure Economic Loss

Economic loss is generally defined as costs which do not arise out of injury to persons or damage to property except for the defective property which is itself at issue. Until 1995, the Supreme Court of Canada adhered to the long-standing principle that purely economic loss was only recoverable in very narrow circumstances. That long-standing principle stems from *Rivtow Marine Ltd. v. Washington Iron Works* [60] in which the Supreme Court of Canada refused to award the plaintiff damages based on loss of profits and cost of repair arising from having to take a negligently constructed crane out of service. Laskin, C.J., however, in a strong dissent, wrote that there should be no distinction between liability for a product that had already injured someone and liability for a product that might injure someone if not made safe. Accordingly, he would have awarded the cost of making the crane safe. The English House of Lords followed the Laskin dissent in *Anns v. Merton London Borough Council* [61] and awarded damages for economic loss where the damage produced a risk of physical harm. This principle was later accepted by the Canadian courts, [62] which was reaffirmed in *Winnipeg Condominium Corp. No. 36 v. Bird Construction Co.* [63] In that case, it was held that a building contractor, who is negligent in the construction of a building and the defects arising out of that negligence pose a "real and substantial danger" to the occupants of the building, is liable in tort for the reasonable costs of repairing the structure for the purpose of putting the building into a safe condition.

Applied to the matter at hand, this reasoning would appear to suggest that a land owner might be able to recover from a pipeline operator costs of performing further reclamation work on an abandoned pipeline which is likely to cause a "real and substantial danger" to the owner or third parties. If damage relates to persons or other property (other than the right-of-way itself), there will be a definite cause of action in negligence.

C. Liability and Property Interest Under the NEB Act

1. Liability Under Section 75

Section 75 of the NEB Act reads as follows:

> 75. A company shall, in the exercise of the powers granted by this Act or a Special Act, do as little damage as possible, and shall make full compensation in the manner provided in this Act and in a Special Act, to all persons interested, for all damage sustained by them by reason of the exercise of those powers.

The general powers of pipeline companies are set out in section 73 of the NEB Act, which reads as follows:

> 73. A company may, for the purposes of its undertaking, subject to this Act and to any Special Act applicable to it,
>
> > (a) enter into and on any Crown land without previous licence therefor, or into or on the land of any person, lying in the intended route of its pipeline, and make surveys, examinations or other necessary arrangements on the land for fixing the site of the pipeline, and set out and ascertain such parts of the land as are necessary and proper for the pipeline;

(b) purchase, take and hold of and from any person, any land or other property necessary for the construction, maintenance and operation of its pipeline and alienate, sell or dispose of any of its land or property that for any reason has become unnecessary for the purpose of the pipeline;

(c) construct, lay, carry or place its pipeline across, on or under the land of any person on the located line of the pipeline;

(d) join its pipeline with the transmission facilities of any other person at any point on its route;

(e) construct, erect and maintain all necessary and convenient roads, buildings, houses, stations, depots, wharves, docks and other structures, and construct, purchase and acquire machinery and other apparatus necessary for the construction, maintenance and operation of its pipeline;

(f) construct, maintain and operate branch lines, and for that purpose exercise all the powers, privileges and authority necessary therefor, in as full and ample a manner as for a pipeline;

(g) alter, repair or discontinue the works mentioned in this section, or any of them, and substitute others in their stead;

(h) transmit hydrocarbons by pipeline and regulate the time and manner in which hydrocarbons shall be transmitted, and the tolls to be charged therefor; and

(i) do all other acts necessary for the construction, maintenance and operation of its pipeline.

Under Part V of the NEB Act, provision is made for determining compensation for the taking and using of lands by a pipeline company in the exercise of its powers as noted above. Depending on the type of lands involved, the party from whom consent is required and with whom compensation is to be negotiated for such taking and using varies.

The types of lands include Crown lands, Indian lands, settlement land, Tetlit Gwinch'in Yukon land, land subject to mining operations and freehold land. In the case of Crown lands (s. 77) and Indian Lands (s. 78), consent is required from the Governor in Council, as it is for settlement land (s. 78.1(1)) and Tetlit Gwinch'in Yukon land (s. 78.1(2)) provided such consent cannot be obtained from the Yukon first nation concerned or the Gwinch'in Tribal Council, respectively. Compensation may have to be paid to the owner, lessee or occupier of a mine (s. 83).

Not all of these parties fit within the classic conception of the term owner. Accordingly, section 85 of the *NEB Act* defines owner as "any person who is entitled to compensation under section 75", which in turn refers to "all persons interested". While this latter phrase is not defined, it is arguably intended to mean only those parties referred to above.

If the pipeline company is able to acquire lands for its pipeline by agreement with the appropriate interested party, the land acquisition agreement negotiated as between them is required to include a number of provisions set out in s. 86 of the NEB Act, including the following:

> 86(2)A company may not acquire lands for a pipeline under a land acquisition agreement unless the agreement includes provision for
>
> > **...**
> > (c) compensation for all damages suffered as a result of the operations of the company;
> >
> > (d) indemnification from all liabilities, damages, claims, suits and actions arising out of the operations of the company other than liabilities, damages, claims, suits and actions resulting from the gross negligence of the owner of the lands;...

While this provision sets out certain terms concerning liability for damages which must be included in a land acquisition agreement, the NEB Act does not stipulate a specific remedy for resolving all potential claims for damages which might arise from the operation of a pipeline. Accordingly, the question of liability and damages will in many instances fall to be determined according to common law principles.

If a pipeline operator and an interested party are unable to agree on any matter respecting compensation, a procedure is provided for negotiation and arbitration. [64] However, it remains that those procedures for determining compensation do not apply in respect of all damages which may result from the pipeline company's operations. The scope of the NEB Act's application in this regard is set out in s. 84:

> 84 The provisions of this Part that provide negotiation and arbitration procedures to determine compensation matters apply in respect of all damage caused by the pipeline of a company or anything carried by the pipeline **but do not apply to**
>
> > (a) claims against a company arising out of activities of the company unless those activities are directly related to
> >
> > > (i) the acquisition of lands for a pipeline,
> > > (ii) the construction of the pipeline, or
> > > (iii) the inspection, maintenance or repair of the pipeline;
> >
> > (b) claims against a company for loss of life or personal injury; or
> >
> > (c) awards of compensation or agreements respecting compensation made or entered into prior to March 1, 1983.

The effect of this provision is to limit the scope of compensation matters which can be determined by the specific procedures set out in the NEB Act. Those procedures are to be followed only for determining damages in relation to certain activities involved in the

operation of the pipeline, which do not explicitly include abandonment, and do not include damages for injury or loss of life. [65] It follows that those claims for damages arising from the pipeline company's operations which are not determined by the procedures specified in the NEB Act are left to be determined at common law.

In any event, the abandonment of a pipeline may effect a lapse of the NEB's jurisdiction over it. This proposition was accepted by the Board in its Reasons for Decision MH-1-96. [66] The Board, while recognizing that a pipeline company is required to seek leave of the NEB to abandon a pipeline under s. 74(d), noted that the NEB Act does not stipulate the legal consequences of an abandonment order. Those consequences, therefore, fell to be determined by general principles of law. Accordingly, the Board looked to the definition of "pipeline" in section 2 of the NEB Act, which reads as follows:

> "pipeline" means **a line that is used or to be used for the transmission of oil or gas** alone or with any other commodity, and that connects a province with any other province or extends beyond the limits of a province or the offshore area as defined in section 123, and includes all branches, extensions, tanks, reservoirs, storage facilities, pumps, racks, compressors, loading facilities, interstation systems of communication by telephone, telegraph or radio and real and personal property and works connected therewith;

The Board held that it ceases to have jurisdiction over a pipeline after it has been abandoned in accordance with the procedures mandated by the law as it is not "used or to be used for the transmission of oil or gas..."

Accepting that federal jurisdiction over the pipeline ceases once a pipeline company has obtained an abandonment order and disposes of its interest in the property containing the abandoned pipeline, it follows that an interested party will no longer have its remedies under the NEB Act and will have to rely on its remedies at common law.

2. Property Interest Under Section 111

Section 111 of the NEB Act provides as follows:

> 111 Notwithstanding this Act or any other general or Special Act or law to the contrary, where the pipeline of a company or any part of that pipeline has been affixed to any real property in accordance with the leave obtained from the appropriate authority as provided in subsection 108(2) or (6) or without leave pursuant to subsection 108(5),
>
> > (a) the pipeline or that part of it remains subject to the rights of the company and remains the property of the company as fully as it was before being so affixed and does not become part of the real property of any person other than the company unless otherwise agreed by the company in writing and unless notice of the agreement in writing has been filed with the Secretary; and
> >
> > (b) subject to the provisions of this Act, the company may create any lien, mortgage, charge or other security on the pipeline or that

part of it. [67]

Under section 108 of the NEB Act, it is contemplated that a pipeline may be constructed on, over, under, or along certain Crown property or utilities. Section 111 is therefore put in place to preserve a pipeline company's interest in, and the statutory authority to construct, operate and maintain, a pipeline where it becomes affixed to that Crown property or any other utility as defined in the NEB Act. This provision was presumably put in place to eliminate any uncertainty as to the preservation of a pipeline company's property interest in a pipeline which arises at common law. This uncertainty stems from the principle of property law that if a chattel becomes sufficiently attached to land, it may be transformed into a fixture and thereby become part of the real property.

The determination of whether a chattel has been transformed into a fixture is a matter of objective intention. This intention is generally ascertained by examining the degree and purpose of the attachment to real property. Where a chattel is attached to land, even slightly, it raises a rebuttable presumption that it has become a fixture. [68] The ground for rebutting that presumption is the purpose of the annexation. The test, according to the leading case of *Stack v. T. Eaton Co.* [69] is whether the purpose of the attachment was to enhance the land, or for the better use of the chattel as a chattel.

If it is accepted that the NEB's ruling on the effect of the issuance of an abandonment order on its jurisdiction over a pipeline is correct, then presumably section 111 ceases to apply after pipeline abandonment. Accordingly, the question of whether or not the pipeline has become a fixture, and thus part of the real property of the Crown or a utility, is left to be determined by principles of property law.

There are a number of factors which weigh against a pipeline company's intention to maintain its property interest in a pipeline, including the very act of abandonment in place, the time which may pass between abandonment and the eventual removal of the pipeline, and the degree of property damage which is required to effect the detachment of the pipeline from the land.

The ultimate determination of whether a pipeline becomes a fixture after abandonment will depend on the facts of a particular case and whatever agreements may be in place. However, a strong argument may be made that a pipeline company loses its property interest in the pipeline, particularly after some time has passed since the abandonment.

V. LAND TITLES REGISTRATION ISSUES

A. Registration of Easements

A pipeline easement can be registered under the *Land Titles Act*[70] in several ways:

1. by caveat;
2. by easement/utility right-of-way agreement;
3. by registered right-of-way plan; and
4. by having a fee simple certificate of title issued for those lands encompassed within a right-of-way.

Of those methods referenced above, the most common would presumably be by way of an easement/utility right-of-way agreement registered against the certificate of title to the lands of the land owner. Insofar as major undertakings are concerned, the lands encompassed under the right-of-way are delineated in a registered right-of-way plan, which plan is referenced in the easement/utility right-of-way agreement entered into with the land owner. In fact, section 31(d) of the NEB Act provides that no pipeline may be constructed until such time as a plan of the right-of-way lands is prepared and registered with the registrar of the applicable Land Titles Office. However, section 58 pipelines, which are pipelines not exceeding 40 kilometres in length, are normally exempted from the requirement. Further, there does not appear to be a similar requirement for provincially regulated pipelines.

At common law, an easement which is enforceable by and against successors in title to land can only be registered against title to the land in question if, among other things, there is a dominant tenement and a servient tenement referenced in the easement agreement. The servient tenement is subject to certain covenants and/or restrictions granted in favour of the dominant tenement. This requirement, however, of the need for a dominant and servient tenement does not fit in well with typical public or other utility easements where there generally is no dominant tenement. Section 72 of the *Land Titles Act* was enacted, which provides for the registration of an interest in land known as a utility right-of-way. This interest is most commonly granted for public utilities or oil and gas pipelines where there is a need for a continuous right-of-way over, under or across many parcels of land, as there is no dominant tenement in such a situation. In those circumstances, section 72 dispenses with the common law requirement of a dominant tenement by the enactment of a statutory provision to allow the granting of specified rights to specified entities.

A utility right-of-way is often referred to as an easement in that it grants to the grantee rights which are similar to rights granted under a common law easement. Since there is no dominant tenement, the utility right-of-way/easement is registered only against that land which is subject to the rights granted. Once it is registered, the right to use that land in accordance with the terms of the grant remains with the grantee pursuant to the terms of the agreement.

In certain instances, an easement/utility right-of-way may be registered by way of caveat by the pipeline company and, in rare cases, the holder of the pipeline right-of-way may be issued a certificate of title where the pipeline company has been granted fee simple ownership of those lands encompassed within the right-of-way.

B. Discharge of Registration

Pipeline abandonment may terminate an easement, depending on its tenure, but this will not automatically discharge the registration. Regardless of which registration method is applicable, the discharge of an easement/utility right-of-way agreement, caveat or cancellation of a certificate of title does not come about simply because the pipeline which forms the subject matter of the utility right-of-way/easement has been abandoned. Further steps must be taken. [71]

Any instrument or caveat registered under the *Land Titles Act* or a certificate of title can be discharged or cancelled by Order of the Court of Queen's Bench of Alberta. This process, presumably, involves the applicant (in most cases the land owner) bringing a motion before the Court, which motion, together with supporting affidavit, would be served on the current

holder of the benefits granted under the right-of-way agreement.

In the event the holder of a pipeline right-of-way agreement chooses to register its interest by way of caveat, the caveat can also be lapsed by a person having an interest in the land serving the caveator with a Notice to Take Proceedings on Caveat ("the Notice"). Unless the time for taking proceedings is shortened by Order of the Court, the caveator will have a period of 60 days following receipt of the Notice within which to commence an action to prove the validity of the caveat which is registered against title to the property in question. The Notice is served on the caveator at the address for service as indicated in the caveat which is registered against title. Should the caveator fail to commence the action to prove the validity of its caveat within the applicable time frame, the caveat can then be discharged upon the person who served the Notice satisfying the Registrar of the Land Titles Office (usually in the form of a statutory declaration) that service of the Notice was effected and that no steps have been taken by the caveator to prove its caveat within the applicable time period.

If the holder of a pipeline right-of-way has been issued a fee simple certificate of title for the lands in question, and thus is the owner of those lands, it would be extremely difficult for any person to have that certificate of title cancelled. Absent the owner of the lands covered by the certificate of title voluntarily agreeing to the cancellation of the title, the only circumstance under which such a certificate of title could be cancelled would be by Order of the Court and that the likelihood of such an Order being granted would be rare.

In what is presumably the most common situation, namely where a pipeline right-of-way agreement is registered by easement/utility right-of-way against the title to the lands in question, discharge of that instrument can only be effected upon receipt by the Land Titles Office of a release or discharge signed by the pipeline company under the right-of-way agreement.

In summary, any registration effected by the holder of a pipeline right-of-way, whether that registration is by way of caveat or easement/utility right-of-way or by the issuance of a fee simple certificate of title, cannot occur without some form of notice being provided to the grantee under the right-of-way agreement. As indicated above, pipeline rights-of-way will, in most instances, have been registered in the form of an easement/utility right-of-way coupled with the registration of a right-of-way plan setting forth the actual area of the right-of-way lands in question. In such a situation, a discharge of that encumbrance cannot occur without obtaining a Court Order or without the Land Titles Office being provided with a release or discharge signed by the pipeline company.

C. Recording of Information at Land titles Office

A registered right-of-way plan and easement/utility right-of-way are provided with registration numbers at the time of registration and any person wishing to obtain copies can do so by simply requesting copies from the applicable Land Titles Office in either Calgary or Edmonton by referencing the number of the plan. In the case of an easement/utility right-of-way, the area of the right-of-way lands can only be described by means of reference to a registered right-of-way plan or by means of a metes and bounds description of the right-of-way lands as prepared by a surveyor.

A utility right-of-way agreement which is registered by way of caveat is also given a

registration number. However, the caveat may or may not refer to a registered right-of-way plan and may simply have attached to it a copy of the applicable right-of-way agreement, and, as part of that agreement, may have appended thereto a diagram showing the location of the right-of-way lands. The actual location of the right-of-way lands referenced in the caveat may or may not be accurate depending on the accuracy of the diagram utilized, as the area need not have been surveyed. In any event, that caveat and any attachments would be on file at the Land Titles Office and could be ordered by any person by referring to the registration number.

In the rare case of a pipeline company being issued with a certificate of title for the lands subject to the right-of-way, the title is given a registration number and the lands are identified by means of a legal description. The title can then be ordered by reference to the legal description.

Any land owner, or any other person, can obtain a copy of any registered right-of-way plan, any easement/utility right-of-way, any caveat or any certificate of title simply by requesting a copy of it from the applicable Land Titles Office. The Province of Alberta is divided into two registration districts, with the delineating line being located at approximately the Town of Innisfail. Any lands located north of Innisfail are dealt with in the North Alberta Land Titles Office in Edmonton, while lands south of Innisfail are dealt with in the South Alberta Land Titles Office in Calgary. [72] Title searches, on the other hand, can be obtained on-line through any private registry agent or, for example, most law offices which have a real estate practice.

Once an instrument or right-of-way plan is registered or a certificate of title issued, even though that instrument or plan may be subsequently discharged, or a certificate of title cancelled, the Land Titles Office maintains a record of those plans, caveats, instruments or titles indefinitely.

It is possible to order a current historical search of a certificate of title which discloses all instruments which are currently registered, or which had been registered, against that certificate of title, even though those instruments may have been discharged. In other words, it is possible to get a complete historical record of all encumbrances, plans or instruments which have been registered in respect of a certificate of title. This, however, only applies to the current certificate of title. Once the applicable registration number of an encumbrance, plan or instrument is known, it can simply be ordered by reference to that number from the applicable Land Titles Office.

In addition, it is possible to undertake a historical search of all certificates of title which have been registered at the Land Titles Office for a particular parcel of land. Each time a parcel of land is transferred, the existing certificate of title is cancelled and a new one issued in its place. A historical search of the current certificate of title may not disclose all instruments which have been registered at any time in respect of that parcel of land. It is possible, if the legal description for a particular property is known, to order copies of all certificates of title which have been issued since the time of the original grant from the Crown, to review those certificates of title and then to order copies of any encumbrances or plans which are disclosed as having been registered in respect of that particular parcel.

It is important to note that Land Titles cannot be searched by the name of the pipeline company or the pipeline. The location of the pipeline must be known, at least in part, to

track down the instruments and plans that were registered in respect of it.

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[1] (1) It should be noted that a pipeline easement does not fit the essential characteristics of an easement at common law. The four characteristics essential to an easement at common law were set out by the English Court of Appeal in *Re Ellenborough Park*, [1956] Ch. 131, and are described as follows in S.G. Maurice's *Gale on Easements*, 15 ed. (London: Sweet & Maxwell, 1986) at p. 7:

1. There must be a dominant tenement (the land which enjoys the benefit of the easement) and a servient tenement (the land which is burdened).
2. An easement must accommodate the dominant tenement.
3. Dominant and servient owners must be different persons.
4. The easement must be capable of forming the subject matter of a grant.

In the context of a pipeline easement, the first two characteristics are generally not satisfied as there is no dominant tenement. This difficulty is overcome by section 72 of the *Land Titles Act*, R.S.A. 1980, c. L-5, which provides that if a registered owner of land grants to a corporation a right on, over or under the land for laying, constructing, maintaining and operating pipelines, the instrument granting the right may be registered at Land Titles. And, more significantly, the grantee has the right to use the land in accordance with the terms of the grant and that right runs with the land notwithstanding that the benefit of the right is not a appurtenant or annexed to any land of the grantee. See discussion below in Part V, Land Registration Issues.

[2]B. Ziff, *Principles of Property Law* (Toronto: Thomson Canada Limited, 1993) at p. 303.

[3]For example, such leave is required from the National Energy Board pursuant to section 74(1)(d) of the *National Energy Board Act*, R.S.C. 1985, c. N-7.

[4]*Supra*, note 2, at p. 285.

[5][1971] S.C.R. 562.

[6]*Goldhar v. Universal Sections and Mouldings Ltd.* (1962), 36 D.L.R. (2d) 450 (Ont. C.A.).

[7]*Supra*, note 5, at 576.

[8]*Supra*, note 5, at 571.

[9](1989), 65 Alta. L.R. (2d) 300 at 305 (Alta. C.A.).

[10] R.S.C. 1985, c. N-7. For a further treatment of these provisions, see discussion below.

[11] "Operation", in this context, will most likely take its meaning from the acts listed in the clause of the easement agreement which sets out the scope of the easement and the rights granted. These acts typically include the construction, operation, maintenance, alteration, removal, replacement, reconstruction and repair of the pipeline.

[12] It may be possible to argue that a cause of action founded on a breach of this provision arises shortly after the abandonment of the easement and, accordingly, that time begins to run sooner than later for the purposes of limitation periods.

[13] Under the easement agreement which was in issue in *Shelf Hldg. Ltd. v. Husky Oil Operations Ltd., supra*, note 9, the grantee was required, upon abandonment, to restore the surface of the lands to its original condition. The argument that removal of the pipeline is not required to effect the restoration contemplated under the agreement is easier to make on that wording than where the obligation is to restore the lands.

[14] See *Shorter Oxford English Dictionary*, 3rd ed. (New York: Oxford University Press, 1973) at p. 1645.

[15] *Supra*, note 1. This should not be taken to mean that the covenants will continue to run with the land after the termination of the easement. See discussion below.

[16] *Supra*, note 1, at p. 48.

[17] *Supra*, note 2, at p. 217.

[18] [1990] 5 W.W.R. 489 (Man. C.A.), leave to appeal to S.C.C. refused [1991] 3 W.W.R. xxvii (S.C.C.).

[19] *Infra*, note 22.

[20] An assignee could only recover under the contract if he: (1) sued in the name of the assignor; (2) sued the assignor under the contract between them for what was promised under the assignment; or (3) forced the assignor to bring the appropriate proceedings against the other original party to the contract.

[21] G.H.L. Fridman, *The Law of Contract*, 3rd ed. (Toronto: Thomson Canada Limited, 1994) at p. 674.

[22] R.S.A. 1980, c. J.-1.

[23] According to S.M. Waddams, *The Law of Contracts*, 3rd ed. (Toronto: Canada Law Book Inc., 1993) at p. 177: "[A]n assignment that fails under the Act, for example because it is not absolute, or not made by a signed writing or because written notice is not given to the obligor, may yet be effective as an equitable assignment."

[24] (1956), 17 W.W.R. 404 at 408 (Alta. C.A.).

[25] [1903] A.C. 414 (H.L.).

[26] (1897), 28 S.C.R. 228 at 233 (S.C.C.).

[27] (1868), L.R. 3 H.L., 330.

[28] *Ibid*, at 279. The tort of strict liability is distinct from nuisance in that strict liability requires actual damage to the land, goods, or person of the plaintiff, while nuisance also encompasses inconvenience caused by the defendant's use of his or her land. Also, strict liability is unlike negligence in that no duty of care need be established and neither must it be shown that the defendant was careless in causing harm to the plaintiff.

[29] Notwithstanding that certain human activities may involve interference with land in its natural state, they do not necessarily constitute non-natural use. In Alberta, the distinction between natural and non-natural use appears to have been approached primarily from a perspective of the extent to which an activity is common or natural to a given community rather than focusing on the increased risk to others of that activity. For example, in *Maron et al v. R.A.E. Trucking et al* (1981), 31 A.R. 216 (Alta. Q.B.), the plaintiff asserted that the defendants should pay damages resulting from a fire on one of the defendant's property which started when

fuel leaking from another defendant's truck undergoing welding repairs was ignited. The Court held that bringing the truck on the premises with fuel was not a non-natural use as the premises had been leased to one of the defendants for general use as a garage and welding business. See also *Grande et al v. Stoney Plain District Savings and Credit Ltd. et al* (1989), 118 A.R. 295, and *Modern Livestock Ltd. v. Elgersma* (1989), 69 Alta. L.R. (2d) 20. However, in *Schunicht v. Tiede* (1979), 20 A.R. 606 (Alta. Q.B.), strict liability was found where a defendant farmer sprayed a herbicide from an airplane over his land and the spray drifted onto the plaintiff's land and damaged his crops. The Court also noted that, in any event, the defendant would be liable in negligence.

30 [1913] A.C. 263 at 280 (P.C.)

31 See *Heintzman & Co. v. Hashman Construction Ltd.* (1973), 32 D.L.R. (3d) 622 (Alta. S.C.), in which the defendant was held liable for damage caused by litter which fell from the building being constructed by the defendant onto the plaintiff's building.

32 See *Ottawa Electric Co. v. Crepin*, [1931] S.C.R. 407.

33 See *Sheels Brothers Lumber Co. v. Arnprior (Town)*, [1959] O.W.N. 305 (H.C.J.).

34 In *Boudreau v. Irving Oil Co.* (1974), 9 N.B.R. (2d) 377 (N.B. C.A.), the owner of land adjacent to a service station discovered that his property was contaminated with gasoline. He sued the defendant oil company which owned the land and leased it to the station operator. The evidence indicated that the operator had experienced leakage problems at the pumps. Relying on *Rainham Chemical Works Ltd. v. Belvedere Fish Guano Co.*, [1921] 2 A.C. 465 (H.L.), the Court dismissed the action against the oil company because it was not in occupation of the service station in its own right and, therefore, had no control over the gasoline that escaped.

35 Generally speaking, a person is not vicariously liable for the negligence of an independent contractor he or she employs. However, this is not the case where the work ordered involves an inherent and obvious danger of injurious consequences unless properly done.

36 (1974), 4 O.R. (2d) 735 (Ont. C.A.).

37 *Ibid.,* at 739.

38 R.F.V. Heuston, *Salmond on the Law of Torts,* 6 ed. (London: Sweet and Maxwell, 1973) at p. 68. However, the author states in a note that in some cases even an omission to repair may give rise to liability.

39 See the words of Davie, C.J.A. in *Patterson v. Victoria (City)* (1897), 5 B.C.R. 628 at 645 (S.C.), on the subject of liability of public corporations in nuisance which depends on a positive act of misfeasance:

> If a public Corporation, by any act which it does, impedes or endangers the highway, it is said to be guilty of misfeasance; in other words, it causes a nuisance, for which it is just as responsible as any other wrongdoer who is not a public Corporation. It is not at all necessary to complete the responsibility of the Corporation that the nuisance should be attributable to any one act of the defendant's in particular, without which, apart from other circumstances, the nuisance would not have been occasioned, nor that it should be an act in the nature of trespass, nor, indeed, any act of commission at all. On the contrary, many of the cases in which the Corporations have been held liable for misfeasance are in respect of acts of omission only, which would have amounted to mere nonfeasance, had it not been for antecedent acts performed or sanction by the Corporation, but which in the public safety required to be guarded against.

[40] *Supra*, note 37, at pp. 51-52. The defendant need not necessarily be the owner or occupier of that land as evidenced by *Jackson v. Drury Construction Co., supra*, note 36.

[41] [1985] 3 W.W.R. 47 (B.C.S.C.).

[42] However, the defendant was still liable in trespass and for loss of vertical support.

[43] (1989), 65 Alta. L.R. (2d) 300 at 313 (Alta. C.A.). The Court held unanimously in that case that a grant of right-of-way was an "easement" and "not a grant but an interest in land yielding exclusive rights consistent with ownership." Haddad, J.A. stated at 314:

> The rights granted to Husky do not detract from the rights of the servient owner with the force required to raise the grant above the status of an easement. The grant is free of the words "appropriate" and "exclusive use" or words of that connotation. I view the document as having been devised to ensure that the servient owner's proprietary rights in the corridor are preserved.

[44] See *Ontario (Attorney General) v. Tyre King Tyre Recycling*. (1992), 9 O.R. (3d) 318 (Gen. Div.), in which a mortgagee not in possession of the property was found not responsible for private nuisance created by the mortgagor.

[45] *Smith v. Scott*, [1972] 3 All E.R. 645, at 648-49.

[46] [1940] A.C. 880 (P.C.).

[47] See also *Centre Star Mining Co. v. Rossland-Kootenay Mining Co.* [1905] W.W.R. 313 (B.C.C.A.), where the defendant's predecessor in title had trespassed from its own lands onto the plaintiff's and extracted minerals therefrom. In the process of trespassing, the predecessor in title created an unnatural water course which flooded the plaintiff's mine. The plaintiff sued the new owner for both the trespass and the water nuisance. The Court held that the new owner could not be liable for the trespass, but said that it was liable to abate the water nuisance created by its predecessor in title. The Court granted the plaintiff an injunction that required the new owner to stop the continuing nuisance.

[48] *Supra,* note 37, at p. 65.

[49] [1966] 2 All E.R. 989 (P.C.), at 994.

[50] *Ibid.*, at 996.

[51] [1932] A.C. 562 at 580 (H.L.).

[52] The concept of foreseeability is illustrated in *Nova Mink Ltd. v. Trans-Canada Airlines*, [1951] 2 D.L.R. 241 (N.S. C.A.), in which the plaintiff mink rancher brought an action against the defendant airline for an injury to his business caused by the defendant's low flying aircraft. The defendant maintained that it was unaware of the existence of the plaintiff's ranch and had no knowledge of the sensitivity of the plaintiff's operation. The Court held that the defendant owed no duty of care to the plaintiff because the plaintiff was not a reasonably foreseeable victim of the defendant's action.

[53] [1995] 3 W.W.R. 85 (S.C.C.). The defendant was a general contractor for the construction of an apartment building which was acquired by the plaintiff and converted into condominiums four years later. A number of years later, a storey-high section of cladding plunged nine stories to the ground below. The condominium

corporation had the entire cladding removed and replaced at a cost of $1.5 million dollars. The condominium corporation sued, among others, the general contractor in the tort of negligence. The issue before the Supreme Court of Canada was whether a general contractor could be held tortiously liable in negligence to a subsequent purchaser of the building, who is not in contractual privity with the contractor, for the costs of repairing defects in the building arising out of negligent construction. LaForest, J. stated at 106 that builders were *prima facie* under a duty in tort to subsequent owners for the costs of repairing defects that posed "a real and substantial danger to the inhabitants of the building." LaForest, J. held that there was no consideration to negative or reduce the contractors duty in any way. He indicated that any concern that the imposition of tortious liability might subvert contractual relationships have little foundation when the structure in question was dangerous rather than merely constructed below some contractual standard of quality. LaForest, J. determined that the contractor would not be exposed to liability of an indeterminate amount for an indeterminate time to an indeterminate class: the class of potential plaintiffs was restricted to future inhabitants of the building; the amount of recovery was restricted to the reasonable costs of restoring the building to a safe state; and the time was restricted to the useful life of the building.

[54] [1977] 2 All E.R. 492 at 498-99 (H.L.). While that case has been overruled in England, it continues to find favour in Canada.

[55] *Arland v. Taylor*, [1955] O.R. 131 at 142 (C.A.).

[56] *Canada v. Saskatchewan Wheat Pool*, [1983] 1 S.C.R. 205.

[57] (1991), 8 C.E.L.R. (N.S.) 138 (Gen. Div.).

[58] R.S.O. 1980, c. 185.

[59] See *Paskiviski v Canadian Pacific Ltd.*, [1976] 1 S.C.R. 687.

[60] [1974] S.C.R. 1189.

[61] *Supra*, note 53.

[62] See *Kamloops (City) v. Nielsen*, [1984] 2 S.C.R. 2.

[63] *Supra*, note 52.

[64] The negotiation proceedings are described in sections 88 and 89, and the arbitration proceedings in sections 90 to 103. An award of compensation made by an Arbitration Committee is also required to include provisions for those matters referred to in s. 86.

[65] The negotiation and arbitration procedures under the NEB Act are apparently intended to address only those matters which are typically addressed in provincial surface rights legislation. This is evidenced by the list of factors to be considered by an Arbitration Committee in determining compensation matters provided under s. 97 of the NEB Act, which include: market value of the lands taken, loss of use, adverse effect, nuisance, reasonably expected damage to land adjacent to the lands taken, loss of or damage to livestock or other personal property, special difficulties arising from relocation, or other such factors which are considered proper in the circumstances.

[66] Manito Pipelines Ltd Application to Abandon Certain Facilities dated 31 January 1996, NEB Reasons for Decision MH-1-96, July 1996.

[67] The term "appropriate authority" is defined in section 108 to mean: (a) the Minister of Transport with respect to a navigable water, (b) National Transportation Agency with respect to a railway, and (c) the Board with respect to any other utility.

The term "utility" is also defined in that section to mean a navigable water, a highway, a railway, an irrigation ditch, a publicly owned or operated drainage system, sewer or dike, and underground telegraph or telephone line or a line for the transmission of hydrocarbons, electricity or any other substance.

[68] Thus, following the termination of a lease, a landlord may become entitled to fixtures placed on the premises by the tenant. However, intention must be determined objectively. Such intention may be expressed in the lease itself, but its is important to note that whether a chattel becomes a fixture cannot be determined by contract insofar as all the world is concerned, but may do so as between the parties to the contract themselves: see *Maple Leaf Coal Co.*, [1951] 4 D.L.R. 210 (Alta. C.A.), at 214.

[69] (1902), 4 O.L.R. 335 (Ont. Div. Ct.).

[70] R.S.A. 1980, c. L-5.

[71] It is important to note that registration itself does not constitute the interest in land and discharge equally does not determine it.

[72] Although requests can be submitted through either Land Titles Office and search requests will be forwarded to the applicable Office.

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ATTACHMENT 5

Pipeline Abandonment

A Discussion Paper on Technical and Environmental Issues

Prepared for the Pipeline Abandonment Steering Committee (comprised of representatives from the Canadian Association of Petroleum Producers, the Canadian Energy Pipeline Association, the Alberta Energy and Utilities Board, and the National Energy Board)

November 1996

Visit the Alberta Energy Utilities Board (EUB) Web site (www.eub.ca/portal/server.pt?) to view the companion document entitled "Pipeline Abandonment Legal Working Group Report". You can log in as a guest and search for the words "pipeline abandonment".

Disclaimer

This Discussion Paper was prepared under the auspices of the Pipeline Abandonment Steering Committee, a Committee comprised of representatives and employees of the Canadian Association of Petroleum Producers (CAPP), the Canadian Energy Pipeline Association (CEPA), the Alberta Energy and Utilities Board (EUB), and the National Energy Board (NEB). While it is believed that the information contained herein is reliable, CAPP, CEPA, the EUB, and the NEB do not guarantee its accuracy. This paper does not necessarily reflect the views or opinions of CAPP, CEPA, the EUB, or the NEB, or any of the member companies of CAPP and CEPA. In particular, the paper cannot be taken to represent the regulatory policy of the EUB or the NEB and may not be relied on for such purpose. 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, CEPA, the EUB, or the NEB.

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Executive Summary

The Canadian oil and gas industry and federal and provincial regulatory authorities recognize the need to develop guidelines that companies can follow in order to abandon oil and gas pipelines in an environmentally sound, safe, and economical manner. To meet this objective, the Canadian Association of Petroleum Producers and the Canadian Energy Pipeline Association (through their industry participants) have participated along with the National Energy Board and various departments of the Government of Alberta in the development of this discussion paper.

This paper reviews the technical and environmental issues associated with pipeline abandonment and is intended to provide a basis for further discussion on the issue. In order to complete the assessment of this issue, a review of the legal and financial aspects of pipeline abandonment need to be undertaken. More particularly, the core issues of long-term liability and funding need to be addressed both in the context of orphaned pipelines and those with an identifiable owner/operator.

This paper is intended to assist a company in the development of an abandonment plan through the recognition of the general issues which result from the abandonment of a pipeline and by providing the means to address those issues. Land use management, ground subsidence, soil and groundwater contamination, erosion, and the potential to create water conduits are among the topics addressed.

Some follow-up may be required in respect of the technical analysis presented on the issue of ground subsidence. It is suggested that tolerance criteria be developed and that the industry survey referred to in the paper be

complemented with a field investigation program. Scale modelling could also be performed to confirm the theoretical ground subsidence calculations.

As illustrated by the diagram on the following page, the pipeline abandonment planning process is a multi-dimensional exercise that requires wide stakeholder input. The abandonment project schedule should also provide an opportunity for meaningful input into the planning process by the affected public, as defined by the scope of the project. It is especially important that landowners and land managers have a central role in this process.

In practice, the decision to abandon in place or through removal should be made on the basis of a comprehensive site-specific assessment. In this context, the analysis presented in this paper has limitations in that all site specifics could not possibly be addressed, particularly in relation to potential environmental impacts or impacts on land use.

The development and implementation of a pipeline abandonment plan that will both minimize impacts to the environment and land use and be cost-effective requires many activities similar in scope to the planning or installation of a new pipeline. For any large-scale abandonment project, it is unlikely that any one abandonment technique will be employed. Rather, a project will usually involve a combination of pipe removal and abandonment-in-place along the length of the pipeline. A key factor influencing the choice between the two options is present and future land use.

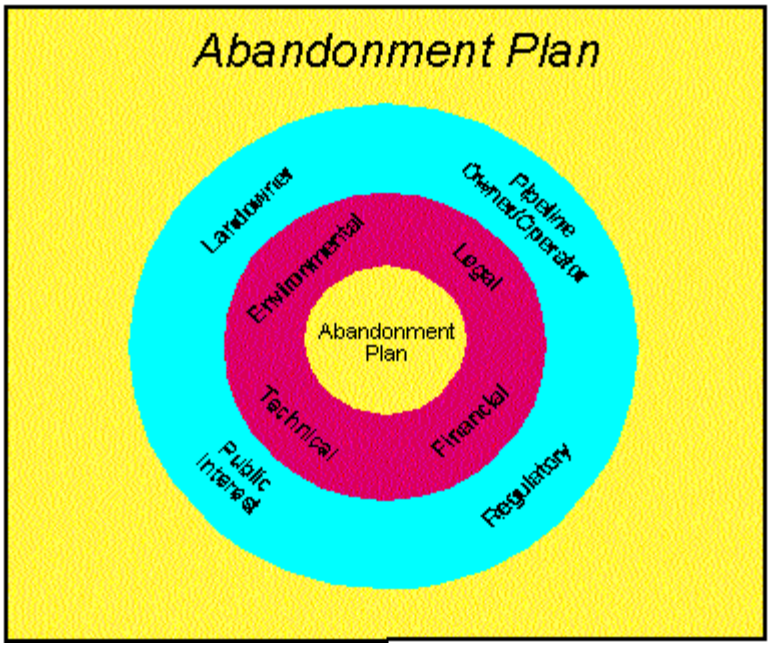
In summary, the key features of a proper abandonment plan are

(i) that it be tailored to the specifics of the project,

(ii) that an early and open opportunity be provided for public and landowner input, and

(iii) that it comply with current regulatory requirements. It is also necessary that the plan be broad in scope and encompass post-abandonment responsibilities in the form of right-of-way monitoring and remediation of problems associated with the abandonment.

A major issue still to be addressed is the question of who would assume responsibility if the owner/operator becomes insolvent. In this regard, industry has established a fund in Alberta to cover the cost of reclamation and abandonment of orphaned oil and gas wells and certain associated pipeline facilities.



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Jim Anderson	National Energy Board
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Abbreviations

AEP	Alberta Environmental Protection
C&R	Conservation and Reclamation
CAPP	Canadian Association of Petroleum Producers
CEPA	Canadian Energy Pipeline Association
EPEA	*Environmental Protection and Enhancement Act* (Alberta)
EUB	Alberta Energy and Utilities Board (formerly the Alberta Energy Resources Conservation Board)
H_2S	hydrogensulphide
km	kilometre
mm	millimetre
NEB	National Energy Board
O.D.	outside diameter
PCB	polychlorinated biphenyl
ROW	right-of-way

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Glossary of Terms

Abandonment	Refers to the permanent removal from service of the pipeline. A section of pipeline can be abandoned in place or removed. In theformer case, it is assumed that cathodic protection of the pipeline is discontinued and that no other measures are taken to maintain the structural integrity of the abandoned pipeline (other than the potential use of solid fill material at roadway and railway crossing sites or other locations sensitive to ground subsidence).
Associated Apparatus	All apparatus associated with a pipeline system, both above and below the ground surface, including pipeline risers, valve assemblies, signage, pig traps, culverts, tanks, and sumps.
Cathodic Protection	A technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell.
Corrosion	The deterioration of metal as a result of an electrochemical reaction with its environment.
Deactivation	Refers to the temporary removal from service of the

	pipeline. In the context of this paper, it is assumed that corrosion control measures are maintained.
Decontamination	The removal or neutralization of chemical substances or hazardous material from a facility or site to prevent, minimize, or mitigate any current or future adverse environmental effects.
Decommissioning	One of the steps of pipeline abandonment, generally involving the physical removal of all above-ground appurtenances.
Discontinued	See "deactivation".
Erosion	The process of wearing away the earth's surface through the action of wind and water.
Groundwater	All water under the surface of the ground.
Land Surface Reclamation	The stabilization, contouring, maintenance, conditioning, or reconstruction of the surface of the land to a state that permanently renders the land with a capability that existed just prior to the commencement of abandonment activities, and as close as circumstances permit to that which existed prior to pipeline installation.
Negative Salvage	The net cost of abandoning a pipeline through removal, calculated as the cost of removal less salvage revenue generated from the sale of the removed material for scrap or use by others.
Orphaned	Pipelines and associated facilities for which the licensee and successors are insolvent or non-existent.
Owner /Operator	The individual, partnership, corporation, public agency, or other entity that owns and/or operates the pipeline system.
Pipe Cleaning	The removal of all substances (solid, liquid, or gaseous) and build-ups within the pipeline to a pre-determined level.
Pipeline	All metallic onshore pipelines within the scope of the CSA Z662-94 "Oil and Gas Pipeline Systems" standard, including associated appurtenances such as valve assemblies, drip pots, cathodic protection beds, signage, and headers, but not including station facilities such as pump or compressor stations.
Pipeline System	The combination of pipelines, stations, and other facilities required for the measurement, processing, storage, and transportation of oil, gas, or other hydrocarbon fluid.
Reclamation	Any one of the following:

- the removal of equipment or buildings or other structures or appurtenances;
- the conducting of investigations to determine the presence of substances;
- the decontamination of buildings or other structures or other appurtenances, or land or water;
- the stabilization, contouring, maintenance conditioning, or reconstruction of the land surface; or
- any other procedure, operation, or requirement specified in the regulations

(as defined in the Alberta *Environmental Protection and Enhancement Act*)

Removal	The pipeline is completely removed from the right-of-way.
Roach	Excess soil placed over the ditch line to compensate for soil settlement.
Road or Railway Crossing	The crossing by a pipeline of a highway, road, street, or railway.
Sight Block	A mechanism to restrict the visual impact of a pipeline right-of-way.
Soil	The naturally occurring, unconsolidated mineral or organic material at least 10 centimetres thick that occurs at the earth's surface and is capable of supporting plants. It includes disturbance of the surface by human activities such as cultivation and logging but not displaced materials such as mine spoils.
Spoil	Soil materials other than topsoil excavated from the trench. In most cases, the excavated soil is suitable for return to the pipeline trench, and allows for re-contouring of the right-of-way.
Subsoil	Although a common term it cannot be defined accurately. It may be the B horizon of a soil with a distinct profile. It can also be defined as the zone below the plowed soil in which roots normally grow.
Surface Water	Water in a watercourse and water at a depth of not more than 15 metres beneath the surface of the ground.
Suspension	The cessation of normal operation of a pipeline pursuant to its licensed use. The pipeline need not be rendered permanently incapable of its licensed use, but must be left in a safe and stable state during this period of suspension, as prescribed by the applicable regulations and guidelines. See also "deactivation".

Topsoil	The organo-mineral suface "A", organic surface "O" horizon, or dark coloured surface soil materials, used synonymously with first lift. First lift materials are usually removed to the depth of the first easily identified colour change, or to specified depth where colour change is poor, and contain the soil Ah, Ap, O, or Ahe horizon. Other horizons may be included in the first lift if necessary.
Water	All water on or under the surface of the ground.
Water Conduit	A channel for conveying water. In the context of pipeline abandonment, refers to a pipeline that has become corroded and perforated and transports ground or surface water to a different location.
Watercourse	(i) The bed and shore of a river, stream, lake, creek, lagoon, swamp, marsh, or other natural body of water; or (ii) a canal, ditch, reservoir, or other man-made surface feature, whether it contains or conveys water continuously or intermittently.

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Section 1

Introduction

1.1 Background

Approximately 540,000 km of operating oil and gas pipelines currently exist in Canada, about 50 percent of which are located in Alberta. Ultimately, all oil and gas pipelines will reach the end of their useful lives, and will be abandoned. The issue of pipeline abandonment should therefore be reviewed by all stakeholders.

The Alberta Energy and Utilities Board (EUB) estimates that about 17,000 km of pipeline were abandoned or discontinued in Alberta as of April 1994. This number includes an estimated 3 600 km of orphaned abandoned pipelines. The majority of abandoned pipelines in Alberta are gathering lines 168.3 mm or less in outside diameter.

Regulatory requirements for pipeline abandonment vary across jurisdictions in Canada, and in many cases do not completely address associated long-term issues.

1.2 Review Initiatives

In 1984, several parties at a National Energy Board (NEB) hearing into the tolls of a major natural gas transmission pipeline company showed an interest in addressing the issue of negative salvage as it related to pipeline abandonment. As a result, the NEB issued a background paper in September 1985 addressing the negative salvage impacts of pipeline

abandonment. The issue was not pursued again until 1990, when industry, the Alberta Energy Resources Conservation Board (now the EUB), and Alberta Environmental Protection (AEP) discussed the issue of pipeline abandonment while considering amendments to the pipeline regulations issued pursuant to the *Pipeline Act* (Revised Statutes of Alberta 1980). The issue was not resolved at that time, and was again raised in 1993 by the Alberta Pipeline Environmental Steering Committee, an industry, government, and public stakeholder group established to address pipeline related issues.

In October 1993, the Canadian Association of Petroleum Producers (CAPP) received the endorsement of the Alberta Petroleum Industry Government Environment Committee to establish a steering committee to oversee the issue of pipeline abandonment. Shortly thereafter, the EUB requested that CAPP and the Canadian Energy Pipeline Association (CEPA) organize a steering committee to resolve the concerns surrounding abandonment.

In April 1994, representatives from CAPP, CEPA, the EUB, and the NEB met to establish a pipeline abandonment steering committee. It was also decided at that time that separate subcommittees be struck to address the technical, environmental, legal, and financial aspects of pipeline abandonment. The technical and environmental subcommittees were the first to be formed and, together with the steering committee, were responsible for this discussion paper. The legal and financial subcommittees have not yet been struck.

1.3 Scope

This discussion paper is intended to apply to all buried metallic pipeline facilities falling within the scope of the CSA Z662-94 "Oil and Gas Pipeline Systems" standard, except for offshore pipelines. Many of the same issues and concepts (such as those relating to land use and pipe cleanliness) also apply to plastic and fibreglass pipelines. It addresses pipeline abandonment only (i.e. permanent removal from service), and does not consider pipeline deactivation (i.e. temporary removal from service). Likewise, this document does not address the abandonment of aboveground facilities associated with pipelines, such as stations or tank farms, or specific facilities such as underground vaults.

This paper addresses the technical and environmental aspects of pipeline abandonment. In order to complete the assessment, a review of the legal and financial aspects of pipeline abandonment needs to be undertaken. More particularly, the core issues of long-term liability and funding need to be addressed both in the context of orphaned pipelines and those with an identifiable owner/operator.

1.4 Abandonment Options

The two basic options that are considered in this paper are (i) abandonment-in-place and (ii) pipeline removal. In the former case, it is assumed for the purposes of this paper that cathodic protection of the pipeline is discontinued and that no other measures are taken to maintain the structural integrity of the abandoned pipeline (other than the potential use of solid fill material at roadway and railway crossing sites or other locations highly sensitive to ground subsidence).

As noted in Section 2, for any large-scale abandonment project it is unlikely that only one of these options will be employed. Rather, a project will usually

involve a combination of pipe removal and abandonment-in-place along the length of the pipeline. A key factor influencing the choice between the two options is present and future land use.

It is further noted that the abandonment techniques presented are confined to those possible using currently available technology. While developments in pipeline removal and abandonment technologies were evaluated, no major improvements to the methods currently in use were discovered. However, as pipeline abandonments become more prevalent, improved abandonment methods will likely be developed.

1.5 Objective

The objective of this discussion paper is to assist the user in the development of a pipeline abandonment plan, a framework for which is provided in Section 2 of this paper. More particularly, the paper is meant to assist parties in making an informed decision between abandoning in place or through removal. Section 3 outlines the general technical and environmental issues that should be considered when abandoning a pipeline, while Section 4 elaborates on post-abandonment responsibilities. Site-specific issues should be addressed on a case-by-case basis.

The objective of creating an abandonment plan is to ensure that identified issues have been addressed and that the pipeline is abandoned in a way that provides a forum for meaningful stakeholder input and ensures that public safety and environmental stability are maintained.

1.6 Regulatory Requirements

The NEB is responsible for regulating interprovincial and international pipeline systems in Canada, while the individual provinces are responsible for regulating intraprovincial pipeline systems. Within each province, gathering, transmission, and distribution pipelines may be regulated by different agencies. For example, in Alberta the EUB regulates gathering and transmission lines as well as higher-pressure distribution lines (greater than 700 kPa), while lower-pressure distribution lines are regulated by Alberta Transportation and Utilities. AEP, through the *Environmental Protection and Enhancement Act* (EPEA), regulates conservation and reclamation activities for all three categories of pipelines.

In addition to the primary regulators, there may be other governmental agencies within each of the respective jurisdictions that may have an interest in the abandonment and reclamation of a pipeline. These other agencies may include local governments, especially in populated areas where pipeline abandonment may impact upon land uses.

In Alberta, the EUB sets the requirements for the abandonment of gathering and transmission lines. In addition to meeting the EUB's abandonment requirements, the pipeline right-of-way must be reclaimed to AEP standards. Reclamation certificates are issued by inspectors designated under EPEA. For removal projects that are classified as Class I projects,[1] the operator is required to obtain an approval under EPEA from AEP to ensure that proper conservation and reclamation occurs. For smaller projects, AEP's *Environmental Protection Guidelines for Pipelines* are to be followed during construction.

1 A Class I pipeline is defined by the Activities Designation Regulation (AR 110/93)

under EPEA as any pipeline that has an index of 2690 or greater, determined by mutiplying the diameter of the pipeline in millimetres by the length of the pipeline in kilometres (e.g. 168.3 mm x 16 km = 2693).

For federally regulated pipelines, approval to abandon a pipeline must be granted by the NEB and pipelines must be abandoned in accordance with the requirements of the NEB's *Onshore Pipeline Regulations*. These regulations are in the process of being revised, and future regulations will likely require that applications for pipeline abandonment be treated on a case-by-case basis.

A summary of the current regulatory requirements for pipeline abandonment across Canada has been included as Appendix A.

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Section 2

Developing an Abandonment Plan

This paper addresses the common issues that pipeline abandonment plans should address regardless of regulatory jurisdiction. It is intended to assist a company in the development of an abandonment plan through the recognition of the general issues which result from the abandonment of a pipeline and by providing the means to address those issues.

In practice, the decision to abandon in place or through removal should be made on the basis of a comprehensive site-specific assessment. In this context, the analysis presented in this paper has limitations in that all site specifics could not possibly be addressed, particularly in relation to potential environmental impacts or impacts on present and future land use.

The development and implementation of a pipeline abandonment plan that will minimize impacts to the environment and land use and be cost-effective requires many activities similar in scope to the planning or installation of a new pipeline. For any large-scale abandonment project, it is unlikely that any one abandonment technique will be employed. Once the principal technique has been chosen, therefore, the owner/operator should assess on a site-specific basis whether an alternate approach should be followed for selected segments of line.

The abandonment project schedule should provide an opportunity for meaningful input into the planning process by the affected public, as defined by the scope of the project. It is especially important that landowners and land managers have a central role in this process.

The development of an abandonment plan should be initiated by reviewing the general requirements of the regulatory jurisdiction(s) under which the pipeline is operated. Beyond the requirements of the principal regulatory agencies, other legislation may affect the particular abandonment project. For example, municipal requirements and federal legislation such as the federal *Navigable Waters Protection Act* or the *Fisheries Act* may affect the abandonment options.

It is also critical that easement agreements be reviewed, as their terms and

conditions may bear on the abandonment decision-making process.

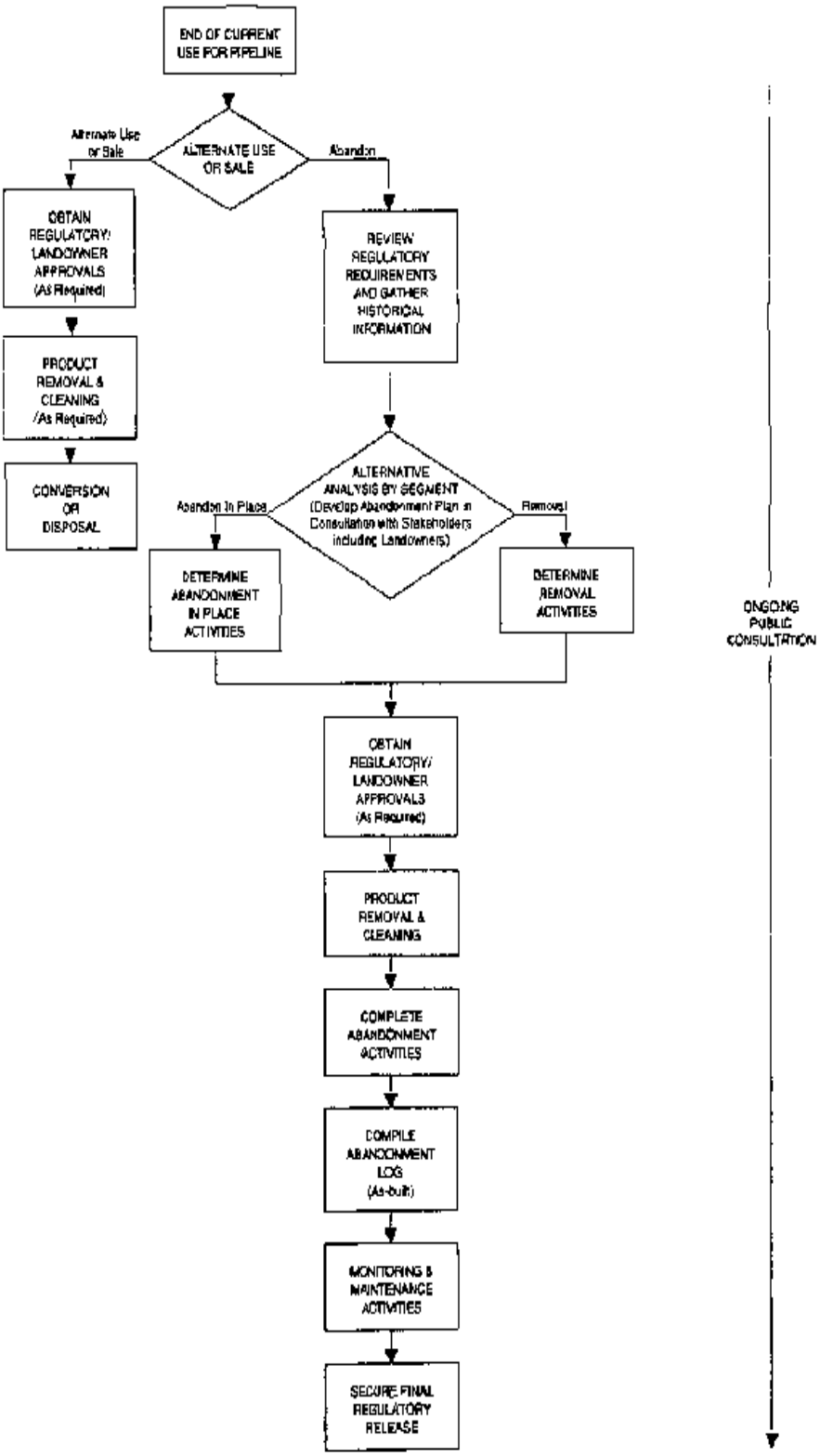
The development and implementation of an abandonment plan consists of at least the following seven steps:

(1) review prevailing regulatory requirements applicable to the abandonment project;
(2) compile all relevant information on the pipeline system, including easement agreements;
(3) analyze by segment taking into account the factors addressed in Section 3 of this paper, including present and future land use;
(4) develop the abandonment plan in consultation with stakeholders (such as landowners, government authorities, and other directly affected parties), incorporating the information compiled in the above steps;
(5) secure regulatory and landowner approvals as required for the pipeline abandonment and site reclamation;
(6) implement the abandonment plan, the scope of which should include post-abandonment responsibilities (addressed in Section 4); and
(7) secure final regulatory release.

A proponent undertaking an abandonment plan should follow these six steps, recognizing that site-specific conditions may require additional steps in the development of the plan.

Please refer to the next page for a flowchart of the abandonment planning process and to Appendix B for a detailed abandonment checklist.

FIGURE 2-1
PIPELINE ABANDONMENT FLOWCHART



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Section 3

Technical and Environmental Issues

3.1 Issue Identification

Abandonment issues arise from the need to address public safety, environmental protection, and future land use. An initial scoping exercise was carried out to identify the various technical and environmental issues associated with abandonment. Following the development of a detailed issues list, field studies of existing abandoned facilities were performed to verify the issues. In some cases, detailed studies were commissioned in order to better understand the effects and interactions of certain issues. [2]

2 (Refer to the Bibliography in Appendix E for a list of the studies, copies of which are available for public viewing in the libraries of CAPP, CEPA, the EUB, and the NEB.)

The primary issues that were identified, and which are addressed in this section, are as follows:

- land use management;
- ground subsidence;
- soil and groundwater contamination;
- pipe cleanliness;
- water crossings;
- erosion;
- utility and pipeline crossings;
- creation of water conduits;
- associated apparatus; and
- cost of abandonment.

It was determined that most issues are not unique to the abandonment phase of the pipeline life-cycle, but could involve an altered scope, varied timeline, or additional stakeholders when compared to the issues of pipeline installation and operation. In order to responsibly abandon a pipeline, the operator must consider all of the issues and determine how they relate to the specific pipeline under consideration, in addition to addressing stakeholder concerns and incorporating collected input.

In any abandonment project, it is possible that a combination of both the abandonment-in-place and removal options would be used, based on site-specific requirements. Thus, it is important that all aspects of the abandonment issues be considered. As the following discussion illustrates, the abandonmen-in-place option does not eliminate the need for land disturbance or field activity, while pipeline removal need not encompass the same level of disturbance or activity as that of pipeline construction.

3.2 Land Use Management

Land use is the most important factor to consider in determining whether a pipeline section should be abandoned in place or removed. Therefore, an understanding of the current and potential land uses along the pipeline right-of-way is essential to making informed decisions on available

abandonment options.

Of particular concern with respect to land use management are areas sensitive to land disturbance, such as native prairie, parks and ecological reserves, unstable or highly erodible slopes, areas susceptible to severe wind erosion, and irrigated land, particularly flood irrigation systems. Additionally, land improvement activities such as the installation of drainage tile or other drainage systems, landscaping, and permanent structure installations could be affected by a proponent's decision to abandon a line.

Future land use should be considered because a pipeline abandoned in place could become a physical obstruction to development, such as excavation for foundations, pilings, or ongoing management practices such as deep ploughing or the installation of sub-drains. It is critical that input be gathered from appropriate sources such as landowners, land managers, lessees, and municipal agencies to support the decision to abandon in place. In addition, sufficient documentation must be kept to allow for detailed location information for future developers or owners.

As noted in Section 2, the decision to abandon in place or through removal should be made on the basis of a comprehensive site-specific assessment. In this context, the land management characteristics that may be better suited to pipeline abandonment-in-place include, but are not limited to:

- parks and natural areas;
- unstable or highly erodible surfaces;
- water crossings;
- flood irrigated fields;
- road and railway crossings;[3]
- foreign pipeline crossings;
- extra depth burial of pipe (i.e. depth well in excess of one metre);
- native prairie and native parkland;
- forest cut blocks;
- designated waterfowl and wildlife habitat; and
- areas exhibiting poor and/or limited access.

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3 (as detailed in Section 3.8, consideration should be given to filling pipeline sections abandoned in place underneath roadways and railways with a solid material such as concrete in light of potential ground subsidence impacts.)

The key environmental protection measures to be considered when a pipeline is to be abandoned in place are as follows:

- minimal disruption to ongoing or future land management activities;
- a complete and documented pipeline cleaning procedure;
- the clean-up of any spills or contaminated sites to prevailing regulatory requirements;
- a revegetation strategy to achieve pre-abandonment conditions, keeping erosion control and soil stability as a priority;
- topsoil conservation for all areas disturbed during the abandonment process;
- reclamation of all site access roads, including those which had been developed for the operational phase of the pipeline and any opened or developed for abandonment activity;
- documented as-built information for future reference;
- application of sight blocks where appropriate (e.g. recreational areas and wildlife habitat); and
- a monitoring program acceptable to all affected parties to ensure a

process to complete remediation.

Proper environmental protection measures should be implemented, including appropriate soil handling procedures, timber management, contingency plans (e.g. for spills and wind or water erosion), protection of cultural features, weed control, and site reclamation. For example, in Alberta, a Conservation and Reclamation (C&R) report may be required by AEP for pipelines which were constructed before the C&R regulations came into effect.

Prior to the commencement of field activity, reclamation criteria should be agreed upon by the owner/operator, regulatory authority, and landowner. The reclamation program will normally be designed to ensure that the condition of the right-of-way land surface is made at least equivalent to that existing just prior to the commencement of abandonment activities, and as close as circumstances permit to the condition of the land that existed prior to pipeline installation, and may entail:

- removing, storing, and replacing topsoil;
- soil contamination analysis and-clean up, if required;
- contouring disturbed land to control drainage;
- seeding affected areas to prevent erosion and establish vegetation;
- removal of all structures to a minimum depth of one metre below final contour elevation;[4]
- roaching and/or compacting excavated areas to compensate for future settlement; and
- site-specific environmental requirements (e.g. reforestation).

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4 (In areas where circumstances such as special farming practices or nearby urban development exist, consideration should be given to removing structures more than one metre below the final contour elevation.)

As noted in Section 4, a right-of-way monitoring plan should be developed to ensure that reclamation efforts are successful and that no problems arise.

3.3 Ground Subsidence

3.3.1 General

The long term structural deterioration of a pipeline abandoned in place may lead to some measure of ground subsidence. This is a primary issue to consider for larger-diameter pipelines because of potential environmental and safety concerns. More particularly, ground subsidence could create the potential for water channelling and subsequent erosion, lead to topsoil loss, impact on land use and land aesthetics, and/or pose a safety hazard.

The acceptable subsidence limits and the potential factors affecting those limits are significant areas requiring attention in the development of any abandonment plan. Erosion may cause direct siltation to a watercourse, or cause slope failures and subsequent siltation. Where potential siltation is an issue, proponents must be prepared to deal with fisheries protection measures to remain in compliance with provincial and federal legislation.

The rate and amount of ground subsidence over time is difficult to predict as it depends on a complex combination of site-specific factors, such as the corrosion mechanics in the vicinity of the pipeline, the thickness and diameter of the pipeline, the quality of the pipeline's coating, burial depth,

soil type, the failure mechanics of the pipeline material, and soil failure mechanics.

Given the absence of previously documented research, studies were commissioned on corrosion and soil mechanics in an attempt to establish the connection between pipeline corrosion, the structural deterioration of pipe, and the resultant ground subsidence that might be observed. Summaries of these studies and the conclusions that were reached follow.

3.3.2 Pipeline Corrosion

The corrosion consultant's report addressed the mechanism of corrosion leading to ultimate structural failure of a pipeline. The report stated that the rate of corrosion of an abandoned pipeline can vary significantly due to the many factors which must be present for corrosion to take place. Corrosion of buried pipelines occurs through an electrochemical reaction that involves the loss of metal in one location (called the anode) through the transfer of the metal ions to another location on the pipeline (called the cathode). The rate of metal transfer depends on a number of factors such as the quality of the pipeline coating, soil aeration (which supplies oxygen to the pipe to allow the corrosion process to occur), types and homogeneity of soils, soil moisture, and electrical factors which create the potential differences for a corrosion cell to be established.

The corrosion of a coated pipeline is normally restricted to those isolated areas where there are defects in the coating or where the coating has become disbonded from the pipe. Corrosion can be expected to be almost negligible in areas where the coating integrity is intact. Based on his experience, the consultant observed that coating holidays or disbondment occur on less than one percent of the length of most pipelines. Pipeline corrosion in most cases occurs as localized pits, or spiral corrosion areas, which eventually result in random perforations throughout the length of the pipeline. It is extremely rare for corrosion to cover large areas of pipeline, rendering a long segment of the pipeline susceptible to sudden and complete structural failure.

To illustrate typical corrosion rates, the consultant used an example of a 323.9 mm O.D. pipeline in soils commonly found throughout Alberta and estimated that penetrating pits would occur in the range of 13 to 123 years. Based upon the slow rate of pitting corrosion that would occur in most cases, complete structural failure is not likely to occur for decades or even centuries. Furthermore, given the non-uniform nature of the corrosion process, it can be concluded that it is highly unlikely that significant lengths of the pipeline would collapse at any one time.

3.3.3 Soil Mechanics

The soil mechanics report indicated that there has been no documented incidence of ground subsidence due to pipeline structural failure. In order to predict soil reaction to pipeline structural failure, the consultant modelled its review on shallow mining and tunnelling research and documented case histories. The focus of the study was to estimate possible surface subsidence that could be attributed to the complete failure of tunnels of equal diameter and depth as the pipelines being modelled. This represented a worst-case scenario, since as noted earlier a complete pipeline collapse of any significant length is considered highly improbable.

The report employed two different theoretical soil modelling techniques, the

Rectangular Soil Block and the Active Soil Wedge, to reflect the most common types of soils that may be encountered. The ranges of subsidence calculated for varying sizes of pipelines provided an approximation of the impacts that a significant pipeline collapse would have on soils. The analysis indicated that ground subsidence associated with the collapse of pipelines up to 323.9 mm in diameter at typical burial depths would be negligible. The analysis further indicated that while there would be some degree of subsidence associated with larger pipeline sizes, it may be of sufficiently small scale so as to be in a tolerable range.

3.3.4 Field Investigation Program

In order to validate the conclusions of the technical reports, the subcommittees undertook to document the ground subsidence of known abandoned pipelines.

As a first step, the subcommittees searched the EUB's records and identified pipelines 168.3 mm or larger in diameter that had been abandoned in place. Questionnaires were forwarded to the owners/operators of some of those lines, requesting information on pipeline diameter, coating type, year abandoned, whether cathodic protection had been removed, and ground subsidence observations (reference Appendix C for copy of questionnaire). The responses to the survey, as well as industry discussions, did not reveal any instances of observed subsidence.[5]

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5 (As indicated in Appendix C, all of the survey results gathered by the subcommittees are available for public viewing in the libraries of CAPP, CEPA, the EUB, and the NEB.)

3.3.5 Summary of Findings

The analyses indicated that the structural failure of an abandoned pipeline due to corrosion may take many decades, and that significant lengths of the pipeline would not collapse at any one time due to the localized nature of the pitting process. Furthermore, the analyses indicated that, even if the worst-case scenario of uniform and total structural collapse was realized, ground subsidence would be negligible for pipelines up to 323.9 mm in diameter.

The degree of subsidence associated with larger-diameter pipelines is highly dependent on pipeline diameter, depth of cover, and local soil conditions, but can be expected in many cases to be in a tolerable range. It should be noted that tolerance to soil subsidence is in itself a site-specific issue, as it depends on land use and the local environmental setting. Any pipeline owner/operator considering the abandonment-in-place of a larger-diameter pipeline should therefore conduct a site-specific analysis in order to evaluate both the degree and tolerability of any long-term subsidence that might be expected. Such analyses should take into account the potential for heavy vehicular loadings (e.g. farm equipment or logging trucks).

On the basis of the foregoing, it is suggested that ground subsidence associated with the structural failure of pipelines abandoned in place will not usually be a critical issue. This conclusion was corroborated by the industry survey referred to in Section 3.3.4. In areas where no settlement is allowed, either by regulation or agreement (such as at highway crossing sites, as further explained in Section 3.8), the option would exist to fill the pipeline with an approved solid material such as concrete or sand.

In terms of follow-up on this issue, it is suggested that tolerance criteria be developed and that the industry survey referred to in this paper be complemented with a field observation program. Scale modelling could also be performed to confirm the theoretical ground subsidence calculations.

3.3.6 Subsidence as a Result of Pipeline Removal

The physical act of removing a pipeline is essentially the reverse operation of pipeline construction and involves topsoil removal, backhoe excavation of the subsoil to a depth at least even with the top of the pipe, pipe removal, backfilling and compaction of the trench, replacement of the topsoil, and revegetation measures.

During pipeline construction, a roach consisting of subsoil overlaid with topsoil is usually employed to compensate for the settlement that will occur as the ditch line settles. The same strategy can be employed at the abandonment stage to avoid the need for reclamation in future years due to settlement and erosion. In general, if extra topsoil or soil materials are required for this operation, it could be recovered from areas immediately adjacent to the pipeline right-of-way. For older pipelines built before mandatory soil conservation, this is where extra topsoil or soil materials may have been disposed. Further surveys or examinations of topsoil depths and soil volumes may be required to identify these potential borrow areas.

Without the concern of compaction damaging the pipeline, a company may undertake a more rigorous compaction of the soil being replaced in the ditch following pipe removal than after backfilling for new construction. Additional compaction may also result in less topsoil handling and, therefore, fewer impacts due to the decreased need to strip topsoil to accommodate the feathering out of subsoil material caused by the excavation.

3.4 Soil and Groundwater Contamination

The abandonment plan should address the potential for contamination associated with the abandonment activities, as well as the need to eliminate any contamination that may already exist, and include the appropriate pipe cleaning or pigging procedure. Any contamination noted prior to abandonment activity should be cleaned up to the applicable regulatory standards prior to full project disturbance, unless it is more economically efficient to include the cleanup in the scope of abandonment activity and it can be demonstrated that environmental damage will not be amplified.

In order to gain additional insight into the issue of contamination, a study was commissioned into the types and quantities of contaminants that might be released from pipelines abandoned in place.

The potential sources of contamination were identified as:

- the substances produced from the reservoir in the hydrocarbon stream and deposited on the walls of the pipeline;
- treatment chemicals which could enter the pipeline and be deposited;
- the line pipe and associated facilities;
- pipeline coatings and their degradation products;
- historical leaks and spills of product that were not cleaned to current standards; and
- possible PCB contamination, if PCBs were used in the pump or compressor lubricants at some point in the history of the pipeline.

The quantity of residual contaminants can be expected to decrease as the product moves from the wellhead through the gathering, processing, and distribution systems. Traditionally, oil pipelines contain a greater volume of wax and scale than do natural gas pipelines, but this is dependent on the circumstances of the particular production field. The study concluded that the effectiveness of pipeline pigging and cleaning procedures prior to abandonment was the most critical determinant of the potential quantities of residual contaminants.

The subject of pipeline cleaning is addressed at length in Section 3.5 and Appendix D. An operator should become familiar with prevailing regulatory standards for soil and groundwater, as these standards may dictate the minimum acceptable level of pipe cleanliness. Sound environmental protection practices should be observed throughout the pipeline cleaning process, such as the use of properly engineered containment and storage for all collected material, proper labelling, disposal processes conforming to local regulations, and effective spill contingency plans. Detailed documentation should be recorded on the results of the cleaning process or the clean-up of a contaminated site.

Operators should also have an understanding of the composition of pipe coatings and their associated characteristics to assess any potential risk that may be derived from abandoning the pipeline in place. For example, pipeline coatings containing asbestos should be handled through special means by trained personnel. It has been suggested that if pipe coating compounds would be accepted at local landfills, then abandoning a pipeline with the same compounds in place may not be a concern, depending on site conditions and concentration levels. Presently, limited information exists regarding the long-term decomposition of pipeline coatings. However, it can be assumed that as the coating adhesive degrades, or is consumed by soil organisms, coatings will eventually disbond and contribute to the corrosion process.

Many of the same contamination prevention measures to be employed for abandonment-in-place also come into play in the context of pipeline removal. Of prime importance is the need to clean the pipeline to accepted standards prior to the commencement of the removal operation, and the employment of measures to prevent spills of the substances collected as a result of the cleaning process. Collection trays should be used during the pipe cutting operation to catch any residual fluids.

During pipe removal, proper soil handling measures must be implemented to ensure topsoil conservation.

In addition to the pipeline itself, the dismantlement of any connected facilities should be carried out such that the potential for contamination is controlled by proper containment and storage for disposal at an approved facility.

3.5 Pipe Cleanliness

3.5.1 Cleanliness Criteria

In light of potential contamination concerns, the cleanliness of the pipeline is an issue for both abandonment techniques. Although responsible cleaning procedures have been defined and are discussed in detail in Section 3.5.2 and Appendix D, the question of "how clean is clean" has not been resolved. In addition, the question remains as to whether pipe that will be

removed should be subject to the same cleanliness criteria as pipe that will be left in place. It should be assumed that pipe that is to be removed should be cleaned to a level where any remaining residues will not cause harm in any future intended use of the pipe. Removed pipe that may eventually be put to some alternative use (e.g. pilings) may require more study to determine the appropriate cleanliness requirements for the future use. For pipe that is targeted for disposal, existing disposal or landfilling guidelines will determine the required cleanliness of the pipe.

For pipe that will be abandoned in place, the issue of pipe cleanliness is related to corrosion and the creation of water conduits. Eventually the pipe will corrode until perforated and, aided by the destructive forces of the freeze-thawing of infiltrated water, the structural integrity of the pipe will suffer. Whether the rate of deterioration will be greater than the life of the contaminants left as internal residue of the pipe is unclear. Similarly, an issue remains over the rate and structural location of any corrosion, in that it may allow water to infiltrate the abandoned pipe and transport pipe residues to some other exit point.

3.5.2 Cleaning Procedures

The pigging procedure used during the final operating stages and during evacuation of the pipeline is critical in preparing the line for abandonment. The study on contaminants concluded that the small quantities of hydrocarbons left in the line after a concerted pig cleaning effort will not result in any significant environmental concerns.

The factors impacting the effectiveness of any pig cleaning procedure will vary with each pipeline. Cleaning programs must therefore be customized to the specific circumstances of the pipeline under consideration for abandonment. For guidance purposes, Appendix D sets out general cleaning considerations and describes typical cleaning methods for an oil pipeline in a medium duty service [6] or for a pipeline carrying relatively dry natural gas. Operators planning a pigging program for a specific line should consider these guidelines as a starting point only. The abandonment of pipelines carrying products other than the two noted above require customized pigging procedures to ensure proper cleaning. Care should be taken in all cases to properly contain and dispose of pigged effluent.

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6 Medium duty service refers to relatively wax and direct free operation with a scraping program undertaken occassionally to move along anything collected or adhering to the pipe wall.

A pipeline to be abandoned in place should be left such that no solids or waxy build-up are visible at any point along the pipeline as observed through standard pipe openings such as opened flange or sample connections and the contents have been cleaned out to the extent that no more than a thin oily film on the inside pipe wall surface can be detected by feel or sight. Sour liquid or natural gas pipelines should be checked to confirm that H2S levels are below acceptable limits.

Pipe cleaning is also of critical importance in the context of pipeline removal, given the desire to minimize the risk of soil and groundwater contamination during the removal process and the hazards associated with pipe removal (e.g. health and flammability hazards of exposed vapours). Cleanliness considerations relating to the future intended use or disposal of the pipe should also be taken into account, bearing in mind that supplementary cleaning techniques may be employed once the pipe has been removed

from the ground.

Cleaning effectiveness can be determined by taking pipe coupons and swabs of any film found on the inside of the pipe and analyzing them for contamination, using cutout means such as hot tapping or line cutouts.

After allowing some time for the collection of remaining liquids in low areas (minimum one week suggested), the pipeline should be excavated at random low areas. A minimum of one excavation site per scraper trap or 80 km interval is suggested. However, in undulating areas multiple excavation sites may be required. Excavation sites should be chosen to avoid environmentally sensitive areas and to minimize clearing associated with the opening of access roads. If the examination of the inside wall shows that the cleanliness criteria has been met, the cleaning task can be considered complete.

3.6 Water Crossings

The effect of pipelines on water crossings is an important issue at any stage of a pipeline project. This issue is a significant social consideration due to the visibility of crossing activities, the importance of fisheries resources, public use of waterways, the sensitivity of the resource, and the fact that waterways are an important cultural and historical feature of the land.

There are many factors to consider in deciding whether a section of pipeline crossing a water body or wetland (e.g. muskeg, swamp, or flood plains) should be abandoned in place or removed. More specifically, the risks associated with abandoning the pipeline in place, including the potential for contamination and pipe exposure, have to be weighed against the cost and environmental impact of removal.

These trade-offs should be assessed on a site-specific basis, taking into account the size and dynamics of the water body, the design of the pipeline crossing, soil characteristics, slope stability, and environmental sensitivities. While these issues must be evaluated, in most cases it can be expected that abandonment-in-place will be the preferred option.

If the pipeline crossing is to be abandoned in place, the pipe should be left in as clean a state as possible to minimize the potential for contamination of the waterbody should the eventual perforation and failure of the pipe allow any internal residues to escape. As described in Section 3.9, the strategic placement of caps and plugs will also help mitigate this concern by interrupting the movement of potential contaminants through the abandoned pipe.

The risk of pipe exposure is two-fold. First, the pipeline could become exposed if the overlying soil is gradually eroded or washed away because of the dynamics of the water body (e.g. stream bank migration, scour, or flood conditions). Secondly, an empty pipeline crossing a water body or wet area could float toward the surface if buoyancy control mechanisms fail (e.g. if concrete saddle weights slide off). In either case, the owner/operator should assess the probability that the pipeline could become exposed and the impacts that exposure would entail. If the risk of flotation is a concern, it could be addressed by either perforating the line following an appropriately sensitive line cleaning program to allow it to fill with water or by filling the line with concrete or some other solid material. In the case of the former option, plugs and caps should be used to prevent water migration through the pipeline.

If applicable, the risks associated with abandoning a pipeline in place which runs parallel to an operating pipeline at a water crossing should also be assessed.

If the pipeline is to be removed in whole or in part, the issues would be similar in many ways to those associated with initial construction across the water body or wetland. More specifically, many of the same construction techniques and environmental protection measures would apply. Aspects to address include fisheries resource timing sensitivities, habitat protection, sediment control, vehicle and equipment crossing methods, backfill material specifications and source, erosion control measures (both short term and long term), and bank restoration. Damage to any existing bank stabilization structures or destabilization of previously stable banks should be considered.

It is crucial that the pipe be as clean as possible prior to excavation to minimize the potential for contamination of the waterbody should the pipe be damaged and a spill occur during the removal procedure. Blinding off the ends of the section being removed is recommended to prevent contamination by any remaining traces of material.

3.7 Erosion

Soil erosion is a concern during all phases of the pipeline life-cycle, particularly as it relates to slope stability. Leaving a pipeline in the ground may entail a certain amount of activity along the right-of-way to ensure responsible abandonment, such as excavations to confirm cleaning quality and the installation of caps or plugs. The potential impact of the ensuing right-of-way disturbance will vary greatly with the geographic location of the activity. For example, a forest area "duff" layer may not be as susceptible to erosion and slope instability as a region of native prairie topsoil.

If the pipe is to be removed, erosion and slope stability concerns will be similar to those for pipeline construction. For example, traffic, soil compaction, and the wind and water erosion of disturbed soil may be of concern. In addition, the pipeline may have become a structural support to many slopes over time, and its removal may affect the integrity of the slope.

When developing an abandonment plan, the pipeline owner/operator should review any erosion remediation that had occurred over the operating life of the pipeline. If erosion control measures have been regularly required at specific locations, the owner/operator should determine if it would be appropriate to implement longer term erosion control measures.

If the abandonment activities necessitate disturbing erosion-prone areas including slopes, protection measures designed to current standards should be implemented. In addition, the integrity and effectiveness of any existing ditch plugs, sub-drains, berms, or other installations should be reviewed.

It is usually more appropriate to abandon pipe at unstable slopes in place, due to the potential requirement for extensive remediation if the pipeline is removed. On sensitive slopes, the use of sight blocks or other measures should be considered to discourage use of the right-of-way. In areas where the right-of-way has been traditional access for recreational users or hunters, the operator should attempt to reach an agreement with the land manager for ongoing remediation, if necessary.

In areas where slope movement was being monitored during the pipeline's

operating life, the monitoring program should be re-evaluated and continued, if warranted. Temporary access roads to slopes should be reclaimed as appropriate.

Protective measures to be considered when removing a pipeline from a slope would be similar to those used during pipeline construction. The integrity of the slope must be maintained during the removal activities, as well as after the line is removed. If the removal calls for spot excavations (bellholes) instead of an open ditch removal, the stability of the entire slope, as well as the region surrounding the bellholes, should be evaluated. Re-installation of diversion berms and ditch plugs to prevent water channelling may be required.

Development of the abandonment plan should include consultations with other pipeline owners/operators that may be affected by right-of-way disturbances on the slope. In addition, regulators and landowners should be consulted in order to determine an appropriate period for right-of-way monitoring after the pipeline is removed. A typical monitoring period would be two years. Revegetation programs should consider the inclusion of a species that is quick to establish in the revegetation mixture, as this may help to provide short term erosion control; however, the environmental effect of introducing a non-native species must be considered. Regulatory/landowner approval of the seeding mixture would likely be required. A weed control plan should be initiated during the pipe removal process to address potential concerns immediately following surface disturbance.

3.8 Road, Railway, and Utility Crossings

All crossings associated with a pipeline that is being abandoned must be addressed in an appropriate manner. Of particular importance are the agreements relating to the crossings of railways, primary and secondary highways, roads, other pipelines, power lines, and communication lines, and the constraints they may place on the abandonment process.

The parameters to be considered in selecting an abandonment technique for a crossing site include the line diameter, installation details (including burial depth), subsidence tolerance, impact of excavation, impacts on other cathodic protection systems (e.g. for crossings of other pipelines), and long term development plans. Special consideration should be given to the sensitivity of roadway and railway crossings to slight ground depressions that could result from any abandonment related subsidence. The potential may also exist for disruption to crossing traffic, both during and as a result of the pipeline abandonment. As a result, more stringent abandonment requirements may be imposed, such as filling the pipeline at the crossing site with concrete or other approved material. Similarly, cased crossings may require a solid fill even if the carrier pipe is removed.[7]

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7 If the carrier pipe remains in situ, both it and the casing annulus may require a solid fill (need should be assessed on a site-specific basis.)

The proper notification and location of the pipeline or utility being crossed is essential to maintaining a safe working environment. Operators of utilities and other pipelines may have established plans or expectations that may affect the design and timing of the abandonment. Utility crossing or pipeline crossing locations may be of concern when a pipeline is removed, due to the loss of support for the remaining facility, or the interference of the abandonment operation or the abandoned pipeline with the operation of the

crossed utility or pipeline. Thus, discussions with utility and other pipeline companies will add value to the resulting abandonment plan and initiate protection planning.

The main steps of the abandonment evaluation and implementation process for any particular crossing site are as follows:

- review the existing crossing agreement and determine if there are any terms and conditions relating to abandonment-in-place or pipeline removal;
- establish communications with the utility or pipeline being crossed and negotiate terms and conditions (both technical and legal) to abandon the pipeline in place or remove the pipe;
- amend the existing crossing agreement to address the terms and conditions of the abandonment plan;
- notify all affected parties about abandonment activities and responsibilities;
- ensure that necessary approvals (e.g. from regulatory authorities, the utility being crossed, and the landowner) are obtained and kept on record;
- obtain proper location and identification of pipelines and utilities in the area using agencies such as Alberta First Call prior to commencing removal activities, and alert landowners to the activities taking place;
- file the necessary permanent records of the pipeline abandonment plan with interested parties (including pipeline regulatory authorities, provincial one-call systems, environmental groups, land titles, pipeline registers, and the affected crossing parties); and
- in the case of abandonment-in-place, ensure that the inspection requirements for the crossing are part of the post-abandonment monitoring plan.

3.9 Creation of Water Conduits

The potential to create water conduits as a result of the abandonment process is of concern as it could lead to unnatural drainage and material transport. This issue is primarily of concern when a pipeline is abandoned in place, since water will eventually infiltrate the pipe through perforations in the pipe wall caused by corrosion.

Unless water pathways through the pipeline are interrupted, this could lead to the unnatural drainage of areas such as muskegs, sloughs, or marshes, thus affecting the natural balance of the ecosystem. Likewise, a previously stable low area could be flooded by volumes of water exiting from a perforated pipeline. This issue can be related to the concern for contamination and the protection of wetland systems. If water infiltrates the pipeline, the potential exists for that water to carry any residual contaminants left in the abandoned pipeline to some point of exit. The point of exit could be a watercourse, thereby contaminating the watercourse if contaminant levels are sufficiently great in volume and concentration at the point of exit. The possibility of soil contamination may also exist, depending on the nature of the contaminant transported through the pipeline.

Plugs should be installed at appropriate spacings to ensure that changes in surface and ground water conditions will not result in water flow through the pipeline. When identifying locations for the plugs, consideration should be given to pipeline access during the placement of the plugs and the resulting effects of the ground disturbance. Where the pipeline crosses a wet area, a plug should be placed just downstream of the wet area, to prevent its

drainage, and also at an appropriate location upstream of the wet area, to prevent the wet area contamination by water flowing along the pipeline. The plugs should be long enough so that corrosion downstream of the plug will not result in water entering the pipe.

On slopes, water could seep into the pipeline through perforations and exit at unacceptable locations such as agricultural areas or areas where excessive erosion would result. The water should be allowed to exit at frequent intervals and at preferred locations in order to minimize potential impacts from the flow of water and the disruption to natural drainage patterns. Typical locations for plugs are provided in the following table.

Table 3-1
Recommended Plug Locations

Terrain Feature	Plug Locations
waterbodies/watercourses	above top of bank
long inclines (>200m), river banks	at top and bottom of slope and at mid-slope for long inclines
flood plains	at boundaries
sensitive land uses (e.g. natural areas, parks)	at boundaries
near waterfalls, shallow aquifers, groundwater discharge and recharge zones, marshes, sloughs, peatlands, highwater table areas	at boundaries and should include an adequate buffer zone
cultural features (population centres)	at boundaries

The plugs should adhere to the pipe, be impermeable and non-shrinking, and able to resist deterioration. Examples of suitable materials are concrete grout or polyurethane foam. The use of impermeable earthen plugs may also be a viable option.

In the case of pipeline removal, water pathways through the uncompacted pipeline trench material must be prevented or interrupted. The principles governing the locations of trench breakers are the same as those governing the locations of plugs for pipelines abandoned in place.

3.10 Associated Apparatus

The development of any abandonment plan should also give consideration to the disconnection, removal and disposal of apparatus associated with the pipeline, including:

- aboveground valve sites and manifolds;
- underground valve sites and manifold piping, as well as protruding elements such as valve topworks;
- underground tanks;
- pipeline scraper traps;
- pipeline risers;
- line heaters;
- drip pots;
- pipeline access culverts (e.g. for tie-ins, valves, liners, etc.);
- cathodic test posts, fink stations, rectifier sites, and ground beds (to a depth of one metre);
- aboveground tanks and containment berms;
- access roads, gates, and fences;

- anchor blocks and steel piles; and
- miscellaneous apparatus such as radio antennae, buildings, fencing, wiring, electrical equipment, and slope monitoring equipment.

It is recommended that all surface and subsurface apparatus (including signage) along the route of a pipeline that is to be abandoned through removal also be removed as part of the abandonment process.

For pipeline sections that are to be abandoned in place, it is recommended that all surface apparatus as well as subsurface apparatus to a depth of at least one metre be removed, with the notable exception of signage identifying the location of the buried line pipe (i.e. line markers and aerial markers). This applies to apparatus located on operator owned land as well as apparatus located on pipeline-specific surface leases on public or private land.

Any apparatus that is left in place should be secured and properly marked and recorded, and should not pose a hazard to people, equipment, or wildlife and livestock.

3.11 Cost of Abandonment

The cost of abandoning a pipeline may be quite significant. There is a broad scope of costs to consider, from the traditional costs associated with abandonment to more intangible items such as a company's public image and the costs of environmental consequences. In order to make responsible decisions regarding abandonment, all of these costs must be considered.

The cost of abandoning a pipeline will depend on the resources required to complete the work, the value of any salvaged material, the extent of remediation and reclamation work required (as well as any associated security requirements [8]), and many other factors. Proponents should also consider the costs associated with monitoring a site and potential future remediation, as well as the consequences of the abandonment activities and any legal issues that may arise. Changes in the regulatory environment may also give rise to unanticipated abandonment costs to ensure "no responsibility by the owner/operator" after a prescribed monitoring period.

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8 For example, in Alberta, if an approval under EPEA is required for the abandonment of a Class 1 pipeline, security is to be provided to AEP before the approval is issued. The security amount is determined using an estimate of the cost of reclamation.

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Section 4

Post-Abandonment Responsibilities

Once a pipeline has been abandoned, the owner/operator may retain a number of responsibilities. More particularly, the owner/operator may be responsible for ensuring that the right-of-way and any facilities left in place remain free of problems associated with the abandonment. For that reason, a right-of-way monitoring program should be included in the post-

abandonment plan and accounted for in the abandonment budget.

Monitoring plans will vary from case to case, depending on the location and size of the pipeline, the land use, and the features of the terrain traversed by the right-of-way (such as water crossings or slopes). When developing a monitoring plan, the effects of each abandonment issue described in Section 3 should be thoroughly examined for each specific segment of the pipeline being abandoned. Specific monitoring requirements should be included for potentially sensitive areas.

Right-of-way maintenance should also be considered in the post-abandonment monitoring plan and factored as necessary into the abandonment budget. As noted in Section 3.2, the reclamation program will normally be designed to ensure that the condition of the right-of-way is made at least equivalent to that existing just prior to the commencement of abandonment activities, and as close as circumstances permit to the condition of the land that existed prior to initial pipeline installation. The degree to which the right-of-way has to be maintained in that state depends largely on land use and environmental sensitivities. For pipe left in place, the owner/operator would normally remain responsible for the maintenance of signage.

Additionally, the owner/operator may be responsible for maintaining post-abandonment information about the pipeline. This information should be recorded in a post-abandonment log book, so that it is available when needed and can be turned over to an alternate responsible authority if required by future regulations. The post-abandonment log book should contain:

- any regulatory permits and conditions attached to permits (including reclamation certificates);
- full particulars on any pipeline facilities abandoned in place, including a physical description, location and depth of cover, plug locations, and details of any sections filled with a solid material;
- copies of all past crossing agreements;
- records of post-abandonment aerial surveillances;
- records of any slumping over the pipe, or water flow through the pipe, that was noted during post-abandonment monitoring;
- records of any changes in pipeline state from the original abandonment plan (e.g. if pipe sections abandoned in place are subsequently removed);
- records of any remedial work performed on the pipeline after abandonment; and
- records of any areas that become contaminated after the abandonment and reclamation work is complete.

The owner/operator will also be responsible for notifying landowners, municipal authorities, and other affected parties (such as one-call associations) of the abandonment of the pipeline. Any input provided by these groups should be recorded in the post-abandonment log book.

Finally, any pipeline abandoned in place should remain part of any provincial one-call program, so that third parties can be advised whether the lines they wish to have located are active or abandoned.

In closing, a major issue still to be addressed is the question of who would assume responsibility if the owner/operator becomes insolvent. In this regard, industry has established a fund in Alberta to cover the cost of reclamation and abandonment of orphaned oil and gas wells and certain

associated pipeline facilities.

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Appendix A

Current Regulatory Requirements

Refer to the following three tables for an outline of the current regulatory requirements for pipeline abandonment across Canada.

REGULATORY REQUIREMENTS FOR PIPELINE ABANDONMENT[1]

JURISDICTION	AGENCY	LAW	SCOPE	ABANDONMENT/ REMOVAL CLAUSE	ACTION REQUIRED
FEDERAL	National Energy Board	*National Energy Board Act*	All pipelines	Part V, Para. 74 (d)	Leave of the Board
		Onshore Pipeline Regulations	All pipelines	Sec. 55	For abandoned facilities left in place, disconnect from operating facilities, fill with approved medium, seal ends, empty storage tanks then purge of hazardous vapours, and maintain cathodic protection.[2]
YUKON	National Energy Board	*Canada Oil and Gas Operations Act* (COGOA)	All pipelines	none specified	none specified
N.W.T.	National Energy Board	*Canada Oil and Gas Operations Act* (COGOA)	All pipelines	none specified	none specified
BRITISH COLUMBIA	Employment and Investment (Energy and Minerals Division)	*Pipeline Act*	All pipelines	Part II, Sec. 9	Approval of Minister. Removal of structures which may be likely to menace public

					safety or create a fire hazard

1 This table lists current regulatory requirements for pipeline abandonment only and does not address the abandonment of stations or other above-ground facilities. Similarly, it does not address the requirements for pipeline deactivation or discontinuance.
2 The NEB is in the process of amending its *Onshore Pipeline Regulations* and has proposed that these specific requirements be revoked, on the basis that abandonment applications will be treated on a case-by-case basis pending the outcome of the industry/government review into the matter.

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REGULATORY REQUIREMENTS FOR PIPELINE ABANDONMENT (continued)

JURISDICTION	AGENCY	LAW	SCOPE	ABANDONMENT/ REMOVAL CLAUSE	ACTION REQUIRED
ALBERTA	Alberta Energy and Utilities Board	*Pipeline Act*	All pipelines	Part IV, Sec. 33	Consent of the Board
		Pipeline Regulations	All pipelines	Secs. 66-69	For facilities abandoned in place, disconnect abandoned pipeline from operating facilities, clean and purge with approved medium, cap all open ends and advise the Board when work is complete.[3]
	Alberta Environmental Protection	*Environmental Protection and Enhancement Act (Alta. Reg. 115/93)*	All pipelines on private land & Green Area	Sec. 122	Reclamation Certificate from AEP
	Alberta Agriculture, Food & Rural Development	Environmental Protection and Enhancement Act (Alta. Reg. 115/93)	Class I & II lines on White Area public lands		Reclamation Certificate from AFRD (responsibility delegated under EPEA)
SASKATCHEWAN	Department of Energy and Mines	*Pipelines Act*	All pipelines	none specified	none specified
MANITOBA	Oil and Gas Conservation Board	*The Oil and Gas Act*	All pipelines	Part 14, Sec. 171	Application to an inspector. Responsible

					for any repairs required within six years from the day of issuance of the Certificate of Abandonment in respect of the oil and gas facility site.
ONTARIO	Ministry of Consumer and Commercial Relations[4]	*The Energy Act*	All pipelines	none specified	none specified
		Gas Pipeline Systems Regulations	Gas pipelines	none specified	none specified
		Oil Pipeline Systems Regulations	Oil pipelines	none specified	none specified

3 Presently the EUB does not require the removal of an abandoned pipeline; however, in most cases it will expect a notification to the landowners, occupants, and those affected by sour gas setback distances of the abandonment. This is to ensure that affected parties are made aware of the abandonment and that their land will no longer be impacted by the pipeline.
4 Starting in May 1997, Ontario's pipeline safety regulation program will be administered by the Technical Standards and Safety Authority, a private non-profit organization.

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REGULATORY REQUIREMENTS FOR PIPELINE ABANDONMENT (continued)

JURISDICTION	AGENCY	LAW	SCOPE	ABANDONMENT/ REMOVAL CLAUSE	ACTION REQUIRED
QUEBEC	Regie du Gaz Naturel	*Gas Distribution Act*	Gas pipelines	none specified	none specified
		Regulations Respecting Gas and Public Safety	Gas pipelines	none specified	none specified[5]
NOVA SCOTIA	Energy and Mineral Resources Conservation Board	*Pipeline Act*	All pipelines	Sec. 20	Consent of the NSEMRCB
NEW BRUNSWICK	Natural Resources and Energy	*Pipeline Act*	All pipelines	none specified	none specified[6]

		Pipeline Regulations	All pipelines	Sec. 85	Consent of Minister and approval of Board. For facilities abandoned in place, disconnect abandoned pipeline from operating facilities, purge with approved medium, cap open ends and advise Minister when work is complete.[7]
PRINCE EDWARD ISLAND	Department of Energy and Forestry	No applicable legislation	N/A	N/A	N/A
NEWFOUNDLAND	Canada-Newfoundland Offshore Petroleum Board	*The Petroleum and Natural Gas Act*	Offshore pipelines[8]	none specified	none specified

5 Sec. 3(2) of the *Regulations Respecting Gas and Public Safety* states that the construction, installation, repair, maintenance, replacement or removal of any gas distribution piping shall be in accordance with Code CAN1-B149.1-78 "Installation Code for Natural Gas Burning Appliances and Equipment".
6 Sec. 28 of the Pipeline Act states that no pipeline shall be taken up or removed without consent of the Minister and subject to his conditions. 7 Secs. 83-84 of the Pipeline Regulations list the application requirements and criteria for the take up and removal of a pipeline, namely that it must be physically isolated from operating facilities, purged with an approved medium, and that the Board must be advised when the work is complete.
8 Newfoundland does not at present have any legislation applicable to onshore pipelines.

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Appendix B

Abandonment Checklist

1.0	**Alternate Use Analysis** a.___Review alternate uses within company or corporate family b.___Determine if asset can be sold to another company for continued or alternate use c.___Decision that pipeline should be abandone

2.0 Product Removal & Cleaning

2.1 Liquids Pipeline

a.___Pre-Abandonment pigging for cleaning
b.___Temporary piping modifications
c.___Temporary product measurement, storage & transportation
d.___Product removal pigging, propellant
e.___Post removal cleaning, solvents
f.___Product toxicity analysis
g.___Pipe testing for contaminants
h.___Waste disposal

2.2 Gas Pipeline

a.___Pre-abandonment pigging for cleaning/liquid removal
b.___Liquids disposal
c.___Temporary piping modifications
d.___Pressure reduction by operating facilities
e.___Pressure reduction by pulldown compression
f.___Sour/toxic product analysis
g.___Blowdown, Flaring
h.___Post removal cleaning using pigging, solvents
i.___Pipe testing for contaminants

3.0 Information Required for Planning/Approvals

3.1 Facility Description/History

a.___Lineal Description of the Pipeline
___pipe specification
___coating
___appurtenances
___connections to other facilities
___road, highway, railroad crossings (obtain crossing agreements)
___pipeline/utility crossings (obtain crossing agreements)
___water crossings
___topography/terrain
___soil information
___weed/vegetation information
___environmentally sensitive areas
___land use/developed areas
___parallel pipelines, connections
___slope instabilities
___road accesses

b.___Operating History
___all products
___potential contamination
___operating failures/spills/clean-up
___slope movement monitoring

3.2 Regulatory Jurisdictions/Approvals

a.___Operating Authority: Liaison, Application and Approvals (Federal and/or Provincial)
b.___Environmental Authority: Liaison, Application and

	Approvals (Federal and/or Provincial) c.___Public Lands Disposition (e.g. Land Administration Branch of AEP) d.___Other Authorities: DFO, Coast Guard, etc. e.___Municipal Authorities: Permits/Bylaws **3.3 Landowner/Public Contact Activities** a.___Title Search b.___Landowner/Tenant Contact, Survey Clearance c.___Abandonment Rights in Pipeline Easement/Disposition Documents d.___Landowner/Tenant Contact/Negotiations e.___Public Lands Managers Contact/Negotiations f.___Release of Land Rights/Warranties/Setback Requirements g.___Public Participation/Stakeholder Contacts (for federally regulated facilities, early public notification as per NEB's guidelines) h.___Damage Negotiation/Payment **3.4 Environmental Assessment** a.___Soil conservation, stability (possible C&R report) b.___Fish & Wildlife population, habitat c.___Groundwater d.___Erosion, stream sedimentation potential e.___Natural Areas, Native Prairie and Native Parkland f.___Archaeological study
4.0	**Identify Abandonment Activities (Develop Abandonment Plan)** a.___Identification of activities required to meet regulatory requirements b.___Identification of activities required to meet environmental conditions c.___Economic analysis and decision regarding activities where remove/salvage andabandon in place alternatives are available. **4.1 Appurtenances Removal/Modifications** a.___Valve Assemblies, Line Heaters, Drip Pots b.___Cathodic Protection Facilities c.___Warning Signs, Aerial Markers, Fence Posts d.___Access Roads, Bridges, Culverts e.___Fences, Power lines, Antennas, Buildings f.___Aerial Crossings g.___Slope Monitoring Equipment h.___Sumps and Tanks i.___Any facility/equipment buried less that 1 m deep **4.2 Crossings** a.___Review of appropriate measures to prevent settlement/collapse and/or disturbance b.___Liaison with Crossed Facility Operator c.___Road, Highway Crossings d.___Railway Crossings e.___Water Crossings (Minor, River, Lake, Swamp)

f.___Foreign Pipeline Crossings
g.___Utility Crossings
h.___Drainage Crossings

4.3 Environmental Protection/Reclamation Activities

a.___Remediation of Historical Spill Sites
b.___Gravel Removal, Topsoil Replacement at sites
c.___Topsoil conservation
d.___Surface Stone Removal
e.___Erosion control, Ditch Plugs, Slope/Soil Stabilization
f.___Revegetation
g.___Weed Control
h.___Reforestation (if required)
i.___Access Road Reclamation
j.___Timing windows
k.___Fish and Wildlife Habitat

4.4 Pipe Removal

a.___Right-of-Way Boundary and Pipe Location Survey
b.___Access Development
c.___Grading
d.___Trenching
e.___Coating removal if required (precautions if asbestos containing)
f.___Pipe cutting and removal
g.___Pipe loading, transportation, storage
h.___Backfill/Compaction
i.___Clean-up

4.5 Salvage Analysis

a.___Sale of pipe for structural or piling applications
b.___Sale of pipe, valves, fittings for remelting scrap
c.___Sale or reuse of valves, pipe fittings
d.___Sale of fencing and other minor materials
e.___Sale of Land and/or Land Rights

4.6 Pipe Abandoned In Place

a.___ Filling to eliminate settlement/collapse risks
b.___Pipe cuts or pipeline plugs for groundwater stability
c.___Soil conservation/stability measures at excavation sites
d.___Measures to prevent floating pipe
e.___Slopes, erosion control

5.0 Monitoring/Maintenance Activities

a.___Aerial Patrol
b.___Specific site visits
c.___ Weed Monitoring/Control
d.___Liaison with landowners, tenants, public land managers
e.___ "First-Call" response and location of underground pipe
f.___ Crossings
g.___Erosion Control Maintenance

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Appendix C

Industry Questionnaire

ABANDONMENT INFORMATION

Refer to the following two pages (page 1 and page 2) for a copy of the abandonment questionnaire that was used for the industry survey conducted in autumn 1995.

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Appendix D

Cleaning Guidelines

D.1 General Considerations

The operating history of the pipeline to be abandoned should be reviewed to enable the planning of the specific cleaning procedures required for abandonment. Information such as oil/gas analysis, piping modifications, operating flow records, records of anomalies, and maintenance records may provide some insight into additional work needed to develop an effective pipeline cleaning plan.

The owner/operator should ensure that there are adequate sending and receiving traps in place. This may require the use of temporary assemblies. If the pipeline in question is part of a larger system, the section to be abandoned should be physically disconnected upon completion of the cleaning process.

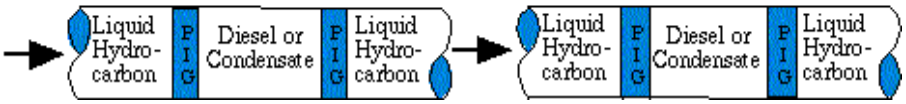
Safety precautions appropriate to the in-service product hazards (i.e. flammability and explosivity of hydrocarbons, toxicity of sour products) must be established throughout the activity.

For gas pipelines, any residual gas should be vented or flared once the pressure in the pipeline has been reduced to the extent possible using operating facilities or a pull down compressor. The residual gas should be monitored for signs of liquid.

For liquid pipelines, before line flow ceases, a sufficient number of scraper pigs should be run through the line to remove the bulk of any solids or waxy build-up. As illustrated by the figure below, a batch of solvent-type hydrocarbons such as diesel fuel or condensate inserted between two scraper pigs is recommended as an effective method of reducing solids or waxy build-up. This process should be repeated until solids can no longer be detected on the pigs as they are removed from the receiving trap.

Figure D-1

In-Service Initial Cleaning for Liquid Pipelines



Specialized chemical cleaning may be required if the routine cleaning method described is not successful, if the pipeline is known to have an unusually high contamination level, or if unusually high cleanliness standards are to be met. Special precautions must be exercised when the pipeline is opened up to control vapour hazards of flammability, explosiveness, and toxicity (e.g. hazardous compounds such as benzene).

D.2 Cleaning Methods for Natural Gas Pipelines

A stiff rubber scraping pig should be pushed through the pipeline (at a constant speed consistent with the pig manufacturer's recommendation) using nitrogen or some other inert gas to prevent explosive mixtures. Free liquids pushed ahead of the pig may be either pushed into the downstream pipeline section or collected in a containment tank designed and isolated according to prevailing local guidelines, for disposal in accordance with area legislation or local by-laws. This process should be repeated until free liquids are no longer evident by visual inspection. Low areas of the pipeline should be checked for the collection of liquids or other contaminants.

After these initial pigging runs, the pipeline should be checked for cleanliness. If contamination is evident, the pigging procedure should be repeated using a slug of solvent between two pigs. As with the free liquids, the solvent should be collected in a containment tank and disposed of in accordance with area legislation or local by-laws. Solvent fumes should be purged with nitrogen or a similar inert gas.

D.3 Cleaning Methods for Liquid Pipelines

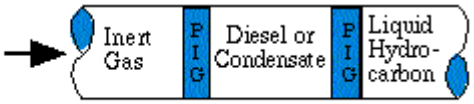
Following completion of the initial in-service cleaning efforts, a final cleaning step should be done in conjunction with line evacuation. The following procedure is commonly used, although many variations exist which should be considered. Consultants specializing in the cleaning of contaminated facilities can advise and provide plans for both normal and unusual circumstances.

A slug of liquid hydrocarbons having solvent properties such as condensate or diesel fuel is pushed through the pipeline between two stiff rubber scraper pigs at a constant speed by an inert gas such as nitrogen. Other additives or treatment chemicals may be added if desired. As a rule of thumb, the volume should be calculated to maintain a minimum pipe wall contact time by the fluid ranging from five to ten minutes (or longer), depending on the effectiveness of the initial in-service cleaning process.

For lines having encrusted or high paraffin build-up, an additional volume of solvent preceding the first pig can be considered. All contact times should be increased for excessive lengths of line as the solvent may become saturated with hydrocarbons before completion of the run. The following diagram illustrates the pipeline sequence of movement. At the endpoint, the solvent and hydrocarbons are pushed into another section of pipeline or collected in a containment tank for disposal.

Figure D-2

Final Cleaning and Evaluation for Liquid Pipelines



A repeat run of the pig train described above should be conducted if there are any indications of liquids or contaminants remaining on the pipe wall in excess of the established cleanliness criteria. The effectiveness of the cleaning process can be gauged by either obtaining samples of the solvent near the tail end of the passing batch, at approximate 25 km intervals, and analyzing the samples for hydrocarbon content, or by monitoring the quality and quantity of the solvent hydrocarbons expelled from the line and comparing it with that injected.

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Appendix E

Bibliography

The documents that were used in the preparation of this discussion paper are listed below. Copies of the studies that were commissioned by the Pipeline Abandonment Steering Committee are available from the Canadian Association of Petroleum Producers, the Canadian Energy Pipeline Association, the Alberta Energy and Utilities Board, and the National Energy Board.

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Updated: 2007-04-16  Important Notices

SETTLEMENT AGREEMENT

October 12, 2007

The purpose of this Settlement Agreement ("Settlement" or "Agreement") is to outline the commitments Enbridge Pipelines Inc. ("Enbridge") is prepared to make to landowners who are members of MPLA and SAPL along the route of the proposed Alberta Clipper Pipeline between Hardisty, Alberta and Gretna, Manitoba and along the route of the new Southern Lights LSr pipeline between Cromer and Gretna, Manitoba.

These commitments are intended to foster positive, long-term relationships with affected landowners on the Southern Lights and Alberta Clipper Projects (the "Projects").

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1. PIPELINE CONSTRUCTION PROCEDURES

1.1 Joint Committee

Enbridge agrees to implement a Joint Committee for the Alberta Clipper and Southern Lights Projects under the terms of reference set out in Schedule 1 attached to this Agreement.

1.2 Construction Monitor

One qualified, independent Construction Monitor with experience in pipeline construction shall be appointed by MPLA/SAPL per construction spread. The appointment shall be agreed to by Enbridge, acting reasonably. The Construction Monitor shall be on site continuously and is expected to monitor construction on privately-held cultivated and pasture lands and address issues of concern to and by landowners and shall be available to the landowners, the Joint Committee and Enbridge at all times. In terms of the compensation and role of the Construction Monitor:

(a) Enbridge shall pay the reasonable fees (consistent with industry standards) and expenses of the Construction Monitor. Enbridge shall provide the Construction Monitor with a schedule of planned construction activities and not less than 24 hours notice of any clearing, topsoil stripping, grading, and/or reclamation activities on the lands (provided however, that construction plans may be modified at the daily morning meetings between the Contractor and Enbridge) and the Construction Monitor shall be provided free access (subject to safety requirements) to all Enbridge's construction activities to inspect clearing, topsoil stripping, grading and reclamation activities. The Construction Monitor's appointment shall end at the conclusion of construction. Following completion of construction, the Construction Monitor shall be re-engaged for post construction reclamation on an as-needed basis.

(b) Enbridge's Chief Inspector and Environmental Inspector ("Enbridge's Inspectors") will review the feasibility of implementing corrective or remedial measures suggested by the Construction Monitor. The Construction Monitor will bring issues to the attention of Enbridge's Inspectors in a timely manner for resolution in the field and will bring systemic issues or concerns to the Joint Committee for consideration. In the event that Enbridge's Inspectors and the Construction Monitor cannot agree, the applicable Enbridge Project Manager will be contacted by the parties and take immediate action to resolve the issue.

(c) The Construction Monitor shall not have the authority to direct the activities of Enbridge, Enbridge's employees, contractors, or agents, or to direct the cessation of any of Enbridge's activities.

(d) The Construction Monitor shall file interim and final reports with the National Energy Board. Copies of interim and final reports shall be provided to the Joint Committee.

1.3 Complaint Tracking

Enbridge shall establish and make available to landowners a Landowner Complaint Tracking system for the proposed construction.

2. SITE PREPARATION AND CONSTRUCTION

2.1 Pre-Construction Meeting with Landowner

Prior to construction, each affected landowner will be contacted by Enbridge's project manager or designated agent to review the timing of construction and discuss site-specific issues and implementation of mitigation and rehabilitation measures in accordance with this agreement. These site specific issues will be documented on the Construction Line List and recorded in Appendix "A" attached hereto prior to the commencement of construction.

2.2 Depth of Cover Survey on Existing Lines

Enbridge shall undertake a depth of cover survey of its existing pipelines within or contiguous to the right-of-way proposed for Alberta Clipper and LSr and shall provide its findings to individual landowners on request. Where it is determined that cover over any of such pipelines is less than 0.6 metres and such reduced depth interferes with the cultivation of the landowner's lands or poses a safety concern, Enbridge shall, at its option, either:

(a) restore the depth of cover to a minimum 0.6 metres;

(b) otherwise implement mitigative measures so as to ensure the continuance of ordinary cultivation and safe crossing of the landowner's farming equipment over the pipeline(s); or

(c) with respect to cultivated lands and with the landowner's agreement, pay compensation for any resulting crop loss or other direct damages.

2.3 Wet Soils Shutdown Policy

The Wet Soils Shutdown Policy, as set out in Appendix 6B of the ESA filed with the Southern Lights and Alberta Clipper Applications and attached hereto as Schedule 2 will govern the practices of Enbridge for pipeline construction, repair and maintenance during wet soil conditions. As set out therein, the decision to suspend activities due to excessively wet soil conditions will be made by the Chief Inspector in consultation with the Environmental Inspector and with the input of the Construction Monitor, subject to the following additional provisions:

(a) In addition to the criteria set out in Schedule 2, plasticity of the surface soil to a depth of 10–20 cm (4–8 in.) will be a factor considered by Enbridge's Inspectors.

(b) Where weather conditions are such that excessively wet/thawed soil conditions are likely to occur, contingency measures may, if warranted and practicable, be implemented prior to the occurrence of the indicators set out in Schedule 2.

(c) Where topsoil has been replaced, all heavy traffic is to be suspended in excessively wet/thawed soil conditions.

2.4 Stripping topsoil

Prior to installing the pipeline(s), and unless otherwise agreed by the landowner, Enbridge will strip topsoil from the full construction right-of-way width on cultivated, hay, pasture and bush-pasture lands during non-frozen conditions. Narrower stripping width will be utilized during construction on native prairie, wetlands, and locations of site-specific features which require narrowing down. The topsoil will be stored within and adjacent to the construction right-of-way boundaries. The topsoil and subsoil will be piled separately and Enbridge will exercise due diligence to ensure that topsoil and subsoil are not mixed.

2.5 Compaction

Enbridge will conduct subgrade surface bulk density testing on the right-of-way prior to ditching (to establish the baseline) and after backfilling with a view to ultimately restoring the right-of-way ditchline to within ten percent of the original subgrade surface baseline measurement.

Where required by Enbridge, stripped topsoil will be over-wintered and replaced in the following year such that the easement lands are returned to the surrounding grade. If, following over-wintering of the topsoil and following return to grade, there is subsidence in excess of 2-inches, Enbridge shall, in consultation with the landowner, restore the affected area to grade by re-stripping topsoil and re-grading the subsoils or by applying other restorative techniques in certain localized areas, importation of topsoil may be undertaken

If the construction of the pipeline causes a restriction of the natural flow of water due to too much or not enough subsidence, Enbridge will restore to pre-construction contours and drainage.

2.6 Boundaries

Enbridge agrees to stake the outside boundary of the work space which will include easement and temporary workspace . Where topsoil is to be stored off easement, the stakes will not be removed during the stripping operation. The stakes will be located at 50-metre intervals prior to construction. The intervals or distance between stakes may decrease as deemed necessary in order to maintain sight lines and easement boundaries in areas of sight obstructions, rolling terrain or stream and road crossings.

2.7 Open Trench

Enbridge will use reasonable commercial efforts to limit the length of time that any one section of production trench is open to two weeks.

2.8 Grading

On present and proposed agricultural lands, Enbridge will restore soils to pre-construction grade as reasonably practicable.

2.9 Construction Vehicle Traffic

Whenever possible, all vehicles and equipment will travel on the easement and temporary work space areas.

2.10 Coverage Over Pipeline

Enbridge will install the new LSr and Alberta Clipper pipelines with a minimum of .9 metres of coverage from the top of the pipe to construction grade (and prior to replacement of the topsoil).

The company hereby grants permission to the landowner to cross the LSr, Alberta Clipper and all existing pipelines at any time with all agricultural equipment to carry out cultivation of the lands except as provided in Appendix "B" attached hereto (which Appendix may be amended by Enbridge from time to time in which case the revised Appendix will take effect upon confirmed receipt by the landowner). If at any time, Enbridge determines that the landowner cannot cross any pipeline or pipelines with all agricultural equipment Enbridge shall:

(a) specify to the landowner the restricted equipment or practice;

(b) where applicable, implement mitigative measures so as to ensure the safe crossing of the landowner's farming equipment and practices over the pipeline(s); or

(c) with respect to cultivated lands and with the landowner's agreement, pay compensation for any resulting crop loss or other direct damages.

Notwithstanding any permission granted in this section 2.10, Enbridge shall not be liable for any damages, claims, suits or actions resulting from the gross negligence or wilful misconduct of the landowner.

2.11 Stone-picking

Enbridge will pick stones in accordance with the *ESA* and the *Environmental Guidelines for Construction*. In particular Enbridge will:

(a) Remove stones from disturbed soil to achieve equivalence with the surrounding subsoil/ topsoil as well as stones from the upper 30 cm of ditch and grade spoil that will interfere with topsoil replacement or cultivation (i.e. stones larger than 10 cm in diameter);

(b) Monitor the right-of-way during operations for presence of stones at the surface and remediate if stoniness interferes with agricultural practices.

3. INTEGRITY OF OTHER PRIVATE PROPERTY AND SERVICES

3.1 Enbridge will ensure:

(a) reasonable passage and land access for agricultural equipment during construction;

(b) that if private water or utility lines are planned to be interrupted, Enbridge will supply temporary service to the affected landowners prior to service interruption. (In the event of accidental interruption, temporary services will be provided by Enbridge at the earliest possible opportunity);

(c) that temporary gates will be installed at fence crossings, and temporary fences will be installed surrounding trench areas where livestock is kept, in order to prevent entry onto the easement and temporary working areas while construction is ongoing. During construction, Enbridge agrees to provide temporary water to livestock where temporary fencing has cut off the normal supply of water;

(d) that any fences which are damaged by pipeline construction are repaired or replaced by Enbridge in a good and workmanlike manner;

(e) that any survey monuments which are removed or destroyed during pipeline construction are replaced; and

(f) that a copy of this AGREEMENT, any relevant environmental reports and any orders or conditions upon which regulatory approvals were granted to Enbridge is provided to the construction contractor.

3.2 Drainage

Enbridge will repair, restore and maintain all drainage system functionality to as-found condition. This work shall be completed consistent with Enbridge's Environmental Guidelines for Construction as set out below. The Construction Line List will be used to identify landowner requirements and will serve as the basis for construction activities. Enbridge will provide the landowner with a copy of the as-built drainage plans specific to the repaired or restored areas.

Enbridge will cooperate with the landholder to accommodate planned drainage systems to the extent that plans are affected by the existence of the Enbridge pipelines. With prior approval, Enbridge will reimburse the landowner for any reasonable extra costs incurred due to the presence of the pipeline(s). Any proposed cost-sharing must be identified and approved by Enbridge prior to the tile installation.

Environmental Guidelines for Construction:

(i) Trenching - under Drain Tiles

Enbridge will excavate the trench so that the pipeline may be laid over or under the tile with a minimum clearance of 30 cm (12 in.).

If drain tiles are cut during trenching Enbridge will:

- identify the location of the damaged tile at the trench and at both sides of the construction ROW;
- install a temporary flume if needed to maintain drainage;
- cap the ends to prevent clogging drains with dirt or debris;
- keep plugs in place until the damaged tile is repaired

(ii) Backfilling - under Drain Tiles

Before backfilling, Enbridge will determine whether any drain tiles crossed during trenching were damaged during construction. Enbridge will use a sewer rod or pipe snake to probe open ends of tiles and will repair any damaged tiles by inserting a competent support (e.g., length of solid pipe) around the tile to prevent settling. If damage is extensive, broken tile will be removed and replace with new tile.

Drain tiles damaged during construction must be repaired to their preconstruction condition or better.

Enbridge will backfill around drain tiles in lifts and compact each lift.

3.3 Water Wells

Should a registered or known (and identified on the Construction Line List) water well within 30 metres of ROW be damaged (diminishment in quantity and/or quality) from pipeline installation/operations, a potable water supply will be provided to the landowner and the water well shall be restored or replaced at Enbridge's expense as may be required.

4. COMPENSATION FOR LAND USE AND/OR DAMAGES

4.1 Easement compensation and temporary land use compensation

Land rights required for the pipeline construction include permanent interests acquired by way of the pipeline easement (in those cases where Enbridge does not already own sufficient existing easement to construct the new pipeline(s)) and temporary workspace agreements. Where Enbridge has sufficient existing permanent easement to install the new pipeline(s), it will pay the landowner a temporary workspace payment based on the entire area required for construction. Enbridge will compensate landowners for permanent easement and temporary workspace as set out in Schedule 3 attached. Site-specific land rights compensation for non-agricultural land (including gravel pits) and compensation in respect of any above ground installation will be reviewed and negotiated separately.

4.2 Damage compensation categories

(a) Damages will be paid to owners of cultivated lands in relation to:

(i) all claims of any nature whatsoever suffered by the landowner to the date hereof as a result of the operations of Enbridge and/or its agents or contractors in operating and maintaining it pipelines across the lands of the landowner except those claims that have been communicated to Enbridge as of October 1, 2007;

(ii) the loss of use of the lands, including all crop loss prior to and for the first six years (or seven years if construction is conducted over 2 growing seasons on a landowner's lands) to commence in the year of construction of the pipeline and for five years thereafter;

(iii) disturbance (including nuisance, noise and inconvenience such as lost time due to negotiations and construction, interference to farming operations, restricted headlands, interrupted access (severance), extra applications of fertilizer, or temporary storage of topsoil off easement, etc.), and

(iv) all other loss and damage of any nature or kind whatsoever as a result of the construction of the pipeline(s), (with the exception of personal injury and damage to personal property)

(collectively referred to as "Damages")

(b) Enbridge will, on a without prejudice basis, make an upfront lump sum payment as set out in Schedule 3, calculated based upon the area of the permanent easement and/or temporary workspace used, to settle all Damages on cultivated lands (the "Damage Settlement"). Payment is normally made after construction but will be made to the landowner within 90 days of the delivery of executed agreements (including as applicable, easement agreements, temporary workspace agreements, consents and such other documentation as necessary or desirable in relation to the Projects) and signed releases from individual landowners to Enbridge which will:

(i) give Enbridge a full and final release on Damages, and

(ii) include an indemnification for related parties' claims for losses compensated for as part of the Damage Settlement.

(c) Current pipeline construction techniques are intended to minimize damages to soil and crop productivity. The Damage Settlement includes an allowance for any past crop losses (except those claims that have been communicated to Enbridge as of October 1, 2007) and possible future crop losses (or other loss of use) for the first six years (or seven years if construction is conducted over 2 growing seasons on a landowner's lands), but is not an acknowledgement that such damage

occurred or is expected. Conversely, Enbridge's soil handling programs are intended to demonstrate the Company's commitment to soil conservation and Enbridge believes that using these techniques, minimal crop losses are likely to occur.

(d) Rights to subsequent crop loss, if any, shall be determined pursuant to the provisions of the applicable easement agreement and section 7.1 hereof.

(e) For any land used outside the permanent easement(s) or temporary workspace, Enbridge will pay additional temporary work space compensation and will pay damages for future crop loss, if any, on an "as incurred" basis.

4.3 Non-Renewable Resources and Specialty Crops

Damages to commercially extractable non-renewable resources contained within the acquired permanent easement, (such as gravel and sand), specialty crops (such as lentils, registered seed variety, peas, potatoes), irrigation lands and non-cultivated lands will be reviewed and compensation negotiated on a site specific basis.

4.4 Trapped Land

As set out in Schedule "3", Enbridge agrees to pay landowners 100 % damages for crop losses for cultivated lands which Enbridge and the landowner agree are rendered not useable during the construction of the pipeline(s) and clean up following construction.

4.5 Signing Bonus

Where the landowner executes and delivers to Enbridge the agreements (including, as applicable, easement agreement, temporary workspace agreement, consent and other such documentation necessary or desirable in relation to the Projects) on or before December 31st 2007, the Company will provide an early signing bonus as set out in Schedule 3.

5. GENERAL MATTERS

5.1 Damage Payments

Damage payments are made directly to the registered landowner. The landowner is responsible for making any compensation to his/her tenant for any matters included in the damage payment from Enbridge.

5.2 Landowner's Obligation to Communicate Settlement

The landowner, in consideration of this Settlement, covenants and represents that he/she will promptly provide written notice to any occupant, tenant or lessee of his or her lands of this settlement (and the relevant easement agreement or

temporary workspace agreement), and simultaneously forward a copy of such notice to Enbridge at the address for notices set out in the relevant easement agreement.

Landowner Agreement not to Oppose Projects

Upon execution of this Agreement, the landowner acknowledges and agrees that he/she will not engage in any further opposition of any kind in relation to the Alberta Clipper and Southern Lights Projects. In particular, the landowner:

(a) will not interfere directly or indirectly with Enbridge's immediate access to the landowners' lands for the purposes of conducting environmental and other surveys;

(b) will not participate in the public hearing process for the Projects or oppose the route of the pipeline(s) or the methods or timing of construction.

If, however, landowner is entitled to site-specific compensation as contemplated in sections 4.1 and 4.3 hereof, landowner reserves the right to arbitrate the amount of compensation to which he/she is entitled but acknowledges that failure to execute and deliver the easement agreement, temporary workspace agreement, or consent (as the case may be) to Enbridge on or before December 31, 2007 will forfeit landowner's entitlement to a signing bonus.

POST-CONSTRUCTION AND PIPELINE OPERATIONS ISSUES

6. WEED CONTROL

6.1 Weed control

Enbridge will work with each landowner to ensure that weeds are controlled along the pipeline during pipeline construction. A weed survey of all lands traversed by the route will be conducted prior to construction to determine the presence of weeds. The survey will identify any site-specific mitigative measures to prevent the spread of weeds from areas of infestation to adjacent lands.

Schedule 4 attached, provides additional information on Enbridge's weed management measures.

7. TOPSOIL

7.1 Topsoil Replacement

If there is greater than 50% crop loss after three years, Enbridge will retain an independent soils consultant satisfactory to both parties to develop a prescription to rectify the problem. This may include the importation of topsoil or other restorative techniques. If topsoil is imported it will be of a quality consistent with the soils adjacent to the work area and from a source approved by the landowner, dry and free of noxious weeds;

7.2 Contamination

Where contamination is encountered on the ROW during construction, Enbridge shall implement the Contaminated Soil Contingency Procedure in the ESA, and retain an independent consultant to carry out tests to assess and prescribe remediation for soils contaminated as a result of Enbridge's operations. Enbridge shall implement all commercially reasonable measures recommended by the independent consultant to remediate contaminated soils.

8. PIPELINE OPERATIONS

8.1 Integrity Dig Procedure

The Integrity Dig Procedure attached hereto as Schedule 5 will apply to all integrity and maintenance operations on the Enbridge Mainline System including the Alberta Clipper and LSr pipelines and existing pipelines on the landowner's lands. The current form of Preliminary Field Right of Way Report included in Schedule 5 shall be subject to review and, if necessary, modification by Enbridge, MPLA and SAPL by October 31, 2012 and at five year intervals thereafter. All integrity and maintenance digs not resolved as of the date hereof will be compensated in accordance with the provisions of the Preliminary Field Right of Way Report at Schedule 5.

9. ABANDONMENT

9.1 New Language to Easement Agreements

Enbridge agrees to add the following language to new easement agreements entered into with landowners with respect to the Southern Lights and Alberta Clipper Projects:

Paragraph 11 –Owner shall have the right to assign this Agreement in whole or in part and upon such assignment, shall give to Enbridge Pipelines Inc. written notice thereof within ten (10) days. Enbridge Pipelines Inc. shall have the right to assign this Agreement in whole or in part:

(a) to an assignee that meets a minimum threshold credit rating of not less than BBB (low) by Dominion Bond Rating Service Limited or BBB- by Standard & Poors Corporation or Baa3 by Moody's Investor Services, Inc. assigned to the unsecured and senior unsubordinated long-term debt obligations (not supported by third party credit enhancement) by the respective rating agency (a "Rated Assignee"). For greater certainty, where the assignee is rated by more than one agency, the lowest credit rating will apply. Enbridge Pipelines Inc. shall provide written notice thereof to Owner within ten (10) days.;

(b) to any third party not a Rated Assignee, provided Enbridge Pipelines Inc. remains liable to the Owner for any abandonment obligations Enbridge

Pipelines Inc. shall provide written notice thereof to Owner within ten (10) days.; or

(c) to any third party not a Rated Assignee, provided Enbridge Pipelines Inc. demonstrates to the Owner's satisfaction (acting reasonably) that such assignee is financially sound in which case Owner shall provide its prior written consent to the assignment.

The foregoing provisions do not apply to a corporate financing by way of a deed of trust, mortgage, debenture or a floating charge or upon an amalgamation or merger.

Paragraph 9:

Upon the abandonment of the pipeline, Enbridge will, at its option:

(a) remove the pipeline from the lands;

(b) maintain the pipeline including the application of cathodic protection for as long as Enbridge exercises its right under the easement; or

(c) surrender the easement with the landowner's consent."

These abandonment provisions shall apply to all Enbridge pipelines on the landowner's lands.

9.2 Easement Access

Granting Clause – "Except in case of emergency or in accordance with an executed Integrity Dig Agreement as contemplated in Schedule 5, Enbridge shall not enter upon the lands of the landowner other than the easement without the landowner's consent. The determination of what constitutes an emergency is within Enbridge's absolute discretion but is a situation in which Enbridge has a need to access the pipeline in the public interest without notice to the landowner subject to the landowner's right to compensation for all damages suffered as a result thereof. Enbridge will make reasonable efforts to advise landowner of the emergency circumstances within 72 hours of entry upon such lands. "

9.3 Surface Facilities

Paragraph 15 – "Enbridge agrees to make all reasonable efforts to locate above-ground installations (other than pipeline markers installed at property lines) adjacent to lot lines and public road allowances. Enbridge shall keep down weeds on any lands removed from cultivation by reason of locating any surface facilities thereon."

Where Enbridge has existing easement rights for these Projects Enbridge will amend these existing easement agreements by addendum to include the above provisions.

10. ASSIGNMENT

All rights and obligations contained in this agreement shall extend to, be binding upon, and enure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto respectively.

IN WITNESS WHEREOF the parties hereto have entered into this Agreement in consideration of the mutual covenants and agreements herein as of the day and date set forth above.

ENBRIDGE PIPELINES INC.

Witness _____ Per: _____

Dated at _____, _____

this _____ day of _____, 20_____.

Witness _____ Per: _____

Appendix A

Site Specific Issues

Appendix B

Agricultural Equipment and Cultivation Activities Not Permitted on the ROW Without Further Investigation by Enbridge

Cultivation Activities

Chisel ploughing, sub-soiling, deep tillage or ripping to more than 45 cm (18 inches) in depth

Any crossing of the ROW with any equipment in periods of heavy rain and if the soil is rutting when equipment is driven on the ROW

Equipment

Non-agricultural equipment such as semi tractor trailers or tracked vehicles if not loaded in accordance with provincial highway standards or in excess of the manufacturers specified load limits.

Agricultural equipment used in a manner that exceeds the manufacturers specified load limits.

Note: Prior to undertaking the foregoing cultivation activities or using the foregoing equipment, the landowner must contact Enbridge. Enbridge will then determine and advise the Landowner within three business days if such cultivation activities can be undertaken or equipment used.

SCHEDULE 1

JOINT COMMITTEE TERMS OF REFERENCE

1. The Joint Committee's purpose is to:

   (a) provide a mechanism to address systemic concerns that arise during and following construction of the Alberta Clipper and Southern Lights LSr pipelines including concerns related to wet soil shutdown decisions made by Enbridge;

   (b) review concerns raised during and following construction; and,

   (c) review and provide input on the post-construction monitoring program.

2. The objective of the Joint Committee is to:

   (a) deal with any unforeseen circumstances which may arise during or following construction; and,

   (b) provide a vehicle to address concerns which arise during and following construction;

   (c) provide an opportunity for landowners to comment on how Enbridge might improve future construction practices.

3. The types of issues which maybe addressed by the Joint Committee are as follows:

   (a) landowner concerns that arise during and following construction;

   (b) unusual or unanticipated impacts of the construction process which show up only after construction is completed;

   (c) methods of anticipating and avoiding these circumstances in the future; and,

   (d) review of ongoing construction practices and procedures which in the view of the landowners might be improved in future construction.

4. The Joint Committee shall be formed during the year of construction in advance and prior to the commencement of construction. The landowners shall be responsible for recruiting the landowner members and advising Enbridge of their names and contact information. The Committee shall continue for a period of two (2) years from the date of commencement of construction and so long thereafter as the Committee determines is necessary.

5. Members shall be affected landowners, and appropriate representatives of Enbridge. The Joint Committee shall be composed of no less than four (4) landowners, two (2) from each of MPLA and SAPL and four representatives from Enbridge. Landowner members of the Joint Committee will be appointed regionally by MPLA and SAPL, for the duration of the Projects and MPLA and

SAPL shall be responsible for providing the names of and contact information for Joint Committee members to landowners.

6. The Joint Committee shall establish communications and record-keeping systems accessible by all members and the Construction Monitor.

7. Meetings of the Joint Committee shall be held at such times and locations as reasonably necessary and shall require the presence of at least two landowner members and two Enbridge members. Results of all meetings shall be recorded and communicated in writing within a reasonable time period to all members of the Joint Committee.

8. Members of the Joint Committee shall be provided reasonable access (subject to safety requirements) to all Alberta Clipper and Southern Lights construction activities.

9. Enbridge will pay to each landowner member of the Joint Committee a total payment of $10,000 plus G.S.T., per annum as an honorarium for their participation on the Joint Committee as well as reasonable out-of-pocket travel and other expenses incurred to attend the meetings.

SCHEDULE 2

WET SOIL SHUTDOWN PROCEDURE

3.0 WET / THAWED SOILS CONTINGENCY PLAN

Enbridge will assign Environmental Inspectors with sufficient training and soils-related experience to be able to identify soils that are too wet for a particular activity and when the soils are sufficiently dry to allow the activity to resume. The decision to continue or suspend particular pipeline construction activities on lands with excessively wet/thawed soils will be made by the Chief Inspector in consultation with the Environmental Inspector. The Environmental Inspector or Chief Inspector will employ the criteria presented in Tables 6B-1 and 6B-2 of this ESA, as a guide to activities where contingency measures are warranted. A record of the location, timing and reason for implementation of the Wet / Thawed Soils Contingency Plan will be maintained by the Environmental Inspector. In the event that activities are suspended during pipeline or facility construction, the landowner and the NEB will be notified as soon as practical by the Environmental Inspector or the Chief Inspector.

Soils are considered to be excessively wet when the planned activity could cause damage to soils either due to rutting by traffic through the topsoil layer into the subsoil; soil structure damage during soil handling; or compaction and associated pulverization of topsoil structure damage due to heavy traffic.

Contingency measures will be implemented, if warranted, once one of the following indicators occurs:

- rutting of topsoil or root zone material to the extent that admixing may occur;
- excessive wheelslip;
- excessive build-up of mud on tires and cleats;
- formation of puddles; or
- tracking of mud as vehicles leave the right-of-way.

In order to minimize terrain disturbance and soil structure damage through rutting or compaction due to wet soil conditions, construction alternatives will be employed, as necessary, in the event of thawed soils during frozen conditions or an excessively wet surface during nonfrozen conditions. The contingency measures listed below will be implemented individually or in combination, as necessary, based on site-specific conditions.

Wet Soil Contingency Measures

1. Restrict construction traffic, where feasible, to equipment with low-ground pressure tires or wide pad tracks.
2. Work only in nonproblem areas, such as well-drained soil or well-sodded lands, until conditions improve.
3. Install geotextiles, swamp mats or corduroy constructed from nonsalvageable timber in problem areas.
4. Consider stripping an additional width of topsoil in problem areas.
5. Suspend construction until soils dry out.

Thawed Soil Contingency Measures

1. Restrict construction traffic, where feasible, to equipment with low-ground pressure tires or wide pad tracks.
2. Work only in nonproblem areas, such as frozen or well-drained soils, until conditions improve.
3. Postpone construction until evening or early morning when the ground is frozen.
4. Install geotextiles, swamp mats or corduroy constructed from nonsalvageable timber in problem areas.
5. Employ frost inducement measures such as snow packing or plowing to increase the load-bearing capacity of thawed ground.
6. Suspend construction until soils dry out or freeze.

If the indicators of excessively wet/thawed soil conditions previously noted above are not evident, soils will be considered dry enough to resume activity.

TABLE 6B-1

CRITERIA FOR THE SUSPENSION OF ACTIVITIES DUE TO EXCESSIVELY WET SOIL CONDITIONS

Land Use	Topsoil Salvage Status	Construction Activity	Suspend Activity for Environmental Issue?
Cultivated and Poorly-sodded Hay, Pasture, Native Prairie and Bush-Pasture	No salvage conducted	Soils handling (topsoil stripping/ replacement)	Yes
	No salvage conducted	Pipe stringing	Yes
	Trench and spoil area stripped	Pipe stringing	No, if stringing truck traffic is restricted to the stripped area
	Trench and spoil, and work area stripped	Pipe stringing	No
	No salvage conducted	Welding	Yes
	Trench and spoil area stripped	Welding	Yes
	Trench and spoil, and work area stripped	Welding	No
	Trench and spoil area stripped	Trenching	No
	Trench and spoil area stripped	Lowering-in	Yes
	Trench and spoil, and work area stripped	Lowering-in	No
	Trench and spoil area stripped	Backfilling	No if backfilling with back hoes or clean up bucket Yes if dozers are used.
	Trench and spoil, and work area stripped	Backfilling	No
	Trench and spoil area stripped	Testing	Yes (testing would not be initiated but would continue if filling with test water has begun)
	Trench and spoil, and work area stripped	Testing	No
	Topsoil replaced	Testing	Yes (testing would not be initiated but would continue if filling with test water has begun)
	Topsoil replaced	Clean-up	Yes - heavy traffic not permitted; No - quad traffic likely acceptable
Well-sodded Lands; Hay, Pasture, Native Prairie and Bush-Pasture	No salvage conducted	Soils handling (topsoil stripping/ replacement)	Yes
	No salvage conducted	Pipe stringing	Yes
	Blade width stripping conducted	Pipe stringing	No, if stringing truck traffic is restricted to the stripped area
	Blade width and work area stripped	Pipe stringing	No
	No salvage conducted	Welding	No - activity to be closely monitored and suspended if warranted
	Blade width stripping conducted	Welding	No - activity to be closely monitored and suspended if warranted
	Blade width and work area stripped	Welding	No

TABLE 6B-1 Cont'd

Land Use	Topsoil Salvage Status	Construction Activity	Suspend Activity for Environmental Issue?
Well-sodded Lands; Hay, Pasture, Native Prairie and Bush-Pasture (cont'd)	Blade width stripping conducted	Trenching	No
	Blade width stripping conducted	Lowering-in	No - activity to be closely monitored and suspended if warranted
	Blade width and work area stripped	Lowering-in	No
	Blade width stripping conducted	Backfilling	Yes
	Blade width and work area stripped	Backfilling	Yes
	Blade width stripping conducted	Testing	No
	Blade width and work area stripped	Testing	No
	Topsoil replaced	Testing	Yes (testing would not be initiated but would continue if filling with test water has begun)
	Topsoil replaced	Clean-up	Yes - heavy traffic not permitted; No - quad traffic likely acceptable

TABLE 6B-2

CRITERIA FOR THE SUSPENSION OF ACTIVITIES DUE TO THAWED SOIL CONDITIONS

Land Use	Topsoil Salvage Status	Construction Activity	Suspend Activity for Environmental Issue?
Cultivated and Poorly-sodded Hay, Pasture, Native Prairie and Bush-Pasture	No salvage conducted	Soils handling (topsoil stripping/ replacement)	Yes
	No salvage conducted	Pipe stringing	Yes
	Blade width stripped	Pipe stringing	No - if stringing truck traffic is restricted to the stripped area
	No salvage conducted	Welding	Yes
	Blade width stripped	Welding	Yes
	Blade width stripped	Trenching	No
	Blade width stripped	Lowering-in	Yes
	Blade width stripped	Backfilling	Yes
	Blade width stripped	Testing	Yes - testing would not be initiated but would continue if filling with test water has begun
	Topsoil replaced	Testing	Yes - testing would not be initiated but would continue if filling with test water has begun
	Topsoil replaced	Clean-up	Yes - heavy traffic not permitted; No - quad traffic likely acceptable
Well-sodded Lands; Hay, Pasture, Native Prairie and Bush Pasture	No salvage conducted	Soils handling (topsoil stripping/ replacement)	Yes
	No salvage conducted	Pipe stringing	Yes
	Blade width stripping conducted	Pipe stringing	No - if stringing truck traffic is restricted to the stripped area
	No salvage conducted	Welding	No - activity to be closely monitored and suspended if warranted
	Blade width stripping conducted	Welding	No - activity to be closely monitored and suspended if warranted
	Blade width stripping conducted	Trenching	No
	Blade width stripping conducted	Lowering-in	No - activity to be closely monitored and suspended if warranted
	Blade width stripping conducted	Backfilling	Yes
	Blade width stripping conducted	Testing	No
	Topsoil replaced	Testing	Yes - testing would not be initiated but would continue if filling with test water has begun
	Topsoil replaced	Clean-up	Yes - heavy traffic not permitted; No - quad traffic likely acceptable

SCHEDULE 3

ALBERTA CLIPPER/SOUTHERN LIGHTS PIPELINE PROJECTS
LAND COMPENSATION

1. Enbridge will pay to the landowner, within 90 days of receipt of properly executed easement agreement, temporary workspace agreement, consent and release, and such other documentation necessary or desirable in relation to the Projects, as applicable:

- The greater of 156% of market value and pattern of dealing on a per acre basis for the permanent easement to be acquired (but in no case less than $800 per acre); and
- 50% of the foregoing per acre for temporary workspace.

2. Enbridge will pay to the landowner, in advance, for Damages (as defined in the Settlement Agreement):

- The sum of $1250 per acre for crop loss, as applicable, where construction of the pipeline is conducted during a single growing season and $1750 per acre where construction of the pipeline(s) is conducted during two growing seasons; and

- The sum of $600 per acre for all other loss and Damage.

3. Where construction activities are undertaken by Enbridge in wet soil conditions Enbridge will pay to the landowner 150% of the Damages otherwise payable but only in respect of the area affected and only if full width stripping has not occurred on such area.

4. In locations where horizontal directional drilling takes place, disturbance Damages will be compensated at 150% of the above amount (ie at $900 per acre rather than $600 per acre). For greater certainty, road bores do not fall under this provision.

5. For early signing, where the landowner signs an easement agreement, temporary workspace agreement, consent and/or release, as applicable, on or before December 31, 2007, Enbridge will, within 90 days of receipt of same, provide an early signing bonus of $35 per metre of linear disturbance across the landowner's lands where one pipeline is being installed and $45 per metre of linear disturbance across the landowner's lands where two pipelines are being installed. For greater certainty, this payment is based on the length of pipeline through the landowner's property, not easement width. Further, payment of the signing bonus is intended to be an incentive for early signing of the easement agreement. It is not additional compensation for easement, temporary workspace, consent or Damages.

6. In addition, for early signing, where the landowner signs an easement agreement, temporary workspace agreement, consent, and/or release, as applicable, on or before December 31, 2007, Enbridge will provide an early signing bonus of $1,000 for each tract of land.

SCHEDULE 4

WEED MANAGEMENT

Criteria for Implementation:

Management of invasive plant species is of paramount concern to Enbridge. The goal of invasive species management for the LSr pipeline component of the Southern Lights Project and the Alberta Clipper Project is to prevent the introduction and spread of non-native plants and to eliminate or control them, as practical within the project area. To help achieve this goal, the following measures will be implemented during construction and restoration.

1. All equipment shall arrive for work in a clean condition to minimize the risk of weed introduction. Any equipment which arrives in a dirty condition will not be allowed to work until it has been cleaned off at a suitable location.

2. Equipment passing through areas identified as having a weed problem will be cleaned thoroughly with all soil and debris removed prior to continuing work on the right-of-way.

3. Weed growth will be monitored and controlled on a routine basis (at least twice during a growing season) on areas where final clean-up and topsoil replacement is postponed until the Alberta Clipper Project is completed.

4. Control the growth of noxious or nuisance weeds on topsoil storage piles by hand cultivating, mowing or if necessary using selective, nonpersistent herbicides. Control will be initiated before weedy species mature (*i.e.*, produce seed).

5. Weed growth will be frequently monitored during restoration activities, and weed control measures applied on a site-specific basis.

6. The LSr and Alberta Clipper pipeline construction right-of-way will be monitored for weed infestations as a part of the post-construction monitoring program.

7. Areas of poor plant cover will be reseeded and weed control measures will be applied if warranted.

8. All equipment cleaning station locations along the proposed route will be assessed in late spring. Weed species of concern that are identified at the sites will be treated. Manual removal of plants or chemical treatment will occur. If weeds are manually removed when in flower, the weed material will be disposed of in an approved land-fill facility.

9. Record all weed treatment and monitoring. Provide records of weed control measures to the Joint Committee and weed treatment to the Landowner for any treatment on his/her lands.

Notes:

1. Prior to construction, pull out or mow problem weed species from heavily infested areas and dispose of as directed by the Environmental Inspector.

WEED MANAGEMENT

2. Salvage topsoil from the full width of the construction right-of-way in areas of heavy weed infestations, as directed by the Environmental Inspector. Store topsoil from the affected area separately.

3. Clean all topsoil handling equipment once past the area. Clean equipment at designated weed clean-off stations during nonfrozen conditions with shovels, compressed air, or high-pressure water, as directed by the Environmental Inspector.

4. Record infestation areas and monitor during post-construction monitoring. Provide copy of records to Joint Committee.

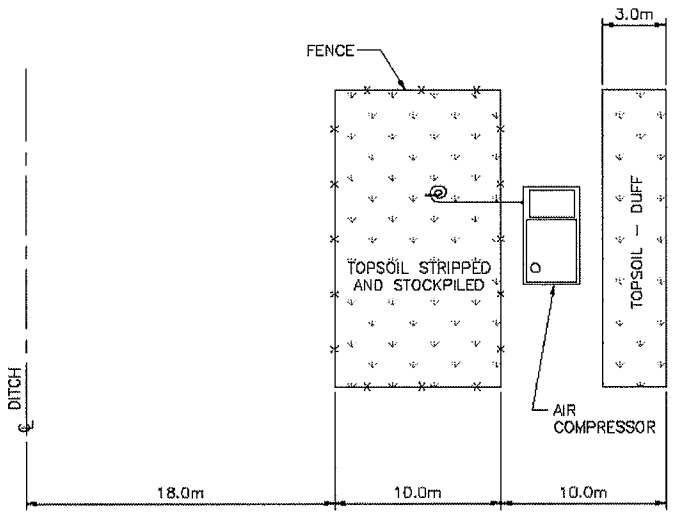
5. Record location of clean-off site for future monitoring and, if warranted, weed control.

TYPICAL WEED CLEAN-OFF STATION – AIR

Criteria for Implementation:

Weed clean-off stations using compressed air and manual track cleaning for cleaning soil from construction equipment, may be set up where track cleaning by hand and other weed control measures are determined to be insufficient. Clean-off station locations will be established at locations identified on the Environmental Alignment Sheets and as determined by the Environmental Inspector prior to commencement of construction in the area. Clean-off requirements will apply to all construction equipment involved in topsoil handling operations.

Dry cleaning stations using high pressure compressed air for cleaning soil from construction equipment will be established along the proposed route at strategic locations to manage weed concerns. Clean-off requirements will apply to all construction equipment involved in topsoil handling operations. The diagram below is an example of how a dry cleaning station may be constructed. Final design should be determined by the Chief Inspector, in consultation with the Environmental Inspector, once a location has been determined.



PLAN

Notes:

TYPICAL WEED CLEAN-OFF STATION – AIR

1. Construct the dry type clean-off station (compressed air and manual truck cleaning) at an approved location by stripping topsoil throughout the station and stockpiling it as shown on the plan.

2. Cleaning shall be carried out under the supervision and to the satisfaction of the Environmental Inspector.

3. Use ropes or fencing material to designate the area where the cleaning is to occur.

4. Ensure that the size of the station is adequate to accommodate the maximum size of equipment.

5. Equipment is to consistently enter at one end and exit at another

6. Stockpile contaminated material.

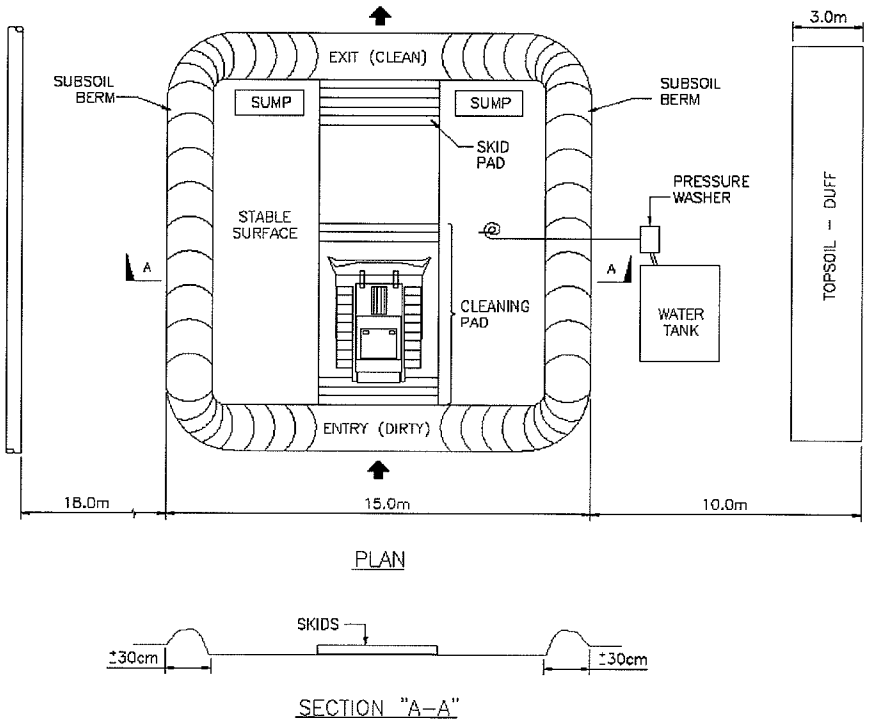
7. Remove any soils contaminated by petroleum-based or other undesirable materials from clean-off stations in accordance with applicable requirements. Burn stockpiled debris, if approved by the appropriate authority.

8. Return topsoil and reclaim the area.

TYPICAL WEED CLEAN-OFF STATION – HIGH PRESSURE WATER

Criteria for Implementation:

Weed clean-off stations using high pressure water for cleaning soil from construction equipment, may be set up during nonfrozen construction where track cleaning by hand and other weed control measures are determined to be insufficient. Clean-off station locations will be determined by the Environmental Inspector prior to commencement of construction in the area. Clean-off requirements will apply to all construction equipment involved in topsoil handling operations. Final design should be determined by the Chief Inspector, in consultation with the Environmental Inspector, once a location has been determined.



Notes:

1. During nonfrozen soil conditions, construct the clean-off station for high-pressure water cleaning at an approved location by stripping topsoil and constructing containment berms out of subsoil.

2. Water used for cleaning shall not be allowed to enter any waterbody, wetland or ditch.

3. Ensure that the size of the station is adequate to accommodate the maximum size of equipment.

4. Equipment is to consistently enter at one end and exit at another

TYPICAL WEED CLEAN-OFF STATION – HIGH PRESSURE WATER

5. Skids are to be cleaned between pieces of equipment.

6. The depression will be backfilled with bermed material. Any soils contaminated by petroleum-based or other undesirable materials from clean-off stations shall be removed in accordance with applicable requirements.

7. Topsoil will be returned and the area reclaimed.

SCHEDULE 5

INTEGRITY DIG POLICY AND PROCEDURES ON PRIVATE LANDS

INVESTIGATIVE DIG PROCESS FOR LANDOWNERS

Enbridge Pipelines Inc. (Enbridge) is a world leader in pipeline design, construction, safety and reliability. In order to maintain the integrity of our system, Enbridge utilizes state of the art technology to identify potential pipeline anomalies.

Enbridge periodically uses specialized internal inspection devices called "Smart Pigs" that travel through its pipelines collecting data. The data is then analyzed to determine if there are areas of concern requiring further investigation. If any anomalies are detected, this section of the pipeline is excavated and the pipeline is examined to determine if repairs are required.

Enbridge is committed to responsible behaviour while completing required maintenance work on your property. We meet this commitment by:

- Ensuring landowners are treated fairly and consistently and compensated for certain impacts that may occur;
- Identifying any special considerations you may have in advance of the work and responding accordingly;
- Planning the work in a manner that minimizes the level of inconvenience to you;
- Maintaining contact with you throughout the process to ensure concerns are addressed and so that you are aware of how the work is proceeding;
- Ensuring safety in every aspect of the maintenance work while it is performed;
- Respecting the environment by complying with regulatory requirements and Company Environmental Policies and Procedures.

LANDOWNER CONTACT/PRELIMINARY FIELD RIGHT OF WAY REPORT

When work on the pipeline is required on your land, an Enbridge representative will make reasonable efforts to contact you a minimum of 7 days in advance of any work being conducted. At this time, an Enbridge representative will arrange for land access and provide estimated compensation, preferred timing of the work, any environmental or safety considerations, and address any other questions or concerns you may have. The Enbridge representative will complete a Preliminary Field Right-of-Way Report (attached as Schedule 1 hereto) documenting issues discussed with you. You will have the option to receive any estimated compensation in advance of the work. The Enbridge Land Agent will also discuss whether you wish to have periodic up-dates and advise as to how you can reach an Enbridge Representative should the need arise.

In agricultural areas, Enbridge will make reasonable attempts to schedule work activities in a manner that minimizes interference with agricultural operations. Enbridge prefers to access its dig sites in a manner that minimizes disturbance to your crops. Enbridge also prefers to conduct the work from April to December. If Enbridge activity extends outside of this window, you are entitled to receive compensation in accordance with the Compensation Section of this document. If temporary workspace or access is required, Enbridge will discuss and make arrangements with you in advance of commencing the work and compensate you in accordance with the Preliminary Field Right of Way Report.

Landowner acknowledges that Enbridge has the right under it existing easements to access the right-of-way across the easement lands at any time and to access the right-of way across other lands in an emergency for the purpose of maintaining its pipelines and facilities. Nothing in this Integrity Dig Procedure limits Enbridge's rights under the Easement Agreement.

In an emergency situation, in situations where pipeline anomalies require immediate attention or where work has been scheduled to proceed, Enbridge will attempt to contact the landowner/tenant. However if you cannot be contacted, access and work will proceed in order to minimize potential hazards to you, the public and the environment and to maintain scheduled maintenance and dig activities.

EXCAVATION / POST EXCAVATION

Access routes, livestock and fencing concerns are addressed with the landowner, prior to commencing work. The access route to dig sites is typically not stripped of topsoil unless requested by the landowner. Where the Landowner, acting reasonably, requests topsoil stripping of the access route to the dig site, and such stripping is possible, the access area shall be stripped to allow equipment to travel on subsoil. The topsoil will be stored adjacent to the access road. Enbridge representatives will stake out the location of the excavation, the pipelines and the access route depending on the length and location.

Except in the case of an emergency situation requiring immediate action, Enbridge shall follow its Wet/ Thawing Soils Procedure 02-16 in the Environmental Guidelines for Construction as filed with the National Energy Board.

The area of the excavation is then stripped of topsoil, which is stored separately from the sub-soil. Once the pipeline is excavated, the pipe coating is removed, the pipe is cleaned via abrasive blasting and the pipeline anomaly is inspected. Once inspected, the pipe may need to be repaired either by removing and replacing that portion of the pipe or by installing a sleeve over the damaged portion of the pipe to restore its integrity. The abrasive blast media and pipe coating will be collected, removed and properly disposed of in accordance with regulatory requirements.

During the dig, if Enbridge determines that additional space and/or temporary work space is needed off of the right-of-way Enbridge shall make reasonable attempts to notify the Landowner for consent prior to expanding the workspace and shall compensate the landowner for such lands in accordance with the base compensation values contained in the Preliminary Field Right of Way Report.

Enbridge will repair, restore and maintain all drainage system functionality to as-found condition. This work shall be completed consistent with the criteria as set out below. Drainage is maintained as required for the duration of the work.

(i) Excavating - under Drain Tiles

If drain tiles are cut during excavation Enbridge will:

- identify the location of the damaged tile;
- install a temporary flume if needed to maintain drainage;
- cap the ends to prevent clogging drains with dirt or debris;
- keep plugs in place until the damaged tile is repaired

(ii) Backfilling - under Drain Tiles

Before backfilling, Enbridge will determine whether any drain tiles crossed during excavation were damaged during the work. Enbridge will use a sewer rod or pipe snake to probe open ends of tiles and will repair any damaged tiles by inserting a competent support (e.g., length of solid pipe) around the tile to prevent settling. If damage is extensive, broken tile will be removed and replace with new tile.

Drain tiles damaged during the work must be repaired to their pre-work condition or better.

Enbridge will backfill around drain tiles in lifts and compact each lift.

Once the pipeline is repaired, the pipe's coating is replaced and the excavation is backfilled and compacted and the topsoil is replaced and the site is returned to its original grade. Where required Enbridge will chisel plow and/or disc the area of excavation and the access road, or alternatively, where requested Enbridge will provide reasonable compensation to the landowner to perform such work.

The site is monitored for subsidence for approximately 1 year after completion of the excavation project with additional remediation performed if required. If following return to grade, there is subsidence in excess of 2-inches, Enbridge shall, in consultation with the landowner, restore the affected area to grade by re-stripping topsoil and re-grading the subsoils or by applying other restorative techniques. In certain localized areas, importation of topsoil may be undertaken. If the work causes a restriction of the natural flow of water due to too much or not enough subsidence, Enbridge will restore to pre-work contours and drainage.

Enbridge will remove stones to achieve equivalence with the surrounding subsoil/ topsoil as well as stones from the upper 30 cm of soil that will interfere with topsoil replacement or cultivation (i.e. stones larger than 10 cm in diameter).

All stakes are removed and any fences that were opened to facilitate access are repaired or replaced.

Enbridge will work to avoid tree removal off the right-of-way to the extent practical if requested by the Landowner. Should it be necessary to remove a tree or trees off the right-of-way in order to perform

the work, and at the request of the Landowner, Enbridge will plant replacement trees on a 1:1 ratio in areas outside the pipeline easement satisfactory to the landowner.

Enbridge and its contractors use different equipment to expose, investigate, repair and restore the soil in the disturbed areas. These include: excavators, dozers, an abrasive blasting truck, a coating truck, pick-up trucks, Gators / all-terrain vehicles, and compactors.

Depending on the time of year when the work is completed spring cleanup may be required. An Enbridge representative will discuss this with you.

COMPENSATION

Enbridge possesses the right to maintain its pipelines and facilities in accordance with the easement agreement. Enbridge however is responsible to the landowner for damages resulting from the work conducted. Enbridge will compensate you for damage in accordance with the terms of the easement agreement registered on the title to your land and where applicable, the National Energy Board Act. These damages generally include damages to any crops, tile drains, fences, timber, culverts, bridges and lanes. In addition, Enbridge will compensate for any additional land rights required to facilitate the work and any inconvenience suffered. Compensation for any dig site will be based upon a minimum of one half acre of disturbance per site.

Payments will vary according to the fair market value of the crop loss incurred, the area of damage and any inconvenience to you. Estimated damages for planned maintenance activities will be documented on the Preliminary Field Right-of-Way Report prior to work proceeding. Normally payments are made upon completion of work when damages can be properly assessed, however, you will have the option of receiving these estimated damages prior to Enbridge conducting its work. Upon completion of the work, an Enbridge representative will make reasonable efforts to contact you within 60 days. If additional damages were incurred, compensation will be provided to you.

If Enbridge activity is conducted between January and March, Enbridge will pay to the landowner 150% of the base crop loss and base disturbance damages payable in accordance with the Preliminary Field Right of Way Report.

Damages to specialty corps (i.e. produce, registered seed variety, potatoes) shall be reviewed and compensated by Enbridge on a site specific basis. Damages to non-annual crops such as alfalfa or pasture shall be negotiated for total losses and shall be restored to production. If Enbridge and the landowner cannot agree on the compensation to be paid for a specialty crop or non-annual crop, such compensation shall be determined by a jointly retained, independent and qualified consultant satisfactory to both parties. If Enbridge's offer of compensation for a specialty crop or non-annual crop is at least 5% lower than the findings of the consultant, Enbridge will agree to pay the full expense of the consultant.

Enbridge will endeavor to complete each dig within 45 days of commencing the work. Should this not occur, you are entitled to receive additional compensation due to the increased inconvenience of 150% of the base crop loss and base disturbance damages payable in accordance with the Preliminary Field Right of Way Report. In wet weather conditions and in recognition of Enbridge's wet soils shut down

provisions, additional work time may be required. If such conditions are encountered, the time to complete shall be extended by the length of time that the conditions exist. Where dig activities are undertaken by Enbridge in wet soil conditions and top soil has not been stripped, Enbridge will pay to the landowner compensation of 150% of the base crop loss and base disturbance damages payable in accordance with the Preliminary Field Right of Way Report.

The landowner is asked to acknowledge completion of work, and any compensation by signing a standard receipt and release form. The release is specific to the work conducted and addresses damages up to the date of signature. If there are any subsequent problems associated with the work, Enbridge remains responsible to rectify the problems.

ENVIRONMENTAL PROTECTION

Protecting the environment, compliance with regulatory requirements and maintaining good landowner relations are of primary importance to Enbridge. Careful and effective planning ensures compliance with environmental regulations, public and landowner concerns are addressed and potential adverse impacts are identified.

All dig sites are assessed to determine if there are any environmental issues or restrictions. Work within environmentally sensitive areas must be planned on a site-specific basis and special mitigating measures taken to minimize potential impacts. Enbridge will ensure that all necessary licenses, permits and approvals are in place prior to commencing work.

Top Soil Stripping

On cultivated lands, Enbridge will typically strip toil soil from the excavation area and the area where subsoil is stored. Enbridge will maintain a separation between the topsoil and the adjacent subsoil pile. This separation will be maintained throughout the course of the work in order to minimize the potential for mixing of subsoil and topsoil. Enbridge will also work with the landowner to determine the area stripped and the stripping depth.

Wet Soils Shut Down

Enbridge's environmental management practices include a review of soil conditions prior to work commencing. If the Enbridge representative determines that planned activities will have an adverse affect on the soils, alternative activities will be conducted or other mitigating measures implemented in order to minimize and avoid any adverse affects on the soils. In an emergency situation where work is required under wet soil conditions, Enbridge will, endeavour to minimize impacts by restricting activity to the narrowest possible area, utilize wide track or low ground pressure equipment, undertake full topsoil stripping if soil conditions permit and pump standing water to a vegetated area away from streams or ponds (or as agreed upon with the landowner).

Weed Control

Enbridge will work with the landowner to ensure that weeds are controlled on any areas affected by dig activities including the identification and implementation of site specific mitigative measures to

prevent the spread of weeds from areas of infestation to adjacent lands in accordance with Enbridge's standard weed management measures attached as Schedule 2 hereof.

PUBLIC SAFETY

Enbridge adheres to the regulations of the National Energy Board and the Canadian Occupational Health and Safety Act for all maintenance and construction activities. Enbridge is committed to the safety of the landowner, Enbridge's employees and contractors, the public who live near Enbridge's facilities and its pipelines. An Enbridge representative will monitor all excavation activity occurring on the right-of-way to ensure its employees and contractors abide by all safety and environmental requirements. Enbridge ensures that all unattended excavations are barricaded or fenced off. The type of fencing depends on the level of risk associated with the excavation, considering such factors as the location of the dig site, the degree of public access, the proximity of livestock and the length of time the excavation is left unattended.

Please leave a message for the Enbridge Land Agent on our toll free line (1-800-668-2951) if you have any questions or concerns while the work is being completed and we will return your call as soon as possible. In the event you need to speak to an Enbridge Representative immediately, additional contact information is provided below.

Western Region Landowner Representatives

Brian Scott (Western Region (Saskatchewan west of and including Loreburn and Alberta))

Telephone: 1-877-449-2689

(Mike Fischer (Central Region (Saskatchewan east of Loreburn and Manitoba))

Telephone: 1-866-380-8057

Enbridge Pipelines Inc. Contact Information Sheet

REGION	NAME	WORK
Western Region (Saskatchewan west of and including Loreburn and Alberta)	Brian Scott	1-877-449-2689
Central Region (Saskatchewan east of Loreburn and Manitoba)	Mike Fischer	1-866-380-8057

ENBRIDGE

Integrity Dig Landowner Survey

Enbridge Pipelines Inc. would appreciate your input regarding the project work recently completed on your property. The purpose of collecting this information is to ensure that we are meeting your expectations as a landowner and to identify areas requiring improvement. We truly appreciate your input and thank-you for the taking the time to complete this survey.

Please circle the appropriate answer:

1. Did the Enbridge Right-of-Way (ROW) Agent contact with you a minimum of 7 days in advance of the work commencing? YES NO

2. Did the Enbridge ROW Agent schedule an appointment with you and arrive at the agreed upon date and time? YES NO

3. Was the Enbridge ROW Agent courteous and professional at all times? YES NO

4. Did the Enbridge ROW Agent leave you with contact numbers in the event you had any concerns you would like addressed during the project? YES NO

5. Did the Enbridge ROW Agent provide and discuss the following with you:

   i. Investigative Dig Process for Landowners Brochure YES NO
   ii. The Preliminary Field ROW Report YES NO
   iii. Any concerns or questions you had YES NO
   iv. Necessary access/dig site area requirements YES NO

6. If requested, did the Enbridge ROW Agent or representatives maintain periodic contact with you throughout the project and ensure any concerns raised were adequately addressed? YES NO

7. Did the Enbridge representatives and contractor equipment stay on the agreed upon access route and dig site area at all times? YES NO

8. Were the on-site Enbridge Representatives courteous and professional at all times? YES NO

9. Was the dig site managed in a manner that was consistent with your expectations?

   i. Properly Secured YES NO
   ii. Clean at the end of each workday YES NO

10. Was the access and dig site area restored to your satisfaction? YES NO

11. Did the Enbridge ROW Agent contact you within two months of completion of the project to resolve any outstanding issues? YES NO

12. How would you rate your level of overall satisfaction from a landowners perspective with this project (circle a number based on a scale of 1 to 5 with 1 being very unsatisfied and 5 being extremely satisfied)

(very unsatisfied) 1 2 3 4 5 (very satisfied)

If you answered **No** to any of the questions above would you please list the question number and provide comments.

_____

_____

_____

_____

_____

_____

_____

Do you have any other comments you would like to make?

_____

_____

_____

_____ _____
Landowner Name (Please Print) Date

_____ _____
Phone Number Tract File Number

ENBRIDGE

ENBRIDGE PIPELINES INC.
PRELIMINARY FIELD RIGHT-OF-WAY REPORT _____

LINE # _____ PROJECT: _____ MP: _____ KP: _____

LAND DESCRIPTION: LOT: _____ CONC.: _____ TOWNSHIP: _____ COUNTY: _____

LANDOWNER NAME: _____ PHONE #: _____

ADDRESS: _____ TRACT#: _____

CONTACTED BY: _____ DATE: _____ CONTACT METHOD: _____

TENANT NAME: _____ PHONE #: _____

ADDRESS: _____ TRACT#: _____

CONTACTED BY: _____ DATE: _____ CONTACT METHOD: _____

ACCESS ROUTE DISCUSSED YES ☐ NO ☐ - INDICATED ON LOCATION PLAN BELOW _____
DIG AREA STAKED YES ☐ NO ☐ _____
ACCESS ROUTE STAKED YES ☐ NO ☐ _____
ROW PRE-HARVEST REQUESTED YES ☐ NO ☐ _____

ACCESS LAND USE:
CROP ☐ PASTURE ☐ BRUSH AREA ☐ LIVESTOCK ☐ FENCING REQUIRED ☐ YARD ☐ GATE ☐ FENCE ☐

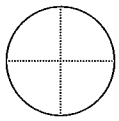
OTHER ☐ SPECIFY: _____

EXCAVATION AREA LAND USE:
CROP ☐ PASTURE ☐ BRUSH AREA ☐ LIVESTOCK ☐ TILE DRAINS ☐ OTHER ☐ SPECIFY: _____

OTHER CONCERNS DISCUSSED:

TIMING ☐ ENVIRONMENTAL ☐ SAFETY ☐ COMPENSATION ☐
INVESTIGATIVE DIG PROCESS PROVIDED ☐

LOCATION PLAN



ACCESS ROUTE (ESTIMATED BASE CROP DAMAGES)

_____ FEET X _____ FEET ÷ 43560 = _____ ACRES

_____ ACRES X $500/Acre _____ _____

EXCAVATION AREA (ESTIMATED BASE CROP DAMAGES)

_____ FEET X _____ FEET ÷ 43560 = _____ ACRES

ACRES X $500/Acre _____

DISTURBANCE AND INCONVENIENCE (BASE DAMAGES)

_____ _____ _____

TOTAL ACRES X $300/Acre _____

TWS AREA OFF ROW

_____ ACRES X $_____ MARKET VALUE FOR LAND X .78

_____ _____

ADDITIONAL INCONVENIENCE (RESIDENTIAL PROXIMITY, EXTRA WORK REQUIRED BY LANDOWNER, WORK DURATION, LIVESTOCK IMPACTS, TILE WORK REQUIRED) $
COMMENTS: _____

OTHER DAMAGES: (SPECIFY) _____ **$** _____

TOTAL OF INCONVENIENCE: **$** _____

TOTAL ESTIMATED DAMAGES: **$** _____

LANDOWNER (PRINT) _____

_____
LANDOWNER SIGNATURE

ROW AGENT (PRINT) _____

_____
ROW AGENT SIGNATURE

Schedule 2 to Integrity Dig Procedure

WEED MANAGEMENT

Criteria for Implementation:

Management of invasive plant species is of paramount concern to Enbridge. The goal of invasive species management is to prevent the introduction and spread of non-native plants and to eliminate or control them, as practical, within the investigative and maintenance dig area. To help achieve this goal, the following measures will be implemented during work activities.

1. All equipment shall arrive for work in a clean condition to minimize the risk of weed introduction. Any equipment which arrives in a dirty condition will not be allowed to work until it has been cleaned off at a suitable location.

2. Equipment passing through areas identified as having a weed problem will be cleaned thoroughly with all soil and debris removed prior to continuing work on the right-of-way.

3. Weed growth will be monitored and controlled on a routine basis until the integrity and maintenance activity is completed.

4. Control the growth of noxious or nuisance weeds on topsoil storage piles by hand cultivating, mowing or if necessary using selective, nonpersistent herbicides. Control will be initiated before weedy species mature (*i.e.*, produce seed).

5. Weed growth will be frequently monitored during restoration activities, and weed control measures applied on a site-specific basis.

6. Areas of poor plant cover will be reseeded and weed control measures will be applied if warranted.

7. Weed species of concern that are identified at Enbridge work sites will be treated. Manual removal of plants or chemical treatment will occur. If weeds are manually removed when in flower, the weed material will be disposed of in an approved land-fill facility.

8. Record all weed treatment and monitoring. Provide records of weed control measures and weed treatment to the Landowner for any treatment on his/her lands.

Notes:

1. Prior to integrity and maintenance work, pull out or mow problem weed species from heavily infested areas and dispose of as required.

2. Salvage topsoil from the full dig and access areas of heavy weed infestations, as required. Store topsoil from the affected area separately.

3. Clean all topsoil handling equipment once past the area. Clean equipment at weed clean-off stations during nonfrozen conditions with shovels, compressed air, or high-pressure water, if necessary.

Schedule 2 to Integrity Dig Procedure

WEED MANAGEMENT

4. Record infestation areas and monitor following integrity and maintenance work. Provide copy of records to Landowner.

5. Record location of clean-off site for future monitoring and, if warranted, weed control.

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act*, 1998, S.O. 1998, c.15, Schedule B, and in particular, s.90(1) thereof;

AND IN THE MATTER OF an Application by Union Gas Limited for an Order or Orders granting leave to construct a natural gas pipeline and ancillary facilities in the Township of Strathroy-Caradoc and in the Township of Middlesex Centre, all in the County of Middlesex.

SETTLEMENT AGREEMENT

Subject to the approval of the Ontario Energy Board, GAPLO-Union (Strathroy-Lobo) and Union Gas Limited, by their solicitors, hereby agree to settle the issues between them in this proceeding in accordance with the Agreed Partial Mitigation Measures in Schedule 1 attached hereto. Landowner agreements shall be amended accordingly.

Dated at Toronto, Ontario
this 9th day of May, 2006.

Paul G. Vogel
Counsel for GAPLO-Union
(Strathroy-Lobo)

Glenn Leslie
Counsel for Union Gas Limited

Schedule 1
GAPLO-UNION (STRATHROY-LOBO) v. UNION GAS
EB-2005-0550

PIPELINE IMPACTS
-and-
RESIDUAL EFFECTS
(Cumulative and Non-cumulative)

IMPACTS	EFFECTS	AGREED PARTIAL MITIGATION MEASURES
Agricultural production and operations • **Soil mixing** • **Drainage** • **No freeze zone**	• Decreased production/ crop maturation/ quality/whole farm price • Loss of drainage system efficiency • Limitations on higher value crops/specialty crops • Operational interference • Income loss • Decreased rental value • Diminished land value	• **WSSD – LOU and Schedules 1 and 5 to LOU to be modified as necessary:** An independent construction monitor shall be appointed by GAPLO-Union (Strathroy-Lobo), the Company and Ontario Energy Board Staff. The monitor shall be on site continuously to monitor construction with respect to all issues of concern to landowners and to be available to landowners and the Company at all times. The monitor shall file interim and final reports with the OEB. The joint committee shall be composed of one GUSL landowner, one other landowner and three representatives of the Company; WSSD issues shall be decided by the Joint Committee with assistance of the construction monitor as required. Where construction activities are undertaken by the Company in wet soil conditions (as determined by the monitor), the Company shall pay to the landowner 150% of disturbance and crop loss damage compensation on the area affected by the activities (area also to be determined by the construction monitor).The 150% payment applies only once to any one area; on areas where the 150% payment is applied, the landowner forfeits the right to top-up of crop loss damages under the LOU. The 150% payment does not affect the landowner's right to topsoil replacement where crop loss exceeds 50%.
• **Equipment size/cultivation depth**	• Decreased efficiency/increased headlands • Increased compaction, crop loss, costs	• **Depth of Cover – to replace the last sentence in Section 1(g) of the LOU -** If the Company, acting reasonably, determines in consultation with the landowner and drainage expert that it is necessary to increase the depth of the pipeline to accommodate facilities such as drainage, processes such as deep tillage, heavy farm equipment or land use changes, Union will provide for additional depth of cover. At the request of the landowner, the Company shall undertake a depth of cover survey of the Pipeline, and shall

IMPACTS	EFFECTS	AGREED PARTIAL MITIGATION MEASURES
		provide its findings to the landowner. Where it is determined that cover over the Pipeline is less than three feet, Union shall restore depth of cover to three feet with the importation of topsoil or by lowering the pipe.
• **Stones**	• Annual stone-picking • Equipment damage	• **Stone Picking Practice – Sections 1(k) and 1(m) to be modified as necessary – the second last sentence of Section 1(k) shall read** – Stones 50 mm (2") in diameter and larger will be picked by hand and/or with a mechanical stone picker. – **Section 1(m) last two sentences are replaced with** – If requested by the landowner, the Company will return in the year following construction and chisel plough or cultivate to the depth of the topsoil. When necessary to accommodate planting schedules, the landowners should perform cultivating and/or chisel ploughing themselves at the Company's expense, provided the need for this work has been agreed upon in advance (see Schedule of Rates attached). The Company shall, at a time satisfactory to the landowner, pick stones 50 mm (2") or larger in diameter by hand and/or with a mechanical stone picker in each of the first two years following construction. The Company shall, at a time satisfactory to the landowner, return to pick stones 50 mm (2") or larger in the following years where there is a demonstrable need.
• **Construction access**	• Interference with agricultural access • Aggravation of WSSD damage	• Maximum open trench 6 km.
• **Maintenance and repair interference/ damage**	• Ongoing operational interference/loss of productive time and damage from maintenance and repair operations	• **Damage from pipeline operation** – The Integrity Dig Agreement shall apply to all integrity and maintenance operations on whole Dawn-Trafalgar system.

IMPACTS	EFFECTS	AGREED PARTIAL MITIGATION MEASURES
• **Cyst Nematode**	• Contamination risk	• **Cyst Nematode – at Section 8 of the LOU** – In consultation with the landowner, the Company agrees to sample all agricultural easements along the pipeline route of this project, before construction, and any soils imported to the easement lands for the presence of soy bean cyst nematode (SCN) and provide a report of test results to the landowner. In the event the report indicates the presence of SCN, the Joint Committee will work with OMAFRA and the University of Guelph to develop a best practices protocol to handle SCN when detected and will employ the most current best practice at the time of construction. The Company will also test for SCN whenever it is conducting post-construction soil tests.
• **Construction impact disputes**	• Forum for landowner consultation on WSSD and efficient dispute resolution required	• **Joint Committee – LOU and Schedule 1 to LOU to be modified as necessary** – An independent construction monitor shall be appointed by GAPLO-Union (Strathroy-Lobo), the Company and Ontario Energy Board Staff. The monitor shall be on site continuously to monitor construction with respect to all issues of concern to landowners and to be available to landowners and the Company at all times. The monitor shall file interim and final reports with the OEB. The joint committee shall be composed of one GUSL landowner, one other landowner and three representatives of the Company. The Company will pay to the GUSL landowner member of the Joint Committee at his or her direction a total payment of $10,000 plus G.S.T. as an honorarium for participation on the committee. • **Assignment of the LOU – sentence to be added at the end of Section 11 of LOU** – The Company shall not assign this agreement without prior written notice to the landowner and, despite such assignment, the Company shall remain liable to the landowner for the performance of its responsibilities and obligations in this agreement.
Land use • **Agricultural**	• prevent construction/expansion existing facilities • restrict development intensive livestock/permitted uses • location limitations / inconvenience / costs	• **Easement Agreement: future use – To be inserted after Clause 3 of the easement agreement** - The Transferee further agrees to make reasonable efforts at its own expense to accommodate changes in land use on lands adjacent to the easement for the purpose of ensuring the Pipeline is in compliance with all applicable regulatory requirements in connection with any such change in use.

IMPACTS	EFFECTS	AGREED PARTIAL MITIGATION MEASURES
	• use interference with remaining lands • whole farm income loss • diminished whole farm land value	
• **Non-agricultural**	• sterilize land – greenspace • limit development options/increase costs • diminish quality of life • whole property income loss • whole property diminished land value	• **Easement Agreement: future use – To be inserted after Clause 3 of the easement agreement -** The Transferee further agrees to make reasonable efforts at its own expense to accommodate changes in land use on lands adjacent to the easement for the purpose of ensuring the Pipeline is in compliance with all applicable regulatory requirements in connection with any such change in use.
Socio-economic • **social/ psychological**	• loss of control over property/environment • violation of personal space • depression/anxiety • loss of enjoyment • diminished quality of life • loss of identification with community • lifetime challenge financially, emotionally and physically	

IMPACTS	EFFECTS	AGREED PARTIAL MITIGATION MEASURES
• **time loss**	• operational interference • production and income loss • family life disturbance	
• **health and safety**	• vulnerability/danger/risk • operational restrictions • decreased self-worth • liability	• **Depth of Cover – to replace the last sentence in Section 1(g) of the LOU** - If the Company, acting reasonably, determines in consultation with the landowner and drainage expert that it is necessary to increase the depth of the pipeline to accommodate facilities such as drainage, processes such as deep tillage, heavy farm equipment or land use changes, Union will provide for additional depth of cover. At the request of the landowner, the Company shall undertake a depth of cover survey of the Pipeline, and shall provide its findings to the landowner. Where it is determined that cover over the Pipeline is less than three feet, Union shall restore depth of cover to three feet with the importation of topsoil or by lowering the pipe.
• **abandonment risks**	• liability • environmental contamination • safety • land use restrictions	• **Abandonment – to replace the last sentence in Clause 1 of the Easement Agreement, and Section 6.3 of the LOU to be modified as necessary** – As part of the Transferee's obligation to restore the lands upon surrender of its easement, the Transferee agrees at the option of the Transferor to remove the pipeline from the Lands. The Transferee and the Transferor shall surrender the easement and the Transferee shall remove the Pipeline at the Transferor's option where the Pipeline has been abandoned. The Pipeline shall be deemed to be abandoned where: a) corrosion protection is no longer applied to the Pipeline, or, b) the Pipeline becomes unfit for service in accordance with Ontario standards. The Transferee shall, within 60 days of either of these events occurring, provide the Transferor with notice of the event. Upon removal of the Pipeline and restoration of the Lands as required by this agreement, the Transferor shall release Transferee from further obligations in respect of restoration. This provision shall apply with respect to all Pipelines in the Dawn-Trafalgar system on the Transferor's lands.

EB 2008-0411

ONTARIO ENERGY BOARD

IN THE MATTER OF The Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B, and in particular, s.43(1) thereof;

AND IN THE MATTER OF an Application by Union Gas Limited ("Union") for an Order granting leave to sell 11.7 kilometres of 24 inch diameter steel natural gas pipeline running between the St. Clair Valve Site and Bickford Compressor Site in the Township of St. Clair.

GAPLO-UNION (Dawn Gateway)
Written Evidence Statement
May 4, 2009

---

1. GAPLO-Union (Dawn Gateway) (hereinafter **"GAPLO-Union"**) is a voluntary association consisting of landowners who are directly affected by Union's application for leave to sell its pipeline running between the St. Clair Valve Site and Bickford Compressor Site (the **"St. Clair-Bickford line"**) and the proposal to construct and operate the Dawn Gateway pipeline under federal jurisdiction.

2. Pursuant to authorizations and directions provided by members, GAPLO-Union represents all but one of the private landowners along the St. Clair line listed in Schedule 2

to Union's pre-filed evidence. GAPLO-Union represents an additional 22 of an estimated 24 private landowners on the route proposed for the new section of the Dawn Gateway line.

3. GAPLO-Union is a member organization of the Canadian Association of Energy and Pipeline Landowners Associations (formerly CAPLA, hereinafter referred to as **"CAEPLA"**), and has intervened jointly with CAEPLA in this proceeding.

4. The members of GAPLO-Union own agricultural properties. Most of us are farmers. Our businesses are highly dependent upon the weather. We face tight schedules for planting and harvesting our crops. Delays in our agricultural operations can cause significant losses in production quality and quantity, which translates directly to our bottom line.

5. All of us have dealt with Union in the past. Some of us own land along the St. Clair-Bickford line. Some of us own land along the corridor in which Dawn Gateway LP proposes to construct a new NPS 24 line alongside the existing Bickford-Dawn pipeline.

6. Now we are being faced with an application by Union the purpose of which is to turn all of us into federally-regulated pipeline landowners. We have a problem with that. In fact, we have several problems with the proposed shift from provincial to federal jurisdiction.

7. We are concerned about being forced out of a regulatory system that seems to give consideration to the interests of farmers and into a regulatory system that was designed without any regard for farmers. We are concerned about new land use restrictions and resulting delays in our agricultural operations, increased costs of doing business and increased liability, and decreased access to the regulatory system when we are faced with applications made by pipeline companies.

New land use restrictions

8. GAPLO-Union landowners on the St. Clair line are currently entitled to carry out agricultural operations over and along the pipeline easement without seeking additional consent from Union. Easement agreements provide that the line would not interfere with ordinary cultivation and Union told the Ontario Energy Board that we were "free to farm the easement" (**Attachment 1** is Union's pre-filed evidence for its leave to construct application in E.B.L.O. 226).

9. However, if the St. Clair line is sold and shifted to federal jurisdiction as proposed by Union, a whole host of new land use restrictions will apply to our lands in spite of easement agreements and Union's past statements to the Board. These land use restrictions and resulting economic and operational costs have been assessed for GAPLO-Union by Dr. George Brinkman in his report.

30-metre Control Zone

10. A new 60 metre wide control zone will apply on either side of the Union easement. Although the Union easement is already 18 metres in width and Union maintains that this is "sufficient room" to construct and maintain the pipeline (see Union response to GAPLO interrogatory 15(b)), under National Energy Board (**"NEB"**) regulation the owner of the St. Clair line will obtain powers over land use far outside the easement.

11. Clearly, the additional controlled area is not necessary. If it were, Union would have acquired the additional land as easement through agreement or expropriation. In fact, the original purpose of the control zone as contemplated by the NEB was to provide the Board

with a jurisdictional zone based on distance from the pipe where there is no right of way. **Attachment 2** is a copy of an internal NEB memorandum dated April 10, 1986 describing the purpose of the control zone:

> "The Board's authority is limited to the right of way. In situations where there is no right of way, e.g. where the pipe is allowed on road allowances through municipal permit, our control starts at the edge of the pipe. In areas where the pipe is constructed near the limit of the right of way or where the right of way is narrow, our control starts a short distance from the pipe (2 to 3 meters). This control area may be insufficient to prevent hazards from deep excavations, blasting, large excavation equipment, poor site control, etc. …
>
> "Consideration should be given to modifying the Act to permit control of all activities within a prescribed distance from the pipe."

12. If s.112 of the *NEB Act* and the control zone are applied to our properties, we will require consent from Union or its successors to carry out ordinary agricultural operations both on the easement (where no consent is presently required) and on an additional unmarked area of land some 200 feet in width. It is as if the pipeline easement will have expanded more than three-fold, not because it is necessary for safety but because it fits into Dawn Gateway's business plan.

13. Section 112 and the NEB's *Pipeline Crossing Regulations* mean that we will need to obtain a pipeline locate and permission from the pipeline company whenever we need to cultivate on easement or in the control zone below a depth of 30 cm, which is a fairly common practice. Farming operations may compress the soil, and repeated tilling of the soil at the same depth will result in the formation of a "hard pan" or compacted layer just below the tillage depth. This hard pan must be broken up using deep tillage practices in order to allow proper drainage of water through the soil, and to allow enough room for the full

expansion of a crop's root system. This is extremely important when working in fine-textured soils such as the Brookston clay found in Lambton County.

14. We would also need to seek a pipeline locate and company approval every time we need to repair a tile drain, even if the drain is far removed from the pipeline easement. Drainage problems require immediate attention, especially during the spring planting seasons, and we cannot afford to wait three days or more for permission from the pipeline company to make repairs. We cannot believe that under the *NEB Act* the company would also have the power to prohibit any excavation anywhere on our farms for three days.

15. We help to control the moisture content of soil through systematic tile drainage on our farms. Although the weather may be unpredictable, tile drainage ensures that water does not normally accumulate on the soil surface and works to prevent the saturation of the soil, as well as soil erosion caused by the movement of surface water. It is essential that field work be carried out only when the soil is sufficiently dry to allow for the operation of vehicles and equipment without causing soil displacement and compaction. Working in wet conditions will damage the soil and invariably lead to lower yields, and seed development in overly wet soils can also result in uneven maturing of our crops and loss of premium contracts.

16. Often, header tiles have been installed adjacent to pipeline easements because the pipeline company will allow only a few tiles to cross the pipeline. Because of the large amount of water that may be running from an entire drain system into the single header tile, the header tile is a common location for drainage problems requiring repair. Now those header tiles will fall within the control zone and repairs will be delayed.

Prohibition on use of farm equipment without consent

17. Even more concerning to GAPLO-Union landowners are the implications of s.112(2) of the *NEB Act*, which says that we will need permission from Union or Dawn Gateway to cross the St. Clair pipeline and the proposed new section of the Dawn Gateway line with our farm equipment. We aren't currently required to seek this permission, and Union says that the St. Clair line is buried at least 1.0 metre in depth. Nearly every aspect of cash crop production involves "vehicles or mobile equipment".

18. Yet as a result of the proposed shift in jurisdiction, our ability to use farm equipment across the pipeline will now be subject to the pre-approval of the pipeline company. Also, we know of no limit on the amount of time the company can take to respond to a request for permission. If we choose to go ahead with our farming operations without seeking permission from the company, we are likely to end up with an NEB inspection and compliance orders. If we dare breach a compliance order, we will face criminal penalties.

19. One of our St. Clair line landowners, Rick Kraayenbrink, has an NEB-regulated TransCanada pipeline on land he farms. On the morning of April 25, 2001, he called TransCanada to inquire about the *NEB Act* crossing restriction. He had received a calendar for 2001 from TransCanada which stated on the month of May page, "**You'll need a permit to cross our pipelines with heavy equipment except at existing roadways!**" Rick asked specifically about the definition of "heavy equipment" in the restriction.

20. Later that morning, Paul Whelan of TransCanada returned Rick's phone call and told him not to cross the pipeline with his farm equipment until the company people in Calgary faxed him a written definition of "heavy equipment".

21. In the afternoon of April 25, 2001, Bob Tytler of TransCanada telephoned Rick to say that he could cross the pipeline with his farm equipment, but offered no definition of "heavy equipment". Knowing that he faced severe consequences for breach of the *NEB Act* and its regulations, Rick still wanted TransCanada to provide him with a written consent to cross their pipelines.

22. On April 26, 2001, he sent a fax to Douglas I.D. McLean, Director Litigation, Arbitration, A.D.R. of TransCanada (**Attachment 3**). In the fax Rick stated that he could not afford to waste his time waiting to go to the field because of contradictory statements about the crossing regulations coming from various TransCanada employees. Again, he asked TransCanada for a written definition of "heavy equipment" on which to rely when crossing their pipelines.

23. Later on April 26, 2001, Rick received a reply from Douglas I.D. McLean, who stated that he would do his best to ensure that Rick's concern was quickly addressed (**Attachment 4**). He acknowledged that the term "heavy equipment" appears nowhere in either the *NEB Act* or in the *Pipeline Crossing Regulations*. He also recognized that there might be situations in which crossing the pipeline even with regular farm equipment would require company permission.

24. Interestingly, Mr. McLean ended his fax letter by asking Rick to provide him with an exact description of the equipment he proposed to use in crossing the pipeline. In earlier

telephone calls to TransCanada, Rick had inquired about crossing with equipment weighing sixty thousand pounds, and about crossing with spraying equipment. He had received conflicting responses to these inquiries. Mr. McLean's response was indicative of the others Rick had received from TransCanada. TransCanada was willing only to say that he required permission for heavy equipment, but offered no definition of "heavy".

25. Apart from the time, inefficiencies and related costs associated with TransCanada's requirement that its landowners provide exact information on equipment weight every time they seek permission to cross the pipeline, Rick was simply unable to comply. The weights of his machines vary from use to use depending on the amount of grain, pesticides, fertilizers or even fuel he is carrying, and he is not in a position to give a definitive answer.

26. Rick wrote back to Mr. McLean on April 27, 2001 and stated his position on the issue to him (**Attachment 5**). Pipeline landowners are no experts on the effects of ground pressure on pipelines, and they should not be left guessing what "heavy equipment" means for a pipeline company's purposes. Rick asked Mr. McLean and TransCanada to resolve this matter "not just for myself but for all landowners across Canada," and reiterated that his equipment was still waiting to go to the field.

27. Later on April 27, 2001, Rick received a second reply from Mr. McLean (**Attachment 6**). In this fax reply, he again asked Rick to provide information about the kind of equipment he was using, the sort of farming he was conducting, and the specific location of where he wanted to cross the pipeline. Rick had already provided information regarding the equipment and its proposed use in his many telephone calls to TransCanada.

As for the location of the proposed crossing, the fact that the line runs right across his farm means that Rick must cross it every time he needs to work a field from end to end.

28. Mr. McLean also stated in his reply that TransCanada would permit Rick "to cross our pipeline with the farm equipment normally used for spraying." He goes on to write, "In giving this permission, TransCanada assumes the sort of equipment you would use for spraying would be a farm tractor and a spraying unit that would cover a wide area." In response to Rick's inquiry regarding a fully loaded grain buggy weighing approximately 60,000 pounds, Mr. McLean said that Bob Tytler would contact Rick to examine the "grain buggy" and the location where he wished to cross the pipeline.

29. Mr. McLean's response failed to provide the information Rick had requested or to resolve his uncertainty. He did not provide any definition of "heavy equipment" at all and his description of the equipment with which Rick could cross the pipeline was as ambiguous as the term "heavy equipment". TransCanada's response once again left it to the landowner to decide when he would be in breach of the crossing restriction and when he would not.

30. Apart from the time and bother of dealing with pipeline companies, and from the possible refusals to permit crossing that we face, GAPLO-Union landowners are also concerned about the unknown liabilities that may result from new land use restrictions. We may face limitations on the availability of liability insurance or refusals by insurance companies to provide coverage. We may incur potential liability to outside farm workers, lessees or purchasers of our farms for failure to disclose land use restrictions. We will likely face reduction in land values for rental or sale of our properties.

Loss of Jurisdiction on Abandonment

31. Another troubling aspect of the proposed sale of the St. Clair pipeline and its transfer into the federal jurisdiction is the position that has been taken by the NEB regarding its jurisdiction after it makes an order permitting the abandonment of a pipeline. The NEB says that it loses all jurisdiction over a pipeline upon its abandonment.

32. GAPLO-Union landowners, including both those on the St. Clair line and those along the proposed route of the new section of the Dawn Gateway line, are extremely concerned about the prospect of facing an abandonment of the pipeline down the road with no regulatory authority to turn to if problems arise. None of us have had to deal with pipeline abandonment yet in our lives, but it will happen some day and we are concerned that the impacts of pipeline abandonment as described in Dr. Brinkman's report are not left to be dealt with by pipeline landowners only because the NEB has no authority to act.

No participatory costs in NEB proceedings

33. In this proceeding, our group asked for and received a cost eligibility order from the Board that gave us the confidence needed to get involved in a regulatory proceeding that would directly affect our interests. This is not our application and we do not stand to profit from the sale of the St. Clair line in the way Union Gas and the participants in Dawn Gateway LP stand to profit. Therefore, the availability of cost awards to cover our costs of participating in the Board process is extremely important to us.

34. If this were an NEB proceeding, however, there would be no possibility of cost recovery. If the sale is approved and Dawn Gateway proceeds to make an application for a Certificate of Public Convenience and Necessity for the Dawn Gateway line, our participation in the Certificate hearing would be fully at our own cost. If the company

sought to enter our properties through the NEB Right-of-Entry process, we would have to respond at our own cost. If someday the line was abandoned, our participation in the abandonment hearing would be fully at our own cost. It is more likely than not that most landowners would choose not to participate at all, not being able to afford to spend their own money to respond to the application of a pipeline company that stands to recover its own costs through its rates.

35. Transfer to the NEB jurisdiction will put landowners at a severe disadvantage when it comes to responding to company applications. The OEB has in place a cost recovery mechanism that recognizes that directly affected landowners, whose lands have been encumbered with easements taken by expropriation or by agreement under threat of expropriation, may have concerns that should be addressed in the consideration of a company application. With the exception of the detailed route hearing process, the NEB has no such mechanism.

Conclusion

36. For the landowners along the existing St. Clair line, Union's proposed sale of the line and transfer of jurisdiction will introduce a host of new land use restrictions and procedural disadvantages, many of which conflict with rights preserved for landowners in Union's easement agreement.

37. For landowners along the proposed route of the new section of the Dawn Gateway pipeline, Union's proposed transfer of jurisdiction will result in all of the same restrictions and disadvantages that would otherwise not exist if the line were provincially regulated.

38. To date, Union has failed to provide the Board with a plan for dealing with these negative impacts on landowners. Therefore, we must request that the Board dismiss Union's application until and unless it ensures that the negative impacts of the proposed jurisdictional shift for landowners can be avoided.

39. This evidence was prepared under the direction of the members of the steering committee of GAPLO-Union (Dawn Gateway): Wayne Annett (Chairman), Jim Duffy (Secretary), Jim Vandevenne, Pat Murphy, Tom Highfield, Bernard Kraayenbrink and Rick Kraayenbrink.

40. Thank you for the opportunity to participate in this proceeding and to address our concerns to the Board.

ATTACHMENT 1

UNION GAS LIMITED

IN THE MATTER OF the Ontario Energy Board Act R.S.O.1980, Chapter 332, and in particular Sections 46 and 48 thereof;

AND IN THE MATTER OF an application by Union Gas Limited for leave to construct a natural gas pipeline and ancillary facilities in the Township of Moore and the Township of Sombra, both in the County of Lambton.

ONTARIO ENERGY BOARD

IN THE MATTER of the Ontario Energy Board Act R.S.O. 1980, Chapter 332, and in particular Sections 46 and 48 thereof:

AND IN THE MATTER OF an application by Union Gas Limited to leave to construct a natural gas pipeline and ancillary facilities in the Township of Moore and the Township of Sombra, both in the County of Lambton.

A P P L I C A T I O N

1. Union Gas Limited (the "Applicant") hereby applies to the Ontario Energy Board (the "Board") pursuant to Sections 46 and 48 of the Ontario Energy Board Act for an Order or Orders granting leave to construct:

   (a) 5.68 kilometres of NPS 24 (610 mm) pipeline from the proposed St. Clair Value Site in Lot 13, Front Concession of the Township of Moore in the County of Lambton to the Sarnia Industrial Line Station at Lot 26, Concession I of the Township of Moore, in the County of Lambton; together with two proposed valving facilities, one to be located at the St. Clair Value Site in Lot 13, Front Concession of the Township of Moore, and one at the Sarnia Industrial Line Station in Lot 26, Concession I of the Township of Moore, both in the County of Lambton; and

   (b) 6.05 kilometres of NPS 24 (610 mm) pipeline from the Sarnia Industrial Line Station in Lot 26, Concession I of the Township of Moore, in the County of Lambton to the Bickford Pool Compressor Station in Lot 6, Concession XII of the Township of Sombra, in the County of Lambton.

   Hereinafter referred to collectively as the "Pipeline".

2. Attached hereto as Schedule "A" is a map showing the general location of the Pipeline and the municipalities, highways, railway, utility lines and navigable waters through, under, over, upon or across which the Pipeline will pass.

3. The construction of the Pipeline will allow the Applicant increased access to supplies of U.S. competitively priced gas; access to existing and potential Michigan underground gas storage; and increased security of supply in the event of a supply interruption.

4. A list of the parties who, to the best of the Applicant's knowledge, are affected by this Application are found in Schedule "B" attached hereto.

5. The Applicant therefore now applies to the Board for an Order or Orders granting leave to construct the Pipeline in the summer of 1988.

DATED at Chatham, Ontario this 21st day of April, 1988.

UNION GAS LIMITED

_____

by its Solicitors and Counsel

Blake, Cassels & Graydon
P. O. Box 25
Commerce Court West
Toronto, Ontario

4298M

UNION GAS LIMITED

ST. CLAIR-BICKFORD PIPELINE

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PROJECT SUMMARY

1. This application is for Leave to Construct 11.73 km of NPS 24 pipeline from the Bickford Storage Pool Station in the County of Lambton northerly and westerly to the St. Clair River (the "St. Clair-Bickford Line").

2. The St. Clair-Bickford Line would interconnect with NPS 24 facilities to be constructed by St. Clair Pipelines Ltd. ("St. Clair Pipelines") and Michigan Consolidated Gas Company ("MichCon") of Detroit, Michigan, U.S.A., which would provide a crossing of the St. Clair River (the "St. Clair Line") and an interconnection with NPS 24 facilities to be constructed by MichCon to Belle River Mills.

3. The St. Clair-Bickford Line would provide Union Gas Limited ("Union") and other Ontario LDC's with access to underground storage in Michigan and to additional competitive priced U.S. firm and spot gas supplies.

4. The total cost of construction by Union is estimated to be $9,352,000.

5. A discounted cashflow ("DCF") analysis confirms that the expected gas cost savings for Union alone exceed the incremental project costs within two years.

6. Other Eastern Canadian LDC's have expressed an interest to contract for transportation service on the St. Clair-Bickford Line in order to acquire competitive priced U.S. gas supplies.

7. Access to available gas storage in Michigan will allow Union to meet its anticipated storage requirements.

8. Security of supply for Ontario will be enhanced as a result of access to Michigan storage, more U.S. gas suppliers and additional U.S. transportation alternatives. Union and other Ontario LDC's will be less dependent on supplies of Alberta gas delivered by way of the Nova, Great Lakes and TransCanada PipeLines ("TCPL") systems.

9. Pipeline construction will be in accordance with the Board's "Environmental Guidelines for the Construction

and Operation of Hydrocarbon Pipelines in Ontario". In addition, Union would comply with its current construction procedures and the recommended environmental impact mitigation measures.

10. Leave to Construct is requested by July 17, 1988 in order to meet the planned construction schedule and the November 1, 1988 planned in-service date.

DESCRIPTION OF ST. CLAIR-BICKFORD PIPELINE

Proposed Facilities

11. Union is proposing to construct 6.05 km of NPS 24 pipeline from the existing Bickford Storage Pool Station at Lot 6, Concession XII, in the Township of Sombra to the proposed Sarnia Industrial Line Station located at Lot 26, Concession I, in the Township of Moore and from there 5.68 km of NPS 24 pipeline to the proposed St. Clair Valve Site at Lot 13, Front Concession in the Township of Moore, all in the County of Lambton. A map of the proposed St. Clair-Bickford Line is provided as Schedule 1.

12. The proposed facilities would interconnect with the NPS 24 pipeline facilities to be constructed by St. Clair Pipelines and MichCon which would provide a crossing of the St. Clair River. MichCon is also proposing to construct facilities in Michigan consisting of an NPS 24 pipeline from their Belle River Mills Compressor Station ("Belle River Mills") easterly to the proposed St. Clair Line.

13. In addition to this Application, St. Clair Pipelines will be applying to the National Energy Board for the necessary regulatory approvals required to construct the St. Clair Line and MichCon will be applying for the necessary approvals required by U.S. law.

14. A measurement and control station will be installed by Union at the interconnection of the St. Clair-Bickford Line and Union's existing Sarnia Industrial Line to provide check measurement and control for either export or import volumes. A sectionalizing block valve will be located at the St. Clair Valve Site on the east bank of the St. Clair River at the interconnection with St. Clair Pipelines.

15. The initial capacity of the St. Clair-Bickford Line is 5660 $10^3 m^3/d$ (200 MMcf/d) given MichCon's maximum compression available at Belle River Mills. The initial delivery pressure will be 5170 kPa (750 psig) at the International Boundary. This delivery pressure is required to provide more than the design minimum inlet pressure of 4825 kPa (700 psig) at the Dawn Compressor Station ("Dawn").

16. Volumes transported through the St. Clair-Bickford Line are capable of being delivered to the Bickford Storage

Pool or directly to Dawn through the Bickford Storage Pool Line (the "Bickford Line") for further transportation or storage. Use of the Bickford Line may be restricted during periods of injection or withdrawal of volumes from the Bickford or Terminus storage pools.

17. The St. Clair-Bickford Line will also interconnect with the Sarnia Industrial Line which serves a market normally in excess of 2830 $10^3m^3/d$ (100 MMcf/d). When the Bickford storage facilities are not able to take the volumes delivered through the St. Clair-Bickford Line to storage or directly to Dawn, Union would direct the delivery of these volumes to the Sarnia Industrial Line. Union currently receives ACQ gas from TCPL at Courtright to feed the Sarnia Industrial Line. On the days that Union would deliver St. Clair-Bickford Line volumes to the Sarnia Industrial Line, Union would receive at Dawn its ACQ volumes that would otherwise be delivered at Courtright.

18. Schedule 2 shows the operation of the St. Clair-Bickford Line assuming import levels of 2830 $10^3m^3/d$ (100 MMcf/d) are supplied to the Sarnia Industrial Line. With 5170 kPa (750 psig) at the boundary, the pressure at the Sarnia Industrial Line Station is 5161 kPa (748 psig).

19. Schedule 3 illustrates the operation of the St. Clair-Bickford Line assuming imports of 5660 $10^3m^3/d$ (200 MMcf/d) with 2830 $10^3m^3/d$ (100 MMcf/d) supplied to the Sarnia Industrial Line, and 2830 $10^3m^3/d$ (100 MMcf/d) supplied to Dawn at a pressure at Dawn of 5025 kPa (729 psig). Schedule 4 illustrates the operation assuming 5660 $10^3m^3/d$ is supplied directly to Dawn.

20. Additional pipeline capacity from the Bickford and Terminus storage pools to Dawn would be proposed as storage and transportation needs materialize. This would make the total annual capacity of the St. Clair-Bickford Line available for transportation directly to Dawn as well as increase the deliverability and operating flexibility of the Bickford and Terminus Pools.

21. Increases in the capacity of the St. Clair-Bickford Line can be accomplished by adding compression in Ontario or in Michigan as the need materializes.

Design Specifications

22. The design specifications for the St. Clair-Bickford Line are summarized in Schedule 5. All of the design specifications are in accordance with the Ontario

Regulation No. 627/87 for Gas Pipeline Systems. This regulation governs the installation of pipelines in the Province of Ontario.

23. Ontario Regulation No. 627/87 includes a classification system based on land use and population density to determine the appropriate safety factors. A class location unit is defined as an area that extends 200 metres on either side of the centre line of any continuous 1.6 km length of pipeline.

24. A class 1 location contains 10 or fewer dwellings intended for human occupancy within the class location unit. The St. Clair-Bickford Line is in a class 1 location. To allow for future industrial development in this area, a design factor of 0.6 (corresponding to a class 2 location) was used. A design factor of 0.5 was used when crossing the right-of-way of roads, highways, public streets or railways and for the design of all the valve sites, stations and tie-ins to the existing pipelines.

Pipe Specifications

25. The pipe specifications are also summarized in Schedule 5. The NPS 24 pipe has an outside diameter of 610 mm

and has wall thickness of 10.7 mm and 12.9 mm corresponding to the design factors of 0.60 and 0.50 respectively.

26. The NPS 24 pipe will be manufactured by the double submerged arc welded process and will have a specified minimum yield strength of 448 MPa. The pipe will be manufactured to the Canadian Standard CAN3-Z245.1-M86 Steel Line Pipe. The pipe specifications are designed to provide the maximum allowable operating pressure ("MAOP") using the various design factors.

27. The MAOP for the proposed NPS 24 pipeline is 9420 kPa (1366 psig). The pipeline will be pressure tested with water for 24 hours at 14130 kPa (2049 psig). This exceeds the requirements of Ontario Regulation 627/87.

28. The valves and flanges for the St. Clair-Bickford Line facilities will have a pressure rating of PN100 - 9930 kPa (1440 psig).

29. The hoop stress expressed as a percentage of the specified minimum yield strength ("SMYS") is 59.9% and 49.7% corresponding to pipeline wall thicknesses of 10.7 mm and 12.9 mm respectively.

30. The minimum depth of cover required is 1.0 metre to the top of the pipe and appurtenances. Additional depth will be provided to accommodate existing or planned underground facilities, such as drainage tile.

Cost of Proposed Facilities

31. Estimates of the capital costs for construction in 1988 of the proposed St. Clair-Bickford Line and related station facilities are provided in Schedules 6 and 8. The total cost is $9,352,000.

32. The material costs include the cost of all pipe, valves, fittings, coatings, miscellaneous items and stores overheads. The material cost estimates are based on quotes and estimates from the various manufacturers. The stores overheads allocated to the project cover all warehousing and handling costs of the materials.

33. The cost of construction and labour covers the installation of the pipeline and station facilities including the cost of all project labour, purchasing of easements and crop damage payments. The construction costs were based on recent detailed estimates prepared by a pipeline contractor. The estimated easement costs

are based on appraised values of land in the vicinity of the pipeline construction.

34. Cost estimates for contingencies, general overheads and interest during construction have been included in the estimate of total construction costs.

35. The estimated costs associated with environmental mitigation measures have been included in the Construction and Labour cost estimate for the pipeline in Schedule 6 and are shown separately in Schedule 7. These costs are identified as preconstruction, construction and restoration related. The estimated total environmental costs are $219,000.

PURPOSE OF PROPOSED FACILITIES

36. At present, Union relies on the TCPL, Great Lakes and Nova system facilities to transport natural gas from Western Canada. A significant portion of the gas received from Western Canada is transported through Michigan and delivered to Dawn. Under Union's existing ACQ gas supply contract with TCPL, volumes are delivered at Dawn or at the Courtright Delivery Point ("Courtright") to supply the Sarnia Industrial Line. This line is an NPS 12 system serving most of the demands of the residential, commercial and industrial load in the Sarnia area.

37. Union currently receives a small amount of gas from U.S. suppliers by way of Union's Panhandle System which consists of NPS 16 and NPS 20 pipelines running from Dawn southerly and westerly to the Windsor area. This system includes two NPS 12 pipeline crossings of the Detroit River at the Ojibway Station which interconnect with Panhandle Eastern Pipelines in Michigan.

38. Union's Panhandle System is currently being utilized at its full capacity. The proposed St. Clair-Bickford Line, operated in conjunction with facilities to be constructed by MichCon and St. Clair Pipelines, will

provide Union a pipeline interconnection with the facilities of ANR as illustrated in Schedule 9. The St. Clair-Bickford Line will also allow volumes of natural gas to be carried to and from storage facilities located in Michigan as illustrated in Schedule 9.

39. A total of 583 Bcf of working gas storage is currently developed in the State of Michigan. Although the majority of this storage is required for system peaking by Michigan LDC's and interstate pipeline companies, short-term storage space which Union currently requires is available and additional gas storage capacity will be developed in the future. Union plans to enter into arrangements with MichCon to access storage space in 1989 in order to meet its anticipated storage requirements that cannot otherwise be met by way of developed storage in Ontario. It is also Union's intent to integrate the Michigan gas storage capability with that of Southwestern Ontario resulting in additional flexibility in gas purchasing.

40. Union has achieved significant cost of gas savings in negotiations with TCPL as a result of the additional leverage provided by Union's existing capability to import U.S. gas by way of the Panhandle System. Union

anticipates that the St. Clair-Bickford Line will provide enhanced access to alternate supplies of competitive priced gas which will in turn provide Union and other Eastern Canadian LDC's with increased leverage to negotiate additional savings for supplies of Alberta gas.

41. Union will utilize the St. Clair-Bickford Line immediately to access additional supplies of firm and interruptible gas from U.S. sources. These supplies are available at a lower cost than can be negotiated for sources of Alberta gas supply. Union is currently negotiating for the supply and transportation beginning November 1, 1988, of 425 $10^3m^3/d$ (15 MMcf/d) of firm gas supply and up to 5660 $10^3m^3/d$ (200 MMcf/d) of interruptible gas supply.

42. The opportunity for significant cost of gas savings as a result of enhanced access to U.S. supplies of firm and spot gas is expected to continue through Fiscal 1990 and beyond.

43. Union has been advised by Consumers', GMi and others of their intent to utilize the St. Clair-Bickford Line for the transportation of competitive priced gas.

44. The St. Clair-Bickford Line will also provide security of supply to Ontario. Security of supply will be improved by having access to a broader reserves base and access to more U.S. transportation alternatives. Further, the proposed pipeline interconnection will make available a source of supply from MichCon's Belle River Mills storage system and therefore provide enhanced security. Union is negotiating an Exchange Agreement with MichCon for that purpose.

45. Such enhanced security is significant in light of increasing capacity constraints on the Nova, Great Lakes and TCPL delivery systems which were, in part, responsible for recent deliverability problems experienced in January 1988 and the unexpected reduction in Interruptible Service available to Ontario LDC's this summer and winter.

Alternatives Considered

46. Alternatives to the proposed NPS 24 St. Clair-Bickford Line were considered. One alternative was to utilize the capability of the existing Panhandle System. This alternative was rejected because of a number of limitations including:

i) The existing facilities are already being fully utilized for import of U.S. gas.

ii) Expansion of the Panhandle System does not enhance Union's ability to access competitive priced gas through other major U.S. pipeline systems or provide equivalent security of supply deliverability to Dawn.

iii) The Panhandle System does not provide direct access to Michigan storage volumes and would not allow Union to integrate Michigan storage with that of Southwestern Ontario.

47. Union also considered a smaller diameter St. Clair-Bickford Line than the proposed NPS 24 facility. NPS 20 and NPS 16 pipeline sizes were examined and rejected. Smaller diameter pipelines do not provide the required flow capability given the available pressure at the boundary and the desired pressure at Dawn which is a pressure equal to the contractual pressure provided by TCPL on its Dawn Extension.

PROJECT ECONOMICS

48. In accordance with the Board's Report on System Expansion (E.B.O. 134), Union has evaluated the economic feasibility of the St. Clair-Bickford Line by means of a discounted cashflow ("DCF") analysis. For this analysis, incremental project revenues and project costs are discounted at Union's incremental cost of capital to determine whether there is a net cost to Union's customers as a result of undertaking the project.

49. Union has employed a DCF methodology similar to that used for previous facilities applications. Incremental cash inflows and outflows are discounted using Union's standard Profitability Index Test. The test utilizes current financial rates and ratios such as capital structure, applicable tax rates and CCA rates. A profitability index of 1.0 would mean that the net present value of the cash inflows is equal to the net present value of the cash outflows over the period selected for the analysis based on Union's incremental cost of capital. A project with a profitability index of 1.0 or greater meets the economic test for system expansion in accordance with the E.B.O. 134 Report.

50. The incremental revenues of the St. Clair-Bickford Line used in the DCF analysis are the estimated gas cost savings during the first two years of the project. Those gas cost savings include:

i) Access to Lower Cost Spot Gas

The St. Clair-Bickford Line will result in increased accessibility to less expensive supplies of U.S. spot gas. Union expects to make spot gas purchases of 141 $10^6 m^3$ (5.0 Bcf) in the summer of 1989 and 141 $10^6 m^3$ (5.0 Bcf) in the summer of 1990 from competitive priced U.S. producers. Based on current and projected prices, it is expected that the savings after accounting for U.S. transportation costs will approximate \$ 17.64/$10^3 m^3$ (\$.50/Mcf) relative to the cost of Alberta gas. As a result, Union will achieve fot its own sales customers annual gas cost savings of \$2.5 million.

ii) Access to Firm Gas Supplies

The St. Clair-Bickford Line will also result in increased accessibility to competitive priced firm supplies of U.S. gas. Union intends to

purchase at least 141 $10^6 m^3$/year (5 Bcf/year) of firm U.S. gas beginning November 1, 1988. The estimated cost savings between U.S. and Alberta firm gas supply is $10.59/$10^3 m^3$ ($.30/Mcf) after accounting for U.S. transportation costs. This will result in annual gas cost savings for Union's own sales customers of $1.5 million.

iii) Enhanced Bargaining Position

Union has been unable to negotiate market competitive priced gas under its existing CD and ACQ contracts for all of Union's sales customers in spite of price deregulation which commenced with the Inter-Governmental Agreements on Markets and Prices signed in October, 1985. Access to U.S. gas by way of the Panhandle System led to Union's ability to negotiate discounts amounting to $15.9 million to date under these contracts. However, Union's U.S. gas purchase alternatives by way of the Panhandle System are limited. In its Reasons for Decision in E.B.R.O. 412-III, the Board recognized that Union had a weak bargaining position with TCPL/WGML. With the St. Clair-Bickford Line, increased accessibility to spot or firm U.S. gas suppliers will enhance

Union's negotiating ability for future gas supplies from Western Canada. Union estimates at least $10.0 million per year of additional gas cost savings for its own sales customers resulting from its enhanced bargaining position. This could be achieved by purchasing additional supplies of U.S. competitive priced gas in the event TCPL refused to negotiate market sensitive gas prices under existing gas supply contracts.

51. The DCF analysis of incremental project revenues has been limited to a two-year period. This is an extremely conservative assessment of incremental project revenues as:

i) Gas cost savings are likely to be available beyond the second year.

ii) Similar gas cost savings would be available for other Ontario LDC's.

iii) Transportation revenues from others have not been accounted for in the project justification.

52. The incremental project costs are $8,738,400 for construction of the St. Clair-Bickford Line. These

costs exclude general overheads and interest during construction. Other incremental cash outflows include municipal taxes, capital taxes and income taxes. The estimated annual cost of transportation service by St. Clair Pipelines related to the St. Clair Line is also included as part of the annual incremental project costs. The costs of transportation service by MichCon as well as the cost of transportation service by other U.S. pipeline companies for delivery of U.S. gas to Belle River Mills is accounted for in the estimate of gas cost savings. A summary of the incremental project costs is provided in Schedule 10.

53. The results of the DCF analysis are also summarized in Schedule 10. The profitability index is 1.64 by the end of the second year. Because the profitability index exceeds 1.0, the project meets the E.B.O. 134 test for system expansion without consideration of potential transportation revenues and gas cost savings by other Ontario LDC's.

OTHER PROJECT BENEFITS

Enhanced Security of Supply

54. The proposed facilities will result in a significant improvement to overall security of gas supply because of enhanced access to alternative sources of gas supply in the event of insufficient capacity or disruptions to the pipeline systems which deliver Alberta sourced gas.

55. The proposed facilities also provide a direct connection between the storage systems in Ontario and Michigan which will also provide additional security of supply to Union's in-franchise and transportation customers.

56. Union and MichCon have agreed in principle to an Exchange Agreement. This Agreement could have been and would be used in situations similar to those that occurred this past winter when Nova, Great Lakes and TCPL experienced interruptions in supply due to capacity constraints and equipment failure.

57. The significance of this enhanced security of supply available to Union and its transportation customers will increase as TCPL and others continue to take

advantage of access to U.S. markets made possible by deregulation. The TCPL/Great Lakes/Nova systems will be more vulnerable to system integrity related disruptions as available firm capacity becomes fully utilized. In addition, the capacity for interruptible service and Union's ability to rely on future interruptible capacity on the TCPL/Great Lakes and Nova Systems has been substantially reduced.

Transportation By Others

58. Access to lower cost U.S. spot or firm gas supplies by way of the St. Clair-Bickford Line would be available to others including Eastern Canadian LDC's. At least two LDC's have indicated an interest in utilizing the proposed capacity to transport a total of 198 $10^6 m^3$/year (7 Bcf/year) of U.S. gas supply. At least one broker has also indicated an interest in utilizing the proposed capacity.

59. Union expects such transportation arrangements to provide a contribution to its cost of service, thereby increasing the net benefit to its sales customers beyond those identified in the DCF analysis of project economics.

Access to Underground Storage

60. Union's current forecast of storage requirements exceeds the estimated storage capacity that can be made available in Ontario during 1989. The proposed facilities provide access to currently available and yet to be developed underground storage located in Michigan. This will provide Union and its transportation customers with additional gas purchasing flexibility as a result of enhanced access to storage with the potential for even greater reductions in overall gas costs. Access to underground storage in Michigan is an important benefit of this project.

Additional Employment

61. The St. Clair-Bickford Line would benefit the Ontario economy as a result of an estimated 2498 person days of employment required for manufacturing of the pipe and 2677 person days of employment required for pipeline construction during 1988. These estimates have been provided by the pipe suppliers and contractors. As a result, Ontario would experience an estimated $.11 million in additional annual income taxes paid on employment earnings. Ontario could also experience a savings of up to $.3 million in annual U.I.C. payouts.

These benefits which exclude any of the indirect employment impacts are not reflected in the analysis of project economics as a stage 2 benefit cost analysis was not required.

ENVIRONMENTAL, MUNICIPAL AND LANDOWNER MATTERS

Environmental Assessment and Mitigation Measures

62. An Environmental Assessment ("EA") has been prepared for the proposed pipeline. This report was prepared in accordance with the Ontario Energy Board document "Environmental Guidelines for the Construction and Operation of Hydrocarbon Pipelines in Ontario (1984)". The report was submitted to the Ontario Energy Board through the Ontario Pipeline Co-Ordination Committee on January 25, 1988.

63. The purpose of the EA includes the following:

    i) to define a study corridor and to review environmental conditions within this area;

    ii) to identify pipeline route alternatives;

    iii) to evaluate practical route alternatives and recommend a proposed route which minimizes impacts to the environment and also fulfills all transmission system requirements;

iv) to undertake detailed environmental studies of the proposed route and to assess the potential environmental effects of constructing and operating a pipeline along this route;

v) to contact Provincial agencies, municipalities and landowners along the proposed route and record their concerns;

vi) to identify mitigation techniques that may be employed to minimize any adverse environmental impacts of pipeline construction; and

vii) to provide pipeline contractors and inspectors involved in the construction of the pipeline with general and site-specific recommendations for environmental protection that supplement Union's construction specifications.

64. The EA includes a description of the natural and cultural environment within a designated study area. This description is based on published information and data collected from various sources including provincial ministries, municipalities and field surveys. The natural environment description includes information on such features as soils, fisheries and

wildlife while the cultural environment description includes information on land use and archaeological resources.

65. Based on these descriptions, a preferred route alignment was selected. Mitigation measures were recommended so as to minimize potential impact to the environment.

66. The EA identifies some minor environmental impacts associated with construction. No major environmental impacts have been identified. Mitigation measures to reduce the impact on the environment are recommended. Union would comply with these recommendations.

67. The pipeline will be constructed in the manner recommended and described in the Ontario Energy Board document entitled, "Environmental Guidelines for the Construction and Operation of Hydrocarbon Pipelines in Ontario (1984)".

68. As with previous pipeline construction projects, Union would undertake a post construction review and report within one year of construction. This report would describe the condition of the easement and the effectiveness of various mitigation measures

implemented during construction as well as identify areas in need of additional restoration.

Land Requirements

69. A drawing showing the proposed general location of the St. Clair-Bickford Line with the names and addresses of all property owners and the hectares of permanent easements, temporary easements and land requirements is provided as Schedule 11.

70. The estimated amount of permanent and temporary easement required for pipeline construction of the St. Clair-Bickford Line is 17.6 hectares and 1.2 hectares respectively.

71. Union requires an 18 metre wide permanent easement for the proposed St. Clair-Bickford Line except for the portion of the pipeline within the Ontario Hydro corridor which requires a 6.0 metre wide easement. The remainder of the land required for construction on the Ontario Hydro corridor will be temporary working room. The portion adjacent to Highway #40 requires a 12.0 metre wide easement plus additional working space within the Highway #40 road allowance.

72. Additional valving facilities are required at the Sarnia Industrial Line Station and at the eastern bank of the St. Clair River where the river crossing pipeline terminates. The land required for these facilities is approximately 4500 square metres.

73. Union's Grant of Easement Agreement form shown as Schedule 12 is the same form of easement agreement that the Board has approved and Union has used in past years (except with Ontario Hydro) on similar pipeline projects. This agreement covers the installation, operation and maintenance of one, and only one, pipeline. The major restriction imposed by the agreement on the landowner is that the landowner cannot erect buildings on the easement. In addition, the landowner cannot excavate on the easement or install field tile without prior notification. The landowner is free to farm the easement, install service pipe or utility lines or turn the easement into a laneway.

74. The form of easement required by Ontario Hydro for easements on its property is shown as Schedule 13.

75. Union anticipates that there will be some other areas where land will be required for construction in addition to the permanent easement. These would

generally be areas where physical constraints require additional working room for road, railway, swamp or stream crossings.

76. The Temporary Land Use Agreement form shown as Schedule 14 is similar to the form approved by the Board and used by Union in past years on similar pipeline projects. These agreements are usually for a period of two years, thus allowing Union to return the year following construction to perform further restoration or clean-up as required.

77. An offer will be made by Union for the purchase of easement rights. The value of the offer will be based on the fee simple value of bare land established by recent sales in the areas as provided by an outside land appraiser. The landowners will be allowed to provide evidence regarding other land transactions which may justify a change in Union's offer.

78. Schedule 15 is the Full and Final Release form which covers the compensation for damages resulting from the construction of the pipelines. This form does not include compensation for the land rights taken under an easement agreement or by expropriation.

Provincial, Municipal, and Landowner Contacts

79. A number of Provincial and municipal agencies and all landowners directly affected by construction the proposed facilities were contacted and asked to outline any concerns they may have with the proposed pipeline. These concerns include proper clean-up and stream bank restoration to prevent erosion.

80. Applications are being prepared for the road, highway and railway crossings and the hydrostatic testing permits related to the proposed facilities. Union foresees no difficulty in obtaining the required approvals.

CONSTRUCTION PROCEDURES, SCHEDULE AND ADMINISTRATION

81. The general techniques and methods of construction that Union would employ for the construction of the proposed facilities are described in Schedule 16. Detailed are such activities as clearing, grading, stringing of pipe, trenching, welding, backfill, tile repair and clean-up.

82. Union's construction procedures and specifications have been developed over a number of years. The same procedures described in Schedule 16 were accepted by the Board in E.B.L.O. 218/219 and will be used for the construction of the NPS 42 Brantford Take-Off to the Kirkwall Valve Site and the NPS 24 Kirkwall Line pipeline construction in 1988.

83. The proposed schedule for pipeline construction is provided in Schedule 17. It is anticipated that the construction of the St. Clair-Bickford Line will commence in mid August 1988 and be completed in late September 1988.

84. Material is readily available for the project. The pipe will be Canadian made by Stelpipe in Welland.

85. Union foresees no problem in obtaining a contractor to complete the proposed construction. The environmental assessment will be included as part of the bid documents.

86. In accordance with previous Leave to Construct Orders, Union would prepare, and make available to the Board, interim and final environmental monitoring reports as well as a post construction financial report.

87. Agreements involving Union, St. Clair Pipelines and MichCon will be required in order to ensure the proposed facilities are constructed and operated in a manner which will meet the requirements of the parties. Formal agreements are being prepared.

88. Union will apply to the National Energy Board for the necessary import and export permits. As well, Union will apply to the Energy Regulatory Agency for export permits.

NATURE AND TIMING OF REGULATORY APPROVALS

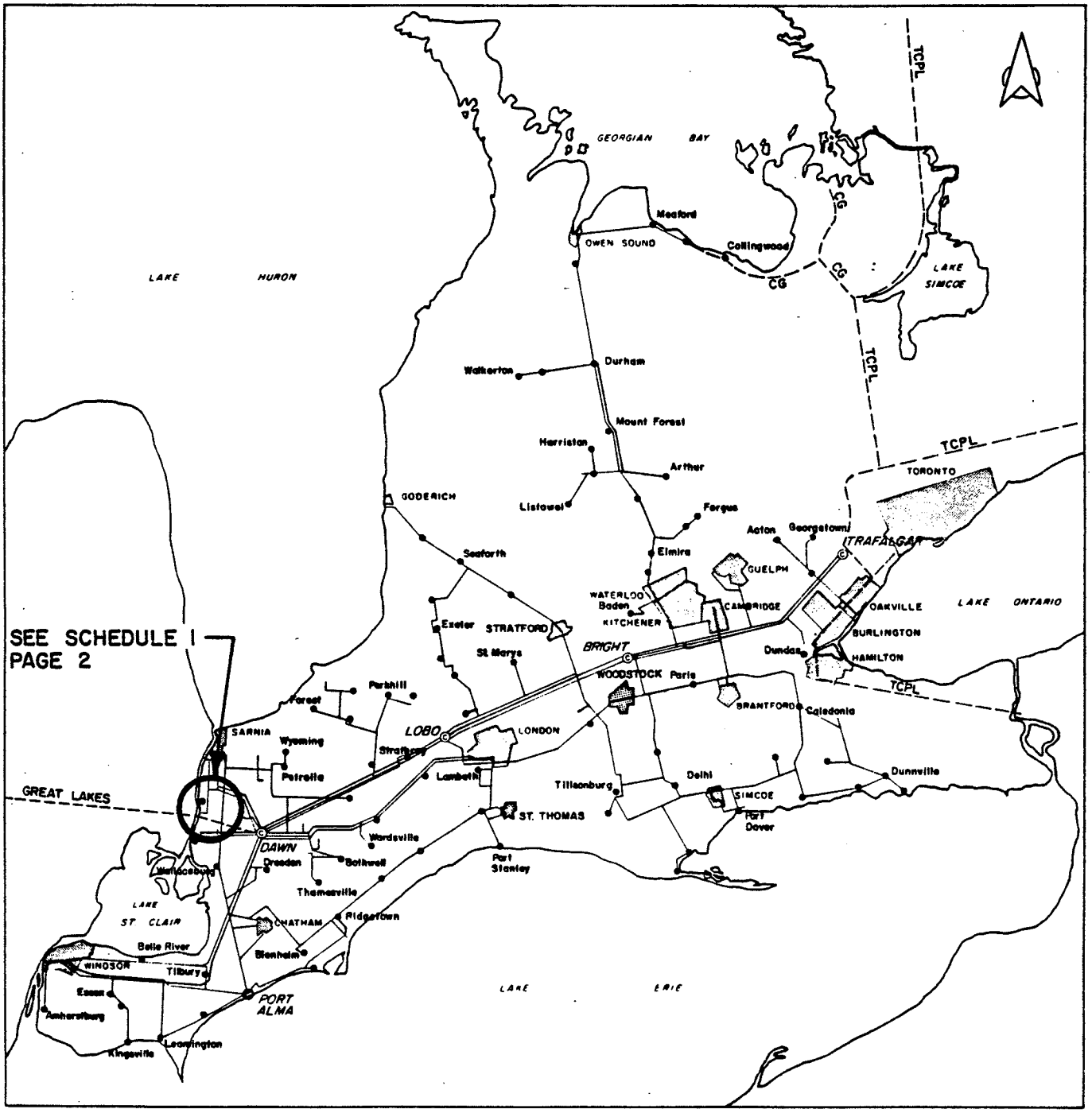
89. Union requests approval of the easement and land use agreements appearing as Schedules 12, 13 and 14, and the issuance of an Order or Orders granting Leave to Construct the facilities that are the subject of this application.

90. To meet the proposed construction schedule, Leave to Construct is required by no later than July 17, 1988.

91. Union would construct the proposed pipeline in accordance with its current construction procedures described in Schedule 16 and in compliance with the environmental mitigation measures recommended in the Environmental Assessment report.

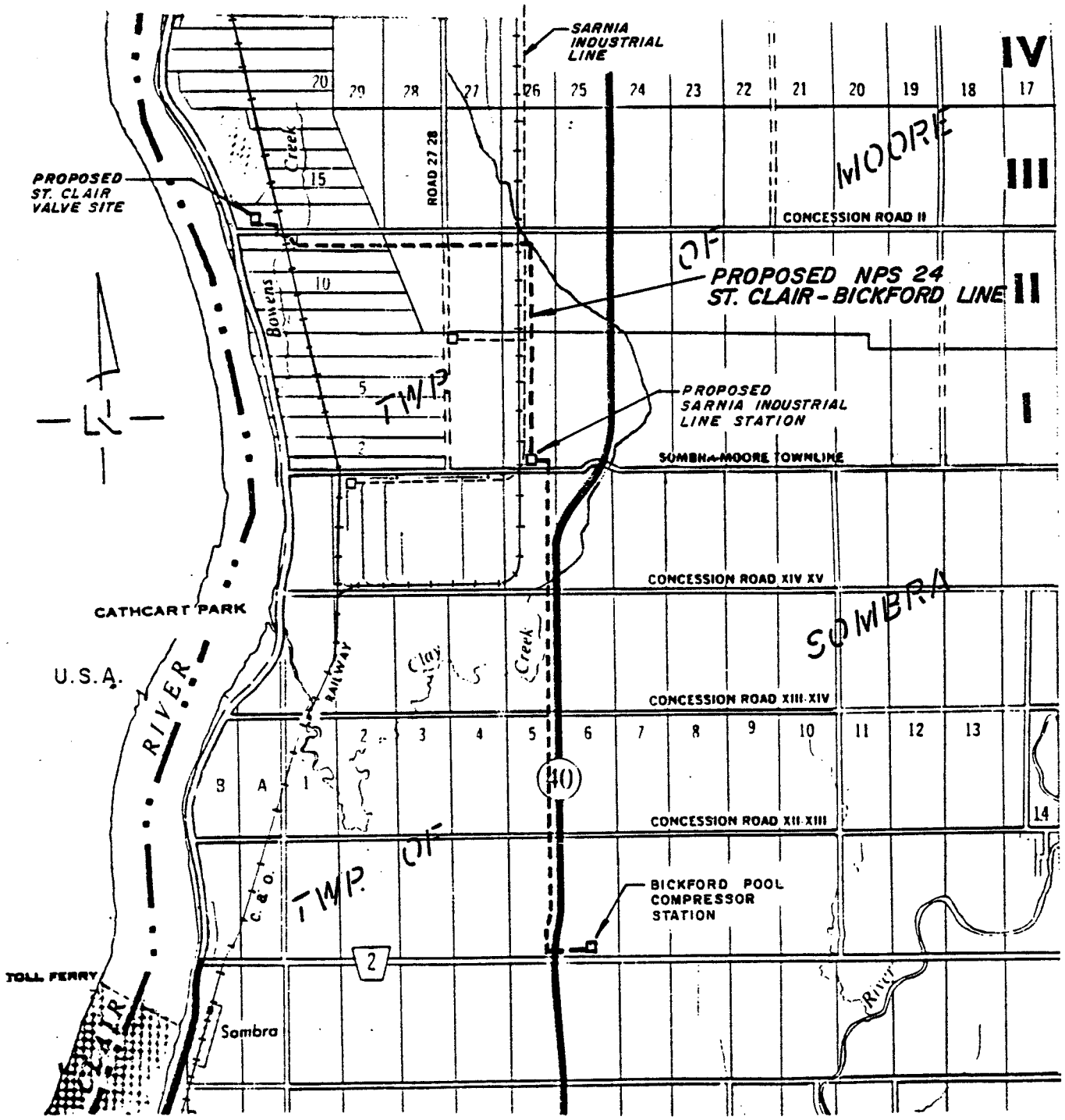
92. The proposed pipeline would not be constructed until the necessary regulatory approvals are granted to MichCon and St. Clair Pipelines for construction of the related facilities. Those applications will be made in time to allow for a planned November 1, 1988 in-service date.

UNION GAS LIMITED
PIPELINE SYSTEM

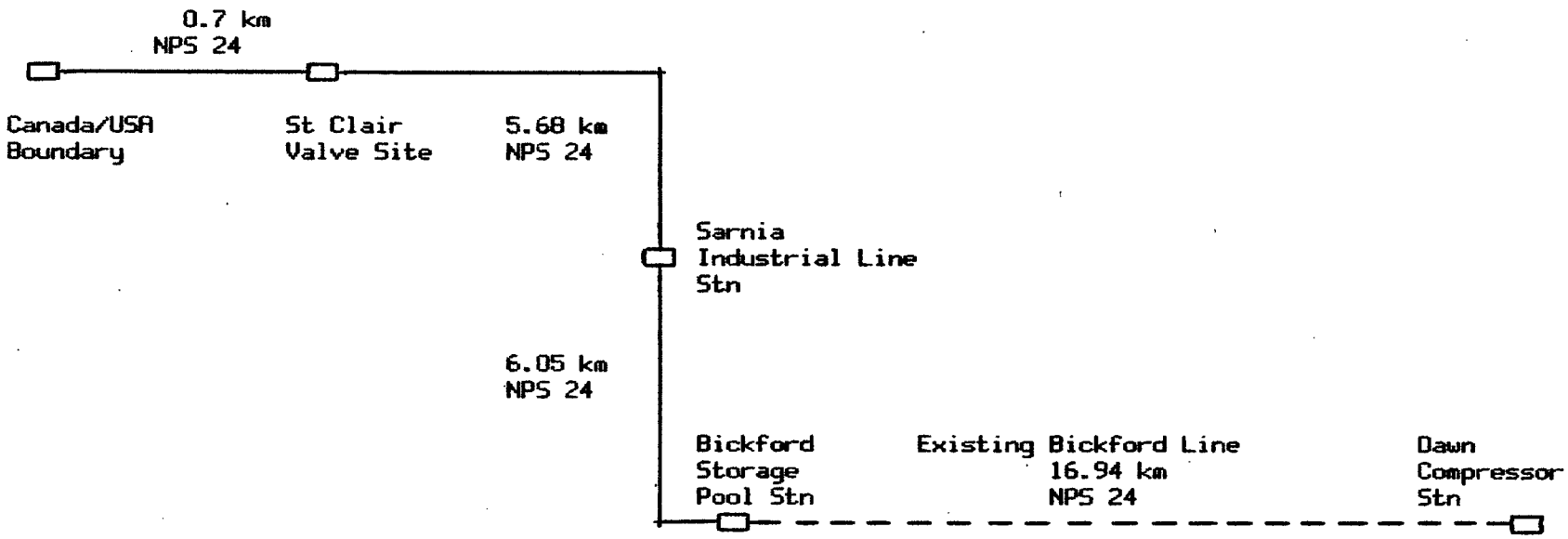


UNION GAS LIMITED

NPS 24 ST. CLAIR - BICKFORD LINE



ST CLAIR - BICKFORD LINE
IMPORT LEVEL OF 2830 10*3M*3/D FLOWING TO THE SARNIA INDUSTRIAL LINE



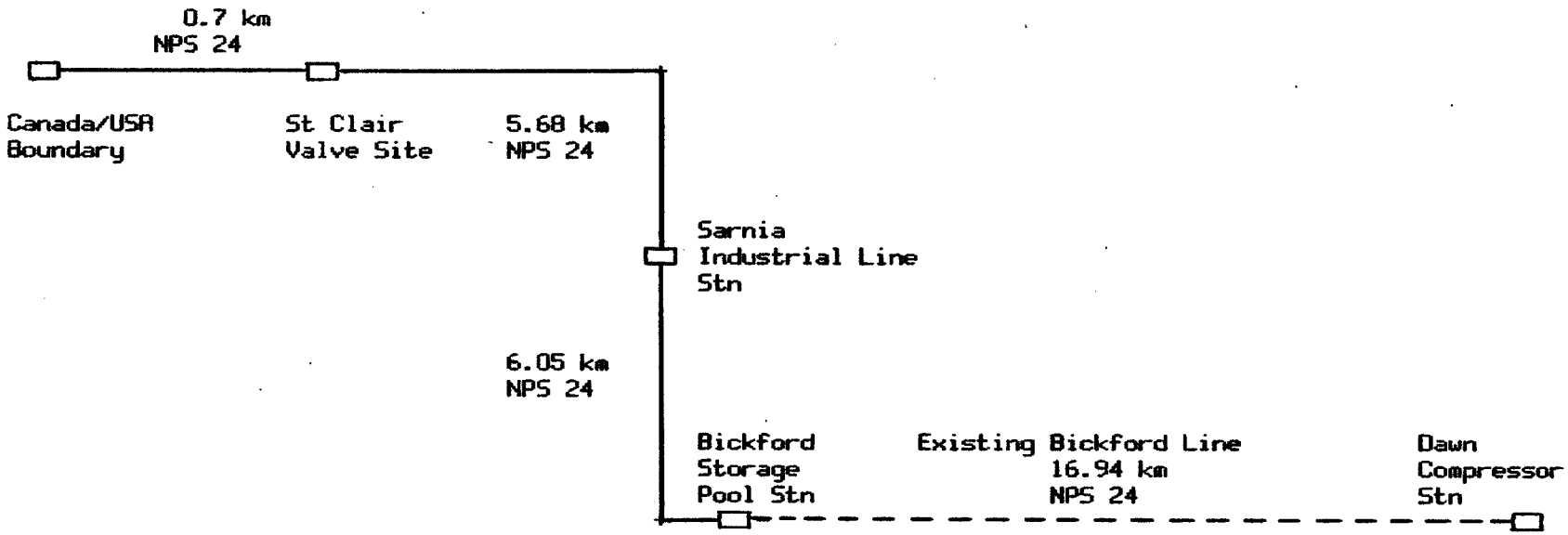
System Flows and Pressures

		Canada/USA Boundary	St Clair Valve Site	Sarnia Industrial Line Stn	Bickford Pool Stn	Dawn Compressor Stn
Flow In	10*3m*3/d	2830				
Load	10*3m*3/d			2830		
Flow Out	10*3m*3/d					
Pressure	kPa	5170	5169	5161		

Note : Pressure at the Sarnia Industrial Line Station is the inlet pressure . The outlet pressure is 70 kPa less due to losses in the measuring and control facilities in the station .

SCHEDULE 2

ST CLAIR - BICKFORD LINE
IMPORT LEVEL OF 5660 10*3M*3/D FLOWING TO THE SARNIA INDUSTRIAL LINE AND TO DAWN



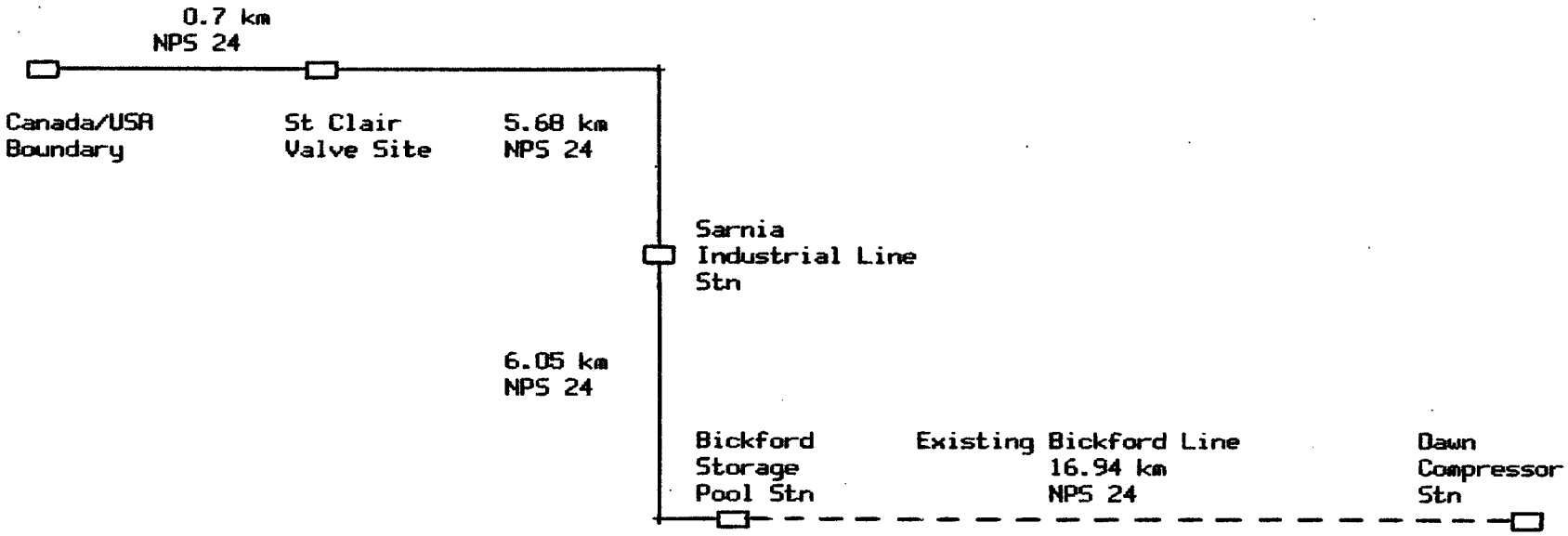
System Flows and Pressures

		Canada/USA Boundary	St Clair Valve Site	Sarnia Industrial Line Stn	Bickford Pool Stn	Dawn Compressor Stn
Flow In	10*3m*3/d	5660				
Load	10*3m*3/d			2830		
Flow Out	10*3m*3/d					2830
Pressure	kPa	5170	5166	5131	5053	5025

Note : Pressure at the Sarnia Industrial Line Station is the inlet pressure . The outlet pressure is 70 kPa less due to losses in the measuring and control facilities in the station .

SCHEDULE 3

ST CLAIR - BICKFORD LINE
IMPORT LEVEL OF 5660 10*3M*3/D FLOWING TO THE DAWN COMPRESSOR STATION



System Flows and Pressures

		Canada/USA Boundary	St Clair Valve Site	Sarnia Industrial Line Stn	Bickford Pool Stn	Dawn Compressor Stn
Flow In	10*3m*3/d	5660				
Load	10*3m*3/d			0		
Flow Out	10*3m*3/d					5660
Pressure	kPa	5170	5166	5131	5024	4916

Note : Pressure at the Sarnia Industrial Line Station is the inlet pressure . The outlet pressure is 70 kPa less due to losses in the measuring and control facilities in the station .

SCHEDULE 4

SCHEDULE 5

ST. CLAIR-BICKFORD LINE

DESIGN AND PIPE SPECIFICATIONS

DESIGN SPECIFICATIONS

Location	-	Class 1
Design Factor	-	0.5 and 0.6
Maximum Allowable Operation Pressure	-	9420 kPa
Test Medium	-	Water
Test Pressure	-	14130 kPa
Test Duration	-	24 Hours
Valves & Flanges	-	PN100
Minimum Depth of Cover	-	One (1) Metre

PIPE SPECIFICATIONS

Size	-	NPS 24, 610 mm O.D.
Wall Thickness	-	12.9 mm and 10.7 mm
Type	-	Submerged Arc Welded, 448 MPa M.Y., Cat. II
Description	-	C.S.A. Standard CAN3-Z245.1-M86
Coating	-	Fusion Bonded Epoxy

SCHEDULE 6

ST. CLAIR-BICKFORD LINE

ESTIMATED CAPITAL COSTS
NPS 24 PIPELINE

Pipeline and Equipment		
610 mm O.D. x 10.7 mm W.T. Pipe 11 490 m @ 187.17/m	$2,151,000	
610 mm O.D. x 12.9 mm W.T. Pipe 240 m @ 250.81/m	60,000	
Valves, Fittings, Casting, Swamp Weights, Miscellaneous Material	423,000	
Internal and External Coating	301,000	
Sub-Total	$2,935,000	
Stores Overhead @ 17% Valves, Fittings and Miscellaneous Material	61,000	
Total Material		$2,996,000
Construction and Labour		
To lay 11 730 m of 610 mm O.D. Pipe	1,776,000	
Boring, Weights, Testing, Valving, Casing, Misc. Contract Labour	766,000	
Company Labour, X-Ray, Survey, Legal Mill Inspection and Consultants	362,000	
Easements, Land and Damages	444,000	
Total Construction and Labour		3,348,000
Sub-Total		6,344,000
Contingencies @ 5%		317,000
Interest During Construction @ 3%		199,000
General Overheads @ 7.35%		476,000
Total Cost of Pipeline 1988 Construction		$7,336,000

Includes the Estimated Environmental Costs on Schedule 7

SCHEDULE 7

ST. CLAIR-BICKFORD LINE

ESTIMATED ENVIRONMENTAL COSTS

Preconstruction		
Environmental Study & Mapping	$ 24,000	
Total Preconstruction		$ 24,000
Construction		
Topsoil Stripping	$ 28,000	
Wet Weather Shutdown	71,000	
Dust Control	11,000	
Stream Crossings	10,000	
Environmental Monitoring	13,000	
Total Construction		$133,000
Restoration		
Topsoil Replacement	$ 28,000	
Stone Picking and Trench Redress The Year Following Construction	21,000	
Erosion Control	9,000	
Re-forestation	4,000	
Total Restoration		$ 62,000
TOTAL ENVIRONMENTAL COSTS 1988 Construction		$219,000

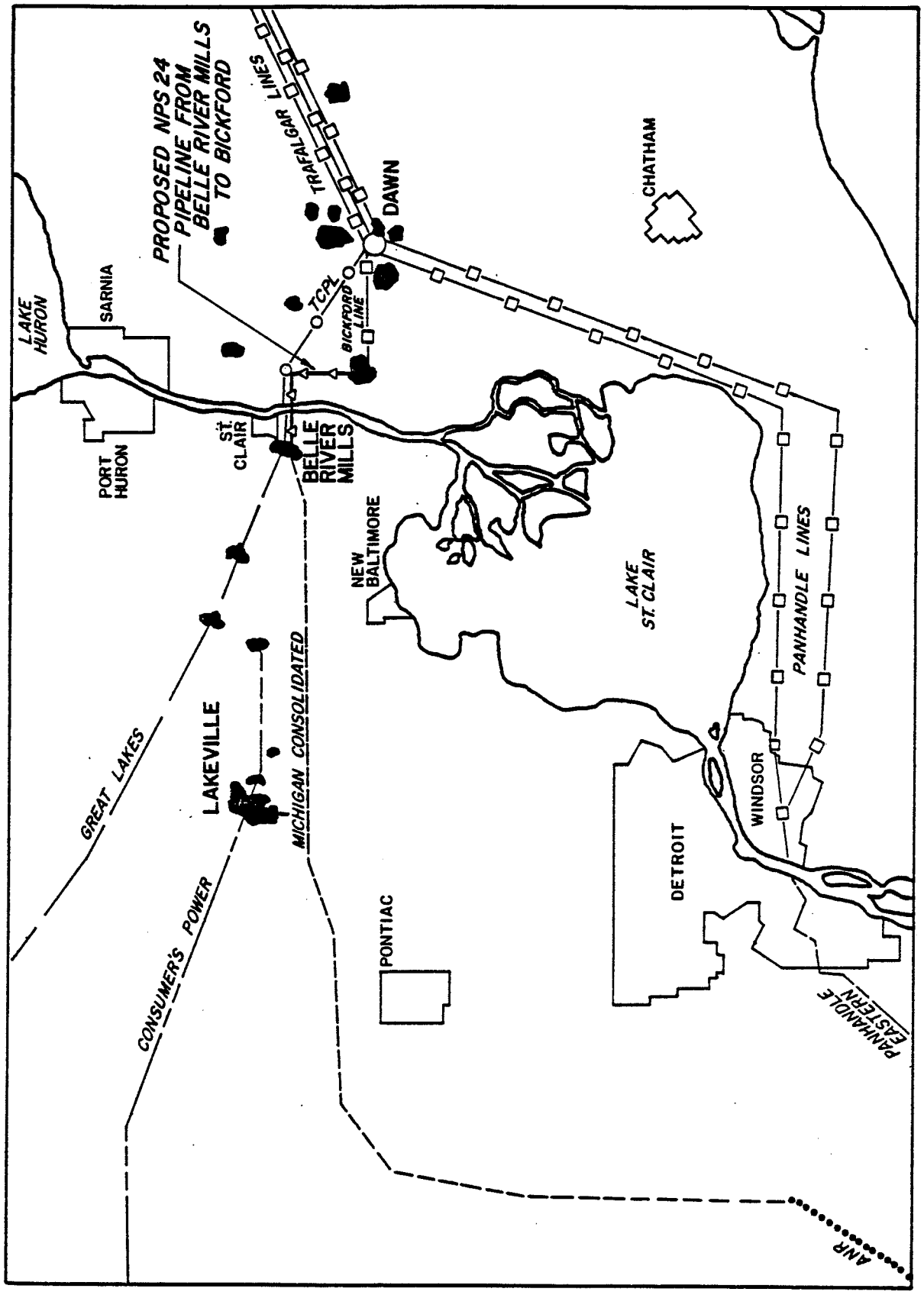
ST. CLAIR-BICKFORD LINE

ESTIMATED CAPITAL COSTS

SARNIA INDUSTRIAL LINE STATION

Material		
Plant Items - Meters	$222,000	
Pipe, Valves, Fittings, Misc.	646,000	
Operating Equipment	287,000	
Stores Overhead	67,000	
Total Material		$1,222,000
Contract and Labour		
Fabrication	391,000	
Misc. Contract	74,000	
Company Labour, Radiography, Etc.	41,000	
Total Contract and Labour		506,700
Sub-Total		$1,728,000
Land Purchase		10,000
Contingencies @ 5%		86,000
Interest During Construction @ 3%		54,000
General Overheads @ 7.35%		138,00
Total Cost of Station 1988 Construction		$2,016,000

SCHEDULE 9


PROPOSED NPS 24
PIPELINE FROM
BELLE RIVER MILLS
TO BICKFORD
TRAFALGAR LINES
DAWN
CHATHAM
LAKE HURON
SARNIA
TCPL
BICKFORD LINE
PORT HURON
ST. CLAIR
BELLE RIVER MILLS
NEW BALTIMORE
LAKE ST. CLAIR
PANHANDLE LINES
GREAT LAKES
LAKEVILLE
MICHIGAN CONSOLIDATED
WINDSOR
DETROIT
CONSUMER'S POWER
PONTIAC
PANHANDLE EASTERN
ANR

UNION GAS LIMITED

ST. CLAIR - BICKFORD LINE

Economic Analysis

	1988	1989
Revenue Cash Flow		
U.S. Spot Gas Savings	2,500,000	2,500,000
U.S. Firm Gas Savings	1,500,000	1,500,000
Negotiated Savings	10,000,000	10,000,000
Total Revenue (Cost Savings)	14,000,000	14,000,000
Less:		
Cost of Transportation by Others (St. Clair Pipelines)	144,000	271,000
Hydro Lease Payment	4,000	4,000
Municipal Tax	43,692	43,692
Capital Tax	24,508	22,740
Current Income Tax	5,833,250	5,540,921
Total Expenses	6,049,450	5,882,353
Net Cash Inflow	7,950,550	8,117,647
Capital Cash Flow		
Incremental Project Costs	8,738,400	0
Salvage	0	0
Change in Working Capital	7,459	6,401
Total	8,745,859	6,401
Cumulative Net Present Values		
Revenue	7,517,599	14,380,002
Capital	8,745,859	8,751,582
Project	(1,228,260)	5,628,420
Profitability Index	.860	1.643

Grant of Easement

THIS INDENTURE made the ..... 19 .....

In Pursuance of the Short Forms of Conveyances Act

BETWEEN:

.....

.....

.....

of the ..... of

..... in the County

of ..... Province

of Ontario, hereinafter called "the Grantor" OF THE FIRST PART

and

UNION GAS LIMITED

A company incorporated under the laws of the Province of Ontario with head office at the City of Chatham, in the County of Kent, hereinafter called "the Grantee" OF THE SECOND PART

and

.....

.....

of the said ..... of

..... , wife

(wives) of the Grantor, OF THE THIRD PART

and

.....

hereinafter called "the Mortgagee" OF THE FOURTH PART

and

..... OF THE FIFTH PART

WHEREAS the Grantor is the registered owner of the following lands and premises (hereinafter referred to as "the Grantor's lands") in the Township of ..... , in the County of ..... and Province of Ontario, namely:

.....

.....

.....

.....

AND WHEREAS the Mortgagee is the registered holder of a mortgage or charge affecting the Grantor's lands (and the Party of the Fifth Part has a claim against same or interest therein);

WITNESSETH that, in consideration of the sum of One Dollar ($1.00) of lawful money of Canada now paid by the Grantee to the Grantor, the receipt of which is hereby acknowledged, and the additional sum of

.....

Dollars ($) of lawful money of Canada (hereinafter called "the purchase price", which sum is payment in full for the rights and interests hereby granted and for the rights and interests, if any, acquired by the Grantee by expropriation, including in either or both cases payment in full for all such matters as severance, injurious affection to remaining lands and the effect, if any, of registration on title of this document and where applicable, of the expropriation documents) subject to Clause 11 hereof to be paid by the Grantee to the Grantor within 90 days from the date of these presents or prior to the exercise by the Grantee of any of its rights hereunder other than the right to survey (whichever may be the earlier date), the Grantor (and the Mortgagee

and/or the Party of the Fifth Part) do hereby GRANT, CONVEY, TRANSFER AND CONFIRM unto the Grantee, its successors and assigns, to be used and enjoyed as appurtenant to all or any part of the lands of the Grantee described in Schedule "A" hereto, the right, liberty, privilege and easement on, over, in, under and/or through a strip of the Grantor's lands more particularly described in Schedule "B" hereto (hereinafter referred to as "the said lands") to survey, lay, construct, maintain, inspect, patrol, alter, remove, replace, reconstruct, repair, move, keep, use, and/or operate a pipe line for the transmission of gas (hereinafter referred to as "the said pipe line") including therewith all such buried attachments, equipment and appliances for cathodic protection which the Grantee may deem necessary or convenient thereto, together with the right of ingress and egress at any and all times over and upon the said lands for its servants, agents, employees, those engaged in its business, contractors, and subcontractors on foot and/or with vehicles, supplies, machinery and equipment for all purposes necessary or incidental to the exercise and enjoyment of the rights, privileges and easement hereby granted. The Parties hereto mutually covenant and agree each with the other as follows: —

1. The rights, privileges and easement hereby granted shall continue in perpetuity or until the Grantee shall execute and deliver a surrender thereof.

2. The Grantee shall make to the Grantor (or the person or persons entitled thereto) due compensation for any physical damages resulting from the exercise of any of the rights herein granted, and, if the compensation is not agreed upon by the Grantee and the Grantor, it shall be determined by arbitration in the manner prescribed by the Expropriations Act, R.S.O. 1980, Chapter 148 or any Act passed in amendment thereof or substitution therefor. Any gates, fences and tile drains interfered with by the Grantee shall be restored by the Grantee at its expense as closely as reasonably practicable to the condition in which they existed immediately prior to such interference by the Grantee, and in the case of tile drains, such restoration shall be performed in accordance with good drainage practice.

3. The said pipe line (including attachments, equipment and appliances for cathodic protection but excluding valves, take-offs and fencing installed under Clause 8 hereof) shall be laid to such a depth that upon completion of installation it will not obstruct the natural surface run-off from the said lands nor ordinary cultivation of the said lands nor any tile drainage system existing in the said lands at the time of installation of the said pipe line nor any planned tile drainage system to be laid in the said lands in accordance with standard drainage practice, if the Grantee is given notice of such planned system prior to the installation of the said pipe line; provided that the Grantee may leave the said pipe line exposed in crossing a ditch, stream, gorge or similar object, where approval has been obtained from the Ontario Energy Board or other Provincial Board or authority having jurisdiction in the premises.

4. As soon as reasonably practicable after the construction of the said pipe line, the Grantee shall level the said lands and unless otherwise agreed to by the Grantor, shall remove all debris therefrom and in all respects restore the said lands to their former state so far as is practical, save and except for items in respect of which compensation is due under Clause 2 hereof.

5. In the event that the Grantee fails to comply with any of the requirements set out in Clause 2, 3, or 4 hereof within a reasonable time of the receipt of notice in writing from the Grantor setting forth the failure complained of, the Grantee shall compensate the Grantor (or the person or persons entitled thereto) for any damage, if any, necessarily resulting from such failure.

6. Except in case of emergency, the Grantee shall not enter upon any lands of the Grantor, other than the said lands, without the consent of the Grantor. In case of emergency the right of entry upon the Grantor's lands for ingress and egress to and from the said lands is hereby granted.

7. The Grantor shall have the right to fully use and enjoy the said lands except as may be necessary for any of the purposes hereby granted to the Grantee, provided that without the prior written consent of the Grantee, the Grantor shall not excavate, drill, install, erect or permit to be excavated, drilled, installed or erected in, on, over or through the said lands any pit, well, foundation, pavement, building or other structure or installation. Notwithstanding the foregoing, the Grantee upon request shall consent to the Grantor erecting or repairing fences, constructing or repairing his tile drains and domestic sewer pipes, water pipes and utility pipes and constructing or repairing his lanes, roads, driveways, pathways, and walks across, on and in the said lands or any portion or portions thereof, provided that before commencing any of the work referred to in this sentence the Grantor shall (a) give the Grantee at least five (5) clear days notice in writing pointing out the work desired so as to enable the Grantee to have a representative inspect the site and/or be present at any time or times during the performance of the work, (b) shall follow the instructions of such representative as to the performance of such work without damage to the said pipe line, (c) shall exercise a high degree of care in carrying out any such work and, (d) shall perform any such work in such a manner as not to endanger or damage the said pipe line.

8. The rights, privileges and easement herein granted shall include the right to install, keep, use, operate, service, maintain, repair, remove and/or replace in, on and above the said lands any valves and/or take-offs and to fence in such valves and/or take-offs and to keep same fenced in, but for this right the Grantee shall pay to the Grantor (or the person or persons entitled thereto) such additional compensation as may be agreed upon and in default of agreement as may be settled by arbitration under the provisions of The Ontario Energy Board Act, R.S.O. 1980, Chapter 332, or any Act passed in amendment thereof or substitution therefor. The Grantee shall keep down weeds on any lands removed from cultivation by reason of locating any valves and/or take-offs in the said lands.

9. Notwithstanding any rule of law or equity and even though the said pipe line and its appurtenances may become annexed or affixed to the realty, title thereto shall nevertheless remain in the Grantee.

10. Neither this Agreement nor anything herein contained nor anything done hereunder shall affect or prejudice the Grantee's rights to acquire the said lands or any other portion or portions of the Grantor's lands under the provisions of The Ontario Energy Board Act, R.S.O. 1980, Chapter 332, or any other laws, which rights the Grantee may exercise at its discretion in the event of the Grantor being unable or unwilling for any reason to perform this Agreement or give to the Grantee a clear and unencumbered title to the easement herein granted.

11. The Grantor covenants that he has the right to convey this easement notwithstanding any act on his part, that he will execute such further assurances of this easement as may be requisite and which the Grantee may at its expense prepare and that the Grantee, performing and observing the covenants and conditions on its part to be performed, shall have quiet possession and enjoyment of the rights, privileges and easement hereby granted. If it

shall appear that at the date hereof the Grantor is not the sole owner of the said lands, this Indenture shall nevertheless bind the Grantor to the full extent of his interest therein and shall also extend to any after-acquired interest, but all monies payable hereunder shall be paid to the Grantor only in the proportion that his interest in the said lands bears to the entire interest therein.

12. In the event that the Grantee fails to pay the purchase price as hereinbefore provided, the Grantor shall have the right to declare this easement cancelled after the expiration of 15 days from personal service upon the Secretary, Assistant Secretary or Manager, Lands Department of the Grantee at its Executive Head Office in Chatham, Ontario, (or at such other point in Ontario as the Grantee may from time to time specify by notice in writing to the Grantor) of notice in writing of such default, unless during such 15 day period the Grantee shall pay the said purchase price; upon failing to pay as aforesaid, the Grantee shall forthwith after the expiration of 15 days from the service of such notice execute and deliver to the Grantor at the expense of the Grantee, a valid and registerable release and discharge of this easement.

13. All payments under these presents may be made either in cash or by cheque of the Grantee and may be made to the Grantor (or person or persons entitled thereto) either personally or by mail. All notices and mail sent pursuant to these presents shall be addressed to the Grantor at ..... and to the Grantee at Union Gas Limited, 50 Keil Drive North, Chatham, Ontario, or to such other address in either case as the Grantor or the Grantee respectively may from time to time appoint in writing.

14. The rights, privileges and easement hereby granted are and shall be of the same force and effect as a covenant running with the land and this Indenture, including all the covenants and conditions herein contained, shall extend to, be binding upon and enure to the benefit of the heirs, executors, administrators, successors and assigns of the Parties hereto respectively; and, wherever the singular or masculine is used it shall, where necessary, be construed as if the plural, or feminine or neuter had been used, as the case may be.

And I, ... ,spouse of the Grantor, ... , ... ,hereby release all my interest in the within lands under the provisions of Part III of The Family Law Reform Act, 1978.

And, the Mortgagee and the Party of the Fifth Part covenant that the Grantee shall have quiet possession of the rights, privileges and easement hereby granted.

IN WITNESS WHEREOF the Parties hereto have executed and delivered this Indenture as of the day and year first above written.

SIGNED, SEALED and DELIVERED
in the presence of

.....
.....
.....
.....
.....
.....
.....

UNION GAS
LIMITED

APPROVED BY
Lands Dept.

.....
Vice-President

.....
Assistant Secretary

0488D - 1983/11

SCHEDULE "A"

ALL AND SINGULAR that certain parcel or tract of land and premises, situate, lying and being in the Township of Dawn, in the County of Lambton and Province of Ontario and being composed of part of Lot Number 25 in the 2nd Concession of the said Township, and being more particularly described as follows, that is to say: COMMENCING at the Northwest angle of said Lot Number 25; THENCE Southerly in the Westerly limit of said Lot, nine hundred feet (900') to a point marked by an iron bar planted; THENCE Easterly, parallel with the Northerly limit of said lot, one thousand, one hundred feet (1100') to a point marked by an iron bar planted; THENCE Northerly, parallel with the said Westerly limit of said lot, nine hundred feet (900') more or less to a point in the said Northerly limit of said lot, marked by an iron bar planted; THENCE Westerly along the said Northerly limit of said lot a distance of one thousand, one hundred feet (1100') more or less to the place of beginning.

SCHEDULE "B"

ALL AND SINGULAR that certain parcel or tract of land and premises

situate, lying and being in the .....

in the County of ..... and Province of Ontario, and

being composed of that part of Lot(s) .....

Concession .....

in the said ..... , shown within the

heavy outline and designated PART(S) .....

on a plan of survey prepared by .....

Ontario Land Surveyor, dated the ..... day of ..... ,

19 ..... .

PLAN DEPOSITED AS NO.

Province of Ontario

Transfer/Deed of Land

Form 1 — Land Registration Reform Act, 1984

SCHEDULE "B"

A

FOR OFFICE USE ONLY

(1) Registry ☐ Land Titles ☐

(2) Page 1 of pages

(3) Property Identifier(s) Block Property

Additional See Schedule ☐

(4) Consideration

Dollars $

(5) Description This is a: Property Division ☐ Property Consolidation ☐

New Property Identifiers

Additional See Schedule ☐

Executions

Additional See Schedule ☐

(6) This Document Contains (a) Redescription New Easement Plan/Sketch ☐ (b) Schedule for: Description ☐ Additional Parties ☐ Other ☐

(7) Interest/Estate Transferred Fee Simple

(8) Transferor(s) The transferor hereby transfers the land to the transferee and certifies that the transferor is at least eighteen years old and that

Name(s) Signature(s) Date of Signature Y M D

(9) Spouse(s) of Transferor(s) I hereby consent to this transaction

Name(s) Signature(s) Date of Signature Y M D

(10) Transferor(s) Address for Service

(11) Transferee(s) Date of Birth Y M D

(12) Transferee(s) Address for Service

Planning Act — OPTIONAL

(13) Transferor(s) The transferor verifies that to the best of the transferor's knowledge and belief, this transfer does not contravene section 49 of the Planning Act, 1983.

Date of Signature Y M D

Signature Signature

Solicitor for Transferor(s) I have explained the effect of section 49 of the Planning Act, 1983 to the transferor and I have made inquiries of the transferor to determine that this transfer does not contravene that section and based on the information supplied by the transferor, to the best of my knowledge and belief, this transfer does not contravene that section. I am an Ontario solicitor in good standing.

Date of Signature Y M D

Name and Address of Solicitor

Signature

Affix Statement by Solicitor for Transferee(s) here if necessary

(14) Solicitor for Transferee(s) I have investigated the title to this land and to abutting land where relevant and I am satisfied that the title records reveal no contravention as set out in subclause 49 (21a) (c) (ii) of the Planning Act, 1983 and that to the best of my knowledge and belief this transfer does not contravene section 49 of the Planning Act 1983. I act independently of the solicitor for the transferor(s) and I am an Ontario solicitor in good standing.

Name and Address of Solicitor

Date of Signature Y M D

Province of Ontario

Schedule

Form 6 — Land Registration Reform Act, 1984

S

Page _____

Additional Property Identifier(s) and/or Other Information

(7) INTEREST/ESTATE TRANSFERRED

SUBJECT to the following terms and conditions the right and easement to lay, construct, operate, maintain, inspect, alter, repair, replace, reconstruct and remove

and other works appurtenant thereto (hereinafter called "the works") in, over, along, across, upon and under those parts of the Transferor's land described in Box 5 (which lands are herein called the "strip"). Together with the right to the Transferee, its servants, agents and contractors with all necessary vehicles, supplies and equipment to enter onto the strip by the Transferor's access routes and pass and repass over the strip for the purpose of exercising or enjoying any of the rights herein granted.

The terms and conditions above mentioned which the Transferee covenants and agrees to observe and be bound by are as follows:

1. This indenture shall be effective from the day of

2. The Transferee shall pay to the Transferor for the rights hereby granted an annual rental payable in advance of $ for the first five-year period of this indenture, and for each successive five-year period such rental as may be determined by mutual agreement of the parties hereto at the commencement of each successive five-year period. In the event the parties hereto are unable to agree on the amount of such rental it shall be determined in accordance with the provisions of the Arbitrations Act, R.S.O. 1980. If the rental for each successive five-year period is determined after the commencement of the said five-year period either by mutual agreement or by an Arbitration award any rental then in arrears shall bear interest at the rate of prime plus one per cent per annum from the time such rental first became payable until the date of payment.

3. The Transferee shall, except in the case of emergency, before commencing any work authorized by this indenture or intended so to be, give to the Transferor forty-eight hours' previous written notice, and in cases of emergency such previous notice as is reasonably possible and during any construction work, repair and maintenance, the Transferor may have its representatives present, for whose time and necessary expenses the Transferee shall pay on presentation of invoices therefor.

4. The Transferee in connection with laying, constructing, operating, maintaining, inspecting, altering, repairing, replacing, reconstructing or removing the works or any part or parts of them shall not interefere in any way with or cause any damage to any works of the Transferor now or hereafter constructed on the strip or on adjacent Transferor lands, and shall comply with the Design Standards & Technical Specification of the Transferor, Canadian Standards Association Standard C-22.3, the "Safety Rules and Standards Protection Code" of the Transferor, the Occupational Health and Safety Act, R.S.O. 1980, and any amendments thereto and any regulations passed thereunder. Upon completion of any of this work the Transferee shall fill in all excavations, restore fences, and restore the surface of the ground by restoring all topsoil and ground cover disturbed by construction, and if necessary replacing destroyed or damaged trees and shrubs, and do necessary grading to ensure soil and slope stability, and remove all equipment, all to the satisfaction of the Transferor.

Province of Ontario

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Additional Property Identifier(s) and/or Other Information

5. The Transferee shall maintain the works in a good and substantial state of repair at all times.

6. The Transferee shall comply with all statutes, by-laws, rules, or regulations of every governmental or other competent authority relating in any manner to the works or the exercise of any of the rights or the easement herein granted.

7. The locations of the works shall be indicated by permanent markers of size and design approved by the Transferor, which markers shall be placed and thereafter maintained by the Transferee at the Transferee's own expense in positions designated by the Transferor, and the Transferee shall reimburse the Transferor for all costs incurred by the Transferor in the installation of aerial warning devices or in taking other measures to comply with any rules and regulations of any governmental authority which would not have been incurred but for the rights and easement herein granted.

8. If at any time or times any of the rights or the easement herein granted to the Transferee should in the opinion of the Transferor directly or indirectly increase the cost or expense of any of the present works of the Transferor or works required by the Transferor in the future, including the cost to the Transferor of acquiring any additonal lands or easements because of the existence of this easement, the increase in cost or expense reasonably attributable thereto shall be borne as follows:

(a) if the increase occurs during the initial five-year period of this indenture, the Transferor shall pay the full cost;

(b) if the increase occurs during the second five-year period of this indenture, the cost shall be divided equally between the Transferee and the Transferor;

(c) if the increase occurs after the expiration of the initial ten-year period of this indenture, the Transferee shall pay the full cost.

9. Notwithstanding any of the rights or the easement herein granted, the Transferor may use the strip for any and all purposes of its undertaking including landscaping and installation of berms; and if at any time or times, in the opinion of the Transferor, the presence or use of the works interferes with the Transferor's use or intended use of the strip, the Transferor may require the Transferee to relocate the works or any part or parts of them in another location or locations on the strip or on adjacent lands of the Transferor within six months from the time of such request, and all the terms and conditions of this indenture shall then apply to the works in their new location or locations and the cost of such relocation shall be borne as follows:

(a) if the request is made during the initial five-year period of this indenture, the Transferor shall pay the full cost;

(b) if the request is made during the second five-year period of this indenture, the Transferor shall pay fifty per cent of the cost of labour and the Transferee shall pay the balance;

(c) if the request is made after the expiration of the initial ten-year period of this indenture, the Transferee shall pay the full cost;

Provided that in the event it is impracticable to relocate the works or any part or parts of them as aforesaid, the Transferee shall pay to the Transferor, in accordance with the provisions of clause 8 hereof, any increase in cost or expense incurred by the Transferor caused by the works remaining in the original location.

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10. The Transferee shall, before making any installations or take any measures for preventing corrosion of the works give to the Transferor full written details of such proposed installations and measures and obtain the Transferor's written approval of same, insofar as such installations or measures will or are likely to affect the Transferor's works or operations; provided that the Transferor's approval shall not be unreasonably withheld, and the Transferee shall indemnify the Transferor against any loss or expense resulting from or incidental to such installations or measures and provided further that such approval shall not be construed as waiving any rights the Transferor may have to claim against the Transferee for damage from corrosion suffered by the Transferor as a result of the presence of the Transferee's works.

11. The rights and easement granted herein shall be subject to all leases, licences, or any rights of use or occupation existing at the date of this indenture, and the Transferor may from time to time renew or extend these or make new ones, so long as they do not interfere unreasonably with the rights and easement herein granted.

12. The Transferee shall assume all liability and obligation for any and all loss, damage or injury to property or persons (including loss of life) which would not have happened but for this indenture or anything done or maintained by the Transferee hereunder or intended so to be, and the Transferee shall at all times indemnify and save harmless the Transferor from and against all such loss, damage, or injury and all actions, suits, proceedings, costs, charges, damages, expenses, claims or demands arising therefrom or connected therewith; provided that the Transferee shall not be liable under this paragraph to the extent to which such loss, damage, or injury is caused or contributed to by the neglect of the Transferor, its servants or agents.

13. The Transferee shall assume liability for and pay as they become due all taxes, rates, and assessments of every kind whatever, or any amounts in lieu thereof, that may be imposed by reason of the works or by reason of any of the rights or the easement granted herein and shall at all times indemnify the Transferor from and against all such taxes, rates, and assessments, or amounts in lieu thereof.

14. Notwitstanding anything herein contained to the contrary the works and all other property of the Transferee at any time on the strip or on adjacent Transferor's land shall be at the sole risk of the Transferee and the Transferor shall not be liable for any loss or damage thereto however occurring and the Transferee releases the Transferor from all claims and demands in respect of any such loss or damage, except and to the extent to which such loss or damage is caused or contributed to by the neglect or default of the Transferor, its servants or agents.

15. No right, title, or interest in or to the strip or any part or parts of it or any adjacent land of the Transferor shall be acquired by the Transferee except as expressly set out in and subject to all the terms and conditions of this indenture.

16. The Transferee shall not transfer, assign, or sublet this indenture or any rights or easement conferred by it without the previous written consent of the Transferor, which consent shall not be unreasonably withheld.

17. The Transferee, may, with the approval of the Transferor, install additional pipe lines and other works appurtenant thereto from time to time within the strip without any increase in rental except payment for temporary working rights, and subject in all other respects to the terms and conditions herein contained.

DYE & DURHAM CO LIMITED
Form No. 700

Province of Ontario

Schedule

Form 6 — Land Registration Reform Act, 1984

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Additional Property Identifier(s) and/or Other Information

18. If the Transferee should at any time fail to carry out any of the terms and conditions herein contained, the Transferor may send by registered mail to the Transferee written notice specifying such failure, and if the failure is not remedied within three months of the notice being mailed, the Transferor may terminate and cancel this indenture in whole or as to any particular part or parts of the works and all the rights conferred by this indenture on the Transferee in connection therewith.

19. Upon termination of this indenture as herein set out or if at any time the Transferee should abandon the works the Transferee shall remove the works from the strip at its sole cost and expense within six months of their abandonment and restore the strip to the satisfaction of the Transferor; except that in lieu of removal the Transferor may permit the Transferee to abandon the works provided that in so doing the Transferee complies with all applicable statutes, by-laws, rules, regulations and orders of competent governmental authority relating thereto. The Transferee shall execute such instrument or instruments in confirmation of such termination as the Transferor may reasonably request in writing.

20. This indenture shall run with the strip and shall enure to the benefit of and be binding upon the Transferor and the Transferee and except as otherwise stipulated herein, their respective successors and assigns.

TEMPORARY LAND USE AGREEMENT

_____ 1988.

In consideration of a payment of _____

_____($)_____/100 DOLLARS

the undersigned, Owner, Tenant, Mortgagee, (as the case may be) of part of Lot __, Concession __ , in the Township of _____ , in the County of Lambton, hereby grant to Union Gas Limited (the "Company"), its servants, agents, employees, contractors and sub-contractors and those engaged in its and their business, the right on foot and/or with vehicles, supplies, machinery and equipment at any time and from time to time during the term of this Agreement to enter upon, use and occupy a parcel of land (the "said lands") more particularly shown in heavy outline and designated PART __ on the copy of the drawing hereunto attached and marked Schedule "A", the said lands being immediately adjacent to and abutting the lands (the "said easement") more particularly shown as PART __ on the copy of the drawing hereunto attached and marked Schedule "A", for any purpose incidental to, or that the Company may require in conjunction with, the construction by or on behalf of the Company of a proposed NPS 24 (610 mm) diameter gas transmission pipeline, and appurtenances on the said easement including, without limiting the generality of the foregoing, the right to make temporary openings in any fence along or across the said lands and to remove any other object therein or thereon interfering with the free and full enjoyment of the right hereby granted and further including the right of surveying and placing, storing, levelling and removing earth, dirt, fill stone, debris of all kinds, pipe, supplies, equipment, vehicles and machinery and of movement of vehicles, machinery and equipment of all kinds. This Agreement is granted upon the following understandings:

(a) The rights hereby granted terminate on the 31st day of December, 1990 or on the third anniversary of the execution of this Agreement, whichever shall first occur;

(b) The Company shall make to the person entitled thereto due compensation for any physical damages resulting from the exercise of the right hereby granted and if the compensation is not agreed upon it shall be determined in the manner prescribed by section 50 of The Ontario Energy Board Act, R.S.O. 1980, Chapter 332, as amended or any Act passed in amendment thereof or substitution therefor;

(c) As soon as reasonably practical after the construction of the aforesaid pipe line, the Company at its own expense will level the said lands, remove all debris therefrom and in all respects, restore the said lands to their former state so far as is reasonably practical, save and except for items in respect of which compensation is due under paragraph (b) and the Company will also restore any gates and fences interfered with around the said lands as closely as reasonably practical to the condition in which they existed immediately prior to such interference by the Company.

The Company agrees to perform the covenants on its part herein contained.

DATED this _____ day of _____ 1988.

UNION GAS LIMITED

_____
Vice-President

_____
Assistant Secretary

WITNESS:-

_____
Owner -

UNION GAS
498-1982/09

FULL AND FINAL RELEASE

Job No. _____ Easement No. _____

In consideration of the payment of _____

_____ Dollars.

(to be paid within fourteen days of the date hereof by cheque or cash) by Union Gas Limited,

I, _____

owner (tenant) of the following lands, namely _____

_____

In the Township of _____, in the County of _____ do for myself, my heirs, executors, administrators and assigns and for anyone claiming by, through or under me, forever release and discharge Union Gas Limited, its successors and assigns, its servants, agents and contractors, from any and all damages (including if the said Company has exercised a power of expropriation with respect to my said land, any damages resulting from the exercise of such power), loss, injury, claim or cause of action arising from, due to or caused by or during or as a result of the construction and installation on and in my said lands by the said Company and/or its contractors, and/or agents of a _____ inch natural gas pipeline now located therein. It is understood and agreed that this release and payment while full and final with respect to the matters above set forth, do not include payment for the purchase price of or compensation for the right, liberty and easement acquired with respect to my said lands by the said Company, for which payment has been (is to be) made separately.

Dated the _____ day of _____, 19 _____

Witness:

_____
Owner (tenant)

_____
Address

AUTHORITY AND DIRECTION TO PAY

I, _____

of the _____ of _____ in the County of _____, owner of the lands above described, consent to the settlement release above set forth and authorized and direct payment to the tenant.

Dated the _____ day of _____, 19____

Witness:

_____

ST. CLAIR-BICKFORD LINE

CONSTRUCTION PROCEDURES

1. Generally, the construction of the pipeline is divided amongst several crews; each crew performing a separate function as it travels along the pipeline and each crew being supervised by a Company Inspector.

2. Prior to the entry of any of the Contractor's work forces on the property, one of the Company Inspectors will contact each landowner where possible to discuss the problems that could arise from the construction of the line. The Inspector asks questions regarding existing and proposed field tile systems on the property; establishes if the landowner has livestock that must be restrained during the construction; whether access is required across the trench; what width of topsoil is required to be stripped for the construction; what depth of cover is required on the pipe; where excess subsoil is required to be removed and generally attempts to answer any questions a landowner may have regarding the proposed construction and provide an indication of the proposed construction schedule.

3. The first crew to enter the property is the clearing crew whose duties are to brace and cut any fence crossing the easement and install any required temporary gates. This crew would clear sufficient brush, trees and crops on the easement to permit construction of the pipeline installation.

4. The grading crew strips a certain width of topsoil by bulldozer and grader so that it would not be mixed with the subsoil later removed from the trench. Topsoil stripping have been recommended in the Environment Assessment. There is an effective separation of the topsoil from the trench subsoil thereby preventing the mixing of subsoil and topsoil.

5. Pipe is then strung out on wooden skids on the working side of the easement adjacent to the proposed trench area. The Contractor, by use of a trenching machine or backhoe will excavate a trench approximately 1.0 metre in width for the NPS 24 pipeline, depending on ground conditions at the time. It is at this time that plugs, accesses, laneways and driveways are left in the trench where requested by the landowner. All tile that are cut during trench excavation are flagged at the trench and

easement limits to signify to the tile repair crew that a repair is required. All tile are measured and recorded as to size, depth, type and quality. This information is kept on file with the Company. If a repair is necessary in the future, Union has an accurate method of locating the tile. All utilities that will be crossed or paralleled by the pipeline will be located prior to trenching.

6. Concurrent to trenching, the Contractor may have a boring crew install the pipe at road and railway crossings. This method involves a larger excavation adjacent to the proposed crossing in order to allow the boring equipment, augers and bore pipe or casing to be operated at the proposed elevation. Augers are used to bore beneath the proposed crossing through a bore pipe thereby not disrupting the surface features at the crossing site. When the bore pipe has been installed a satisfactory distance, the augers are removed, the carrier pipe is attached to the bore pipe and the bore pipe is removed pulling the carrier pipe into place. This method may be utilized to install the pipeline under very sensitive streams if ground conditions are satisfactory. Union and its Contractor will assess the

feasibility of boring a particular stream on site at the time of construction. If, due to the instability of local ground conditions, heavy aggregate material or water levels, a hazard is indicated by the use of this method to both the men and the equipment necessary for the installation, the method as described in the environmental report will be followed. This determination will be based on the cumulative experience of the Contractor and Union personnel.

7. Next the pipe is welded, coated, lowered and tied into one continuous length. As sections of pipe are lowered into the trench, subsoil is backfilled by a morman board, dozer or backhoe. The tie-in crew is responsible for the installation of pipe across accesses, laneways, plugs and driveways to minimize the length of time that these accesses are out of service to the landowner. The tie-in crew is also responsible for the pipeline installation at most stream crossings.

8. After the trench is backfilled, the tile is repaired. Tile repairs are made by excavating back into the bank along the tile run a minimum distance of 1.2 metres and placing two concrete blocks as foundation pads for a

steel support pipe, which would be either slotted steel pipe or perforated corrugated steel pipe. The support pipe will be cut to the suitable length and loaded with tile of a similar size and type as the original tile unless otherwise specified by the landowner or municipality. A Union Inspector supervises the installation and acts as a liaison between the Contractor and the landowner or municipality. The Inspector checks the reports to ensure that all tile cut during trenching are suitably repaired.

9. Prior to actual setting of the support pipe, the existing tile run is checked to make certain whether it is clear and undamaged within the limits of the easement. If it is not, further tile are excavated and the damaged tile are replaced to the edge of the easement. The area is then backfilled to the degree necessary to hold the tile and secure the support pipe. The landowner or municipal representative is asked to inspect each tile repair prior to backfill completion. Union undertakes that it is responsible for the tile repair resulting from construction and will stand good for the tile repairs at any future date after construction of the pipeline. Union has retained the

services of a tile consultant to determine the necessity of repairing individual tile systems by the installation of header tile. Where recommended by the consultant, a tiling contractor would be retained to install these header tile after the final clean-up on the easement. The reason for the delay in these installations is the time required for proper design, plan preparation and tendering when the only absolute information regarding the existing tile system is obtained during trench excavation.

10. The clean-up crew is the final crew on the property and is responsible for the general clean-up of the easement. It performs the ripping or chisel ploughing, stone picking down to fist size, topsoil respreading, fence repair, debris pick-up, replacing sod in landscaped areas and reseeding in sensitive areas. Allowances are made for trench settlement and compaction and if requested by the landowner, the excess subsoil is removed to an acceptable location on the landowner's property or removed from the property.

11. When the clean-up is completed, the landowner is asked by a Company representative to sign a clean-up

acknowledgement form if satisfied with the clean-up. This form, when signed, releases the Contractor, allowing him to be paid for the clean-up on the property. This form in no way releases the Company from its obligation for tile repairs and/or compensation for damages.

12. The general construction specifications instruct the Contractor to erect safety barricades, fences, signs, flashers or use flagmen around any excavation across or along a road allowance which will be left overnight or for an extended period of time.

13. Union will provide its own inspection staff to enforce Union's construction specifications, the Ontario Regulation No. 627/87 and the Ontario Energy Board Guidelines.

PROPOSED 1988 CONSTRUCTION SCHEDULE

ST. CLAIR-BICKFORD LINE

Activity	July				August				September				October				November			
	3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27
Clearing																						
Stringing																						
Ditching																						
Welding																						
Backfill																						
Tie-ins																						
Testing																						
Clean-up & Tile Repairs																						

ATTACHMENT 2

NATIONAL ENERGY BOARD

MEMORANDUM

Our File: 130-15

Date: 10 April 1986

TO: Jake Abes
Construction and
Operations Group

FROM: Rick Seaman
Right-of-Way Group

SUBJECT:

As discussed, please find attached a draft of the section of the Pipeline Safety Review Paper dealing with approvals for crossings.

Editorial changes will probably be required to ensure compatibility of this section with the set up and style of the final paper. We would appreciate the opportunity to review any deletions or additions of intent.

Rick Seaman

R.C. Seaman

APPROVED:

P.A. Carr
Director,
Environment and
Right-of-Way Branch

cc: D. Snelgrove

RCS:dv

1. The Board's Safety Mandate Regarding Third Party Crossings

The Board has the mandate to approve, in advance, third party crossings and general excavation within the right-of-way of pipelines under its jurisdiction, and impose proper terms and conditions on such approvals. The Board may also establish the basis for exemption to this approval requirement. This is one of the few areas where the general public is directly accountable to the Board.

2. Current Practice for Meeting This Mandate

Board staff review the design of the utility, highway, etc., affecting a NEB regulated pipeline, in conjunction with the pipeline company, to ensure accepted standards are met. Areas such as clearance between underground structures, depth of cover over the pipeline, suitability of design factors, etc., are compared to CSA Standards and the existing Oil and Gas Pipeline Regulations. Concerns raised by staff or the company relating to construction practice, e.g. use of explosives, need for hand excavation, etc., are resolved through undertakings or agreements between the pipeline company and the crossor. Where sufficient cover or clearances are not feasible due to design limitations, special protective measures such as concrete slabs or neoprene pads are used in the design at the request of staff or the pipeline company. Staff conduct site visits, in exceptional situations (about once or twice a year), where the pipeline may be subject to long term third party activity, e.g. highway construction. Observed are: the level of inspection by the company, the general awareness of the contractor and the level of communication between all parties, as well as general site control during that specific day.

Crossings lacking prior Board approval come to staff attention through the pipeline company or in some situations through subsequent contact with the crossor. Staff forward a questionnaire to the crossor which establishes the cause for the unauthorized crossing, method of excavation, presence of a pipeline company representative, etc. The crossor also forwards as-built drawings where applicable. This information and the comments of the pipeline company form the basis for deciding if the situation is safe. In the majority of unauthorized crossings the pipeline company was on-site and no safety-risk occurred.

Factors Which May Affect Current Practices

The current practice focuses on pre-planning, whereas much third-party damage is the result of inadequate control of field activities such as blasting, exposing the pipe, construction activity around the exposed pipe, etc.

Current practice places responsibility on the third party, but not on the pipeline company. Although, for example, the Board may condition the approval so that no excavation be done without a pipeline company inspector present, the process does not obligate the company to supply an inspector.

The Board's authority is limited to the right-of-way. In situations where there is no right-of-way, eg. where the pipe is allowed on road allowances through municipal permit, our control starts at the edge of the pipe. In areas where the pipe is constructed near the limit of the right-of-way or where the right-of-way is narrow, our control starts a short distance from the pipe (2 to 3 metres). This control area may be insufficient to prevent hazards from deep excavations, blasting, large excavation equipment, poor site control, etc.

Without the full cooperation of the pipeline company, the utility, municipality, builder or landowner can not become aware of the requirements of the Board. An applicant can not obtain sufficient information to design his facilities to accommodate the pipeline, or even obtain sufficient technical information to make a meaningful submission to the Board without company assistance. Similarly, Board staff can not be aware of special field conditions or even unauthorized activity without company cooperation.

The investigation of unauthorized crossings is dependant on the cooperation of the crossor. Failure or refusal to reply to the Board's written enquiries can result in significant delays in the resolution of the matter.

Changes for Consideration

Consideration should be given to modifying the Act to permit control of all activities within a prescribed distance from the pipe. ERCB (Alberta) has established a 30 metre offset as a controlled area.

Furthermore if appropriate punitive measures could be taken by the Board, a contractor could be discouraged from ignoring his field responsibilities for reasons of economic expedience. This also may require a revision to the Act.

Also the Act could be changed to permit the Board to order a crossor to remove or alter an unauthorized crossing in order to render it safe, or to conduct whatever tests may be necessary to establish whether unsafe conditions exist.

Greater emphasis should be placed on field activity. The responsibilities of the crossor and of the pipeline company, in the field, should be defined in an updated edition of General Order 2.

The revision of General Order 2 should address the responsibilities of the company regarding public awareness of the pipeline and of the procedures required to construct across or near it. Board staff should participate, support and, where appropriate, encourage such public awareness programs.

ATTACHMENT 3

April 26, 2001

Douglas I. D. Mclean Director
Litigation, Arbitration, A.D.R.
TransCanada Pipelines Limited

Fax No.
403-267-6251

Dear Sir:

At 10.00 am. Wed. April 25th I called TransCanada to clarify the words on their 2001, month of May, calendar which says and I Quote "you'll need a permit to cross our pipelines with Heavy Equipment." Paul Wheglan phoned me back twice between 11.00am. and 12.30pm. of the same day to discuss the situation.

Received Time Apr.26. 1:45PM

He said <u>not</u> to cross the pipelines with my farm equipment until the people in Calgary faxed me the meaning of Heavy equipment.

Then Bob Pytler phoned twice between 1 and 2 o clock of the same day and said I could cross the pipelines with my farm equipment.

I am a law abiding citizen and I must know in writing what <u>Heavy Equipment</u> means. It is now 2.30 p.m. on a sunny day. I should be working on the farm instead

Received Time Apr.26. 1:45PM

of writing this letter. I can not waste my time listening to contradicting advice from your employees.

My equipment is still waiting to go to the field. I know fines are huge for breaking the rules. I must have a written meaning of the words Heavy Equipment as soon as possible. My Fax No. is 519-677-5299.

yours truly

Rick Kraayenbrink.

Received Time Apr.26. 1:45PM

c.c. Ali Bair 403-290-5957
Manager Land
TransCanada

cc Judith A. Snider 403-292-5503
Vice-Chairman
National Energy Board.

c.c. Michel L Montha 403-292-5503
Secretary of
N.E.B.

c.c. Caroline Di Cocco 519-337-3246
M.P.P.

c.c. Dave Core
President of 519-845-0568
Caplo

Received Time Apr.26. 1:45PM

ATTACHMENT 4

TransCanada Tower
450 1st Street SW
Calgary AB T2P 5H1

Douglas I. D. McLean
Director,
Litigation, Arbitration & ADR

tel 403-920-2704
fax 403-920-2361
email doug_mclean@transcanada.com

Legal Assistant: Samantha Grand
tel 403-920-2584
fax 403-920-2361

VIA Facsimile 519-677-5299

April 26, 2001

Mr. Rick Kraagenbrink
Address unknown at this time

Dear Sir:

Re: Your facsimile of this afternoon

I received your facsimile this afternoon at approximately 4:00 pm MDT. It was forwarded to me by the Corporate Law group as my office had moved to a new building and no longer uses the fax number you sent your letter to.

I am not sure why you sent your letter to me. I can only assume that you obtained my name from CAPLA related correspondence or from someone familiar with it. I will, in any event, respond to your letter and do my best to ensure that your concern is addressed quickly.

I am not in a position to give you a definition of "heavy equipment". "Heavy equipment" is not specifically used or defined in either the National Energy Board Act or in the Crossing Regulations. The terms "heavy equipment" or "heavy vehicles" was used, but not defined, in the National Energy Board's Landowner Guide – Living and working Near Pipelines

Section 112(2) refers to **Use of vehicles and mobile equipment** and provides as follows:

> ..... no person shall operate a vehicle or mobile equipment across a pipeline unless leave is first obtained from the company or the vehicle or mobile equipment is operated within the traveled portion of a highway or public road.

TransCanada's reference in its calendar to the need for a permit to cross our pipelines with heavy equipment relates to the requirements of section 112(2).

TransCanada's concern in considering any request for leave to cross its pipeline is safety: the safety of the public in the vicinity, the safety of those proposing the crossing, the safety of any TransCanada employees who might be involved and the safety of the pipeline itself.

TransCanada generally has no problem with crossings of its pipelines by ordinary farm equipment provided that the equipment disturbs less than 3 tenths of a meter of ground below the surface and does not reduce the cover over the pipe. However, there may be situations such as swampy land or extremely wet conditions in which even regular farm equipment might disturb more than 3 tenths of a meter of ground below the surface.

In order for TransCanada to be able to properly assess and respond to a request to operate a vehicle or mobile equipment across its pipeline, TransCanada needs to know what type and some details about the vehicle or mobile equipment that is being proposed to cross the pipeline and the location where the crossing is proposed.

While you letter does not refer to it, I understand that you may have given different descriptions of the equipment you proposed to cross the pipeline with. In one instance, I understand you may have indicated you proposed to cross the pipeline with a piece of equipment weighing 60,000 pounds on one axle. In another instance, I understand you may have indicated you just wanted to spray with farm equipment.

The two different descriptions of what equipment was to be involved in the crossing of our pipeline would readily explain why you may have received different responses about whether you could cross the pipeline or not. Equipment of 60,000 pounds on a single axle could quite readily disturb more than 3 tenths of a meter of ground below the surface, this would especially be the case if the ground were wet in the proposed area of the crossing. Regular farm equipment used for spraying on the other hand would not in most instances be a problem.

Please provide me with a description of exactly what equipment you propose to use to cross our pipeline. Please include in your description the brand, model and type equipment together with any specific details such as weight of equipment and any load, number of axles, tire size, etc. that would enable TransCanada to determine the weight distribution of the equipment. Also please indicate the location where you propose to

cross our pipeline. Once I have this information I will pass it on to those responsible for making the determination of whether leave to cross the pipeline will be given.

My fax number is 403-920-2361.

Yours truly,

Douglas I. D. McLean
Director – Litigation, Arbitration & ADR

ATTACHMENT 5

TransCanada Tower
450 1st Street SW
Calgary AB T2P 5H1

Douglas I. D. McLean
Director,
Litigation, Arbitration and A.D.R

tel 403 920 2704
fax 403 920 2361

Dear Mr McLean

I received your fax last night at 9.00 pm. To answer your first question as to where I obtained your name, your name is on the correspondence regarding the

integrity dig on Mac Campbell, Mark Lumley and Rob Morsh's Land. By the way, this matter is over a year old and is still not resolved.

Dealing with the matter at hand, I am no expert when it comes to specific details of equipment and therefore am not qualified to give you this information.

My property is located on Lot 26 Con 2 Moore township County of Lambton

I can not believe what is going on I live in a democratic society and out of the blue I have additional restriction put on my land with the pipeline and can not carry on normal farm practices. I am not sure who is responsible for these restriction, the N.E.B., the Goverment, TransCanada or all three together. This matter must be resolved not just for myself but all landowners

across Canada.

My equipment is still waiting to go to the field. Time is of the essence.

yours truly

Rick Kraayenbrink

Rick Kraayenbrink
R R 1
Port Lambton, Ont
116 West Lambton Line
N0P 2B0
tel = 519-677-5333
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ATTACHMENT 6

TransCanada

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April 27, 2001

Mr. Rick Kraayenbrink
Address unknown at this time

Dear Sir:

Re: Your request for permission to cross the TransCanada pipeline

I received your further facsimile when I returned from a meeting at approximately noon MDT. I had checked prior to leaving my office at 8:45 am MDT and no fax had arrived by then.

Your recent fax states "I am no expert when it comes to specific details of equipment and therefore am not qualified to give you this information". Whether you are an expert or not, I would have thought that as a farmer you could have at least told me the kind of equipment and the make and model of it.

Despite the both of your faxes indicating that your equipment is still waiting to go to the field, you have not provided me with any information about what kind of equipment it is that you propose to cross our pipeline with, what sort of farming or other operation you propose to conduct in the process of crossing the pipeline, or specifically where you propose to cross the pipeline. **Without this kind of information TransCanada can not make a determination of whether to grant you leave to cross the pipeline.**

If you are not prepared to provide the information we have requested then TransCanada will have to arrange to have someone come and look at the equipment. That may delay your getting the response to your request for permission to cross our pipeline. Until you either provide me with the information requested or our employee inspect the equipment, all that I can do is to reaffirm the position already communicated to you by TransCanada employees based upon the description of equipment you apparently gave to them in you conversations yesterday.

I understand that you indicated you wished to cross our pipeline with a "grain buggy" that might be carrying 1000 bushels (approx 60,000 pounds) of grain together with the weight of the equipment which only has one axle under it. Apparently, the unit has large balloon tires. **As already indicated to you by Paul Whalen, TransCanada will not permit you to cross our pipeline with this equipment until we have either been provided with sufficient detail or have had a look at it and determined that it can safely cross the pipeline.**

I understand that you did not actually intend to and do not need to cross the pipeline with that equipment for some time until it is necessary to harvest the wheat that was sowed last fall. I am sure that with your co-operation TransCanada will be able to determine in a timely fashion whether that equipment can safely cross our pipeline or not.

You apparently indicated to Bob Tytler, that what you really wanted to do right away was to spray the wheat. **As was already indicated to you by Bob Tytler yesterday, TransCanada will permit you to cross our pipeline with the farm equipment normally used for spraying.** In giving this permission, TransCanada assumes the sort of equipment you would use for spraying would be a farm tractor and a spraying unit that would cover a wide area. **I can reaffirm to you that TransCanada will permit you to cross our pipeline with a tractor and spraying equipment provided that in crossing our pipeline with that equipment you disturb less than 3 tenths of a meter of ground below the surface and does not reduce the cover over the pipe.**

Bob Tytler's response to you Wednesday, April 25th was intended to provide you in a very timely way with the necessary permission to cross our pipeline with your tractor and spraying unit. To the extent that you may have felt there was some confusion as a consequence of you inquiring about two different types of equipment, I trust that this letter confirms TransCanada's positions on the equipment you described to TransCanada employees.

If the equipment you propose to cross our pipeline with is different than what I have referred to, then you will have to either provide a satisfactory description of it or let our people examine it, before we can determine whether permission can granted or not.

Bob Tytler will contact you next week to arrange to examine the "grain buggy" and the location you propose to cross our pipeline with it.

Mr. Kraayenbrink, as Director of Litigation I do not generally deal with day-to-day requests for permission to

cross the pipeline. Those requests are generally handled through our regional operations representative in the field such as Paul Whalen. In future it would probably be best if you directed your requests to Mr. Whalen.

Yours truly,

Douglas I. D. McLean
Director – Litigation, Arbitration & ADR

Received Time Apr.27. 4:24PM