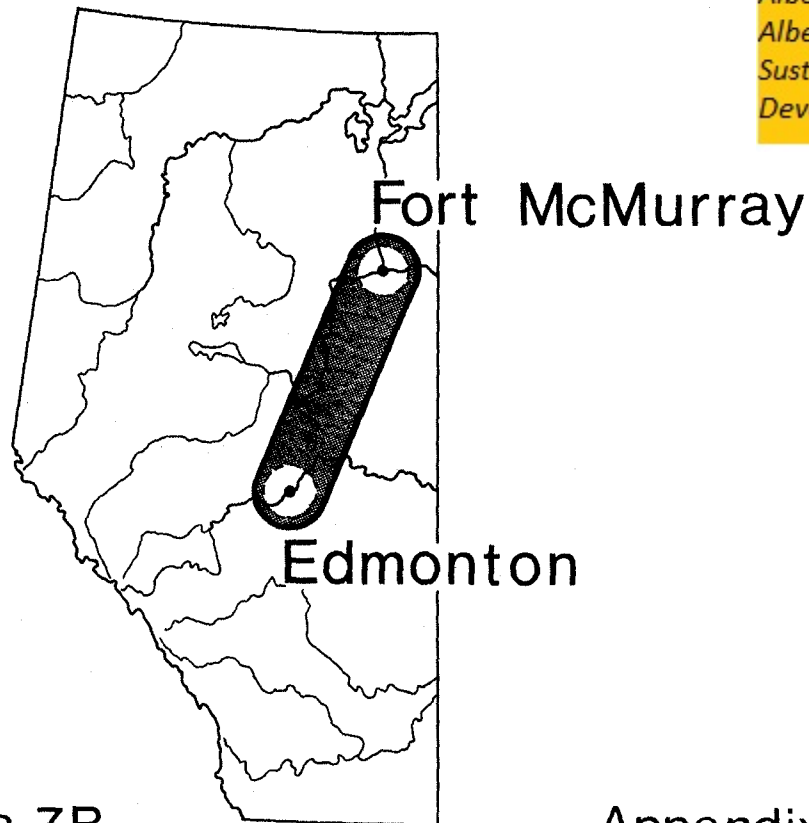


Athabasca Tar Sands Corridor Study

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Volume 7B

Appendix

Public Meetings — Phase II

prepared for

by

Alberta
ENVIRONMENT

stewart weir stewart
watson & heinrichs

february, 1974

edmonton, alberta

ATHABASCA TAR SANDS

CORRIDOR STUDY

VOLUME 7B - APPENDIX

PUBLIC MEETINGS - PHASE II

Prepared for:

Alberta
Environment
The Honorable
William Yurko

February, 1974

By:

Stewart Weir Stewart
Watson & Heinrichs

Edmonton, Alberta

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VOLUME 7B APPENDIX
PUBLIC MEETINGS - PHASE II

INTRODUCTION - BASIS AND OBJECTIVES OF STUDY

Early in 1973, Alberta Environment commissioned the Athabasca Tar Sands, Corridor Study with the objectives of determining whether or not pipelines, powerlines, highways and railways should be combined in a single right-of-way where it is feasible to do so and to consider locations of such a corridor or corridors.

A Consultant Group was organized under Project Manager Charles H. Weir, Stewart, Weir, Stewart, Watson & Heinrichs, comprised of Bolter Parish Trimble Ltd. (Messrs. Trimble and Seagel), K.C. Mackenzie Associates Ltd. (Mr. Mackenzie), Swist and Co. (Mr. Swist), T.W. Peters and Associates (Mr. Peters), Allied Land Services (Mr. Colborne), and Siemens Realty & Appraisal Service Ltd. (Mr. Hurlburt).

To accomplish the objectives of the Study it is necessary to estimate the requirements for the various facilities, investigate their compatibility with one another, determine the location, capacity and environmental status of existing facilities and examine a variety of routes for new facilities having in mind environmental effects, existing land usages and technical suitability.

The consultant group members carried out preliminary data gathering and organizing of relevant material coupled with detailed examinations on the ground with respect to existing facilities and a variety of other locations preparatory to discussions in the fall of 1973 with technical, landowner and community groups.

PUBLIC MEETINGS, BACKGROUND

The philosophy of the Study as envisaged at the outset, is to obtain the maximum useful input from all those who might be affected in any way. The basis is complete disclosure by the Consultant Group of all relevant material and ideas.

PUBLIC MEETING SCHEDULE, PHASE II

The technical group meeting, industry seminar, and study group meeting were held to obtain pertinent information from these people to complete specific parts of the study. These public meetings were held as follows:

November 22 - Calgary Technical Group Meeting

December 18 - Calgary Industry Seminar

January 21-22 - Edmonton Study Group Meeting

PUBLIC MEETINGS, FORMAT

The members of the Consultant Group attended the meetings to introduce the Corridor idea and lead the discussions. Not all of them were able to attend at each of the meetings due to specific commitments in their regular work.

The meetings were taped in each case with pertinent segments of the tape being reported or excerpted for the purposes of this report. While some of the material is rather lengthy, it is considered necessary in order properly to present the interchange of opinion and ideas.

These public meetings were held to obtain ideas and input from the total community as well as being informational in nature. Thus, the important factor is the free flow of ideas and information rather than identifying or obtaining commitments from the participants; comments from the Consultant Group are identified with a "C" and those from the participants with a "P". In each of the meetings there was a chairman from the Consultant Group. Where these are identified a further "C" is used, i.e. "CC" for the chairman of the meeting.

These Public Meetings were primarily concerned with compatibility of facilities, their protection, environmental effects, economics and management of the corridor and the facilities within it from time to time.

The following is excerpted from tapes - verbatim where suitable.

TECHNICAL GROUP MEETING

NOVEMBER 22, 1973

This meeting was held in Calgary. It was organized and conducted by Mr. C.H. Weir, the Project Manager of the Athabasca Tar Sands Corridor Study.

The purpose of the meeting was to discuss the feasibility of placing oil and gas pipelines in a common right-of-way with high AC power transmission lines.

The names of the engineers present and the organizations to which they belong are given below:

The Alberta Energy Conservation Board	R. Allman
Alberta Government Dept. of the Environment ...	C. Drabble C.J. Goodman
Home Oil Company	R. Verner
Northwestern Utilities Ltd.	E. Provost
Alberta Gas Trunk Line Company	F. Haggdorn
Calgary Power Company	R.F. Bell R.E. Keyes
Alberta Power Company	D.A. Peterson
The Corridor Study Group	C.H.Weir (chairman) W.L. Bigg

It was agreed that it could be assumed that it was feasible to have a corridor containing oil and gas pipelines together with high voltage AC power transmission lines. This assumption was valid on the ground that there were examples in the province where

oil lines and powerlines were adjacent to each other for many miles. Reference was made to the power and oil lines servicing the Swan Hills area as a working example of such an arrangement.

It was also noted that the results of the farm questionnaire and the public meetings which were held in suburban and rural areas through which pipelines and powerlines already passed and where the corridor concept was presented, indicated that the corridor concept was both acceptable and preferred.

From an environmental point of view, it would appear that the orderly development of a corridor should prove to be more acceptable than the haphazard approach of the alternative.

It was agreed that the discussion at this meeting would be under the following headings:

I. CONSTRUCTION AND MAINTENANCE

1. Spacing
2. Access
3. Depth
4. Crossings
5. Relative Location

II. SAFETY AND POLLUTION

1. Repair Procedures
2. Powerlines
3. Spacing and Relative Location
4. Contingency Plans & Procedures in case of leaks and failures of pipelines.

III. INTERFERENCE BETWEEN FACILITIES

1. Construction Schedule
2. Corrosion
3. Powerlines
4. Crossings
5. Spacing

IV. CONCLUSIONS

1. Advantages of the Corridor Concept
2. Disadvantages
3. Conclusions

In the notes which follow, it will be noted that there is a degree of repetition and overlapping which is unavoidable. It is not possible to keep each topic discussed in a neat little isolated compartment. For example, the spacing, of pipelines with respect to each other and with respect to another facility or another type of pipeline, depends on construction requirements. The spacing must also meet safety requirements, repair requirements, access to other facilities and actual or potential interference with future expansion requirements.

I. CONSTRUCTION AND MAINTENANCE

1. Spacing:-

From the construction point of view it was agreed that the spacing of powerlines with respect to each other was determined by the height of the towers, the height of trees adjacent to the powerline right-of-way and the wind sway

effect on the conductors themselves. The spacing of the powerline with respect to a pipeline is governed by the tower guyline distance requirement of 40 feet and an additional 20 feet of working distance for any adjacent construction. This 20 feet of clearance would also provide ample room for the powerline maintenance or repair.

The spacing of oil pipelines, from the construction point of view only, can be 10 feet on centers without difficulty "in normal ground conditions", but from a maintenance point of view other factors must be considered. Normally there is very little maintenance on a properly constructed pipeline. But in the event of failure, where the failure takes place in poor ground areas, such as muskeg, then the danger of damaging adjacent lines is a very real one.

The spacing of gas pipelines from a purely construction point of view could be the same as for oil lines. Gas, however, is very dangerous. Gas lines have a different spacing from oil lines and the generally recognized spacing between gas lines is 30 feet. The spacing with respect to above ground facilities will be discussed under spacing with regard to safety.

2. Depth:-

The burial of high voltage powerlines is not feasible over long distances. The minimum depth of cover for pipelines is 30 inches, but in soft ground, or where the pipe crosses under a highway or other utility, requirements will

vary. In any event if the common corridor concept were adopted the depth of cover might become 42 inches or more.

3. Crossings:-

The consensus of opinion was that using the corridor concept with all lines running more or less parallel to each other that there would be a minimum of this type of problem. Furthermore, in a corridor controlled by a regulating body where construction procedures would be agreed upon by individual companies in advance, or which would be imposed by the regulating authority where it was necessary, serious problems would be minimized. The crossing of previously constructed lines would seldom occur.

4. Relative Location:-

It was generally agreed that if the corridor concept is implemented, that the proper planning and scheduling of construction would prevent any serious problems from arising.

II. SAFETY AND POLLUTION

1. Repair Procedures:-

The discussion assumed that there would be a regulating body which would have an overall coordinating and jurisdictional authority over the common corridor. Since there could be seven or eight different companies owning facilities within the corridor, with a corresponding number of different contractors working on different problems, a governing authority was considered an absolute necessity. However it was agreed

that it was essential that each company operating in the corridor would own and be responsible for his own facility, and that it would be the company's responsibility to notify directly any other company whose facility would in any way be affected by the proposed activity. The regulating body would have the complete authority to allocate rights-of-way, to arbitrate disputes, to plan the orderly development of the corridor and to see that the plan is adhered to, or to approve any plan changes. The governing body would be in a position somewhat analagous to a building inspector whose job is to see that the building is built according to the specifications, but who does not presume to tell the contractor how to run his business so that he can meet the specifications. It was felt that it would be safer for individual companies to deal directly with each other than to operate through a third party. It was pointed out that the frequency of maintenance work on pipes would be very low once the corridor has been fully developed.

It was pointed out that the proper grounding of pipelines was essential from the safety point of view during construction, operation and repairwork wherever pipelines were located in the electrical and magnetic fields of force of the power transmission line. This grounding would be in addition to the grounding required for the prevention of corrosion.

It was also pointed out that the high voltage direct current systems discharge large electric currents into the earth and this is a great hazard to pipelines, since given the right circumstances this would cause rapid corrosion of the pipe. Devices may be installed on the pipeline and reduce the effects but at present they are not completely reliable and are difficult to maintain. It was therefore concluded that the common corridor concept does not include the placing of high voltage direct current transmission lines within the corridor or anywhere near it. Tests have shown that the effects of this type of power transmission may extend for 50 miles or more from the powerline.

2. Powerlines:-

The repair procedures followed in the event of powerline failures are not serious when compared with pipeline leaks or failures. This is because powerlines are above the ground where the problems are visible. Furthermore powerline failures do not produce significant pollution effects. The greatest danger to powerlines will come from the improper use of equipment as it passes under or near powerlines. Access roads should be placed so that there is a minimum amount of cross traffic over or under the in-place facilities. From the point of view of safety, no equipment should cross under a powerline except near the towers.

3. Spacing and Relative Location:-

The spacing of pipelines with respect to each other and with respect to other facilities in the corridor was discussed at length as mentioned previously. In good solid ground, oil pipelines may be spaced within 10 feet of each other in the horizontal direction; whereas gas pipelines should be no closer than 30 feet in recognition of the fact that gas lines, particularly large diameter ones, tend to catch fire if the line is ruptured. The results of such a fire tend to be catastrophic. The wider spacing of the gas lines is a precaution against damaging adjacent lines carrying gas at pressures up to 1000 psi, either during the construction of a second line next to a line in operation or repairing a damaged line in a system of parallel lines. This 30 foot spacing would not hold under poor soil conditions such as would be found in muskeg areas.

It was pointed out that in a gas line break in a restricted valley location that the ground was charred for 800 feet on both sides of the break as the result of the fire caused by the break. It was pointed out that no dwellings should be placed within 250 yards of a high pressure gas line. The power engineers pointed out that power transmission lines are designed to allow for one powerline failure per hundred miles of line per year from weather conditions alone. Since the incidence of fire from gas line failures is very low, the Powerline Companies consider the risk from disruption of power service from a gas line fire as not something to be concerned about.

Powerline engineers pointed out that in power grids it was desirable to have auxiliary or duplicate service lines to a given area 40 or 50 miles apart so that storms which might be severe enough to disrupt the service on one of the lines would not have sufficient intensity or size to disrupt the alternate supply line. This suggested that it would not necessarily be a good idea to put all of the transmission lines to a given isolated area into one common corridor.

4. Contingency Plans & Procedures
in the Event of Leaks and Failures:-

As previously pointed out the close direct cooperation between all of the participating companies in the event of leaks or failures of pipelines or powerlines was considered to be a vital part of the successful operation of a common corridor.

Insofar as restoration of service due to a powerline failure is concerned, the conclusion was that the problem was relatively simple in that the protection, of the pipelines where or if crossing them may be necessary, could be accomplished by simple bridging procedures and the proper notification of the pipeline companies whose lines were being crossed so that there might be proper control of the crossing.

On the other hand, the failure of a gas or oil pipeline with the resulting danger or pollution effects tends to create

a panic situation. If the failure is severe, a great deal of equipment is brought to the area of the break in order to minimize the danger to the surrounding area and to contain the pollutant in the event of an oil spill.

It was agreed that contingency plans should be drawn up for all foreseeable situations. Rules for crossing under powerlines with any equipment should be drawn up and rigidly adhered to. It was suggested that the corridor area should be mapped with particular emphasis on drainage patterns so that in the event of an oil spill in any area, plans could be drawn up for any possible contingency. For example, in an area where an oil spill would flow directly to a stream, river or lake then diking could be built at the time of construction of the pipeline in order to prevent the pollution from reaching the body of water requiring protection. It was believed that by proper advance planning many breaks would not produce major pollution.

III. INTERFERENCE BETWEEN FACILITIES

1. Construction Schedules:-

Discussion of this topic centered around the possibility of a powerline construction programme interfering with a pipeline construction programme. It was pointed out, however, that pipeline construction was a much faster operation than powerline construction.

Pipelines may be built at the rate of 3 to 4 miles per day or in round numbers it would take 3 months to build 100 miles of pipeline. The powerline engineers estimated that it would take approximately 8 months to construct 100 miles of high voltage steel tower transmission lines. Since pipelines are constructed at a rate which is almost 3 times that of the powerline, it is obvious that there would be no real interference insofar as construction schedules are concerned.

The real interference under uncontrolled conditions such as presently exist was reported to consist of 30% third party damage. In other words 1/3 of the damage done to oil and gas lines is done by other construction contractors working on other projects. It was felt that under the controlled conditions which would exist in a planned controlled corridor this damage would be reduced.

2. Corrosion:-

The problem of corrosion would be significantly increased by using the common corridor concept. However it was felt that the problem was well understood and that with proper cathodic protection the corrosion of pipes due to the induced currents was controllable and the pipeline people could live with the additional protection requirements. Certainly the powerlines were not affected by the presence of pipelines.

3. Powerlines:-

It was stated that provided proper spacing was maintained between powerlines and between powerlines and pipelines there should be no serious interference during the normal operation of the facilities.

As previously mentioned, however, the careless use of draglines, boom trucks or other boom equipment either passing under the powerlines or working close to them does cause serious and frequently fatal accidents and disruption to service.

This type of accident is not peculiar to corridor situations.

4. Spacing:-

The problem of spacing insofar as interference is concerned between powerlines, gas lines and oil lines was discussed at length and the results of this discussion indicated that due to the fire hazard, gas lines should be kept as far from the powerlines as it was practical to do so. The positioning of oil lines was not considered to be critical. Here again the proper planning and scheduling of construction appeared to be the critical factors. An additional consideration was the sensible relationship between access roads in the corridor whereby there would be a minimum of crossing of facilities during construction and maintenance.

It was implied that with the high quality control and expertise available in the construction of pipelines that the amount of maintenance on a pipeline was so small that the only real difficulties would be encountered during the construction phase. Once the pipe was buried, the problems were largely solved for the life of the pipeline. Since powerline failures were estimated to be one per hundred miles of transmission line per year from all causes then the major planning would consist of proper location and proper construction planning and procedures.

IV. CONCLUSIONS

1. Advantages:-

The main advantages of a common corridor for powerlines and pipelines which were discussed at this meeting may be summarized as follows:

- a) The most efficient use of land areas would prove acceptable to the people whose land the powerlines and pipelines corridor would occupy.
- b) The planned controlled development which the corridor concept makes possible would prove more economical and safer for all participants.
- c) The ecological and environmental effects of pipeline and powerline construction would be minimized by the use of a single corridor rather than having several individual rights-of-way constructed by individual operators.

- d) The number of third party accidents to pipelines and powerlines would be reduced.
- e) The use of narrow congested corridors appears to be mandatory due to the slight rising property values as well as from safety considerations.

2. Disadvantages:-

The chief disadvantages which were mentioned were:

- a) Powerlines can be constructed close to oil lines provided care is taken to provide satisfactory protection for the pipeline from the corrosive effects of ground currents conducted to the pipeline through faults to the ground from powerline failure. There are also voltage induced on the pipe by the effects of the AC electrical field. In other words more care is required in the construction and maintenance of pipelines in a corridor containing powerlines and pipelines adjacent to each other.
- b) In the extension of the corridor concept to include railroads, telephone lines, the powerlines interfere with the communication lines paralleling the railroad and they interfere directly with the telephone transmission line as well when they are paralleled for any considerable distance.

- c) Gas lines do represent a hazard in the event of failure accompanied by fire even though the incidence of such accidents is infrequent.
- d) The major disadvantage was felt to be the resolution of initial construction conflicts.

3. Conclusions:-

The orderly development which the common corridor concept promises was approved in principle by those present. The ready acceptance by all concerned would hinge on the form of organization and ownership of the corridor and the proper planning and scheduling of its development.

SOME UNATTRIBUTED STATEMENTS
INITIATED BY THE MEETING:-

The practice of installing powerlines and pipelines in close proximity, either parallel and in the same right-of-way, or crossing each other, is becoming the rule rather than the exception. The reasons for this are the cost of land, the availability of land and the influence of conservationist and ecologist groups on the location of utility facilities. Furthermore, the installation of gas and electric facilities in the same trench saves money for each utility since the cost of trenching and backfilling is shared. However, it has disadvantages since a failure on one utility could cause a failure in the other utility's service or, in repairing a failure on one utility the other utility's facilities could be damaged.

Where gas pipelines parallel overhead electric transmission lines on the same right-of-way, the company operating the pipelines shall take the following precautions:

- a) Employ blow-down connections that will direct the gas away from the electric conductors;
- b) Install a bonding conductor* across points where the main is to be separated and maintain this connection while the pipeline is separated;
- c) Make a study in collaboration with the electric company on the common problems of personnel safety, corrosion, and electrolysis, taking the following factors into consideration:
 - i) The possibility of the pipeline carrying either unbalanced line currents or fault currents due to induced voltages from lightning or fault currents on the power transmission facilities; and
 - ii) The cathodic protection of the pipeline, including location of ground beds, especially if the electric line is carried on steel towers; and
- d) Investigate, for reasons of personnel safety, the necessity of protecting above-ground or vault-enclosed insulating joints against induced voltages or current resulting from lightning strokes.

* The current-carrying capacity of the bonding conductor should be at least one-half of the capacity of the overhead line conductors.

The pipeline installer is primarily interested in whether or not it is safe to work on a pipeline that is located in the vicinity of powerlines. Voltage or current can be induced on a pipeline from electric powerlines in the area by conductance, capacitance or inductance. Problems resulting from conductance can occur not only during the construction of pipeline facilities, but also after installation when accidental ground contact is made between the pipeline and electrical grounds. This can take place where a powerline ground comes into contact with a gas pipe or valve, as well as in a joint gas and electric distribution system area. It can also take place in the customer's home where electrical contact might be made to the gas line in an attempt to ground an electrical appliance.

Large current discharges can be experienced when a ground fault occurs on electric powerlines. Care must be taken in constructing electric and gas facilities so that the ground of the electric line is not close enough to the pipeline to cause a flashover when a fault is experienced on the electric line. These fault values can be many thousands of amperes in magnitude and for durations of up to six or eight cycles.

As per your request I am returning to you the various cross sections of corridor alternates with my comments written thereon. Basically I found that any of the alternatives as presented are possible and likely feasible depending on the location and topography concerned.

If it appears that one single right-of-way throughout the total distance is not feasible and that some separation is required consideration should be given to three separate corridors; that is one for pipelines, one for railroads and highways and one for powerlines. I suggest this particularly with regard to powerlines inasmuch as some separation from gas lines seems desirable and because of their deleterious effects on radio and communication signals they likely should not be located close to railroads or highways either.

I am enclosing a copy of the paper presented to the American Gas Association by Mr. Charles G. Siegfried, Principal Engineer of Ebasco Service, Inc. - Houston, Texas entitled "Multiple Uses of Rights of Way for Pipelines".

As is true in so many of the engineer's endeavors, much can be done to mitigate the hazardous effects brought about by induced AC potentials on a pipeline during the design stage. The design stage may be either that of the pipeline or the AC transmission line, whichever is to be placed in the common right-of-way last.

Obtaining soil resistivities in the area of parallelism, obtaining the AC transmission system's ratings and applying this data to the formulae as presented previously can permit prediction of induced AC magnitudes. Although not highly accurate, the formulae applied with unavoidable generalizations will yield indications of the severity of the problem.

If it should appear that steady state, transient or both conditions of the AC transmission system operation will induce significant potentials on the pipeline, appropriate measures can be taken to mitigate the hazardous situation before it exists.

Unfortunately, the only certain factor in the entire problem is that it will continue to increase in severity as rights-of-way become more densely occupied, pipeline coating systems and pipe-laying techniques result in higher resistances to earth and AC transmission system ratings increase.

During construction, when a pipeline is above ground and on skids, the line should be grounded at least every one-half mile. This may be done by welding a heavy lead of 1/0 insulated copper conductor to the pipeline and connecting it to either a magnesium or zinc anode buried in the ground or to a 5/8 inch steel or copper ground rod driven into the ground at least eight feet. These ground should be installed on the pipe in the same manner as a permanent bond or anode wire and should remain on the pipe until it is buried.

If a magnesium or zinc anode is used, it may be left connected to the pipe since it will provide some degree of cathodic protection. If a steel or copper ground is used, the lead should be cut and capped with insulating material after the pipe has been placed in the ground and backfilled. The ground lead next to the end under construction should be installed before the rear ground lead is disconnected. Workmen installing ground leads should wear rubber gloves.

Rubber tired equipment can build up a considerable amount of static charge when near energized power lines. Workmen operating rubber tired equipment around powerlines should not attempt to embark or disembark from the equipment until they are sure the equipment is grounded and that all electrical charge is bled off. Barriers should be placed around the vehicle working near the powerlines so that workmen on the ground will not come in contact with it. On cranes or other pipe lifting equipment, insulating links should be placed so that there is no direct electrical connection between the pipe and the equipment or, if this is not possible, the pipeline and equipment should be grounded so that workmen on the ground will not be exposed to contact voltages.

INDUSTRY SEMINAR

DECEMBER 18, 1973

We were awarded this study last March by the Department of the Environment of the Province of Alberta. Our firm, Stewart, Weir, Stewart, Watson & Heinrichs was awarded this study. Working with us are six other consulting firms from whom we will hear later on today.

Attendees:

R.F. Bell	Calgary Power Ltd.	Calgary, Alberta
C. Carlisle	Imperial Oil Ltd.	Calgary, Alberta
W.O. Colborne	Allied Land Services Ltd.	Calgary, Alberta
H. Brown	Alberta Gas Trunk Line	Calgary, Alberta
J.H. Riches	Trans Mountain Pipe Line Co.	Vancouver, B.C.
S.C. Johnson	Calgary Power Ltd.	Edmonton, Alberta
G.E. Humphrys	Chevron Standard	Calgary, Alberta
T.W. Peters	Soil Survey	Edmonton, Alberta
E.F. Provost	Northwestern Utilities	Edmonton, Alberta
G.C. Seagel	Bolter Parish & Trimble	Edmonton, Alberta
D.A. Peterson	Alberta Power Ltd.	Edmonton, Alberta
K.C. Mackenzie	K.C. Mackenzie Assoc.	Edmonton, Alberta
R. Loch	Pembina Pipe Line Ltd.	Calgary, Alberta
W.T. Chernichen	Shell Canada	Calgary, Alberta
E.J. Archer	Peace Pipe Line Ltd.	Calgary, Alberta
W. Peel	Stewart Weir & Co.	Edmonton, Alberta
W.W. McLaughlin	Pacific Petroleum	Calgary, Alberta
G.R. Ursenbach	Dome Petroleum	Calgary, Alberta
R.E. Keyes	Calgary Power Ltd.	Calgary, Alberta
A. Khan	Home Oil Co. Ltd.	Calgary, Alberta
J. Jacks	Stewart Weir & Co.	Edmonton, Alberta
B.D. Boyce	Chevron Standard	Calgary, Alberta
E.G. Brown	Calgary Power Ltd.	Calgary, Alberta
P.E. Boisseau	Shell Canada Ltd.	Calgary, Alberta
R.H. Shaw	Shell Canada Ltd.	Toronto, Ontario
D.L. Duncan	Shell Canada Ltd.	Calgary, Alberta
E.R. Begole	Mobil Oil Canada Ltd.	Calgary, Alberta
R.G. Hurlburt	Siemens Appraisal Serv.Ltd.	Edmonton, Alberta
B.G.E. Guichon	Westcoast Transmission	Vancouver, B.C.
C. Drabble	Dept. of the Environment	Edmonton, Alberta
J. Ellefson	Can. Ind. Gas & Oil	Calgary, Alberta
F. Belyea	Dept. of the Environment	Edmonton, Alberta
C.H. Weir	Stewart Weir & Co.	Edmonton, Alberta
R. Swist	Swist and Co.	Edmonton, Alberta

CC

We thought that we would explain to you people what we are doing and then perhaps we could answer some general questions about our study. The real object of this meeting is to let the study group hear from you.

The purpose of this study, first of all, was to determine a corridor from Edmonton to Fort McMurray or from the Athabasca Tar Sands to Edmonton. Just in the last few weeks it has been determined that we will extend this study to consider other terminals besides the one at Edmonton or in the Edmonton area. This study will be enlarged. Our original terms of reference were from Edmonton to Fort McMurray only. It was as outlined in this handout which is the same handout used at the Public Meetings. I thought you might be interested in it.

Our first purpose is the determination of the most desirable corridor for a series of pipelines carrying the synthetic crude oil from the Athabasca Tar Sands. The second purpose of our study is to determine the feasibility of combining powerlines, pipelines, railroads and highways in a common corridor.

Between Edmonton and Fort McMurray, the railway has been in existence for a good number of years. For the building of the G.C.O.S. plant it took something

like 20 train loads a year over a period of three years. The railway company hardly even noticed it. It is not making money now according to the railway people and our predictions at this time are that the railway can handle the building of ten plants or more and the products coming out. The study then does not include the building of a new railway facility to the Tar Sands area. I think that as far as our study is concerned the railway is a going concern whether we go adjacent to it with powerlines or pipelines or whether they go elsewhere.

The situation with the highway is somewhat similar. Our study of the present highway facility from Edmonton to Fort McMurray indicates that the southern part of the system, which has many influences other than the Tar Sands area, is, in one or two areas, substandard. From Atmore north, Highway 63 will be adequate once it is paved. It should be paved by the end of next year. It will carry up to 1,300 vehicles a day. It is now carrying around 100 vehicles a day between Edmonton and Fort McMurray.

The railway and highway situation as far as our study is concerned is somewhat similar. They are sufficient for the foreseeable future. So our study is whether we go adjacent to the highway or the railway with pipelines in particular and probably powerlines.

The third part of our study is to discuss the approximate spacing, the corridor boundaries, the disruptions, the advantages and disadvantages of the corridor facility, putting pipelines, road, railways and highways in one corridor.

The fourth part of our study is the preferred location of terminal facilities. In the beginning we looked at the terminal facilities in the Edmonton area only, not in the areas away from Edmonton. In the beginning we should have looked at terminal facilities entirely separate from Edmonton such as Prince Rupert, Eastern Canada or Hardisty, or some of those areas. Regarding the Edmonton facilities, we have had quite a few conversations with the two companies who run the present existing terminal facilities. The general conclusion is that the two terminal facilities can still, at the present site, take up to 3½ million barrels a day out of those two sites. The Interprovincial people say they can go up to about 3 million barrels a day from their present site. The other company can go to 600,000 barrels per day. The existing site is in the present industrial zoning environment. I do not think we would want to move it.

During this study our instructions were to involve industry, to involve people. There are two new parameters in studies such as this. First, there is the

involvement of the scientists, the environmental people that are concerned with the environment and the ecology. Secondly, the public involvement. We have had seven public meetings so far. We probably plan another ten to twelve public meetings in the area east of Edmonton and in the areas where we have already had public meetings. They are now asking for additional public meetings in Fort McMurray, Smoky Lake, Fort Saskatchewan, and several other areas. We will be having more public meetings.

We will now have some of the other consultants who are working with us give you a very short resume of what their findings are, and what they are doing in the study.

C

I am concerned with the birds and mammals in this area and I am trying to assess the possible impact that the corridor system might have on the distribution of birds and mammals in the western, central and eastern possibilities. What I have just done during the past two to three weeks is to prepare a matrix on each of the 252 species of birds and 60 species of mammals which are distributed throughout the northern forest area and the agricultural area.

I would like to point out that the northern area is not devoid of bird life and so on. You may possibly think of it as being sort of sterile. It is not. Of

the 252 species of birds found somewhere throughout this entire area, 214 occur in the north and of course overlap the 241 species which occur in the South. There are a considerable number of mammal species occurring in the North. For mammals, out of the 60 species, 45 occur in the North. We are talking about anything from the moose down to the shrews and voles. The same with the birds, ducks, geese, hawks, owls, etc. down to the rock dove - 252 species of birds and 60 species of mammals.

I have broken up the three routes into three different zones - from Fort McMurray down to the Athabasca-Lac La Biche area would be considered the northern forest zone, muskeg and so on; the agricultural zone down here; the urban and industrial centre around Edmonton.

I also tried to give first choices to each of the three routes where it is possible to do so. I gave no first choices to either the west or east corridor. For birds - in the agricultural zone I did choose 96 first choices out of 252 species; in the forest zones, 99 first choices out of 252. For mammals - agricultural, 10 first choices here and 20 first choices up here, again out of 60 species. I think that the reason for this is that we know that putting in a highway or a road creates the greatest amount of environmental impact. The road is already in here, you will not need to add another road for servicing of pipelines; it is

already there. We have to add a road east and a road over west; by doing this you can create a lot of havoc. Here the greatest amount of damage has already been done and you are not going to be doing much more by adding a few pipelines and powerlines.

I wanted to mention that as far as the drainage is concerned, we are talking in terms of 85 different species of water birds; ducks, geese, wading birds, 85 different species, and the same is true throughout the northern areas. We do have rare species in the northern areas; for example the peregrine falcon. We do not know whether it exists along the Athabasca River but it does exist along the Wabasca River.

When you create a road it is the beginning of something. What is going to happen is, when you put a road up here, say ten years from now, someone is going to want a road in for a fishing or a hunting camp. You never know what is going to happen there. At least by putting a corridor along the central route where the highway exists, and where there is one pipeline now, I think it is the best you can do for the birds and mammals in the area.

CC We have in the last few weeks made the assessment of these three corridors. It generally looks from most points of view that the central corridor between Edmonton and the Fort McMurray area is the best. Since

then this new problem of another terminal has been added which will affect our choice also.

C

I will start with the western corridor and go to the central corridor and then to the eastern one. The western corridor from the soil standpoint from here to the north there are wetlands and organic soils. They are a problem to everybody. From here south we run into more wetlands. Some of the glacial flutings are 32 feet deep between the rises. When you get down here, you have some good land, relatively dry. Down here just northwest of Redwater you run into sand; you run into bedrock; you run into some of our cold wet soils which are sterile. You have quite a mixture of these soils right through here. So really this one creates quite a few problems because you are going through so much wetland especially in the northern portion of it.

In the central one here you have wet soils down to about where the road turns, the pipeline turns up there and at the road the soils are fairly well drained all the way down here to between Boyle and Atmore. Where the line cuts across here there is some wet soil. It is the same east of Newbrook and Alpen. There are dry soils, well-drained soils. There are the sand areas around Newbrook and where the Sturgeon River joins the North Saskatchewan River.

So in this area there is a minimum of hazards for putting a pipe as far as I am concerned from the soils standpoint. The fact that it is a more dry area is my reason.

In the eastern zone where the railway turns we get a lot of wetland and organic soils. You get some sands around Chard and Conklin which are hard to re-establish when disturbed. I notice some cuts there that have not been revegetated since the railroad was built. It is dune life so you do get problems with re-establishing vegetation on these sands.

When you get down in here you run into rough organic soils. This side is very complex as far as the soils are concerned. Once you start coming out of Lac La Biche, cutting across country here, you run into rolling topography and it is hummocky with nine to fifteen percent slopes, very chalky and mixed in with organic soils so this may create quite a problem for you people who are putting the pipeline through. Here on up to Edmonton there are some topsoils which heal very readily once they have had the topsoil removed and put back into place. Out of the three, this one, from the soil standpoint, is the best one.

C

Our primary interest is in the stream crossings as they relate to prevention and avoidance of adverse environmental impact. The prime concerns which

centre upon channel behaviour, passage of water and fish and in the interest of safeguarding pollution hazards along the creeks. The work that we have done contributing to the project has been broken down into three phases. The first one is the assessment of the general fluvial of river environment characteristics. The second is an assessment of the G.C.O.S. pipeline crossings which is followed by an analysis of Highway 63; that is from Atmore north to Fort McMurray. The third one is the NAR route Lac La Biche to Fort McMurray; all of these routes from the point of view of environmental impact. In the third part we made an assessment of the order of merit of the three possible general corridor routes.

In Phase I, we generally found that runoff is not extreme in this area, although high runoffs may be of long duration. Areas of higher runoff do exist and correspond to the areas of higher relief. Areas of high drainage densities exist and areas with deeply incised valleys also exist. These really are the four basic components of the hydrological regime which we have there.

In Phase 2, we gave an order of merit based on our assessment of the adverse environmental impact of the three lines of communication that we looked at. The first one was the NAR. In other words I am saying that the NAR environmentally is the best route from

Lac La Biche to Fort McMurray. It surprised us as much as everybody else. The point you have to remember though is that the NAR has been in there for quite a few years. It has had lots of time to adjust and re-vegetate. The four main points about it was gullying, slumping, old piles of rock and waste around the bridges but it is aesthetically much more pleasing than in other areas.

The second rating facility were the pipelines; very close to the NAR. Remember in their case they have only been in a few years - scars and blemishes on the landscape have not yet had time to adjust. They lost points because of restriction of the channel and they lost points due to micro drainage alterations in muskeg areas.

Worst of all and in a class all by itself is the highway. Basically the highway lost points because of four culvert installations which also contributed to blockage of fish passage which is of some concern as far as the upgrading is concerned.

In another section of this project we contributed to an impact matrix study which we found useful from the point of view of determining the applicability of a corridor concept as far as stream crossings are concerned. There are advantages and disadvantages in both cases and it is not all together easy to decide which is the best course to take.

Now I mentioned certain main detrimental factors which contribute to the damage at the river crossings. These basically are high runoff areas which are associated with a high relief and the high precipitation and this really boils down to the fact that you only need a small blemish or a small impact with high runoff to be magnified more easily. With high drainage density of course, you are going to get great potential for disturbance in the creeks. In deep steep-sided valleys you introduce greater potential for slumping and slope instability and possible consequent pipe failure. The fourth one would be in muskeg which is generally all right except in areas where you have a great deal of surface moisture and small rivulets for immediate drainage within this muskeg. In these cases we often found water had been diverted from its natural channel along the course of the pipes.

You could say then overall, that we find the west route most appropriate. The central route would be our next choice and the eastern one would be the one we would want to avoid. These are all relative assessments just considering pipelines and transmission lines. If we consider a road, planned to be built at the same time, then we would have to go the central route because the road is already there.

The reason that I found the west route most appropriate is that we are following a divide; largely the creeks which flow to the Athabasca are all relatively short. Because of the muskeg, the upper regions which will be relatively flat, installation of any facility which will cross the stream would be less subject to scour and rapid runoff with high velocity. Also in muskeg areas you get better bank stability in terms of your vegetation. Although you get bank erosion it does not spread as fast as in better drained areas, especially sandy areas. Those are the main factors.

The sand area in the East route is the one that makes it the worst. Not just that, but, you have right now extremely good fish resources in that area. All the creeks I found aesthetically pleasing and they form a fairly high runoff area; they often tend to be quite steep; the drainage density is quite high; the potential for disruption in that area is considered to be higher than the central or west route.

CC

We are having a debate amongst the consultants whether a road would be necessary along the west or the easterly route of the Edmonton to Fort McMurray connection. If there is just one pipeline and one powerline we would say not but if we are going to have several pipelines and several powerlines following this particular

corridor if it is built, I would think probably a road is necessary. This afternoon we will be asking this group that question so you might think about it.

C

Basically the role that our firm has been playing in this study relates to the impact which a pipeline corridor and whatever other transportation facilities are provided with that corridor would have on the pattern of settlement in the study regionals, which encompasses the entire area from Fort McMurray to Metropolitan Edmonton. In addition, we are charged with responsibility of examining the future relationship between that corridor and its various facilities and the human settlement patterns.

Our basic approach has been to subdivide the study region into five separate sub-regions for purposes of analysis and recommendation. Firstly the area of greater Fort McMurray itself is one separate region. Incidentally the basis for differentiating these regions is a distinctive and substantially different human settlement pattern than is manifested in any of the other regions in the study area.

The second area is what we call the wilderness area. It is virtually unsettled with the exception of very small communities located whether along the highway or the railway. The balance of the human settlement

pattern in that area consists of people like trappers, etc.

The third sub-region in the study consists of the area south of Wandering River down to a point 30 or 40 miles north of Fort Saskatchewan which we have characterised as the settled agricultural area. This region has largely an agricultural economic base with a pattern of market towns oriented through the agricultural area superimposed on the landscape.

From the area of Fort Saskatchewan and the facilities around Fort Saskatchewan from the north to the south I lead to the city limits of Edmonton. We have designated a region which we call the area of Metropolitan Edmonton. This is an area which is substantially similar to the settled agricultural area in terms of its existing pattern of development. It is, however, subject to very different trends in terms of the future settlement patterns than is the settled agricultural region. The final sub-region of this study area is the area of Metropolitan Edmonton itself, which manifests very different location constraints on the future corridor than any other of the sub-regions.

Within each region I attempted to establish first of all whether the human settlement patterns are in a process of change. Secondly what in fact will the

future corridor or elements of that corridor have upon the settlement pattern? I do not propose to get very involved in our basic findings. I think most of them are pretty well known to you anyway. In settled agricultural regions, for instance, there is a profound trend towards the common population which from a means standpoint renders the location constraint of the rural settlements pattern somewhat less than it would otherwise be. It will remain stable or increase.

Most of the communities in the agricultural area are either declining or stabilizing. We have isolated only three communities with any substantial growth potential. They are Athabasca, Boyle and Lac La Biche. Within the metropolitan area, metropolitan influence isolated four communities which do have sufficient growth potential and it is very large and is therefore, a location constraint for the corridor. These are Fort Saskatchewan, Bon Accord, Redwater and Gibbons, all of which are potentially in the way of the corridor.

In each region we have attempted on the basis of our analysis to recommend principles for the location of the pipeline corridor. When I talk about corridor, I am talking primarily about a pipeline corridor. Secondly there are other components which will go into the corridor, if feasible, at various

locations. These are power transmission facilities. In addition to that we will include at times the existing highways or railways. In some cases in urban areas a bypass around an urban settlement seems to be required that we will attempt to locate the corridor in such a position that it could accommodate a highway bypass in the distant future as well. Primarily our responsibility is to locate a pipeline corridor but the thing is still undetermined. A type of multi-use of a potential corridor which we are looking at in urban areas not only will be for transportation facilities but also for other urban land uses such as park space, green belts or as buffers between other transportation facilities and adjacent residential development or perhaps industrial developments in residential communities.

There are elements in each corridor that are reasonably attractive from the standpoint of the human settlement pattern. Those elements which are attractive to the west route are: it at least provides the opportunity of creating the longest length of corridor in a direct north-south alignment where we would not have to traverse the pattern of existing settlement and subdivisions and thereby fragmenting land and increasing the number of orders that have to be dealt with in acquiring the corridor in the first place.

Another feature that is very effective in the west corridor from our standpoint is the fact that it approaches Fort McMurray from the west. That can only be examined in relation to the alternative which is the central route which is coming to Fort McMurray from the south. Already the pipelines go through two areas of future urban expansion. In one of those areas, urban expansion has already taken place on either side of the existing right-of-way. They have a 100' combined right-of-way for the gas line and the oil line going through the area which is known as Area 5. In the expansion area West of Fort McMurray, already urban development has encroached on both sides of it and rendered it incapable of physical expansion without knocking down houses. In addition, the highway which approaches Fort McMurray from the South separates a number of future expansion areas in the town centre itself. So that in the long run as development takes place in the Tar Sands there probably will be some form of bypass route with heavy traffic that does not have a designation in Fort McMurray but rather has a designation in the industrial area or mining area around Fort McMurray. Some form of highway bypass is going to be necessary in the long run although the exact point of time when it will become necessary is not known at the present time so, that the combination of the need to approach Fort McMurray from the

West with pipelines and the need to avoid any future areas where there will be urban expansion, makes the West route attractive.

However, from the standpoint of the central corridor, it has fewer constraints than any of the three alternatives for location expense in the metropolitan area. In the metropolitan area, it offers us the most correct potential alignments in terms of following existing lines of subdivision than does the ones of the East or West. It is not evident from this. We have examined it a little more closely and in more detail than the central line. It does provide one alternative for a direct route from a point East of Fort Saskatchewan to a point just South of Highway 16 which would be coming directly from the East and not cut in a negative fashion across any of the existing patterns. The West route in the metropolitan area requires to more jogs to get around either future foreseeable expansion of existing communities or to get around transportation facilities.

The eastern route alternative manifests the largest degree of angular routes or line across the existing patterns of subdivision. The other big problem as far as we are concerned in the eastern alternative is the fact that along the eastern alternative is the NAR from Lac La Biche to Fort McMurray. We find the re-human settlements or communities which are

most susceptible, in social terms to adverse influence from any kind of exposure to modern outside culture. These are largely Indian and Metis communities, very unstable in economic terms and social terms. Apart from the fact that the corridor might bring them a road in terms of economic benefit they do not now have, we can see nothing but problems if the corridor does go through that area in terms of upsetting whatever cohesion these communities have now. There will only be adverse effects if a corridor goes through the area. The best solution would be a modified version of a central route.

C

The normal function of the appraisals is that you are looking at what has happened and then trying to determine the value of real property interest based on that. For instance, we are trying to look at the effects of what might be planned. Therefore you have to look into all of the things from the appraisal point of view and try and figure out what that means in terms of human values in the sense of the market, for it is people that make a market. What people do with the land determines what the values will be.

We divided the areas of concern in the study into five. I rather like the central route because coming out of the city for these people who are not closely familiar with the Edmonton area,

future land use, it would seem to me that the central corridor is best because there is already the G.C.O.S. pipeline here. It comes into the railway every now and then and then goes along side the highway up in through here or fairly close to it.

There were divergences at our conference in Phoenix in May on the multiple use of rights-of-way. There were environmentalists from President Nixon's committee and the statement there was that it was better to disturb one piece of ground frequently than it was to disturb a whole number of pieces of ground; therefore the corridor idea falls right into that concept.

We also ran some land prices based on 1971 and 1972 assurance fund values, not appraisal values, through this area of about 280 townships. We are in the process of bringing 1973 assurance fund values into it. They show some interesting figures. The compilation appears to show that between 1971 and 1972 there is a drop in rural land prices, but that is not quite true because the new tax act came in then. People prior to June 1971 were putting low sales prices for the reason of low insurance contact and after that they were putting in higher prices.

C

I am sure that land acquisition will always be involved in the energy resource industries. It is a matter of acquiring interest in those properties in which the facilities are going to run; to the construction, maintenance and operation. It is a matter of salesmanship more than it is anything else. We do not perform in selecting a route; we assist in it because there are other functions that preclude us from doing that. One of them is the engineering aspect and another, the economic aspects. The method of acquiring this can be done in several ways. They may be acquired by way of easement interest, freehold or a title interest, or lease interest for which it is relative to the financing problems and legal problems that are involved in the system. I have no preference as to which route is followed. The main idea is that the ideal situation, where land acquisition becomes involved, is the fewer people, the fewer problems. As you can see you come out of the City of Edmonton the type of economics you are faced with, and super-imposed on that is the legal aspect.

CC

You have all had access to read the effect of existing legislation on this corridor concept. Essentially there is one way of doing it and that is through restrictive zoning and then police the development of it. To clarify the haziness in this area it only

takes a change in one word in the present act and that would clarify that situation.

In the Volume 6, which we are putting out on this corridor concept, the financial institutions and the insurance institutions have been canvassed regarding financial obligations. The conclusion was that the oil companies were not too concerned about this legal document. What they worried about was "throughput". As for insurability, from the returns made of this canvas of the insurance companies, the insurance rates would probably be higher.

"It appears in fact, that as between the pipelining companies and their financiers, the major criterion in obtaining money for pipeline financing is throughput. Consequently the form of land occupancy, be it within or without a corridor, is of little significance except to the solicitors who are ultimately left with the duty of obtaining from the pipelining companies some form of security upon which the financial institutions could rely, if in fact the pipelining corporations went broke."

In the early part of our study our terminal from the Athabasca Tar Sands was to the Edmonton area. Since then and going into these matters and after having a discussion with the ministers and several of his deputies on Friday, I believe our study will

be extended to consider other terminals apart from Edmonton. In particular, say the Hardisty area or some such area as that; maybe the Camrose-Vegreville area, Prince Rupert or Eastern Canada. This could effect the number of pipelines coming out of the Tar Sands. You go back to the question of how many pipeline facilities will there be? What is the throughput that is going to come out of the Tar Sands? Up to date on this corridor concept, we have been thinking of several pipelines - three or four oil lines probably, maybe only one. In the corridor concept considerations as we see them, we have been considering three or four oil lines, two or three gas lines plus two transmission lines either adjacent to the railway, adjacent to the highway or by themselves. We had given it cursory examination before and now we will be giving it a much more fuller examination as to where this oil from the Tar Sands should go - should it come to Edmonton and then to the East and to the West or should it go to Hardisty for injection into the Interprovincial system.

P Your reference to Eastern Canada - please enlarge on that.

CC If it went directly through to Regina or Winnipeg you would cut straight southeast rather than come

in south; maybe go to Kerrobert, Regina or Winnipeg. We have a line on top of the map that cuts off to the southeast.

We are thinking in terms of the total reduced pipeline mileage, if you go into this phase. Suppose you take Phase No. 1, the first pipeline coming out of the Tar Sands area. It probably will not be needed in the Edmonton Petrochemical Industry, but as soon as the conventional crude that is supplying the refineries and terminals in Edmonton declines in volume; the second line out of the Tar Sands would have to come to Edmonton to take the place of the conventional crude that is going in there now. That is one concept. You might reverse it. It would ultimately depend on how much or if they are going to have two million barrels coming out of there a day or three million barrels, or only one million barrels a day. The basis of our study so far is that we have been going on the testimony that was given by the fellow in the Common's committee in Ottawa which is a plant of 125 thousand barrels per day from one every two years, from ten plants. But if the in situ process makes some advances, then this thing is out of the window I would think. Maybe we are wrong in thinking along these lines, I do not know. We want to hear from you people. That is one of our main reasons for this meeting.

P You are thinking of putting everything into one corridor coming down and yet you are thinking of a second route across Canada. You are disturbing the whole new part of the country; that is inconsistent with what you are trying to do in this area.

Another
P

The disturbance across Saskatchewan would be less dropping down to the Interprovincial existing corridor. The facilities are there. The background of the pipeline and population are there. It would cause less disturbance to stay where you are than to try to make a new route in another area. Flexibility is not effective if it gets down into known territory in both your operations and land acquisitions.

CC It has been suggested by some of the industries when we first started that a corridor come straight south and tie in at Hardisty. We did give that some consideration in the beginning but then our terms of reference were Edmonton to Fort McMurray, so we concentrated on that part of the study but now it has been expanded.

P Based on the present situation, initially Edmonton has some advantages in that they can use it locally or go east or west in existing systems. No doubt as these volumes build up and existing reserves are depleted and other markets developed, you would

want to look at an alternate route. The first pipeline should maybe come to Edmonton rather than to Hardisty because it provides more flexibility to supply the market. The initial volume does provide this flexibility.

CC

There are two other situations now. There is the Peace River Oil Sands and the Cold Lake Oil Sands. So your Hardisty route would pick up anything from the Cold Lake Oil Sands.

P

Concentrating our efforts on bringing this oil south to Edmonton is a very short range viewpoint. I tend to disagree with all our environmentalists that we shall not do anything because nothing has been done there before. We have to take care of the environment as we do along. We have to study it and we have to make provisions for it, but every-time we add length and if we are going to go south and then west, it is going to cost more money. The big cost is the actual pipe and the construction. Possibly the extra money that would be spent in this extra pipe, if some of that is put back into the environmental protection, we gain by considering these straight routes East and South. The existing systems are pretty well running to capacity now; in other words we are talking about how many barrels a day are coming out of the oil sands - one million

barrels a day? There is not enough capacity in the existing systems to handle that in any event and why disturb the environment again where there are existing systems already. Consideration should be given to the eastern or western routes. Straight south, you are still skirting existing systems.

Another
P

Your study said that this million barrels a day was going to take 10 or 20 years to accomplish. I will just point out the consideration. What are the existing reserves; how are they going to be produced and when do they start being depleted? Will there be some additional pipelines? That is the premise.

CC

As the supply into Edmonton terminal drops off we need something to take its place; that is to make use of existing facilities.

P

Another good reason for coming South into the Inter-provincial territory is in maintenance and communication, as they are already established. If you cut straight East you are going into virgin territory. With powerlines and communication lines, getting into and to maintain it is a problem. This is good maintenance country down across there, whereas cutting straight across or cutting East, it is not so good.

Another
P

If this thing develops into something, that is two, three or four million barrels a day, some form of these other alternatives have to be looked at. I would like to put total system in perspective rather than just deciding it is this or that way.

Another
P

I think the long range market is the East.

Another
P

The real crunch is whether we have a number of corridors in that supposedly virgin territory now or whether we restrict it to one with regards to the cost and disturbance to the environment and the people.

Another
P

Dr. Goldby was here to talk to a seminar this fall, and at that time he indicated that the Tar Sands had an ultimate potential of supporting thirty plants with 100 thousand barrels a day each. That is three million barrels a day in 30 years. There is not going to be any production out of the next plant until 1978 and the one after that 1980. By that time our conventional reserves will have been depleted considerably. In that case the first one should maybe come to Edmonton. There is one line coming down there now. When you consider that there are no additions to the reserves, they are going to drop off and we should utilize existing facilities.

CC Would the powerlines and transmission lines tie into a corridor other than one coming to Edmonton, say one just straight south to Hardisty or straight south past Vegreville?

P One South through the Cold Lake-Bonnyville area would tie into the Alberta Power system in an area where the connection would be very useful. The total power installed would certainly be much less than available at Edmonton. The direct East-West routes; West would go toward the Peace River system in the province but East - the only use there would be ties with Saskatchewan.

CC A consensus here would be if the material is going to go East you would rather see it come straight South to the Hardisty area or somewhere such as that, rather than out across and go East along the Interprovincial system.

P It is a waste of time to look at it going straight East. Consider the support service; highways and access, people to operate a pipeline, power to service it, etc. It is a waste of time to even look at it at this point in time.

Another
P

From an environment point of view it is better to cut up one route many times than make many cuts in

many routes. I am inclined to agree that if you use the existing facilities and if you consider that environmental guide that the preference would be to the route to Edmonton and then a second route, if necessary, to Hardisty or to tie into any extra sources of oil.

Another

P

We already have a short term input corridor, but a long term output corridor might include everybody.

CC

What about a western route to Prince Rupert?

P

When are we ever going to be in a position to export energy again? Never! So that is a dead duck, plus the fact coming south into Edmonton all the arguments brought forth and others declining throughput is creating spare space in Trans Mountain and Inter-provincial and plus your rate of increase of production out of the Tar Sands. You are not going to have any increase for five years and the next increase is two years after than. Even every two years at 100 thousand barrels a crack, you are not really getting into what is considered big volume movements in oil. Any pipeline system could be economically expanded to handle that kind of increment with virtually no problems. Whereas, if you create a new system across through to Regina or Winnipeg, the cost would be astronomical. Even in northern Alberta we cannot

get people to work on our system. They do not like to live in the area. If you put something more remote than that you are going to have a real problem.

Going straight south to Hardisty is all right. You are tying into the Interprovincial Pipe Line. You are limiting your flexibility. It is a straight eastern market then, but that is where the growth is. Straight west seems to be ridiculous and straight east does not seem to be economical. Straight west also has Prudhoe Bay Oil to compete with in the long term. Also there is going to be no more export. If Interprovincial builds their extension to Montreal, they have to cut off the American market. There is just no alternative. With the declining reserve we have in this province, we all look at our forecasts. We are going to be handling in our system 50% of the crude oil that we are handling today in 10 years. Everybody is facing a similar thing from a presently developed field and there has been no new discoveries in this province so the only source we have got is the Tar Sands, or Cold Lake, or the Peace River, but this is synthetic or heavy crude. I would go to Edmonton. It is simple to get into, and Interprovincial has got the space to build a vastly enlarged terminal right there on the site. They have got the land across the street.

CC They are putting through 1.3 million barrels now, or something in that order. They can, on the present land holdings they have, expand to 3 million.

P There is one other point of clarification. If you prefer to produce at the rates they are today in Alberta, these reserves will peak out in 1975 or 1976 and the productive rates will decline thereafter. I am sure the Department of Mines and Minerals will agree with the forecast of this decline, and then you can super-impose on that any type of growth flow that you want from the Tar Sands. On the basis that the Tar Sands produce a million barrels a day; it has to go somewhere, Alberta cannot use it.

C The area I am concerned with is the legal aspects of any type of corridor. The problem from the point of view from the Department of the Environment was that they wanted to get out of the Tar Sands through a corridor for the express purpose of: (1) preserve the environment, if that is compatible with the existing technology; (2) confine one or more pipelines in an existing corridor; (3) provide for some sort of improved management in the corridor proper, and, probably lastly do all of this in a circumstance as it turns out which was not envisioned where there would be a high priority on the production out of the Tar Sands in the very immediate future.

From the legal point of view, there are several basic problems. The principle problem, with allying pipelines per se, is that pipeline companies generally are very jealous of their particular rights and very jealous of all the information that they gather and use in connection with operating a pipeline. I would think that power companies would follow the same category.

The problem that we have is, if we are going to put several pipelines and utilities in a corridor, and if the corridor concept is at all feasible, it can only be feasible, if there is some sort of managerial concept which will enable the existing utilities to exist side by side without difficulty. In the corridor itself, we have tried to determine whether or not there was any sensible way of having all the utilities and power companies contained within one specified area with the least amount of friction.

We also wanted to ascertain whether or not the people with power companies and the financiers might be amenable to some of the things that we were going to say. To that end we have now determined as a result of a survey of financial institutions and insurance companies that in all probability they have no special objection to powerline companies and pipeline companies existing side by side, provided that CSA regulations as they exist today are met.

The next problem, of course, is if we are going to have the corridor at all, how are we going to designate interests in that corridor to the various occupants or users? To that end, we explored the current state of the art which seems to be every man for himself; let us go out and buy some easements and let us put our lines from terminus A to terminus B, down through the concept of a condominium title, whereby, what we propose to do is that the people who are going to use the corridor would in fact acquire from probably a crown corporation or a private corporation, if that was the route that the government determined to follow which in fact owned all of the corridor. Their rights would take the form of an actual registerable condominium title much as is done today with condominium real estate all over North America.

The advantage of this system is that in the present state of condominium art, all people who own condominium titles within a condominium project are entitled to vote a board of directors to run the condominium corporation. The condominium corporation, on the other hand, owns all property simply by exclusion; that is not otherwise owned by the people who have condominium titles and they are essentially siezed with the management of the entire condominium. In this case it would be the corridor.

The concept means that each occupant will have a vote; ultimately the directorate of the condominium corporation or corridor condominium corporation will be representative of everybody in the corridor. Finally, since there is not going to be the opportunity for bargaining, the condominium corporation will have the opportunity to settle those disputes that are now either unseizable or seizable at great cost or seizable only by under-the-table dealings. What will happen is that all disputes then will surface and be handled by the condominium corporation.

From the financial point of view, there is a great improvement, although financial people do not seem to have any apparent interest in this. They are concerned, as far as financing is concerned, with throughput. The fact of the matter is that currently they have been attaching securities, documents, trusts, and bonds to pipeline companies where the title to the pipeline companies' lands is incomplete. If a pipeline has any value at all, once the throughput sort of goes down the drain, it would appear that companies who are advancing monies are not properly secure. I am currently aware of a problem whereby they are now attempting to transfer title to a pipeline to another company because the titles to the entire pipeline right-of-way are incomplete. The

condominium will cure that, because what happens is that the private or government corporation will go out and buy up the entire corridor. Secondly they will, as the users come into the corridor, sell them a right-of-way and that right-of-way will be titled and it will be registerable. In fact, what will happen is that you will be dealing, from a pipeline and powerline company point of view, with one authority. You will not be dealing with two or three hundred separate independent operators between the two termini as they now have been told. This simply means that all the spade work or ground work between the public and the utility companies will have been accomplished in the one fell swoop and from that point on it will simply be a case of each user coming into the corridor and getting condominium title.

The problem here is, what is this going to cost in terms of getting into the corridor? That is a matter of public policy. It will depend, for example if it is a crown corporation, whether or not the crown corporation decides it wants to subsidize in any way the industry; that is to say, charged them less, for an interest in the land on a simple fractional basis, than what it cost them to acquire in total. On the other hand, that is hardly going to be the attitude, and in all probability, simply because all of the work will be done at one time and will be an investment in the future use.

The costs naturally are going to escalate. That is to say the first users will probably get in for less money than the ultimate users or the late users, simply because of the fact that the monies that will be invested in the corridor will have to show some return to the province or private corporation that is doing the work. The net result that we are going to have here is that we are going to have a period of fluctuation if the government accepts a proposal to handle this in this manner. It is going to need new legislation and if in fact it passes that new legislation, it is going to do so only after hearing from you.

I think that the industry at large is going to have to decide whether or not it is prepared to make representations to the government; that it is prepared to give up some of its independence for the right to acquire this type of title. If the industry at large is not prepared to do this, then of course, it is conceivable in the event that the government feels that it is still in the best interest of the public that this may be something that will occur notwithstanding your objections. From my point of view it is important that now that you have heard about this, you ought to take it upon yourselves to make it known to members of the study group and if necessary to the Department of the Environment independent of this

group, how you feel about this particular concept because at the present state of development of this exercise it appears that ultimately this is going to be a foremost recommendation from my firm; namely, that this type of legal organization should occur in the corridor.

The insurance poses some problems in the corridor, mainly how closely can pipelines and utilities exist so that you do not run into under non-insurable risks or alternately some type of catastrophe situation in the event of explosion. The problem that you have here is that we really do not know how ultimately important the Tar Sands production is going to be. It is fair to say from everything I have heard that people are attaching a lot of importance to it and it may be a very important cog from the National Security point of view. The question arises whether or not the placing of all the strategic facilities in one local at a time when world tension is high will of itself create non-insurable interest. We suspect that for the time being it will not, and so we have confined ourselves to looking at the situation in an ordinary sort of peace time position; namely what happens from the insurance point of view if in fact you locate these utilities close together.

Our survey, of the companies that we thought might be big enough and have interest in this concept, indicates that they are concerned with maintaining current CSA standards; that is, distances should be in accordance with present technology. This particular group that I am working with has acknowledged in fact that the state of the art is going to improve over the next short while, probably as much as it has improved for some considerable time past in order to accommodate this kind of corridor concept. If the art does improve, the question arises as to whether or not we, or the engineering people, or the lobbyists in Alberta will have influence to change the CSA standards. The insurance people look at it from a purely risk point of view. They look at somebody else to provide them with some guidance and if the CSA approves these shoulder to shoulder locations, you will have an insurable product.

One of the advantages of the condominium concept which exists today, but, still enables you to have a corridor and have management confined to a board of directors appointed by corridor occupants, is that since everybody will have a separate title, we do not foresee that you are going to have to rely on one company to insure the entire corridor. This simply means that it is quite conceivable you

will have a multiplicity of insurance companies if we have ten or twelve occupants of a corridor taking up insurance because each occupant who will be applying for insurance will have in fact a registerable title. You will obviously have a registered plan of his facilities' location, and, as long as that meets CSA standards, it will probably be insurable, and it will be insurable on the basis that we can have multiple company participation. We will not be confined to looking for some kind of gigantic insurance corporation that can handle all of the risk.

If a corridor concept goes ahead, and if the corridor is in some way established, and if the recommendations that I propose to make are followed, one thing that we have not really dealt with in any of the published works concerning the legal aspects of the study, is; what will be the legal affect of any departmental legislation passed in conjunction with this corridor legislation to force industry to upgrade its standards with respect to treating the environment? The difficulty that I foresee is that this study, of course, is an educational sort of thing. The government is putting out its feelers to find out if we can learn something about a corridor and the environment at large between the possible termini. The question is; if the government through us learns something we have to assume the government is going

to pass some legislation coincident with the corridor legislation that will upgrade the standards. You, in the industry, know only too well that the Department of the Environment has been passing legislation or influencing legislation passed in other departments to some degree now, and we foresee that it is quite conceivable that there might be some standards incorporated in the legislation whereby the handling of all of the construction details and maintenance details of various facilities will be upgraded. Legislation might be too strong but certainly it could easily occur through regulation.

Part of the rationale for the condominium concept is that if we can confine the authority in the condominium corporation and if the Department of the Environment is represented in that corporation along with everybody in industry then of course the decisions will not be uni-lateral. You will have the input from industry from a practical and economical point of view and you will have input from the government represented by the Department of the Environment representing what they consider to be the public interest. That again I consider to be sort of ultra-important in the concept rather than merely having everybody out there on their own within a designated area. The government may ultimately at least approve in principle, if not actually incorporate in legisla-

tion, the condominium concept per se. That is where we are at the moment in this study and I strongly recommend that if you have any adverse feelings or questions about the condominium concept per se, that you direct questions either to me or alternately you make your representations known to other members of this group or to the Department of the Environment

CC

On December 7, 1973 orders of the day, Department of Federal Inter-government Affairs, Mr. Getty - "The Alberta Oil Sands pipeline is a 272 mile pipeline from Fort McMurray to Edmonton and is an integral part of the oil sands development as well. Initially, under present planning and capacity it will be 175 thousand barrels per day through a 30" pipeline. This capacity will be increased in stages through additional pumping capacity plus a 32" loop which is presently planned for 1984-85. The pipeline is a low risk venture and should be a major source of profits and funds for the future development project. Construction of the initial lines should commence in 1976. Planning is presently underway. The Alberta Energy Company will hold 80% of the equity in the pipeline with the remaining 20% being held by the Syncrude partners." That does not really follow along our concept.

C

The concept, when we started out, was that the government's participation, at least from a point of view of the Department of the Environment, was going to be in a limited role. In fact what would happen is that the government would end up with this delineated area where people who are in the powerline-pipeline business would be placing their facilities. The kind of thing that Mr. Getty is saying now is representative of an opinion that the government may find it advisable, because of various elements, to enter the pipeline business on its own, with a 30" line. Assuming that there is going to be additional capacity required, all that will happen is that the government or the Alberta Energy Company will own a pipeline. That pipeline will be within the confines of the corridor and probably within the next 20-30 years we are going to have four or five additional occupants in the corridor. Unless the government determines that the pipeline is so profitable that they would like to build a few more, there might be and should be private participation in the balance of the scheme. However I think that consistent with this study this was a bad announcement by Mr. Getty. It is a little premature because the government has asked this group to attempt to decide how we can handle a corridor. If in fact it were a situation that the government intended to build all of the pipelines out of Fort McMurray,

it is axiomatic that the study of the corridor simply has no application because in fact the government would be in complete control of its own destiny. I envisage that the government really is entering the private field and the Alberta Energy Company will be just the same thing as any independent oil company occupying the corridor. If in fact the government is the only occupant of the corridor it would certainly affect our legal considerations. We do not need a condominium corporation for a government pipeline.

CC

We had a meeting with the technical people two or three weeks ago, and they came to general conclusions. For a corridor, on a technical aspect, oil pipelines would be 10' apart; gas lines approximately 30' apart; powerlines at least 100' from the pipelines. In the powerline spacing, as close as they like to come to each other is within what is called wire contact, or, the type of powerline we are talking about for this corridor has a spacing of about 100'. They desire, when they are paralleling each other, the fallover distance of a tower which takes you out to about 150'. Their most desire spacing is 40-50 miles to get away from other weather systems where one icing storm could knock out both powerlines if they are together. If they are 40-50 miles apart, the percentage is less. During this technical

meeting, a point was brought up that the powerlines should meet the CSA standards of 220 yards from any gas line. They came to the conclusion, after they heard that the powerline companies design their lines to be iced and fall down once a year every 100 miles; that a gas explosion is extremely rare and so the incidence of powerline failure would not be significantly increased by a gas line explosion which might cause a powerline failure; it will not present that much of a hazard.

The general conclusion that we have come to in our study is that whatever combination you select, the potential advantages of a corridor can be summarized under five separate headings - (1) conservation of land and space; (2) the environmental impact is restricted to a limited area; (3) it can be used as a positive force in shaping land use pattern; the establishment of a corridor in urban areas might limit the land use; (4) there would be administrative and management efficiencies assuming a single authority, owning or administering the corridor; (5) the economy of a single land acquisition.

There are potential disadvantages with whatever combinations you use: whether two oil pipelines, gas lines, etc. There is the initial resolution of conflicting interests; potentially higher

intensity of environmental impact within the restricted area; complications in engineering design within the corridor and the vulnerability to major catastrophe.

The major conflict is the construction conflict; and, that the construction period is the biggest danger period. After the thing is in and operating, there is very little conflict. Your construction period is your dangerous and complicated period.

It is now open for comments on the corridor concept from the technical aspect of having these facilities in one right-of-way.

P The National Energy Board regulations regarding spacing are; 15' and 30' for oil and gas lines respectively.

CC There is a possibility of a National Energy Board pipeline going from Edmonton to Fort McMurray. It could complicate the legal end of it.

P The spacing of powerlines from pipelines is 100' but in B.C. where they are restricted by the terrain in mountain areas and mountain passes, etc., they tend to throw out these rules of having to keep powerlines away from the pipelines.

Another

P

There are about 100 miles of powerlines running parallel with pipelines, which have been in operation since the mid 1950s. There have been no problems. There have been many miles of pipeline competed 10' from 230 KV lines. Some even go under or through them.

Another

P

In B.C. some part of this problem of spacing is caused by following AC-DC powerlines. This is a major concern in the pipeline industry. If there is an AC or DC line included, there will be an increase in the cost of construction of a pipeline.

CC

In this committee meeting, it was stated that overcoming the AC currents was not too big a factor or too big a cost. It is being done now on many miles of pipeline. The direct current is another problem. Present practices indicate that DC would be more of a corrosion hazard than AC. For now, they would have to stay out of the corridor.

This greater depth near the railway and those corridors where the pipeline is outside the railway right-of-way, there is no problem.

The corridor width could be 600', 700' or one mile. This will prevent a lot of catastrophes. There are four areas to be considered: the urban area, agri-

cultural area, forestry area, and industrial area. In the forested area we might spread it out a mile, but when you get into the urban-industrial area you will want them right together because of the land costs and all the rest.

We sent out an extensive farm questionnaire, and we got a good response. We discussed it at seven meetings with the farming community and we came to the conclusion that they would like the corridor concept. Establishment of pipelines and powerlines in a multi-purpose single corridor would cause some disruption to the physical and social environment of the farm community during construction, but once operating, the impact is relatively small. With ample notice, fair compensation and proper construction practices, very little opposition would be expected from the farming community. The multi-purpose single corridor is recommended rather than many single rights-of-way in the agricultural farm community. We did have real good sessions at these seven public meetings.

The pipeline that is built would have to be a common carrier. It would have to take several plants. The worst possibility for the environment would be a pipeline for every plant. Economically it does not work. The other thing is to build a 60" pipeline, one that would take everything. That does not work economically but it might satisfy the environment people.

You would get a condominium title for where your first pipeline is and maybe your next one is to be 100' over and you would get another condominium title. As for expansion, they would have to come out of the corridor and expand.

P

I am concerned that any pipeline going in will have to be put in with an operating pipeline because once you have started the plants going, the demand for the crude is such that you cannot shut those lines down for construction of another pipeline. You cannot economically do it, or politically either. There will have to be safe work procedures established in order to construct that line and protect both the employees and the environment.

Ten feet for certain soil conditions on any of these routes are just not practical. Up in the wilderness area you do not need an 80' right-of-way but the last few people in there are going to be on a hard row of stones.

If there is wet soil conditions, the first thing that is going to happen is this line is going to pop out of the ditch and into the ditch you have dug.

Another

P

We could safely pair a line but you would have to have working room on the outside. You would not want to work over a hot line.

Another

P

In the muskeg area it would be winter construction. The ground around the pipe is not frozen. You have to be far enough away so that there would be no interference. There might be problems the following summer.

CC

I would like to direct the discussion on this business of public involvement. We have gone through these seven public meetings. In the future you will be much more concerned. These seven meetings we have had now, the attendance was very poor. The input we thought was good. People went away generally feeling that they knew what was going on. This meeting here is sort of public involvement too, only this is for industry. The others were for the landowners. I think the major thing we found in this public involvement, the public did not know what we were doing or trying to accomplish. Their attitude largely was what are you coming to see us for; you are going to do it anyway. Maybe that is our study group attitude with this group, I do not know.

P

I felt that in the agricultural areas, Boyle and that part of the country, that while we had small representation we had a very realistic representation. In other words, all of us are interested in our pocket books and the people who showed up there were interested in what we were doing. They were interested in how we were going to affect their land, and of course, how it affected their land value. When we got down into the fringe area around the City of Edmonton, Fort Saskatchewan area, etc. where the land is not primarily an agricultural land but an investment type of land, we got a much more volatile reaction from people as to the effects that the pipelines and powerlines would have on their property. The conclusion here was that public interest was not high except where it directly affected people and their interests. Even in that case it was brought about as it related to their financial situation. In other words, what did it really do to them financially as it was either in the form of remuneration or how it downgraded the value of their property.

CC

This was the handout that we gave out at the public meetings. It was written in English, French and Cree. In conducting these public meetings, we held a public meeting in the afternoon and in the evening we were just going to have personal interviews, but

with the small number that showed up the whole thing was all personal interviews. The fact is we just sat around the table. We discussed the problems in an open manner.

P

I found in the public meetings where you get a few people showing up, that you have the people who are the real big squawkers and the people that really have not got too much to say other than what you would like them to say, the real backpatters. I found that there is no real middle of the road people at public meetings. I do not know whether you get that much information from the public meetings.

C

I was wondering about that when a company per se sets up a public hearing, then you have a sort of jockeying back and forth. The way we tried to structure these, and it took about an hour in each one of them to get feeding back to us, was that we were not there to negotiate anything or to even talk about negotiations. We told them we wanted them to tell us what they thought and bit by bit they did. The attendance was not good but we did get a lot of people such as the middle of the roaders.

There is one other point about those questionnaires and that is that there was one pipeline where the clean up was not that good. The people were well

paid for it but even 5 or 6 years later it still rankled them. It did not matter that they had been paid; it was the fact that they were left with bad situations which continued to bother them.

P

We recently had an experiment in public meetings where we were building a major powerline from Red Deer to Edmonton. We sent out letters to the individuals where the present powerline is located. At the first meeting with the individuals, we had nine come to the meeting. They did not have too much to add to the meeting but we find now in negotiating with the people, the ones that were at the meeting or had talked to people that were at the meeting are easier to negotiate with. They are more familiar with the project and we find very little difficulty in negotiating with these people. I would qualify this because it is a re-build of an old line. It is not a complete new right-of-way as such. I would not say it would apply to a complete new right-of-way.

Another

P

We are finding that one of the most important elements, that is needed, as far as involving the public which is one of our prime responsibilities, is that of, not so much of gleaning information that will be helpful to the technicians, but that of disseminating information so that the public has a

better understanding of what is going on. A lot of these problems are not one of really disturbance of land etc., but in the area of the emotions on how they are approached and included and involved. We must consider the involvement of the public from the point of view of that of disseminating information in a manner that they can relate to themselves. It is something that we have to look forward to in the future because some of the experiences we have had. You know in Calgary here the injunction about the few trees cut down on Princess Elizabeth Island to enlarge the zoo; the injunction that costs the city in excess of \$100,000 before we got it straightened out. If there had been an approach made to the public so that the city could disseminate this information to them, I think that the communities would have accepted this change. Another thing too, that even though there are a small number of people that attend the meeting, often you will find that what goes on behind scenes after that meeting is held is amazing. These people talk all over the community about the meeting they attended. Here again this infiltration of information is very important.

CC This is in regard to the width of the corridor.

C

Several questions have been asked regarding a corridor: how much background literature has been used and how much that applied to actual corridors that had been instigated; should the corridor be a mile or two miles wide; should we even have a corridor; what are the pros and cons of a corridor? You should ask yourself when is a corridor not a corridor? The best way I can identify it, first of all, is that we have got to have oil in Edmonton. We will build a line from Fort McMurray to Edmonton. At a later date we might want to take some west to Prince Rupert. We will put another line in there. Then we have got to take some down East. We will stick another line to the southeast. This would destroy the corridor concept because there would be nothing left to put in it. However I got the feeling we ruled out the line to the East and a line to the West and bring it all south some way. This would provide the foundation for a corridor.

We also talked about regions within this study area. For instance, this coming out of Edmonton is controlled by the presence or absence of certain facilities already there. The second region would be the agricultural zone south of Lac La Biche. This would have different constraints upon a corridor to those in the third region north of Atmore which is essentially wilderness. In the wilderness areas I would prefer to see a much wider corridor.

We could set up optimum conditions for construction where you have maybe two, three or four pipelines in one narrow belt and then 400' over, you could stick the trees between, another three or four, depending on how many you want. This is sort of the design stage of your corridor for your considerations. The technicalities of construction must be taken into consideration. Certainly in the wilderness, probably the widest zone, would be better from our point of view in the approach to a crossing without a road. If you have a road you have to bridge it or you have got to put culverts in. Then you also have to take your pipes across. Maybe it is better, at a crossing therefore, to draw everything from this multiplicity of small corridors or small groups within the general corridor to narrow it down to the crossing. These are compromises which in the final solution would have to be worked out. The sort of feedback that we could well get from the group today as to the way we could work out all these different concepts. In the agricultural land we do not want to take two miles of land. It might be a sort of land bank for further development. But in terms of actual surface disturbance, it would be better to confine ourselves to a smaller one.

Another
C

In the wilderness we probably should have a wider corridor. Also in this area, you see the corridor come up onto the drier land in the Chichon Hills. It is a very interesting situation there. We have about two or three shallow depositions overlying a very dead glacial till. Along the highway you can see where you are getting seepage coming from the ditches, little muskegs along the side of the highway and you are getting some slumping. Also slumping occurred into some stream crossings even if the banks are not very steep. This is a factor that has to be very carefully weighted in that area. If you get your lines too close together you will have quite a bit of slumping occurring between them.

When you get down to the agricultural land, the better mineral soils, not bushland, a narrow corridor would be much better in that the top earth can be stockpiled along the side and then after the pipeline is put in, it can be put back in so that there is a minimum of disturbance to your crops. They will probably come back in within a year.

The soils north of Chichon down to Fort McMurray are developed from silts which are very unstable especially in the wetland area and organic area. I am a little worried on how much slide and slippage you may get in some of these trenches that you are

digging in there. You may have quite a bit of that so I would favor the wide spaces of pipelines or facilities in that area also.

Fortunately if you take the central concept you run into very few sand dunes except down where the Sturgeon River enters the North Saskatchewan River. I definitely would like to see the pipeline kept out of that area because I feel there that the difficulty of having organic plus very coarse dune soils plus the topography you would have to have a wider corridor. You would have more chance of wind erosion, maybe water erosion. If it could be shifted to a little more stable area where the soils are agricultural soils and the topography is a little better, that you may save some environmental problems there. I have no objections to running these pipelines through agricultural lands because they can repair them much faster than you can in grey wooded areas, sands or wet soils. You have to consider the fact that you are going to have a wide corridor in some places, a narrow corridor in other places and when you get down into the agricultural lands you could become crowded just mainly pipelines rather than powerlines or railways, because they are well supplied in those areas anyway.

Another
C

As far as the birds and mammals are concerned, there is room for compromise in some spots. Generally, I favor the smaller corridor rather than one a mile wide. There are undoubtedly some species that are going to benefit, species of both birds and mammals, from having a highway through the forest. Providing the corridor is wide enough, you are going to have birds nesting in here and this may not be too bad. Some species of birds are very shy animals and they need protection. Their nesting habitat needs to be protected. They have to be in a quiet spot for nesting or they will move out. They just will not nest in those areas. The gray jay, for example, is very friendly. When you are not bothering it, it will camp around your camp and so on. But during nesting season, it wants to be alone and if you are charging through the bush during nesting season these birds are going to possibly abandon their nests and move elsewhere. For deer, providing this buffer zone is wide enough, there should be no problem. White tailed deer like to be out in the open and if they are frightened they will head into the bush. Caribou migrates across the railroad tracks now, but if you put in a road and what-have-you close together in with the railway, it is possible they will not migrate across. I do not know what the effect would be if spread out. There are problems in

dealing with the different species. As far as the waterfowl is concerned, the wider the corridor the more wetlands you are going to possibly disturb. You are going to disrupt the breeding habitat of these birds. I am sure there is room for perhaps a mile wide in some areas and a narrow corridor in other sections.

P It seems to me that in the more remote rural areas, the facilities are more or less isolated rather if than all in the corridor, they would have less impact on the small communities. I do not know whether that is detrimental but what I am thinking of is the human population as well as the fish and wildlife. It would be better to have several roads many miles apart with 100 cars a day than a highway or freeway with 1,000 cars an hour running through any particular area.

C As far as the human settlement pattern is concerned, I agree that the wilderness area does not pose any constraints at all, except for the few communities that do exist and it looks like we are going to miss most of them. If the human settlement pattern becomes more relevant in a settled area another type of constraint is going to affect us in determining width; that is the character of the area through which it goes in a physical sense. In the settled agricultural area the basic unit of land use and of land ownership

is the quarter section and from a practical standpoint of acquisition, perhaps the easiest width to acquire is a one half mile wide. You are just buying quarter sections using whatever has to be used for corridor purposes and perhaps leasing back portions of it along the way. There is no easy answer to say how wide the corridor would be in a certain location or what width is appropriate in a certain environment. It is going to vary on the basis of circumstances in a particular location. In a philosophical sense, the whole exercise is really one of long term planning and if we are ever going to get into a situation of recommending widths, if there is ever going to be a matter of doubt, we are going to be on the generous side in terms of width.

P We should keep in mind how many pipelines, roads, powerlines would be built within that corridor. We can see one or two more pipelines and that is about all.

CC They will probably include gas lines. The processes they are using now requires gas to go into the process up there so there are gas lines as well as oil lines. At the most, I would think, would be two more pipelines, maybe two gas lines. It depends on the development.

C I have some figures for this forest multiple corridor versus multi-use single corridor. First, the single corridor over the multiple corridor: There are 25 first choices under single corridor, 16 for multiple corridor. These 16 first choices for multiple corridors would be mainly species such as chipmunks, voles, bats, etc., these animals, and 25 first choices for a single corridor, have everything in one chunk. These were mainly animals which were fairly shy, the wolverine, some of the aquatic species, the otter, lynx, elk, caribou are fairly shy. It depends where your priorities are. If you have 30-40% more cleared area, it might be beneficial to some species and to others it is going to be detrimental. You have to take it species by species then.

P Do we propose that this corridor is going to be purchased; all of this land is going to be purchased by this condominium corporation or are we looking at an easement? What are the financial ideas about getting this corridor?

C You can see the diagrammatically opposed situation here where you have an economic constraint on one hand, namely do we spend the money, does the government spend the money to acquire a right-of-way between here and Fort McMurray or any two termini and acquire it fee simple? In other words acquire it outright?

Does it go about leasing this? Of course the problem that you have is input externally; that is to say we do not know how many actual facilities will be within a corridor. We have the other points of view that where we want to keep it narrow, various utilities want to keep it wide. They want to keep apart. The fact of the matter is that in pure economic terms the narrowest possible corridor incorporating the maximum facilities bought outright would be sensible. In terms of utility as between occupants in a corridor, it is quite obvious that it does not fit with their requirements, so therefore, it is going to have to be something else. We have considered the possibility of easements and leases and that is the way that is being used today. It appears from the input of the typical farmer, the agricultural community, that if you are going to cross his land at all you are going to cross it in a wide swath. If you are going beyond a 50' to 100' corridor you better be prepared to take all of his land. It is an astute move from the point of view of keeping the publicity regarding this type of project at a low point and preventing a great deal of civil liberties conflicts.

We have not considered the outright ownership of a wide corridor in terms of total cost but we think in the long run it is the only way that you could ever incorporate all of these people in all of the

utilities within the one framework. Failing that, you would really be thrown back into the original concept that we considered, which was zoning a corridor and having everybody have a shot at it at the time that they are prepared to install a facility dealing with all of the individual landowners. One of the problems we run into is that once the corridor is zoned, it might move it outside the agricultural area in the sense that we are talking about values. You are going to have the agricultural people telling you that you are no longer taking my farm. You are taking part of a corridor and we want the industrial values for land. So you could actually change the value structure by zoning. Outright purchase of compromised width is going to be the way it is going to have to go. It has definitely an economic constraint.

The reason that we think we can do it is because we are talking about an area that is still not highly industrialized, populated, or even agriculturally used. We are talking about going through a relatively small area of developable land and then moving out into a relatively wilderness area which of course the government essentially owns itself. This is the only reason that is feasible. We also have not reached the

sophistication of the United States where in fact we have total avarice prevailing. There are areas of compromise with landowners that are still within the sort of dollar limits that both the government and the company can afford to pay.

P

There is a concern for the environment. There would be minimal disturbance that the contractors or constructors can do to the wildlife and animals, etc. This is winter construction. You are going to affect some of the larger mammals. You will not affect the waterfowl in any way during construction. The migratory habits of the caribou I am not familiar with, but once the pipeline is in it is over and done with and out of sight. As to the width of the right-of-way; you are going to preserve the edges; you are going to have pasture land for the animals. I do not see any particular problem to the wildlife in the area that the pipeline is in.

The width of the right-of-way has caused a great deal of discussion. Insofar as pipelines are concerned, it is just a matter of economics. They can be any width at all. It is likely that possibly two or three individual oil lines over a 30 year period may ultimately be installed in this corridor and possibly two gas lines. We would be prepared to put that into a 50' right-of-way if forced to it and

would probably be quite content with 150'. I think those are realistic numbers insofar as the number of lines that could conceivably be involved.

Interprovincial Pipe Line is moving one million barrels a day. It is going to be quite a while before one million barrels a day comes down this corridor.

The corridor concept has been tried before. It may be that we are in time for such a concept to be applied. It should have been done 50 years ago because pipelines have been laid in this end of the world for that length of time. If the decision is made that all of this energy will be transported between Edmonton and Fort McMurray region, then the corridor concept has possibilities. I do not think you can wait too long to apply it, particularly in the Edmonton area. Most of us have tried to bring utilities, be they pipelines or high voltage lines, into the Edmonton area in the past few years and we cannot get in there now.

I hope that whoever controls the corridor, and I guess it follows that the government will, they do not overlook economics. In other words they do not force people into such a corridor. If it should turn out that this oil should go to Winnipeg and there has to be new construction, I hope they take the

the short route. There is no sense going the long route and spending vast amounts of money that are involved in pipelines when we all know there is not enough capital available to do the jobs we all have to do today. Wasting money, which is a very important resource, is a crime because there is not enough of it.

Another

P

My interpretation will refer to the general topics discussed without reference to the order in which they were discussed and of the consensus of the meeting itself. The first thing has to do with the corridor concept. There is a question here as to whether there is a need for a corridor or not. I do not think it was fully resolved. First of all, under the corridor concept there is a conflict between the requirements of the railways, the highways, the oil lines, the gas lines, the power-lines and the telephone lines. This varies but they are conflicts of the requirements. The width of the corridor was discussed and I guess the general consensus there was that it probably should be wider, using the term very broadly, in the wilderness and northern areas of the province. We have had a discussion on the number of lines. This has to do with the oil lines and gas lines. I do not think there has been any clear concept but as far as the oil lines are concerned they seem to be zeroing in on something like 1 to 3.

The gas lines I have not heard. As far as the highway and railway are concerned, I was under the impression from the consultants presentation that these appear to be adequate for some time with, of course, improvements on the highway.

There seems to be some question as to the ownership of the lines, who actually owns these lines but that was not resolved at all. There was some discussion on construction problems and corrosion. The present highway, railway and the pipeline with certain reservations were logically located considering all the factors. I gathered there were some questions on the pipeline.

It appeared that the center corridor was the preferred choice over the east or west alternative. This is in general terms weighing all the factors. The first choice for the ultimate terminal location was Edmonton. The general consensus was that the first and second line should come to Edmonton. The West Coast? - I was under the opinion it was ruled out. The other alternative was basically Cold Lake to Hardisty and some thought that this should be looked at.

Most of the comments came from the oil pipeline industry. We discussed the condominium concept and I have nothing to add to that.

As far as the presentations by the consultants are concerned, I thought they were good. They were generally clear cut and to the point. As far as the ultimate terminals are concerned, my opinion is that Edmonton is certainly the place within the foreseeable future. I am talking about 5 or 10 years. Down the road to the development from Cold Lake, I can see the requirement for a corridor from Cold Lake to Hardisty or to some other point. As to the number of oil lines, unless there are some very heavy materials out of this plant, one pipeline - one pipeline with a loop of that line sometime in the future. I am thinking in terms of the original line of 24" to 36" and the loop of that line in 10 or 15 years time it could be anywhere from a 36" to 60" pipe. I would think that the Tar Sands development would be more clearly defined in what direction it is going in the next 5 to 10 years than it is now. The only other comment I have is whether this corridor is needed all the way from the Tar Sands to Edmonton? Are the powerlines going to come into some point above Edmonton? Are the gas lines going to come at Edmonton? Are they going to come in from somewhere else? The oils lines are already coming into Edmonton.

Another
P

Our observation is that it will be the political decisions that will govern. We have had many regulatory agencies that admit to us very openly that their considerations are a matter of poundage, that is depending on how serious they view the situation, how many pounds of written material they want because they can defend any particular decision that they, as civil service or politicians, make. There is enough poundage there to back up whatever decision they want. They make no bones about this at all levels of government. We have gone through the swing of the pendulum on environmental concerns. For example, we went into a state where we were going to be faced with many and extensive environmental hearings. With the sudden switch of the energy crisis, those hearings were cancelled and bypassed.

Studies have been done and made and have never achieved anything since the economic realities will negate them. If we are going to buy this corridor in fee simple, the economic cost alone is so far in excess of individual easement rights-of-way that it makes its economics very suspect. From my observations, I found great concerns of environmental protection have been negative as far as people are concerned. I can cite an example where we had the choice of going through about twenty miles of dense water area. From the

point of view of avoiding dangers to people, etc., it was the ideal and the most economic in every respect. Instead, due to the great human cry of concerns over fish and worms, etc., the situation forced us to put twenty-five miles of line through the centre of a metropolitan area carrying gas. If you weight the exposure to millions of people versus some wildlife, it seems a bit ludicrous. Another point I would like to make concerns the government and altruistic people. They look at industry as being avaricious and self-serving. I would suggest that the economic facts of life dictate to industry that we do the very best job. As a pipeline industry, we have been good corporate citizens without the imposition of a whole bunch of extra rules and regulations. We cannot afford to have stream banks wash out. We cannot afford to have leaks. The cost to a pipeline industry to have failures and problems is far in excess of any damage to the environment measured in any way. The economics of the situation is pretty obvious.

From the comments made everybody chooses the centre route because that is where the highway is. That is where economics dictate the pipelines are going to be built anyway. I think in our observations from an easement point of view that landowners may

sit down and say that the corridor concept is great; when you get right down to the actual hard cold facts of negotiating easements, they do not want a multiplicity of utilities across their land because it entirely chops it up and prohibits them from future subdivision or any other economic upgrading of their land.

If we are going to buy this particular corridor, perhaps one of the ways we can do it better in Canada than our American neighbors have been able to do is because our expropriation laws are much tougher and the people can override the rights of the individuals in Canada much easier than it can be done in the States, so that again it is negative to the people side of it in favor of some other concerns. If we look at the percentage of the land involved in any amount of the corridors that are going up, there will be the single easements that are infinitesimally small compared to the wilderness area. I do not consider the environmental concerns to be of much weight. This comment of soil conservation, soil stripping, etc., you might consider the study made by the University of Saskatchewan on the effects of pipeline right-of-way on soil productivity and, without exception, they found that the productivity over a cultivated ditch line was equal to or greater than in the undisturbed soil beside it. At this

other end of the corridor and in the north, really the whole concept, I think, we are looking high in the sky and it has been demonstrated over and over again by the work of hundreds of people gathered in groups like this in previous studies that it will serve the needs of the politicians to have ammunition to back up whatever conclusions they come to.

Another

P

I have the impression that some people think that once the pipeline is down through this corridor that this is going to be a great wasteland, no use to anybody but pipeline companies or powerline companies. There are literally thousands of miles of pipelines in Alberta that are still used for agricultural purposes if for no other thing. As to the matter of soil stripping in agricultural areas; it is a matter of the individual farmers concern. Sometimes he would shoot you if you strip off his pasture land, but that does more damage than anything else. But on some of this prime agricultural land you have got 12" of good growing soil, then he will demand it be moved forward. It is a matter of the individual farmer's choice and they will tell you what they want and you have to do what they want. I think that even in the agricultural area, a corridor concept is not necessarily needed, or even useful.

The only concern that a farmer would have is the separation of his lands for subdivision purposes. Other than that, for pipeline purposes anyway, they still get the use of 99.9% of the land, usually after you have paid them the full purchase value of their property, for agricultural purposes.

The concept of a corridor in the wilderness area and the pressure we have already had from the Department of the Environment is to reduce the damage to the forest cover. They very much want us to restrict the damage to forested areas in the northern districts. In the wilderness area, the narrowest right-of-way you could possibly get will keep the environmental people much happier than anything else that you can do. We have already spent a considerable amount of money in order to do this. The whole concept is to reduce the unnecessary removal of forest cover in the wilderness area.

CC

Regarding the agricultural areas, the input we received from the farmers themselves is that they would rather have these facilities crossing their land in a package as it were, rather than criss-crosses. It came through that about 80% of them would favor the corridor concept. They did not want it on their land as long as it was on their neighbors land but still they favored the corridor concept.

P

On this business of right-of-way rights, I would just like to point out there are other resources involved other than our environmental resources. Whatever lines go in there, whether it is in a corridor or individually, you are going over some pretty fine Tar Sands territory in itself, plus possibly coal reserves. I think that these rights-of-way should be kept no larger than what are needed. They should also be selected so that they do not make a potentially economic property uneconomic because there is a right-of-way through it. There are a lot of good areas and the right-of-way should, as much as possible, be selected so that they traverse essentially barren ground. You have to remember that there are reserves below the ground other than just the timber and wildlife on top.

CC

We did divide some of our discussions into the five areas. One was the Tar Sands area where you are going over the Tar Sands. Most of it would be the in situ area. I do not know what they have done about reserves under that property. On the north side of Area 5, they are building houses adjacent to the existing 100' right-of-way. Area 3 which is on the south side has not been developed yet. I do not know what approach the Town of Fort McMurray or their planners have made in regard to gaining the mineralization or the resources underneath.

P As far as Alberta Power is concerned, the series of typical cross-sections are considered generally acceptable if the corridor is used. The terminal location would be determined by the oil and gas use rather than by any electrical consideration.

Another
P

On the terminal end, the power generating facilities for power in the province is very little towards the eastern end in Cold Lake. There are generating facilities presently there. There would be another corridor of transmission lines if you had heavy power consumptions such as at pumping stations.

Another
P

I believe I heard you say that this would be a political decision only. I wonder if we cannot influence that political decision.

Another
P

I was quoting statements that were made to us by numerous regulatory agencies. They wanted to be in a position to defend whatever position was taken by the politicians in making a decision. They took one decision and one case in one state, one decision to really give us the environmental gears and put it through many areas. That was completely reversed in the face of the energy situation. They took another decision but they had adequate information made at very extensive cost to us, to support either

decision. I am just stating the realities that we have run into and I think this is a current 1973 dealing.

Another

P

Maybe we can discount some of that due to the political atmosphere that is here today rather than what might have happened sometime in the past.

Another

P

The industry have been good corporate citizens from an environmental point of view. There have been exceptions, but you look at the thousands of miles of pipeline in this province. The pipeline industry particularly have been good corporate citizens and so has the power industry. Yet we want to extend government powers over industry because of the transgression of a relatively few.

Another

P

I am saying that the economics of going out and buying in fee simple a corridor 1,000' wide versus going out and buying easements of several corridors 60' or 80' wide; it may be impractical to buy more than 300' or 400'. As has been pointed out, if we buy this corridor, we are going to be generous in the width that we buy. I am suggesting that we are going to pay considerably in excess of what we actually need. You will carry the burden of that additional cost. The fee simple versus easements

varies from jurisdiction to jurisdiction. Alberta may be running quite high.

CC

It may be an observed fact that in the past the physical parameters which have governed the location of transportation of all of the facilities have consciously or unconsciously taken note of environmental factors. In the past, the engineers have taken care of these, but today and in Alberta in particular, there are two new parameters; that is, involvement of the people and the environment.

If you have not had these piles of information, I can see that in the future that if we had not gone through the exercise we are going through now, it is going to cost several hundreds of thousands of dollars. We have all this pile of information and it is very much more liable to let the project go ahead and then have a pipeline starting down from Fort McMurray and stop somewhere half-way for some minor item. There have been projects much larger than this stopped for some item, where this study has not been done. If this study does nothing else, it may stop something like that. You have statistics and you can do a lot of things with them.

P

The selection of route that was made for the highway and for the existing pipeline was based on good route engineering practice. Industry acted as good corporate citizens without the club being waved right over their heads, and without spending a lot of additional money which the public has to pay for, and for no significant benefit.

CC

The farmers were well paid for their easements but the construction practices left something to be desired on account of some rush in spring jobs and going back which is going to cost whoever does this corridor money if it does go ahead. There were a lot of complaints from the area from previous activities.

Another

P

Their objections were based on one pipeline rather than on a group of pipelines running through the property. They were exposed to one horrid example rather than being exposed to a good example.

Another

P

On the assumption that . . . you go to the corridor route, and using your observation that the land-owner prefers, if you are going to go in excess of 200' that you take the whole thing, a large part of the line from Edmonton in the central route, for example, crosses arable land which is now being cultivated or can be cultivated. You are looking in

the context of a half mile corridor through arable land, that you are going to purchase in fee simple. This is going to remove literally tens of thousands of acres of arable land from the farming communities, and you, as the condominium owner, are now owners of these tens of thousands of acres which have been effectively removed from the agricultural picture. This is a significant factor. What are you going to do with it? Are you going to turn it back and lease it back to the landowners so that it can be cultivated?

The mere designation of the corridor and the purchase of the corridor for a particular use is not going to take the surface out of its existing use. What it is going to do is put us in a position, if the government determines that it wants to follow a recommendation such as this, where the occupants of the corridor are essentially going to be dealing with themselves as opposed to dealing with a whole bunch of individual landowners and occupants and farmers down the line. This also means that acquisition will all occur, provided that it is economically feasible, all at one time. So in a typical agricultural area, what you will expect to happen is that we would be far better off buying the entire quarter and leasing the quarter back to the farmer instead of trying to take 50 acres and compensating him for the fragmen-

tation that has obviously happened to his legal title. We will still have the rights over the quarter for the purposes we want. We will be able to sell condominium title to a pipeline company below surface; condominium titles to a powerline company above surface. The farmer is our guest rather than we being his. This solves a lot of public relations problems. This is the kind of exercise that is designed to do that. It is designed to attempt to come up with a way to solve the present disassociation of the public from political action. We are not going to change the nature or use of the land at all.

There are several ways of getting away from paying damages to crops every time you enter the property. One is by initially getting into the lease on a cut rate basis so that in fact we are not going to be faced with the problem of going out there and re-analyzing his damage and dealing with him on that basis at all times. The other way, obviously, is to give him the land for nothing in which case if we damage anything we get no argument anyway because he is there for free. The third way is leave it open to negotiate the damages, as it is done today. You cannot say one system is better than another without actually doing the arithmetic. In the end you want to answer the thing economically.

The initial premise consists of changing the relationship of the corridor occupant and farmer, by having the farmer your guest instead of you being his. Politically at least, this is a step in the right direction. Secondly, he will be only dealing with one authority as opposed to dealing with several pipeline or powerline companies; in other words, several groups of individual negotiated changes. It also makes more sense in public relations. In the end nothing changes in the land and the only thing is, that in the framework of economics, we try to get to the point where the farmer-corridor, farmer-pipeliner, farmer-powerliner is in the best possible relationship to each other in a public relation.

P Assuming 500 farms are going to be put into this position of tenant, do you have any idea what your administrative costs are going to be?

C No, we have not analyzed that simply because it is not part of our study. Secondly, I do not think, at this moment, we have any way of analyzing that because there is simply nobody with that kind of experience. One could do a projection at best and it would take somebody to do a survey - analyze how many farmers are going to be involved; analyze the kind of administrative problems that are going to be dealt with. In general it is a small problem

compared to the concept. You own your own pipeline; you have an administrative staff of land consultants; you employ private contractors; you also have a first echelon executive that ultimately has the responsibility of this organization. When you are handling a problem like that you have an administrative cost.

P

We have areas in the province where we own our right-of-way and we have areas in the province where we have acquired easements. Our experience has been that the owned right-of-way where the farmer becomes a tenant is far in a way cheapest right-of-way we own because we do not have any more problems once we own it. He continues to farm it; he gets it at a good rate. Eventually that has to move on as the economic value of that owned land gets greater and the competition for it gets greater and we start to get a return from it. Up to that point he occupies it cheaply or for nothing.

Another

P

You have complete land separation whenever you cross his own fee simple with the right-of-way. We have this problem. We have a right-of-way in fee simple and many instances we agreed to convert these to simple easements so the farmer would not have complete land separation. If we own it we could fence it if we wanted to and if he wants to sell a parcel across this way or sell the parcel, nobody will buy

it because it is separated by an estate in fee simple. To me, owned easements or fee simple easements are just unfair to the farmer.

Another
P

Where it is required, we grant legal rights back over to take care of the farmer's needs so that he has no end destruction whatsoever.

Another
P

It is extremely difficult for them to do any subdividing or provide access across without having a survey done, without having to go through quite a lot of legal procedures. The problem is transferred to the farmer.

P
There are two power companies in Alberta. When there was a body called the Alberta Power Commission, they divided up the province into service areas. Alberta Power has the Peace River country, the area around Cold Lake, Drumheller. Calgary Power supplies the southern part of the province. There is a territory north of Boyle up to Fort McMurray which is unassigned.

About 2½ years ago the Alberta Power Commission ceased to exist and we came under a body called the Energy Resources Conservation Board. Everything we do comes under their jurisdiction. The Department of the Environment is overlooking every-

thing we do and making sure that our overhead facilities are located in the best possible location and I think that is why this corridor study is being done.

Alberta Power have made an application to build a line from Mitsue which is on the eastern end of Lesser Slave Lake to Fort McMurray. The company thought that the transmission should come from the Edmonton area. The answer has not been given. In other areas of the province if the corridor concept is adhered to, we would certainly play our part in it.

On January 21, 1974 we will be having a public hearing on a sort of corridor in the Crowsnest Pass area. It might be two miles wide at places and in other places it is a couple hundred yards wide. This will be a two day hearing with the Energy Resources Conservation Board. All the landowners will have their day in court. We have had many interventions. We have backed off and accepted alternate routes, as suggested by various bodies and various citizens and these will all be heard. From that we will have a better definition along a corridor concept.

We have several lines that are in parallel with pipelines. We are parallel with Trans Mountain and have been for many years. In the Wabumum area,

we have five miles where we are right beside their right-of-way with our major 240 KV line. We have seventeen miles east of Edson which we are parallel with them with our 138 KV. We have thirty miles west of Edson a line 200' away from them. I am not aware of any problem other than the marking of overhead crossings. We have just concluded thirty miles of parallel with Alberta Gas Trunk from Strachon to Sundre. The only stipulation there was that we put a few more feet of cover on their pipeline where our construction vehicles had to cross over. We are mixed up in pipeline alley with all these people between Trans Mountain and Interprovincial property. We have hundreds of miles of parallel in the various oil fields - Redwater, Drayton Valley, etc. For a real close parallel, we have a water line in the City of Calgary that is right underneath three towers. This is one of the main lines that supplies the City. They got the line in 1960 and I put the towers up in 1961. We also have a gas line from Bow Island field. It goes through the middle of one tower at 34 Avenue and 6 Street S.E. in Calgary.

Our starting point is generally established at an existing substation. The load to be supplied dictates the end of the line. Substations do not take up too much territory, but there is a lot of money invested there. This has a large bearing on where our trans-

mission lines will be located. The shortest route between these two points is the most economical. There are a few considerations that eliminate that though. Our normal span is in the 1200' range and if the lake is larger than that we cannot jump across it. We have to go around it. We like to steer clear of mountains. We do not like building in national parks because of the extreme difficulty over disturbing the aesthetics and getting permission, etc.

We had one small problem. We had a conductor break last spring in the line that goes to Lake Louise. The line was built with the use of helicopters. It took us 40 hours to repair because we had to bring a helicopter back in from B.C.

We steer clear of urban areas. That brings us up to our Edmonton hearing and the problems that that is causing us.

Here are a few ideas of the costs that we are involved with. If we are talking in the future of 500KV transmission lines, you are looking at \$125,00 per mile. A 240 KV, we are looking close to \$40,000 per mile. A 138 KV, around \$15,000 per mile. In our construction the equipment we use is much smaller than what is involved in pipeline construction. One of our basics is a digging machine and we have several models. One type is mounted on the back of roughly a D4 cat, or

on the back of a 5-ton truck or maybe a small back hoe on back of a farm-type tractor. That is the kind of equipment we use for either augering holes or the footings for a tower. We use a lot of transit concrete if it is a tower job. We generally have a 15 ton crane to set the towers and maybe as high as a 25 ton on heavy dead end towers. A lowboy will haul out the steel and the reels of conductor. This type of equipment is relatively small compared to what the pipeliners are used to. When it comes to sagging a conductor we have probably our biggest piece of equipment; it might be a D8 cat.

There is one program which has been instituted and is a hard and fast rule. All our stakes for construction, that is where we want a pole located, are witched with an electronic machine that determines whether there are pipelines, water lines, telephone lines, gas lines, if they have a tracer in them, underground. A formal program has been adopted so that every stake is witched to prevent our digging machine interfering with the gas line, telephone line or a pipeline of any description. We also have a program of map searching. We have now on the Energy Resources Conservation Board a file for maps without pipelines shown on them. This is an attempt that we are making to eliminate the

hazard to our crews and contractors of striking a facility whether it is a pipeline or others that would disrupt their service and possibly cause operator damage to ourselves.

I am a little bit nervous about putting our overhead facilities right up beside a gas line. I think the pipeline people would prefer that we are not immediately beside them. If they get into trouble, they like to have the freedom of movement and the same for ourselves, in case we get in trouble.

I think the pipeline corridor in Edmonton at Trans Mountain property is a different consideration than something north of Boyle. In that wilderness area I would lean towards a greater separation, and, maybe the corridor of $\frac{1}{2}$ - 1 mile wide. I think that would be an ideal solution. We have construction problems. We can jump across rivers and ravines which cause pipelines great problems. There are problems created for us because of the lay of the land, etc. which if we were tied down very tightly would be an economic problem for us to get around.

Alberta Power and Calgary Power are the last two privately owned power companies in Canada. There are one or two small ones in the East but primarily all of the electrical industry has been nationalized

across Canada. I trust things like the corridor study, the Alberta Energy Company, is not a foothold in the door that ourselves and Alberta Power might be nationalized.

P

The area of responsibility with the Department of the Environment is this area of public involvement. We look at industry as one facet of our public. I can understand industry's point of view. In the back of the mind some of the things that have been happening in these last few months and some of the things of crisis proportions, and a need for federal and provincial government intervention in some cases. A fear that possibly some of you have of this nationalizing to problems of our energy crisis and this and that. The reason this study was commissioned from my point of view was the public involvement.

The forces that are causing these problems of a technical nature and of expansion comes from away out there and we are trying to wrestle with these pressures that are brought on us in our areas of expertise and our areas of responsibility, not only to our companies that we work for but to the communities and the people that we live with. Many of our problems, whether we realize it or not, are people problems. In social and political aspects, surface one of the most difficult problems we face because here we have variables that we cannot control.

The reason this study was commissioned was the participation that would result from it. Participation from the technology, the expertise in the industry, the public that are ill-informed and uninformed, the media, our television and other communications. We have a communications explosion that has taken place over these last two decades. You read the headlines in the paper day after day and the headlines sometimes become more and more ridiculous. The truth and the basics of some of these things, the public just do not understand at all. What we are trying to do in government and believe me to be a political leader today you have got to have a lot of intestinal fortitude, because the complexity of the problems that they are faced with in their political decisions is not simple answers any more, and it takes many disciplines together sitting around a table through discussions such as this. We want our political decisions informed decisions. This is what we are attempting to do and with industry we in government are trying to build up a partnership and a trust in the future so that the decisions that our politicians do make, are going to be meaningful to you as well as to our public at large.

My area of responsibility is to make sure that in the future the decisions, that are made by our political leaders, are informed decisions. We feel that through this involvement participation, not only are we going to disseminate information in the manner that they can relate to themselves that we brought up through the illustrations but that we can also inform our political leaders what the feelings of industry and what the feelings of our public are. There will be more studies commissioned of a similar nature as we are under these pressures of the future.

Government is under great strain today. As you know, the number of civil servants compared even as to a decade ago may be more than double. This is a frightening thing too. Government is big business. We cannot expect the government to go it alone. They have got to have your help. I think you need our help too. I hope that with more dialogue and interaction such as we have had today, that we are going to start gaining more of this trust in the feeling of common goals and problems that you have.

Another

P

My function here has been a contact in the Department of the Environment for oil and gas matters as they affect environmental legislation. I have been managing this study, the gathering study and also

the corrosion study which is being done in regard to pipelines. I think sometimes the government does things you tend to feel that they are threatening or that there is some subversive idea that there will be legislation to take over industry or nationalize industry or bring regulations which are just going to cut profits further, etc. I think that generally speaking today the comments seem to imply that the people do not look on this as kind of a serious sort of situation. As far as I know this is a completely honest attempt to try to get participation from industry and to arrive at a solution which is socially acceptable and economically acceptable to all concerned.

SOME UNATTRIBUTED STATEMENTS
INDICATED BY THE MEETING:

Wildlife - This item would seem to be of primary concern in the wilderness areas and my impression as a layman has to be that it is not a serious consideration. It would seem most of the wildlife that may be disrupted will only move to slightly altered locations and this will not have a serious effect on the preservation of the species. This may not be so in the case of the caribou, however, as a layman, I would like to suggest that they may be able to adapt to a wide single corridor as easily as they can to several independent isolated corridors.

Soil - It would appear that disruption of the soils due to construction will not be an insurmountable task and will be the same whether there are independent rights-of-way or single corridor.

Water Courses & Streams - This undoubtedly will present problems during construction and if construction is a continuing thing, it will be a continuing problem. However, most industry will cooperate if they have intelligent guidelines to play by and will spend the additional money to safe-guard the value of these streams.

Town Planning - This item, unfortunately, received little discussion and I feel this is partially due to past history where industry was maybe frustrated by planning ideals that are thought of as "pipe dreams". The westerly route was favored because of a straight north-south alignment for a good portion of the corridor as opposed to a diagonal type that is contained in the central route. It is the opinion of other planners that a straight line corridor over any

extended distance should be avoided as it is reminiscent of the old grid system. It would seem more difficult to camouflage a right-of-way when it is a straight line than it would be to landscape and make pleasing a line that periodically changes direction. For purposes of construction of a pipeline or powerlines, I would have to say that the straight line presents the least difficulty. In the area from Edmonton to just beyond Fort Saskatchewan, I do not think that anything would be gained by trying to follow a straight north-south or straight east-west routes. Other topographical features would seem much more important than trying to accommodate the points of a compass. A straight north-south route would also, in my opinion, involve the disruption of more farmsteads than a route purposely selected to avoid obstacles.

Land Appraisal and Item, Land Acquisition, Legal Aspects - are in my opinion all tied together. The changes in legislation that will be required to produce a corridor will in all likelihood establish a method of arriving at compensation to owners and the acquisition will have to provide a means of expropriation. It would be dangerous for the study group to suggest costs of land and acquisition other than to make educated guesses as to what it would have cost three years ago. The rate of change in land values in all areas has changed in the last three years and will be in a continual state of change. I strongly recommend that any legislation provide for the acquisition of this land by fee simple and that the legislation empower the body to take lands outside the corridor and resell them if it is in the best interests of acquiring the corridor.

My experience has been that it is not much more difficult to acquire fee than it is to acquire a right-of-way by way of easement.

In a more general nature, I would suggest that Edmonton is the hub of today's pipeline facilities and it is the headquarters for all fringe companies who service the pipeline companies. I would expect that Edmonton will continue in this role regardless of the amount of development at McMurray. It is also the hub for the rail transportation and highway transportation and is the best central point to tie into the province's power generation and transmission line facilities.

I would suggest that the corridor concept be accepted and tied down location-wise for an area extending from Edmonton to Redwater and that this corridor be purchased in fee simple and that companies going with facilities in this direction be required to use the corridor and at the time of their occupation of the corridor they pay a lump sum for the portion of the corridor they will use. I would strongly oppose an annual rent structure for corridor use. Beyond Redwater the problem would appear to be more of an environmental and ecology nature and I would suggest then that broader limits be established on the corridor with definite guidelines from environmental and ecology people as to what they expect of industry within these boundaries. I believe that the public has shown very little direct interest in the corridor but will become more vocal when legislation is proposed and may become obstructionists if it is to be created on their land. In the area from Edmonton to Redwater, their main concern will boil down to a fear that they may have to sell their land for today's prices and not

be able to reap the benefit of some future inflated value of the property. As it is usually factors outside of their control that inflate their property values, I do not feel that they in fact will lose any money as any loss will be a loss of profit that they have not earned. From a straight farming operation point of view, they will probably realize a larger net profit on land owned by someone else for a corridor and farmed by them than they would if they had capital tied up in the land.

The suggestion that other terminals than Edmonton be considered for a corridor is, in my opinion, premature. It may be logical if we look at only an oil pipeline from McMurray to Eastern Canada. Such a corridor would not provide a source to the Edmonton Industrial area of the by-products that may be used in the industrial area around Edmonton. This corridor would also be remote from service personnel who are living in Edmonton and would be remote from any generating facilities of the power companies other than whatever power generation may be built at Fort McMurray or the present Alberta Power Forestberg plant at Forestburg. It would seem that creating a McMurray to Hardisty corridor would in turn create the necessity for a Hardisty to Edmonton corridor. If the development of oil-bearing sands at Cold Lake takes place, it would seem that a corridor from Cold Lake tying in with the Fort McMurray to Edmonton corridor would be more practical, than a corridor from Hardisty to Edmonton.

It would appear that in the wilderness area acquisition would simply be a matter of The Department of Lands & Forests and the Department of the Environment agreeing to the concept and defining a route and total corridor width. From a practical point of view it would seem that the width should be fairly generous in order that small local problem areas can be avoided by slight deflections of the facility being installed. From evidence submitted by the various experts present it seems that the most desirable route is the central one adjacent to the highway. The past attitude of the Department of Highways has been rather negative in respect to installing of any Utility within a considerable distance of their centre line.

Mr. Swist did a good job of outlining the methods by which such a corridor may be owned and managed. The condominium title set up under the joint management of the Utilities using the corridor would appear to be the best approach. As I pointed out at the meeting it has been our experience that management problems are almost entirely eliminated when right-of-way is held by title and in my opinion this is the only way that the corridor concept can work in settled areas. The ownership of title for a Utility Corridor does not rule out the continued use of the land for agriculture or for many other purpose that does not physically interfere with the installed facilities. The administration and management of the lands would have to be a properly organized on going factor and this function would probably become more involved and more complicated as time goes

on and the corridor comes under greater pressure for Utility use and also in relation to adjacent development.

The financing of a corridor could be a difficult problem and is probably the greatest stumbling block. It does not seem likely that any single or perhaps any two Utilities together would be too happy about having to make the initial capital investment in considerably more land than is required immediately. Perhaps this factor can be overcome by financial participation on the part of government, either by direct investment or some other form of assistance such as interest free loans and tax concessions at all levels of government.

The corridor concept would seem to be a good idea for long range planning. It is possible that this concept is an absolute must. This applies particularly in areas that are liable to be subject to the pressures of urbanization in the foreseeable future. Perhaps this is an area that should be given more attention by the long range planning people such as the Electrical Utility Planning Counsel.

I personally favor the corridor concept and I do not subscribe to the attitude adopted by some people that because this concept has failed in the past in other areas of North America that we should automatically scrap it here. Perhaps the reasons for failure in other areas can assist us in making it a success here. Albertans have in the past demonstrated the abilities and qualities of leadership and perhaps this is just one more opportunity.

Assessment of input results:

1. The concept of public meetings is basically still well accepted as a democratic principle to disseminate information on a face to face verbal basis with the interested public. The goal is to attain better acceptance and co-operation of projects through developed trust and understanding with the public and specifically with landowners concerned.

Some degree of doubt still exists as to political side implications and as to the overall matter of how the public meeting can be best advertised, planned and carried out to attain its basic goal. Concern exists as to whether the public meetings only goal is dissemination of information or does it also serve as a feedback device for quote "better" end projects.

2. The single corridor is still a well received concept having received basic acceptance of the farm community and now of the technical members.
3. The condominium concept appears to be well accepted and certainly appears most workable at this time.
4. The single corridor should come south first into serviced, habitable lands and then the services sent east, south or west as required.
5. The central route along the Highway #63 which is also the most direct route Fort McMurray to Edmonton (area) is most acceptable in the area of:

- (a) Wildlife
 - (b) Soils restitution
 - (c) Geologically
 - (d) People planning
 - (e) Land use
 - (f) Financially
6. The decline of existing oil resources in Alberta and the rise of the tar sand oil source in the next 10 years makes the integrated use of existing facilities (pipelines) a distinct possibility.
7. Agreed that high voltage D.C. would not be acceptable in the corridor at this time.
8. Width of single corridor will vary depending on area as follows:
- (a) Industrial - narrowest
 - (b) Agricultural - narrow (nominal)
 - (c) Wilderness - narrower or spreading into many divided rights-of way
9. The National Energy Board pipeline would not likely (if it is built in Alberta) be in the corridor.
10. The interchange and exchange of ideas for the corridor made this a most worthwhile day and should give our government some well defined guidelines for future legislation.
-

Ultimate Terminals

(a) It was generally agreed that all facilities both coming and going from Fort McMurray would terminate there on the westerly or north-westerly side of the present community. It was also agreed that the downstream terminal of the first oil pipeline to be built would be at Edmonton. The second pipeline would possibly terminate in the vicinity of Hardisty. It was also agreed that direct westerly and easterly oil lines from Fort McMurray could not be contemplated at this time mainly because as demand increased for the products from the tar sands, existing facilities now being used to transport conventional crude both east and west would become available. The termini of these existing facilities are already located in the vicinity of Edmonton.

(b) The Technical Problems:

With regard to the multi-use of a corridor, it was generally agreed that no insurmountable technical problems exist that cannot be overcome economically. However, there was some question as to the feasibility of utilizing a corridor for the transportation of high voltage DC current. While a DC transmission line is not contemplated at this time, overcoming the technical problems apparently is much more costly when compared to the technical problems of high voltage AC transmission lines.

Considerable discussion evolved regarding the width of the corridor, and the spacing of the various utilities including

roads and highways which would fall within the corridor. It was generally agreed that a corridor a half a mile in width would be ideal with a lesser width in the area influenced by metropolitan Edmonton and the City itself. Spacing of the utilities would depend largely on existing regulations and codes.

(c) Ownership of the Corridor, Administration and Management:

As explained at the meeting, the corridor would, no doubt, be owned jointly by industry and government. A condominium corporation would be set up with both industry and government represented on the board of directors who would presumably acquire the land and manage the corridor. Under the condominium concept, this appears quite feasible including the lease-back of lands for normal or usual utilization when not required at any given time for utilidor use or after facilities such as pipelines were constructed.

(d) Environmental Considerations and Public Involvement:

It would appear that a utilidor, owned by an authority set up by industry and government under a condominium concept would;

- i) best provide right-of-way for facilities required to be constructed between Fort McMurray and Edmonton;
- ii) be the most acceptable method to the public; and
- iii) do the least damage to the environment.

Summary, (including personal observations)

- (a) It would appear that a modified central route should be chosen thereby using the present highway to facilitate the construction of new pipelines and powerlines. The westerly route would be mostly limited to winter construction only. The easterly route would be longer and cause possibly more disruption to existing native populations.
- (b) The central route would provide a good compromise which could join a branch corridor to terminate at Hardisty.
- (c) A half mile wide corridor would appear ideal in the Fort McMurray and settled agricultural regions. In the region of metropolitan influence, for economic reasons, it would have to be of considerably less width, possibly in the neighbourhood of 1,000 feet. In the Edmonton metropolitan region itself only a corridor for pipelines and powerlines would be contemplated, with no consideration or provision for highways or railways.
- (d) As the wilderness region is Crown Land, with reserve from alienation already in existence, I question whether a one corridor concept should be considered. Possibly the central route should be split in to several mini-corridors or branches in order to disperse traffic rather than concentrate it within this wilderness area.
- (e) Speaking strictly from a pipeline land man's standpoint, I can see no practical problem in implementing the purchase, administration, and management of a one half mile wide condominium-

type utilidor, through the settled agricultural region. However, as mentioned above, economics would dictate that the corridor would have to be wedged down to a lesser width within the area of metropolitan influence, and Edmonton itself. Again as mentioned above, within the metropolitan region, economics as well as practical necessity, may necessitate utilization of existing highway, railway, and other utility rights-of-way.

I thoroughly enjoyed the discussion which took place at your meeting on December 18 in Calgary. Your handling of the meeting certainly kept the discussion in the right channels. Due to the amount of time available it will not be possible for me to make a detailed reply. Although I would like to say I personally was in agreement with a great many of the presentations, especially those that contributed in a general way to right-of-way problems. The people who spoke during the early morning session were not only interesting but their approach to our problems was appreciated. I feel certain that many of the problems will be ironed out by this type of approach. As a land agent I feel the only way to have a corridor would be to hold title to the area and provision should be made for all future expansion.

Corridor between the G.C.O.S. Plant Area and Edmonton

We agree with the result of the study which shows that the central corridor route, as shown on a map distributed at the meeting, is the most acceptable one.

Corridors from the G.C.O.S. Plant Area to the East (Cromer), to the South (Hardisty) and to the West (Prince Rupert)

We feel that such a study is too premature because conventional crude oil production is on its decline, therefore early synthetic crude oil production will only make up for the decrease in conventional crude production. Naturally, in this case, the logical terminal location is Edmonton because from this location crude could be routed to the West through Trans Mountain Pipeline, or to the East through Interprovincial Pipe Line.

Further, we are of the opinion that a pipeline to the East, to Cromer, or toward the South, to Hardisty, has at this point in time no justification, because this assumes that Interprovincial Pipe Line and the second line from G.C.O.S.'s Plant Area to Edmonton are at full capacity. It should be remembered that, in general terms, it is more economical to increase the capacity of an existing pipeline rather than build a new line. These arguments point out that the capacity of the existing pipelines (the proposed new synthetic line and Interprovincial) will be increased as the need arises, and, therefore Edmonton will remain a central pipeline terminal for some time in the future.

With regard to a corridor study covering the region between Cold Lake Tar Sands region to a point on Interprovincial's Pipeline, we feel that it has some merit providing that potential produces in

the Cold Lake region indicates construction of a plant in the near future.

The potential of a pipeline corridor to Prince Rupert seems, in our opinion, farfetched because we assumed that this pipeline would carry synthetic crude for export only. In view of the present crude oil shortage in the U.S., and further, if Alberta crude is supplied in the future East of the fictitious Ottawa Valley line on a continuous basis, we do not foresee enough synthetic crude oil production which will justify a pipeline corridor study to Prince Rupert.

The Corridor Concept

In our opinion the concept of a common corridor is valid and should facilitate the purchase of pipeline right-of-way. We agree in general with the "Limited Governmental Role" model as described in Volume 3 of the study.

With regard to the "Active Governmental Role" model also described in Volume 3, we see numerous problems, in particular in the purchase price of the corridor, potential conflicts of interest which may not be resolved by the corporation administering the corridor, and determination of the fee to utilities using the corridor. Obviously the fee for use of the corridor to one utility company will be the function of the unit purchase price, the corridor width and the number of utilities in the corridor. Unless the number of utilities are well defined, which seems difficult to forecast at this time, the width of the corridor could very well be either too wide or too narrow.

The corridor concept, as discussed, appears to be based on the assumption that there will be a multiplicity of oil and gas lines, as well as power transmission lines. We find this difficult to understand, as in our opinion, in all likelihood there will probably be a maximum of 3 to 4 oil lines and 2 gas lines. If this assumption is correct, then we can see little if any justification for the outright purchase of a corridor by either the government or a corporation representing the owners of the pipelines and electrical utilities.

Assuming that the corridor concept is acceptable, we feel that the most logical approach would be for the Alberta Government to formally designate the corridor and define both the width and route. As the need arises, each individual company could then acquire in the usual way the right-of-way it required within the designated corridor.

Consequently we feel that the "Active Governmental Role" model will trigger higher right of occupancy cost than if individual companies buy, as the need arises, their own right-of-way.

I believe the corridor would be a viable acquisition for industry or government, but only at the extremities of Edmonton and Fort McMurray. Farm land and wilderness land between the two centres may best be traversed by separate rights-of-way suitable to the particular mode of transportation proposed. If it can be proved that a corridor between the two centres is the most economical means of land acquisition, industry will be favorably receptive. I would prefer the option of acquiring my

own right-of-way, as opposed to mandatory membership in a corridor which might not best suit my requirements. This attitude stems from the fact that while right-of-way is sometimes difficult to acquire, its cost is small relative to the total cost of a given project.

I was disturbed that no definite conclusion was reached concerning the environmental impact of several individual rights-of-way as opposed to a wide corridor. Pipeline companies spend considerable money controlling right-of-way vegetation, to prevent the right-of-way from returning to its completely natural state. Because of this experience, I believe individual rights-of-way would have less deleterious effects on wildlife than a corridor.

In conclusion, I believe economic forces will dictate a form of corridor between Edmonton and Fort McMurray in spite of the collective wishes of government.

1. Ultimate Terminals

Based on depleting Alberta conventional reserves, existing or planned oil pipeline capacity out of Edmonton and timing of tar sands production, Edmonton is the economic choice.

2. Based on your presentation and your proposed tentative routes, we would rank the choice: central corridor, western corridor and lastly, eastern corridor.

3. The first oil line installed would probably be a minimum diameter of 24 inches. This would be looped on a time basis with the appropriate size to handle maximum production from the sands.

4. We would question that it would be necessary to terminate gas lines and power transmission lines at the same point in Edmonton as the oil lines; or in Edmonton at all.

With reference to the Agenda, the following outlines our preferences:

Wildlife, Soils, Streams - We are prepared to locate lines and substations and have them constructed to minimize the upset to existing natural conditions. Selective clearing, control of construction and maintenance methods, and careful location selection are the standard methods we use to accomplish this.

Town Planning, Land Appraisals, Land Acquisition, and Legal Aspects - As much future planning as is realistic should precede transportation construction work and although completely accurate estimates of future requirements are not possible the best information from the wide representation to the study group increases the possibility of better decisions for the transportation systems. In more useful terms, we believe the facilities should normally be in a corridor and not in a corridor only where this can be specifically justified.

Ultimate Terminals for Tar Sands - The terminals for transmission lines depend on the electrical requirements and this cannot now be defined for the southern end of possible corridors but for the McMurray end, this can be quite firmly located near the load centre of a group of tar sands plants, or, I think more precisely as near as possible to the Syncrude plant, with powerlines in the corridor only, from Syncrude to the McMurray area for the order of ten to

fifteen years and possibly then extending to the Edmonton or Bonnyville - Cold Lake areas.

Corridor Concept - Technical - The typical corridor cross sections of the study's Volume 6 outline arrangements technically within code regulations and are acceptable to us.

Ownership, Administration and Management of a Corridor - We believe a condominium type ownership, administration and management system is practical or possibly ownership by the Provincial Department of Lands and Forests with condominium easements to rights-of-way users.

Environmental Considerations - We support the objective of least disturbance of the environment reconcilable with avoiding over concern for fish and animals as compared to people.

Public Involvement - Methods of obtaining constructive involvement of the public warrant a great deal of effort. We believe the public meetings held and planned and the methods used in handling them provide excellent opportunities for public involvement.

Based on the information I have and what I believe our Company's interests are; I would recommend that a suitable width corridor be reserved through all crown lands when the first rights-of-way are required in addition to those now existing. This corridor should be owned and administered by the Department of Lands and Forests with rights assigned by condominium easements to users of the corridor. We have less confidence in a recommendation for privately owned land, but we suggest consideration of:

For privately owned land, the Department of Lands and Forests should obtain a corridor easement with the land rights required for the first right-of-way with the easement conditions allowing additional compensation to be determined and paid at the time additional users (additional to the first) use the corridor, and when losses exceeding those reasonably expected occur as a result of the corridor easement. Right-of-way users would in all cases obtain condominium easements from the Department of Lands and Forests.

Our further recommendation is that the central route be used to a location several miles east of Edmonton and then west to the "Pipeline area" of east Edmonton.

STUDY GROUP MEETING
January 21 and 22, 1974

Mr. C.H. Weir (chairman), Stewart Weir Stewart Watson & Heinrichs
Mr. W. Peel, Stewart Weir Stewart Watson & Heinrichs
Mr. W.O. Colborne, Allied Land Services Ltd.
Mr. T.J. Trimble, Bolter Parish & Trimble Ltd.
Mr. G. Seagel, Bolter Parish Trimble Ltd.
Mr. K. Mackenzie, K.C. Mackenzie Associates Ltd.
Mr. R.G. Hurlburt, Siemens Realty & Appraisal Service Ltd.
Mr. R. Swist, Swist and Company
Mr. C. Drabble, Department of the Environment
Dr. Martin Paetz, Department of Lands & Forests
Mr. K.E. Howery, Department of Highways
Mr. A. Harich, Department of Industry & Commerce
Mr. W.R. Morgan, Alberta Wildlife Foundation
Mr. B.J. McMally, Alberta Disaster Services
Mr. G. Nestman, Vegreville Chamber of Commerce
Mr. M. Woitas, County of Lamont #30
Mr. M. R. Parker, County of Strathcona #20
Mr. W.J. Flynn, M.D. Sturgeon #90
Mr. S. Shwetz, County of Thorhild #7
Mrs. W. La Belle, Village of Thorhild
Mr. J. W. Semeniuk, Village of Boyle
Mr. J. Radmanovich, Village of Boyle
Mr. L. Dampousse, Town of Lac La Biche
Mr. V.J. Laventure, Town of Lac La Biche
Mr. S. Antoniuk, Town of Smoky Lake
Mr. H.S. Holowaychuk, Town of Smoky Lake
Mr. G. Kozub, Town of Smoky Lake
Mr. R. Fraser, Fort Saskatchewan
Mr. F. Hagedorn, Alberta Gas Trunk Line
Mr. D.A. Peterson, Alberta Power Ltd.
Mr. R. MacDonald, Alberta Power Ltd.
Mr. R.N. Giffen, Edmonton Regional Planning Commission
Mr. R.C. Verner, Home Oil Company Ltd.
Mr. A.E. MacQuarrie, Interprovincial Pipe Line
Mr. J.I. Lessard, Northern Alberta Railway
Mr. E.F. Provost, Northwestern Utilities Ltd.
Mr. R.F. Bell, Calgary Power Ltd.
Mr. L. Bland, Unifarm
Mr. E. Ewashuck, Ducks Unlimited (Canada)
Mr. V. Burkhardt, Syncrude Canada Ltd.
Mr. V. Kaminsky, Syncrude Canada Ltd.
Mr. P. Lee, Syncrude Canada Ltd.
Mr. S.E. Johnson, Calgary Power Ltd.
Mr. J. Steedman, Sun Oil Co. Ltd.
Mr. D. Lozinski, Alberta Government Telephones
Mr. F. Waterman, Alberta Government Telephones
Mr. D. Cardinal, Indian Association of Alberta
Mr. J. Small, Indian Association of Alberta
Mr. I. Fraser, Canadian Utilities
Mr. W. Bigg, Stewart Weir Stewart Watson & Heinrichs

CC

In the first part of the morning each of the consultant group will spend a short time reviewing their part in the study. Two of these people are not available for this morning, Tom Peters and Miss Jacks. After the consultant group have given their short talk on what their part in the study has been, we would like to have a general discussion and maybe question the consultant group. This afternoon at 1:30 we will have a general review and a general discussion of the corridor concept. At 3:15 the discussion will be on a corridor location from Fort McMurray to Edmonton. We will also have a review of the input we have had from the consultant group; the citizens group; the municipal group and the industrial group. Tomorrow we would like to hear from each of the groups. We would like to hear one or two spokesmen from each of these groups. Tomorrow afternoon we hope to be able to make a final decision on the corridor concept, whether it is agreeable or not agreeable in the different areas such as the Edmonton Industrial area, the transition state between here and Fort Saskatchewan, the agricultural area, the forested area and the Fort McMurray area. We would like to make a decision as to the location of this corridor. After coffee we would like a discussion of terminals other than the Edmonton one and whether it is feasible to even consider other terminals.

C

Basically I would like to begin by trying to outline the responsibility of our firm within the context of the overall study which of course was addressed in a general way to the examination, firstly, of the desirability of a multi-use transportation corridor from the Edmonton area to the Fort McMurray area; and secondly, if the creation of such a corridor were desirable, where, in fact, should it be located.

The responsibility of our firm within this study has essentially been to examine the human settlement pattern in its broad context with a view to assessing the future impact and future relationship between the corridor, or whatever form of corridor would be recommended, and the human settlement pattern. In approaching our responsibilities, we divided the study area, which is essentially the area north of Edmonton and south of Fort McMurray into specific study areas. We determined that there were five separate areas each of which, on the basis of their natural characteristics, their human settlement pattern and so on, were different enough from the other to warrant special consideration. The five areas decided upon included: firstly, at the North, the Fort McMurray region itself, which is essentially the area in which the community of Fort McMurray would exert influence as an urban settlement; the second region is the

area south of Fort McMurray to approximately the town of Atmore which you recall is near the junction of the new highway to Fort McMurray and the main highway to Lac La Biche. The area between Atmore and McMurray is an area we designated as the wilderness area based on the fact that it is largely uninhabited right now. There is very little settlement of any kind and it possesses a unique combination of geographic characteristics. The third region for study purposes included the area south of Atmore right down south as far as perhaps 5 or 6 miles north of Fort Saskatchewan. This area we designated as the settled agricultural region by virtue of the fact that it is reasonably uniform in its geographic characteristics. It is largely cultivated and utilized for agricultural purposes. The urban settlement pattern or at least the pattern of communities in that area is one of market towns largely oriented toward agricultural service areas. The fourth area is one which is designated as the area of metropolitan influence. It includes an area of about 25 or 30 miles in radius around the City of Edmonton and it is within this area that, although the basic pattern of settlement and development is similar to that found in the settled agricultural regions to the north, this area does have special problems in that its proximity to the City of Edmonton creates special problems in anticipating

future growth of communities near the City of Edmonton. The possibility of these communities mushrooming into satellite towns, etc. is something we have to recognize in this region which does not really emerge as a possible location constraint for a corridor in the agricultural area itself. The fifth area of special study was the Edmonton metropolitan area itself which in the terms of reference of this study basically deals with the northeast quadrant of the City of Edmonton and its future growth areas, ie, that is the area through which any potential corridor or component in the corridor might come into conflict or a possible relationship with the City of Edmonton itself.

In studying each of these five areas, we attempted to determine what the nature of the existing settlement pattern was, and try to determine what trends we could ascertain which might affect that pattern of settlement in relation to a future corridor.

In the Fort McMurray area itself, our first region, we outlined areas of potential expansion for the community and determined what components in a potential corridor could be compatibly combined with the future growth of Fort McMurray and which components of a corridor could not. Essentially Fort McMurray already manifests one of the problems that

we are attempting to avoid in other areas in that the two pipelines which presently connect the City of Edmonton to the Great Canadian Oil Sands plant go through an area north and west of Fort McMurray, known as Thickwood Heights, which is one of the five expansion areas for Fort McMurray. These two pipelines right now occupy a corridor 100' in width and as Fort McMurray has expanded in that direction, development has taken place right up to that corridor on each side and it is therefore incapable, physically, of being expanded to accommodate any further pipelines unless of course they are squeezed within that 100' right-of-way. It is this sort of problem that we are going to attempt to avoid in the future and provide a corridor of adequate width which can accommodate foreseeable pipeline needs. One of our recommendations therefore has been that we should attempt to bypass, wherever it is physically and economically possible, all future areas of urban development.

In the wilderness area, the human settlement pattern imposes relatively few constraints on future corridor location. Perhaps the most significant observation or conclusion that came out of our study of this area is that the largest number of settlements occur along the Northern Alberta Railway between Fort McMurray and Lac La Biche. The significant finding

about these communities is the degree of social fragility or social instability which we feel in some respects could be adversely affected by the construction or creation of a corridor near these communities. The very fragile social structure, we feel, would be upset, undermined and perhaps even wiped out in the event that civilization was brought rapidly and rather harshly into confrontation with the settlements as they now exist. As far as corridor location constraints are concerned, this social factor has emerged as one which has forced us to conclude that a corridor located in this area might cause special social problems as far as the people themselves are concerned.

In the settled agricultural region, that is the third region, the one between Atmore and a point slightly north of Fort Saskatchewan, we attempted to analyze the communities to determine which ones were growing, which ones were stable and which ones were declining, based on existing trends. Once the communities which were stable or growing were isolated, these became potential corridor location constraints. In the event that a corridor were coming near or through one of these communities, special factors would have to be taken into account in locating a corridor with respect to the communities. Ideally they should be avoided, if there is any prospect of growth.

As far as the rural settlement pattern is concerned, a very simple constraint emerges from examination of this area. The basic pattern of subdivision of course is the quarter section based on a grid of North-South, East-West lines and one of the main constraints in locating a corridor in this area is to attempt to insure that it follows North-South lines as much as possible in order to avoid fragmentation of viable farms and to avoid fragmentation of areas near communities which might create fragmentation from a subdivision standpoint later on.

As far as the population intensity in these areas is concerned, the trends, which seem to be evident based on our examination, are the same that have been discerned all over the province and that is a rather profound and rapid decline in rural population; that is rural population density, really, These trends, we assume, will result in future rural population density about one-half of what it is today. You could project these things to a point where no people would be living on the land, which would be totally unrealistic, and so we are anticipating that population density in these areas would decline and therefore in the rural areas, farms themselves, are somewhat less of a constraint in terms of locating a corridor than they might otherwise be. There will be fewer farms to displace in the event that a combined corridor is created.

In the area of metropolitan influence we have attempted to define all communities with any prospective future growth and we have suggested that they simply be regarded as fixed location constraints for any future corridor and should be avoided totally. Incidentally in cases of communities with growth potential, what we have recommended is, that if a corridor is going to bypass a community with any growth potential, or at least if it has to come near a community, that it should bypass that community leaving enough space between the existing built up area and the corridor itself within which to create a viable unit of urban expansion such as a neighborhood or combination of neighborhoods. The purpose of this recommendation is to avoid, in cases where major transportation facilities do come near a community, having these facilities fragment or divide the community. If they are going to go through a community, we would like it to happen on the basis that it should divide that community into logical planning units such as neighborhoods.

Finally, the Edmonton area itself is already very heavily built up and a number of major urban development proposals become additional location constraints for a corridor. The community of Fort Saskatchewan has major expansion plans. There are expansion plans for the community of Sherwood Park east of Edmonton.

The Edmonton Industrial area itself has a number of major industrial proposals which will become location or at least corridor location constraints. When we get into this intensity of urban activity and urban development, the location of the corridor becomes far more constricted and restricted; it is basically a matter of fitting the corridor in where it will go.

I have not said anything, and I propose not to, on the matter or multi-use of corridors from a transportation standpoint. This will basically be a topic of discussion tomorrow. One aspect of multiple use which is relevant from our particular standpoint is the possibility in urban areas of combining use of the space utilized for a corridor with some other urban use. The alternative or secondary uses to which corridor space could be put include use as a green-belt or a recreational space around the community; secondly if the corridor consist merely of pipelines, ie, facilities located underground, it is possible that a corridor could be utilized as a green space through a community, and integrated into the green space system of that community. However, if power-lines and things of that nature are included in the corridor they become an incompatible element in the corridor which we prefer to exclude from urban areas. Another possibility is; in the event that we did bypass a growing community, we would attempt to do it

in a location which could accommodate a highway at a later point in time should that highway become necessary. Another additional use that could be made of a corridor in some instances, again in a growing community, is that if that particular community wanted to define or at least create a border or a boundary for future development, the location of the corridor could be a very attractive way of achieving a barrier to future growth. For example, if it were put in a certain location and was of a certain width, it would more or less prevent development taking place beyond the corridor right-of-way itself. Therefore we are also examining the possibility of using the corridor in very specific instances as an influence to contain future growth.

CC

Mr. Peters, the soils consultant, has looked at the three corridors we have suggested for the Edmonton to Fort McMurray phase of this study. His conclusion in regard to the westerly route was that it went through too much wetlands as you can see on our Wetlands Map. The easterly route following along the railway goes through sand dunes and other sensitive areas. Therefore he concluded that probably the central route was the more favorable as far as his end of the study was concerned. He also favored the use of multi-use single corridor concept. He did not comment so much in the agricultural areas, but he

did comment on the forested areas. He was responsible for Chapter 2 under the Soils Section of Volume 4.

C In connection with the appraisal end of our study, there is apparently some confusion as to what an appraisal is. In our concept of it, appraisal relates to value, and what you are valuing is the rights that people have in terms of the market values; that is what other people think those rights are worth. What we are concerned with here is rights in land; that means the right to use land in certain ways. What we are talking about then is the value of the uses which depends on the soils which you have, the markets, climate, the restrictions on your use and various other factors. In the concept that we are talking about in a corridor, there will be restriction of uses. Therefore, we have two types of value that we are talking about; the value of the corridor itself; the lands within it as to the ownership of that corridor; secondly, the value of the remaining rights which the landowner might have by virtue of a lease or some other means of continued use of the land in some form of production. In that area of things, we have two things to think about; is it better, from the point of view of value, from the point of view of use, to have one single corridor

whether it be 200', 500' or 1,000' wide or whether it is better to have a scattering of rights-of-way to carry various facilities as is very common throughout North America at this time? The appraisal therefore is in a sense after the fact. It depends on what, for instance, the rights of use are. We have to look at the soils that are available and their use. We have to look at the climatology. All of those factors come into it. From the engineering people, what are the compatibility of uses which dictate the width and in some areas the actual location? In our part of it then we are looking at that; we are looking at what has been done in other areas. We have done a great deal of research which is in the books here on what has been done in other jurisdictions; in the U.S., the U.K., and so on. We have also done an examination of 200 Metis townships between here and Atmore as to what people have been buying and selling land for, the price they have traded land at through 1971-72, and we are completing the study of 1973 now. That gives us an indication of the value that the market places on land in this area. It is not what I think, it is not what anybody else thinks, it is what the market thinks the land is worth. That is what we are trying to arrive at.

What do you do when you are trying to acquire your right-of-way? In Alberta we are to a strong extent, governed by the practices of the Public Utilities Board and the current Surface Rights Board in their method of making their awards. It is considerably higher in Alberta than in any other jurisdiction that I know of. Some people think that Alberta is wrong but perhaps others think that the rest of the world is wrong but that is not something that we have to make some decisions on. We have to look at what the reality is. So what will be done in the sense of acquiring the right-of-way for a corridor, if that is what is decided on, is to follow the practices which are current in Alberta. The form of ownership is something that has not been decided upon as yet. We have explored quite a few areas of it; we have talked to a lot of people in the country about it. It could be an outright purchase with a lease-back to the individual from whom it was bought, or it could be an easement type of thing, or it could be any one of a number of other types of ownership. That would probably be the area that acquisition falls into and the values, that will be looked at, will depend on what sort of ownership there is of a corridor, whether it is a consortium of companies or a government ownership or a mixture of the two. That will have an affect also.

CC

Just lately Miss Jacks made a summary of the effects of the three routes that we have designated; western route, central route, eastern route. She made a detailed summary of this effect upon 252 birds and 60 mammals. She rated these, in the urban, agricultural and forested areas for the western, central, and eastern route, for a single multi-use corridor and for multi-rights-of-way.

First of all, the multi-use single corridor versus the multi-corridors. The multi-use single corridor concept is preferred over the system of multi-corridors in both the forest and agricultural zones. The single corridor in these two zones is given first choice for a large number of water birds and the shy secretive forest-dwelling birds. Water birds, because of the smaller area of wetlands, would be affected by alteration of natural drainage; the latter because of less destruction of woodland habitat. By comparison a much smaller percentage of the mammalian species would be likely affected by the corridor in the agricultural zone. In the forest zone, however, the multi-use single corridor is preferred for 25 of the 60 species. The majority of these are semi-aquatic or extremely wary of human intrusion. The mammals which would benefit from a multi-corridor system in the forest zone favor clearings or the forest edge for feeding. These such as

squirrels, bats and chipmunks are not particularly shy. Sixteen (16) of the 60 species were included in this group.

In this study, we are concerned primarily with those species which could suffer losses through the destruction of habitat or harassment of individuals. This might occur either during the corridor construction phase or later as a result of activities along the route or in previously inaccessible areas nearby. For endangered species such as the whooping crane or peregrine falcon, such others as woodland caribou, otter, wolverine, great blue heron, bald and golden eagles and the white pelican which are becoming increasingly scarce, the proximity of the route to known nesting areas, migratory stopovers, or home ranges must also be a concern.

The central route is the only one of the three proposed routes to already contain a highway. The major impact in building a transportation corridor occurs with the construction of a road. By comparison, very little additional environmental damage or harassment of animals is expected to occur with the addition of pipeline and powerline facilities along this route. In contrast, both the eastern and western route require construction of a road for servicing power and pipeline facilities. For the

western route this would have the effect of opening up the wilderness area north of Pelican Lake where no road presently exists. This may be of interest to hunters and trappers. This is not in the best interest of the large number of wildlife species in this area nor would this route be favored by the numerous proponents of the wilderness areas who see the necessity of preserving what remains of our once vast primitive areas. The probable long term effects of placing a road in this area are best illustrated by referring to the examples. The former and present ranges in Alberta of six species of large animals are now showing the effects of human interference. Of the three routes, then, the central corridor is the only one to have received any checks for the first choice. This route will have the least impact on birds and mammals and is therefore the best of the three alternatives.

C

Ducks Unlimited was asked to look at the area under study in terms of the value to waterfowl. In general the waterfowl habitat in Alberta is divided up into about three regions; the prairies which are the most productive; the parkland regions which are secondary in production; a mixed and boreal forest which has the least value in production. We looked at the study area in general and divided it up into two regions - the southern third is approximately

all aspen parkland; the northern two-thirds, with the exception of the Peace-Athabasca Delta, is in the boreal forest region.

The parkland region in terms of production is roughly 6 to 15 breeding pairs per square mile, whereas the remaining boreal forest region is in the neighborhood of 1 to 5 breeding pairs per square mile. This would indicate less value to waterfowl in terms of production. The wetlands in the boreal forest are characterized by low fertility of soils and poorly drained lands which are in various stages of bog formation. Production is just one phase of the seasonal cycle that is important to waterfowl. The other important ones are migration and staging and moulting areas.

In terms of migration and staging, the Gordon Lake area contains up to 100,000 waterfowl in the fall, and probably the importance of this area is the geographic location with respect to the Peace-Athabasca Delta. Again further south in the parkland region, the important staging areas like Flat Lake, Smoky Lake, Whitford, Beaver Hill, Vermilion are much more important than the northern region.

We examined the two existing facilities - the railroad and the highway. We certainly favor the highway in terms of impact to waterfowl habitat. In general its topography is of a much higher elevation

with fewer stream crossings and in general a higher and drier route.

C

Our main interest is in contributing toward the engineering aspects of the corridor or the separate routes whichever was chosen and also from the point of view of stream crossings and prevention of adverse environmental impacts. The latter relates largely to things like channel behaviour, passage of water and fish, etc. The study was in three phases based on an initial literature review and field work. The three phases were: firstly, an assessment of the general river characteristics; secondly, an assessment from the point of view of adverse environmental impact of the G.C.O.S. pipeline south of Fort McMurray, Highway 63 between Atmore and Fort McMurray and the NAR between Lac La Biche and Fort McMurray. The third phase was an assessment of the order of merit of the three possible general corridor routes.

The first phase showed basically that we are not really dealing with an extreme runoff area, but that we do have areas of high runoff which correspond to areas of high relief. We have areas of high drainage density and we have areas with deeply incised valleys.

In the second phase, we are concerned with the impact assessment of each of the three modes mentioned before and the order of merit. The NAR was generally found to be in the best condition but we should remember that the NAR has been there for 50 years. There has been a considerable period of time for regeneration. The main detrimental factors were gullying, slumping, old piles in the rivers. Positive factors were the general aesthetics of the bridges being timber in a timber area.

The second beneficial mode of transportation were the pipelines which are only 6 of 7 years old and they rated only a few percentage points behind the NAR. The main detrimental factors were erosion on the approaches, constrictions due to the placement of fills, scour in the river, sometimes exposing the river weights and disturbance of micro-drainage in muskeg areas.

The third mode, the highway, was far and away the worst mode of transportation on the environment and this generally can be attributed to poor culvert practices. Other minor points were scour, erosion, aesthetics of bridges and culverts and this type of thing.

We also contributed to an evaluation of an impact matrix which also considered the applicability of a corridor concept, its advantages and its disadvantages. The main detrimental factors, therefore, were: high runoffs which within the high runoff areas means that smaller disturbances are more easily enlarged; secondly, the high drainage density area where we obviously have more streams, more potential for disturbance; thirdly, in deep or steep-sided valleys which introduced the problem of possible erosion on the approaches; fourthly, in muskeg areas the disturbance of micro-drainage. In an overall assessment of the three routes, if we considered that no road was required within the corridor, we felt that the western route was the best one; the eastern route the next best and the present highway location and G.C.O.S. pipeline the worst location. If, however, a road had to be built within the corridor confines, then obviously the present highway location is the best corridor to take because we would no longer need to build a road. We would not introduce any more environmental impacts. The last point we would be quite concerned with is the construction scheduling and further detailed looks at hazardous areas, mainly in terms of environmental impact.

P If roads were to be built, the central route was first choice because the highway was there. What was your second choice?

C I think we would have to go with the west route. That is, the northeast part of the study area generally is much more pristine and we would have more trouble with it. It is a high runoff area, a high drainage density area with deep valleys. The east route would therefore be the worst one.

Another

C The first consideration that you must remember in relation to the corridor; this corridor study, and I have taken it upon myself to identify that consideration, is commissioned by the Department of the Environment. That, by itself, has no high impact on the legal problems that may be involved. Ultimately what may come from this study if the government decides that it is sensible to use the materials that we are gathering and passes some sort of legislation and some regulations which will form a meaningful body of rules with which both the citizens of Alberta and the various companies that are anticipated to be participants in the scheme of establishing pipelines from Fort McMurray into the Edmonton area can live. As many laws or lawmaking attempts go, I can assure you that this particular one is a complex situation

in that ultimately the Department of the Environment along with the involved departments of the government will have to consider many people's rights, many companies' rights, many unanticipated things which this study is designed to bring to light. Questions such as what happens in road crossings, stream crossings, wetland crossings, farm crossings, highway crossings and things of that sort?

Our initial undertaking in relation to this kind of authorization from the government has been to attempt to analyze what already exists, by way of regulation, dealing with these various problems involved with establishing a pipeline or a power-line itself and dealing with the kind of problems that that sort of thing imposes on the people, the land and all the other factors that might come into play. Our initial study revealed that there were a great number of legislative enactments that, either directly or indirectly, affected the uniform workings of a scheme such as a pipeline or a power-line or a highway and as a result of that investigation, we have now concluded that if the government is going to implement a scheme such as a corridor from Fort McMurray in the legal sense, it would be best if the government enacted some new legislation. That legislation is going to have to be of a kind

that will in fact, first of all, meet with the needs of the program. Secondly, that it will ultimately be acceptable to the electorate. It is just the very simple premise that the passage of laws involves those kind of constraints. Dealing with that, let me say that it is my intention to ultimately advise this group, and I hope that the group advises the government, that such new legislation ought to be passed. That new legislation will be pretty far reaching. As you can envisage from the maps all around you, the corridor concept is one which has been deeply investigated by this group and ultimately once a corridor is chosen by this group, the government is going to have to in some meaningful way in its legislation designate that, in fact, will be the corridor. Once that happens, there are several obvious things that will occur which cause difficulty.

The first and foremost one is the effect of such a designation on the public at large and the people that are most directly affected, of course, will be those people who own lands across which this corridor goes. As far as they are concerned, from our investigation in the field, what people are generally concerned with is what in fact the government or any user of corridor lands is going to pay to them for that use. In the past, we have, through our

experience, worked with the existing pieces of legislation that authorize the government and/or its agencies to enter private lands and have also dealt with the mechanics where the government after entering the private lands is bound to pay for them. These types of things have in the past proved to be very sensitive with the people involved as well as with the companies and/or the government agencies that deal from time to time with the public. Sufficient to say that some improvement in the existing system is contemplated by myself, the exact mechanics of that improvement is a matter of philosophy in some sense, and pure mechanics in another sense, and I just want to say that we do have that under consideration, so that in fact the public as they are affected at large will not be either under-compensated, over-compensated, or in fact treated in some cavalier fashion.

The designation of the corridor has another immediate and profound affect from a legal point of view and that is the effect upon land worth or value. One of the concepts that I have been struggling with is the effect of the government designation on land value per se; that is to say that we are now imposing or proposing a second use for an existing piece of land. We know what agricultural land is worth. On the other hand when we impose a multi-use corridor on

that land, is it worth something else? There is no immediate answer to that question because we have not dealt in the past with multi-use corridors and this is a sort of forerunner of that scheme in North America. In fact this is a concept that we have to deal with and ultimately the public who are affected have to deal with it. We want to arrive at a solution that is both obviously fair to the government or its agencies and also fair to the public at large. However, as with all laws, it is quite impossible to satisfy every requirement.

We have another problem, intra-corridor; that is to say inside the corridor. If you consider the fact that we are going to be designating a strip of land, perhaps as wide as half a mile or more wide, or perhaps as narrow as 600', we are going to attempt to place within those confines several industries or arms of industry that are not necessarily compatible. As far as industry is concerned, my own personal experience has to come into play here. I do know that amongst the pipeline companies themselves, they have in the past been extremely jealous of both the information that they gather and the exact operation and throughput of their pipelines. I am becoming acquainted in some measure with the powerline companies, and there are two involved here at the moment, Calgary Power and Alberta Power. It seems that their

positions are a little less jealous; that is to say they work together more frequently than do the pipeline companies. But when we put the pipeline companies together with the powerline companies, then, of course, we have a problem of how we are going to govern, within that 600' or half mile strip, their activities. Having thought this through, we have now proposed that one of the methods of doing this would be to create what is called a condominium corporation to own this corridor.

Rather than go into a long dissertation about what a condominium or what condominium law is, it is simply that one legal body will own most of the rights within the confines of the corridor, the occupants will own certain other rights within the confines of the corridor. The governing or legally constituted body called the condominium corporation will administer and have various controls over the other occupants. We have decided upon this form of corridor government, simply because I cannot find a more workable scheme in logic. Since we now have existing condominium legislation in the Province of Alberta, it is clear, at least, that the government and the legislature will and can deal with such a concept in the sense that they have already had some experience with the condominium precept or concept.

The last problem I propose to leave at the doorstep is the fact that there are problems in operation insofar as the companies or corridor occupants and the landowners are concerned, even after the lines are built. We are attempting to work out in some logical sequence a form of regulation which will enable sensible dealings after construction, after the corridor is in operation, as between the corridor condominium company and the landowners. The kind of problems that arise are that all pipelines will not necessarily be built at once, and all powerlines will not necessarily be built at once. It is conceivable, in fact, that we are going to have one pipeline built in the next three years, and perhaps it could be another six years before the second one is built, if in fact there are two. That involves coming back to the same landowner on two separate occasions. That means crossing a second time lands that the landowners have an inherent interest in. It means disturbing them two times. By the same token, exactly the same thing can be envisaged with respect to the powerline people.

We are attempting to work out a system whereby the people will be least disturbed or at least will be in a position where the rules concerning their disturbance are well known and well publicized and everybody knows where they stand respectively. Part of the reason for the condominium concept is to solve this

problem now that the typical landowner when he is dealing with either the powerline company or the pipeline company finds that he has to deal with several separate representatives; that is to say Company A has a field man that may come out and talk to him. They, then, have a private consultant who will come out and talk to the landowner. That private consultant may or may not be, depending on the various company policies, seized with the duty of negotiating a deal with the landowner. If he fails, then of course, there is usually some higher level attempt made to reach settlement. If that fails, the next thing the landowner knows is that he is being served with a set of legal documents which he, first of all, does not want and secondly, maybe does not understand.

That immediately brings into play a complex legal mechanism called expropriation. Expropriation itself, of course, is an extremely trying thing on the public who are involved. With a condominium, we would end up in the position where the landowner knows that he has to deal with Mister X whenever there is any entrance or exit from the corridor. He also knows that he has to settle up with Mister X when in fact everything is said and done, the repairs are made, or the installation is complete and he knows at all times whom he is to look for if damages occur.

Coincident with that, we have also attempted, though history of such problems in Alberta is very rare, to look at what happens in the event that we have a problem in relation to one of these lines. Problems can arise in various forms in the case of a powerline. Of course we have a situation where they are susceptible to heavy hoar frost and things of that sort; they actually can fall down. That causes a live wire that causes a shut down of service. That exists today but within the confines of a corridor concept between the two termini that we are talking about here. We are attempting to eliminate as much as possible, both legally and practically, the kind of problems that will arise from this sort of difficulty.

The same holds true with respect to a break in a pipeline. Keep in mind that what we are talking about here, for the time being, is an oil pipeline. The Department of the Environment is obviously concerned with what happens in an oil pipeline break and they, as well as the companies who are in the pipelining business in the province, already have contingency plans to handle that.

We are only attempting within the framework of the corridor concept to see whether or not there is any logical system that can be worked into either regulations or laws, which will permit the continued efficient handling of such problems within the frame-

work of the corridor. You can see that from a legal end we have several different considerations. First we have the government to consider; we have the public at large to consider, who of course the government represents; we have the private industry to consider, who in fact are going to be working within the framework of a corridor; we have government agencies such as the Department of Highways to consider. Last but not least, the corridor concept places a terrific constraint on the location that industry wants to make of its various facilities, so that we not only deal with industry on the basis of keeping them within the corridor, we also deal on the basis of industry being restricted for going elsewhere. The corridor concept, if it should prove to be feasible within the framework of Edmonton to Fort McMurray, may again find utilization at other point to point situations in this province, so that the province can move into an area of efficiency with respect to land use and corridor government that does not exist today simply because we do not have things like corridors in this province. We have practical corridors but we do not have legal corridors. What we are attempting to do from the legal side is move into an area where, if this group can recommend a practical corridor, we can put some legal teeth into that and make the corridor concept legally viable.

CC

You have heard from the consultant group. From now on we would like to hear from you people. One of the main objects of this study group meeting is to get some input into the consultant group as we will be coming with the final report, and if we do not have this input, we are not going to come up with a report that represents your thinking.

P

I would like to ask the legal advisor what type of condominium concept this would entail? Would it be a government agency essentially, or, would it be an independent corporation?

C

First of all, from the last meeting that we had in Calgary, the question was raised about the participation of the Alberta Energy Company in the initial pipeline from Fort McMurray to Edmonton. The situation at the moment is this; the concept of the condominium corporation itself would envisage that all participants within the confines of the corridor would elect the directors to the condominium corporation with the result that, initially, if the government was in fact a share-holder, or participant or owner through the Alberta Energy Company of one of the pipelines, it is clear that they would cause a director to be appointed to the board of the condominium corporation. However, it is also possible that, depending on capital availability as a purely

practical problem, the government may choose within the concept to become the governing body through the condominium concept and it can do so provided that legislative changes are enacted to permit that to happen. I still anticipate within my mental framework of that concept, that all of the participants would still seek to be directors on a board which would in fact be the board of the condominium corporation. The government may determine through legislative action to either exercise some specialized control by having a majority of the vote or something of that nature.

P May I ask which of the two alternatives would be your recommendation?

C That involves a little bit of philosophy, but my own reaction would be to have the least possible government participation and have the situation where, if the government through the Alberta Energy Company owned either one of the pipelines or was a shareholder in one or more of the pipelines, they would appoint a director to the condominium corporation like any other owner would.

P All reference has been made to pipelines and powerlines. My understanding is that this is a transportation corridor which would involve highways and railroads as well as pipelines and powerlines. There has been

no mention made at all, or not too much, about highways. There has been no discussion at all about railroads.

CC

In the beginning, and for the corridor concept part of our study, we have considered highways, railways, powerlines and pipelines. But in our particular phase of our study of the Fort McMurray to Edmonton corridor concept, we made a study of the existing highway facilities. The result of this investigation, after discussion with Highways and our consultant group, is that the highway is sufficient for the foreseeable future. The portion north of Atmore to Fort McMurray which now takes the traffic for Fort McMurray has about 100 vehicles a day. Its capability up to the level of service A is about 1,300 vehicles a day. Our conclusion from our study as far as the highway is concerned in the corridor concept is that we would be putting our corridor adjacent to the existing highway; that is we would be including it in the corridor. It is not a new highway to Fort McMurray. The southerly part of the highway system in one area, from Gibbons up to the Redwater turn off, is now below service B level, so it should be upgraded. From the Wandering River area south to Edmonton, there are many other influences besides the Fort McMurray traffic. The railway situation is somewhat similar. When the

railway built the G.C.O.S. plant, they took 20 train loads in a year to build the G.C.O.S. plant over a 3 year period. They hardly even noticed it. Apparently they are losing money now. The building of 10 or 20 plants does not really demand a new railway. The railway that is there is sufficient to carry any load which is conceivable. Our study again becomes whether we put the pipelines or powerlines adjacent to the railway.

P As far as the railway is concerned, is it not true a great portion of the NAR right now is 60 lb. steel rather than 100 lb. steel? So, therefore, it is not economically feasible to utilize that unless there is some change in the steel structure or the roadbed as far as transportation of heavy loads is concerned.

CC They are upgrading the railway now.

P As far as I am concerned, condominium is a bad word. I think you have got a lot more red tape and it is harder to control. We are very much in favor of a utility corridor but I think it should be a crown owned company that buys the thing and then charge a tariff back to the people that use it. I think it would be a lot more simple, not so much red tape and we would have better control. Have any studies been made to buy it outright, lease the right-of-way back, or charge a tariff for the amount of oil that

is going through it against the condominium concept?

I do not like the condominium concept at all.

Firstly, before answering your question, could you tell me why, as you initially indicated, condominium is a bad word; or why the concept of condominium causes problems?

To start with, I think the condominium involves too many people at the outset. They do not know whether they are going to use it or not. You have a board of directors which is a lot of expense and they have got to agree to certain things. If it was owned by a crown-owned company and you set the rate of tariff; an oil company wanted to put in a pipeline, you would know exactly the size of line, what was going through, what you would get out of it. The same way with a power company or gas company or anything else. I think the tariff should be charged, not by the right-of-way for for the pipeline itself, it should be charged on the basis on what is being carried through that pipeline or powerline. I think it would be a lot fairer concept than a condominium.

First of all, I did not propose to deal with the mechanics of condominium but I think that this might be the appropriate time. In this concept with respect to the right-of-way, these would be the mechanics as

I see them. In the first instance, the government, through either an agency or crown corporation, would do one of three things. It would either simply designate a corridor; it would go beyond that and zone a corridor; or it would go beyond that and actually buy or otherwise acquire the corridor. Once it did that, and it was determined what size the corridor was and where it went, then what it would do is it would be prepared to sell, as opposed to lease, certain interests in the corridor. Which interests in a purely mechanical way, I see to be in the case of pipelines something below surface and not inclusive of surface; in the case of power-line companies, it would be on surface and only below surface in the areas of their towers. Then when all of the corridor had been utilized or substantially utilized, and that might take a period of a number of years but the government would ultimately have to determine when it would be expedient to do this, the government would register its plan and that plan would designate who were the existing owners of the corridor rights. Once it registered its plan pursuant to the kind of legislation that we have today, then the condominium corporation is created. When it is created, the mechanics subsequent to its creation are that each of the individual owners who have now taken up space

within the corridor have a right and an obligation to appoint a board of directors to operate the condominium corridor corporation. You have to keep in mind that the corporation will own all of the lands and all of the interests in the lands not otherwise owned by the individual condominium owners. The advantage of the condominium as opposed to a lease is that the powerline companies and the pipeline companies would then be in a position to obtain title from the Land Titles Office to their interest in that portion of lands and they could then go out and finance that in a very simple way; whereas today, through leasing and expropriation, we now have a very complex system from the pipeline and powerline companies' point of view of attempting to provide some kind of title against which they can give a mortgage or in some other way pledge their interest in these various lands to the people that put up the money for construction.

Of course. Then what you are talking about is that the government would acquire it, and it would be in the operation and the method which you charged them for it. That is the only difference of opinion I think that we have.

C The difference from my point of view is that if my recommendation were accepted, that the government, except for its interest in any individual pipeline as an owner through the Alberta Energy Company, would not in fact be the controlling body in relation to the physical width and breadth of the corridor. The board of directors of the condominium corporation, of whom a representative of the government through the Alberta Energy Company would obviously be one, would then control the operation of the right-of-way.

P This would be after the land had been acquired?

C In the ordinary circumstances, it would have to be after the land were acquired?

P That is the difference of opinion right there.

Another

P I was wondering if the condominium concept implies any Department of Lands & Forests ownership of water? You have mentioned land up the present time. Do you see any problems with the water areas?

C There definitely is a problem of jurisdiction. That, of course, is governed by several of the provincial acts and ultimately what has to happen in these particular situations is that some form of over-

riding legislation within the concept of the corridor will come into play, whereby, without usurping the rights of other departments, to govern the operation or use of the natural state of the waters. Title will be given across bodies of water if the pipelines, and they generally would be the only offenders, would traverse a body of water beneath its surface. There is no problem with respect to things like surveys because you simply treat it as if the water was not there. The biggest problem that I foresee is that if we run into conflict with any federal legislation then we would have a legitimate problem and I cannot as yet say how we can solve that. But within the provincial authority, I am satisfied that a system can be worked out whereby we would be in a position to convey a condominium title even across a body of water to a pipeline, which I can foresee would be the only user that would burrow underneath or in some way dig underneath the water bed.

P Dealing with this matter of condominium, your remarks were to the effect that your proposal would be that the area be zoned for a multi-purpose corridor. Is that correct?

C That is one of three stages. The first stage is merely to designate without zoning. The second one would be to actually zone. The third one, of course, would be

to go out and buy the land and in fact thereby obviate the necessity of zoning per se.

P Considering the area closer to the metropolitan area of Edmonton and the type of land uses that are either proposed or in the schemes and dreams of people who own land; in the problem in terms of designation and zoning, was there any consideration given as to the fact that probably a corridor as such probably would compare with a designation of parkland? That is, the landowner would effectively be put into a position of not having a use for that particular piece of land except as a corridor.

C I have considered that point of view and I can foresee that that very situation can and probably will arise in the urban areas. From a solution point of view, all that can really be said for it is that as between landowner and the acquirer, which for the moment we are talking about as being a government agency, it will be a question of compensation as between the ultimate use to which that land is put. It will depend on the regulations that will be made with respect to the corridor itself. There are obviously situations, as you are aware, where regulations do permit uses of corridors or pipeline rights-of-way, powerline rights-of-way for uses that initially seem incompatible with the existence

of these facilities and I anticipate that that could happen in our situation. However, for the moment, I am thinking about this thing as being designated as being a corridor and its use being confined to either corridor use or something that is not incompatible, such as parkland. As between the owner and the acquiring authority, it is a question of compensation. He will have to be compensated for the fact that his future use, if foreseeable, has been affected.

Do you actually then deal with compensation on the basis of the removal of the development rights rather than the purchase of the land, or, would you see the possibility of once the area is designated, zoned, that you would then see whatever authority it is take action over a period of a short time to purchase the land as a corridor?

I would prefer the latter. It may be practically that we will run into the former situation but it would be preferable if the land were purchased as you indicated in your last comment.

I think in the first state that you could form the corridor just through a change in zoning under the Department of the Environment which is presently in legislation as outlined in Volume 3. The second system was to buy the corridor without the zoning part of it.

P You relate to zoning under the Department of the Environment. What zoning is this?

C If you bought the land outright, it is clear that the zoning would be inherent in the purchase. If you did not buy the land but merely zoned it, it would be clear that in those circumstances the rights to the land may not in fact be acquired for several years. The situation as between landowner, especially, and the acquiring authority or designating authority is that someone has to decide at an upper level or higher level that what will happen is that we will either zone or buy. If we buy, the zoning is inherent in the purchase, so that if necessary to prevent any confusion caused by the purchase, it would be clear that it would remain and be zoned as corridor notwithstanding the acquisition outright.

CC I was thinking of that restricted development area under the Department of the Environment Act.

P I think then that I would rather see it related to as designation because in terms of zoning as it is considered in the Alberta situation, you are dealing with either municipal or regional or provincial zoning under the Planning Act which is quite different from that of the Department of the Environment. There would be some confusion there. I understand what the

point is made now; it is obviously that a sort of prerequisite for the purchase of that land before the area is actually "zoning" under the Department of the Environment.

C

The zoning that I am thinking about is the kind of zoning or designation that occurs under the present Environmental Protection Act. The fact of the matter is that we can now, probably, cause a designation or zoning to occur in any area under that act. However, what we anticipated is that the zoning that we are talking about is not the kind of zoning that any municipal authority or county is talking about. We are simply talking about a creation of a belt by the government and all zoning rights over that belt, other than for corridor use, will no longer remain for the time being at least in the hands of the municipality or the other governing body of that particular area.

Another

C

I just wanted to ask the previous participant if I understood him correctly that he would prefer the zoning after the purchase?

P

Dealing with the Department of the Environment zoning that the land use under the Planning Act zoning could has been cleared up to my satisfaction. I would see it once that if you are dealing with it

on the basis of individual of the Planning Act, I think it would be preferable that if there is going to be such a designation under the Department of the Environment Act that the land be purchased first.

C The land purchased first, then designation or zoning.

P I would say coincidental. There is suggestion in my mind that the designation would allow at least some feedback from all the people along the route. After that has been ironed out, action should be taken almost immediately to purchase that corridor. I think it is economically much more advantageous because price of land goes up day by day and you cannot buy it any sooner than today.

CC I take it you would be opposed to this restrictive development zoning under the Environment Act? You would rather see it under the Planning Act?

P Not necessarily. It is just that in terms of problems that you have in removing the use of the land for the landowner, I think it would be a lot tidier and more acceptable once the designation of the corridor took place that the land was owned by someone else rather than having continuing problems as to the use of that land and as the pressures brought to bear on the local municipalities, etc. because of applications for other uses of the surface because of the corridor

being there. I have no particular opposition to the restrictive designation under the Department of the Environment as long as it is followed through by a concern for this matter of taking away the development rights of the surface owner.

C I think the net result of it would be that municipal authorities, once the designation, purchase and zoning took place, your authority or any county authority or the City of Edmonton's authority or the County of Thorhild's authority would be superceded and you simply would not be dealing with applications to otherwise develop or use the surface. Those applications, if any, would have to be considered solely by the Department of the Environment or alternately at such time as the condominium corporation is in existence by the directorate of the condominium corporation.

P Obviously if the corporation were owning it, then there would be no problem because there would be no request on a piecemeal basis for other developments.

C That is the way we see it.

Another
P

The point that is being made here is that we would not get this in the same category as parkland. The zones might remain that way for 8 or 10 years right

in the heart of a development. That is why I go along with the idea that if it is designated, it should be purchased. Then we would know where we are going. This is a real hardship on the landowners, especially as you get in closer to the big metropolitan area. There is land being zoned there now for future residential or future something, and if it was just designated, it would be frozen. It is a hardship on the people that own it. I certainly think that as the land is designated, and I think it should be a crown-owned corporation, it should be prepared to buy it.

C Certainly, we agree. The only constraint that we have in a practical way is the capital expenditure necessary to purchase and of course, ultimately we are going to have to go back to look to the government for that capital.

P That is true. I know what your problems are, but the individual landowners should not have to be penalized because some corporation has not enough money. This is what is happening with parklands. They cannot afford to buy it now that it is zoned and a lot of people are really being hurt.

Another
P

Looking at the map, it is possible that four-fifths of the routes could be on crown land which leaves a very small portion of the corridor to be expropriated. I am of the opinion that we should follow the route where the crown land can be taken up by the government. When you have that route on the crown land designated, you can plan the land purchase after that because you might have alternate routes; but as soon as you designate a certain part of land, each landowner tries to get the most out of it. You have to have a competitive route; if this one is too high, you should have a choice where you can go through the property which is costing less and which would be a sort of a competitive land purchase in that area. There is no need to expropriate any land where you can go through crown land; whether it is a half mile or 600', you could have it all the way. You could see to it that it is developed for multi-purpose use and also for a long-range program. I do not think that the corridor concept should be changed; it should be held to as much as possible for that kind of purpose. I think that annexation of land should come later.

Another
P

I have a few reservations about this corridor being owned by private industry, maybe with participation by the government. This corridor, instead of being

an eye sore, could, if government owned it and pressure borne on them to maintain it, be developed into parkland, especially closer to the major centres. I wonder if private industry would be prepared to develop this corridor into parkland; I wonder if they would be prepared to develop it for parkland without any remuneration? Therefore, I feel that if the government owned it, that they would develop it into parkland; the unused portion of it. I think the people of Alberta would benefit more so than if it were privately owned.

CC

That has been expressed before but the answer did not come from the consultant group, but came from other groups in the public meetings we had. It was that if you have a private corporation or private industry owning the corridor under say the condominium corridor concept, then the government can regulate them. If the government owns it, who regulates them?

P

I think that the people would.

Another

P

I am thinking of the condominium. It might be a good concept where you want private enterprise, a group of people to control an area and do as they wish with it and have complete control. This will be just a certain group of people. As far as I can see, there will be various problems in this by a group of people owning

an area of this type. They can say okay, we are just going to have that many pipelines and if we get that many pipelines that is all we are going to have in this. This can happen in a group of people. But in a crown corporation, you do not have that problem. We have our highways, we use them for various things and we do not see any problems. It is a piece of crown land that is bought for a certain thing and the crown would have complete control. This is how I would like to see it. Let us have complete control through a crown corporation. If they are not good enough for us this time, things happen in this province very quickly and things change and we can change these things.

I would have to go back to what has been happening. We will have the public to deal with, the landowners, and these landowners are quite upset already with certain things that are going on. You have caveats placed on the land where just a corner, just a few poles or something will run through your land, and you will have a caveat placed on your whole quarter of land. Time and time again, these people go to sell their land, they do not even know it is there and they have to get this caveat off. It is your responsibility, you go ahead. The public does not like this type of thing and if you want public co-

operation, I think this is one way of getting it. Let us not irritate the public more by laying on all kinds of caveats. If we bought a corridor through an area and if it was a crown thing, there would be no need to lay caveats against farmers and probably go to the States to borrow large sums of money against this land. I do not think the company really has that right.

A designated area? I do not go along with that. If you want the land, buy it and own it. As far as farming goes, the damage that has been done, we hear a lot about it and from your studies that we have gone through, you will see that the farmers are not complaining so much that the pipeline has gone through or whatever has dug up the land, but it is the shape that the land has been left in. That is where your great problems have been. After a few years you do not even know the pipeline exists, if it is properly backfilled and properly worked in and packed in.

I think we can get away from a lot of these problems if we would just look at it as a crown corporation type of thing where whoever wanted to come in, the government would have the final say on this. I think, as the people of the province then, it would be their say, not just a company's say.

Another

P

I think that there is one thing overlooked here. They say power, pipe, railway and highway. There is no one who has said a thing about water pipes. There could be water lines in this corridor going from one town to another too. It could be used in that sense.

CC

We have envisaged all types of utilities that could probably be in the corridor. Essentially from Fort McMurray to Edmonton, we are talking pipelines and powerlines. There is a water pipeline now going from here towards Redwater that could quite conceivably be contained in this corridor and be a part of it.

P

We have always thought of it as a utility corridor and not as a pipeline corridor with just gas and oil lines. The other point that I would like to make is that I do not think that a 10" pipe should carry the same rent, or whatever you call it, as one that is 24" and with ten times as much going through it. That is why I think it should be a crown corporation with a tariff and you get something from the amount of gas or oil that is going through the line. I think it would be a lot fairer. With a management committee, that would be okay. The land should be bought and controlled by a crown-owned company.

Another

P

I would like to hear more about provisions being made for servicing the proposed condominium type pipeline in terms of the environment. It is necessary to recognize that a multi-purpose corridor would have vastly more complex connotations with such things as pipeline breaks, wires breaking, etc. than a single unit corridor. I think that it would be technically more complex and I have not heard much yet about the provisions being considered for providing rapid access either by a good service road or by being adjacent to a highway or by providing for satellite airfields, so that you can readily get men and equipment in to look after an emergency situation.

CC

This has been discussed with the technical people, in Calgary with the engineers from the pipeline, highway, railway and powerline companies. They came to the conclusion that, generally, with the corridor concept you have everything together, you would have a constant surveillance of the utilities, if the highway was there for instance. The total work of looking after these lines would not be any greater, and probably a lot less, looking after them together than if they were separated all over the country with each utility having its own surveillance system. With a corridor concept, with all these

utilities in one corridor, you could have constant surveillance at less cost than surveillance over a number of rights-of-way going across the countryside.

P With respect to the terms of reference; Fort McMurray would be in the northern terminal. I suppose that is a general reference to the Fort McMurray area rather than the Town of Fort McMurray.

CC Our present terminal is in the general area of Fort McMurray Athabasca Tar Sands.

P In dealing with this as a multi-use corridor; did the study also investigate the possibility of a multi-use pipeline? That is, we are looking at a sort of group action by a number of oil companies dealing with pipelines, oil in particular, in this corridor. Has there been an examination of a pipeline that would be multi-use, that is a batching approach; rather than having a number of pipelines, have one larger one?

CC That is correct. All pipelines now, at least the common carrier ones, are batching. This would very definitely be part of this pipeline. Also it would have to be declared a common carrier to take all the products of all the people who wish to ship. There are some complaints. The storage facilities at each

end, the batching at each end, separating the batches, etc. does complicate the matter but the pipes would very obviously be considered multi-use in themselves, as well as being in a multi-use corridor.

P You say they are right now. Is this on the basis of an individual company basis?

CC Yes, the common carrier concept that nearly all pipelines operate under now. The present pipeline to the Athabasca Tar Sands is not a common carrier but Interprovincial, Trans Mountain, Federated, they have to take all the companies' oils in the area; they have to batch them. It complicates the storage and it complicates the build up at each end.

P My question relates to the scope of your study. Conspicuous by its absence are the branch lines north of McMurray. I speak of branch lines as far as the products and gas lines and the highway are concerned. Will the study develop any thoughts for the highway and the pipelines north of McMurray?

CC It is not within the scope of our study. You are thinking of the gathering system including pipelines, highways within the Tar Sands area. It is extremely complicated. There was another study, a mini study that went on. I believe it has been completed.

P

This study has been completed. It has not been released; it will be released as soon as it is tabled in the House. It was expected to be tabled last session but did not make it. However, it has, of necessity, turned out to be a very general study. I do not think it has been useful insofar as designating exactly the routes of the gathering system, although they have shown some alternate routes. For instance, with plants on either side of the river, you have only two choices; come down near the east bank or the west bank, or come up the east bank or west bank of the river. However, the study has been really useful in outlining all the decisions which have to be made pretty quickly. When you take one parameter, like where the gathering system is going to be, you suddenly are faced with all the other decisions which really have to come concurrently with those decisions. We feel the study has been very useful in that regard, but it does not specify anything which I think would be a great deal of use to this meeting here. It is not ready for publication. I do not really feel that it adds an awful lot to the problem except maybe on a broad philosophical basis.

CC

We agreed this morning that we would have a discussion on the corridor concept. That is, the idea of putting pipelines, powerlines, railroads and highways in a single right-of-way. That is the full corridor concept

with four modes of transport in a single right-of-way down to where you may have several pipelines or several powerlines in one single corridor. That is also a corridor concept.

In Chapter 5 of the recent background study, there are some factors which will have a major influence in the arrangements within the corridor and one would be the affect of a major catastrophe such as war, vandalism or other subversive activities, landslides, floods, earthquakes, wind, sleet and ice storms. Secondly, the relative location of dangerous substances such as high pressure gas lines, lines carrying poisonous fluids, acids or other harmful products must be considered. Thirdly, the environmental affects of the wide corridor or the narrow corridor; the possible needs for buffer zones, especially in the forested areas and their effects on wildlife in general. Fourthly, there are the social and economic effects. Fifthly, there are the engineering problems, access, operational, maintenance, design requirements and limitations; sixth, the legal difficulties, financing, insurance, administration; seventh, land acquisition and ownership which are clearly discussed this morning; introduction of new modes of transport and future expansion of each of the utilities; the effect of soil studies; forest and other vegetation; existing and future land use problems.

Whether there are several pipelines or several powerlines-pipelines and all the modes of transport, there are some potential advantages whatever combination you have in a corridor. Firstly, there is the conservation of land and space. Secondly, the environmental impact is restricted to a very confined area, to a limited area. Thirdly, it can be used as a positive force in the shaping of land use patterns. Fourth, there are administrative and management efficiencies, assuming a single authority owning or administering the corridor. Fifth, the economics of a single land acquisition problem. There are also potential disadvantages whatever combination you have in the corridor. First, there is the initial resolution of conflicting interests. That is, in the building of a pipeline, the restrictions are not as great as say building a railway where your grade line is the most severe limitation. Grade lines for pipelines are not that difficult. Secondly, there is potentially higher intensity of environmental impact in a restricted area. That is, the environmental impact within the corridor is much more severe than if they were spread out. Thirdly, there are complications in engineering design within the corridor and fourthly, the vulnerability to major catastrophes. Maybe we can confine ourselves to the corridor concept as to whether it goes from Athabasca Tar Sands to Edmonton or elsewhere. This corridor concept can be applied to other areas of the country.

P

As far as the one corridor concept is concerned, we hear this morning that as far as wildlife was concerned and from the highway point of view, the central corridor seemed to be the best route. The other thing is that you have the railroad running down the eastern route. There is no way you can move all of this to be combined with the railroad; there is no way you can move the railroad to be combined with the others, so I do not think that you were looking at an overall picture of one corridor. I do not think it is feasible.

CC

In the Athabasca Tar Sands to Edmonton area, you are looking at several transportation corridors, but I think our study is whether we put pipelines and powerlines adjacent to either the highway, the railway or off by themselves in the western route. We would like to have your thinking on this corridor concept; that is, putting all of these things in a single corridor. We have input from the agricultural areas. We sent out 600 questionnaires to the farmers and conducted public meetings. The response was very good, although the attendance was poor. From our questionnaire and through confirmation at these meetings, the farming community has a very strong preference for a multi-use single corridor.

P

From the legal end of it regarding rights-of-way, easements, etc., the central corridor already has a highway going down, so, therefore, you have had a lot of your easements and legal problems overcome. If you had pipelines and powerlines running parallel along with the highway, you would have a form of transportation for getting materials, etc. in order to build your powerlines and your pipelines as well as having a lot of your legal easements, etc. already looked after. Is that not right?

C

Restating the position that I stated this morning, I do not think that the corridor concept itself necessarily takes the condominium point of view. What I meant by the condominium point of view, was that this is one way of handling the corridor. It is quite conceivable that you could handle it in another way in which the problem of easements, for example, could still exist. The difficulties with respect to inter-party dealings with farmers, municipalities, governmental agencies, trappers, etc. could all still exist except that they would be handled by a multiplicity of persons as opposed to a single group which I see to be exemplified in the corridor concept. The corridor concept by itself does not necessarily remove all of the problems which you mentioned. I think that the condominium corridor concept can remove all of these problems.

P When you are speaking of a condominium, you are speaking of financing are you not?

C No, I am speaking of a way of holding title. The condominium act provides a way of holding title that was not until recently recognized in this province and is a rather new innovation in the western world. It merely provides for strata title in which case it is possible to fragment title vertically as well as horizontally and to do so without the necessity of relating these descriptions to land per se. In fact our precept of having all of our legal descriptions relating to land descriptions is simply done away with in the corridor concept so that we can divide title vertically as well as horizontally and we can do that without reference to legal descriptions that we are accustomed to. In other words, it is quite conceivable to have a condominium unit, a portion of the condominium group called Unit 2 and that would be its description. You would have to go to the Land Titles Office and get into the registered plan to see what in fact Unit 2 comprises.

P I was not actually referring to that. All I was referring to was that there is an existing highway running down the central corridor which is crown property because it is owned by the Department of Highways. Therefore, you have had to go ahead and

obtain easements and property all the way down there, so all you would have to do is widen an existing right-of way. I am not talking about how is it going to be financed or a condominium or anything else. I think it would be a lot easier to go ahead over an existing route because you have already gone through the legal end of it in obtaining this property. Therefore, it would not have to be entirely duplicated by a new route.

C We understand that it would be easier to go where others have gone before, but it is quite clear that for the time being we have not contemplated including the highway or the railway in the corridor concept as far as legal problems are concerned. The reason that it has not been done is that we knew of no special reason at the outset to do that. We see for the moment that the highway is an independent entity that our corridor in its legal sense and physical sense could be located at many points in immediate proximity to the highway. There is no necessity at the moment to place the highway within the confines of or under the authority of the corridor body. We certainly are all in agreement that from the point of view of locating a corridor, we are looking at areas where others have gone. There are many reasons why going through areas where others have gone for this particular route is preferrable.

P In dealing with the corridor concept, you wanted some reaction from the various groups who would be locating in the corridor. I am thinking now in terms of the small study that we did three years ago on the commission dealing with corridors. We did have some attitudes expressed by power companies in relation to their location in the corridor where there were pipelines. I wonder whether there might be some reaction from the power people here as to whether their opinion has changed or whether there was any problem there.

CC I think that a response on that matter would be very valuable at this time. Do the power transmission people like being, as it were, in bed with someone, and can I ask the same question of the pipeline people?

P Powerlines and pipelines and whatever other utilities that might be placed in the transportation corridor can be accommodated, but the detail of spacing from, say, railways, pipelines, or highways would have to be determined specifically for the kinds of powerlines that are being built and the kind of utility which is being paralleled. Basically, our idea is that the corridor should be used, but there will be locations where it should not be used and these locations can be specifically noted. In general, we believe that a corridor concept is good. We would be prepared to describe the locations where we felt a corridor

was not the best answer; just why other locations should be used; and what the alternatives are. The corridor in some cases would not be the correct answer.

CC

I think in the matter of spacing that we did go into that at the technical meeting of the engineers. There are three criteria in the spacing of powerlines. First of all the wire contact distance which is 100' between centre lines of major transmission lines; secondly, the fall over distance for the towers; and thirdly, a 40 to 50 mile spacing so as to get out of the same destructive weather systems.

P

As far as the idea of spacing goes, we can tolerate what we call the wire blow-over spacing. It is certainly not the most sought after situation, but we can actually tolerate that. That is a spacing which would just allow clearance for the actual conductors that move under cross-winds. The more ideal situation would be to have spacing between transmission lines of such a distance that in case of a storm a tower could in fact fail and fall over and not remove the other transmission line out of service, if it were fortunate enough to survive the actual storm. Idealistically, of course, from the service point of view and for protection against storms, we would like to see alternate routing which ideally would be a minimum

of 40 or 50 miles apart to allow the possibility of a storm to go through. If it did take one transmission line out, it could possibly miss the other and so service would be maintained. At the technical meeting in Calgary, we stated that we believe that it is possible that we can get along in the corridor with much less problems from our side of the picture than perhaps the pipelines might have in putting up with our service in the corridor.

Another
P

The location of pipelines have somewhat different criteria from the highway and the powerlines. The location of the existing pipelines probably have more of an effect on this central corridor than the highway itself which basically parallels it; certainly through the northern portion. The pipeline companies would like to have enough leeway within the corridor to locate around such obstacles as rough terrain and choose river crossings without being limited to a very narrow band which the powerline could more readily take.

CC

Aside from the locational criteria for locating the powerlines where they can be located side by side with powerlines or other pipelines, what do you foresee as problems by being beside these other facilities, say even a water line, with an oil pipeline or gas line?

P

The major problem with a larger powerline is the potential danger of a fault current damaging the coating or perhaps in an extreme instant actually damaging the pipe itself. These are things that can be designed for and minimized.

CC

These engineering design problems can be overcome, if you are aware that you are going to go next to a powerline or next to a gas line or next to any other utility. You can, without too much extra cost, accommodate them. At the meeting in Calgary, it was stated that these can be overcome but there are dangers mostly during construction. Most problems are during the construction phase of either facilities that are going in this corridor.

P

Dealing with the proposed corridors paralleling or being part of a rail or roadway right-of-way, what is the position of the railways and the highways as to the location of pipelines within their rights-of-way? Where you are dealing with say 300' to 500' for a provincial highway or as far as the railway is concerned a much narrower area, would we have some reaction as to the ability of this type of occupant of the corridor to live with pipelines?

Another

P

Highways would like to be all alone with a roadway facility and particularly with the class of highway that Highway 63 or 46 or any of the primary highways are. They are typically long distance travel routes and roadways. We would like to accommodate the longer travel vehicles and thereby reduce the time and increase the safety as much as possible for them. However this is a very idealistic point of view, and I think most people in Highways would anticipate that the combined multi-use corridor is a good idea. I suppose that all the advantages and disadvantages, in general, could be imagined to apply to highways also. A few of the specific factors that come to my mind, why, from an idealistic point of view, highways would like to be by themselves, is from an operational point of view. Not only in the initial construction of other utilities such as pipelines, powerlines, etc., we would see the highway being used for such things as storage and as construction roads. With a corridor, there might be continuous usage of this type. Again corridor benefits outweigh these operational difficulties.

Another reason why we have objected to having power lines or pipelines adjacent to our highway is the matter of aesthetics, particularly of powerlines. We do not think they are nice; we do not think that the travelling public think so. I do not know how important that is and perhaps it can be overcome to

a degree even in the multi-use corridor. That is one small point that we have occasionally tried to encourage a power company to find their own corridor. Another reason from a powerline point of view is the radio interference that high voltage lines may present to the people wanting to listen to their radios. I think that within innovations in the radio technology, maybe this has been largely overcome also.

While we see difficulties, we would think that inherently the advantages are greater with a combined corridor concept than the disadvantages. One thing that we have to come to grips with is just how the compatibility of utilities relate to the highway. Firstly, would be those things that would be completely underground and unseen such as pipelines. Therefore I would think that highways and pipelines would be most compatible. Secondly perhaps would be powerlines. The one thing that we really cannot live with, or should not live with, is highways and railways being directly adjacent to one another.

Thinking of the various lines that we have throughout the province where the highway follows the railway with common rights-of-way, and this only applies where there are intersecting roadways, we just cannot seem to control the accident history at some of the more heavily used crossings where the traveller has to cross the railroad and then enter a primary highway.

We are not quite sure of the reasons for this but some travellers just do not seem to be able to cope with thinking about the railway and the highway at the same time. While maybe this does not apply up here because the intersection roadways are so infrequent now; whether that would continue or not I do not know, but it does present a real problem where there are intersecting roadways from a safety point of view.

The one feature perhaps that I missed as far as compatibility with all of the utilities with highways is that we do not like the inflexibility imposed upon the highway right-of-way by other utilities that would hug our boundaries closely. By flexibility, I mean the ability to be able to expand the highway or introduce intersectional treatment; in other words, if we needed some additional right-of-way anywhere along the line, then we are into the complication of imposing upon someone else's rights which we would not have to do if there were not another utility so close to us.

CC

In one of our discussions, some of the input that we have had is that if we are going to put, say for instance, powerlines or pipelines along your highway right-of-way that it would have to come after the construction of the highway in nearly all cases.

P

In my view of this, utilities need highways more than highways need the utilities for the purpose of getting construction equipment in and maintenance or surveillance of the utility. Utilities near highways have simpler and much easier access to inspections. But, if everyone took the idea that each utility needs its own right-of-way, there is really no purpose in having the conference.

Another

P

The Department of Highways has three grades; numbered, secondary and local roads. For corridor purposes, the latter is preferable and it is hoped that utilities would follow this attitude. If a corridor was created, extra land would be needed for the powerlines along the existing highway right-of-way. Highways have many powerlines on their right-of-way, thus one side is already cleared (from a powerline point of view). Water lines, a few gas and oil lines and Alberta Government Telephone lines do cause us some trouble. On approach by another facility for spacing in the right-of-way, the first answer is always no. As an example, there is a statutory requirement of permission to build any of these facilities within a hundred feet of the highways.

P

If you spread the right-of-way all over the lands, that means more use of land, destruction of wildlife habitat, etc.

CC

It is clear from the public meetings and the farm resident questionnaire that the corridor concept was approved. The necessity to determine the width of the corridor was not conclusive from the farm community.

P

Most of the people seem to want the corridor but the big question is how wide is it going to be? It should be the least amount of land used, with fair compensation and lease the land back to the owner.

Another

P

I feel the farm questionnaire was very good and the results were good. I feel that the parcel should be bought out. Land costs in the urban (industrial and surrounding Edmonton) areas should not dictate the width, and whole parcels should be bought if it is advisable. But this should be done very soon. Do not put it near the highway; use municipal roads which in the long term future will not have to be widened.

CC

Are there many places in Alberta where you have pipelines in your rights-of-way?

P

Yes. I was under the impression that if there were going to be a corridor that the other utilities would probably be on a tract of land that would be over and above the existing highway right-of-way as we have it there. It is just a matter of degree, really, but I guess we would feel that if it is in the overall best interest of the public and everyone and everything is concerned, then the further the utilities could be away the better. We would like to retain the right-of-way that we have for highway purposes. That can be changed and the ideas on that can be changed, of course, depending upon what the advantages are of squeezing in the total overall corridor width. We do have lots of powerlines within the province in or adjacent to our rights-of-way.

Another

P

I live on four quarters of land north of the Boyle area. I have powerlines going across my one quarter; I have gas lines across my land; I have the McMurray pipeline going across some of my land. When the McMurray pipeline went across the land, I was not the owner at the time, but the gas line went across my property a few years after I acquired it and I found no problem at all with the utility companies especially the Alberta Gas Trunk Line. I was in-

volved with them and they clean up right away. I am farming over it now; there is no problem. The biggest complaint of some of the farmers with the Great Canadian Oil Sands pipeline was that some of the rights-of-way were left in an unsuitable condition after the line went through. It was winter construction and they came back in the following spring, but they never cleaned up the right-of-way as well as they should have, and this is where a few objected. Also the price that the pipeline paid them; some of them got paid well, and others did not because some of them went to arbitration and the others took the price that they gave them. I think if there was a set price, more or less controlled by the government, so that each individual would be treated the same way. I do not think you would find a problem getting a right-of-way or anything else. As long as it was cleaned up after the pipeline went through, I do not think the farming community would have any objection to a pipeline or powerline or any utility company going over their property.

Another
P

With regard to the agenda breakdown, you talk about the municipal group, the rural municipal group and the citizen group; the people who have been making representative comments from an agricultural community;

I am not saying they do not represent the agricultural community or your municipal councillor, but I just wanted to know if you could identify the citizen group that is here?

CC

There is the Indian Association, the Fish and Game Foundation and Unifarm here. We have heard from some of them already. This thing on the agenda, I intended that they would give a special talk tomorrow afternoon.

P

We are municipal councillors, but firstly, I am a farmer. If I were not a farmer, I would not be a municipal councillor. My heart is in farming; I would like to make that clear. I am concerned about the people or I would not be here. We have had experience with a few pipelines running through our area. I think the farmers would like to see a corridor probably wide enough so it would be considered as one area; this is what type of concept I would like to see through our area. I do not think they have much objection to a gas line or oil line. If there is a breakage or spillage, this is looked after quite well.

We found in our area that we had a division. When the land buyer came out, at certain areas he would pay \$25 an acre. He would come in and say there is

a possibility of a pipeline coming into this area. Will you sign this? If a pipeline comes through you will get \$25 an acre and if the pipeline does not come through, you have \$25 an acre with which you can do whatever you want; this kind of thing. A little further down the line he started up with \$50 an acre. So these fellows signed for \$50. The fellow with the area that the pipeline did not go through is laughing; he has got \$50 to the acre. The fellow with the pipeline going through his area signed up and he also gets \$50 an acre. Nevertheless I think the concept of the farming area that I represent would prefer a one corridor type of a system. They say take it wide enough so that we know that this is going to be the corridor through the area and we know that is where all our utilities are going to go.

The biggest problem is on purchasing. Maybe if the whole thing should go through expropriation and everybody is treated the same, we would not have that problem. One fellow on one side of the fence can get three or four time the value because he is stubborn and does not want to give in or he knows his right, while the other man right across the fence has been a darn good fellow, he is cooperating, he has cooperated with the municipal people, he has cooperated with everybody all his life and then all

of a sudden this land buyer comes in. He pays this guy very little and the fellow that has been stubborn and had a time dealing with him all the way through, he is the fellow that gets paid off. These are the type of things that we had better get away from. If we are talking corridor, we had better talk treating everybody the same. I would like to see a corridor. It should be running parallel to the road allowances and probably even a half a mile wide. It would be one of the best things that we have ever done.

CC

I think I sense the general approval of the corridor concept; that is putting utilities in a single right-of-way rather than spreading them all over the landscape in different rights-of-way. Maybe we might pursue the matter of compensation for this corridor. Should a price be set, say by the government or someone, and this would be paid right through, or should this be done in some other manner?

P

On that last matter of compensation, it would seem fair if an appraisal could be made, say, regardless which corridor is chosen or anything, of the lands in there and have it done on an assessment basis. This chap was from a county and he said it is equalized assessment now and all the assessors are using the same formula for assessment of lands. I sort of contradicted that because in the interpre-

tation of the manual, I, as an assessor may take one interpretation one way and the next assessor may take it the other. If this would involve a half mile wide, why not have one assessor that would have the same concept of values throughout his mode of assessment and then on that basis compensation could be made. They could take into consideration soil tests and what have you and do a concise job.

CC You would have a thorough investigation of the whole route, soils, everything, and set prices right throughout.

P As an assessment of the land, as far as value, that would be a different matter.

Another
P It would be an appraisal not an assessment. An appraisal is different to an assessment for tax purposes.

Another
P No, but we did not want to come on to any prices as far as appraisal, as far as the land value. Just to make it uniform, if it was assessed at so much, then you could put a value to that land according to that assessment for purchase purpose.

It is as to assess it, to make it a fair value that one quarter, say bushland, the next one poor soil, is based on that purpose. Now what the value would be, would be a different story.

C We would not in that sense be talking about what an appraiser describes as market value. It would be an assessment for tax purposes which you would use as a base and then perhaps by a multiple of factors come to a value.

P Would it not be the same cost all the way down to the line? Why should the costs be different?

CC No, it does make a difference. How would you like to make this assessment on the land or set the value of the land? Who do you think should set that, the government, the individuals, or a combination? How do we set a value on this? Do we set a value or do we leave it to the individual to negotiate with the corridor authority?

P This assessment or appraisal idea is one of my favorites too. You could put a price tag on it if you are purchasing the land but if you are just going to give a pipeline right-of-way, it is a different story. Your better land is worth more money and poorer land is not worth as much. So you could go the assessed value

so many times and then you get the value of your land or you could have an appraiser appraise your land. If you are buying up land just for a pipeline right-of-way, that is different.

Another

P

Would there be any consideration when the farm is cut from corner to corner in some places and in other places they will cut along the existing road. When it is cut from one corner to another, it makes it so much more inconvenient to work the farm if the land is brought outright. I think there should be consideration in what angle the corridor goes across the land because when cutting across from corner to corner, it inconveniences a farmer to a very much greater extent.

CC

I am sure there will be consideration given to that, but if you have any ideas of how that should be done, please give them.

P

As a rule they have a formula for your severance pay. This is a percentage added. It is all done by a certain group of people who are doing the appraisal; they will have the same formula applied to every parcel of land, how it will be cut or whatever. Severance pay depends upon where your land is cut. If it is along the parallel or along the side of the road or property or on the other end of the farm,

there is a different severance. But if you cut kitty corner, it is a different severance pay again. There is a percentage you apply as to how you are going to do it. If it is done by the same people, everybody down the line gets the same treatment. That is what we are after.

CC When you have the corridor concept, it is quite conceivable this corridor could be disturbed every few years, so that the same land is being disturbed. How would you like to set compensation for that?

P My suggestion would be that, whether it is the government or whoever, they buy up the right-of-way, then there is no problem with this. Either the government or the group buys up the corridor under government control or whatever it may be, and then if there are any pipelines, you only deal with certain people and the local people could lease the land back and farm and keep the lease and the stuff off it, but then you have no more to pay, or to deal with individuals anymore from there on.

Another
P

We certainly go along with the idea of the corridor concept, but regardless of this, the use of a corridor brings on certain restrictions to the further use of of this land, whether it is agricultural or otherwise. I think that this has to be borne out by the fact that

you have to go back or you may find the need to go back several times over this corridor to do certain works, whether it is reconstruction or repairs. I think this should be based on market value, because it would have to take away some of the disadvantages of the restrictions that it sets before a particular owner. You may find this more often the closer you come to the large urban centre than you will further away from it. Even when you go to the smaller urban centres or close to these areas, you would have the effect of the development or the uses of these lands and they may change in the future. I think you have to assess this on the basis of some idea of the market value.

P I was wondering about the possible conflict of interest in the situation that might develop if the provincial government gets involved in this proposed corridor. They have in the Department of Agriculture an ombudsman who works for the farmer. Has this been explored at all?

CC No. It has been discussed in some of the public meetings we have had. The matter has been brought up.

P I would just like to ask the government about that, The Department of Highways built that road; they are a department of the government; the ombudsman is not

necessarily just related to the Department of Agriculture; is there any conflict of interest there? It does not matter who is doing it, it is the farmer and the ombudsman who will be involved there. You have the situation now where the government is expropriating land for roads, etc. What is the difference?

Another
P

No, I cannot answer that question, but I think the members of Unifarm, on the basis of the present understanding of the corridor, would be sympathetic to it. I think the farmers' understanding of a corridor is a portion of land of a fairly minimal width. Their interest in this concept, of course, would be the minimal amount of disturbance to their property and a maximum amount of identification of the various subject matters that come within that framework. I have heard today some questions and some comments so that the corridor is now becoming somewhat nebulous in my mind. It may be something 5 miles wide for all I know, if it is to encompass all of the regulatory requirements that needs to be taken into consideration; if perhaps a transmission line is going to be able to live with a railroad or a pipeline or anything else that might come into the corridor.

Another
P

I understand that in one of the routes leading away from Edmonton, and it was quite a long distance route, that highways were trying to buy some property. I believe that they got most of the people involved to come to a meeting to discuss what the compensation would be and it would be my impression that this seemed to work quite well, with the group itself, more or less, deciding on a graduated scale downwards as you got further away from Edmonton, of the value per acre. From what I have heard about it, the people who attended from Highways were quite enthused with how well this meeting went. I think that some countries and some taxing authorities have a scheme whereby they let the person who is to pay the taxes make their own assessment. The taxing authority reserves the right that whatever assessment the person puts on his land or his property, they have the option of either letting the fellow pay the taxes that would be based on that assessment or buying it for the amount that he put on it. Maybe that could apply if we are talking about a great amount of land and particularly the lease back arrangements. Maybe you could give the owner the option of setting his own price providing he would enter into maybe a 20 year contract and that he would pay 10% of that price back each year for 20 years. That might get prices down to a realistic point of view and 10% would be no magical figure either, it could be 15%.

Another
P

In years of dealing with landowners, I find that they do prefer to see the various utilities located in a common corridor. I think also that most of them as individuals prefer to negotiate their own particular circumstances. They do not generally favor the acceptance of a formula set by some other group. They always feel they are the exception to the formula, and therefore do not wish to use it.

Another
P

I find myself in a rather unique position today, having just completed six years service with Great Canadian Oil Sands, and I am now representing the other side of the fence. I am psychologically torn in my feelings. In my short experience with the agricultural community, I think I have noticed a distinction and this is a semantic distinction between the reference to oil companies as opposed to the reference to land men. Oil companies can be tolerated most of the time, but the concept of the term land men brings up a very negative response.

CC

We would like to discuss now the three corridors that we have laid out between the Athabasca Tar Sands and Edmonton. There is the westerly one which goes almost due north from Edmonton across the river past the Horse Hills, Bon Accord, up past Athabasca, Calling Lake and up the westerly

side of the Athabasca River. The central route which essentially follows the G.C.O.S. pipeline and the present highway route to Fort McMurray. Thirdly what we call the easterly route cutting across through Bruderheim, Smoky Lake, Lac La Biche and then more or less along the railway to the Athabasca Tar Sands. We could get a quick expression from the consultant group in order to review what some of us said this morning. Then the meeting will be open to discussion. We can get them to outline very briefly what their choice was among these three general routes. Within each of the routes there are several possible locations of the final corridor. We are just talking of the general routes, the eastern, western and central.

C We have to divide it up, from our point of view, into two categories. The first one would consider the best alternate route where no access road was required. If this were the case, then without doubt in our minds, the western route is the better one to choose. The next one would be the central route and the worst route would be along the eastern route. If, however, you had to have an access, then logically you would have to choose the central route, since there is already a road in that location. Subject to the width of your corridor, you could follow that road very closely and utilize this road for your construction. The second best route to choose

if you had to have a road would be the west route since you already have a road as far north as Calling Lake. The worst route to choose in this particular case would be the east route again. You might say, from our point of view, it is a choice between the west or the central route.

We came to these conclusions by summarizing all of the adverse environmental impacts we could discover along each route. To give you some idea, take the number of major rivers to be crossed. On the east route you would have 14; the central route, 15; the west route, 14. When you come down to the smaller rivers, the creeks, you have 180 on the east route, 134 on the central route and 105 on the west route. There is quite a substantial difference.

There is also the point to consider that on the east route the streams, we feel, are more sensitive to disturbance in the environmental sense considering miles of high runoff, that is, where we expect high discharges in each river; there will be none on the east route, none on the west route, 31 miles on the central route; the number of deep valleys to be crossed, 2 on the east route, 4 on the central route, 4 on the west route. The overall potential extent of pollution due to failure of a given facility would be high on the east route, moderately high on the central route, and small on the west route.

These conclusions are strictly from one point of view alone; that is from the stream crossings. Even on the west route where we say it is possibly the best without a road, we are only doing so from the point of view of the rivers, not the muskeg between rivers, that is a totally different matter.

One other point that I would like to mention is the layout of the corridor, whether you just have one great big cleared strip one half mile or one mile or five miles wide and you put everything one against another or within groups within that cleared strip. From the point of view of the rivers, we feel that it would be much better to have buffer strips, in many cases, only a minimum of 200' wide, so that you might have within your corridor almost a subcorridor just for pipelines, water, gas, oil; another cleared strip for your railway if you had one; yet another cleared strip for a highway. This would, I think, get over many of the problems of expansion of any given facility. It may get over some of the aesthetic problems and it would certainly help minimize some of the environmental problems at stream crossings.

CC

Our wildlife ecologist went through all the birds, 252, in the area in regard to the urban-industrial fringe, the agricultural zone, and the forest zone. She could make no choice either between the west corridor, the

central corridor, or the east corridor in regard to the urban-industrial fringe. In the agricultural zone, the central corridor out of the 252 species that she analyzed she could make a decision. In 96 instances the central corridor was chosen. In regard to the forested zone, out of the 252 species, for 99 she could make a decision; she chose the central route. With regard to some 60 animals that she analyzed and in regard to urban-industrial fringe, she could not make a choice between the three different corridors. In the agricultural zone, she could make a decision in regard to 10 species out of the 60, in which the central corridor was chosen. Regarding the forestry zone, she could make a decision in regard to 20 species and again she chose the central corridor.

Regarding soils, basically the central route was chosen on account of all the wetlands in the west route and the wetlands and sand dune areas in the easterly route.

C

The principle responsibility of the consultant group is to examine the desirability and feasibility, firstly, of a pipeline corridor between Edmonton and Fort McMurray or Fort McMurray area. Secondly, in examining a pipeline corridor, it is our responsibility to look at and investigate the possibility of multiple use of such a corridor at various points over the length of the pipeline corridor. Just to keep things

straight, our primary responsibility is a pipeline corridor; our secondary responsibility is to examine the feasibility and desirability of multiple use at various points or in fact over the whole length of the corridor. As a result, the number of components that we have in the corridor at different points will dictate the physical dimensions of the ultimate corridor. Also its width in terms of the general concept can vary from one point in the corridor to another depending on how many facilities will be located in the overall corridor.

As far as the actual location of the corridor itself is concerned, from our particular standpoint, starting at the most northerly of the five study sub-regions, assuming a terminal for the Tar Sands gathering system at some point north and west of Fort McMurray itself, we consider it would be desirable to route the pipeline corridor and what other components such as powerlines might be included around the southwest corner of any foreseeable expansion areas for the Town of Fort McMurray to a point where the corridor would come into a general alignment similar to the alignment of the existing highway and the existing G.C.O.S. pipeline. Firstly, we are recommending a bypass around Fort McMurray for pipelines; secondly for powerlines, they would also be compatible in terms of the relationship

with the future community of Fort McMurray; thirdly, in the long run, in the event that some highway bypass to McMurray is required and it is not foreseeable, but in the event that it did become so, the alignment that could accommodate a highway at some future time would appear to be desirable.

In the wilderness area, there are no particular constraints acting upon the corridor location from our standpoint. The only qualification there is that enough room be left between a highway and adjacent facilities to accommodate highway service centres at different points along the highway.

In the settled agricultural region, this is the third sub-region in the overall study area, the area generally south of Atmore and north of Fort Saskatchewan, an alignment following existing subdivision; ie, section lines, road allowances in a north-south direction would be most preferable.

The alignment which provides the greatest length of direct north-south route is the west route of the three alternatives although we feel the central corridor could be modified to achieve a similar length of direct north-south alignment.

Within the area of metropolitan influence, that is say inside Redwater and Fort Saskatchewan to the city limits, communities such as Gibbons, Bon Accord,

Fort Saskatchewan, Redwater should all be given a relatively wide berth by a pipeline corridor. The route that generally seems to present the least potential conflict between future expanding settlements is a route that goes east of Fort Saskatchewan and we have not examined in any detail, the exact alignment, but, if we came to a point east of Fort Saskatchewan (this is coming directly from the north), we would miss most communities with any foreseeable prospect of expansion. Carrying that line directly south, again following the north-south lines of subdivision, we would come to a point at which we could turn directly east, this would be some point just south of Highway 16 and proceed directly west to the existing pipeline terminal complex in Refinery Row in the County of Strathcona and it would be our recommendation to approach the terminal complex directly from the east if possible, preferably half a mile or so south of the highway, but this again depends upon detailed design considerations within the corridor. Essentially, to sum it up, our preference would be modified version of the central corridor.

P I do not see why it could not run along the central corridor for the least disturbance and also as far as the economics of building is concerned, I think it is the best route.

CC

I may say as representing the Wildlife Foundation that as far as the wildlife people are concerned, they would prefer the central route.

C

I would like to get some comments on a number of points which will perhaps help me to make up my mind. Land oriented people, by nature, are opposed to the fragmentation of land and this was a problem with the advent of many pipelines in the late '40s and early '50s and a great number of us were complaining about and were trying to work into some sort of corridor situation.

I was at a conference in Phoenix in May and there was a number of the President's Environmental Committee who made the statement that from the environmental point of view, it is better to disturb one piece of land many times than to disturb many pieces of land once. That impressed me in favor of the central corridor. From those two points of view, then, coupled with ideas of the most effective use of land, my own preference is for the central corridor. I would like to get as much comment as people wish to make on those two ideas of the fragmentation of land and the environmental statement.

P

The Town of Smoky Lake would favor the proposal made by the Hon. Minister of Industry and Commerce. In the Journal on December 28, he suggested that a line from Fort McMurray be more or less in a straight line all the way to Lethbridge and that nearly corresponds to your eastern route that you are talking about. I think that there are possibilities in that area which should be expanded. When you look the distance between say Highway 63 and 36, we have about 40 miles of land which needs tapping. We have potential lakes there. I think the people of the cities need some of these recreational areas, and I think if a more direct route were followed, these areas could be opened up. Another fact that should be considered is that this route would follow, practically, crown land for a major distance. As far as economics is concerned, I think that these could be expropriated more cheaply than possibly the other routes which this meeting is considering right now. I think that Smoky Lake would certainly like to see a deviation, and a more easterly route followed.

CC

We have shown two other routes on our map coming out of the Athabasca Tar Sands and that was one coming straight south past Vegreville and injecting into the Interprovincial system and then one down to Hardisty which would then inject into the Interprovincial system. This is anticipating that most

of the synthetic crude oil that comes out of the Tar Sands would be going East through the Inter-provincial system. This would also happen in the Edmonton area.

P With regard to the lines coming out of the Fort McMurray area, I notice that there are two other lines shown - the West Coast route and the East Coast route.

CC We have given them a very cursory look. We have not really looked at them enough to comment on them. Most of the comments that we have gotten from industry is that they are not feasible right now.

P We request comments from the oil pipeline people who are here as to what happens with regard to the direction of flow of oil in terms of the terminal facilities if the route chosen were the eastern route? What happens to the terminal facilities in terms of the present terminal facilities you have in Edmonton? I would assume there would have to be alternate terminal facilities provided somewhere down the line on those East routes, is that correct?

CC They would have to have terminal facilities at the end and for batching the material before injection into the IPL system, as as they have in the Edmonton area now.

P The point I was making is: are there any of these oil pipeline people, who may be here, able to comment on that?

Another
P

The question raised here is whether there is merit in dropping due south into the IPL line. It would seem to me that the nature of this project would lean towards the greatest net back of dollars into Alberta. If a large development occurs at McMurray, the volume of oil moving into the IPL system would be as great as it is now moving. This would result in duplication of the facilities at Edmonton which may or may not go idle. It would seem that they may. In addition, the pipeline between Edmonton and this input location would not be used to its fullest extent. Due to these two circumstances, there would be wasted investment which would probably have to be made up in some form of additional tariff generated by this crude moving.

CC Do I take it that you favor going south to Hardisty or to Edmonton?

P I would say the advantages of going straight into Edmonton as against going due south are very great, particularly in the best use of current investment. If a major volume of oil went into the southern leg, due south into Hardisty, there would be a lot of investment in Edmonton tank farm facilities, not

just IPL, but others and a volume of oil which would not be run out of Edmonton to that point thereby lowering the load factor of the existing pipeline. Whenever you lower a load factor, you are not getting a good return in that investment.

Another
P

We have been talking about pipelines and transportation corridors and it seems that we have lost sight of economic developments of certain areas. We favor the easterly pipeline for different reasons. We feel that if the proposed corridor route would go through in the easterly direction, it would pass close to small isolated communities outside of Lac La Biche, between Lac La Biche and Fort McMurray such as Owl River, Imperial Mills, Philameno, Conklin, Janvier, Chard. There is virtually no employment there and many of these people are now living below the standard of poverty levels in Canada. This arises from lack of any economic activities in these areas. A good portion of this population is of native origin and development of their culture has never taken place because of their relative isolation.

We believe that a service road would be constructed to serve this corridor and this road would develop those areas in the following manner: first of all, the railway service presently is scheduled for twice per week each and provides insufficient ser-

vice to the people of those communities mentioned above. The road would provide an alternate means of transportation to the railway and would open up this area to society, so that human interaction and inter-racial understanding would result. The road could be used for forest fire prevention and fire fighting in the summertime by providing transportation and also act as a fire break in heavily forested areas, thus helping to preserve our natural forest resources. The road would also provide a commuting route for persons to be employed in the nearby centres of Lac La Biche and Fort McMurray and yet not uprooting them from their homes. I am referring to these isolated communities where quite conceivably some of these people could be employed in those plants. The road would also provide access to secondary industry that may be established in this area, and I am referring to the forest industry. It would be an offshoot of this transportation corridor. Also with the phenomenal growth of Fort McMurray, more and more persons would be attempting to find recreational areas. We feel that this road would open up the land in this area to recreational uses and there are several dozen virginal lakes right now that are not being presently used. We feel that it would open up this area for the people in McMurray and the tourists in general throughout Alberta, Canada and the United States.

It may also be worthwhile to note that a present forestry trunk road exists in this area and that the cost of upgrading it to travel standards would be less than having to construct a brand new road. The fact is that we realize that there are going to be costs in establishing a second road, but I do not think that we would necessarily have to be looking at a paved highway. We are just looking at a service road and the cost would not be too exorbitant.

Also if that route were to be chosen, the social conditions would improve. The social services in the areas, now, and I am referring to Chard, Janvier, Conklin, are very poor since these communities are served from either Lac La Biche or Fort McMurray and social agencies have transportation problems that hinder regular and sufficient services. Furthermore, we feel that if there were a transportation corridor that did come through the area of Lac La Biche, that quite conceivably we could have some secondary industry established in our area. We could have power. We need power. There are going to be byproducts that could be shipped in transportation corridors such as this. I think a second look should be taken at the easterly route.

CC In this corridor, we are talking of pipelines that go past communities, and in this corridor the power transmission systems are large heavy lines that cost somewhere in the neighborhood of \$1 million to tap into. They really just go past a community. In the light of that, would not just the road be the answer to those communities up there or would you want the corridor along with the road?

P We feel that a road would help tremendously, but on the other hand, if the transportation corridor were to be located there, there would be a reason for putting a road there. Right now there are about 700 or 800 people that are not serviced with one iota because there is no transportation. If we could get a road there, we may settle for it.

Another
P I favor the eastern route because it would be an opening to that area. There are people scattered through there and there would be some kind of a service road needed to maintain the pipeline and look after it. Therefore, you would find employment for some people. It would help to bring this part of the country alive and after all it is our Tar Sands. This corridor is supposed to be for multi-uses. It is not only going to convey oil and electricity back and forth but as I said it would

be an opening to people living there; it would be an opening to these people to go fishing, etc. Lakeland Tourist Association would definitely come alive because that part of the country is not thought of much, but let it be known there is a corridor and there is going to be some kind of a service road, I know that it would help our economy in Alberta.

Another
P

Would not the opening of any route create employment and help any of the areas by opening up the East or the West or the Central? It does not just create work for one class of people; the poorer class of people, the people all requiring labor in any of these routes.

CC

Generally in the construction of a pipeline or a powerline, they do employ a few local people, but once the facility, such as we are talking about, is built, they will probably run from each end, the north end and the south end. There would be very little employment generated through these facilities in between the two terminal points.

P

Then it does not seem to matter which route you take. Once it is constructed your labor is at the top and the bottom. You are not considering labor in between your two main points?

CC There would be some employment during construction periods, but after that very little.

P If we follow the central route, it would need a lot of accesses to service that corridor. On the highway between Edmonton and McMurray with the future transportation that is forecast for that area, I think it would be sort of a handicap for the travelling people. Then this route would also come into a bottleneck close to Edmonton which is already a busy place during the traffic where the corridor has not been developed yet. The eastern route would eliminate all that centralization of traffic which comes to a bottleneck close to Edmonton. The eastern route for that fact alone should be considered very seriously from the point of view of inconvenience and the future traffic that would be coming on the highway between McMurray and Edmonton.

CC When you speak of the eastern route from Lac La Biche, do you mean the eastern route plus the Vegreville route or the eastern route plus the Hardisty route?

P It could if there is no savings in the pipeline from Edmonton. It could come from Lac La Biche to Edmonton but like this map is indicating, it comes up and then it cuts off by Edmonton to enter Edmonton facilities as they exist now. Most of that route would be

coming through crown land with exception of south of the North Saskatchewan River to Edmonton. That would be the only part that would have to be expropriated and the rest is all crown land which is not any worse. Originally the survey of the first railway that was going to McMurray went right through that area where that indicated pipeline would go. It was the survey for the railway 60 years ago and I think that that route still is there and it would develop that area for other uses just as well as the pipeline.

Another
P

We have taken a little opportunity to investigate certain costs in respect of a line coming out of the Tar Sands area. My company is actively pursuing an interest, so we are naturally most anxious to associate ourselves with the discussion today. From my experience, the present pipeline that exists in the area has a reasonable upper limit capacity of something in the range of 150,000 to 200,000 barrels per day. Apparently it is operating at probably less than 50,000. G.C.O.S., I believe, have authority from the provincial government to manufacture some 60,000 barrels a day. With the advent of the Syncrude system, allowing them 150,000 a day, which is going to require 5 to 7 years to complete, the present pipeline is quite capable of handling the short term production

from the area almost through the '70s. I suggest that the results of the thrash that will go on in Ottawa beginning tomorrow may well have a great impact on relative routings because it may well develop at that time the ground work for the rate of development of the Tar Sands area.

In any event, as you are aware of, the studies that we have performed suggest using the rule of thumb of some ten plants being constructed in the Tar Sands area at the rate of one every two years because there is a highly intensive labor problem here. I suggest that the development of the area will have to extend over a considerable period of time because the technical requirements of a great many of the staff who would be employed during the construction of any plant are such that there are just not sufficient numbers to go around. The decision, therefore, as to which route may in fact be chosen in spite of a recommendation that your group may submit to the government, may well be 3 to 4 years down the road before it has to seriously be considered. I favor the existing central route, particularly in view of the fact that the capability exists in that route today to accommodate production from the area almost through the next five years.

I agree with your comments from Thorhild that the construction of a pipeline or a highway or a power-line is very labor intensive and once the initial construction period is over, particularly in these days of automation, the labor content required along a pipeline route in particular, is very limited. The pumping stations which we would estimate a large diameter pipeline coming out of the Tar Sands area accommodating some million and a quarter barrels a day. Interprovincial is now operating this, although they are operating that volume through three different pipelines between here and Superior, Wisconsin. The pumping station requirements are completely remotely controlled, therefore the labor requirement is one of a technical nature, that is electricians, electronic technician people of this nature that you would usually shoot out of a major area such as Edmonton or McMurray.

Another
P

In reference to the manpower of the development that we are undertaking now in Fort McMurray on lease 17. The manpower requirement for the construction of the plant is approximately 3,000. This will take place over a period of starting now to build up to 3,000 at peak construction with a plant supposedly completed by about the end of 1977. The actual number of people involved in the operation of a plant will be about 1,600.

Studies have been done in terms of the environmental impact on Fort McMurray and judging by the situation or the experience of the development with G.C.O.S., we predict that the average family size among the people who will be operating the plant will be 4.03; that is obviously a statistical factor, we do not talk about .03 children. Assuming that, the 3,000 men who will be working on the plant construction, whether they are single or married, will be located in a camp which will be on site, therefore they will not require their families nor will they be able to have them because of housing shortage, so, in fact, they will be a single status living in the camp. However, by 1978 with the number of people who will be in the actual operation as well as all the people who will be establishing the support services such as new shopping centre stores, etc., expansion of RCMP, the population will be about 17,000 when the plant goes on stream sometime about August 1977 or the beginning of 1978. It is now 7,000, so that you can appreciate where the action is in terms of development and in terms of long term wage employment, it is not right at the Tar Sands and the plant.

I would caution you against becoming overly optimistic about the possibilities of employment in the long term with the pipeline or trans-shipment of this to Edmonton

because of the reasons that have been mentioned. It is a short term thing; it is a construction factor. Also when we refer to the construction at Fort McMurray, it is important to realize that there will be potential for laborers, 600 laborers at a maximum; the rest will be skilled tradesmen who will have a high level of training. However there is opportunity for people in the Fort McMurray area, and I include when I say that, Janvier, etc. as well as Lac La Biche, Fort Chipewyan, etc. We are certainly actively pursuing this for people to gain employment with special cases of people in that area. We are looking at programs to encourage them and entice to stay if they so desire. Also for those who choose not to, we are trying to support them; those who decide to stay as trappers, etc. We feel it is our responsibility to take them into account as well.

We also favor the shipment to Edmonton. If you say we want an east route and a Hardisty route, therefore bypassing Edmonton, what you are essentially saying is we are making a commitment to ship all of the oil to Eastern Canada. Perhaps that is a commitment we do not desire to make. When I say we, I mean the people of Alberta.

CC

I would like to discuss the long term effect of bringing it all to Edmonton or elsewhere along IPL line for injection into your system. With your expansion facilities here, I understand, you can go to three million barrels a day on your present site, not with your existing facilities, that is an increase in existing facilities.

P

Yes. With the addition of a fourth line which is now under construction (part of it has been constructed upstream of Hardisty between Edmonton and Hardisty), presumably the production of this Tar Sands oil is based on a drop off of conventional crude volumes. Again, I would expect the two will go together; as one drops off, the other will increase which would maintain this three million barrels a day volume or something of that nature. It is currently around a million and a half, say 1.3 million out of Edmonton. If that facility to handle this 1.3 million into Edmonton is dropped out and a like facility generated into a place like Hardisty, the recapture of that money spent for the facility that is being dropped will have to come out of the cost of transporting this crude that is coming out of Syncrude or like facilities. This would again reduce the value of the crude to Alberta. The market where this crude goes has a very definite price and from that you would subtract the cost of transportation

with a netback into Alberta of the price of crude. If there are lost facilities or a lost investment, this netback will be less into Alberta.

Another
P

If I look at the assessment gains and other things in that respect, I would surely follow the eastern route because it is going to hit the end of our county. There would be little assessment there. It would bring extra dollars to our county where we have no industry whatsoever. But sizing up the whole picture and structure, and looking at the highway and the use of the highway during the construction, and the benefit to the oil companies that will be using the corridor, and the Edmonton facility, I cannot see any other way but to look at the most logical and most feasible way in which a dollar saved is a dollar earned. I simply would have to agree with the central route because the highway facilities are there for servicing and construction of the road. Maybe you would like to look at the immediate area towards Edmonton, where the entrance could be changed if it is more feasible than it is outlined right now. Fort Saskatchewan is just hitting them broadside. If they want a little more expansion room from the pipeline, I would not say either way there, but as far as I can see, I would simply have to agree with the central route as the most logical location.

Another

P

The fact was brought up about the lack of transportation from Lac La Biche and only two services a week on the NAR. I would like to pose a question to the gentleman from the NAR - with the advent of the expansion of McMurray and surrounding areas, would there not be a need for increased passenger service up there, as well as freight service because of the transportation of people back and forth? Would you not see in the foreseeable future possibly a train four times a week instead of twice a week for passenger service?

Further

P

I cannot see the passenger service being increased to more than twice a week at the present time.

Further

P

What I am getting at is that when you are looking at now 7,000 people in Fort McMurray with a potential of another 17,000, or, 25,000 people in Fort McMurray, would there not be a potential increase in passenger service?

Further

P

You are talking in terms of increasing the work force by 3,000 in Fort McMurray and I imagine the car, the airplane and the bus service will handle most of that.

Further
P

No. We are talking about an overall town site of 25,000 eventually when this is completed in 1978.

Further
P

You can probably assume that with every plant that goes in, there will be this compounding effect; probably not as marked, not 10,000 per plant. Obviously the service people will not increase at the same rate but a definite increase with each plant going in.

Further
P

So theoretically, in the foreseeable future, Fort McMurray could possibly have 40,000 people.

Further
P

I would prefer that you keep your sights a little lower.

Further
P

If you mention 10 plants going in, you are going to be involved with 17,000 people.

Further
P

Do not forget that the Athabasca Tar Sands are not concentrated right at Fort McMurray so that it becomes a situation where people can only commute so far to work, so that you will have probably intermediate urban developments. But you are right, the potential for increased population density is there.

Further
P

I am sure that if there is the demand for that service, we probably would definitely provide it.

Further
P

It is my understanding that this corridor will also be used for the transmission of electrical power and it seems to me that there has been little reference made to this aspect of it. I think electrical power should be a very important factor of this corridor system. I think that if we are considering electrical power, we must realize that we must stick to the fact that if we could bring the electrical transmission system along the easterly route that it would serve the native population that is concentrated along the NAR railway. It would also provide the possibility in the future of using electrical trains and I think this would provide perhaps an opportunity for secondary use of land in that area. In my opinion the easterly route is the one that should be given very serious consideration because it would create a situation where we would have an expansion rather than a concentration, and I think this is the object. We have to have a growth and expansion if we are going to have this province developed. Perhaps this would provide a greater use and an opportunity for establishment of secondary industries along the easterly route. If it came down as far as Lac La Biche, it would pro-

vide the alternative of either going to Edmonton or going south. In fact, it would provide for a dual outlet and therefore, I think that in view of this that the easterly route has a much greater potential than the central or the westerly route.

C

There has been a lot of talk directed to incidental benefits from the location of this corridor. The kind of guideline that this group needs in working with the corridor concept as far as the public is concerned, and we take it that all of the people of Alberta are concerned, is taking into account the cost of land, the cost of pipe and its length, the cost of a powerline and its length. The best route to be followed, given environmental considerations, is perhaps to use the shortest route between two points, or, should we be taking into account as has been suggested here, the other peripheral benefits that might accrue from locating a corridor other than where we might decide it on the basis of cost? As you can appreciate, the cost per mile of these pipes or other facilities that will occupy this corridor, as well as the cost of the occupied lands will be very great, and the net result is that probably in the end these costs are going to be passed on to the ultimate consumer or user.

The question that this group is prepared to deal with is whether or not your standards or your criteria represented to us should be dealt with on a wider

basis than we are now dealing with. In that case, we would represent to the Department of the Environment that the public at this meeting has the desire to have the scope of this project expanded so that we do consider economic benefits into a particular area; so that we do consider whether those benefits outweigh the cost of longer routes or whether or not we should confine ourselves to what we understood to be our mandate, namely to determine what is the best and most economic route given environmental considerations between Edmonton or another terminus and Fort McMurray. We are not and have not really directed our mind to these peripheral benefits by way of industrialization, increased recreational uses, things of that sort, other than merely discussing them. If your representation to us is that we ought to be looking at the other peripheral benefits that are not directly related to the establishing of a corridor, then perhaps we should put that in a form of a resolution. This study group can go back to the Department of the Environment and the government and simply say we have had some representation from the public sector indicating that they are interested in a broader scope study relating to other benefits from the corridor other than what we are presently working with.

P

There is a heavy oil deposit coming out of that Cold Lake country up into the Christina Lake country and it would follow that as the technology of separating these materials is improved some service is going to be required into the eastern sector in a matter of time. When you consider the supply-demand picture for petroleum products Canada-wide, it certainly follows that the vast majority of the requirement will continue to be to the east of us, particularly if you consider the development of the Alaska north slope. The production from that area will be coming into the West Coast of the United States which will certainly hamper the expansion of the Trans Mountain pipeline system. It will limit it, unless the whole logistics of transportation of petroleum products is modified significantly. The fact still remains though, that if there is to be any heavy oil development in the Cold Lake-Christina Lake area, it will not be that far down the road. It is just that the technology of benefitting from McMurray Tar Sands is a little closer to the fore now than the Christina Lake area.

Another

P

I would like to hear the representatives of the Native population version and how they feel towards these various routes.

Further
P

It is a little confusing in hearing your versions because I have looked at three areas and I was quite sure when I looked at the map of the corridors that it was going to be accepted and everyone would want it in various areas because we realize that a lot of money would be involved in it. It would be pretty hard as a loner to say that I would prefer the west end or maybe the central or the east end, because looking at the areas, especially the reserves that are going to be affected, although there will not be too many of those. I am interested in the general area where they talk about the eastern area of the development; that is coming into Cold Lake and through Janvier and also for access in the future hopefully into Fort Chipewyan. We have another corridor based on the west end which will affect Calling Lake, and again, they talk about recreational areas which will affect Sandy Lakes. If developed, it will affect our people. Down in the area through Peerless Lake for the recreational needs for our people, we are trying to possibly develop these areas which in the long run will affect them in a sense because of the road construction. Possibly some of them would be able to be affected by making the roads. The pipeline would not affect our people too much. Maybe the first part would be the slashing and burning of rights-of-way, but it would be only a

short period until these jobs are done. It would then be more or less highly technical people that would be doing the work. With us, as Native people, we are in an area where we would be affected in all three routes that are proposed.

In the corridors where it has been explained, I do not think it would help us or the wildlife if we had an area in the corridors where it would be a half mile strip open for our own purposes. I would think it would be most appropriate if it was for a pipeline itself with a buffer zone in between with forest and placing them in three lines or in the railroad right-of-way which will not affect the wildlife.

From our point of view, I think it would give a lot of our people a chance in many areas to gain employment for a longer term where the technical aspects are such that heavy equipment is not needed in building these.

We cannot possibly say this or this would be the best route. I was also quite concerned by the fact that if you did take the longest route for the services that we might get, in the long run the Albertans would have to pay higher prices than in other places. Assuming we take the long run, how much extra do we have to pay for our fuel in the future? These are

the things to really consider and I would not be prepared to state the effect of running corridors through our reservations. I think we would have to get these answers directly from the leaders of each community which is going to be affected because we are faced with the many problems when the development of certain areas takes place. We do not know what the chances are going to be on that, but we are hoping. We mainly came here to see your points of view. We know that this is not going to be the final meeting, but at least we are hearing it out and after we discuss our findings when we are through here, we might be able to participate more by hopefully coming in with a happy medium version in order not to fight with the dollars and cents aspects that might possibly be involved in the three areas.

CC

We did have a very good meeting in Conklin and there were two points of view expressed there. There were some people that wanted the corridor along the east route and some that did not want the country disturbed at all. There were two distinct points of view.

C

There were the two main groups; the one that was mentioned by the previous speaker that there might be possibilities of employment, better education and better contacts with the outside. The other side felt that the influence of the outside coming in and particularly to the competitive forces that might come into those communities that these forces might drive some of them farther back into the bush than they already were and that these competitive influences might not be good for the community as a whole. I do not know what the actual numerical division was, but there were the two strong groups and I would not say that one was stronger than the other.

CC

Tomorrow we would like to hear from the citizens groups, urban municipal groups, rural municipal groups and the industry. Then we can get an approval or disapproval of the corridor concept, an approval or disapproval of the corridor location on the Fort McMurray to Edmonton phase and then later a short discussion on terminals other than Edmonton.

JANUARY 22, 1974

CC

The next item of the agenda is the citizen group.

P

Our main concern in such a corridor as this is the potential for an enlarged disaster when you have several utilities all grouped together in one corridor. We know that the engineering firms are taking into consideration the fact that if a landslide or such other occurrence does occur, that the effects of such will be greatly magnified if several of the utilities are contained in the one corridor. That is not our concern mainly. We would like the group to consider the security aspects of such a corridor, if such a corridor is considered feasible and is proceeded with. The potential for a great amount of damage in a period of civil unrest is always present. We realize that it is not possible to adequately police 200 or 300 miles of pipelines. We would like to recommend to the group that if such a corridor is being constructed, they take steps to meet with the Emergency Planning Branch of the R.C.M.P. in order that prior security planning at least on essential key points along the width of the corridor can be done. We would earnestly recommend that this step be taken if the corridor is proceeded with. We understand from the group that the corridor itself is not going to be

carrying any highly volatile substances, at least not in the foreseeable future. It could, but the corridor appears to be at a fairly safe distance from any large centres of population at least until it reaches the city outskirts. Here again we would ask that if at such times highly volatile loads of toxic substances are to be carried along this right-of-way that the local authorities concerned, the municipal governments through which the right-of-way passes, are kept fully aware of any developments of this nature in order that the necessary precautionary planning can be done by the municipalities and our agency. This is being done at the present time in conjunction with all companies in certain places where there is the possibility of a hazard occurring such as in the vicinity of sour gas plants and so on. Our main concern at the present time is that this group seriously consider consulting with the Emergency Planning Branch of the R.C.M.P. prior to the construction, in order that certain security arrangements can be built in in the construction phase. This we believe will be a lot simpler and a lot more effective than having to go back at a later time to try and make adjustments to something that has already been built. You could either do it directly through working with our office by using it as a liaison, because we have a day to day liaison with the Emergency Planning Branch of the R.C.M.P. We would be quite willing to undertake this liaison for this group.

CC

Perhaps you would do this for us.

P

I have several reasons for making a decision on a two corridor concept. It would be ridiculous to think of building a new railroad in another location. The NAR have been improving their transportation system for several years, even though the overall revenue has been dropping, because of the drop in tonnage hauled for the waterways transportation of goods to the North. As the Town of Fort McMurray and the tar sands industry is expanding, the increase in revenue potential will not only allow further improvements and services, but will take some of the burden from the tax payers; therefore there will be a slight economic benefit to all.

I feel that the central corridor to be the most suitable for the following reasons. Extensive studies have been made and conclusions drawn that it would least harmful to wildlife. It would have less impact on the environment. It has already been said that it is less harmful to disturb one area many times than many areas once. Because of the existing road facilities, it would be easier and less costly to transport goods and materials and manpower for construction. Maintenance could be carried out more efficiently and faster than if it was built along a forestry type road. The

survey and legal problems of using the corridor would be partially overcome by learning from the trials and errors encountered when the highway was first constructed. The economic benefits to communities along the right-of-way would be of such short duration as to be negligible and maybe even harmful. You have people who are gainfully employed in trapping, farming, working in community stores, hotels, garages, etc. that could be lured away to higher paying jobs and when the bubble breaks, they would not only have become accustomed to a higher wage but can no longer be satisfied with the occupations they had before. To extend the route through centres for the short term benefits would not only add to the overall cost, but could prove very detrimental.

In conclusion I would like to make these comments. The overall picture of the Tar Sands development and the corridor would be a benefit to the people of Alberta, but none of the pipeline, power companies, or oil companies are there strictly as good samaritans. It has cost the people of Alberta and Canada millions of dollars in benefits by granting of tax concessions and I, for one, would like to see a little more money spent on pipeline improvement than money spent on cleaning up oil spills. As for powerlines, they would rather build two transmission

lines to alleviate the problems of storm damage but would it not be wonderful to have some of that additional cost of construction go into more research so that these unsightly lines could go underground? I have been told that this cannot be done, that it will be a few years before completion of this project.

Another
P

In consultation with the president of Unifarm, we would like to make our position at least partially clear at this time. While Unifarm supports in principle the concept of a multi-purpose utility corridor between Edmonton and the Fort McMurray area, it makes no commitment that would be binding upon the individual farmer. Also in recognition of rapidly rising land values, Unifarm, as a farm organization, cannot be responsible for the changing requirements for compensation regarding land values. We do not wish to prejudice the interest of the farmer who wishes to negotiate for himself. Unifarm favors the location of the proposed corridor which would utilize as many existing facilities as possible. Unifarm defines a corridor for this purpose as the narrowest strip of property required to accommodate all utilities proposed for the foreseeable future consistent with the engineering and safety requirements imposed by present and future legislation. Unifarm also has concerns regarding the accessibility

to the corridor. The division of farm property has in the past created severe hardship for owners located elsewhere in the province. Unifarm prefers to refrain from stating a final position subject to further information regarding final ownership and control of the corridor and to further discussion with its member farmers rather than in the general area. Unifarm also further wishes to maintain its present level of communications with this study group.

CC

We sent out 600 questionnaires and we received 123 replies. For the most part the whole questionnaire was answered. It was a very lengthy questionnaire. We were pleasantly surprised by the number we got back. Usually on a questionnaire of this type, if you get 10% back you pretty fortunate. We received over 20% back. The quality of the answers were good. In summary we think it was a fair assessment of the impact upon the farming community of something of this nature. These conclusions were also confirmed by the public meetings we had, mostly with the farmers in the Boyle, Athabasca, Thorhild, Lac La Biche areas. We would appreciate receiving direct comments from you after you have studied the document.

The next group is the urgan municipal group.

It seems to me that in the consideration of the corridor route, we are overlooking some very important aspects; that this corridor should perhaps follow through an area that would do the most good to the area and the purpose which it is going to serve. It seems to me that we are looking, when we speak of the corridor, at McMurray Tar Sands and at Edmonton. But we forget perhaps that the Tar Sands, while they are quite obviously at McMurray, do not end there. The deposits continue much further along the easterly route with a great deal more overburden. Perhaps we will recollect a few years ago when the former Premier Manning of Alberta was about to authorize the explosion of a small atomic bomb to thaw out or melt the tar sands or to liquify them in the Philomena area. This is just northeast of Lac La Biche. It seems that any route other than the easterly route would leave these reserves that are just under overburden untapped. We have to some how get at these reserves. It seems to me that if this corridor is going to be used for electrical power transmission, it would not only serve the communities that are along the railway, along the easterly route, but the electrical currents perhaps could be used to thaw out the sands underneath the overburden and would be much more acceptable than this use of atomic bombs to thaw out the sands.

Perhaps there are different methods for thawing this sand. Nevertheless, they are there. They stretch all the way down to Lac La Biche. In my opinion the route that should be followed is the easterly route from McMurray to Lac La Biche and if the volume is such that it is too great to be handled in Edmonton, then there could be a secondary line going straight south to join the existing pipeline at Hardisty.

Further
P

We have come to the conclusion that this transportation corridor has to be planned so we cannot go into it with great speed. We do not think the centre route is the best. We do believe in the eastern route. It should run direct to the south from Fort McMurray and then go east through Sherwood Park into Edmonton. That way it would miss all the high assessed land. We have to look at this problem. Where is this route going to go? Are we going to pull it through the highest assessed land? Yesterday I heard quite a bit of talk about Redwater and Fort Saskatchewan. I do believe that it is the highest assessed land in this province. It would make it hard to weave a corridor through those parts because it could be a half a mile wide. The width of the corridor that is going to be required for its multiple uses has got to be thought out. Furthermore, it is

supposed to be our tar sands. We have got to bring them down and see what we can do with them, be it at Edmonton or shipped on. We have got to think about this.

When we are talking about a transportation corridor, we also speak of putting in powerlines. If this transportation corridor comes straight south from Fort McMurray, it would be in line with Forestburg that generates power. This is near Hardisty. Hardisty is the place where it would go on into the Trans Canada Pipe Line. All this area coming straight south is not in the high assessed land. We must think of that because in time the taxes can eat the thing up. We are of the opinion that if this line comes due south and is developed and then goes East, it is going to help the municipalities and help develop this whole region.

There is a highway on the central route. How much is that highway going to be used to start this corridor, to start these lines? It is not along side the highway. Sure they are going to be driving up with the pipe and the power poles and then throwing them off. They still have to take them to the source of the corridor. When this corridor is designated there will be bulldozers in there and they will open it up and that is where the material is going to

be distributed. We do not have to have the highway along side of the corridor. There will be service roads following it. These service roads are the things that are going to open up this part of the country. When we get the powerlines in there, I know there will be all the communities along side of it that will be developed because of the power.

Further

P

I am in support of the central route because the people through there are aware and have had experience with pipelines going through there already, and I think that I could say that it would be far easier dealing with them along the same route rather than going out to another route and dealing with people that are not aware of what all takes place.

Further

P

Although some people feel that the highway may not be used to any great extent, A.G.T. are going in with their trucks, electrical outfits are going in, all other units are going in; they are all going to use the highway. I feel that through the centre of the province your service roads may go to any side you may choose. It would be easier to take off from there. For hauling the pipe, hauling the power poles, anything else that has to go into this construction, most certainly, the highway is going to be used or the railway. In my

opinion I see no other feasible route other than the central one. I do not say that it should not branch off near the south if you care to bypass the city but the bulk of your staff are going to be in the city anyway.

Further
P

It seems to me that whether we take the western route or the central or the eastern route, there will be a certain amount of work involved. There will be a certain disturbance of the ecology or the environment along the way, but there will also be benefits in developing and exposing some of that area for peoples use. In my opinion the central route, if we go on with the corridor like it was proposed and we follow it from McMurray to Edmonton, would seem to be almost a disaster to the highway people when you think of the construction that is going to take place in the corridor; with only the flagman to guide the public; the waste of time that the public would suffer; the interference with the construction, while the construction workers are waiting for the traffic to go through. I think that that cost in itself will build a major part of a brand new corridor in a land where there will be no interference from traffic and no interference with or risk to peoples lives. Whichever route is taken, there are advantages and disadvantages, but the central route seems to be the one that would be

the most hazardous for the present traffic that is there, and we are even thinking of more traffic in the years to come. I think the central route would be the one we would have to be very careful about. We must really think it over before deciding what route we are going to take.

Further
P

As far as the eastern route is concerned there would be additional costs because of having to build holding tanks and pumping facilities, etc. that are already available at Edmonton. There is no guarantee that the oil, gas and power is going to go East. I wonder why could it not be used in Alberta to make Alberta into an industrial province rather than be a clearing house for our products to be manufactured elsewhere. This way not matter where the corridor is to be built, all of Alberta would benefit.

Further
P

Let us go back eight or nine years ago when the original highway was being proposed to Fort McMurray. At that time there was the same old discussion that we are having now. The westerly route was proposed; the central route was proposed and the easterly route was proposed. As we all know the Department of Highways chose the central route because it was the most feasible; the easiest to build, etc. Also along this same route our line of communication is centred on it.

The A.G.T have all of their microwave towers from Edmonton through Boyle, Wandering River, Marianna Lake, etc. There is no doubt that wherever the line goes through, it is not going to service the whole area. But I think that this line going through the central route will service the major areas. We are talking about Cold Lake Reserves now. When the time comes to develop them, there is no reason why they could not be tapped into this same line further south or else it is probably just as cheap to build another line from Cold Lake direct into Edmonton instead of going and spending all the money finding a new route to service the Cold Lake area. One route is not going to service the whole area; it does not matter where it goes. I think of the amount of money that has already been spent on this central route, the highway, the communications, the pipeline. I am sure if another route is proposed, they are not going to come up and dig the present pipeline out and move it to the easterly route. This has been a real good study; they have counted all the rivers; they counted all the muskeg, etc. They have come up with the central route and I think they have done a good job. I think they should be credited for it and not go on and continue discussing all these routes. No matter where you put it, you are not going to satisfy all of us. The majority of people are favoring the central route and I think we should go on that central route.

There are three things in the location of this corridor that have been brought out. First, there are the environmental considerations; the soil ecology, the stream ecology, the wildlife. Under those three headings are many more items under environment. Environmental considerations generally favor the central route. There are the economic reasons. Essentially this comes down to the length of the line and the terminal facilities, moving them, building new ones, etc. On an economic basis the central route seems to be the favorite. There is a third item in the location of this corridor and that is the social end of it; that is to develop or use this corridor as a vehicle to help other areas that are not industrialized or may need a larger tax base or some other factor along those lines. We have three factors; the environment, the economics, and the social. Maybe we should have a discussion on these three things; which of them are going to take precedence. There is a shortage of money now for the development of the Tar Sands. If we have to spend a lot of extra money in developing a corridor, there will not be any money available for the Tar Sands. If you have no money to develop the Tar Sands, then there will be no corridor.

P

First of all, on behalf of the citizens of the Lac La Biche area and the people in the northeastern area of the province, I feel that I can support the eastern route for numerous reasons. It is our feeling that should the corridor be developed in the eastern route, that many things could happen to northeastern Alberta that would be beneficial to all of the people in that area. There is a need in our area for development and for job opportunities. From what we understand, work on this pipeline and this development would be on a temporary basis. They are utilizing our natural gas from our Lac La Biche field for the purposes of energy in the Fort McMurray area and therefore they are taking everything out of our town and out of our area. All of the energy is being taken out and we have nothing back in return. Should the route go on the easterly portion of the suggested area, we feel that what would be the raw materials coming out of McMurray could quite conceivably be processed in our area or areas such as Smoky Lake or Vegreville. We could be tapped onto this corridor.

We realize that the power is going up first of all to McMurray and once the power plants in the McMurray area are on tap that the power will be coming out of McMurray. We realize it is quite a costly project to tap the power out of it, but, nevertheless, if there

were big enough plants in northeastern Alberta, it would be quite feasible for the power to be tapped out of these main arteries.

Another reason why we are trying to promote the eastern route is that it would open up the recreational area north of Lac La Biche. I do not think that we are looking at opening it up to the extent where we want to damage the ecology of the north portion of northeast Alberta or to the tourists at large or to open it up to a great degree, but nevertheless, I think that these lakes could be opened up and this could become a semi-wilderness park area where we could maintain very close control of our natural resources in that area. By opening up these lakes, we do not necessarily have to destroy the whole area, but I think it would be a great advantage to the people of Alberta if that portion would be open for recreational usage.

If the route does go in the easterly direction, a road will go along side of it. It does not have to be a paved road, but there has to be access to it. Another pro for that line is that there is the railroad along side this; it is existing. That is a plus factor that has to be considered.

Another thing is that there are a lot of people living in that area of the country who are virtually isolated from our community and from the communities at large. This corridor would open up this area to those people. They would not be so isolated. They would have access in and out of those areas. There is a certain amount of lumbering that could be done in that area. Now the people who are living along side the proposed corridor could quite conceivably be put to work developing the secondary industry, the wood industry in that area north of Lac La Biche. When G.C.O.S. started developing their plant in McMurray, we lost over a hundred families to that plant. It not only takes our natural resources, but it takes our people resources.

Our government, at present, is looking at the development of small rural towns. Maybe in dollars and cents it is much more economical to have the central corridor but on the other hand if we are going to develop communities in Alberta, sometimes we have to spend a few extra dollars. I think that this corridor with all its potential should be going through rural Alberta instead of going from McMurray to Lac La Biche, or from McMurray to Edmonton to Calgary. This seems to be the trend today. We want centralization of all industries. Your cities

want to get bigger. I am wondering if this is the right attitude that we should be taking; of consolidating everything in three or four major centres. It might be more economical, but there is such a thing as a socio-development of our society that we have to look at. Do all of our people want to live in large urban areas? Do they want to put up with the pollution? I think that we have to look at small centres of 5,10,15 thousand people and have numerous small centres. It might be a little bit more costly. There is no doubt about it. We will have to subsidize them. It might show in our prices. I am wondering if it is not a small price to pay to get away from our large urban areas.

You look at Europe for instance, France or England; there you have very few cities of over a million people but there are many cities of 15,20,25 thousand people where they have diversified the industry and they have brought it in along the Rhine River to small communities. I feel that we should be looking in that direction very seriously because what is going to happen in 10 years from now is that there will be a McMurray with a 40 or 50 thousand population. There is going to be Edmonton with 650 or 700 thousand people. There is Calgary likewise. Then you have nothing else left in the province outside of a few farmers.

The concept that Mr. Peacock is looking at is maybe developing industries every 50 miles or so along a transportation corridor. We should be looking at the whole of the province. You could have industry established along this corridor in places every 50 miles. Another thing that you might look at is what it would do to Lac La Biche or Smoky Lake if you develop an industry in Smoky Lake for instance. You are going to have a tremendous number of small farmers that are uneconomical right now. They are just on the border as to whether or not they are going to remain on the farm. If they could supplement their income with a steady job in an industry within 10 or 15 miles from their farm, I think that you would find that a good number of your small farmers would take the steady job and they would also remain on the farm. You are looking at our agricultural prices right now; everything is going up. The reason for it is that you have a bunch of big farmers who are producing less than three small farmers. For instance, you take a farmer with three sections of land, he will produce less, and it is a statistical fact that he will produce less than three farmers owning one section of land each. If we are going to maintain our small farmers, maybe we have to provide them with some form of supplementary employment because one section of land today is

not a full time job for a farmer. He can, quite conceivably, get hold of a second job. Two Hills is one area where this has been quite successfully done. You have a number of small farmers that are staying on the farm and are working at Chemcell. I think that this is the concept that we have to look at.

CC

Now we will hear from the rural municipal group.

P

I agree 100% with the concept of a utility corridor. When I say utility corridor I mean that goes for everything because there are a lot of places that are going to be transporting water for instance, and we might never take that into consideration. The concept of the utility corridor is something that we have been striving for in the Edmonton area for years.

Another thing is that when a piece of land is purchased, it should be the entire area that is purchased or the entire parcel. This would tend for better relations with the farmers. It will not cost you much more. When you have to go to buy a right-of-way through a piece of land, it is very expensive. I think the highways people are finding this out. They buy the whole parcel and sometimes over a period of years it does not cost them any more. I firmly believe that we should not be talking about too narrow a corridor.

Another thing I would like to mention in spite of the fact that although others think that the condominium concept is good, I still do not agree with it. I think it should be a crown owned corporation. Buy the land and lease it back on a tariff basis to the people who are using it. What I mean by that is a 10" pipeline should not be paying the same tariff as a 30" pipeline. It should be on the ability of the utility to pay. I think it would be a lot less cumbersome and more satisfactory over a period of 20 years. I think the money would all be recovered by the crown corporation. You would have better control.

There has been a lot said here about other benefits for different routes. I cannot say that I disagree with these people that would like to open up other areas. Perhaps they should be opened up, I do not know. I think we would have to have a little more study and see what the extra dollars are that we are going to have to put in and the effect on the ecology. Maybe a road or something into these areas is the right idea. If that is the case, if it is a matter of economics, maybe the extra difference for this pipeline corridor that you would save could be put into some other form of opening up these other areas. It is something that there would have to be a study made on.

With the information that has been given to us so far; your information that was sent out and what we have here today, it would seem that the economics of it points to the central location. I know it has been pointed out in different places that you are going through highly assessed land. This does not need to be so. Redwater is not in the highly assessed land in Alberta. As far as Fort Saskatchewan goes, yes, there is some of the best land in Alberta around there, but if you just keep a little east of Fort Saskatchewan, you get into the sand hills and they are some of the lowest assessed lands in Alberta. Give or take a few miles and you can keep out of the highly assessed land and still get into the central corridor. With that, I think I would say that the central location is the best one with the information that we have today. I am not saying there could not be other information that would change my opinion on that. I think I would have to go along with that at the present time.

Further
P

I think that I have to admire the stand that the urban mayors have taken and the comments they have made; they apply throughout no matter what area you go through. Every area needs to be developed. There are people living throughout most of the areas where these corridors have been chosen, with exception of

probably a very short area of 70 or 80 miles which eventually will be settled because of the highway going through there.

Talking about the highly assessed land, I do not think there is any real difference in whatever route you take. There is a certain amount you will be paying for land. Knowing the areas quite well; any of these routes which the pipeline might take, I would venture to say that the cost of the land would not differ very much. This does not have too much influence. We have to look at other things.

We support a multi-purpose corridor, be it a half a mile wide, be it 300' wide; we would like to see a multi-purpose corridor. This is something new that we are experimenting with. I am not saying that in the future there might not be other corridors of this type. Maybe there will be one running on the eastern side of the province if this is where the reserves are; maybe even running to Eastern Canada. This is something in the future that nobody knows and we cannot say.

At this time we have to look at certain things that are real factors. One is the supply of money. We are all saying we want to see Alberta grow. If we want to see it grow, we have to keep our natural resources within our province and develop them or

process them into something that we can use up or sell to other people instead of selling our raw material elsewhere.

When any industry is being built, the supplies come from the large centres in our province, either from Edmonton or Calgary. They have ways and means of handling material and there is a lot of stuff that goes directly to the large cities. The great thing is the supply of manpower, skilled manpower. As you know, contractors bid on the mile, how far is it from the supply of skilled manpower when they go out on the job? If the job is 15 miles or 20 miles away from the city, you get a better price. You go out 50, 60, or 100 miles and your price increases. Every time you increase the length of that route to Fort McMurray, you are increasing the cost and that cost is only going to fall in one place. It is going to fall on the price of our natural resources and eventually it will cost us more money.

I go along with what has been said yesterday and today, and the positions taken by some groups are very good. I think that the group of people that have taken on this job have done a fine job in looking at these alternative routes. They have made a real survey of the farming population. They have made a survey of wildlife, etc. I do not want to see this turn

out to be a political thing. When it turns political, then we throw everything else out and it all depends on where the politics are played the best; that is where the thing goes. I am afraid of this type of thing. I think we have engineers here; we have got some of the top-notch people working on this transportation corridor study and I have to admire them for the job they have done. They have given us a lot of good information.

I think we have to go along with the people that have had experience with soils, they know what they are talking about and when they propose a route to use, I think this is what we would like to go by. They are proposing the central route, it would not matter to me if it went through the County of Thorhild or not. If that is the way that is the most economical, most feasible and it is going to serve the province as a whole, the best, I think that is the route we should take.

Another
P

This energy conference that is going on down in Ottawa! We had better look out or they are going to build the East Coast route. That is where our oil is headed for if we do not look out.

Another

P I would like to mention the Chemcel plant at Two Hills. That is now the property of the Alberta Government. If the east route is used, perhaps they can develop it because that is why Chemcel got rid of it. There may be some raw material coming from the north that may activate this Two Hills plant.

Further

P Chemcel got rid of it because it was an uneconomic unit, is that not right? The government bailed them out.

We strongly favor a pipeline corridor, but would question a multiple use corridor. While it is possible and may be feasible, some of the multiple uses could be included along with pipeline. The M.D of Sturgeon favor the route that would be most favorable towards the creation and continuation of industry in Alberta. Industry should be encouraged to locate right here in Alberta instead of elsewhere in Canada and the United States. The primary concern to industry is the labor pool which should be taken into consideration.

Another

P I believe the study has covered it pretty well. We all like to have some benefit from this, but, the cost of the benefits, somebody is going to be paying for them. The eastern route, if there is this other

thing coming into Cold Lake area with tar sands all the way to Fort McMurray. If it was supposed to be a big asset having the line through there, then they had better take a second look at it. I think it is a lot cheaper to open a country up for what it is supposed to serve with putting roads than putting roads and pipelines in. Road construction costs are a lot lower than pipeline construction costs. One thing we do not know really here is the relative value of the highway and the railroad during the construction; how much one is over the other. What is the benefit the highway would be for construction and what is the benefit the railway would be for the construction. After we hear some remarks from the engineering firms, we would have a better picture. The people that have to construct, they can pretty well tell us what benefits they would have from either one; the highway, or the railway. I am in 100% support with the people for opening up the areas, but there is a lot cheaper and more economical way of opening up areas than putting in pipelines just to open up an area.

CC

You did ask the question as to whether the pipeline people or the powerline people would prefer to build along a railway or a highway. I am quite sure from all the input we have had into the study so far that there is not much doubt that they prefer the highway. There are many practical instances of that now in the province.

P I would like to make another remark as far as the land values go. The value of your land is the buyer. Once there is a buyer the value is up regardless of whether it is higher assessed or poorly assessed land. We have land that is sand, the assessed value was maybe \$1,100 per quarter and the land is selling for \$18,000. It is not the value of the land that is sold, the purchaser was there, he wants to live out of the city, he pays the price. The same goes with this. If there is a pipeline, once there is a corridor outlined, there is a buyer. You know what happens with the price, whether it is highly assessed or poorly assessed.

CC We would like to hear from industry.

P Interprovincial Pipe Line has no definite preference as to the routing used but they do have a preference in the end terminal being Edmonton. This was discussed a bit yesterday as to Interprovincial reasons. They were mainly that it would probably result in a waste of existing facilities to have it located some place else. Duplicating these facilities is an expense burden that would probably result in less dollars flowing back into Alberta. It would also be a burden to Interprovincial.

The development of the tar sands is based mainly on the fact that conventional crude production is falling

off. This would indicate that these facilities would in fact become idle or used less. Roads are essential for the construction of the facilities proposed in these corridor routes. However, the servicing of these facilities after construction is very important too, to maintain the continuity of service to customers. Initially servicing a pipeline may not be too rigorous but as time goes by and more pumping stations are built on the line, it becomes an important feature of the operation to get the people out into the field to maintain the pumping equipment.

Another observation is, that we have been talking somewhat about this crude all moving eastward. This is probably true now that the Alaska line is being constructed which will supply a large market which we now serve on the West Coast. This would decrease the volume of crude handled by Trans Mountain. Trans Mountain's volumes will likely drop off in the future and having regard to the decreasing conventional crude that is now being pumped to the West Coast, there may be a need for synthetic crude in the Vancouver area or West Coast area and particularly if we go in a Canadian national oil policy. The Trans Mountain facility would likely be the most economic routing there.

The industrial complex at Edmonton appears to be developing and we can assume it has the stress of more secondary industries that are proposed for Alberta. It is likely industry would migrate towards more industry. However, not necessarily in a tight knit complex. The falling conventional crude volume generates a new market for the McMurray product. This idea of industry developing along a route is very valid in that there is no real hardship to a pipeline to take a volume of crude off anywhere along the end of the line. This can be handled relatively easy because it is a relative small volume in relation to the overall pumpings. However when you bring a multitude of crudes into a marshalling area and these have, as a rule, to be kept apart one from the other. It becomes a very complex operating problem as well as a financial burden to introduce them somewhere down the line from the initiating point, particularly if the volumes are of any great magnitude. The investments become horrendous. In fact, the Edmonton terminal has a little better than 4½ million barrels of storage and while it would not all be duplicated, it would require a large volume of storage, not just the Syncrude material coming down or G.C.O.S. or new plant material coming into this system, but you can feature that with a big volume line; when you put in

a volume you have to do something with the crude already flowing. This would be taken out into other tankage and then repumped out. The reason for this is that it is a very difficult thing to stop a large mass moving between Edmonton and Hardisty in order to inject another material in and then restart it moving. The inertia problems are there. It becomes a complex operation and costly. There is the idea of going through Cold Lake as a reason for routing a line that way. It is very difficult to assess this idea at this time. G.C.O.S. now produces three different crude types and with these synthetic crudes, it is possible to tailor them to suit various markets to your customers requirements. Whether the Cold Lake production would be similar or that they would make the same kind of material which is going by there in an existing line, it is difficult to say. If it were the same material, there would be very little problem in injecting it into a passing stream. However, if it were unique, then you are talking about another problem of a big tank farm. It may prove to be more economical to go into another pipeline into a major marshalling area. If the volumes are small out of that area, there are a couple of lines now moving up into the Lloydminster area, pumping out of there. It is difficult to say how long they will last; they are small lines.

Another
P

We endorse the founding principles of the study. We believe that it is in excellent hands. We feel, however, in many respects that the study is a day and an hour too late. We feel that its scope is too narrow. We are somewhat dismayed that the scope of the study did not include those items pertinent, those items that would normally fall into such a corridor north of McMurray and here I include the gathering system, the product lines, the gas lines that would supply the various plants, the locations of highways, the commitments from the government respecting their posture regarding the location, the maintenance, the upkeep of the highways, the location of powerlines and all the amenities that would take in the needs of the potential operators in the area, the potential towns. We look at McKay as a potential town. If we look at the broader McMurray area as a broader town, we have land problems up there too. There are certain restrictions and constraints and they are put upon us by the Energy Resources Conservation Board. Each operator in the area does not like to see the other operators pipeline traverse his lands or the highway cut across his lands. The Energy Resources Conservation Board tells us that you must relocate highways, powerlines, transmission lines so that you can recover the bitumen from the sands underlying these areas. This is why we are

dismayed that the scope was narrow to the McMurray-Edmonton route and that no definitive proposals would come from this study respecting the north of McMurray area.

We have somewhat mixed emotions respecting the location of the corridor. We can find some merit in each of the three proposals. The eastern routes would certainly meet the needs of two of our principles. We have Atlantic Richfield, one of our principles in the Chard area who has done in situ studies. Imperial Oil continues an in situ field study in the Cold Lake area. The central route provides us with the shortest distance. If we have respect for disturbances which the tar sands operations will cause on the ecosystem as a whole, this is the area in which we might perhaps find the least disturbance.

We must also fund a products pipeline. Most of this will be deeded back to the people of Alberta, but it is our funding. To this end, we would certainly be interested in the shortest route. The western route provides the shortest route for some of our needs into the area and the needs of future operators into the area. We do have an upgraded powerline into the Mitsue area. There are gas fields in the Martin Hills area that will undoubtedly be called upon to serve the plants. It is not inconceivable that lateral tie ins

between Lac La Biche line could meet in a central corridor as could I suppose the Martin Hills lines. We have, perhaps, a very weak preference for the central line.

Another
P

Firstly, I would like to give our view on the corridor concept; I think it is good. We favor it from an economic point of view. As far as routing goes, we have established a structure along the central route to handle the requirements in the Fort McMurray area into the foreseeable future. We feel that we would be best able to provide facilities for the construction and operational phases of the facilities on the corridor. However, the east route does offer some merit, from a socio-political point of view. For the people living along that route, we are providing a minimal form of service to them at present. With the magnitude of development that is going to be taking place almost on their doorsteps, we can foresee a better grade of service being required in that area. This would, from our point of view, require transportation as well as electrical power. Those are our choices; the central route first, then the east route.

I would also like to make some comment on the scope of the study. We have some plans for the area north of Fort McMurray that would extend us to Fort McKay

and on to Fort Chipewyan. What we really are looking for is to see what was going to be planned for transportation, mainly highways. This we feel would have been an asset to the study as well.

CC

Further comments from the citizen group.

P

I suppose you have all heard that the prestige of this study group is growing very rapidly. You can all remember when the Tar Sands area was referred to as the Athabasca Tar Sands. More recently it became the Alberta Tar Sands and this morning the Prime Minister referred to it as the Canadian Tar Sands. Our status has increased commensurate with that usage. I would like to underline one point that I made earlier this morning on Unifarm's position as to which corridor to take. I would conform with four basic principles - the least cost to the Alberta tax payers; the optimum use of arable land; the minimum ecological impact and most feasible in terms of maintenance and use by its operators. Beyond that I think that the number of farmers that would be affected by anyone of the three routes would be about the same, so Unifarm then has no further preference of route.

However, I would like to make some personal comments to those people who favor the east route by saying that perhaps some of the areas they explored this morning are in a different time framework than the

one we are presently exploring. Reference was made to the development of the eastern portion of the Tar Sands which undoubtedly will be by the in situ process. This is determined by the fact that the increased overburden in that area makes it very uneconomical, if not impossible, to develop by the mining process. However the benefits are perhaps richer there when a breakthrough has occurred in the in situ method of extraction. Perhaps people who think in these terms are thinking about a different corridor perhaps in a different era, maybe 25 years away. However, there are some other considerations that have been explored by other groups. The so-called social problem, especially with regard to natives that wish to seek employment in the area directly north of Lac La Biche. These people, as I understand it by their own choice, prefer to live in the environment of their choice. They have had at least 10 years to become associated with industry and many of them indeed have and some very successfully so.

We are talking about a town which about a year ago had 7,000 people who derived over \$21 million annually through their payroll. They are affluent; they are hungry; they are quite often thirsty. I offer those people, especially in the Lac La Biche area, a hint that if I knew anything about the dairy

business, which I do not, that perhaps I would be interested in getting a few people together to talk about a dairy cooperative that could tank truck milk up into Fort McMurray. I think that perhaps I could justify with my banker if I were interested in that form of business.

There were also some other side benefits that might interest that particular area. There are two basic raw materials coming out of the Tar Sands other than synthetic crude. They are not coming out, but perhaps they should be. One is a growing mound of sulphur and the other is an increasing pile of coke. Both of these usual commodities are held in the Fort McMurray area due to high freight costs and for other reasons. Coke, particularly, points to a secondary industry. Coke mixed with sulphur in the right proportions and using the right method, on which there has been considerable amount of research, has proven that a very high quality of building block could be made from that. By this time, you will recognize that I am not necessarily speaking for Unifarm, but I am offering a couple of suggestions which I think might be worthy of further exploration by those interested parties.

CC

There are two items on the program this afternoon, the corridor concept approval and the corridor location from Fort McMurray to Edmonton. I sense from this meeting so far, that the corridor concept has receive approval. How can we arrive at a decision from this group as to the corridor location? I do not believe that we can do this on a voting basis. If we have ten communities from Eastern Alberta, ten from the West and ten from the middle, we could get even votes. We will be going through the record of this meeting and we can come to a consensus as to where the corridor should be from that, unless some of the participants here can give some suggestions as to how we might arrive at a decision this afternoon.

P

I would like to ask the Home Oil representative as to when you feel the Conklin-Chard area will be developed.

Further

P

Presumably you are referring to the potential development of heavier deposits down that line at Christina Lake, etc. While there have been great technical advances, the potential is still some years in the future. I am not qualified to make an answer.

Further
P

I said 25 years, but I very quickly admit to that as being a calculated guess. This is based mainly on the technological advances that would have to be made before this can become possible. It is also very dependent upon the willingness and the ability to pay the probable costs of production from the Tar Sands at that time depending on the quality and volumes of the products that can be produced.

Further
P

It follows that the development of the area has initiated with deposits closer to the surface. The conventional mining methods of removing overburden and surface mining the ore will be the method that will be followed initially. This may well be for ten plants in the general G.C.O.S.-Syncrude area. For these ten plants, the labor requirements are such that it is difficult to see more than one plant happening at one time. Allow me then to suggest that there will be ten plants within ten years, although that may be optimistic. In that ten year period the technological advances may have taken place that would see an economical in situ process. Certainly the value and the price Mr. Lougheed will be speaking on in Ottawa could have great effect on it but it would be my personal opinion that there will be at least a period of ten years before a concentrated effort is made on

developing the ore in the Conklin area. Admittedly there are pilot projects in the area currently.

Further

P

I do not think your terms of reference have been broad enough. Do you think it would be of any value if a resolution were passed by this gathering asking the government to broaden your terms of reference so that we could get more information as to the value of the benefits which some of these people feel would be achieved? We cannot assess it now because we do not know.

CC

Our terms of reference do cover quite clearly the Athabasca Tar Sands to Edmonton corridor study. Item No. 4 in our terms of reference was the consideration of a terminal, which we took to mean in the Edmonton area. To expand this study to cover eastern Alberta is a new dimension. The suggestion from Syncrude to expand the study into the Tar Sands area itself, the thousands of square miles, the gathering system, the highway systems, the pipeline systems, and the towns is another new study in itself. Our northern terminal was going to be defined for us in another study which had not done this. If you people think an expanded study is worth it, it is up to you to suggest it. It would give more instructions to the government. Of course we would extend the time limit too.

P So far you have just been taking into consideration the economics from the pipelines. You have not been considering any side benefits that might be derived. Is that right?

CC Essentially, we have considered that in the location of the corridor for pipelines, powerlines. We have taken into account the environment, the economics, and the social effects, etc.

P We could not make an assessment here today as what other benefits would be derived by taking another route and costing us more money. That is what I would like to do a study on. I think we would be in a better position to make a sound decision if we had that.

Another

P There should be a more expanded study made, so that we really do get all the benefits and get the greatest value for our dollar because eventually that dollar is going to be reflected on us in some way or other. I think that this can only come about by a well-planned program. If we are going to narrow ourselves to a narrow decision, then I do not think that we are going to get the full benefits out of this corridor study.

Further
P

I do not really know the government policy in regard to the development of the Tar Sands. This is probably going to be decided this week and the reason that nobody yet has been able to pinpoint where new towns should be or where gathering systems or highways, etc. should be, north of the Town of Fort McMurray is mainly because the overall master plan for the development of the Tar Sands has just not been decided on, or possibly it has been decided and not yet publicized. Everybody appreciates that a development of this magnitude is going to take some time. You just cannot develop it over night. I might also suggest that it would be helpful to reconsider for a moment that when this study was started about this time last year, it was felt that possibly there was a two or three year lead time before there would be further rapid development in the Tar Sands. I think this whole thing has been telescoped a bit by the events of the last two to four months and possible that telescoping has added a tremendous sense of urgency which we never contemplated at the time that these terms of reference were written for this study. These sort of suggestions really do depend also on the same sort of thing.

With the increased cost of crude, there have been suggestions about the time it is going to take before technology can be developed for heavy oil recovery. I would dispute with anybody who predicts that it might not take place for 10 or 15 years. I think that the increased cost of crude really has changed the whole ball game for both the open pit mining (the amount of overburden you can remove) and for heavy oil recovery. Once again the eastern route, to some extent maybe, will be clarified by a government policy which hopefully will come out of the current energy talks. Once again I apologize for making comments when really I am in no position to suggest what government policy might be.

Further

P

I think that Syncrude would be in favor of endorsing the principle of further study. One of the things that you recognize in the first study, in the first instance leads you on to the opening of new rounds, new things that you have not uncovered, that you do not know about. I think we are identifying here today that there are some physio-social aspects of the problems related to the location of the corridor. Again I bring out the matter of some firm policies, some firm directions north of McMurray. We expect to be building a second plant sometime in the future, and I am fully cognizant of the remarks from the

gentleman from Home Oil on the matter of labor and about the matter of supply. It is perhaps one of the real things that face the future developments of future plants. There is not the labor, there is not the material to bring on plants at any rate faster than one every two or three years.

I would suggest that there are three areas, perhaps four areas, which a broader study might look into the social factors, the factors affecting future development of the in situ sites.

I had occasion to present a paper in Calgary to the Oil Sands Symposium last October. I am presenting a paper this Friday in Montreal. It is going to be on the Tar Sands. One of the items that we will cover is the in situ development. I was particularly impressed by Mr. Woodstock of Imperial Oil who also presented a paper at the Calgary Symposium. Although they are our participants, we do not have the same interests, and here I speak of Syncrude and Imperial. Certainly Mr. Woodstock gave us an impression that Imperial were approaching a position where a viable in situ plant in fact could be a reality. The second aspect that should be looked at, and again it comes too late, is the impact or the ramifications of bringing a line from the Mackenzie area. How does it fit into this program? How does the Peace River in situ or the Peace River deposits fit into this picture?

Further

P

Vegreville would feel grieved if you went and decided on a route without giving it more due consideration. We do believe that the eastern route is the route to take, but you have not explored it enough. I do understand that you have had meetings on the central routes and I think if there was more known about this route and more representation here or if you have local meetings, I think you would get a better feeling of what is required or what other people think; the possibilities there could be on an eastern route.

CC

Our look at the eastern route in the consultant group so far has been quite short and was more or less to see how it would affect our choice on the three different proposals on the Athabasca Tar Sands to Edmonton route.

P

I am speaking with reference to the Mackenzie pipeline. If you draw a line from the mouth of the Mackenzie to Chicago, the line comes very close to McMurray. Certainly these are some of the routes that have been considered by various oil interests from the standpoint of moving oil from the Arctic. With that type of development, of course, the ground rules alter somewhat and I understand that this was just touched on earlier. The Federal people become quite involved when you consider either of these routes.

What that would do to your terms of reference or aspects of corridor studies, I do not know.

CC

It was in our terms of reference to have a look at it. We did look at it in the beginning. We had discussions with the National Energy Board. This was at the beginning of our study. There was a good possibility of an intersection south of McMurray in the Atmore, Wandering River area with a corridor from the Mackenzie Valley for oil. Since then the Alaska project has gone ahead. It has washed out any consideration in the foreseeable future of that intersection. Also Canadian Gas Arctic has made a decision to come down into the Zama Lake region and south along the western side of Alberta with their pipeline. That again precludes an intersection of an Arctic corridor and the corridor that we are considering. In the middle of the summer an intersection with an Arctic corridor was considered, but it is now out of the study.

P

About mid-summer a plane load of very senior military people visited Fort McMurray to explore the possible significance of Canadian security in terms of its energy. It has occurred to me and I ask this question for information only - has any thought been given to the possible danger in putting all the eggs in one basket by having a multi-use corridor in terms of the military aspect?

CC

Yes, we have discussed that with the Alberta Disaster Services. They are now working with the committee. That is one of the main disadvantages, not only in war time but in any major disaster situation.

P

One of the aspects that we did study was the vulnerability of a multi-use corridor in war time as well as its vulnerability in times of civil disorder. We also discussed in vague terms, the question of putting all your eggs in one basket when it came to the refinery or the gathering process. We were thinking in terms of the viability of an alternate gathering station in the Hardisty area to keep away from the Edmonton area which has been designated as a possible target area in the event of a war occurring. There are various things to consider when we are talking about the dispersal from one main target area. We have to look at the economic feasibility of such an attitude. We have to consider whether such a thing would contribute to a defense policy and the fact the national posture from the Defense point of view. Finally, the whole things has to be acceptable to the public as a whole. The public have to be convinced that this is a feasible thing to do. These are all attitudes that have to be considered by the Federal government. It is part and parcel of a broad overall national policy.

We do know that in certain areas in the East, industries have been considering dispersing to a certain extent; the communication facilities by-passing larger centres of population to insure that continuity in times of war. We do know that certain industries have been dispersing the essential records, etc. away from the vulnerable points. In connection with this study, we have not gone into this in any detail. It is one of the things that we would be prepared to discuss with the committee in detail when we have the chance. We were only consulted about this a couple of weeks ago, so we did not have a chance to put much of an input into the question. The feasibility of moving away from a potential target area is one aspect that could be discussed from the National Security point of view.

Another

P

All indications seem to point towards a little bit more study. This is one item; we have not looked to security. This is why I feel that diversification of industry is one way of eliminating a major disaster in case of a war which none of us really want. We are looking at three centres in Alberta and this is why I feel that maybe Europe has learned through years of wars that putting all your eggs in one basket is not necessarily the answer. It might be a little bit more economical but in case of war, what happens? Three

bombs, and they destroy Alberta. If we had industry diversified into smaller areas, I think that the chances of a complete disaster in case of an attack would be a lot less. I think there is a lot more study that has to be done. Furthermore, it seems that the in situ process is not that far away. Again, the easterly route might not be such a bad idea after all. When you are looking at emergencies, we would have two roads into Fort McMurray instead of one. We would also be tapping into the Conklin reserves which we know are quite extensive.

CC

There was one question brought up regarding an extension of our study to include another look at the eastern route. Maybe we should pursue that. We have got a good input regarding the corridor concept. My consensus here is that this group approves the corridor concept. As to the corridor location, we heard a lot of pros and cons this morning and it might be resolved by a little further study.

P

A little further study into this thing is good. I would not like to see this study go into something like so many other studies go; they just keep continuing and we just keep delaying. I do not want to see this type of technique. I am in favor of this study and I think it should be studied further.

But let us have some action after the study is through; let us not put it on the shelves and waste your time, our time and everybody else's time doing a thing like this.

We talk about employment of areas and various things. If we do not have a pipeline into that area, if we do not have certain things, either somebody is going to put a pipeline in or we will not have anything to do with the Tar Sands, because there will be no jobs there. If you cannot get your material out of an area, there will be no way that you are going to have jobs for people and we are not going to be getting revenue from our natural resources. If we are in favor of further study, I think we had better look at the economics and the gamut of it, and do it quite soon because a delay is never any good. I have seen so many of these studies. You get it delayed once, then at the next meeting someone says let us have a little further study. Finally it gets shelved, nobody is interested in it.

Another
P

It was my understanding that we were to study this corridor concept to primarily reduce the environmental impact by the facilities that had to, or we thought had to, be installed between Edmonton and Fort McMurray. I would suggest that those that have not read Volume 6 of your transportation corridor

study reports, that they should do so because the cost of these lines that we are talking about is almost astronomical. If you go to page 115 of that report you will find that one of the lines, which could be a 48" line, would cost in the order of \$160 million. This breaks down to about \$500,000 a mile. There are not many corporations that can afford to invest too much more money in longer routes. The suggestion that maybe they should go to the western or eastern route over the central, I think it would be a foregone conclusion that it just could not be done.

Another comment; if we are going to have a corridor and if it is going to go ahead shortly, in the next three or five years, certainly we should be looking at acquiring a corridor in the Edmonton-urban area and the Fort McMurray urban area as soon as possible because there are things going on right now that in two or three years down the road may prevent a logical location of a corridor in those areas. In the central part, probably any time in the next five to ten years would be all right. But in these urban areas, it is essential that some decision be made very soon in this regard.

As far as a private company is concerned, we prefer the condominium concept because it is the closest thing we can get to a private enterprise approach

to capital investment. Anything else would be, if there is government involvement and a lease-back arrangement, quite a bit less desirable than a condominium concept. Actually we would prefer to go it alone and get our own right-of-way and not be bothered with anybody else. Of course, that is out of the question now. So the condominium as far as we are concerned is probably the best approach.

Quite a few people have tried to make a recommendation involving service roads along this corridor. My concept of a service road is not one where you can take your sedan or light delivery truck and go off to market. These things usually involve temporary stream crossings, corduroy roads across muskeg and usually involve track vehicles of some kind. One of the concepts of pipeline transportation is that it involves the least environmental impact on streams and the rest of the topography. A serviceable road is really out of the question when you come to a pipeline corridor. I think this is true also with powerline rights-of-way. I hope that out of this meeting that we can make a recommendation that insofar as our terms of reference are concerned, that we go for the central corridor since it has the least environmental impact on the systems as we have had them explained to us recently.

Another

P

Did I hear the last speaker say that the eastern route is a foregone conclusion? That it could not be done? I would like him to elaborate on this foregone conclusion. I know of a railway in Alberta that went so far. They could not finish it at the time. It costs at least ten times as much now to fill in that gap. I know the men at the head of it would like to fill it in right now.

Further

P

I think that my intention there was that as a private concern, we would not be willing to invest the many millions of dollars extra to go in that eastern route. If the eastern route is chosen then perhaps you would have to influence the government to make up the extra investment that would be required to go that way.

P

My initial understanding was that the terms of reference in this particular issue, this particular study, were to be within the concept of wanting us to build a corridor from A to B. A and B were fairly clearly defined. Perhaps we should take the time to determine whether there is a practical time for a framework that would permit the enlargement of this study to cover some of the periphery areas and then to determine what those areas are and what their priorities are. If the study goes back to my original understanding that it was simply a matter of determining

which of the three possible routes had to be considered but that it did not encompass the social political aspects or perhaps others that are peripheral, then we go back to square one and deal with the facts as they stand.

The consultant group did have a short discussion at noon. We would need about three or four months plus a third again as much work just to have a cursory look at the problem. It does open up a whole new dimension to the study. It complicates it. The main point would be that we may not be able to come up with a very definitive answer. Additional expansion of the study may provide that, it may not. We have done all our work on the corridor concept end of it. It is a matter of rationalization of the routes. Also whether you decentralize from Edmonton, that is the major question. It certainly is not in our present terms of reference. That might answer some questions.

The point that I should have emphasized more is that if there is going to be an enlargement of this study, that it not be a rather nebulous enlargement. That the areas of enlargement should be identified and the priorities of those various identifications should be established rather than just let it become a completely nebulous situation.

CC If this group is considering recommending an enlargement of the study, what do you mean by an enlargement of the study? I think we should leave out the expansion of the Tar Sands area itself, the gathering system, rationalization of leases, etc. I do not think we should consider that part of it as an addition to our study. That is a whole new game. We might consider enlargement to look at the eastern part of the province, but I do not think we want to start looking at the whole province.

P In making that suggestion, what I had in mind has been enlarged on since, but the terms of reference were pretty narrow and we have the estimated costs of the different routes and we know the east route will cost more money. There are people here who think the extra cost is worth the extra difference because of the side benefits. This is where I would like to see the terms of reference enlarged so that we have some idea of what the side benefits are. I think we would be able to make a better decision if we knew that.

Another
P I would like to draw the attention that this government has set aside one hundred million dollars to explore or do something regarding the oil sands. I think that when they put aside a sum that large that we should also look at the route and see which route we are going to favor.

Another

P

There has been quite a controversy over this east route. There has been a definite study made on all three routes, not maybe as extensive on the east as there has been on the rest. To the majority of the people who are saying that the eastern route is more beneficial to their locality and for the overall good of the province, after all this money has been spent on this study, I would say do you think that this is going to be beneficial, is kind of superficial, and therefore the people, who are saying that the eastern route should be the best, should come up with something a little more concrete as to why and how this is so.

As well as an extension of the study being made by Stewart Weir Stewart Watson & Heinrichs, I would add that some input should be asked for from the various committees that have been asking for an eastern route as to what is the feasibility of the eastern route and why they think it should be the eastern route.

Another

P

Are you asking the people that are speaking for the eastern route to describe the physical advantages of the eastern route or just the social and economic benefits which might come from going that way?

Further
P

No, it is a combination of both. The study group have already studied all routes of the corridors, but the delegates who are here from the various outlining areas that are bordering on the eastern corridor have said that they want it there, but they have not come up with any concrete evidence as to why it should be there. I do not think that any more money should be spent until we find out some facts and figures as to why they feel that it should be there.

Another
P

I think that the people who have been speaking about the eastern route have advanced quite a few theories and reasons why this eastern route would be a desirable route with regards to the impact on their communities. Several isolated communities would have roads connecting them. There is the possibility of short term benefits from temporary employment during the construction of the lines. There would conceivably be some secondary fallout that could be associated with an eastern route. I think that what many people were wondering about yesterday was whether or not the routes which have been chosen, based on environment and other things, could not also be assessed in terms of a cost benefit analysis: The cost of spending the extra money for the eastern route versus the benefit to those communities. I

think that this is what these people have been asking for and I do not think they are in any position to come forward with the needed information, but I would think that your study group is.

Another
P

What are the benefits, and I am talking strictly about the pipeline, leaving communities out? I think there is a lot cheaper way to service a community than to build a pipeline. What are the benefits if you look at the structure of the Tar Sands in that area? What benefits do you personally think there are for the length of pipe required? What benefit would there be by putting in that pipeline for the eastern portion of the Tar Sands? Would there be a benefit in picking up this other Tar Sands? In the other portion of the tar sand, are the qualities so much different? Does it even warrant it? You do not need very many miles of pipeline to make a big figure.

CC

There is some merit in looking further into the eastern route. The Cold Lake Oil Sands is a factor. As for a pipeline going by a community, I do not think it affects that community very much. If we are just talking about a pipeline or a powerline transmission corridor, these are major pipelines and major transmission lines. They go by communities.

Except for the short term construction benefits, there is very little benefit. To tap into a high voltage powerline, for instance, would cost you one million dollars just for the substation. Rather than tap in for a million dollars, you build another feeder powerline from miles away.

P The original projections that were made for the transmission lines in and out of the Fort McMurray are at the 240,000 volt level. As such, those stations to service a community similar to Conklin would certainly run us in the order of one million dollars for the substation. There are an awful lot of low voltage distribution line which can be built for the same price. They are a lot more desirable than having the additional tap off the main feeder. I do not really see, except for the short term labor benefit during construction, that the major transmission line would provide any direct benefit to communities along any route that they would follow. The servicing would be handled from either the Edmonton end or somewhere up in the Atmore-Boyle area and also from the other end. If we were to go an eastern route, we already have a service area in Lac La Biche and I would not see any further expansion of maintenance or service areas; perhaps some addition at Fort McMurray. That is only conjecture at this point.

Another

P

In today's paper, there is reference to a foreign plant for the oil sands. This is headline news. The next is the Japanese sands bid rejection was denied. I think we can expect to see a lot more of this development. The in situ process is not a dead thing at the moment. You look at your map and you look at Conklin and if you go the easterly route, instead of the central route, you might be increasing the length of your pipeline by about 25 or 30 miles. On the other hand, if you take the central route you cannot service the eastern area. You would have to build another pipeline from the Conklin-Chard area. You are then looking at about 45 to 50 miles extra. We know that it is going to take four or five years to build this original corridor.

I think there is a feeling here in the oil industry that within the next ten years there is going to be a break through in the in situ process. I am wondering if it might not be viable for the first ten years to have this transportation corridor along the eastern route. On the other hand, that corridor is going to be there for how many years? If we do not put it in the right area today, 30 or 50 years from now we will maybe realize that it should have been in the eastern route. It might have been the most practical route.

As for Lac La Biche not needing any more electricity, we have one line right now and about once a week we end up with a little power shortage, sometimes for as long as 23 hours. If we do not get any industry, I do not think there is any need for a second line coming into Lac La Biche. The fact is that if the government encourages industry to come into Lac La Biche, we will need that extra power and then we can take a tap from Lac La Biche to Conklin and Chard, with an ordinary line, not a 240 KV line.

We have to look at the socio-economic picture all together. We have to look at 20 years from now. We seem to be taking a very narrow look at this pipeline. We are looking at five years from now and we know that in five years things are going to change. If they keep changing at the rate that they are today, maybe we will not need a pipeline at all. Maybe we will have airplanes that will be able to transport this oil cheaper than by other means. I think we have to look at the Conklin-Chard area for future development. We have to look at the Cold Lake tar sands. There are 150 billion barrels of oil there that will have to be transported. We have to look at not killing all the small towns between Edmonton and Fort McMurray. This is what we are going to do. We have to look at locating this transportation corridor. We should

try and look at secondary industry establishing themselves in large rural towns. We know that Lavoy is going to die, there is nothing there, but on the other hand, I would hate to see Vegreville die. They are an integral part of our society. I do not think that every citizen in Alberta wants to live in Edmonton and Calgary or Fort McMurray. This transportation corridor has to be so designed so that it will be the central route, but I would like to see that if it is the central route that is chosen, that we will look at places like Boyle as being an area for secondary industry. There is a plastic industry that could be developed. There is a glass industry; there are all kinds of things.

In this corridor, we should be looking at a solid pipeline. There is the coke that was mentioned. Could not that be transported through that corridor? These are factors that we have to look at very seriously. Maybe the cost is going to be 10% greater today, but over a period of ten years, what is it going to be like? If we choose the wrong route, maybe that cost might be very minimal to what we will have to pay in the future.

C

I detect a number of different strands running through the general discussion. On the one hand, addressed to the specific problem of the study itself, the terms of

reference again request the examination of a corridor, primarily for pipelines and secondly for other facilities from the Edmonton area to the Fort McMurray area. Within these terms of reference, I think we can first conclude that there is a general preference for the corridor concept. Secondly there is a general acceptance of the suggestion that the central corridor is the more preferable of the three defined. On the other hand, outside the terms of reference of the study, we have concerns raised by members of the communities, in particular to the east of the generalized study area, and members of industry who have market concerns with regard to the future products of the Tar Sands. This does suggest that there might be areas of further study which would be profitable for the government to follow up. Would it be possible to confine discussion, on the one hand, to the terms of reference of this study; secondly, perhaps, take the suggestion of presenting resolution to examine the system on a broader basis? Perhaps it should be widened to include the examination of a corridor system or a corridor grid to serve the Tar Sands area in general as it will affect pipeline and transportation development throughout the province. Is it possible to separate these two things for the purposes of our conversation now?

CC

I think they are to a certain extent.

P

The terms of reference should be expanded so that we would take in the side benefits of what these other pipeline corridors would be to the other areas. We already have the approximate cost; we know how much a mile. So from the economics of it, there is nothing we can do but accept the central corridor. If there are any side benefits, the benefits might be more than the liability is, so we might change our mind. I was thinking what the side benefits might be in all the areas, not just one area.

Another

P

I was wondering if you could outline to us what, in fact, are the expansions of the whole study.

CC

I do not think that I can do that right now. It will take a lot of thought to outline in detail what we should do. It is really to look at the side benefits. It will probably mean more public meetings, for instance, in the eastern part of the province, maybe more to the northeast also. It has to be discussed with the government and laid out in detail. The idea was to get a resolution from this group that would expand the study to look at and summarize the side benefits of this corridor.

P I am going to suggest that there are vast amounts of capital that are involved here in order to expand this route to the east or to associate the corridor with the small communities. The capital itself, going by these areas, will not solve the problems. I think that the transportation problems of taking finished products, say out of Lac La Biche area, would eliminate a lot of the possibilities of these things being established there. If secondary industries could be located there, then why not locate them at Fort McMurray. I think Edmonton or Eastern Canada is the logical place for these industries, not these small communities along the NAR railroad.

CC We should locate the secondary industry first or maybe another petro-chemical industry and then put the corridor there, rather than locate the corridor and then these industries.

P Let us think of the corridor itself, forgetting the people. If we have to spend 'x' million dollars for an extension of the pipeline which would be of no benefit to the pipeline, then it is easier to give those millions of dollars directly to those people and let them use it for whatever they need. Why put a pipeline underground which is going to be hidden there and it is going to be no benefit to the pipeline and the cost will be extended and the people will get no benefit from it either?

CC I have three statements of agreement here that we have written out. After I have read them out I will ask for a show of hands. Some are unanimous, others are not.

(1) The consensus is that the corridor concept is acceptable to this study group. (100% favorable)

(2) The consensus is that under the present terms of reference, the central route is preferred with the present information. (80% favorable)

(3) The consensus is that the study should be expanded (limited expansion) to examine other terminal and the resulting corridor. (70% favorable)

We will approach the government now regarding this expansion of the study. We will have to detail how far we are going to go with it and just what we can do. They will have to set the terms of reference.

P When is the present study to be formally completed?

CC If the study is not expanded, our due date is March 15th. We should have all our material ready in the early part of March. We should have another group meeting to review what we are going to submit; our final submission. You will not see the final submission but you would see all the material that is going to go into it. If the study is expanded, we will be having several more meetings of this group.

We would be having meetings in other areas of the province. I would envisage more input. We would have to get more expertise in the marketing end. We would be having more meetings with industry and there would be other background studies coming out. It is left to the Department of the Environment whether they expand the study or not. If it is not expanded, in any event, you will be having one more full study group meeting some time near the beginning of March.

P I would like to hear a comment from the oil companies in order to let me know whether the existing facilities which are around Edmonton or which are being proposed in the immediate future will handle say the ten plants of oil that will be coming out of Fort McMurray?

CC I can answer that. We have gone into this with the terminal people. But under the present existing flow of oil out of the Edmonton terminal area, 1.3 million barrels per day to Interprovincial; about .4 million barrels per day to Trans Mountain. This is under their present site conditions. With added facilities, storage facilities, pumping facilities, this can go up to double what is going out now; that is from one million barrels per day up to 3.7 million barrels a day. That is almost double what is going out now from the present site with added storage and added pumping facilities.

P Our facilities would eventually move into use for the Tar Sands synthetic crudes with a resultant savings in tankage construction. If the volume of oil introduced into Edmonton gradually falls off and starts building up in Hardisty, the value of the three lines between Edmonton and Hardisty decreases in their usefulness and the loss of that investment coupled with the increased investment of going from the McMurray Tar Sands to Hardisty, which is a considerable additional length, their economic factors cannot be ignored. There certainly is merit in considering the possibility of synthetic crude moving westward. Trans Mountain would appear to be a logical route for that move.

CC We were in conversation with some people from industry. In time it could be that the Trans Mountain line might be flowing the other way and eventually with the depletion of conventional crude here, and just the Tar Sands area, then it might start going back West again. For some period of time, we may be having Trans Mountain flowing this way.

P Groups of us have discussed corridors within the immediate vicinity of Edmonton. There was a group of civil servants that were considering this matter beginning in the late '40s continuing intermittently through the '50s and deteriorated from there. I would

suggest on behalf of industry that the corridor considerations within the urban area of Edmonton certainly requires a degree of consideration and I would suggest that the matter requires some degree of guidance.

Further

P

The fact that the Commission in 1968-69 did a very small study on corridors within the Edmonton metropolitan region. As a result of that it came up with three corridors out of the southeast area which were adopted in principle. Beyond that, of course, because the Commission not being, by legislation, able to acquire land or to consider any further action on it, it was a matter of motion to adopt the corridor concept in principle at that time. These three routes were identified but going beyond that again, the pipeline committee and the Commission went on record as setting up general guidelines for other pipelines and other utilities that were in the metropolitan area, that they should generally follow existing rights-of-way and that way we get sort of an accumulative corridor, or to follow quarter section or section lines in order to prevent the fragmentation of land. That is basically what came out of our consideration of this corridor principle in the Edmonton area. One of these routes is at the location of the East-West line, through the mid section line of Section 4 which is $\frac{1}{2}$ mile north of the base line. That was our corridor to the southeast. The Commission is well aware

of the problems of access into the metropolitan area as far as all types of utilities go. On the basis of our legislation, that is as far as we can go. In any conversation we have with pipeline right-of-way buyers, etc., we try to convince them that they should take a particular route which would be an accumulative corridor out of the southeast area.

CC The Department of Highways is doing this ring road study. Are they considering a transportation corridor for utilities along the side of the ring road?

P In connection with the ring road studies around both Calgary and Edmonton, it has evolved that a multi-use corridor would be an ideal and very preferable situation. With that in mind, such a corridor would handle pipelines, powerlines, etc. as well as perhaps many other things that might be needed around major urban centres such as cycling trails, walkways, horse riding paths, snowmobile paths, etc. and perhaps just plain recreation or open space. As far as assisting in this particular study, the only portion of the ring road that is anywhere near this corridor runs perpendicularly to it and consequently there would be a crossing but that would be about all unless it wanted to go out to the North-South line which is a portion of Highways 14, 14X and 16A and then the possible extension of that North-South line northward across

the North Saskatchewan River and get it up into the Highway 15 area where then it could go off. I am not too sure that there is any less resistance in going out in that manner even if you could get across the river to the north than just going due east of Edmonton.

CC

We are making a complete report on this meeting. It might not be entirely verbatim, we will have to edit it somewhat, but as little as possible. It will form one of our publications along with all the public meetings we have had.

We have had a good meeting with good participants.

Meeting adjourned.

SOME UNATTRIBUTED STATEMENTS
INDICATED BY THE MEETING:

The following comments are submitted with respect to the three resolutions presented to the study group on January 22:

1. That the corridor concept is acceptable to the study group.

In general, a utility corridor appears to provide the best use of land with the least disruption to the ecology. Although special attention must be given to spacing between each type of transportation facility. Existing systems have many miles of pipeline parallel and in close proximity to powerlines, natural gas lines, railways and roads with little or no adverse effects.

The support that other facilities in a corridor from McMurray could provide a pipeline should not be underestimated. A highway (in preference to a railway) would not only provide access for construction, but also easy and fast access for servicing and maintaining the facilities after construction. With construction of pipeline pumping stations along the route, the availability of a strong primary source of electric power would permit use of more reliable lower investment electric motors. Communication between pumping station and a central control or dispatching centre is necessary for safe operation of a pipeline; hence, the availability of a high grade telephone or microwave circuit for stations along the route would be very beneficial.

Consequently, we agree with the study group finding that the corridor concept is acceptable ... in fact, preferable in this case due to the undeveloped area to be traversed.

2. That the Central Route is preferred, based on present information.

Evidence presented at the meeting indicates that the least environmental impact and disruption of the social structure would result with the corridor routed via the central route along the existing highway and pipeline. It is likely that another pipeline could be constructed adjacent to the existing pipeline with a minimum amount of additional clearing and grading.

Since a highway and railway exist and are being upgraded to serve the McMurray area well into the future, then these facilities will not likely be duplicated. Therefore, while comparative cost estimates for added facilities in alternative corridors were not presented, the shorter central route likely requires the least capital investment. In addition, the central route now offers better support facilities (road and telephone) for construction and operation of a new pipeline.

Hence, we are in agreement with the majority of the study group that preferred the central route based on present information.

3. That the study should be expanded to include other corridors and end terminals.

Historically, development of the tar sands has been limited by the Alberta Government to preclude undue stress on exploration and production of conventional crude. Having regard to the projected fall-off in conventional crude production, development of the tar sands will likely proceed at least at a pace to maintain the current production level. This will require future construction of one or

more large diameter pipelines out of McMurray to transport the synthetic crude to the established pipeline networks now serving the various market areas east and west of Alberta.

A transportation corridor out of McMurray should be along a route that best serves society. Routing future crude pipelines from McMurray into Edmonton would provide the greatest economic benefit to society.

Preference for terminating new pipelines at Edmonton is based on a desire to utilize existing pipeline facilities for transporting crude out of Alberta. Since crude has a definite value in the market, it is imperative that transportation costs to that market are kept as low as possible; thus providing the highest possible net revenue for oil produced in Alberta.

Investment in Interprovincial's Edmonton terminal is 25 million dollars and includes 4.6 million barrels of storage tank capacity and 26,500 horsepower in mainline pumping stations. The tank farm investment with booster pumps and associated piping is 17 million dollars. Land has been acquired and space is available for additional tanks if necessary, which would permit common use of certain existing tank farm facilities. However, as conventional crude production starts to decline, it is reasonable to expect that tankage facilities would become available for use in synthetic crude service. If a location other than Edmonton is chosen for terminalling crude from McMurray - Strome or Hardisty has been put forward - then available tank farm facilities at Edmonton would have to be duplicated with the attendant waste of capital.

Pumpout of a large volume of synthetic crude into the Inter-provincial system at a location east of Edmonton would also decrease the pipeline load factor upstream to Edmonton. That is, synthetic crudes can be tailor made for individual customers (G.C.O.S. ship three different crude types) and must be pumped separate from other crudes pumped in the pipeline. Therefore, the incoming stream must be effectively stopped while injecting the synthetic crude. The mainline capacity must be maintained at the same level into and out of the new terminal to provide a continuous pumping rate. Consequently, the effective use of mainline capital investment upstream of the new terminal is reduced. In addition, development of a new marshalling area for several different crude types for pumpout into an operating line would appreciably increase operating problems and cost.

A terminal east of Edmonton suggests that the synthetic crude will move eastward. However, markets could develop westward and Trans Mountain Pipe Line Company, Limited could be utilized. Construction of the Alyeska Pipe Line and Prudhoe Bay crude moving into the State of Washington could displace about 250,000 B/D of Alberta crude now pumped via Trans Mountain. This displacement is equivalent to the production of two of the current optimum size synthetic crude plants. Natural growth of the British Columbia market, during the period of conventional crude production decline, could precipitate a need for synthetic crude. The interest shown by the Japanese in the tar sands may result in off-shore shipments which could be shipped via Trans Mountain. Therefore, Edmonton is the logical terminal for routing synthetic crude to the west of Alberta thereby utilizing available facilities in the Trans Mountain Pipe Line system.

Routing the corridor to the east of Alberta in order to serve potential future production from the oil sands in the Cold Lake area is questionable economically. Production from the sands is several years away because a viable extraction process has not been developed to date. Therefore, benefit of the added present cost of a longer route for a corridor via Cold Lake would at best be available sometime in the future. There is considerable doubt that Cold Lake synthetic crude would utilize the same pipeline as McMurray production due to the economics of line sizing and the probably necessary segregation of crude types.

The present industrial complex in the Edmonton area together with expected new plants may in the long range picture required servicing with a special synthetic crude produced in the tar sands area. Routing the main pipeline to Edmonton however, would not preclude the possibility of serving possible new industries along the corridor remote from Edmonton via small take-off delivery lines.

Basically all I can do is reaffirm the statements that I made at the meeting and these are:

1. On the basis of the study and the recommendations presented in the past few meetings the central corridor seems to be the only sensible route, not only environmentally but economically speaking.
2. A decision should be made in the very near future as to the route to be adopted since some companies are already preparing proposals for lines in and out of the area.

3. I think that the study of alternate terminals are not necessary at this time because of the capacity of the existing system.
4. It seems obvious to me that separate studies will have to be set up for corridors to serve the Peace River area as well as the Cold Lake area.
5. I would also like to recommend that an agency made up of industry and government be set up to acquire a corridor in the Edmonton and Fort McMurray areas as soon as possible. Any delay at this time will only increase the cost.

I believe you have taken a most satisfactory method towards the resolution of a very large and important industry in this province. The method of contributions by all people concerned is most important.

It would appear to me that the route of the corridor is of little direct economic value to the communities it would pass through. Therefore, taking all the other factors into consideration, the most economic route for the corridor would seem to me to be the one to take. I think it is important to keep uppermost in this kind of decision, the common factor of doing all that is possible to provide and retain industry within the Province of Alberta.

Believe that your three statement summary assessment of the views at that meeting were very accurate being briefly:

1. That there was general agreement that the corridor concept is good.
2. Based upon the work done to date, the central route seems most practical.

3. That there was quite wide support by the delegates for extending the terms of reference for the study to permit a more thorough investigation of the primary and secondary benefits of the eastern route.

The significant indecision that came out of the meeting pertained to the last point - whether or not more study is required to determine if the east location could compete with the central route. Some of the residents representing the eastern areas did a remarkable job of finding reasons why the eastern route would be better, however most of the reasons could be categorized into secondary benefits which would result in the area because of the activity during construction and what would be left after construction, such as access roads.

I personally subscribe to the view voiced by a few at the meeting - if there is a significant initial capital and subsequently operational cost saving for the central route - the amount of that saving, if flowed into the eastern region in direct public benefit projects would do more good than the secondary benefits that would result from simply spending money putting more pipe into the ground. The problem for that eastern group is that such savings would not be replaced by equivalent spending in that area, however, from a provincial or perhaps national view that thinking would prevail.

It would seem to me that your firm, with the knowledge you have gained throughout this study, coupled with some input from others like A.P.L. could roughly estimate the total cost differential between the two basic schemes and that alone may be sufficient additional study to decide that no further work is warranted.

The study was most interesting and informative. However, it surprised me to hear so much argument against the centre corridor, after what I felt was a very good survey taken by knowledgeable persons or groups.

It seems to me that the arguments presented against the centre corridor, were made by people, either not too familiar with the northern part of the area, or those with biased opinions.

I have been to McMurray three times and have noted the difficulty encountered in road construction. With the population so sparse, I see little need for a second railway or the construction of a new highway in the near future.

Let us make full use of what we have, and as soon as we can.

Further to my comments expressed during the study group meetings on Jan. 21 and 22, I wish to confirm my position on two of the specific questions raised, namely:

1. In regard to the corridor concept, I wish to confirm my general agreement to this idea, particularly as it applies to power and pipe transmission lines between the Athabasca Tar Sands and Edmonton.

I confess to a general concern against the concept based on the strategic vulnerability of such a facility. On a one-time basis,

this concern is not valid. If the idea becomes general, I do not think that it would be in the best interests of our country in a time of war or in a time of overt terrorism, however, to have all of our transmission lines located in corridor type facilities, the minimal risk of such events discount my concern somewhat.

2. In regard to the suggested location for the Fort McMurray-Edmonton corridor, I wish to confirm my agreement with the so-called central route with the understanding that the choice is being made on the basis of environmental impact and obvious economic considerations only.

I also wish to reiterate my view that the Study Group should seek to expand the scope of this study. The increased scope should include a cost-benefit analysis of the corridor with regard to its effect on the communities located along each of the proposed routes. This analysis should also include the impact of locating terminal facilities somewhere other than in Edmonton.

During the meeting that the Study Group held here in Fort Saskatchewan and again at the recent meeting in Edmonton, concern was continually expressed by our rural citizens about the past methods employed to gain rights-of-way for pipeline and other transmission facilities. I believe that your Study Group has heard the many sides of this question and I hope that you will address yourselves to this problem and make clear-cut recommendations on the method that should be employed to obtain rights-of-way for the proposed corridor. This appears to be such an over-

riding issue that it seems pertinent to state the terms and methods to be used prior to actual accumulation. It is also apparent that the resulting proposals should be subject to public debate for refinement and clarification if such is deemed necessary.

I recognize that this latter point is not clearly within the Study Groups terms of reference; however, it is my belief that this function is clearly part of any corridor concept. In my view, this problem has been the only public concern expressed against the corridor concept and it must be dealt with in a forthright manner.

It is my personal opinion that the study made on all routes were most extensive. The opinions of the professional groups were used to bring all their separate side roads to the best highway suggested.

There was a great deal of pressure brought to bare from several groups lobbying for the eastern route. After you have used the best brains available on a thorough and expensive study, I believe it is up to them to back up their human desires with facts as to what concrete and long term benefit this corridor would have on the areas concerned.

I attended your meeting in Edmonton on January 21 and 22 and thought it was a very good meeting. I made a few comments which I am stating in this letter.

As I mentioned at the meeting, the farmers in this area have no objections to the pipeline or the corridor going across their property as long as they are compensated for the damage during construction and after the construction if it is cleaned up properly and everyone is paid equally on the basis of the line going through cultivated land and a different price on uncultivated land.

I have the present GCOS line going across three quarters of mine and the Alberta Gas Trunk Line going across two. I encountered no problem with the AGTL line and the GCOS line was there when I acquired the property but the former owner didn't seem to have too much objection.

My opinion would be that a corridor should be established so all lines would be on the same right-of-way regardless of what the width may be. Also I would like to see the owner own the land and get paid for the right-of-way during construction so he could continue to farm it after the construction is completed. As before this would help keep it weed free and give it some protection from ground fires etc.

The Central Route should be followed as most everybody at the meeting agreed because of the following:

- a) Highway 46 and 63 are already well built and almost paved.
- b) There is an oil line already in that vicinity.
- c) AGT has their telephone towers already built in that vicinity and a line of communications has been established.

- d) It is the shortest and most direct route.
- e) Right-of-way has already been surveyed and there is an established GCOS line.

THREE ROUTES DEBATED FOR ATHABASCA OIL
Tuesday, January 22, 1974 (Edmonton Journal)

Representatives of three eastern Alberta towns Monday urged that an energy corridor from the Athabasca oil sands to Edmonton be used to open up isolated parts of northeastern Alberta.

The Alberta environment department has commissioned a study of the concept of placing pipelines and powerlines in common corridors which might also include road and rail links with the oil sands area.

At a seminar here Monday, 50 representatives of communities, farm groups, wildlife groups, pipeline and power companies affected by the corridor proposal began thrashing out possible routes.

A western route would head due north of Edmonton while a central route would roughly parallel Highway 63 and an eastern route would roughly parallel the Northern Alberta Railway to Fort McMurray.

Representatives of the towns of Smoky Lake, Lac La Biche and Vegreville argued that the eastern route, which would require new service roads, would give several isolated northeastern Alberta residents their first road links to the south.

It would also open up a large new tourist area south and east of Fort McMurray.

But for environmental reasons, consultants stated that the eastern route is undesirable.

The best route on environmental grounds is the central route which would have the least impact on fish and wildlife, disturb the fewest streams and rivers, and pose the least erosion problems.

A team of town planners also warned that the development of a new road system near the eastern or railway route, could "upset, undermine or perhaps wipe out" the "fragile" social structure of existing communities.

Seminar organizers hoped to reach a consensus on the best route today.

Ownership and operation of the corridor has not been decided, but a legal consultant recommended that the land be purchased and operated condominium-fashion, with a minimum of direct government control.

Ron Swist, an Edmonton lawyer, said that under such a system participating pipeline and powerline companies would own their right-of-way and elect directors to a board of management.

There could be a common inspection team and a common group of land buyers and other officials to deal with farmers and other land-owners.

Spokesmen for pipeline and powerline companies indicated they could live with the requirement for a common corridor, although some technical hitches would have to be worked out.

A highways department spokesman said highways and pipelines are the most compatible while the addition of powerlines to a corridor could cause esthetic problems and cause radio transmission interference.

Railways and highways are the least compatible, mainly because of the high frequency of accidents that would result.

For motorists there might be the additional nuisance of almost constant construction within the corridor, and resulting tie-ups on the highway.

SEMINAR DIVIDED OVER ROUTE FOR
SANDS "ENERGY CORRIDOR"
Wednesday, January 23, 1974 (Edmonton Journal)

An eastern Alberta route for a combined pipeline-powerline "energy corridor" from the Athabasca oil sands remained in contention Tuesday at the end of a two-day seminar on the concept.

In a study being conducted for the Alberta environment department, the Edmonton firm of Stewart, Weir, Stewart, Watson & Heinrichs had identified three possible routes for a corridor from Edmonton to Fort McMurray.

A westerly route would move due north of Edmonton while a central route would roughly follow Highway 63 and the eastern route would roughly parallel the Northern Alberta Railway.

For environmental, engineering, and economic reasons, the central route is the most favorable.

But delegates from the towns of Smoky Lake, Lac La Biche, and Vegreville argued that use of the central route would isolate their areas from the benefits of opening up the oil sands area. Consultants promised to give the proposal more study.

Vic Laventure, mayor of Lac La Biche, noted that gas from his area is being pumped north to serve the oil sands. Over 100 families left the Lac La Biche area to work at the Great Canadian Oil Sands plant.

"They not only take way our natural resources, they also take away our people resources," he said.

If the central route is selected instead of the eastern route, it is probable that oil sands development benefits will bypass the eastern Alberta area.

While a central route might be most economic now, it will bypass the oil sands areas due south of Fort McMurray and in the Cold Lake area. New pipelines might have to serve these areas at needlessly higher cost in the future, he said.

Advocates of the eastern route also argued that it might be necessary in future to bypass the Edmonton area as the gathering point for oil sands oil. In that case, the eastern route could prove most economic.

Delegates at the seminar gave unanimous agreement to the corridor concept, if not to possible routes.

The reason for grouping pipelines, powerlines and possibly highways and railways in a common corridor is to minimize environmental disruption and land use problems.

While some technical hitches could result from placing facilities in close proximity, the concept is workable, stated representatives of oil, pipeline and power companies.

But it was pointed out the eastern route could cost \$20 million more in additional pipeline costs than the shorter central route.

An official of Interprovincial Pipe Line Co. stated that in the foreseeable future, Edmonton will remain the logical marshalling point for oil sands oil.

Support for the central route was also indicated by Alberta Government Telephones and by Syncrude Canada Ltd., the firm which is now preparing to construct the second plant in the Athabasca oil sands area.

1. The need for regulations dealing with security as a portion of legislation covering the construction of the proposed corridor is a real one. It is felt that these regulations should set minimum standards for lighting, fencing, signing, safety equipment, locks and related hardware, doors, and windows for the permanent structures on the route (i.e. pump houses, gate valves, maintenance yards).
2. The policing requirement as it relates to the corridor study is based on three phases:
 - (a) Police service during construction,
 - (b) Increased police service due to the increase in population/industry caused by the corridor, and
 - (c) Security of the corridor from attack by the human element (i.e. dissident groups, disgruntled employees).
3. The concepts of (a) and (b) are dealt with as they appear with assistance from projections such as those put forth in your report. Security of the corridor as envisioned under (c) is a joint responsibility for the operating companies and the police. As it relates to National and Provincial security the requirement is higher, however, the basic input must be in the physical security arrangements built into the system.
4. Of the three studies proposed, and if only dealing with the pipeline and hydro aspect, it must be pointed out that the west route has one built-in advantage for security; that is, its comparative isolation from human habitation.

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